Corrigendum - 2 dated 19/01/2026 to CPC Tender No. BHEL/CPC/ KRB/ M_BAL_FGD/26/072

Name of Work: Erection, Testing & Assistance for commissioning and Trial Operation of Balance Stage-II (Unit # 6) FGD System, Booster fans and its accessories, ducting from booster fan inlet gate to new chimney including duct supporting structure, Absorber & its accessories, Absorber Structure, JAS System, Mist Eliminator, Spray Nozzles, Elevator Structure, RC Pump along with motor & RC Shed, Gypsum bleed pump, Emergency Quench system, tanks, Slurry Pump along with motor and accessories, Oxidation blower along with motor and accessories, Valves, agitators, make-up water piping, wet/dry interface washing system, Piping (CS, SS, GI, FRP) for completion of system, Grating, Misc platforms, handrails etc., Application of Thermal Insulation including supply and application of Painting/Touch-up Painting, Collection/ Loading/ Unloading/ Transportation of Materials from BHEL/ Client's Stores/ Storage Yard and transportation to site of and Handing over of Flue Gas Desulphurization System (FGD) at 3X500 MW NTPC Korba, Stage-II, Chhattisgarh, India.

A) Technical Conditions of Contract (TCC): The Following clauses of TCC are revised as below**:**

<table>
<tr><th>Sl. No.</th><th>Clause No.</th><th>Existing in Tender</th><th>Revised As</th></tr>
<tr><td>1</td><td>Heading of T&P list in Chapter-IV</td><td>
<table>
<tr><th>S.N.</th><th>DESCRIPTION OF MAJOR T&Ps</th><th>CAPACITY (Minimum)</th><th>Minimum QUANTITY</th><th>REMARKS</th></tr>
</table>
</td><td>
<table>
<tr><th>S.N.</th><th>DESCRIPTION OF T&Ps</th><th>CAPACITY (Minimum)</th><th>Tentative QUANTITY</th><th>REMARKS</th></tr>
</table>
</td></tr>
<tr><td>2</td><td>Clause no. 6.3.1 of Chapter-VI of TCC</td><td>6.3.1 In case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 hereunder, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14. Intermediate Milestone for tendered Package is given below:
<table>
<tr><th>Milestones</th><th>Activities</th><th>Unit#6</th></tr>
<tr><td>M1</td><td>Absorber & Duct Erection Completion</td><td>12th Month from the date of Start</td></tr>
<tr><td>M2</td><td>Commissioning of the Unit</td><td>14th Month from the date of Start</td></tr>
</table>
</td><td>6.3.1 In case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 hereunder, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14. Intermediate Milestone for tendered Package is given below:
<table>
<tr><th>Milestones</th><th>Activities</th><th>Unit#6</th></tr>
<tr><td>M1</td><td>Absorber & Duct Erection Completion</td><td>12th Month from the date of Start</td></tr>
<tr><td>M2</td><td>Commissioning of FGD system</td><td>14th Month from the date of Start</td></tr>
</table>
</td></tr>
<tr><td>3</td><td>Clause no. 19.5 of Chapter- XIX of TCC</td><td>Emergency Quench Tank lining will be carried out at site. Supply and application of lining is in the scope of BHEL-Ranipet. Manpower assistance for lining of Emergency Quench Tank is in the contractor scope</td><td>Emergency Quench Tank lining will be carried out at site. Supply and application of lining (Epoxy Paint) is in the scope of contractor.</td></tr>
</table>

4	Sl. No. ii of Note in clause 4.1 of Chapter IV in TCC	Agency shall Mobilize / de-mobilize/ re-mobilise the Major T&Ps as per BHEL instruction without any extra cost to BHEL.	Agency shall Mobilize / de-mobilize/ re-mobilise the T&Ps as per BHEL instruction without any extra cost to BHEL.
5	Clause no. 4.2.5 of Chapter-IV in TCC	In the event of need of change of type of any of major T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analysing the production capacity and suitability of both the T&Ps.	In the event of need of change of type of any of T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analysing the production capacity and suitability of both the T&Ps.

B) Drawing of Quenching water tank and specification for Epoxy lining inside Quenching water tank is attached herewith. (Refer Annexure-1)

C) Piping drawings is attached herewith. (Refer Annexure-2)

D) Some of the Bidders sought clarifications in regard to the published tender specification. The clarifications/modifications issued by BHEL are as below:

Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
1	TCC	TCC 2.2.26 (7)	7. Ball Mill System: (excluded from Scope): ▪ Limestone is stored and crushed in Limestone handling area. Crushed Limestone is conveyed till the inlet of Limestone storage silo hoppers. ▪ Numbers/ capacity of storage silo are decided for storage of crushed limestone for 24 hours requirement. ▪ The Limestone storage silo is made up of carbon steel and the hopper cones will be provided with SS lining ▪ Bunker outlet chute with motorized shut off gate will be provided for feeding limestone to the feeder ▪ Gravimetric feeders will be provided under each hopper. ▪ Wet Ball Mill System along with complete accessories will be provided for grinding of Limestone.	As already mentioned in TCC, Ball Mill system is excluded from scope	As already mentioned in TCC, Ball Mill system is excluded from scope

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Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
2	TCC	TCC 2.2.26 (8)	8. Limestone Slurry Storage System: (excluded from Scope) Limestone Slurry tank designed for a storage capacity of 12 hours continuous limestone requirement ▪ The Slurry Tank will be provided with center mounted Agitator ▪ The Slurry Tank will be provided with Limestone slurry pumps	Kindly confirm that all works, activities, and obligations pertaining to the Limestone Slurry Storage System are expressly excluded from the Scope of Work under this contract.	As already mentioned in TCC, Limestone Slurry Storage system is excluded from scope
3	TCC	TCC 2.2.26 (9)	9. Gypsum Dewatering System: (excluded from Scope) ▪ Gypsum dewatering system consisting primary stage of sets of hydro-cyclones and secondary stage of vacuum belt filters for dewatering of Gypsum. ▪ Gypsum bleed pumps from all absorbers, discharge the slurry to Primary hydro cyclone feed tank. Primary hydro cyclone feed pumps will be provided for each primary hydro cyclone feed tank to discharge the slurry to Primary hydro cyclone in Gypsum dewatering building. ▪ The underflow of Primary hydro cyclone is sent to vacuum belt filter. ▪ The overflow of primary hydro cyclones will be fed to Secondary Hydro cyclone feed tank. ▪ For maintenance of secondary hydrocyclone, a bypass line will be provided to divert the flow from primary hydrocyclone over flow to filtrate water tank. ▪ There will be vacuum Belt Filters for Gypsum dewatering. ▪ Secondary Hydro cyclone pumps will feed the slurry from Secondary hydro cyclone feed tank to secondary hydro cyclones. The underflow is fed to the filtrate water tank. The overflow is fed to the waste water tank. ▪ Neutralization tank is provided to control pH of waste water slurry ▪ The Gypsum cake from the belt filter will be discharged to Gypsum storage shed	Kindly confirm that all works, activities, and obligations pertaining to the Gypsum Dewatering System are expressly excluded from the Scope of Work under this contract.	As already mentioned in TCC, Gypsum Dewatering system is excluded from scope

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Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
4	TCC	TCC 4.1 (1)	1.Tyre mounted / mobile crane-40 MT -01 No. {till Erection Completion as decided by BHEL}	a). You are requested to provide the planned deployment period (start and end dates or duration) for each crane proposed for the works. b). In the event of an overstay of these cranes and trailers beyond the original contract period, the monthly hiring charges shall be borne by M/s BHEL at the prevailing market rate on a monthly basis until the equipment is demobilized from the site.	a) Tender Condition shall prevail. b) Bidder's proposal is not acceptable. Tender condition shall prevail.
5	TCC	TCC 4.1 (2)	2.Pick & carry type tyre mounted mobile crane.-25 MT - 02 No. {till Erection Completion as decided by BHEL}	a). Kindly provide details of the proposed deployment period for each crane and trailer, including mobilization and demobilization dates or duration of deployment, envisaged for execution of the works. b). Due to restricted crane access, limited maneuvering space, and the size and weight of the ducts, approximately 50% of the ductwork cannot be pre-assembled and shall be executed through panel-by-panel erection.So only one crane of 25MT is sufficient to carry out the Scope mentioned.	a) Tender condition shall prevail. B) Tender condition shall prevail
6	TCC	TCC 4.1 (3)	3.Pick & carry type tyre mounted mobile crane. -20 MT - 02 No. {till Erection Completion as decided by BHEL}	1).Kindly provide details of the proposed deployment period for each crane and trailer, including mobilization and demobilization dates or duration of deployment, envisaged for execution of the works. 2). Based on our previous execution experience in erection works, tyre-mounted mobile cranes of 20 MT capacity (02 Nos.) are generally not optimally utilized for such activities. Accordingly, we request M/s BHEL to kindly consider, in lieu of the above cranes, increasing the quantity of 10/12/14 MT capacity tyre-mounted mobile cranes to Two (02) numbers, which would be better aligned with actual	1. Tender condition shall prevail. 2.Tender condition shall prevail. However, capacity of Crane/ Farana is changed to 18/20 MT

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Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
				site requirements and improve equipment utilization.	
7	TCC	TCC 4.1 (6)	6.Trailer with prime mover-40MT As required	Trailer with prime mover 40 MT is not required for this scope of work; kindly remove it from the proposed scope as 20 Ton Trailer is adequate for successful execution.	Tender condition shall prevail.
8	TCC	TCC 4.1 (61)	61.Man lifter for bolted structure bolt tightening and other misc height works- As required To be deployed as per instruction of BHEL Engineer	a).Its usage is expected to be minimal in the FGD and duct areas and will be required only for tightening of bolts in the bottom structures and associated members of the FGD and ducts. Accordingly, providing the said equipment on hire at a monthly rental of INR 3,00,000 to INR 4,00,000 is not justified for the limited scope of work and would unnecessarily increase the overall project cost. Kindly remove it from the proposed scope. b). Further, while it is stated that the Manlifter shall be deployed as per the instructions of the BHEL Engineer, there is a possibility that BHEL may direct deployment of the equipment at site. In such an event, the Vendor would be required to mobilize the necessary resources accordingly, which may have additional cost and logistical implications. We therefore request that this aspect may kindly be reviewed and clarified to avoid any potential ambiguity.	a) Tender condition shall prevail. B) Tender condition shall prevail
9	TCC	TCC 4.1 (65)	Painting equipment sets complete with compressor, hopper, screen, blasting hose pipe, nozzle airless / conventional spray (within CGI temporary cover shed) - As required To be deployed as per instruction of BHEL Engineer	As per Chapter XVI – Painting of the TCC, all structures and components shall be supplied from BHEL units/workshops with the final finish coat of paint. Only touch-up painting is within the scope of the Vendor. Accordingly, the Vendor shall make necessary arrangements for touch-up painting at site.	Tender condition shall prevail. Bidder's understanding regarding painting is not correct. Bidders are requested to read complete Scope of painting mentioned in Chapter -XVI of TCC.

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Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
				If it is stated that the setup shall be deployed as per the instructions of the BHEL Engineer, there is a possibility that BHEL may instruct the Vendor to carry out touch-up painting at site, in which case the Vendor shall arrange the required setup and resources accordingly.	
10	TCC	TCC 5.1 (2)	Industrial Air Blower and accessories with power cable-20,000 m3 /hr {For ATT of ducts}	In the FGD scope, high-capacity air compressors/blowers (electric or diesel) of 210 CFM at 7 kg/cm² are not required. Cleaning of the bottom column foundation pockets prior to grouting shall be carried out using hand-operated blowers.	Tender condition shall prevail.
11	TCC	TCC 4.2.9	4.2.9 . If the work related to T & Ps mentioned above is completed then, BHEL can release that T&P during contract period / extended period (if any). However, written permission shall be taken by contractor from BHEL Construction Manager and gate pass formalities shall be followed by the contractor for releasing the T&P.	It has been observed that M/s BHEL requires original documents and bills for all deployed T&Ps at the time of issuing the exit gate pass. Arranging these after such a long duration is challenging. It would be more feasible to release the gate pass upon verification of the entry documents.	T&Ps shall be released as per gate pass procedure finalised at site by BHEL/Customer.
12	TCC	TCC 2.2.15	2.2.15 The storage yard may be located within the plant boundary or outside of the plant boundary. All materials have to be transported from storage yard to construction area by the contractor at his own cost.	Kindly confirm whether the Storage Yard and Material Yard are located within the Plant boundary or outside the Plant boundary.	Bidders to note that Storage yard is located at outside the plant boundary (within 3 Kms from site) wherein majority of materials are stored. Further balance materials are stored inside project premises.
13	TCC	TCC 15.7	15.7 It is the responsibility of the contractor to ensure that the insulation materials and sheet metal covering issued to him for application are well protected against loss or damage from weather conditions. Closed/ semi-closed sheds or any other arrangements required for this will by him at his cost. If any damage occurs to the material due to improper storage or due to any causes attributable to the contractor except for normal breakage or damages allowed in such cases, the cost of such damaged material shall be to the account of contractor.	Kindly confirm whether M/s BHEL has provided closed or semi-closed sheds for storage of insulation materials. We understand that, at site, it is the responsibility of the vendor to ensure the safety of insulation materials, including covering them with tarpaulin as required.	Tender condition shall prevail.

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Sl. No.	Reference Tender Document	Reference clause	Existing Provision	Bidder's query	BHEL's Clarification
14	TCC	TCC 16.2	16.2 For Structure/ components: All structures/components shall be supplied from BHEL units/ workshops with the finish coat of paint. However, due to aging, the same may have got deteriorated for peeled off or in case any shop painted structure/component is required to be repainted due to the reasons attributable to the contractor or otherwise such as Mis-handling, damage during erection process/storage, other reasons incidental to the work etc, such re-painting/finish painting of the components/structures shall be in the scope of the contractor including the supply of paints and primers along with all required consumables & deployment of tools e.g wire brush, paint brush, Spray M/c, cleaning agents etc. In such cases, the surfaces are to be thoroughly cleaned of all dirt, rust, scales, grease, oils and other foreign materials by wire brushing, scrapping, any other method as per requirement of BHEL. The same will be inspected and approved by the engineer before painting.	As per Clause 7 (Terms of Payment) of the TCC, {7.1.2.8 Painting 3%} in PART- A - FRESH WORK ITEMS & PART- B - BALANCE WORK ITEMS Each 3% of the Contract Value (CV) is earmarked under the Painting head. However, as per the scope of work, final painting is excluded and only touch-up painting is included in the vendor's scope. In view of the above, kindly clarify the applicable payment methodology for this item. We understand that payment shall be released on a prorated basis corresponding to the actual tonnage erected. Kindly confirm this understanding. Further, to ensure smooth cash flow during execution and to avoid any future ambiguity, we request M/s BHEL to confirm whether payment under this head shall be regulated on a per-ton basis.	Tender condition shall prevail. Bidder understanding regarding scope of painting is not correct. Bidder is advised to read complete Scope of painting as mentioned in Chapter -XVI of TCC.
15	TCC	TCC 9.1	**9.0 Bill of Quantity: Summary of Weight of BOQ under the Scope:** **9.1 Part-A – Fresh Work Items:** Sr no | Description | UOM | Rate Schedule identifier | Unit#6 Tonnage 1 | Structure | MT | 1A | 2,552.15 2 | Non-Pressure Parts (Ducts/Absrober/Alloy ducts etc.) | MT | 2A | 4,358.72 3 | Rotary Machines | MT | 3A | 268.31 4 | Piping/ Valves/ Hanger & Supports | MT | 4A | 229.07 5 | Insulation/Sheeting 5.1 | Wool Mattress | MT | 5A | 237.40 5.2 | Iron Parts | MT | 5B | 108.43 5.3 | Sheeting (Insulation/ Structure) | MT | 5C | 75.22 Total | 7,829.30	Kindly provide the nos of Joints in Piping for CS, SS, and GI. If EWS is available please provide the same.	Bidder to use past experience. Bidders may also refer sample drawings of piping issued with this corrigendum for refernce and assessment of number of joints. However, actual number of joints shall be made available during execution of job.

16	TCC		ESIC	Is ESIC applicable to this project? Please confirm.	Applicable.

Note:

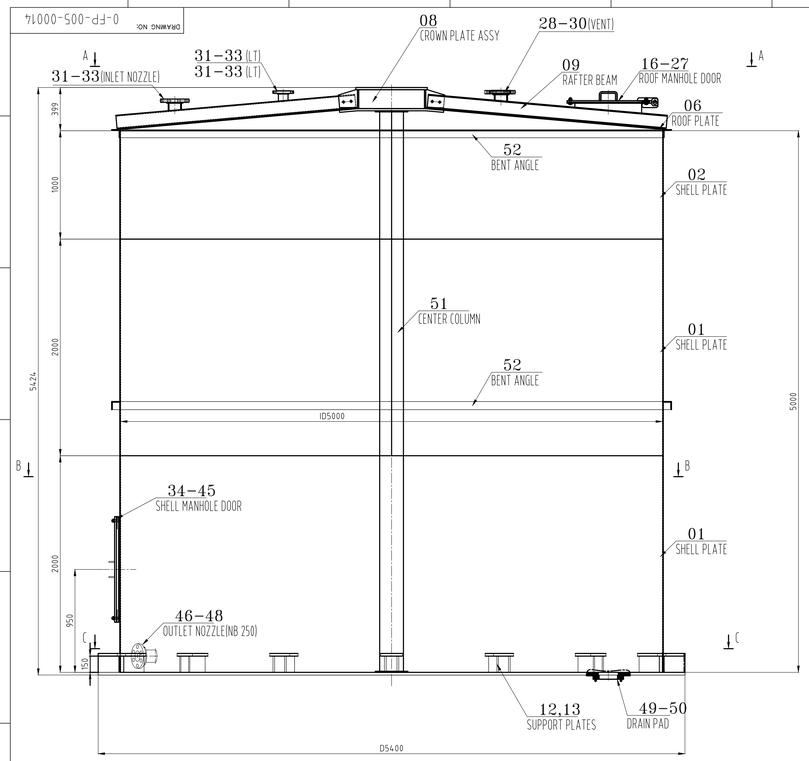
1) **All other terms and conditions against this NIT shall remain unchanged.**
2) **This corrigendum is to be submitted duly signed and stamped along with the Techno-commercial bid (Part- I).**

for BHARAT HEAVY ELECTRICALS LTD
Manager/ SCT- CPC

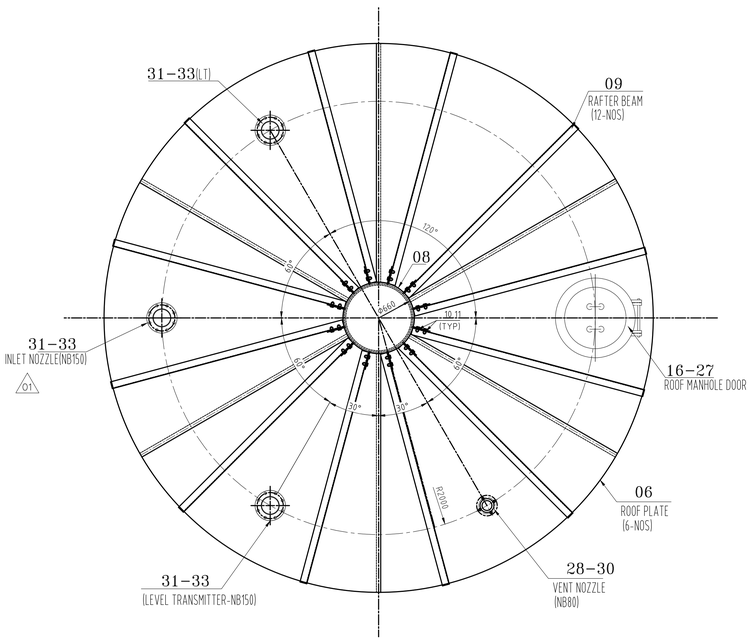
ANNEXURE-1

Drawing of Quenching water tank and specification for Epoxy lining inside Quenching water tank

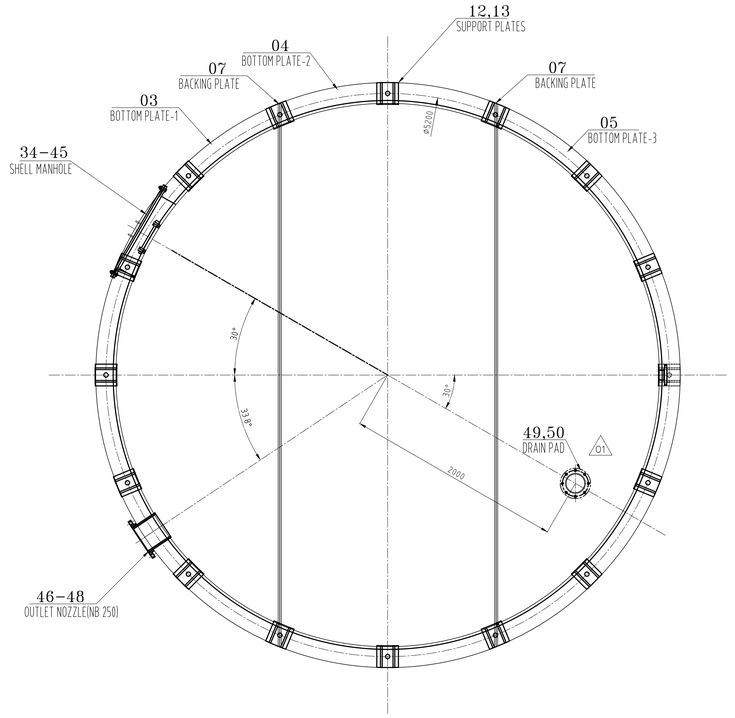
DRAWING NO. 0-FP-005-00014



ELEVATION



VIEW–AA



SECTION–BB

DESIGN DATA

DESIGN CODE	-	IS:803
STORAGE PRODUCT	-	EMERGENCY QUENCH WATER
TANK CAPACITY (HOLD VOLUMNE)	M3	88.3
TANK CAPACITY (EFFECTIVE)	M3	84.4
TYPE OF TANK	-	VERTICAL CYLINDRICAL FIXED CONE ROOF
ROOF SLOPE	-	5°
DESIGN PRESSURE	-	HYDROSTATIC HEAD
OPERATING PRESSURE	-	ATMOSPHERIC
OPERATING TEMPERATURE	°C	ATMOSPHERIC
SPECIFIC GRAVITY	-	0.997
HYDOR TESTING	-	WATER FILLED HEAD UPTO OVER FLOW NOZZLE
JOINT EFFECIENCY	-	0.7
RADIOGRAPHY	-	NO APPLICABLE
CORROSION ALLOWANCE	MM	1.5MM FOR SHELL AND BOTTOM PLATE
DIAMETER (I.D)	MM	5000
HEIGHT	MM	5000
ROOF PLATE THICKNESS	MM	8
SHELL PLATE THICKNESS	MM	8
BOTTOM PLATE THICKNESS	MM	25
INSULATION	-	NOT APPLICABLE
INSIDE LINING	-	EPOXY PAINTING

NOTES:

1. ALL DIMENSIONS ARE IN MM, UNLESS SPECIFIED.
2. FOR LOCATION REFER ABSORBER GA DRAWING.
3. ALL PROTRUSIONS, SHARP EDGES AND SPATTER, ETC. SHALL BE REMOVED FROM THE SURFACE AND ALL WELDS GROUND SMOOTH WITHOUT ANY CAVITIES AND IMPERFECTION BEFORE LINING.
4. HYDRO TEST SHALL BE AS PER IS803. LINING SHALL BE CARRIED-OUT AFTER HYDRO TEST.
5. BOTTOM PLATE SHALL UNIFORMLY REST ON THE FOUNDATION
6. THE MINIMUM SIZE OF WELD SHALL BE EQUAL TO THE THICKNESS OF THINNER MEMBER JOINT UNLESS SPECIFIED OTHERWISE.
7. REFER 1-FP-005-00025 DRAWING FOR ROOF MANHOLE WELDING DETAILS.
8. REFER 3-FP-005-00006 DRAWING FOR VENT NOZZLE (NB80) WELDING DETAILS.
9. REFER 3-FP-005-00004 DRAWING FOR INLET NOZZLE (NB150) AND LEVEL TRANSMITTER (NB150) WELDING DETAILS.
10. REFER 1-FP-005-00024 DRAWING FOR SHELL MANHOLE WELDING DETAILS.
11. REFER 2-FP-005-00006 DRAWING FOR OUTLET NOZZLE (NB 250) WELDING DETAILS.
12. REFER 3-FP-005-00007 DRAWING FOR DRAIN PAD WELDING DETAILS.
13. READ THIS DRAWING ALONG WITH 0-FP-005-00015.

DI NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/R DI	UNIT / QUANTITY	UNIT WEIGHT	GS ZONE
	52	BENT ANGLE 75 X 75 X 6 3995.4 LONG		3-FP-005-00010		150130050000			27.160	
						IS2062GRA			8	
	51	CENTER COLUMN		3-FP-005-00008	01				381.600	
						WELDMENT			1	
	50	THREADED ROD M20 X 2; 68.8 LONG		3-FP-005-00007	02	150393430000			0.160	
						SA105			8	
	49	FLANGE Ø280; 32 THK		3-FP-005-00007	01	150111240000			9.010	
						IS2062GRB			1	
	48	COMPENSATION PAD		2-FP-005-00006	03	150110270000			7.700	
						IS2062GRA			2	
	47	NOZZLE PIPE Ø273 X 16		2-FP-005-00006	02	150822366500			25.040	
						SA106GRB			1	
	46	FLANGE Ø406; 49.5 THK		2-FP-005-00006	01	150112160000			16.440	
						IS2062GRB			1	
	45	ROD D6		1-FP-005-00024		150040020000			0.008	
					12	IS2062GRA			1	
	44	NUT M16		1-FP-005-00024		413040001600			0.030	
					11				28	
	43	BOLT M16 X 60		1-FP-005-00024		412211606000			0.123	
					10				28	
	42	WASHER D40		1-FP-005-00024		150111820000			0.022	
					09	IS1079 Gr HR2			1	
	41	PIN D40		1-FP-005-00024		1533914.10000			1.000	
					08	SA105			1	
	40	HINGE PLATE		1-FP-005-00024		150110260000			1.270	
					07	IS2062GRA			2	
	39	HINGE PLATE		1-FP-005-00024		150110260000			1.000	
					06	IS2062GRA			2	
	38	COMPENSATION PAD		1-FP-005-00024		150110270000			72.978	
					05	IS2062GRA			2	
	37	NECK PLATE 10 THK		1-FP-005-00024		152110980000			45.738	
					04	IS2062GRA			1	
	36	GASKET		1-FP-005-00024		220300150000			1.550	
					03				2	
	35	FLANGE PLATE		1-FP-005-00024					34.160	
					02	WELDMENT			1	
	34	COVER PLATE		1-FP-005-00024					93.140	
					01	WELDMENT			1	
	33	COMPENSATION PAD 8 X 178.3 X 356.6		3-FP-005-00004	03	150110270000			2.390	
						IS2062GRA			6	
	32	NOZZLE PIPE Ø168.3 X 14.27 219 LONG		3-FP-005-00004	02	150823830000			11.860	
						SA106GRB			3	
	31	FLANGE Ø279; 39.5 THK		3-FP-005-00004	01	150119850000			7.420	
						IS2062GRB			3	
	30	COMPENSATION PAD 8 X 100 X 200		3-FP-005-00006	03	150110270000			0.780	
						IS2062GRA			2	
	29	NOZZLE PIPE Ø88.9 X 11.13 200 LONG		3-FP-005-00006	02	151821340000			4.270	
						SA106GRB			1	
	28	FLANGE Ø190; 29.5 THK		3-FP-005-00006	01	150111300000			3.840	
						IS2062GRB			1	
	27	ROD D6		1-FP-005-00025		150040020000			0.008	
					12	IS2062GRA			1	
	26	NUT -M16		1-FP-005-00025		413040001600			0.030	
					11				28	
	25	BOLT-M16X60		1-FP-005-00025		412211606000			0.123	
					10				28	
	24	WASHER D40		1-FP-005-00025		150111820000			0.022	
					09	IS1079			1	
	23	PIN D40		1-FP-005-00025		1533914.10000			0.800	
					08	SA105			1	
	22	HINGE PLATE		1-FP-005-00025		150110260000			0.980	
					07	IS2062GRA			2	
	21	HINGE PLATE		1-FP-005-00025		150110260000			0.840	
					06	IS2062GRA			2	
	20	COMPENSATION PAD		1-FP-005-00025		150110270000			14.150	
					05	IS2062GRA			4	
	19	NECK PLATE 8 THK		1-FP-005-00025		150110270000			27.460	
					04	IS2062GRA			1	
	18	GASKET		1-FP-005-00025		220300150000			0.840	
					03				2	
	17	FLANGE PLATE		1-FP-005-00025					2.890	
					02	WELDMENT			1	
	16	COVER PLATE		1-FP-005-00025					36.040	
					01	WELDMENT			1	
	15	NUT -M36x3				413043003600			0.396	
									12	
	14	BOLT-M36X3		3-FP-005-00012		1503914.40000			2.900	
						SA105			16	
	13	SUPPORT PLATE (SP-2)		3-FP-005-00009		150110260000			3.760	
					02	IS2062GRA			32	
	12	SUPPORT PLATE (SP-1)		3-FP-005-00009		150110820000			7.290	
					01	IS2062GRB			16	
	11	NUT -M16				413040001600			0.030	
									24	
	10	BOLT-M16X60				412211606000			0.123	
									24	
	09	RAFTER BEAM		3-FP-005-00011		150100020000			28.990	
						IS2062GRA			12	
	08	CROWN PLATE ASSY		2-FP-005-00005					222.170	
						WELDMENT			1	
	07	BACKING PLATE 6 X 50 X 5200		0-FP-005-00008		152110920000			12.240	
					07	IS2062GRA			2	
	06	ROOF PLATE (RP-1) 8 X 2267.4 X 2568.8		0-FP-005-00008		150110270000			213.820	
					06	IS2062GRA			6	
	05	BOTTOM PLATE (BP-3) 25 X 1698.5 X 5014.8		0-FP-005-00008		150110820000			1210.800	
					05	IS2062GRB			1	
	04	BOTTOM PLATE (BP-2) 25 X 1997.5 X 5400		0-FP-005-00008		150110820000			2067.040	
					04	IS2062GRB			1	
	03	BOTTOM PLATE (BP-1) 25 X 1698.5X 5014.8		0-FP-005-00008		150110820000			1210.800	
					03	IS2062GRB			1	
	02	SHELL PLATE-2		0-FP-005-00008					674.320	
					02				2	
	01	SHELL PLATE-1		0-FP-005-00008					1178.830	
					01	WELDMENT			4	

DRAIN PAD (QTY. 1 NO.)
OUTLET NOZZLE (NB250) (QTY. 1 NO.)
SHELL MANHOLE DOOR (QTY. 1 NO.)
INLET NOZZLE (NB150) (QTY. 1 NO.) LEVEL TRANSMITTER (NB150) (QTY. 2 NO.)
VENT NOZZLE (NB80) (QTY. 1 NO.)
ROOF MANHOLE DOOR (QTY. 1 NO.)

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

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

	NAME	SIGNATURE	DATE
DRN	SHEEBA S		20.04.2025
CHD	SAIKUMAR		21.04.2025
APPD	NIRMAL RAJ		21.04.2025

355–052

DEPT 99 | CODE 101 | PROJECTION | ALL DIMENSIONS ARE IN MM | SCALE N.T.S | WEIGHT (Kg) --- | REF TO ASSY / OLD DWG

TITLE: ARRANGEMENT OF EMERGENCY QUENCHING WATER TANK

DRAWING NO : 0-FP-005-00014 | REV 01

REV	DATE	ALTERED : SHEEBA S.
01	09.06.25	CHD & APPD : R.SAI KUMAR
ZONE	LOCATION OF INLET NOZZLE (31-33) AND DRAIN NOZZLE (49,50) CHANGED.	

1. **PRODUCT DESCRIPTION:**
    a. Solvent free High Solid Epoxy anticorrosive coating
    b. Suitable for Steel Tank Lining with excellent chemical, acid and alkali resistance
    c. To be used as self primer, mid coat and also finish coat

2. **TYPICAL USE:**
    a. Coating inner surface of the water tanks
    b. Medium: Cooling Tower Blow Down Water / Clarified water
        i. pH: 7 to 8.5
        ii. TDS: ~ 3000 ppm (Max)
        iii. Cl : ~ 500 ppm (Max)
3. **COLOUR:**
    a. White/Light grey

4. **PRODUCT DATA:**
    a. Solids by Volume - 90% (min)
    b. Dry Film Thickness - 50 to 80 µm per coat
    c. Temp resistance – 75 Deg C (Continuous –Immersed)

5. **SURFACE PREPARATION:**
    a. SA 2.5

6. **APPLICATION:**
    a. By Airless spray or roller or brush
    b. Primer - One (01) coat of 50 to 80 µm
    c. Intermediate coat - One (01) coat of 50 to 80 µm
    d. Finish Coat - One (01) coat of 50 to 80 µm
    e. Total DFT – 150 µm (min) with 3 coats

7. **SHELF LIFE:**
    a. 12 months

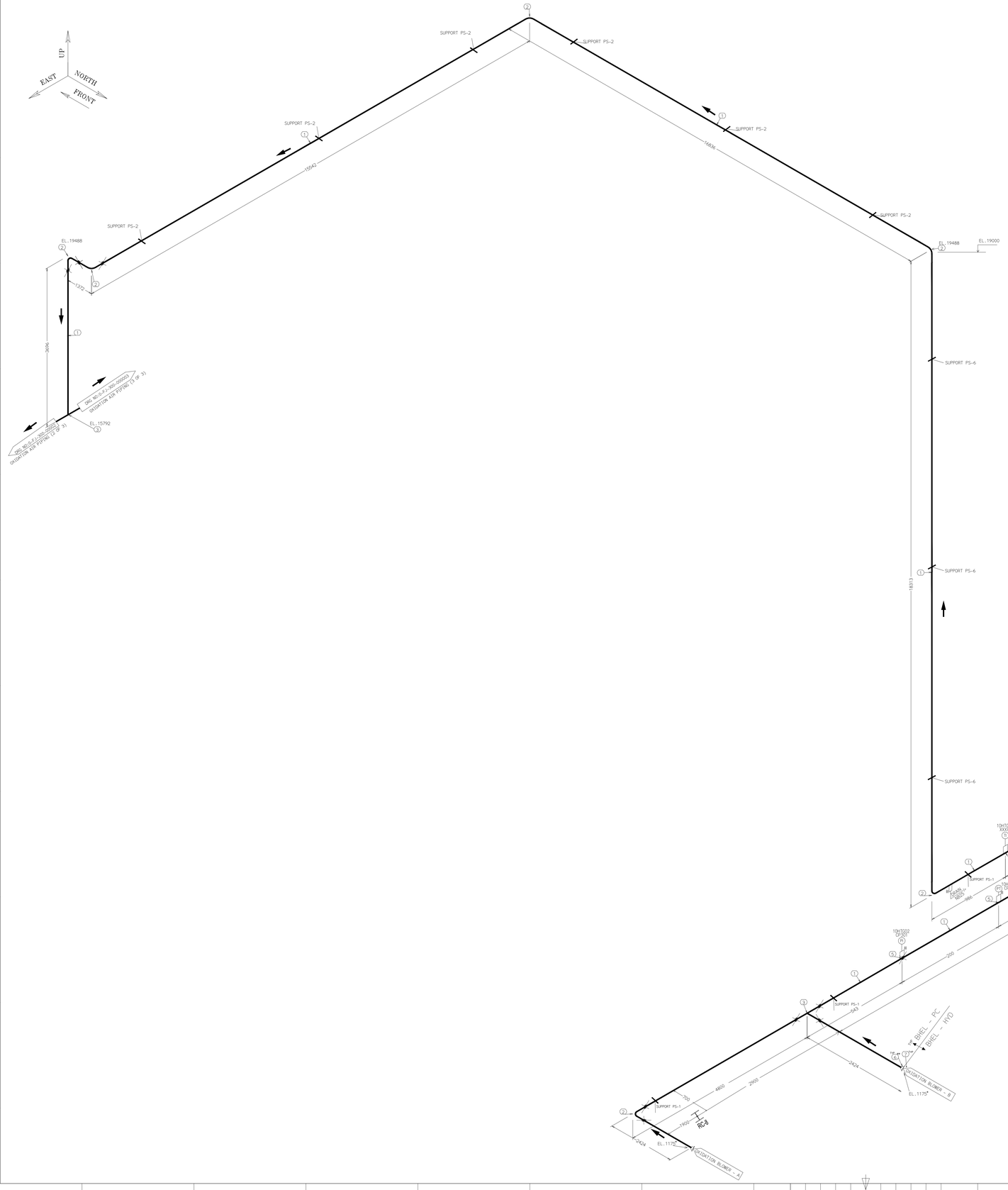
8. **TEST CERTIFICATES FOR CORROSION RESISTANCE TO BE SUBMITTED**
    a. Salt Spray Test
    b. Water permeability Test

9. **RECOMMENDED VENDORS (Only for reference)**
    a. DEMECH
    b. JOTUN
    c. CHEMECOAT PAINTS

ANNEXURE-2

Piping drawings

DRAWING NO: 0-FJ-300-00001



NOTES:

1. DESIGN PRESSURE: 9350mmWC; DESIGN TEMP: 100°C
2. FINISH FLOOR LEVEL = RL (+)289.5M, CORRESPONDS TO PLANT EL(±)0.0M WHICH IS GROUND FLOOR OF STG BUILDING.
3. FINISHED GROUND /GRADE LEVEL NEAR ABSORBER AREA (STAGE-I) SHALL BE RL(+)289.6M i.e. EL(+)0.1M.
4. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
5. DIMENSIONS PROVIDE ARE INDICATIVE IN NATURE. BHEL-PC TO FINALIZE DIMENSIONS AFTER DETAILED ENGINEERING.
6. ENTIRE PIPING INCLUDING STUB FLANGE AND VALVES SHALL BE HYDRO TESTED FOR A PRESSURE OF 1.5 TIMES THE WORKING PRESSURE AS PER SPECIFICATION.
7. ALL THE PIPE ERECTION ACCESSORIES LIKE GASKETS, SPLIT WASHERS, WASHERS, STUD BOLTS, NUTS AND FASTERS FOR THE PIPING SHALL BE CONSIDERED BY BHEL-PC AS PER REQUIREMENT.
8. AIR VENTS AND DRAINS SHALL BE PROVIDED RESPECTIVELY AT ALL HIGH POINTS AND ALL LOW POINTS OF PIPING AS INDICATED. IF REQUIRED, ADDITIONAL/MODIFICATION OF AIR VENTS AND DRAINS SHALL BE PROVIDED SUITING TO SITE CONDITIONS.
9. BHEL-PC TO ROUTE THE DRAIN LINES TO THE NEAREST DRAIN SUMP/TANK.
10. FOR INSTRUMENT STUB END CONNECTION AND FITTINGS SHALL BE FINALIZED AFTER CONSULTATION WITH BHEL-RANIPET.
11. FLOW METER UPSTREAM AND DOWNSTREAM STRAIGHT LENGTH REQUIRED IF ANY SHALL BE TAKEN CARE BY BHEL-PC.
12. ERECTION AND ALIGNMENT OF VALVES, INSTRUMENTS, EXPANSION BELLOWS, SUPPORTS AND OTHER ACC. REQUIRED FOR PIPING SHALL BE DONE BY THE SITE ERECTION AGENCY.
13. FOR TYPICAL SUPPORT DETAILS REFER DRG NO: 1-FJ-300-00001.
14. MINIMUM NO: OF SUPPORT TO BE PROVIDED ARE INDICATED. DURING DETAIL ENGINEERING OR SITE ERECTION, EXACT NOS AND LOCATION OF THE SUPPORTS SHALL BE DECIDED. IF REQUIRED ADDITIONAL SUPPORTS SHALL BE PROVIDED.
15. BOM FOR SUPPORT MATERIAL IS NOT COVERED IN THIS DRAWING. BHEL-PC SHALL BE SUITABLE DECIDED THE BOM DURING DETAIL ENGINEERING.
16. 10 METERS OF 450NB ERW LOOSE PIPE SHALL BE SUPPLIED BY BHEL-HYD, OXIDATION BLOWER VENDOR. BHEL-PC TO CONSULATE WITH BHEL-HYD TO ARRIVE FINAL QTY OF 450NB PIPE AND FITTINGS.
17. SITE MODIFICATION CAN BE DONE IF REQUIRED WITH CONSULTATION OF DESIGN ENGINEER.
18. BHEL-PC TO FOLLOW THE MATERIAL SPECIFICATION OF THE PIPES, FITTINGS, GASKETS, EXPANSIONS BELLOWS ETC.. INLINE WITH THE CONTRACT SPECIFICATION REQUIREMENTS.
19. BOM INDICATED IS QUANTITY FOR ONE ABSORBER.

\# LOCATION AND CONNECTION DETAILING OF INSTRUMENTS, FLOW METERS, VALVES, EMERGENCY QUENCH SEAL TAPPING, WATER SPRAY CONNECTION, DRAINS AND VENTS ETC.. SHALL BE FINALIZED DURING DETAIL ENGINEERING.

* THE EL. OF OXIDATION BLOWER DISCHARGE LINE IS TENTATIVE AS THE FINAL CUSTOMER APPROVED VENDOR DRAWING IS AWIATED..

** BHEL-PC TO SUPPLY SUITABLE COUNTER FLANGE TO MATCH THE OXIDATION BLOWER VENDOR'S DISCHARGE END FLANGE.

REFERENCE:

1. GA OF FGD ABSORBER AND ARRANGEMENT OF PLATFORMS, NTPC DRG NO: 2100-109-PVM-B-010
2. GA DRAWING OF OXIDATION BLOWER, NTPC DRG NO: 2100-109-PVM-B-012
3. P&ID OF OXIDATION AIR BLOWER SYSTEM JET AIR SPARGER -UNIT-1-3X200MW NTPC DRG NO: 2100-109-PVM-F-001, FILE NO: B240-00261 AND B240-00271.

PGMA	DU NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER			A/C/P	UNIT	UNIT WEIGHT	GS	ZONE
						ITEM NO	MATERIAL CODE					
						VAR NO	MATERIAL SPECN		DI	QUANTITY		
---	---	7	GASKET NB450						No			
								C	L	2		
---	---	6	BW FLAN NB450						No			
							CS	C	L	2		
---	---	5	INSTRUMENTATION STUB NB15						No			
							CS	C	L	3		
---	---	4	INSTRUMENTATION STUB NB25						No			
							CS	C	L	4		
---	---	3	BW EQ.TEE NB450						No			
							CS	C	L	2		
---	---	2	90 DEG ELBOW NB450						No			
							CS	C	L	8		
---	---	1	ERW PIPE NB450						MR			
							CS	C	L	62		

CUSTOMER NO: 8200

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NTPC KORBA STG -I (3X200MW)

KORBA STAGE -I, II AND III (3X200MW + 3X500 MW + 1X500 MW)

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

355-002

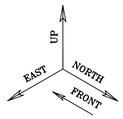
	NAME	SIGNATURE	DATE
DRN.	THANGAMALAR .	--sd--	26.08.2022
CHD.	SATHESH KUMAR S.	--sd--	26.08.2022
APPD.	V. SHANKAR NAIK	--sd--	26.08.2022

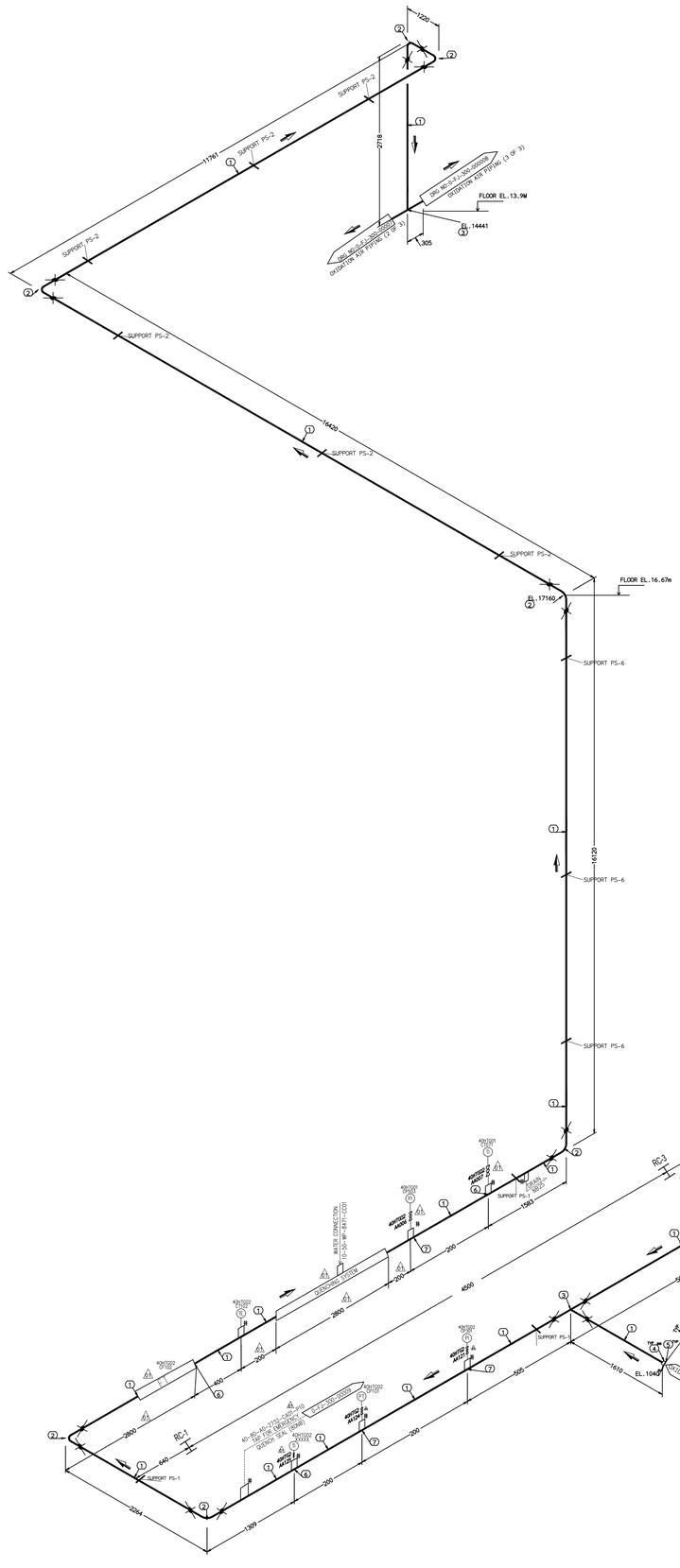
DEPT: BM | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: N.T.S. | WEIGHT (Kg): --- | REF TO ASSY / OLD DWG: ---

TITLE: ISOMETRIC DRAWING FOR OXIDATION AIR PIPING (1 OF 3)

DRAWING NO : 0-FJ-300-00001 | REV: 0

DRAWING NO: 0-FJ-300-00006





NOTES:

1. DESIGN PRESSURE: 9350mmWC; DESIGN TEMP: 100°C
2. FINISH FLOOR LEVEL = RL (+)289.5M, CORRESPONDS TO PLANT EL(±)0.0M WHICH IS GROUND FLOOR OF STG BUILDING.
3. FINISHED GROUND /GRADE LEVEL NEAR ABSORBER AREA (STAGE-I) SHALL BE RL(+)289.6M i.e. EL(+)0.1M.
4. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
5. DIMENSIONS PROVIDE ARE INDICATIVE IN NATURE. BHEL-PC TO FINALIZE DIMENSIONS AFTER DETAILED ENGINEERING.
6. ENTIRE PIPING INCLUDING STUB FLANGE AND VALVES SHALL BE HYDRO TESTED FOR A PRESSURE OF 1.5 TIMES THE WORKING PRESSURE AS PER SPECIFICATION.
7. ALL THE PIPE ERECTION ACCESSORIES LIKE GASKETS, SPLIT WASHERS, WASHERS, STUD BOLTS, NUTS AND FASTERS FOR THE PIPING SHALL BE CONSIDERED BY BHEL-PC AS PER REQUIREMENT.
8. AIR VENTS AND DRAINS SHALL BE PROVIDED RESPECTIVELY AT ALL HIGH POINTS AND ALL LOW POINTS OF PIPING AS INDICATED. IF REQUIRED, ADDITIONAL/MODIFICATION OF AIR VENTS AND DRAINS SHALL BE PROVIDED SUITING TO SITE CONDITIONS.
9. BHEL-PC TO ROUTE THE DRAIN LINES TO THE NEAREST DRAIN SUMP/TANK.
10. FOR INSTRUMENT STUB END CONNECTION AND FITTINGS SHALL BE FINALIZED AFTER CONSULTATION WITH BHEL-RANIPET.
11. FLOW METER UPSTREAM AND DOWNSTREAM STRAIGHT LENGTH REQUIRED IF ANY SHALL BE TAKEN CARE BY BHEL-PC.
12. ERECTION AND ALIGNMENT OF VALVES, INSTRUMENTS, EXPANSION BELLOWS, SUPPORTS AND OTHER ACC. REQUIRED FOR PIPING SHALL BE DONE BY THE SITE ERECTION AGENCY.
13. FOR TYPICAL SUPPORT DETAILS REFER DRG NO: 1-FJ-300-00001.
14. MINIMUM NO: OF SUPPORT TO BE PROVIDED ARE INDICATED. DURING DETAIL ENGINEERING OR SITE ERECTION, EXACT NOS AND LOCATION OF THE SUPPORTS SHALL BE DECIDED. IF REQUIRED ADDITIONAL SUPPORTS SHALL BE PROVIDED.
15. BOM FOR SUPPORT MATERIAL IS NOT COVERED IN THIS DRAWING. BHEL-PC SHALL BE SUITABLE DECIDED THE BOM DURING DETAIL ENGINEERING.
16. 10 METERS OF 400NB ERW LOOSE PIPE, ALL THE INSTRUMENTS ALONG WITH ITS ISOLATION VALVES AND QUENCHING SYSTEM INDICATED IN THIS DRAWING SHALL BE SUPPLIED BY BHEL-HYD, OXIDATION BLOWER VENDOR. BHEL-PC TO CONSULATE WITH BHEL-HYD TO ARRIVE FINAL QTY OF 400NB PIPE AND FITTINGS.
17. SITE MODIFICATION CAN BE DONE IF REQUIRED WITH CONSULTATION OF DESIGN ENGINEER.
18. BHEL-PC TO FOLLOW THE MATERIAL SPECIFICATION OF THE PIPES, FITTINGS, GASKETS, EXPANSIONS BELLOWS ETC.. INLINE WITH THE CONTRACT SPECIFICATION REQUIREMENTS.
19. BOM INDICATED IS QUANTITY FOR ONE ABSORBER.

\# LOCATION AND CONNECTION DETAILING OF INSTRUMENTS, FLOW METERS, VALVES, EMERGENCY QUENCH SEAL TAPPING, WATER SPRAY CONNECTION, DRAINS AND VENTS ETC.. SHALL BE FINALIZED DURING DETAIL ENGINEERING.

* THE EL. OF OXIDATION BLOWER DISCHARGE LINE IS TENTATIVE AS THE FINAL CUSTOMER APPROVED VENDOR DRAWING IS AWIATED..

** BHEL-PC TO SUPPLY SUITABLE COUNTER FLANGE TO MATCH THE OXIDATION BLOWER VENDOR'S DISCHARGE END FLANGE.

REFERENCE:

1. GA OF FGD ABSORBER AND ARRANGEMENT OF PLATFORMS, NTPC DRG NO: 2100-109-PVM-B-010
2. GA DRAWING OF OXIDATION BLOWER, NTPC DRG NO: 2100-109-PVM-B-012
3. P&ID OF OXIDATION AIR BLOWER SYSTEM JET AIR SPARGER -UNIT-1-3X200MW NTPC DRG NO: 2100-109-PVM-F-001, FILE NO: B240-00262 TO B240-00265 AND B240-00272 TO B240-00275.

PGMA	DU NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE		A/C/P	UNIT	UNIT WEIGHT		GS ZONE
						VAR NO	MATERIAL SPECN			DI	QUANTITY		
---	---	7	INSTRUMENTATION STUB NB15					CS	C	No L	3		
---	---	6	INSTRUMENTATION STUB NB25					CS	C	No L	4		
---	---	5	GASKET NB400						C	No L	2		
---	---	4	BW FLANGE NB400					CS	C	No L	2		
---	---	3	BW EQ.TEE NB400					CS	C	No L	2		
---	---	2	90 DEG ELBOW NB400					CS	C	No L	8		
---	---	1	ERW PIPE NB400					CS	C	MR L	60		

CUSTOMER NO: 8203

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NTPC KORBA STG-II(3X500MW),UNIT-4
KORBA STAGE -I, II AND III FGD PACKAGE

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

	NAME	SIGNATURE	DATE
DRN	SRK	-sd-	08.09.2022
CHD	SATHESH KUMAR S	-sd-	08.09.2022
APPD	V. SHANKAR NAIK	-sd-	08.09.2022

355-052

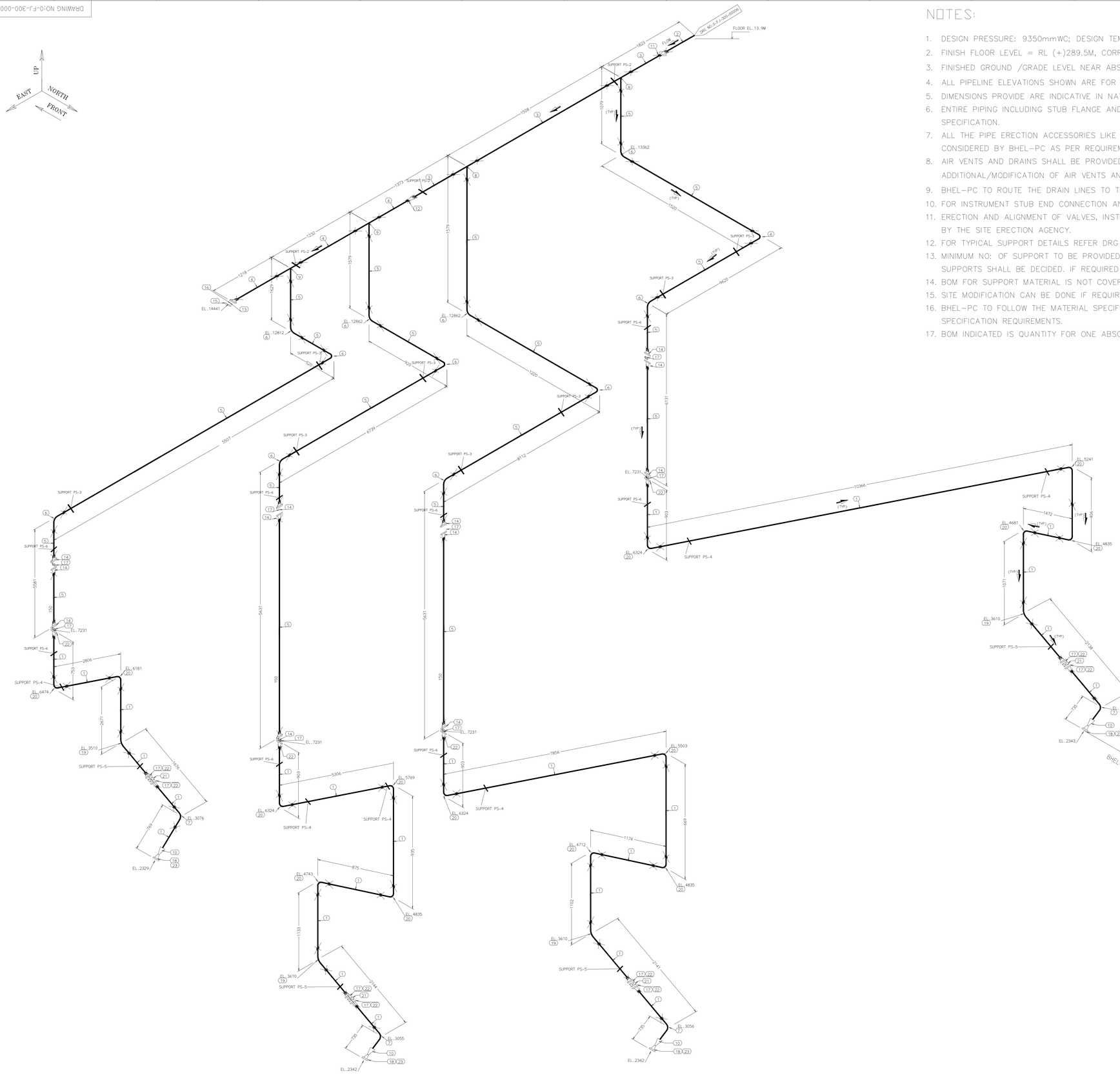
DEPT	PROJECTION	SCALE	WEIGHT (Kg)
BM (ALL DIMENSIONS ARE IN MM)		N.T.S.	REF TO ASSY / OLD DWG
CODE 121			

TITLE: ISOMETRIC DRAWING FOR OXIDATION AIR PIPING (1 OF 3)

DRAWING NO: 0-FJ-300-00006 REV 01

REV	DATE	ALTERED : VENU
01	10-01-26	CHD & APPD :S.SATHESHKUMAR
ZONE		DIMENSIONS REVISED INLINE WITH DRAWING RECEIVED FROM BHEL-HYD

DRAWING NO:0-FJ-300-00007



NOTES:

1. DESIGN PRESSURE: 9350mmWC; DESIGN TEMP: 100°C
2. FINISH FLOOR LEVEL = RL (+)289.5M, CORRESPONDS TO PLANT EL(±)0.0M WHICH IS GROUND FLOOR OF STG BUILDING.
3. FINISHED GROUND /GRADE LEVEL NEAR ABSORBER AREA (STAGE-I) SHALL BE RL(+)289.6M i.e. EL(+)0.1M.
4. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
5. DIMENSIONS PROVIDE ARE INDICATIVE IN NATURE. BHEL-PC TO FINALIZE DIMENSIONS AFTER DETAILED ENGINEERING.
6. ENTIRE PIPING INCLUDING STUB FLANGE AND VALVES SHALL BE HYDRO TESTED FOR A PRESSURE OF 1.5 TIMES THE WORKING PRESSURE AS PER SPECIFICATION.
7. ALL THE PIPE ERECTION ACCESSORIES LIKE GASKETS, SPLIT WASHERS, WASHERS, STUD BOLTS, NUTS AND FASTERS FOR THE PIPING SHALL BE CONSIDERED BY BHEL-PC AS PER REQUIREMENT.
8. AIR VENTS AND DRAINS SHALL BE PROVIDED RESPECTIVELY AT ALL HIGH POINTS AND ALL LOW POINTS OF PIPING AS INDICATED. IF REQUIRED, ADDITIONAL/MODIFICATION OF AIR VENTS AND DRAINS SHALL BE PROVIDED SUITING TO SITE CONDITIONS.
9. BHEL-PC TO ROUTE THE DRAIN LINES TO THE NEAREST DRAIN SUMP/TANK.
10. FOR INSTRUMENT STUB END CONNECTION AND FITTINGS SHALL BE FINALIZED AFTER CONSULTATION WITH BHEL-RANIPET..
11. ERECTION AND ALIGNMENT OF VALVES, INSTRUMENTS, EXPANSION BELLOWS, SUPPORTS AND OTHER ACC. REQUIRED FOR PIPING SHALL BE DONE BY THE SITE ERECTION AGENCY.
12. FOR TYPICAL SUPPORT DETAILS REFER DRG NO: 1-FJ-300-00001.
13. MINIMUM NO: OF SUPPORT TO BE PROVIDED ARE INDICATED. DURING DETAIL ENGINEERING OR SITE ERECTION, EXACT NOS AND LOCATION OF THE SUPPORTS SHALL BE DECIDED. IF REQUIRED ADDITIONAL SUPPORTS SHALL BE PROVIDED.
14. BOM FOR SUPPORT MATERIAL IS NOT COVERED IN THIS DRAWING. BHEL-PC SHALL BE SUITABLE DECIDED THE BOM DURING DETAIL ENGINEERING.
15. SITE MODIFICATION CAN BE DONE IF REQUIRED WITH CONSULTATION OF DESIGN ENGINEER.
16. BHEL-PC TO FOLLOW THE MATERIAL SPECIFICATION OF THE PIPES, FITTINGS, GASKETS, EXPANSIONS BELLOWS ETC.. INLINE WITH THE CONTRACT SPECIFICATION REQUIREMENTS.
17. BOM INDICATED IS QUANTITY FOR ONE ABSORBER.

REFERENCE:

1. GA OF FGD ABSORBER AND ARRANGEMENT OF PLATFORMS, NTPC DRG NO: 2100-109-PVM-B-010
2. GA DRAWING OF OXIDATION BLOWER, NTPC DRG NO: 2100-109-PVM-B-012
3. P&ID OF OXIDATION AIR BLOWER SYSTEM JET AIR SPARGER -UNIT-1-3X200MW NTPC DRG NO: 2100-109-PVM-F-001, FILE NO: B240-00262 TO B240-00265 AND B240-00272 TO B240-00275.

PGMA	DU NUMBER	ITEM NUMBER		DESCRIPTION	STD	DRAWING NUMBER		ITEM NO	MATERIAL CODE		A/C/P	UNIT	UNIT WEIGHT		GS	ZONE
								VAR NO	MATERIAL SPECN			DI	QUANTITY			
---	---	23		FULL FACE FLANGE NB125						C	No					
									FRP		L		4			
---	---	22		FULL FACE FLANGE NB150						C	No					
									FRP		L		12			
---	---	21		2 CR EXPN BELLOW NB150						C	No					
											L		4			
---	---	20		84 DEG ELBOW NB150						C	No					
									FRP		L		14			
---	---	19		75 DEG ELBOW NB150						C	No					
									FRP		L		4			
---	---	18		GASKET NB125							No					
											L		4			
---	---	17		GASKET NB150							No					
											L		16			
---	---	16		GASKET NB250							No					
											L		1			
---	---	15		BL FLANGE NB250						C	No					
									CS		L		1			
---	---	14		BW FLANGE NB150						C	No					
									CS		L		12			
---	---	13		BW FLANGE NB250						C	No					
									CS		L		1			
---	---	12		BW CONC REDU NB300/NB250						C	No					
									CS		L		1			
---	---	11		BW CONC REDU NB400/NB300						C	No					
									CS		L		1			
---	---	10		CONC REDU NB150/NB125						C	No					
									FRP		L		4			
---	---	9		BW UNEQ.TEE NB250/NB150						C	No					
									CS		L		2			
---	---	8		BW UNEQ.TEE NB300/NB150						C	No					
									CS		L		2			
---	---	7		90 DEG ELBOW NB150						C	No					
									FRP		L		4			
---	---	6		90 DEG ELBOW NB150						C	No					
									CS		L		12			
---	---	5		ERW PIPE NB150						C	MR					
									CS		L		59			
---	---	4		ERW PIPE NB250						C	MR					
									CS		L		2			
---	---	3		ERW PIPE NB300						C	MR					
									CS		L		2			
---	---	2		ERW PIPE NB400						C	MR					
									CS		L		1			
---	---	1		FRP PIPE NB 150						C	MR					
									FRP		L		38			

CUSTOMER NO: 8203

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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NTPC KORBA STG-II(3X500MW),UNIT-4 KORBA STAGE -I, II AND III FGD PACKAGE

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

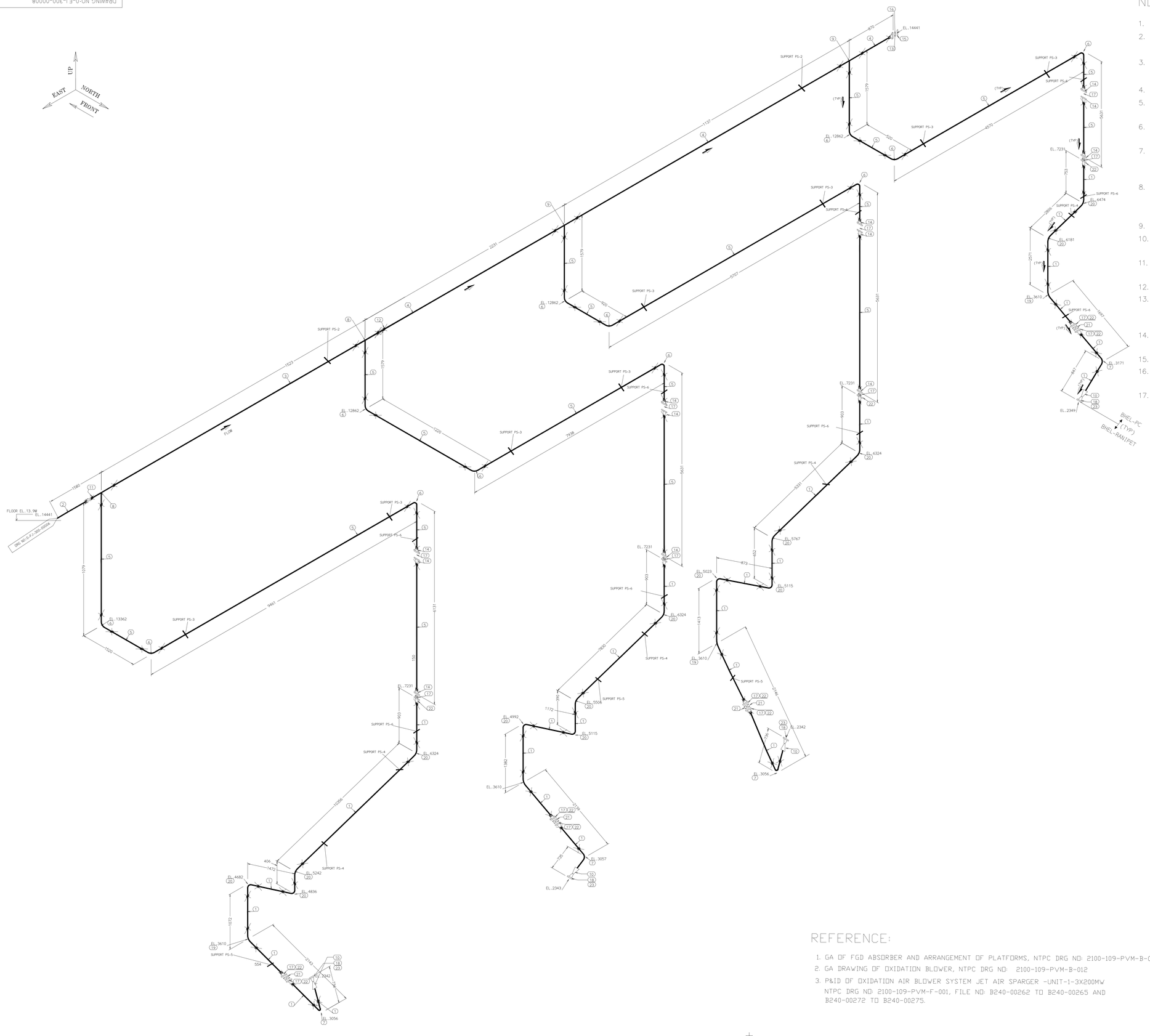
	NAME	SIGNATURE	DATE
DRN	SRK	-sd-	08.09.2022
CHD	SATHESH KUMAR S	-sd-	08.09.2022
APPD	V. SHANKAR NAIK	-sd-	08.09.2022

355-552 | DEPT: BM | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: N.T.S. | WEIGHT (Kg): --- | REF TO ASSY / OLD DWG: ---

TITLE: ISOMETRIC DRAWING FOR OXIDATION AIR PIPING (2 OF 3)

DRAWING NO: 0-FJ-300-00007 | REV: 00

DRAWING NO:0-FJ-300-00008



NOTES:

1. DESIGN PRESSURE: 9350mmWC; DESIGN TEMP: 100°C
2. FINISH FLOOR LEVEL = RL (+)289.5M, CORRESPONDS TO PLANT EL(±)0.0M WHICH IS GROUND FLOOR OF STG BUILDING.
3. FINISHED GROUND /GRADE LEVEL NEAR ABSORBER AREA (STAGE-I) SHALL BE RL(+)289.6M i.e. EL(+)0.1M.
4. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
5. DIMENSIONS PROVIDE ARE INDICATIVE IN NATURE. BHEL-PC TO FINALIZE DIMENSIONS AFTER DETAILED ENGINEERING.
6. ENTIRE PIPING INCLUDING STUB FLANGE AND VALVES SHALL BE HYDRO TESTED FOR A PRESSURE OF 1.5 TIMES THE WORKING PRESSURE AS PER SPECIFICATION.
7. ALL THE PIPE ERECTION ACCESSORIES LIKE GASKETS, SPLIT WASHERS, WASHERS, STUD BOLTS, NUTS AND FASTERS FOR THE PIPING SHALL BE CONSIDERED BY BHEL-PC AS PER REQUIREMENT.
8. AIR VENTS AND DRAINS SHALL BE PROVIDED RESPECTIVELY AT ALL HIGH POINTS AND ALL LOW POINTS OF PIPING AS INDICATED. IF REQUIRED, ADDITIONAL/MODIFICATION OF AIR VENTS AND DRAINS SHALL BE PROVIDED SUITING TO SITE CONDITIONS.
9. BHEL-PC TO ROUTE THE DRAIN LINES TO THE NEAREST DRAIN SUMP/TANK.
10. FOR INSTRUMENT STUB END CONNECTION AND FITTINGS SHALL BE FINALIZED AFTER CONSULTATION WITH BHEL-RANIPET..
11. ERECTION AND ALIGNMENT OF VALVES, INSTRUMENTS, EXPANSION BELLOWS, SUPPORTS AND OTHER ACC. REQUIRED FOR PIPING SHALL BE DONE BY THE SITE ERECTION AGENCY.
12. FOR TYPICAL SUPPORT DETAILS REFER DRG NO: 1-FJ-300-00001.
13. MINIMUM NO: OF SUPPORT TO BE PROVIDED ARE INDICATED. DURING DETAIL ENGINEERING OR SITE ERECTION, EXACT NOS AND LOCATION OF THE SUPPORTS SHALL BE DECIDED. IF REQUIRED ADDITIONAL SUPPORTS SHALL BE PROVIDED.
14. BOM FOR SUPPORT MATERIAL IS NOT COVERED IN THIS DRAWING. BHEL-PC SHALL BE SUITABLE DECIDED THE BOM DURING DETAIL ENGINEERING.
15. SITE MODIFICATION CAN BE DONE IF REQUIRED WITH CONSULTATION OF DESIGN ENGINEER.
16. BHEL-PC TO FOLLOW THE MATERIAL SPECIFICATION OF THE PIPES, FITTINGS, GASKETS, EXPANSIONS BELLOWS ETC.. INLINE WITH THE CONTRACT SPECIFICATION REQUIREMENTS.
17. BOM INDICATED IS QUANTITY FOR ONE ABSORBER.

PIDMA	DU NUMBER ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P/ SI	UNIT	UNIT WEIGHT	GSS ZONE
					VAR NO	MATERIAL SPECN		SI	QUANTITY	
---	---	23	FULL FACE FLANGE NB125			FRP	C	No L	4	
---	---	22	FULL FACE FLANGE NB150			FRP	C	No L	12	
---	---	21	2 CR EXPN BELLOW NB150				C	No L	4	
---	---	20	84 DEG ELBOW NB150			FRP	C	No L	14	
---	---	19	75 DEG ELBOW NB150			FRP	C	No L	4	
---	---	18	GASKET NB125				C	No L	4	
---	---	17	GASKET NB150					No L	16	
---	---	16	GASKET NB250					No L	1	
---	---	15	BL FLANGE NB250			CS	C	No L	1	
---	---	14	BW FLANGE NB150			CS	C	No L	12	
---	---	13	BW FLANGE NB250			CS	C	No L	1	
---	---	12	BW CONC REDU NB300/NB250			CS	C	No L	1	
---	---	11	BW CONC REDU NB400/NB300			CS	C	No L	1	
---	---	10	CONC REDU NB150/NB125			FRP	C	No L	4	
---	---	9	BW UNEQ.TEE NB250/NB150			CS	C	No L	2	
---	---	8	BW UNEQ.TEE NB300/NB150			CS	C	No L	2	
---	---	7	90 DEG ELBOW NB150			FRP	C	No L	4	
---	---	6	90 DEG ELBOW NB150			CS	C	No L	12	
---	---	5	ERW PIPE NB150			CS	C	MR L	56	
---	---	4	ERW PIPE NB250			CS	C	MR L	3	
---	---	3	ERW PIPE NB300			CS	C	MR L	1	
---	---	2	ERW PIPE NB400			CS	C	MR L	1	
---	---	1	FRP PIPE NB 150			FRP	C	MR L	38	

REFERENCE:

1. GA OF FGD ABSORBER AND ARRANGEMENT OF PLATFORMS, NTPC DRG NO: 2100-109-PVM-B-010
2. GA DRAWING OF OXIDATION BLOWER, NTPC DRG NO: 2100-109-PVM-B-012
3. P&ID OF OXIDATION AIR BLOWER SYSTEM JET AIR SPARGER -UNIT-1-3X200MW NTPC DRG NO: 2100-109-PVM-F-001, FILE NO: B240-00262 TO B240-00265 AND B240-00272 TO B240-00275.

CUSTOMER NO: 8203

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NTPC KORBA STG-II(3X500MW),UNIT-4
KORBA STAGE -I, II AND III FGD PACKAGE

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

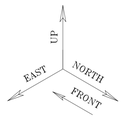
	NAME	SIGNATURE	DATE
DRN	PAWAN	-sd-	08.09.2022
CHD	SATHESH KUMAR S.	-sd-	08.09.2022
APPD	V. SHANKAR NAIK	-sd-	08.09.2022

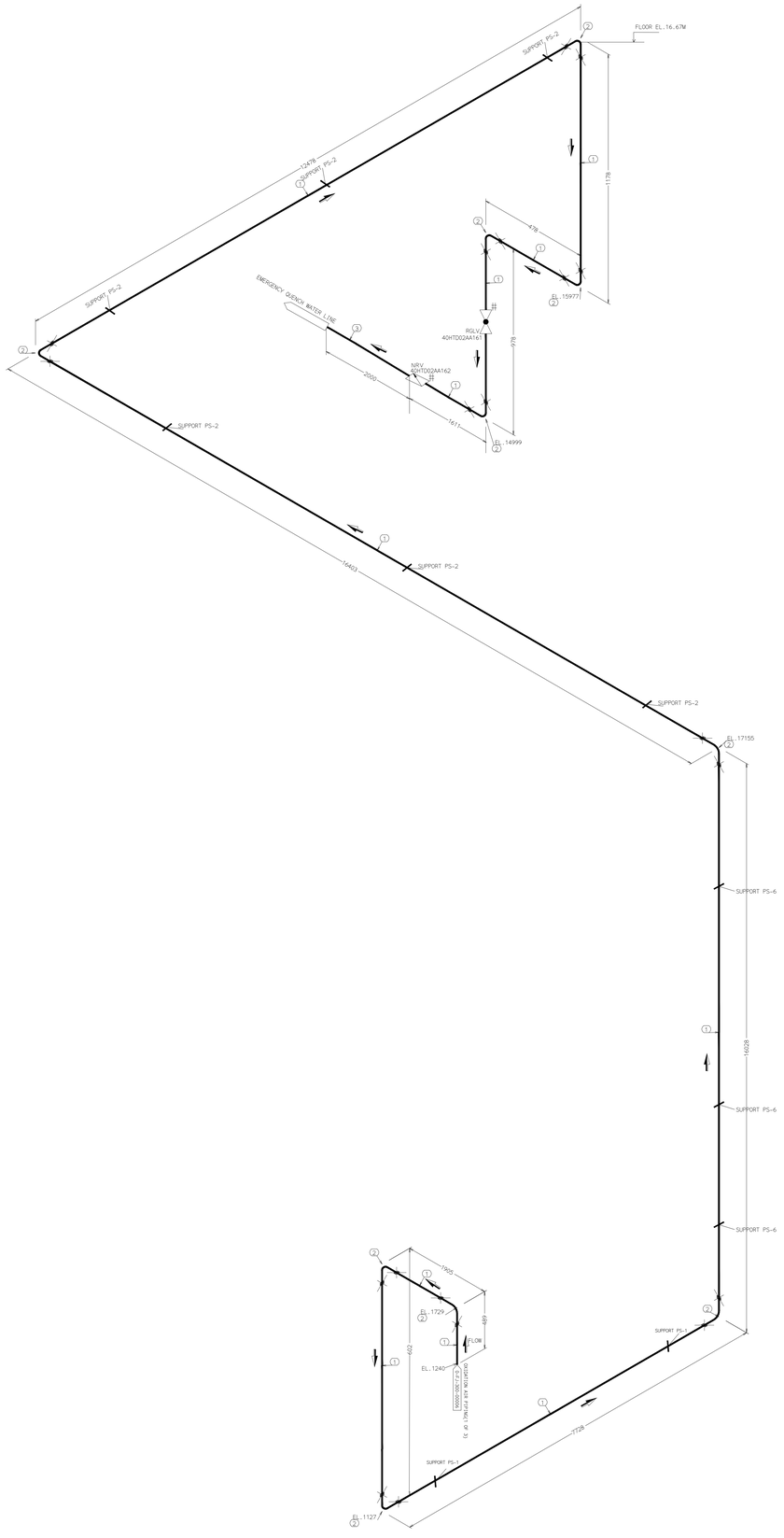
DEPT: BM
CODE: 121
ALL DIMENSIONS ARE IN MM
PROJECTION
SCALE: N.T.S.
WEIGHT (Kg): ---
REF TO ASSY / OLD DWG: ---

TITLE: ISOMETRIC DRAWING FOR OXIDATION AIR PIPING (3 OF 3)

DRAWING NO: 0-FJ-300-00008
REV: 00

DRAWING NO:0-FJ-300-00009





NOTES:

1. DESIGN PRESSURE: 9350mmWC; DESIGN TEMP: 100°C
2. FINISH FLOOR LEVEL = RL (+)289.5M, CORRESPONDS TO PLANT EL(±)0.0M WHICH IS GROUND FLOOR OF STG BUILDING.
3. FINISHED GROUND /GRADE LEVEL NEAR ABSORBER AREA (STAGE-I) SHALL BE RL(+)289.6M i.e. EL(+)0.1M.
4. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
5. DIMENSIONS PROVIDE ARE INDICATIVE IN NATURE. BHEL-PC TO FINALIZE DIMENSIONS AFTER DETAILED ENGINEERING.
6. ENTIRE PIPING INCLUDING STUB FLANGE AND VALVES SHALL BE HYDRO TESTED FOR A PRESSURE OF 1.5 TIMES THE WORKING PRESSURE AS PER SPECIFICATION.
7. ALL THE PIPE ERECTION ACCESSORIES LIKE GASKETS, SPLIT WASHERS, WASHERS, STUD BOLTS, NUTS AND FASTERS FOR THE PIPING SHALL BE CONSIDERED BY BHEL-PC AS PER REQUIREMENT.
8. AIR VENTS AND DRAINS SHALL BE PROVIDED RESPECTIVELY AT ALL HIGH POINTS AND ALL LOW POINTS OF PIPING AS INDICATED. IF REQUIRED, ADDITIONAL/MODIFICATION OF AIR VENTS AND DRAINS SHALL BE PROVIDED SUITING TO SITE CONDITIONS.
9. BHEL-PC TO ROUTE THE DRAIN LINES TO THE NEAREST DRAIN SUMP/TANK.
10. FOR INSTRUMENT STUB END CONNECTION AND FITTINGS SHALL BE FINALIZED AFTER CONSULTATION WITH BHEL-RANIPET..
11. ERECTION AND ALIGNMENT OF VALVES, INSTRUMENTS, EXPANSION BELLOWS, SUPPORTS AND OTHER ACC. REQUIRED FOR PIPING SHALL BE DONE BY THE SITE ERECTION AGENCY.
12. FOR TYPICAL SUPPORT DETAILS REFER DRG NO: 1-FJ-300-00001.
13. MINIMUM NO: OF SUPPORT TO BE PROVIDED ARE INDICATED. DURING DETAIL ENGINEERING OR SITE ERECTION, EXACT NOS AND LOCATION OF THE SUPPORTS SHALL BE DECIDED. IF REQUIRED ADDITIONAL SUPPORTS SHALL BE PROVIDED.
14. BOM FOR SUPPORT MATERIAL IS NOT COVERED IN THIS DRAWING. BHEL-PC SHALL BE SUITABLE DECIDED THE BOM DURING DETAIL ENGINEERING.
15. SITE MODIFICATION CAN BE DONE IF REQUIRED WITH CONSULTATION OF DESIGN ENGINEER.
16. BHEL-PC TO FOLLOW THE MATERIAL SPECIFICATION OF THE PIPES, FITTINGS, GASKETS, EXPANSIONS BELLOWS ETC.. INLINE WITH THE CONTRACT SPECIFICATION REQUIREMENTS.
17. BOM INDICATED IS QUANTITY FOR ONE ABSORBER.

LOCATION OF VALVES SHALL BE SUITABLY DECIDED NEAR ABSORBER FLOOR FOR EASE OF OPERATION.

REFERENCE:

1. GA OF FGD ABSORBER AND ARRANGEMENT OF PLATFORMS, NTPC DRG NO: 2100-109-PVM-B-010
2. P&ID OF OXIDATION AIR BLOWER SYSTEM JET AIR SPARGER -UNIT-1-3X200MW
   NTPC DRG NO: 2100-109-PVM-F-001, FILE NO: B240-00272 TO 00275 AND B240-00201 TO 00204
3. ISOMETRIC DRAWING FOR OXIDATION AIR PIPING (1 OF 3) , DRG NO: 0-FJ-300-00006

PGMA	DU NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	GS	ZONE
						VAR NO	MATERIAL SPECN		DI	QUANTITY		
---	---											
---	---											
---	---	3	SS PIPE NB80				SS	C	MR L	2		
---	---	2	90 DEG ELBOW NB80				CS	C	No L	10		
---	---	1	ERW PIPE NB80				CS	C	MR L	60		

CUSTOMER NO: 8203

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: NTPC KORBA STG-II(3X500MW),UNIT-4
KORBA STAGE -I, II AND III FGD PACKAGE

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

	NAME	SIGNATURE	DATE
DRN	PAWAN	-sd-	08.09.2022
CHD	SATHESH KUMAR S	-sd-	08.09.2022
APPD	V. SHANKAR NAIK	-sd-	08.09.2022

555-052

DEPT: BM | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: N.T.S. | WEIGHT (Kg): --- | REF TO ASSY / OLD DWG: ---

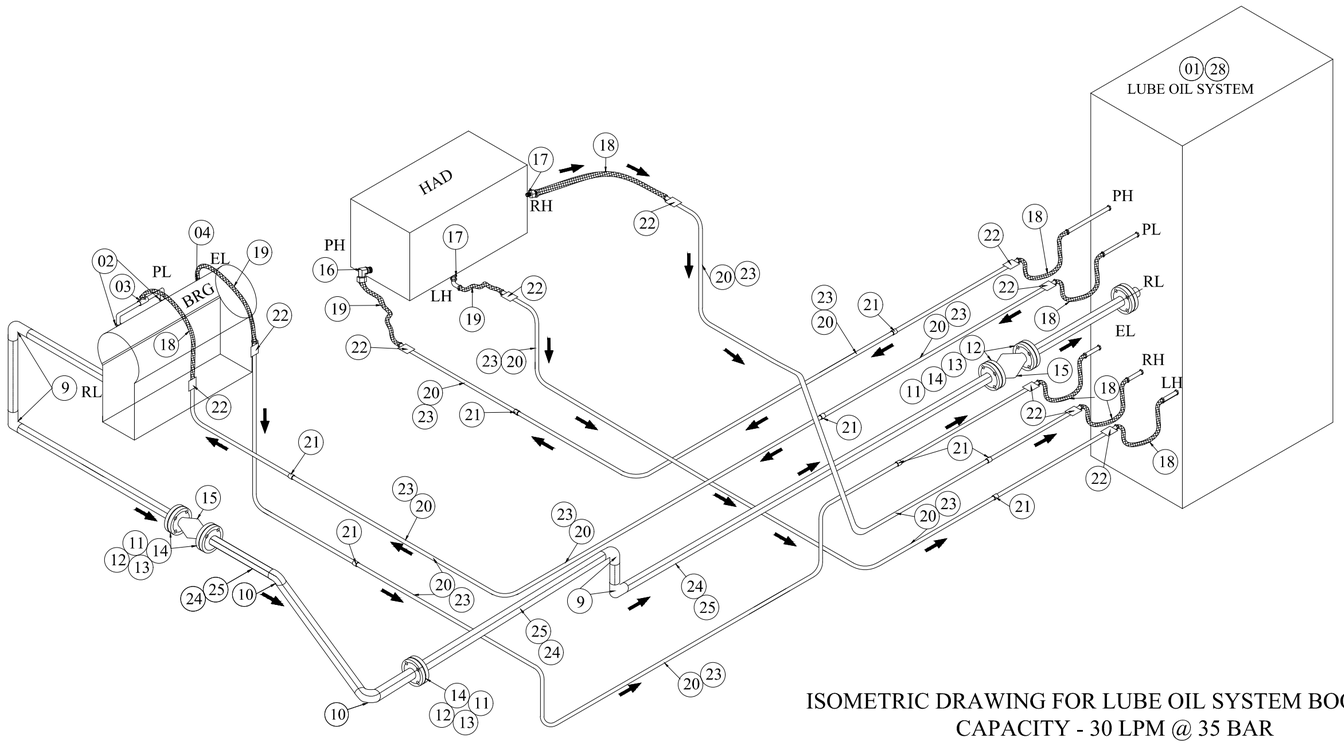
TITLE: ISOMETRIC DRAWING FOR EMERGENCY QUENCH SEAL AIR

DRAWING NO : 0-FJ-300-00009 | REV 00

DRAWING NO. 2-55-980-02959

ALL DIMENSIONS ARE IN MILLIMETRES

FOR PRODUCTION
REF. PR:QA:590 FOR PAINTING
REF. PR:QA:500 FOR UNTOL. DIMNS.
REF. APPLICABLE GMS FOR MATCODE&SPEC.



ISOMETRIC DRAWING FOR LUBE OIL SYSTEM BOOSTER FAN
CAPACITY - 30 LPM @ 35 BAR

SL. NO.	DESCRIPTION	QTY.
1	30 LPM@ 35 BAR LUBE OIL SYSTEM FOR BOOSTER FAN	01
2	MALE STUD CONNECTOR M22X1.5(M) X 15MM OD	02
3	UNION TEE OD 15MM OD X M22X1.5(M) X 15MM OD	01
4	MALE STUD CONNECTOR M22X1.5(M) X M22X1.5(M)	01
5	SAE FLANGE HEAD-WELD ON SFS 3006-60.3	01
6	SAE O-RING 2"(VITON 70 FKM)	01
7	SOCKET HEAD SCREW GR. A8.8 M12X35	04
8	SPRING WASHER SC12	04
9	BUTT WELD ELBOW NB50 SCH.40	08
10	BUTT WELD ELBOW 45° NB50 SCH.40	02
11	SLIP ON FLANGE NB50#150 SORF ANSI B 16.5	10
12	NON ASBESTOS GASKET FOR NB50 FLANGE	10
13	HEX. BOLT + NUT GR.A8.8 M16X60	32
14	SPRING WASHER SC 16	32
15	RUBBER EXPANSION JOINT NB50#150 SORF ANSI B 16.5, L-250	02
16	ASSEMBLED ADJUSTABLE SWIVEL ELBOW WITH CONNECTOR M18X1.5(M) X 15MM OD(WITHOUT NUT & FERRUAL M22X1.5) (PH)	01
17	MALE STUD CONNECTOR M18X1.5(M) X M22X1.5(M) (RH&LH)	02
18	FLEXIBLE HOSE SAE100 R1 AT, ½"ID, SWIVEL NUT M22X1.5 (F) BOTH ENDS, L-750MM (BRG 1, HAD 1, LOS 5 NOS.)	07
19	FLEXIBLE HOSE SAE100 R1 AT, ½"ID,ONE END SWIVEL NUT M22X1.5(F) X OTHER END 90° ELBOW SWIVEL NUT M22X1.5 (F) L-750MM(BRG 1, HAD 2 NOS.)	03
20	SEAMLESS TUBE 15MM OD X 1.5MM THK.	90 MTR
21	G UNION 15MM OD	45
22	G UNION OD 15 MM (ONE END WITHOUT NUT & FERRULE M22X1.5) (STRAIGHT FITTING)	20
23	TUBE CLAMP SERIES A 15 MM OD	45
24	SEAMLESS PIPE NB50, SCH 40	20 MTR
25	U-BOLT CLAMP WITH NUT(TO SUIT NB50 PIPE)	10
26	ANGLE 50 X 50 X 6 X 500 LONG	06
27	CHANNEL 75 X 40 X 500 LONG	06
28	FOUNDATION BOLT ,M16X300	04
29	TUBE EXPANDER FOR COOLER	01
30	FILTER ELEMENT 10 MICRONS, SS MESH	02

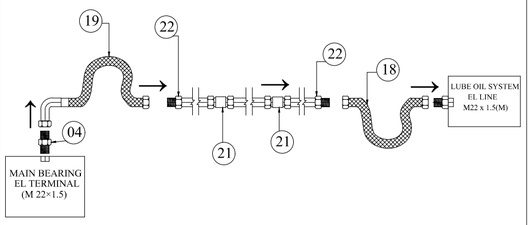
PIPE CONNECTION DESIGNATION : -

EL - PRESSURE EQUILISATION (MAIN BEARING)
LH - LEAKAGE OIL HYDRAULIC
RH - RETURN OIL HYDRAULIC
RL - RETURN OIL MAIN BEARING
PL - PRESSURE OIL MAIN BEARING
PH - PRESSURE OIL HYDRAULIC

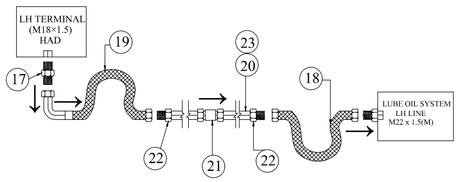
NOTE:-

PIPES FOR VARIOUS LOS SHALL BE PROVIDED IN 3 TO 5 MTR. LENGTHS & SHALL BE CLUBBED TOGETHER TO AVOID WASTAGE AT SITE & SHALL BE PACKED SEPERATLY IN A BUNDLE.

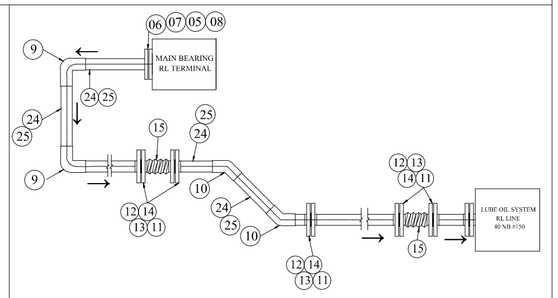
PRESSURE EQUALISATION LINE (EL)



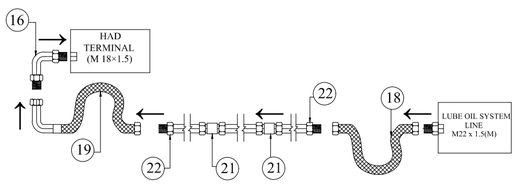
LEAKAGE OIL HYDRAULIC LINE (LH)



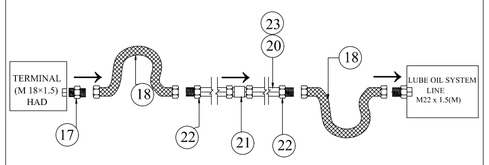
RETURN OIL MAIN BEARING LINE (RL)



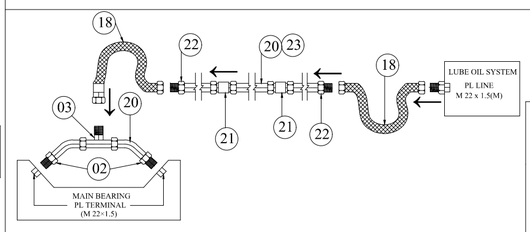
PRESSURE OIL HYDRAULIC LINE (PH)



RETURN OIL HYDRAULIC LINE (RH)



PRESSURE OIL MAIN BEARING LINE (PL)



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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **KORBA SUPER THERMAL POWER PLANT STAGE-II & III (3X500MW+1X500MW) FGD SYSTEM PACKGE**

BHARAT HEAVY ELECTRICALS LTD.,
UNIT: BOILER AUXILIARIES PLANT,
RANIPET – 632 406.

	NAME	SIGN	DATE	NO.OF VAR.
DRN	VIKS		29/08/24	
CHD	S.L.N		30/08/24	
APPD	C.MANOJ		30/08/24	

DEPT: FANS | GRADE OF UNTOL.DIM: PR: QA: 500 | CODE: 864 | SCALE | WEIGHT (KG.) | REF. TO ASSY/OLD DRG. | ITEM NO. | NO. OF ITEMS

CENLUB
CIL-OCS-447656_R1

TITLE: PIPING LAYOUT OF 30 LPM @ 35 BAR LUBE OIL SYSTEM FOR BOOSTER FAN

CARD CODE: U 01

DRAWING NO.: 2-55-980-02959

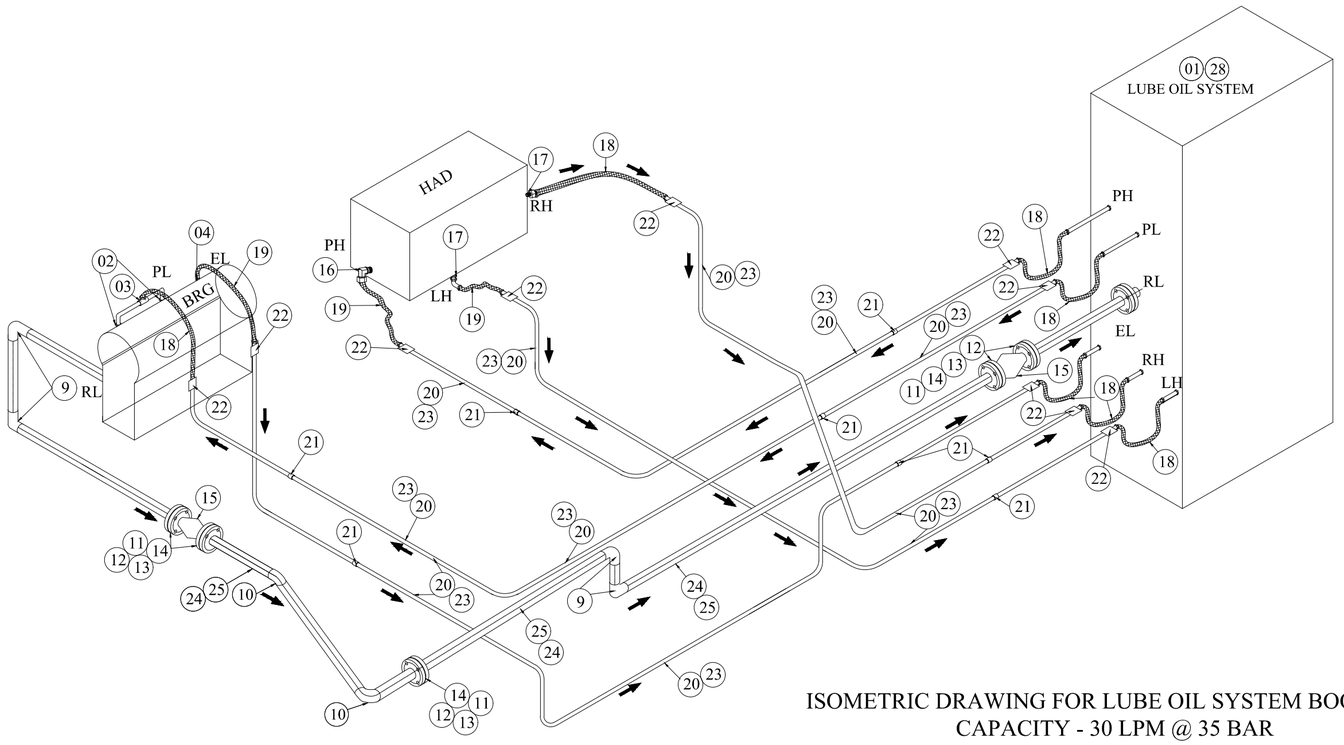
REV

Size A2

DRAWING NO. 2-55-980-02959

ALL DIMENSIONS ARE IN MILLIMETRES

FOR PRODUCTION
REF. PR:QA:590 FOR PAINTING
REF. PR:QA:500 FOR UNTOL. DIMNS.
REF. APPLICABLE GMS FOR MATCODE&SPEC.



ISOMETRIC DRAWING FOR LUBE OIL SYSTEM BOOSTER FAN
CAPACITY - 30 LPM @ 35 BAR

SL. NO.	DESCRIPTION	QTY.
1	30 LPM@ 35 BAR LUBE OIL SYSTEM FOR BOOSTER FAN	01
2	MALE STUD CONNECTOR M22X1.5(M) X 15MM OD	02
3	UNION TEE OD 15MM OD X M22X1.5(M) X 15MM OD	01
4	MALE STUD CONNECTOR M22X1.5(M) X M22X1.5(M)	01
5	SAE FLANGE HEAD-WELD ON SFS 3006-60.3	01
6	SAE O-RING 2"(VITON 70 FKM)	01
7	SOCKET HEAD SCREW GR. A8.8 M12X35	04
8	SPRING WASHER SC12	04
9	BUTT WELD ELBOW NB50 SCH.40	08
10	BUTT WELD ELBOW 45° NB50 SCH.40	02
11	SLIP ON FLANGE NB50#150 SORF ANSI B 16.5	10
12	NON ASBESTOS GASKET FOR NB50 FLANGE	10
13	HEX. BOLT + NUT GR.A8.8 M16X60	32
14	SPRING WASHER SC 16	32
15	RUBBER EXPANSION JOINT NB50#150 SORF ANSI B 16.5, L-250	02
16	ASSEMBLED ADJUSTABLE SWIVEL ELBOW WITH CONNECTOR M18X1.5(M) X 15MM OD(WITHOUT NUT & FERRUAL M22X1.5) (PH)	01
17	MALE STUD CONNECTOR M18X1.5(M) X M22X1.5(M) (RH&LH)	02
18	FLEXIBLE HOSE SAE100 R1 AT, ½"ID, SWIVEL NUT M22X1.5 (F) BOTH ENDS, L-750MM (BRG 1, HAD 1, LOS 5 NOS.)	07
19	FLEXIBLE HOSE SAE100 R1 AT, ½"ID,ONE END SWIVEL NUT M22X1.5(F) X OTHER END 90° ELBOW SWIVEL NUT M22X1.5 (F) L-750MM(BRG 1, HAD 2 NOS.)	03
20	SEAMLESS TUBE 15MM OD X 1.5MM THK.	90 MTR
21	G UNION 15MM OD	45
22	G UNION OD 15 MM (ONE END WITHOUT NUT & FERRULE M22X1.5) (STRAIGHT FITTING)	20
23	TUBE CLAMP SERIES A 15 MM OD	45
24	SEAMLESS PIPE NB50, SCH 40	20 MTR
25	U-BOLT CLAMP WITH NUT(TO SUIT NB50 PIPE)	10
26	ANGLE 50 X 50 X 6 X 500 LONG	06
27	CHANNEL 75 X 40 X 500 LONG	06
28	FOUNDATION BOLT ,M16X300	04
29	TUBE EXPANDER FOR COOLER	01
30	FILTER ELEMENT 10 MICRONS, SS MESH	02

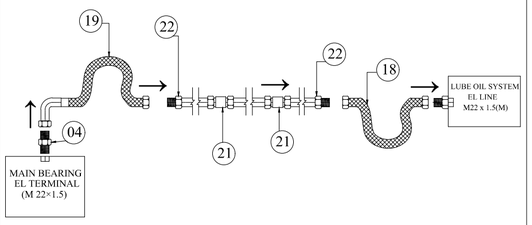
PIPE CONNECTION DESIGNATION : -

EL - PRESSURE EQUILISATION (MAIN BEARING)
LH - LEAKAGE OIL HYDRAULIC
RH - RETURN OIL HYDRAULIC
RL - RETURN OIL MAIN BEARING
PL - PRESSURE OIL MAIN BEARING
PH - PRESSURE OIL HYDRAULIC

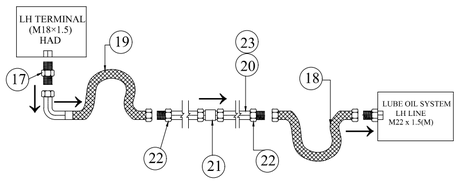
NOTE:-

PIPES FOR VARIOUS LOS SHALL BE PROVIDED IN 3 TO 5 MTR. LENGTHS & SHALL BE CLUBBED TOGETHER TO AVOID WASTAGE AT SITE & SHALL BE PACKED SEPERATLY IN A BUNDLE.

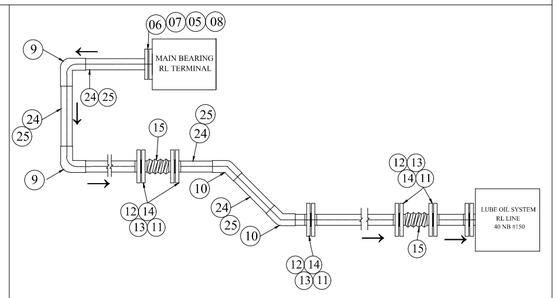
PRESSURE EQUALISATION LINE (EL)



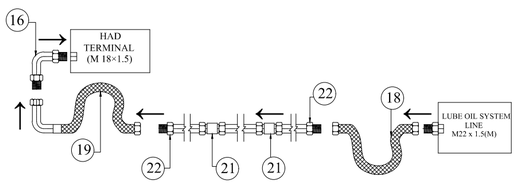
LEAKAGE OIL HYDRAULIC LINE (LH)



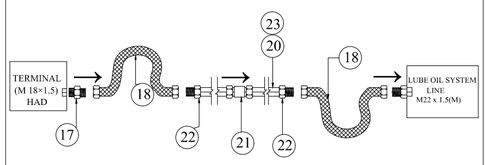
RETURN OIL MAIN BEARING LINE (RL)



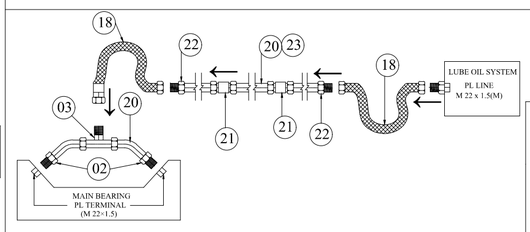
PRESSURE OIL HYDRAULIC LINE (PH)



RETURN OIL HYDRAULIC LINE (RH)



PRESSURE OIL MAIN BEARING LINE (PL)



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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: **KORBA SUPER THERMAL POWER PLANT STAGE-II & III (3X500MW+1X500MW) FGD SYSTEM PACKGE**

BHARAT HEAVY ELECTRICALS LTD.,
UNIT: BOILER AUXILIARIES PLANT,
RANIPET – 632 406.

	NAME	SIGN	DATE	NO.OF VAR.
DRN	VIKS		29/08/24	
CHD	S.L.N		30/08/24	
APPD	C.MANOJ		30/08/24	

DEPT: FANS | GRADE OF UNTOL.DIM: PR: QA: 500 | CODE: 864 | SCALE | WEIGHT (KG.) | REF. TO ASSY/OLD DRG. | ITEM NO. | NO. OF ITEMS

CENLUB
CIL-OCS-447656_R1

TITLE: PIPING LAYOUT OF 30 LPM @ 35 BAR LUBE OIL SYSTEM FOR BOOSTER FAN

CARD CODE: U 01

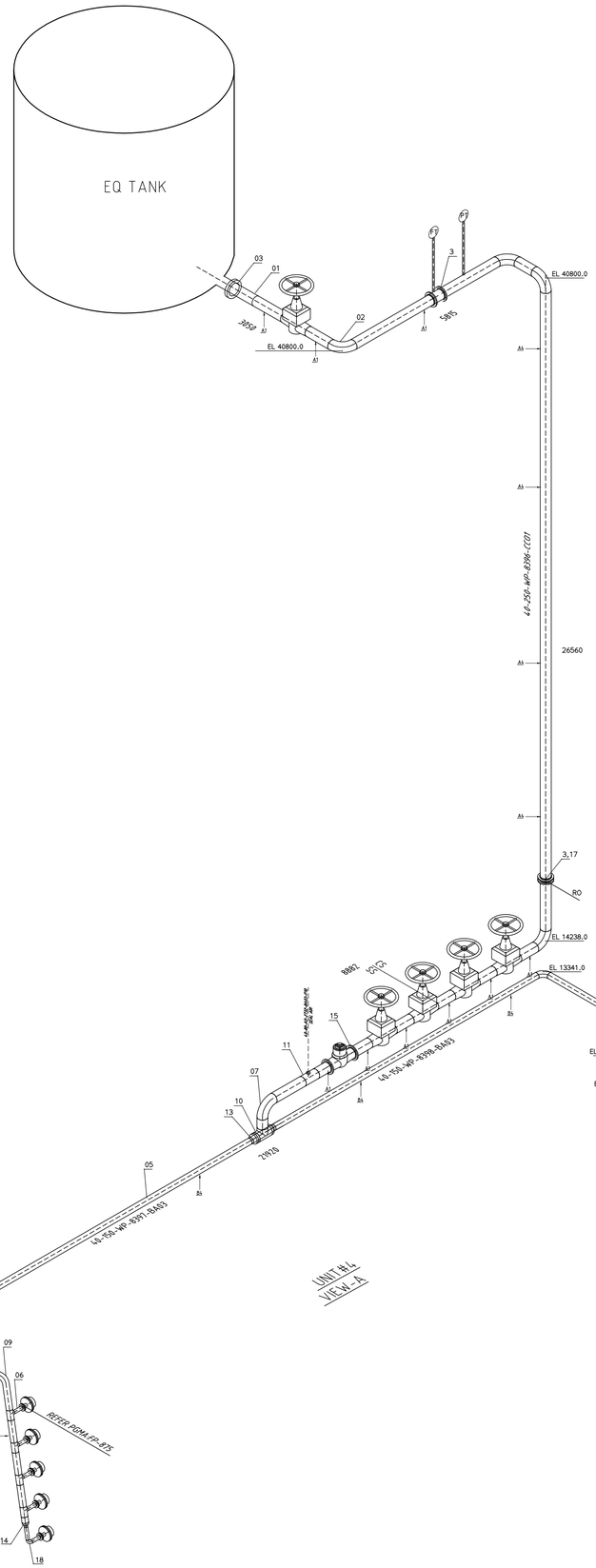
DRAWING NO.: 2-55-980-02959

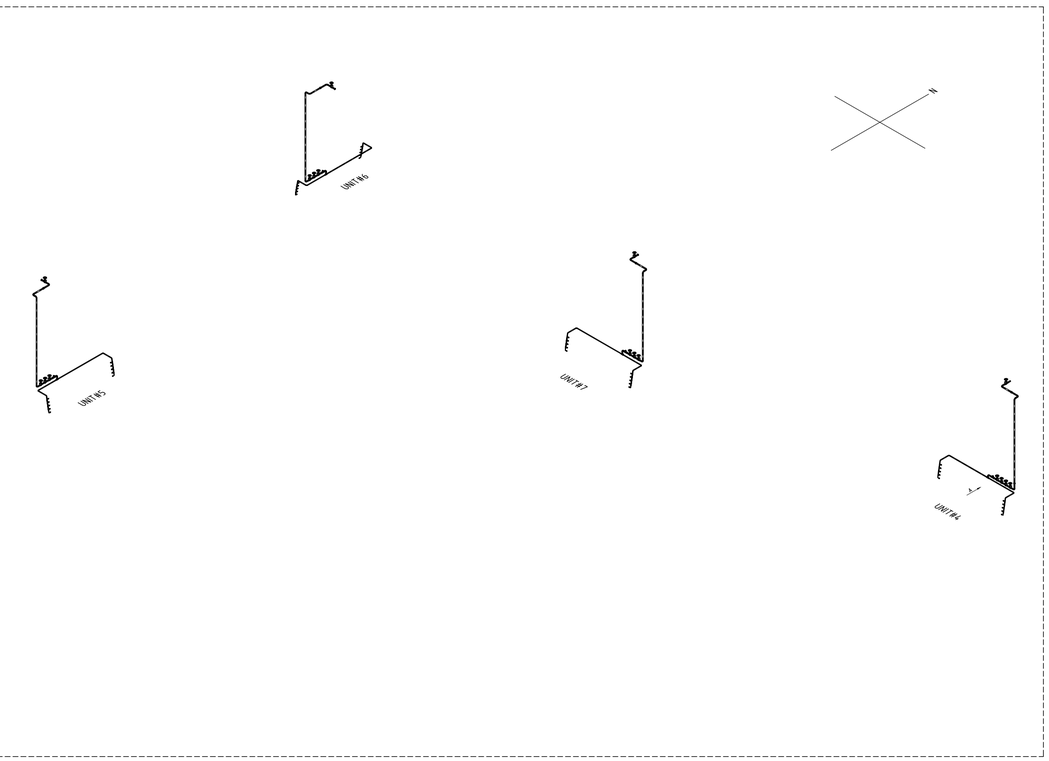
REV

Size A2

DRAWING NO:

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





NOTES:

1. DESIGN PRESSURE: 0.85 MPA(g) ; DESIGN TEMPERATURE : 50°C
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
7. EXPANSION JOINT RELEASED IN PGMA: FP-868
8. BOM IS TYPICAL FOR 8204,8205,8206.
9. FASTNERS FOR DUCT NOZZLES ARE RELEASED IN PGMA:FP-700

REFERENCE DRAWINGS:

1. P&ID OF EMERGENCY WATER TANK B270-10941
2. P&ID OF ABSORBER SYSTEM B240-00201

CS FASTENER BOM:

PIPE SIZE(NB)	FASTENERS							GASKET	
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	TOTAL QTY.(ST)	DU NO.
250(CS)	M24x115	12	1	12	24		FLG-FLG	1	
250(CS)	M24x115	12	2	24	48		FLG-FT-FLG	2	

SS FASTENER BOM:

PIPE SIZE(NB)	FASTENERS							GASKET	
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	TOTAL QTY.(ST)	DU NO.
250(SS)	M24x115	12	1	12	24		FLG-RO-FLG	1	
250(SS)	M24xL	12	1	12	24		FLG-NRV-FLG	2	
80(SS)	M16x90	4	10	40	80		FLG-FLG	10	

SUPPORT BOM

PIPE SIZE(NB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
250	A1	9	9	18	4 M
250	A4	4	4	8	2 M
150	B4	6	6	12	3 M

VARIANT NUMBER / ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER								
				ITEM NO	MATERIAL CODE		A/C/P	UNIT	UNIT WEIGHT	QS	ZONE
				VAR NO	MATERIAL SPECN			DI	QUANTITY		
18	SS 90DEG ELBOW 80 NB				SA312TP316L		NO				
									2		
17	CS RO 10" ; CL 150				CS		NO				
									1		
16	SS FLANGE 3" CL 150 NB				SA312TP316L		NO				
									10		
15	SS FLANGE 250 NB				SA312TP316L		NO				
									2		
14	SS CONREDUCER 150X80 NB				SA312TP316L		NO				
									2		
13	SS CONREDUCER 250X150 NB				SA312TP316L		NO				
									2		
12	SS UNEQUAL TEE 150X80NB				SA312TP316L		NO				
									8		
11	SS UNEQUAL TEE 250X80NB				SA312TP316L		NO				
									1		
10	SS EQUAL TEE 250 NB				SA312TP316L		NO				
									1		
09	SS 80DEG ELBOW 150 NB				SA312TP316L		NO				
									2		
08	SS 90DEG ELBOW 150 NB				SA312TP316L		NO				
									2		
07	SS 90DEG ELBOW 250 NB				SA312TP316L		MR				
									1		
06	SS PIPE NB 80				SA312TP316L		MR				
									5		
05	SS PIPE NB 150				SA312TP316L		MR				
									35		
04	SSPIPE NB 250				SA312TP316L		MR				
									2.5		
03	CS FLANGE NB 250 AWWA; CLD				IS-2062 GRB		MR				
									6		
02	CS 90DEG NB 250 ELBOW				IS-1239 BLACK		NO				
									4		
01	CS PIPE NB 250				IS-1239 BLACK		MR				
									36		

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

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

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

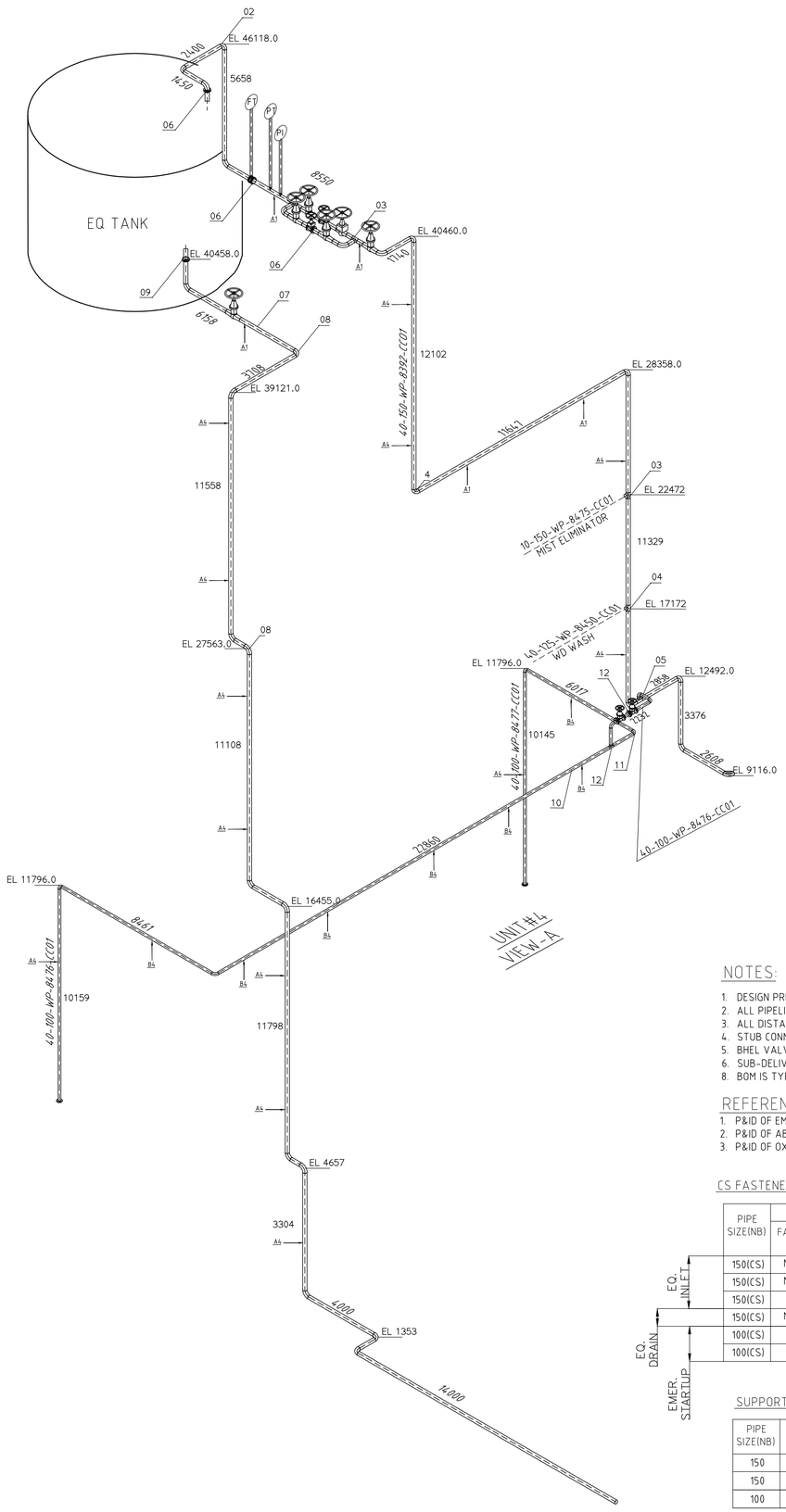
DEPT: PP | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: NTS | WEIGHT (Kg): - | REF TO ASSY / OLD DWG: ------

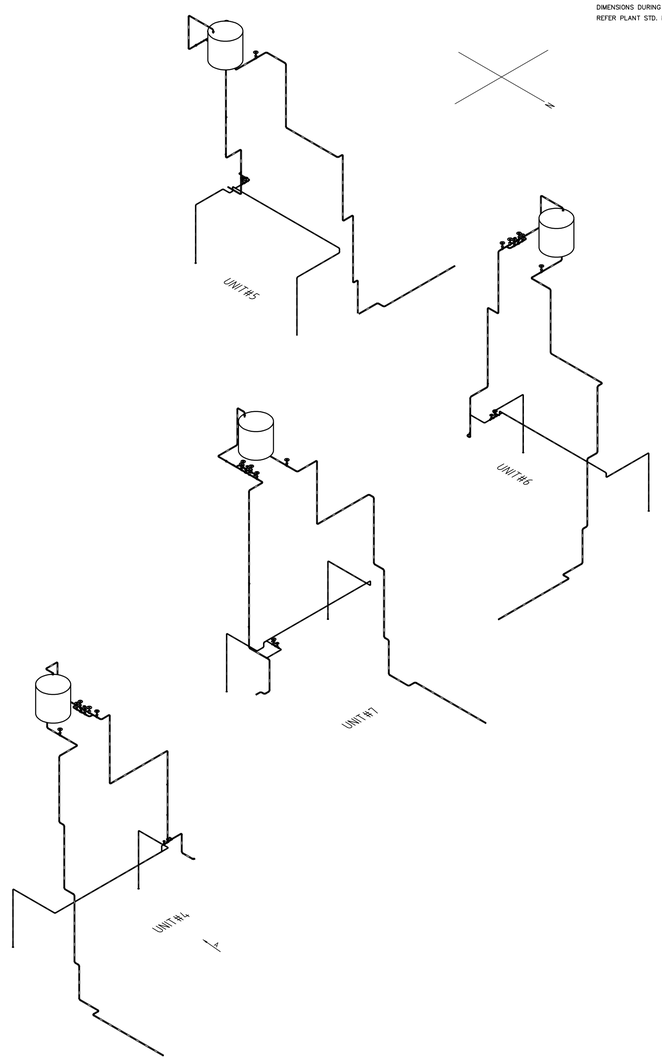
TITLE: EMERGENCY QUENCH (8396)

DRAWING NO : -

REV: 00

DRAWING NO:





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

NOTES:

1. DESIGN PRESSURE: 0.85 MPA(g) ; DESIGN TEMPERATURE : 50°C
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
8. BOM IS TYPICAL FOR 8204,8205,8206.

REFERENCE DRAWINGS:

1. P&ID OF EMERGENCY WATER TANK B270-10941
2. P&ID OF ABSORBER SYSTEM B240-00201
3. P&ID OF OXIDATION AIR BLOWER SYSTEM B240-00262

CS FASTENER BOM:

	PIPE SIZE(NB)	FASTENERS							GASKET	
		FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	TOTAL QTY.(ST)	DU NO.
EQ. INLET	150(CS)	M20x100	8	1	8	16		FLG-FLG	1	
	150(CS)	M20x100	8	2	16	32		FLG-FT-FLG	2	
	150(CS)	M20xL	8	2	16	32		FLG-VAL-FLG	4	
	150(CS)	M20x100	8	1	8	16		FLG-FLG	1	
EQ. DRAIN	100(CS)	M16xL	8	2	16	32		FLG-BFV-FLG	2	
	100(CS)	M16x90	8	2	16	32		FLG-FLG	2	
EMER. STARTUP										

SUPPORT BOM

PIPE SIZE(NB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
150	A1	5	5	10	2 M
150	A4	11	11	22	4 M
100	B4	9	9	18	3M

	16								
	15								
	14								
	13	CS FLANGE NB 100 AWWA:CLD			IS-2062 GRB				6
	12	CS EQUAL TEE 100 NB			IS-1239 BLACK	NO			1
	11	CS 90DEG NB 100 ELBOW			IS-1239 BLACK	NO			7
	10	CS PIPE NB 100			IS-1239 BLACK	MR			60
	09	CS FLANGE NB 150 AWWA:CLD			IS-2062 GRB				2
	08	CS 90DEG NB 150 ELBOW			IS-1239 BLACK	NO			12
	07	CS PIPE NB 150			IS-1239 BLACK	MR			66
	06	CS FLANGE NB 150 AWWA:CLD			IS-2062 GRB				8
	05	CS UNEQUAL TEE 150X100NB			IS-1239 BLACK	NO			1
	04	CS UNEQUAL TEE 150X125NB			IS-1239 BLACK	NO			1
	03	CS EQUAL TEE 150 NB			IS-1239 BLACK	NO			3
	02	CS 90DEG NB 150 ELBOW			IS-1239 BLACK	NO			14
	01	CS PIPE NB 150			IS-1239 BLACK	MR			64
VARIANT NUMBER / ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / DI	UNIT WEIGHT / QUANTITY	IDS ZONE

EQ.DRAIN
EMER. FLUSH
EQ.INLET

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

CAUTION: The information on this drawing 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

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

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

DEPT: PP | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: NTS | WEIGHT (Kg): - | REF TO ASSY / OLD DWG: ------

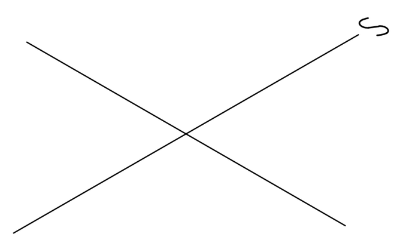
TITLE: EQ.TANK INLET (8392)
EMERGENCY FLUSH DURING STARTUP (8476)
EQ. TANK DRAIN

DRAWING NO : -

REV: 00

DRAWING NO:

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



SUPPORT BOM

PIPE SIZE(NB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
50		10	10	20	4 M
50		10	10	20	4 M
50		8	8	16	3M
125		4	4	8	1M
80		4	4	8	1M

CS FASTENER BOM:

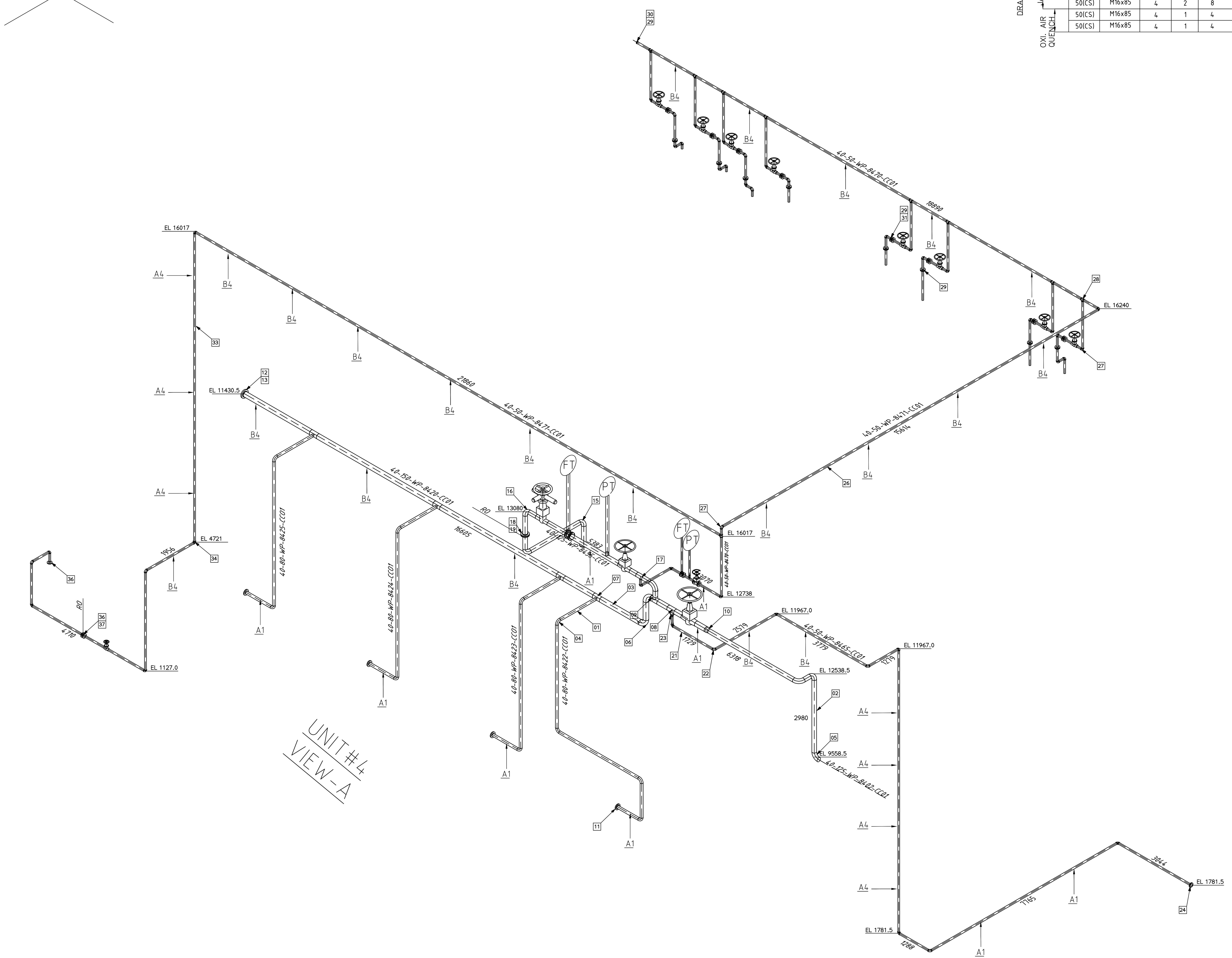
	PIPE SIZE(NB)	FASTENERS: FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	GASKET: TOTAL QTY.(ST)	DU NO.
RC PUMP FLUSH	150(CS)	M20x100	8	1	8	16		FLG-FLG	1	
RC PUMP FLUSH	80(CS)	M16x90	4	4	16	32		FLG-FLG	4	
MAKEUP WATER	125(CS)	M20x95	8	2	16	32		FLG-FT-FLG	2	
MAKEUP WATER	125(CS)	M20x95	8	1	8	16		FLG-RO-FLG	1	
MAKEUP WATER	125(CS)	M20x95	8	1	8	16		FLG-FLG	1	
DRAIN SUMP	50(CS)	M16x85	4	1	4	8		FLG-FLG	1	
JAS WASH	50(CS)	M16x85	4	8	32	64		FLG-FLG	8	
JAS WASH	50(CS)	M16x85	4	16	64	128		FLG-SG-FLG	16	
JAS WASH	50(CS)	M16xL	4	1	4	8		FLG-VALV-FLG	2	
JAS WASH	50(CS)	M16x85	4	2	8	16		FLG-FT-FLG	2	
OXI. AIR QUENCH	50(CS)	M16x85	4	1	4	8		FLG-RO-FLG	1	
OXI. AIR QUENCH	50(CS)	M16x85	4	1	4	8		FLG-FLG	1	

NOTES:

1. DESIGN PRESSURE: 0.85 MPA(g) ; DESIGN TEMPERATURE : 50°C
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
8. BOM IS TYPICAL FOR 8204,8205,8206.

REFERENCE DRAWINGS:

1. P&ID OF EMERGENCY WATER TANK B270-10941
2. P&ID OF ABSORBER SYSTEM B240-00201
3. P&ID OF OXIDATION AIR BLOWER SYSTEM B240-00262



	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / DI	UNIT WEIGHT / QUANTITY	GS	ZONE
OXIDATION AIR QUENCH	37	CS RO 2" PLATE CL 150				IS-2062 GRB		NO	1		
OXIDATION AIR QUENCH	36	CS FLANGE NB 50 CL 150				IS-2062 GRB		NO	4		
OXIDATION AIR QUENCH	35	CS EQ.TEE NB 50				IS-1239 BLACK		NO	1		
OXIDATION AIR QUENCH	34	CS 90DEG NB 50 ELBOW				IS-1239 BLACK		NO	7		
OXIDATION AIR QUENCH	33	CS PIPE NB 50				IS-1239 BLACK		MR	43		
	32	BLANK									
JAS NOZZLE WASH	31	SIGHT FLOW GLASS(SG)				IS-2062 GRB		NO	8		
JAS NOZZLE WASH	30	CS BLIND FLANGE NB 50 CL 150				IS-2062 GRB		NO	1		
JAS NOZZLE WASH	29	CS FLANGE NB 50 CL 150				IS-2062 GRB		NO	37		
JAS NOZZLE WASH	28	CS EQ.TEE NB 50				IS-1239 BLACK		NO	8		
JAS NOZZLE WASH	27	CS 90DEG NB 50 ELBOW				IS-1239 BLACK		NO	37		
JAS NOZZLE WASH	26	CS PIPE NB 50				IS-1239 BLACK		MR	75		
	25	BLANK									
DRAUN SUMP	24	CS FLANGE NB 50 CL 150				IS-2062 GRB		NO	1		
DRAUN SUMP	23	CS CONN. REDUCER NB 100X50				IS-1239 BLACK		NO	1		
DRAUN SUMP	22	CS 90DEG NB 50 ELBOW				IS-1239 BLACK		NO	11		
DRAUN SUMP	21	CS PIPE NB 50				IS-1239 BLACK		MR	31.5		
	20	BLANK									
MAKEUP WATER	19	CS RO 5" PLATE CL 150				IS-2062 GRB		NO	1		
MAKEUP WATER	18	CS FLANGE NB 125 AWWA; CLD				IS-2062 GRB		MR	5		
MAKEUP WATER	17	CS UN.EQ.TEE NB 125/50				IS-1239 BLACK		NO	1		
MAKEUP WATER	16	CS 90DEG NB 125 ELBOW				IS-1239 BLACK		NO	4		
MAKEUP WATER	15	CS PIPE NB 125				IS-1239 BLACK		MR	9		
	14	BLANK									
RC PUMP FLUSH	13	CS BLIND FLANGE NB 150 AWWA; CLD				IS-2062 GRB		MR	1		
RC PUMP FLUSH	12	CS FLANGE NB 150 AWWA; CLD				IS-2062 GRB		MR	1		
RC PUMP FLUSH	11	CS FLANGE NB 80 CL 150				IS-2062 GRB		MR	4		
RC PUMP FLUSH	10	CS CONN. REDUCER NB 150X125				IS-1239 BLACK		NO	1		
RC PUMP FLUSH	09	CS UN.EQ.TEE NB 150/125				IS-1239 BLACK		NO	1		
RC PUMP FLUSH	08	CS UN.EQ.TEE NB 150/100				IS-1239 BLACK		NO	1		
RC PUMP FLUSH	07	CS UN.EQ.TEE NB 150/80				IS-1239 BLACK		NO	4		
RC PUMP FLUSH	06	CS 90DEG NB 150 ELBOW				IS-1239 BLACK		NO	2		
RC PUMP FLUSH	05	CS 90DEG NB 125 ELBOW				IS-1239 BLACK		NO	3		
RC PUMP FLUSH	04	CS 90DEG NB 80 ELBOW				IS-1239 BLACK		NO	16		
RC PUMP FLUSH	03	CS PIPE NB 150				IS-1239 BLACK		MR	19		
RC PUMP FLUSH	02	CS PIPE NB 125				IS-1239 BLACK		MR	7		
RC PUMP FLUSH	01	CS PIPE NB 80				IS-1239 BLACK		MR	38		

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI – 620014
355-052

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

DEPT PP | CODE 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE NTS | WEIGHT (Kg) - | REF TO ASSY / OLD DWG -----

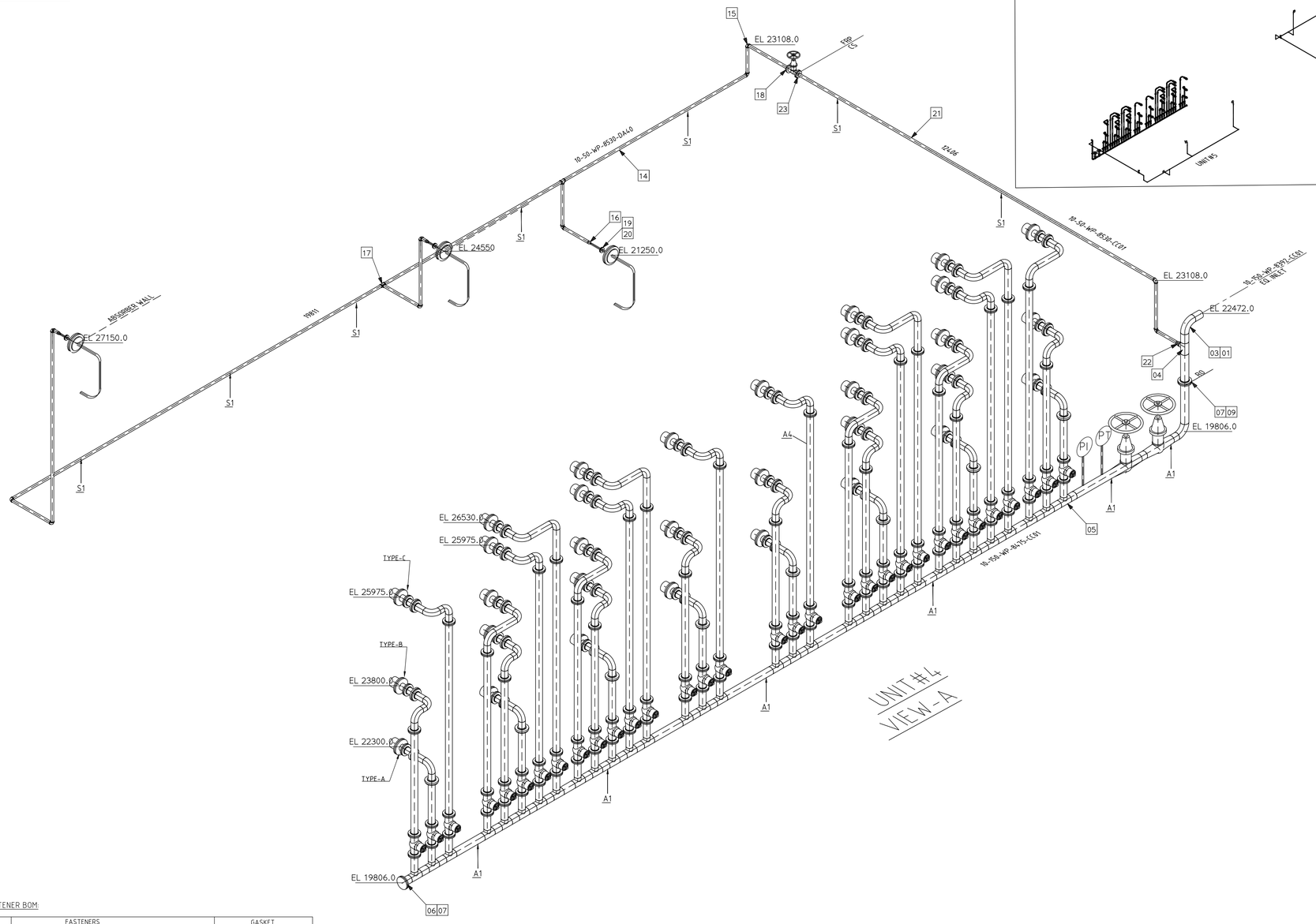
TITLE: PW TO RC PUMP DISCHARGE WASH (8420)
PW to ABSORBER MAKEUP WATER (8455)
PW TO JAS NOZZLE WASH (8470)
PE TO OXIDATION AIR QUENCH (8471)
PW TO DRAIN SUMP (8465)

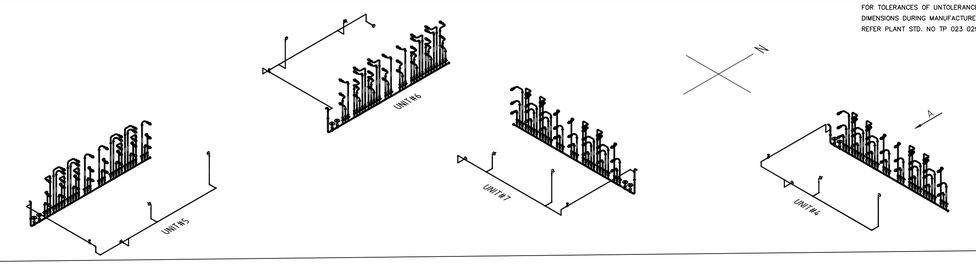
DRAWING NO : –

REV 00

DRAWING NO:

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





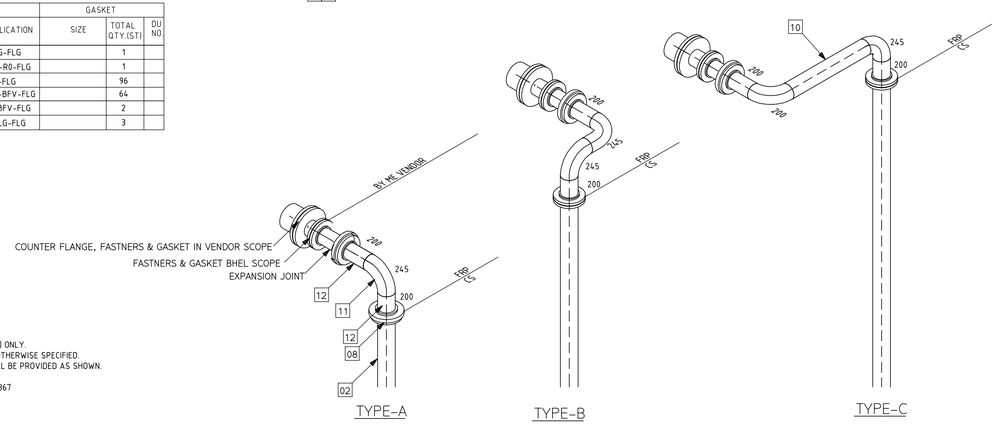
FASTENER BOM:

PIPE SIZE(INB)	FASTENERS						GASKET		
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY	DU NO.	APPLICATION	SIZE	TOTAL QTY.(ST)	DU NO.
150(CS)	M20x100	8	1	8		FLG-FLG		1	
150(CS)	M20x100	8	1	8		FLG-RO-FLG		1	
125(CS)	M20x95	8	96	768		FLG-FLG		96	
125(CS)	M20xL	8	32	256		FLG-BFV-FLG		64	
50(CS)	M16xL	4	1	4		FLG-BFV-FLG		2	
25(FRP)	M12x65	4	3	12		FLG-FLG		3	

INSPEC. HOLE WASH / ME PIPING

SUPPORT BOM

PIPE SIZE(INB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
150(CS)	A1	7	7	14	3 M
150(CS)	A4	12	12	24	4 M
50(FRP)	S1	10	10	20	3 M



NOTES:

1. DESIGN PRESSURE: 10.2 KG/CM²
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
7. EXPANSION JOINT RELEASED IN PGMA: FP-868
8. BOM IS TYPICAL FOR 8204,8205,8206.

REFERENCE DRAWINGS:

1. P&ID OF MIST ELIMINATOR B240-00251
2. SUB-DELIVERY MIST ELIMINATOR GA DRAWING NTPL DOC NO: 3-FW-000-01642

INSPECTION HOLE WASH

MIST ELIMINATOR WASHING

VARIANT NUMBER / ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P / DI	UNIT WEIGHT / QUANTITY	IGS / ZONE
				23	CS FLANGE NB50 CL:150		IS-2062 Gr.B /	1
				22	CS CONN. REDUCER NB80X50		IS-2062 Gr.B /	1
				21	CS PIPE NB50X4.5 12 Meters		IS-1239 BLACK /	1
				20	INSP. HOLE WASHING PIPE ASSY(FRP)	3-FW-870-12097	FRP /	3
				19	FRP FLANGE NB25 PN10		FRP /	3
				18	FRP FLANGE NB50 PN10		FRP /	1
				17	FRP EQ. TEE NB50 PN10		FRP /	2
				16	FRP CONN REDUCER NB50X25 PN10		FRP /	3
				15	FRP 90DEG ELBOW NB50 PN10		FRP /	11+2
				14	FRP PIPE NB50 PN10 34 Meters		FRP /	1
				13	BLANK			
				12	FRP FLANGE NB125 PN10		FRP /	64
				11	FRP 90DEG ELBOW NB125 PN10		FRP /	48
				10	FRP PIPE NB125 PN10 5.2 Meters		FRP /	1
				09	CS RO 6"		/	1
				08	CS FLANGE NB125 CL:150 AWWA CL:D		IS-2062 Gr.B /	96
				07	CS BLIND FLANGE NB150 AWWA CL:D		IS-2062 Gr.B /	1
				06	CS FLANGE NB150 CL:150 AWWA CL:D		IS-2062 Gr.B /	3
				05	CS UN. EQ.TEE NB150X125		IS-1239 BLACK /	32
				04	CS UN. EQ.TEE NB150X80		IS-1239 BLACK /	1
				03	CS BW 90DEG ELBOW NB150X5.4		IS-1239 BLACK /	2
				02	CS PIPE NB125X5.4 135 Meters		IS-1239 BLACK /	1
				01	CS PIPE NB150X5.4 15 Meters		IS-1239 BLACK /	1

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

CAUTION: This information on this drawing 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

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

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

DEPT	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
PP	NTS	-	------

CODE 121 | ALL DIMENSIONS ARE IN MM | PROJECTION

TITLE: MIST ELIMINATOR PIPING (8475) INSPEC. HOLE WASH (8530)

DRAWING NO : -

REV 00

DRAWING NO:

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

SUPPORT BOM

PIPE SIZE(NB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
100		4	4	8	1.5 M
65		12	12	24	3.5 M
32		16	16	32	5M

CS FASTENER BOM:

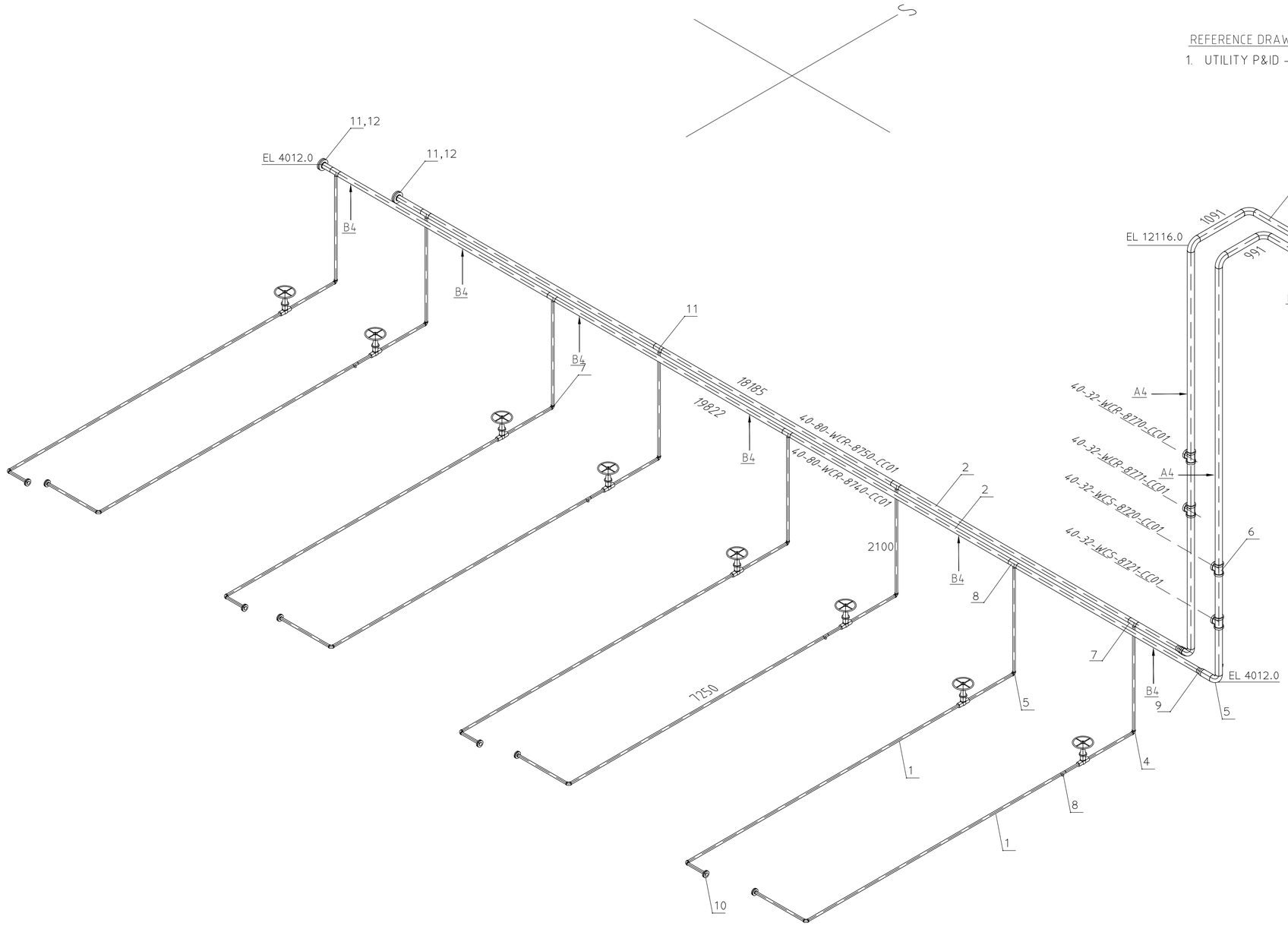
PIPE SIZE(NB)	FASTENERS							GASKET	
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO	APPLICATION	TOTAL QTY.(ST)	DU NO
NB65(CS)	M16x90	4	2	8	16		FLG-FLG	2	
NB32(CS)	M12x70	4	8	32	64		FLG-FLG	8	

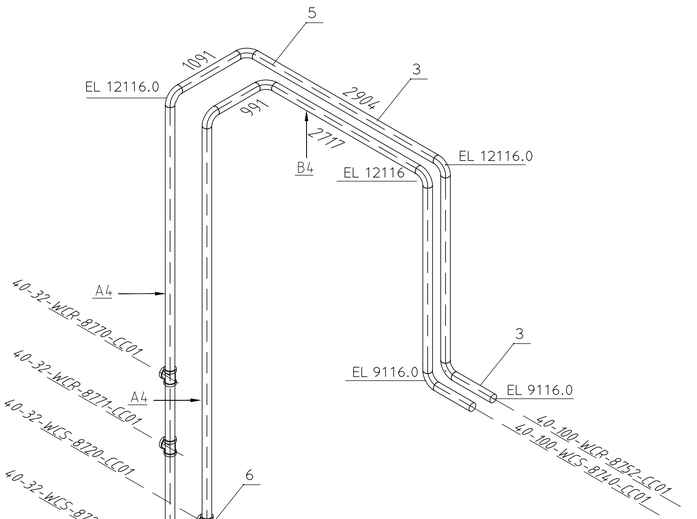
NOTES:

1. DESIGN PRESSURE: 0.7 MPA(g) ; DESIGN TEMPERATURE : 50°C
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (℄) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
8. BOM IS TYPICAL FOR 8204,8205,8206.

REFERENCE DRAWINGS:

1. UTILITY P&ID - COOLING WATER DISTRIBUTION SYSTEM B270-10632





VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P / DI	UNIT	UNIT WEIGHT / QUANTITY	IDS ZONE
	12	CS BLIND FLANGE NB 65 CL 150				IS-2062 GRB		MR		
									2	
	11	CS FLANGE NB 65 CL 150				IS-2062 GRB		MR		
									2	
	10	CS FLANGE NB 32 CL 150				IS-2062 GRB		MR		
									16	
	09	CS CONN. REDUCER NB 100X65				IS-1239 BLACK		NO		
									2	
	08	CS UN.EQ.TEE NB 32/25				IS-1239 BLACK		NO		
									4	
	07	CS UN.EQ.TEE NB 65/32				IS-1239 BLACK		NO		
									8	
	06	CS UN.EQ.TEE NB 100/32				IS-1239 BLACK		NO		
									4	
	05	CS 90DEG NB 100 ELBOW				IS-1239 BLACK		NO		
									10	
	04	CS 90DEG NB 32 ELBOW				IS-1239 BLACK		NO		
									16	
	03	CS PIPE NB 100				IS-1239 BLACK		MR		
									26	
	02	CS PIPE NB 65				IS-1239 BLACK		MR		
									38	
	01	CS PIPE NB 32				IS-1239 BLACK		MR		
									82	

CAUTION: The information on this drawing 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

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

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

DEPT: PP | CODE: 121 | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: NTS | WEIGHT (Kg): - | REF TO ASSY / OLD DWG: -----

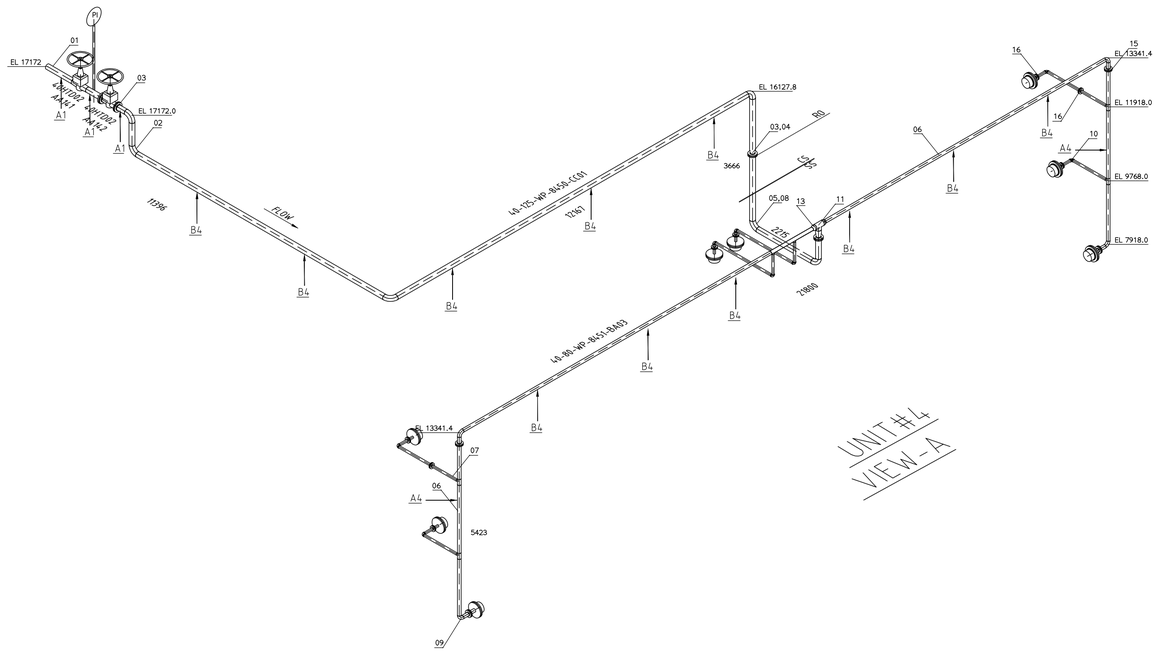
TITLE: CW INLET (8740) CW OUTLET (8780)

DRAWING NO : -

REV: 00

DRAWING NO:

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



NOTES:

1. DESIGN PRESSURE: 0.85 MPA(g) , DESIGN TEMPERATURE : 50°C
2. ALL PIPELINE ELEVATIONS SHOWN ARE FOR PIPE CENTER LINE (L) ONLY.
3. ALL DISTANCES ARE SHOWN CENTRE TO CENTRE ONLY UNLESS OTHERWISE SPECIFIED.
4. STUB CONNECTIONS FOR INSTRUMENTS, SAMPLING, DOSING SHALL BE PROVIDED AS SHOWN.
5. BHEL VALVES RELEASED IN PGMA: FP-860
6. SUB-DELIVERY VALVES (BFV, RBV ETC) RELEASED IN PGMA:FP-867
7. EXPANSION JOINT RELEASED IN PGMA: FP-868
8. BOM IS TYPICAL FOR 8204,8205,8206.
9. FASTNERS FOR DUCT NOZZLES ARE RELEASED IN PGMA:FP-700

REFERENCE DRAWINGS:

1. P&ID OF ABSORBER SYSTEM B240-00201
2. W/D WASH SYSTEM ARRANGEMENT(INSIDE DUCT) REFER DWG:0-FP-870-00002

CS FASTENER BOM:

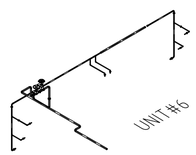
PIPE SIZE(NB)	FASTENERS							GASKET	
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	TOTAL QTY.(ST)	DU NO.
125(CS)	M20xL	8	1	8	16		FLG-BFV-FLG	2	
125(CS)	M20x95	8	1	8	16		FLG-RO-FLG	2	

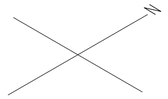
SS FASTENER BOM:

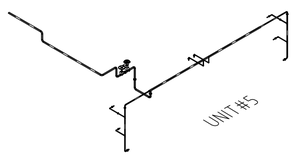
PIPE SIZE(NB)	FASTENERS							GASKET	
	FASTENER SIZE	QTY PER JOINT(ST)	TOTAL JOINTS	TOTAL QUNATITY BOLTS	TOTAL QUNATITY NUTS	DU NO.	APPLICATION	TOTAL QTY.(ST)	DU NO.
125(SS)	M20x95	8	1	8	16		FLG-FLG	1	
80(SS)	M16x90	4	4	16	32		FLG-FLG	4	
50(SS)	M16x85	4	8	32	64		FLG-FLG	8	

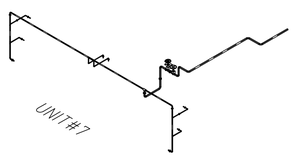
SUPPORT BOM

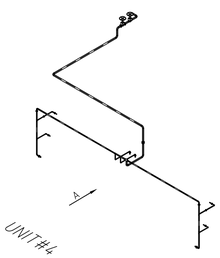
PIPE SIZE(NB)	TYPE	SUPPORT QTY	U-BOLT QTY	FASTNERS QTY	CHANNEL
125(CS)	A1	3	3	6	1.5 M
125(CS)	B4	5	5	10	2.5 M
80(SS)	B4	6	6	12	3 M
80(SS)	A4	2	2	4	1 M











VARIANT NUMBER / ITEM NUMBER		DESCRIPTION	STD	DRAWING NUMBER		MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT	QS	ZONE
					VAR NO	MATERIAL SPECN		DI	QUANTITY		
	16	SS FLANGE 2" SORF 150 NB				SA312TP316L	NO		10		
	15	SS FLANGE 3" SORF 150 NB				SA312TP316L	NO		6		
	14	SS FLANGE 5" SORF 150 NB				SA312TP316L	NO		2		
	13	SS CON REDUCER NB125×80				SA312TP316L	NO		2		
	12	SS UN.EQUAL TEE 3"X2"				SA312TP316L	NO		6		
	11	SS EQUAL TEE 5"				SA312TP316L	NO		1		
	10	SS 90 DEG ELBOW 2"				SA312TP316L	NO		8		
	09	SS 90 DEG ELBOW 3"				SA312TP316L	NO		4		
	08	SS 90 DEG ELBOW 5"				SA312TP316L	NO		2		
	07	SS PIPE NB 50				SA312TP316L	MR		12		
	06	SS PIPE NB 80				SA312TP316L	MR		32.5		
	05	SS PIPE NB 125				SA312TP316L	MR		3.2		
	04	RO PLATE				IS-1239 BLACK	MR		1		
	03	CS FLANGE NB 125				IS-1239 BLACK	MR		4		
	02	CS 90 DEG NB 125 ELBOW				IS-1239 BLACK	NO		4		
	01	CS PIPE NB 125				IS-1239 BLACK	MR		25		

REV	DATE	ALTERED :
01		CHD & APPD :
ZONE		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: KORBA 500MW UNIT#4

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

	NAME	SIGNATURE	DATE
DRN	VENKAT D		07.02.23
CHD	VENKAT D		10.02.23
APPD	NIRMALRAJ		10.02.23

DEPT: PP | ALL DIMENSIONS ARE IN MM | PROJECTION | SCALE: NTS | WEIGHT (Kg): - | REF TO ASSY / OLD DWG: -----

CODE: 121

TITLE: WD WASH (8450)

DRAWING NO : -

REV: 00