Sl. No	**Description**	**Requirement**	
1.	**Type**	Two stage Chevron type	
2.	**Quantity**		
i.	Quantity of Mist Eliminator	1 set (1 set means Complete Mist Eliminators, Washing systems and accessories).	
3.	**MOC**		
i.	Panel , Wash Nozzle & Wash Pipe	Polypropylene (PP)	
ii.	Wash Pipe Supports	Polypropylene/ C276 / Alloy 59	
iii.	Fasteners	All Fasteners inside Absorber shall be made of C276 Material. For Pipe Clamping to the Pipe Supports: C276 U Clamp, C276 Bolts, C276 Nuts, C276 Washers to be provided. For other areas in Mist Eliminator - PP/PVDF Fasteners Outside Absorber - Galvanised fasteners	
iv.	Enclosure Plate	PP or C276 material	
v.	Protection Plates	Fibre Backed Polypropylene Sheets	
4.	**Parameters**		
i.	Gas flow	Vertical	
ii.	Casing Dimension	Length : 9900 mm	Width : 25900 mm
iii.	Design Pressure of Mist Eliminator Panel	660 mmH_2O (G)	
iv.	Max Allowable Pressure drop across Mist Eliminator element	12 mmH_2O (G) at Design point 10 mmH_2O (G) at Guarantee point	
v.	Design Temperature Rev 01	▪ 70 Deg C (Continuous) ▪ 80 – 90 Deg C (30 minutes) ▪ 90 – 110 Deg C (5 min)	
5.	**Gas condition at ME Inlet**	**Guarantee Point**	**Design Point**
i.	Gas Flow Rate (Nm^3/s-wet)	734.05	837.19
ii.	Gas Flow Rate (m^3/s-wet)	867.40	996.24
iii.	Gas Temperature (Deg C)	49.6	51.9
iv.	Density (kg/m^3)	1.10038	1.08249

Sl. No	Description	Requirement	
v.	Operating Pressure at Mist Eliminator inlet (mm H_2O (G)	98	130
vi.	Gas Flow Distribution	+ or - 20%	
6.	**Gas Composition at ME Inlet**		
i.	SO_2 (Vol%-wet)	0.0026	0.0023
ii.	H_2O (Vol%-wet)	11.72	13.11
iii.	O_2 (Vol%-wet)	4.54	4.49
iv.	CO_2 (Vol%-wet)	13.16	12.35
v.	N_2 (Vol%-wet)	70.58	70.05
vi.	HCl (ppm-Dry)	<2	<2
7.	HF (ppm-Dry)	<1	<1
i.	Dust (mg/Nm^3-wet)	<50	<50
8.	**Entrained Mist Condition:**		
i.	Mist Concentration at Inlet –at Guarantee & Design Point	200 g/Nm^3-dry	
ii.	Mist Concentration at Outlet –at Guarantee & Design Point	≤50 mg/Nm^3-dry	
9.	**Mist Composition**		
i.	Solid	30 wt.%	
ii.	Cl^-	20,000 ppm	
iii.	Mg^{2+}	8535.18 ppm	
iv.	Ca^{2+}	400.60 ppm	
v.	Na^+	268.29 ppm	
vi.	SO_4^{2-}	27,179.31 ppm	

1.1 WASHING ARRANGEMENT

I.	**Washing water condition**	
a.	Flow rate - Average	31.92 m^3/hr *1)
b.	Flow rate at M/E Inlet – Instantaneous Allowable Max	120 m^3/hr
c.	Flow rate at M/E Inlet – Instantaneous Min	100 m^3/hr
d.	Feed Pressure (at inlet flange of ME Wash header)	0.2 MPa (Max)

e.	Spray Nozzle –Top washing (recommended)	90 °, Full Cone
f.	Spray Nozzle –Bottom washing (recommended)	120 °, Full Cone
g.	Spray pipe level from ME Panel	< 700 mm

Note: Mist Eliminator vendor to guarantee operation of Mist eliminator without fouling or plugging continually for the period of 20,000 hours without any FGD shut down.

II.	**Washing Method**						
		First Stage			Second Stage		
		Front Surface	Back Surface		Front Surface	Back Surface	
a.	Total Washing Area m^2	9.9 x 25.9	9.9 x 25.9		9.9 x 25.9	9.9 x 25.9	
b.	Washing Water Source	Refer Clause 1.2					
c.	Washing Water Average Flow rate m^3/h	*	*	*	*		
d.	Instantaneous Max Water Flow rate m3/h	*	*	*	*		
e.	Duration of One washing for One Divided Section Sec	*	*	*	*		
f.	Time of One washing Cycle (min)	*	*	*	*		
	*Washing method shall be confirmed by the vendor. ** Only for Maintenance *1) shall be finalized by vendor						

1.2 WATER ANALYSIS

Process water characteristic envisaged for Mist Eliminator washing is given below.

Sl. No	Constituents	as	mg per litre
1.	Calcium	$CaCO_3$	141.5
2.	Magnesium	$CaCO_3$	45.0
3.	Sodium & Potassium	$CaCO_3$	25.0
4.	Bi-Carbonates	$CaCO_3$	117.5
5.	Chloride	$CaCO_3$	27
6.	Sulphate	$CaCO_3$	67
7.	Carbonate	$CaCO_3$	0
8.	Silica	SiO_2	10
9.	Iron	Fe	0.5
10.	pH value	-	7.8
11.	Turbidity	NTU	<15
12.	TDS		<500

1.3 MIST ELIMINATOR ARRANGEMENT AND MIST PARTICLE SIZE DISTRIBUTION:

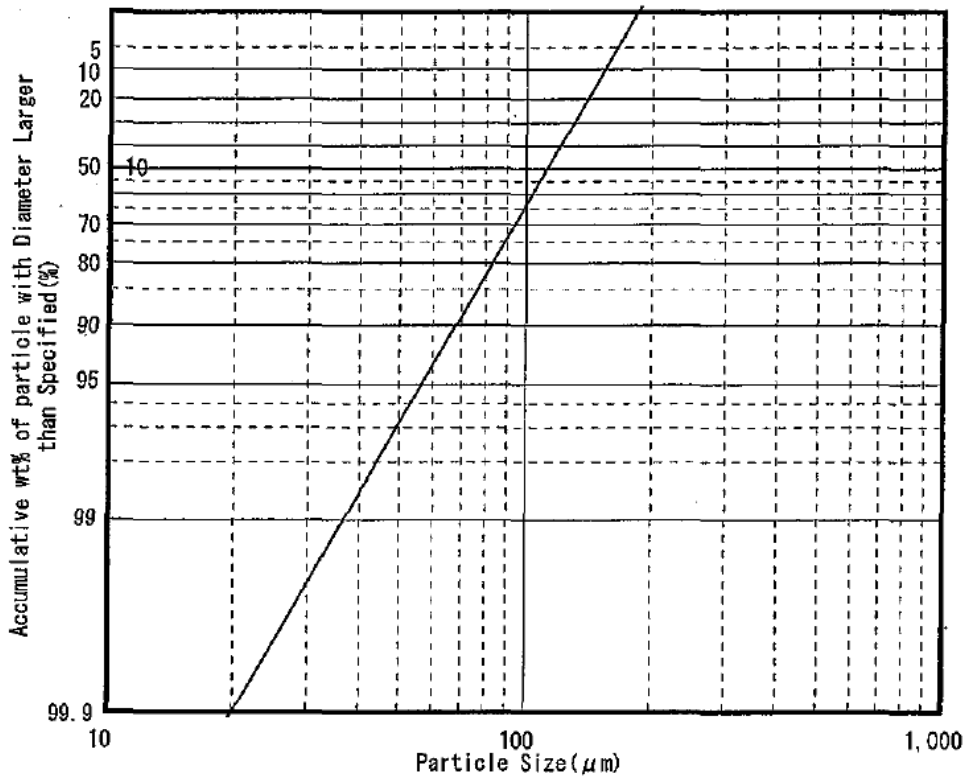
a) Bidder shall note that there are two column tie beams located inside the absorber and separated by 8040 mm. Beams are located on either side of centre line at a distance of 4020 mm from the centre line (Bidder shall refer to Note 01 in the typical drawing enclosed). These two tie beams have to be used as Mist Eliminator support beams**.**

b) Overall wash arrangement shall be as per the drawing (typical) enclosed.

Note:

Bidder to decide the spray washing arrangement considering the water flow rate mentioned above.

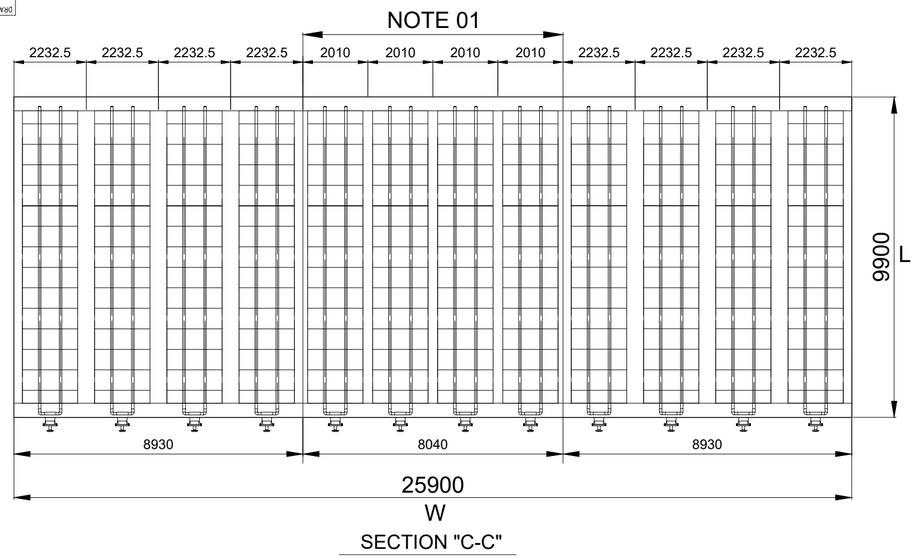
Fig. 2 Mist Particle Size Distribution(EXPECTED VALUE)



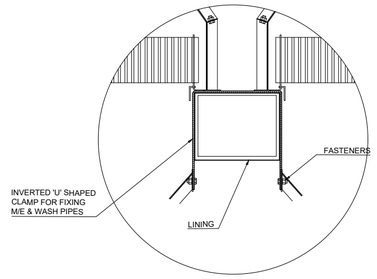
	Project	TSGENCO KOTHAGUDEM 1X800 MW			
	FGD	WET LIMESTONE BASED FGD SYSTEM			
	PARAMETERS	MIST ELIMINATOR SELECTION DATA			
REF	FGD:ME:KTPS:001	Revision	01	Date	06.08.2021

DRAWING NO. 2-FW-215-08822

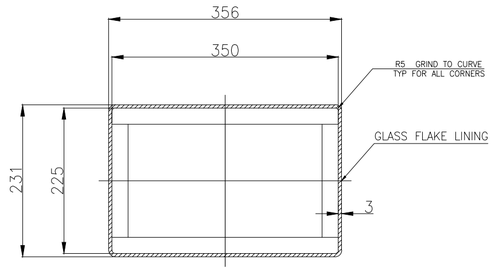
All dimensions are in millimeters



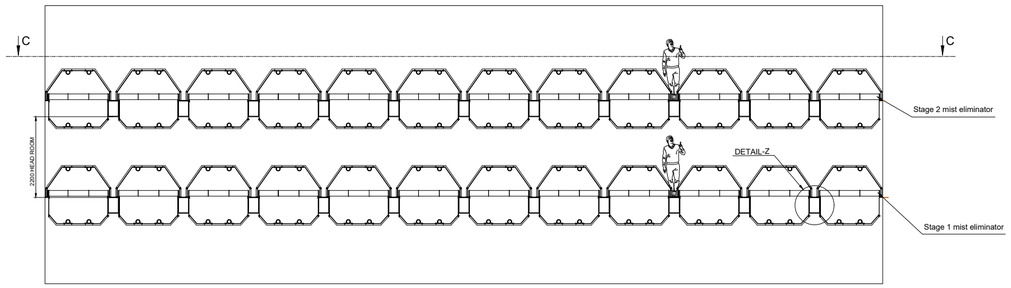
SECTION "C-C"



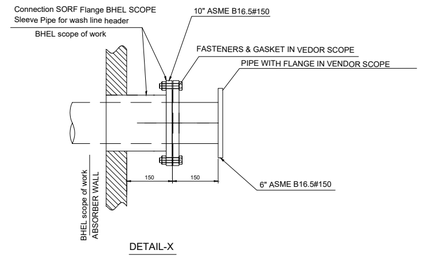
DETAIL-Z



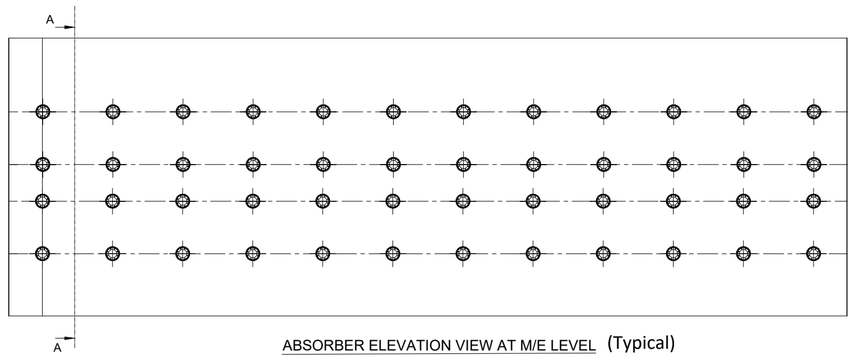
ME SUPPORT BEAMS
(Typical)



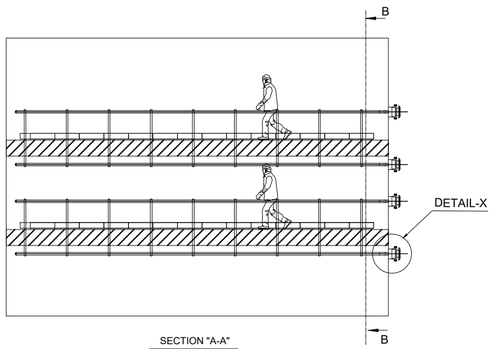
SECTION "B-B" (Typical)



DETAIL-X



ABSORBER ELEVATION VIEW AT M/E LEVEL (Typical)



SECTION "A-A"

THE FOLLOWING ITEMS ARE IN VENDOR SCOPE:

a) MIST ELIMINATOR MODULE WITH END STOPPER PLATE FOR ALL THE STAGES
b) FLUSHING PIPES WITH SPRAY NOZZLES AND FLANGE FOR THE FRONT AND BACK WASH FOR ALL THE STAGES
c) HORIZONTAL MEMBER FOR PIPE SUPPORT WITH MOUNTING CLAMP FOR PIPE
d) VERTICAL MEMBER (LEG SUPPORT- L ANGLE) FROM THE MAIN BEAM TO HORIZONTAL PIPE SUPPORT
e) INVERTED U-CLAMP (HANGER TYPE) FOR MOUNTING BOTTOM WASH PIPE SUPPORT
f) PAD PLATE AT THE END OF THE LEG SUPPORT
g) ALL FASTENERS (MADE OF C-276) FOR SUPPORT MEMBERS/LOAD BEARING MEMBER INSIDE ABSORBER
h) FASTENERS/GASKETS FOR THE FLANGES OUTSIDE ABSORBER AS PER THE DRAWING
i) ANY ENCLOSURE PLATE, IF REQUIRED, SHALL BE PROVIDED

BHEL WILL PROVIDE ONLY THE MAIN SUPPORT BEAM AND OUTER RING SUPPORT FOR THE MIST ELIMINATOR. ALL SUPPORTS FOR PIPE SHALL BE TAKEN FROM THE MAIN SUPPORT BEAM /OUTER RING .

PIPE SUPPORTS SHALL NOT BE TAKEN FROM ABSORBER CASING.

DRAWING IS SHOWN WITH FLAT TYPE MIST ELIMINATOR . VENDOR MAY EVEN OFFER ROOF TYPE MIST ELIMINATOR.

NOZZLE LOCATION ON 'W' SIDE ONLY.

NOTE 01:

A) THERE ARE TWO COLUMN TIE BEAMS (PART OF ABSORBER STRUCTURE), ONE ON EITHER SIDE OF THE CENTRE LINE AT A DISTANCE OF 4020 MM FROM THE CENTRE LINE. THESE BEAMS HAVE TO BE USED AS ME SUPPORT BEAMS AND ITS POSITION CANNOT BE CHANGED.
B) M/E SUPPORT BEAM ARE IN BHEL SCOPE AND DETAILS ARE GIVEN. ONLY THE DEPTH OF THE SUPPORT BEAM WILL BE VARIED AS PER THE LOADING DETAILS. VENDOR'S ME DESIGN SHALL BE ABLE ACHIEVE THE WALKWAY REQUIREMENT OF 300 MM WIDE CONSIDERING THE BEAM DETAILS GIVEN IN THE DRAWING. THE WIDTH OF THE M/E BEAM CANNOT BE MODIFIED AND ANY ADDITIONAL SUPPORT REQUIRED TO ACHIEVE WALKWAY OF 300 MM HAS TO BE PROVIDED BY VENDOR.
C) BHEL'S SCOPE IS M/E SUPPORT BEAM AND THE OUTER RING SUPPORT. THE MAXIMUM WIDTH OF THE SUPPORT RING SHALL BE 300 MM. ANY OTHER ITEMS LIKE ENCLOSURE PLATES/BLANKING PLATES ,IF REQUIRED, SHALL BE IN THE SCOPE OF M/E VENDOR.

REV	DATE	ALTERED / CHECKED

PROJECT: TSGENCO KTPS 1X800 MW, TSGENCO YADADRI YTPS 5X800 MW

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

	NAME	SIGN	DATE	NO OF VAR.
DRN	SRI	--sd--	09-08-21	-
CHD	SHANMUGA	--sd--	09-08-21	-
APPD	V KESAVAN	--sd--	09-08-21	-

DEPT	GRADE OF UNTOL.DIM	SCALE	WEIGHT (KG).	REF. TO ASSY/OLD DRG.	ITEM NO.	NO. OF ITEMS
FGD		N.T.S	–	–	–	–
CODE 9789						

TITLE: TYPICAL ARRANGEMENT OF M/E (2 STAGE)

CARD CODE: U 01

DRAWING NO.: 2-FW-215-08822

REV: 00

Size A2