

	PROJECT	MAHAGENCO BHUSAWAL (1X660MW)			
	FGD	WET LIMESTONE BASED FGD SYSTEM			
	PARAMETERS	MIST ELIMINATOR SELECTION DATA			
Ref:	FGD:ME:BHUS660:007	Revision	00	Date	15.05.2020

Sl. No	Description	Requirement	
1.	End Customer	MAHAGENCO	
2.	Project Name	Bhusawal 1X660 MW	
3.	Location	Bhusawal, Jalgaon Dist, Maharashtra State, India.	
4.	Type	Two stage chevron type (flat type)	
5.	Quantity		
	Quantity of Mist Eliminators for	1 set (1 set means Complete Mist Eliminators, Washing systems and accessories).	
6.	MOC		
	ME Panel	FRP	
	Washing Pipe	FRP	
	Wash Pipe Supports	FRP	
	Washing Nozzles	PVDF or PP as per bidder's proven practice	
	Hardware inside absorber	a) Alloy 59/ C276 for load bearing applications b) All metallic fasteners provided shall be of Alloy 59/C276 c) For pipe clamps, C276 Bolt, C276 Nut, C276 washer and C276 spring washer to be provided	
7.	Parameters		
i.	Gas flow	Vertical	
ii.	Casing Dimension	Length : 9900 mm	Width : 21900 mm
iii.	Design Pressure of Mist Eliminator Panel	660 mmH ₂ O (G)	
iv.	Max Allowable Pressure drop across Mist Eliminator element	15 mmH ₂ O (G) at Design point 12 mmH ₂ O (G) at Guarantee point	
v.	Design Temperature	▪ 70 Deg C (Continuous) ▪ 80 – 90 Deg C (30 minutes) ▪ 90 – 110 Deg C (5 min)	
8.	Gas condition at ME Inlet	Guarantee Point	Design Point
i.	Gas Flow Rate (Nm ³ /s-wet)	628.1003	700.3001
ii.	Gas Flow Rate (m ³ /s-wet)	752.2133	839.2807
iii.	Gas Temperature (Deg C)	54.0	54.2
iv.	Density (kg/m ³)	1.07035	1.06876
v.	Operating Pressure at Mist Eliminator inlet (mm H ₂ O (G))	70	80
vi.	Gas Flow Distribution	+ or - 20%	

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9.	Gas Composition at ME Inlet		
i.	SO ₂ (Vol%-wet)	0.0028	0.0028
ii.	H ₂ O (Vol%-wet)	14.5062	14.6711
iii.	O ₂ (Vol%-wet)	4.5218	4.5266
iv.	CO ₂ (Vol%-wet)	12.3177	12.2816
v.	N ₂ (Vol%-wet)	68.6511	68.5175
vi.	HCl (ppm-Dry)	<2	<2
vii.	HF (ppm-Dry)	<1	<1
viii.	Dust (mg/Nm ³ -wet)	<50	<200
10.	Gypsum Slurry Density (t/m³)	1.204	1.202
11.	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	
12.	Mist Composition		
i.	Solid	30 wt.%	
ii.	Cl ⁻	6294.01 ppm	
iii.	Mg ²⁺	6033.88 ppm	
iv.	Ca ²⁺	479.12 ppm	
v.	Na ⁺	1416.2544 ppm	
vi.	SO ₄ ²⁻	18296.81 ppm	

1.1 WASHING ARRANGEMENT

I.	Washing water condition	
a.	Flow rate - Average	27.4 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	90 °, Full Cone
f.	Spray Nozzle –Bottom washing	120 °, Full Cone
g.	Spray pipe level from ME Panel	< 700 mm

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II.	Washing Method	First Stage		Second Stage	
		Front Surface	Back Surface	Front Surface	Back Surface
a.	Total Washing Area m ²	9.9 x 21.9	9.9 x 21.9	9.9 x 21.9	9.9 x 21.9
b.	Washing Water Source	Refer Clause 1.2			
c.	Washing Water Average Flow rate m ³ /h	*	*	*	*
d.	Instantaneous Max Water Flow rate m ³ /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				

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1.2 WATER ANALYSIS

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

CW / ACW QUALITY

The water quality of CW / ACW water is mentioned below.

Sl.No	Description	Unit	Value
1.	Calcium as CaCO ₃	Mg/l	240
2.	Magnesium as CaCO ₃	Mg/l	120
3.	Sodium & Potassium as CaCO ₃	Mg/l	252/33
4.	Bicarbonates as CaCO ₃	Mg/l	220
5.	Chloride as CaCO ₃	Mg/l	140
6.	Sulphate as CaCO ₃	Mg/l	50
7.	Carbonate as CaCO ₃	Mg/l	80
8.	Silica as SiO ₂	Mg/l	48
9.	Iron as Fe	Mg/l	0.16
10.	pH value	-	8.85
11.	Turbidity	NTU	2.2

CW-Cooling water

ACW- Auxiliary cooling water

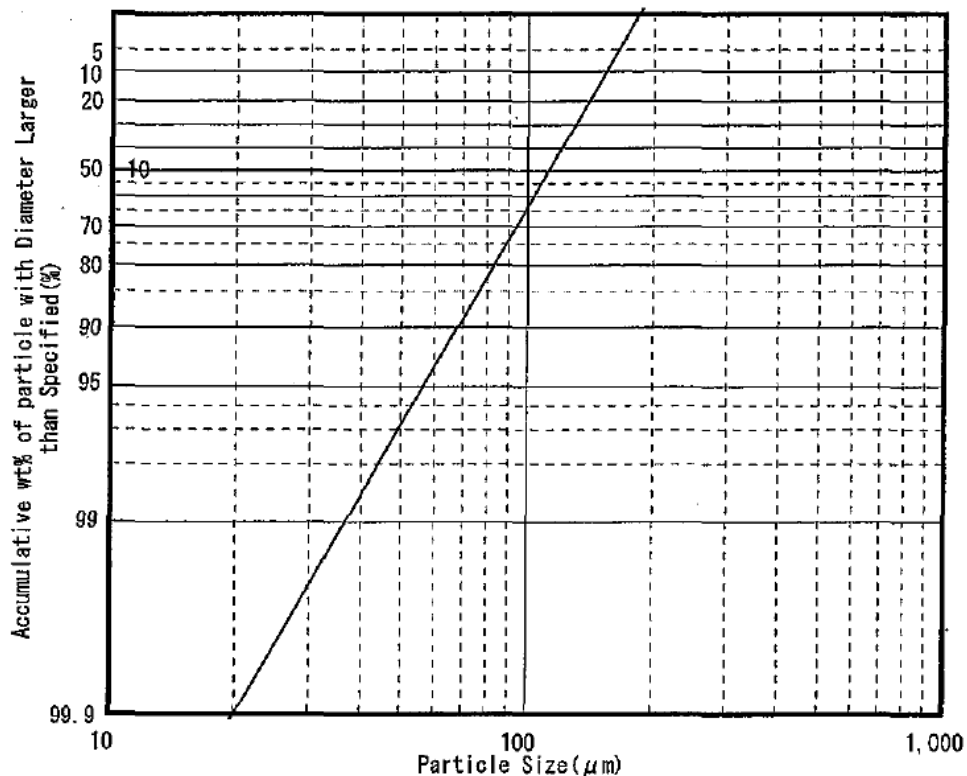
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1.3 MIST ELIMINATOR ARRANGEMENT AND MIST PARTICLE SIZE DISTRIBUTION:

- Bidder shall note that there are two column tie beams located inside the absorber and separated by 8000 mm. Beams are located on either side of centre line at a distance of 4000 mm from the centre line (Bidder shall refer to Note 01 :B in the typical drawing enclosed). These two tie beams are fixed and they have to be used as Mist Eliminator support beams.
- Overall wash arrangement shall be as per the drawing (typical) enclosed:

Fig.2 Mist Particle Size Distribution(EXPECTED VALUE)



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