

Rotary Particulate Collector(RPC)



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Rotary Particulate Collector(RPC)

- Rotary Particulate Collector (RPC) , an Innovative product by ECOMATRIX Global Pvt.Ltd., for cleaner Environment.
- We, ECOMATRIX Global Pvt. Ltd., aiming to have footprints globally in Green Energy Environmental Solutions.
- RPC ensures cleaner gases/air from exhaust of
 - Boilers, both fired & unfired (WH Boilers) of all kinds
 - Steel plants
 - Cement Plants
 - Any processes

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RPC in Sugar Plant Boilers

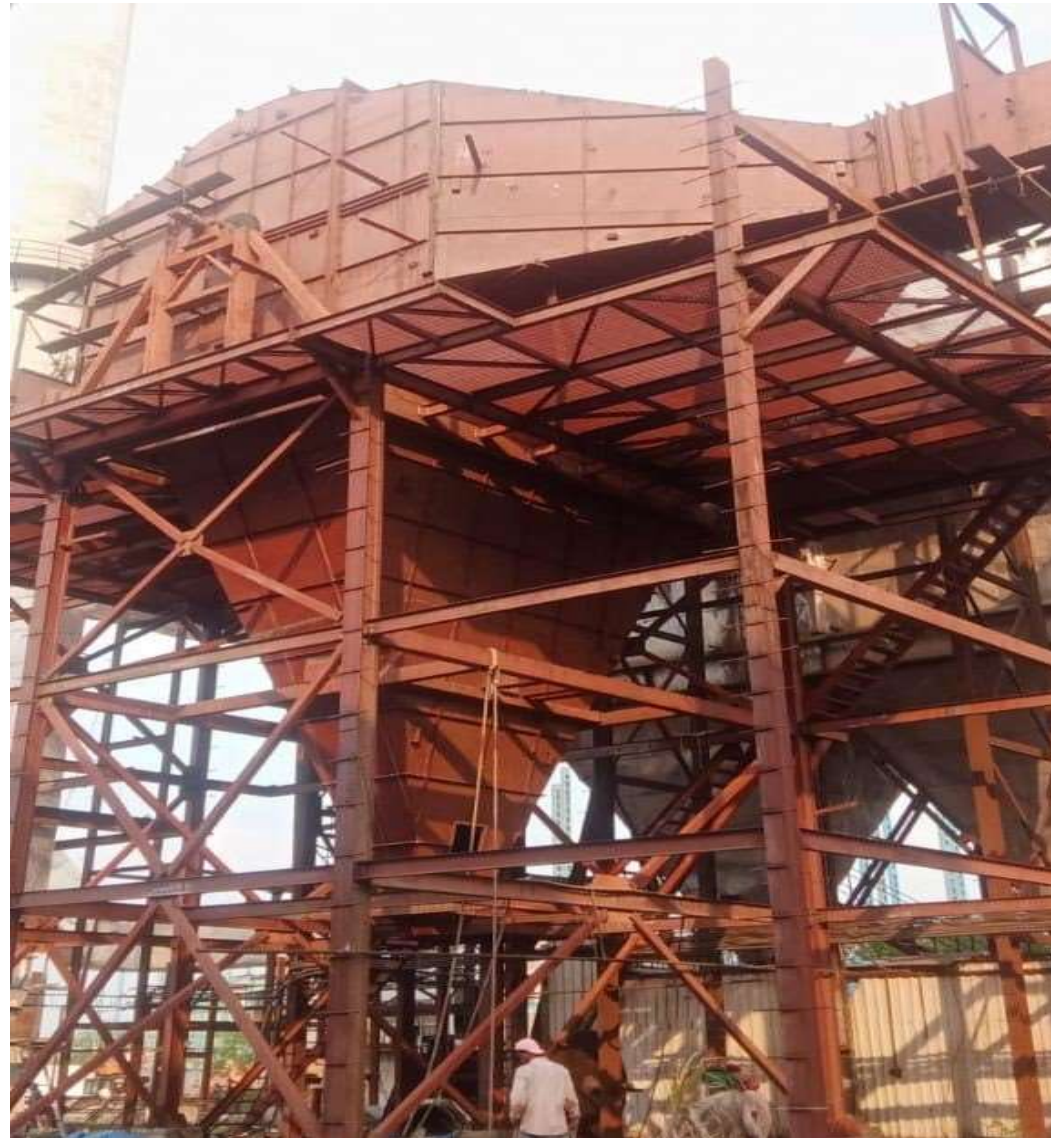
- RPC not only ensures cleaner environment , it ensures Human safety.
- RPC is an effective replacement for Electrostatic Precipitators (ESP) and Wet Scrubbers.
- There were ESP related fatal accidents in Sugar Plant Boilers.
- Wet Scrubbers requires huge quantity of water and leads for slurry ash handling which is not easy and also not environmental friendly.



Rotary Particulate Collector(RPC)

Working Principle of RPC

- Rotor is the main filtration unit having Filter Elements, rotates at a specified Speed.
- Rotor is split into 3 zones, dust capturing, dust dislodging/Cleaning and gas exit zone.
- Gas containing ash/dust particles comes into contact with the Rotor at the gas inlet side, in horizontal axis.
- Gas gets filtered by leaving the dust particles over the filter element on Rotor.
- Clean gas pass through the filter element and exit from the other side of Rotor
- The rotating Rotor carries the ash/dust accumulated to the cleaning zone at the bottom.
- High Pressure air jets dislodges the dust from the filtration element and direct the dust towards hopper.





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- When the Rotor with dust layer enters the dislodging zone, the first set of air nozzles blow out the dust from the Filter Panels on the Rotor.
- Further rotation of Rotor ensures cleaning of Filter Panels unit thoroughly by subsequent set of air nozzles.
- Dust dislodged from Filter Panel is collected at the Hopper fitted just vertically down.
- RAV fitted at the discharge mouth of Hopper ensures dust evacuation from RPC system without allowing any air ingress into RPC due to negative pressure(suction) by the ID Fan.

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- Rotor at a specified speed ensures always cleaned Filter Panel surfaces are available for further capturing of dust and ensure clean gas.
- Gas pressure at the inlet and outlet of RPC is monitored for ensuring the cleaning is effective and air jets are sufficient.
- Gas temperature at the inlet and outlet of RPC is monitored for ensuring no air ingress.
- Gas sampling at the inlet and outlet of RPC will be carried out for dust filtration & dust content level at the exit gas then the unit will be declared fit for continuous operation.



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Input Data for RPC Sizing

Sl.No.	Parameter	Data	Remarks
1	Gas Flow Rate (Nm ³ /Hr)		If not available boiler parameters & Fuel is required to enable us arrive.
2	Dust Content in the gas entering RPC (g/Nm ³)		Sample can be taken and data can be obtained.
3	Head available in ID Fan (mmWC)		ID Fan vendor data sheet/Curve
4	Gas side Pressure profile of Boiler (mm WC)		DCS/Operational data
5	Gas inlet & Outlet duct Elevations (m)		For Duct layout & RPC Elevation/support structure design.
6	Existing Ash handling system layout/level		For ash chute layout
7	Foot Print available/Plant layout		To accommodate RPC with required access platforms.



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RPC DATA SHEET

Sl.No.	Parameter	Data	Remarks
1	Rotor Diameter (mm)		
2	Rotor Length(mm)		
3	RPC end to end Dimension (mm)		
4	RPM at Normal Gas Flow		
5	RPM at Maximum Gas Flow (120% Gas)		
6	Min RPM for reduced gas flow		
7	Design Pressure Drop (mmWC)		
8	Design Temp. Drop (Deg.C)		
9	Design Output Emission level (mg/Nm ³)		
10	Design Air consumption (CFM)		
11	Design Power Consumption, KWh		
12	Design dust discharge (kg/Hr)		



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Thank you ...

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