



MIXING CHAMBERS

Our Mixing Chambers (MC) are ideal when several gases, often at different temperatures, converge before going through an air pollution control (APC) system. Our Mixing Chambers blend the gases together and equalize their temperatures in order to enter the APC system homogeneously. This is key to ensuring an effective emissions reduction system.

WHY CHOOSE OUR MIXING CHAMBERS?

Customized design

Redecam tailors the design for each customer based on duct layout and process flow.

Ideal when water is not available

In plants at which our Gas Conditioning Towers and Water Injection Systems are not viable due to a lack of water, our Mixing Chambers provide a good option.

Double as a dust pre-separator

Ideal for heavy duty applications. The collected dust is discharged into a hopper and onto the global dust transport system.

Provide an effective emergency backup

Since there's no water or other cooling agent (other than air) involved, and there are no controls required, our MCs are ideal emergency backups for your other gas conditioning units.

Can act as a spark arrestor

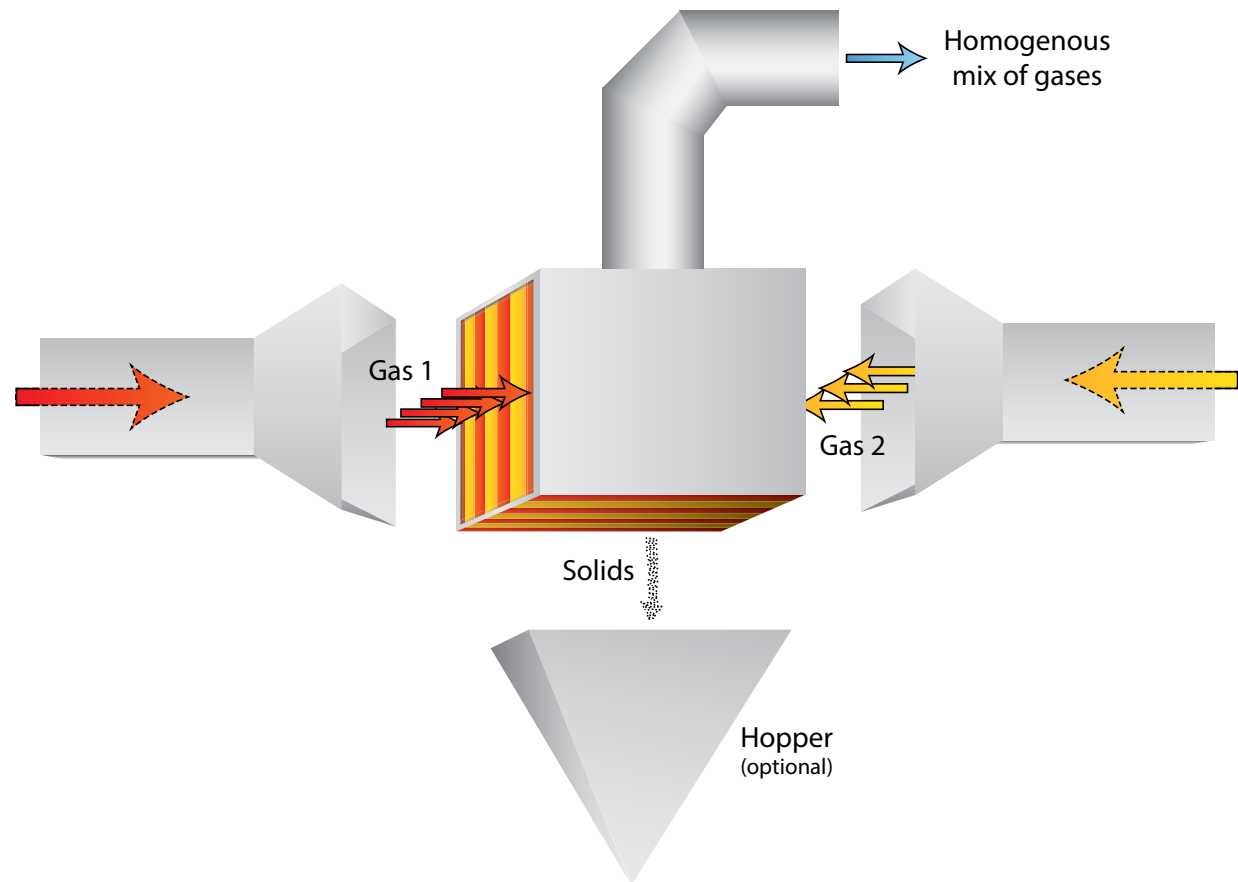
We can modify the design to integrate a spark arrestor for biomass or pulp and paper plants.



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OUR MIXING CHAMBERS: MODELS AND DESIGNS

Our Mixing Chambers offer great flexibility as they have several possible functions within your air pollution control system. They can homogenize and/or cool gases and reduce the load on your other air filtration equipment by providing preliminary dust separation. They also deliver extra security to your system: as passive conditioning systems that do not use water or another cooling agent, they are ideal as emergency backup filtration devices. They can also reduce the risk of fire and explosions by acting as a spark arrestor.



OUR MIXING CHAMBER TO HOMOGENIZE GASES

Every one of our Mixing Chambers is customized based on your process parameters. One of the main criteria for having a successful MC system is identifying the number of channels and the optimal location of those channels inside the MC. The goal is to effectively mix the converging gases in such a way as to achieve a homogeneous gas – and gas temperature – at the MC outlet. Our experts will study the gases being mixed and their properties and will use computational fluid dynamics calculations and software to find the right design for your needs.

The MC may be located within the feed system either at the beginning of the feed lines or at the very tip of the device used to handle materials. Our MC is also applicable with **our special Dual-Input Integrated System**, which uses one Bag Filter to dedust both the kiln/raw mill and the kiln/clinker cooler or with our **Multi-Input Integrated Systems**, which collect gases from various processes or units and converge them into a single baghouse.

OUR MIXING CHAMBER TO COOL GASES

We can design our Mixing Chamber to act as a conditioning system by adding an outside air inlet to cool the gas. We install the air inlet on the duct and equip it with a pneumatic fresh air damper, which we connect into the plant's central control panel.

OUR MIXING CHAMBER AS A DUST PRE-SEPARATOR

To use our Mixing Chamber as a dust pre-separator, we design the internal components to decrease velocity so as to help the dust drop down. Indeed we calculate the required velocity, and thus the design of the Mixing Chamber, based upon the granulometry of the dust ashes (larger dust particles necessitate a higher velocity to drop). In such a case, we add a hopper connected on the global dust transport system.

OUR MIXING CHAMBER AS A SPARK ARRESTOR

When designing our Mixing Chamber to act as a spark arrestor, we install special deflectors inside the MC. Any potential sparks impact the deflectors and therefore do not enter the bag filter. We design the deflectors using computational fluid dynamics modelling, taking into consideration the layout and gas flow.

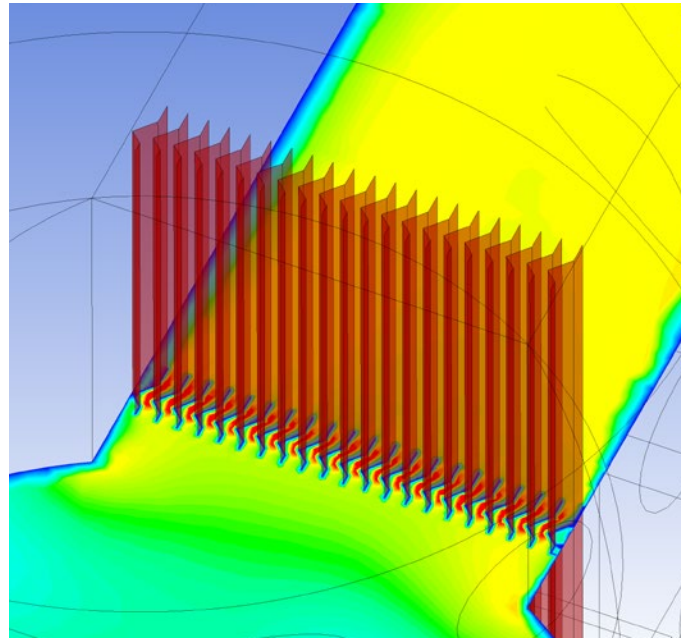


	HOMOGENIZES GASES	GAS COOLING	DUST PRE-SEPARATOR	SPARK ARRESTOR	EMERGENCY BACK-UP
Cement & Lime	•	•	•		•
Metals & Mining	•	•	•		•
Coal & Oil Power	•	•			•
Waste-to-Energy & Biomass Power	•	•		•	•
Biomass & Pulp and Paper	•	•		•	•
Oil & Gas	•				•

Whichever the use or the industry being served, we customize every Mixing Chamber to suit your process parameters. Our experts can recommend whether a Mixing Chamber is a good solution for your air pollution control system.

MODELLING

To determine the design of your Mixing Chamber, we look at the gas flow, temperature and pressure loss. When using your MC as a dust pre-separator or a cooling system, we do biphasic modelling in order to take into consideration the effect of the speed of the gas on the different granulometry of the ashes. Our engineers use Ansys's well-respected Fluent software to accurately design and study every solution for each customer. The Fluent program allows us to engineer and analyze the system's broad physical capabilities, optimize the fluid dynamics and study the efficiency of pollutants removal. In certain circumstances, when a computerized simulation is not sufficient, we undertake a physical simulation on a 1:7 scale. All physical models are made and tested in Redecam's workshop.



OUR PRODUCTS

We will customize our Mixing Chamber to work synergistically with either Redecam APC equipment or equipment from other manufacturers. Our MC can offer several benefits, no matter which of the following Redecam products or systems you may already have or be considering.

AIR FILTRATION

- Bag Filters (baghouses)
- Electrostatic Precipitators
- Dual-Action Filters
- Extreme High Temperature Bag Filters
- Dual-Input Integrated Systems
- Multi-Input Integrated Systems
- Cyclones
- Nuisance Filters

GAS CONDITIONING

- Gas Conditioning Towers
- Gas-to-Air Heat Exchangers
- Water Injection Systems
- Mixing Chambers

FLUE GAS TREATMENT

- DeNO_x
 - Selective Catalytic Reduction (SCR)
 - Selective Non-Catalytic Reduction (SNCR)
 - Hybrid (SCR/SNCR)
- Dry Injection Desulfurization
- Mercury Adsorption System

TRANSPORTATION, HANDLING AND STORAGE

- Screw Conveyors
- Pneumatic Transport Systems
- Hoppers
- Silos
- And more...



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