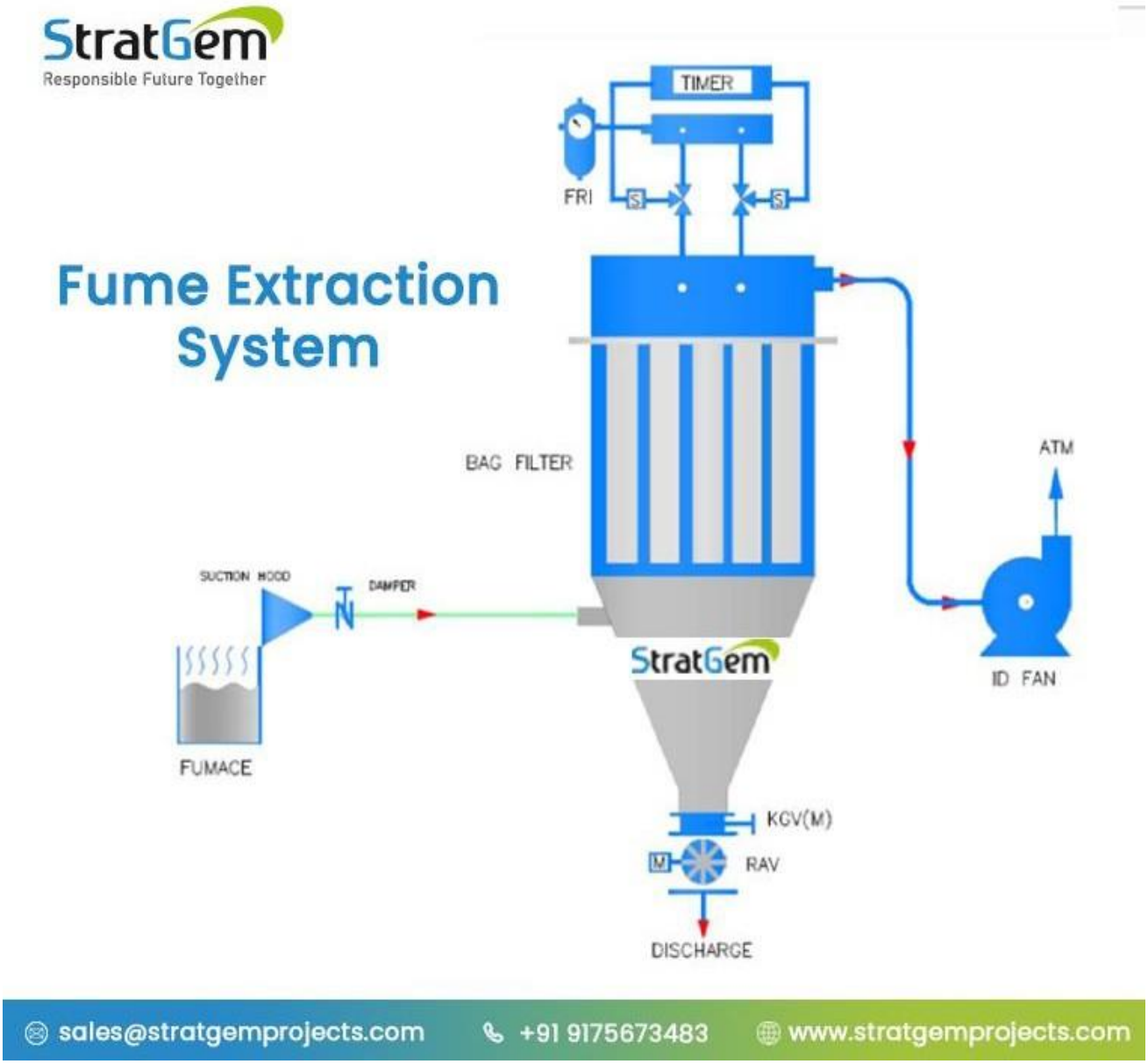
Fume Extraction System

Fume Extraction Systems manufacturer in Pune, India

A fume extraction system is designed to capture and remove harmful fumes, gases, and dust particles generated during various industrial heat processes. A Fume Extractor plays a crucial role in maintaining a safe and healthy working environment by preventing the release of pollutants into the atmosphere.



Industrial heat processes emit a significant amount of fumes and dust, which pose a threat to the environment and human health. Fume extraction systems are designed to address this issue by capturing and treating exhaust fumes. The fume extractor employs suction hoods, a well-designed duct network, and appropriate equipment like bag filters or scrubbers to remove pollutants. Additionally, measures like spark arrestors and temperature control devices (Quenchers, forced draft air coolers, water-cooled ducts) are utilized based on specific requirements.

Components of the Fume Extraction System

The Fume extraction system typically consists of several components, including an air bag heat exchanger, baghouse, Scrubber, centrifugal fans, stack, and silo. Here's an overview of the whole process and the role of each component:

- **Fume Generation**: The process begins with the generation of fumes or pollutants from industrial operations such as welding, cutting, grinding, furnaces or chemical reactions.
- **Capture Hood**: A capture hood, or local exhaust hood, is placed near the source of fume generation to capture the pollutants at their point of origin.
- **Ductwork**: The captured fumes are then transported through a network of ducts, which direct the contaminated air towards the fume extraction system.
- **Centrifugal Fans**: Centrifugal fans, also called blowers, are responsible for creating the necessary airflow in the fume extraction system. They draw thecontaminated air from the capture hoods, through the ductwork, and push itthrough the heat exchanger/cooler and baghouse/scrubbers. These fans generate the required suction to maintain an efficient airflow and capture contaminants effectively.
- **Air Heat Exchanger**: The heat exchanger is a vital component of the fume extraction system. It is designed to cool down the extracted hot fumes by transferring their heat to a separate air stream. This heat exchange process helps to conserve energy and prevent the release of excessively hot air intothe environment.
- **Baghouse**: The next component in the Fume Extractor is the baghouse, alsoknown as a dust collector or fabric filter. The baghouse contains a series offabric filter bags that capture and retain particulate matter from the fumes. The contaminated air passes through the filter bags, while the particulates are collected on the surface or within the fabric.

- **Scrubber**: Scrubbers play a crucial role in fume extraction systems by effectively removing harmful pollutants and contaminants from industrial exhaust streams. Scrubbers are deployed for certain cases where gases needs to be treated
- **Silo**: Silo is used to store polluted particles, which are conveyed pneumatically from the baghouse.
- **Stack**: Once the fumes pass through the baghouse and are filtered, the purified air is discharged into the environment through a stack or chimney. The stack ensures that the released air is dispersed at an appropriate height to prevent the re-entry of pollutants into nearby areas.

Fume Extraction Systems Used in Various Industries:

Fume extraction systems find application in several industries where heat processes generate fumes and dust. Some industries where these systems are commonly used include:

- **Steel and Metal Industry**: AOD Furnaces, Induction Furnaces, Ferro AlloyFurnaces, Blast Furnaces, Electric Arc Furnaces, and Ladle Refining Furnaces
- **Power Plants**: Boilers and Combustion Processes
- **Chemical and Petrochemical Industry**: Processes involving exothermic reactions among others, to ensure the safety and well-being of workers and the environment.

Overall, all these components work together to capture, store, filter, cool, and discharge fumes and particulate matter generated during various industrial processes, ensuring a safer and cleaner working environment.

To learn more about Fume extraction systems, Fume gas extraction systems, Smoke Extraction systems, or any other Air Pollution Control system, please contact Stratgem Projects.