MASTER JAYA
AIR POLLUTION CONTROL

Bag Filter Dust Collector Catalogue

Delivering breakthrough clean air technologies.

MASTERJAYA Pulse-Jet Dust Collector

Proven Dust Collection Technology.

The MASTERJAYA Pulse-Jet Dust Collector is designed to maximise operating efficiency while reducing cost and time. Generally, bag filters are used in applications requiring high yield recoveries from pneumatic transport systems or removing hazardous materials from the working environment.

Typically, bag filters are used in combination with a cyclone as the primary means of recovery, followed by a bag filter unit for the final separation of particles from the air stream. Alternatively, bag filters can be used as the only means of separation.

Quality for Greater Performance

Heavy duty construction for long lifespan

Allowing flexibility for selection, sizing, construction materials, filter media, equipment arrangement

Constructed with modular components

Selecting a Filter Unit

For optimum performance in each application, it is essential to select the right filter sock material and consider the following factors:

- Product characteristics
- Product to air loading
- Air-to-filter cloth ratios
- Product heat stability
- Other physical and chemical properties

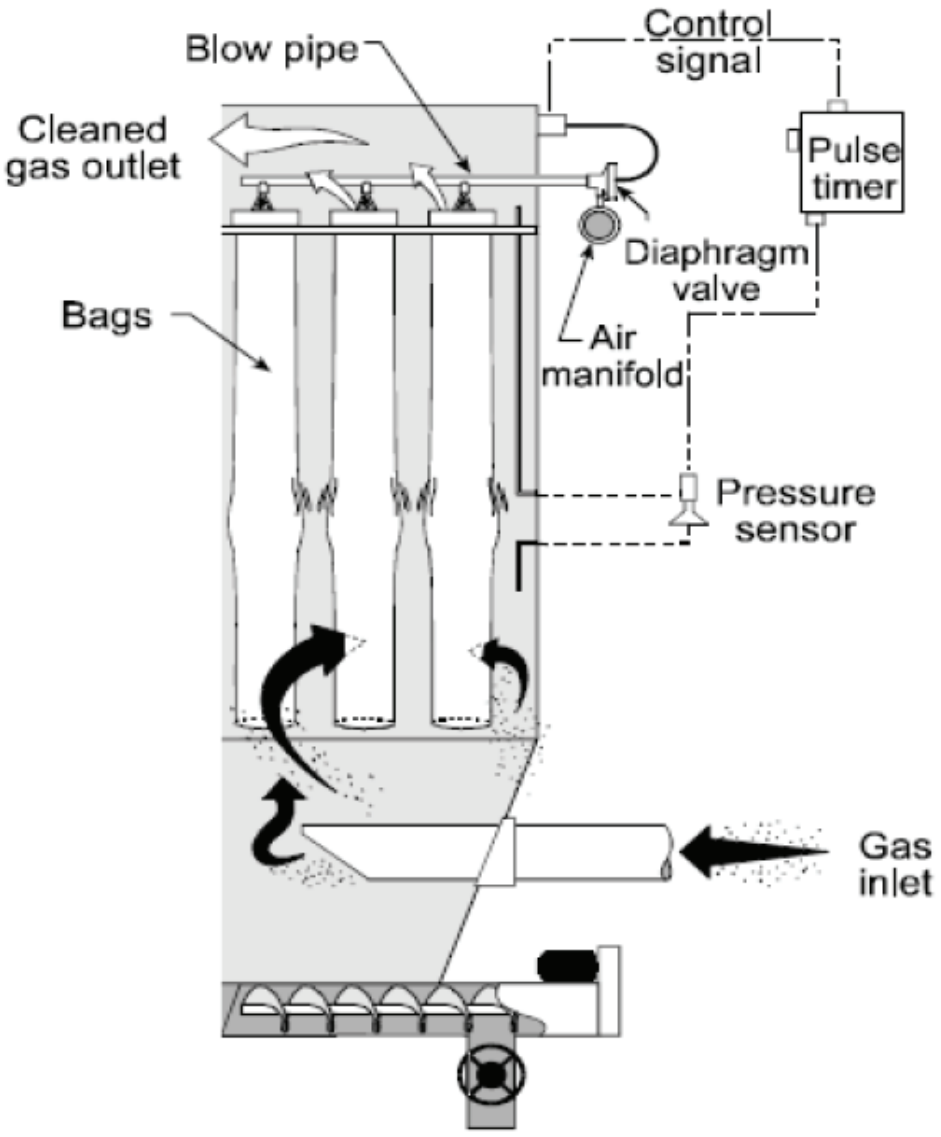
Advantages of MASTERJAYA Pulse-Jet Dust Collector

- Continuous operation
- High filter rates
- No internal moving parts
- Low maintenance
- Fast top removal of bags – working on the clean air side
- Dependable solid state timer controls
- Weatherproof – all-welded construction
- Dust pre-separator - baffle plate deflector
- Heavy duty – thick gauge construction

Operations

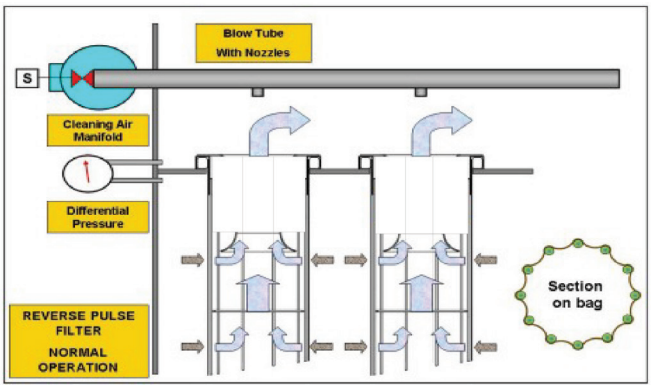
1. Dust-laden air enters the dust collector housing through the inlet duct.
2. The baffle plate inside the inlet acts as a pre-filter and prevents re-entrainment by uniformly guiding the gas stream downwards.
3. The baffle plate deflector directs heavier dust particles into the hopper.
4. The remaining lighter dust particles are drawn against the outer surface of the filter bags, where they are retained.
5. Lastly, clean air passes through the filter bags and leaves the clean air chamber through an outlet duct.

MASTERJAYA Pulse-Jet Bag Filter Dust Collector System



Periodic Cleaning of Filter Bags

- As dust accumulates on the filter bags, periodic cleaning is essential to ensure continuous operation.
- Cleaning is done by introducing a timed, momentary pulse of compressed air through a specially designed blowpipe with nozzles mounted above each filter bag.
- A portion of the filter bags is cleaned at a time, allowing the remaining bags to continue filtering operations.



Cleaning Principles of MASTERJAYA Pulse-Jet Dust Collector

Filter bags are held firmly in place at the top by clasps and usually have an enclosed bottom. In another design, a snap ring is sewn into the bag's top, which fits into the tube sheet opening. The cage slides inside the bag, and the top of the cage sits on the tube sheet.

Dust-laden gas is filtered through the bag, depositing dust on the outside surface of the bag. Pulse-jet cleaning is used for cleaning bags in an external filtration system.

A Blast of Compressed Air or N2

- The Pulse Jet Bag Filter is cleaned by a blast of compressed air or N2. The filter bags are arranged in rows, and the number of rows depends on the filter size.
- A blowpipe is mounted above each row of bags and fed by compressed air or an N2 manifold (or tank) mounted on the outside of the filter.
- The blowpipe contains nozzles to coincide with the centre line of each bag. When each pipe receives a signal to blow, the appropriate diaphragm valve is opened by means of a solenoid valve, allowing compressed air into the blowpipe.

Timed Pulses of Compressed Air

- An equal amount of compressed air is blown vertically downward into each bag.
- Each row receives a short pulse of compressed air for a duration of approximately 100-200 milliseconds.
- High pressure from the compressed air dislodges the majority of dust formed around the outside of the bags.
- The dust falls into the hopper below.

Pulse-Jet Offline Pulsing System

The pulse-jet baghouse can also be compartmentalised. In this case, the controlled dampers located both at the dust-laden inlet and clean air outlet are used to stop the flow of dirty air into the compartment. Each compartment is equipped with pulse valves that supply compressed air and direct the pulsing air into the blowpipes above the bag rows in the compartment.

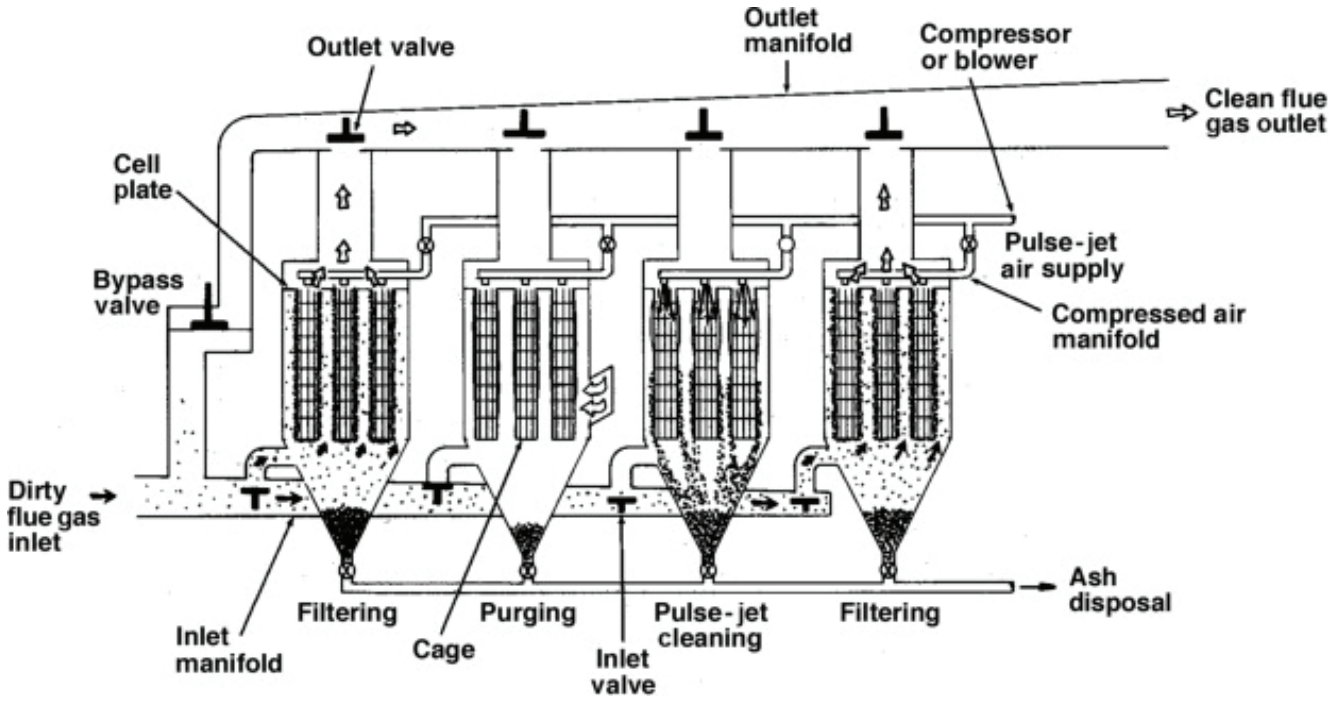
Applications

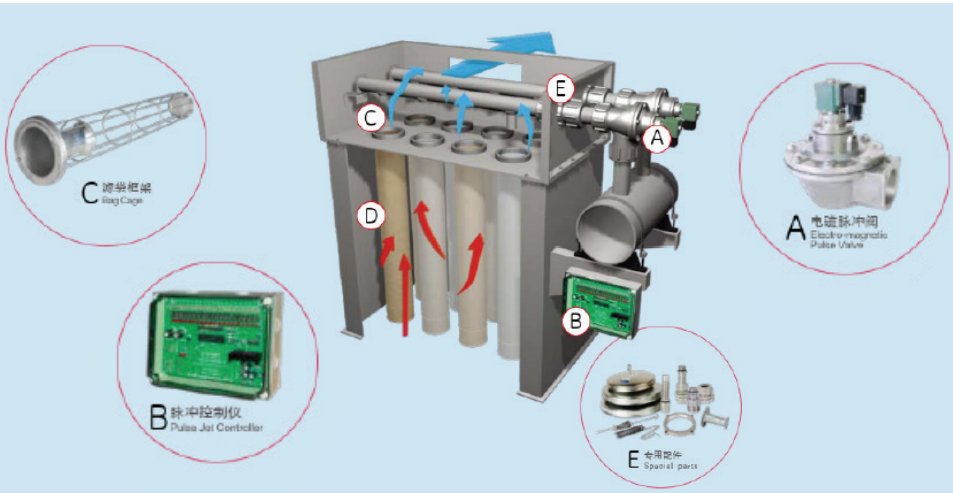
It is frequently used on fabric filters installed on coal-fired boilers and municipal waster incinerators for thorough bag cleaning while the baghouse continuously achieves very low emission levels (less than 50 mg/m^3).

The Process

During the cleaning cycle, the inlet and outlet pneumatic damper closes, stopping the airflow through the compartment. The pulse valve opens for about 0.1 seconds, supplying a burst of air into the bags for cleaning. The compartment remains offline for approximately 30 seconds, although this period can be longer or shorter if desired. The inlet & outlet pneumatic damper then automatically reopens, bringing the compartment back on stream (also known as "online").

Alternate compartments are cleaned successively until all the bags in the baghouse have been cleaned. The cleaning cycle in each compartment lasts about 40 to 120 seconds. This cleaning is called offline cleaning.





Dust Collector Components

We have the experience and technical expertise to supply and install all dust collector components. Our engineers also provide servicing, upgrading, and modifying all existing dust collectors to meet regulatory standards and requirements.

Pulse-Jet Bag Filter Dust Collector

Filtration Bags

Differential Pressure Gauge

Pulse Valves

Electronic Sequential Pulse Timer Controller or On-Demand Cleaning Controller

Performance Monitoring Instruments, such as differential pressure, temperature and air flow meter

Bag Cages in mild steel, galvanised steel and stainless steel

Air Pollution Control System & Equipment
Master Jaya Environment Sdn Bhd (249885-T)

Trading & After-Sales Service
Master Jaya Corporation Sdn Bhd (332530-K)

Training & Consultancy
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