

INDUSTRIES

# ***DUST COLLECTOR (PULSE JET)***

***MM ENGINEERING/ AMCO INDUSTRIES***



# Air Filter For Dust Collector





# Cyclone Type DC Unit For Cement Mill



# Dust Collector Supplied For AGP Ltd

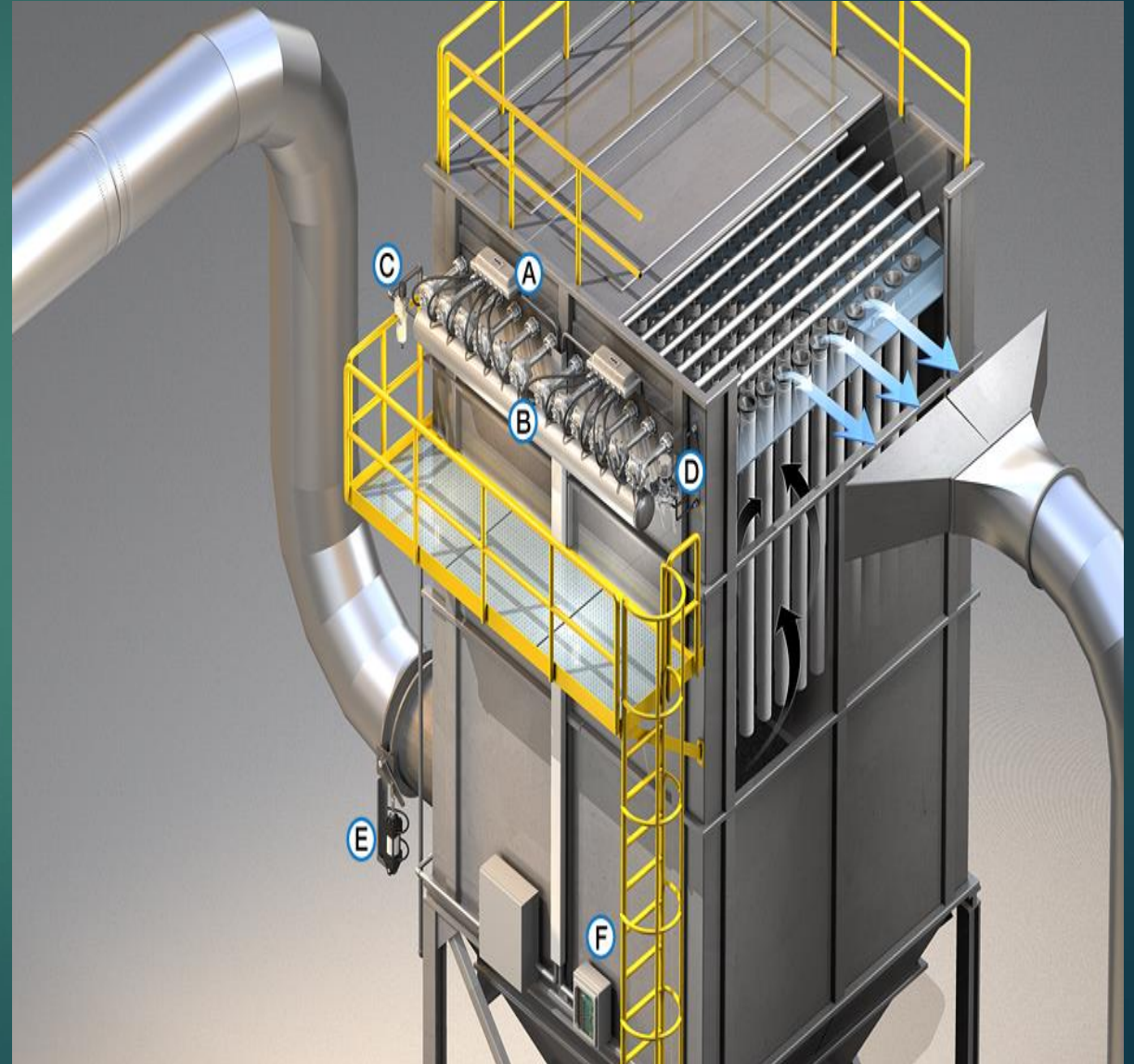




Cyclone Type Dust Collector  
For Pakistan Gum Industries  
35T/Hr Crushing Plant - 45KW/3000 RPM



# DC Unit Pulse Jet Type For Lucky Cement Ltd Cap -5000 CFM

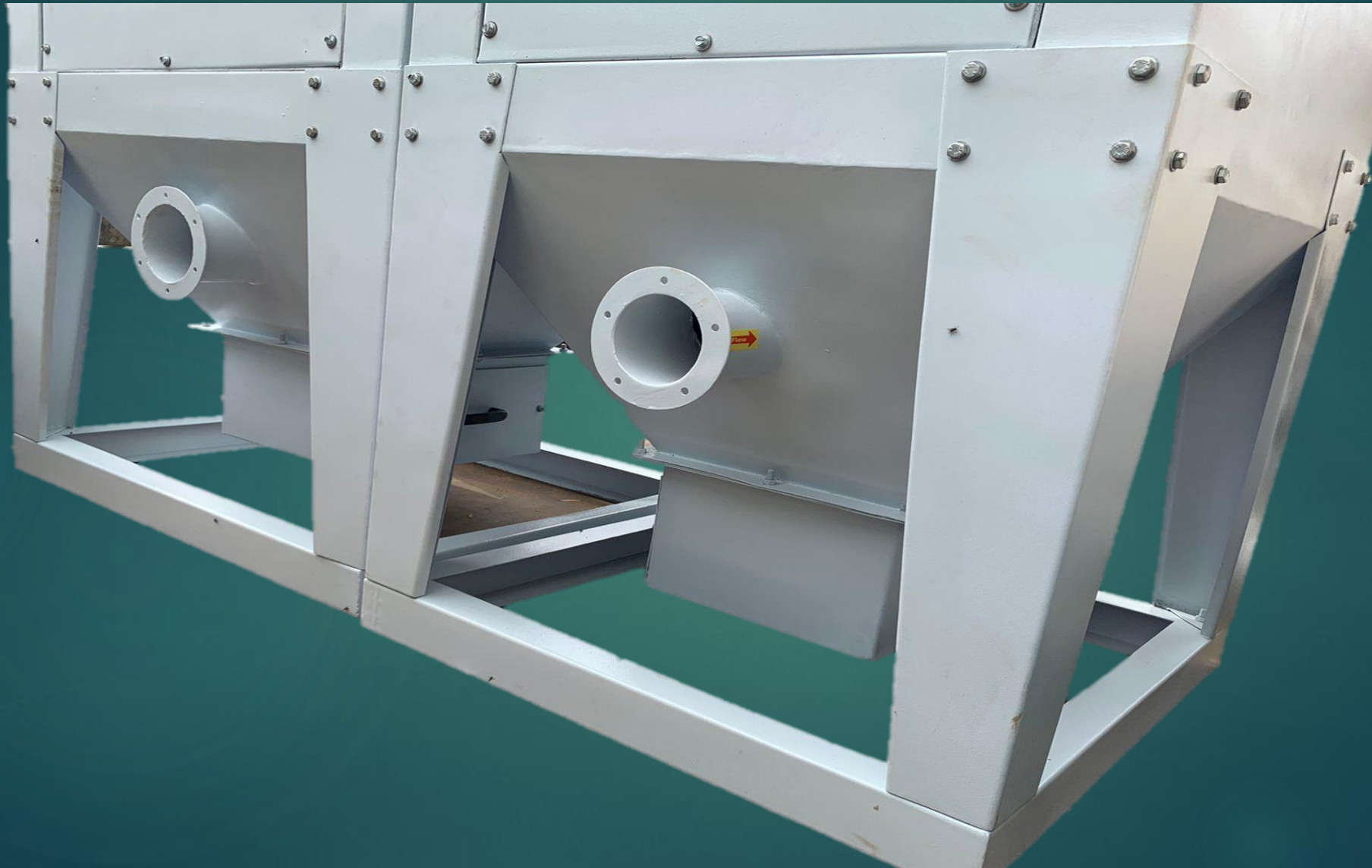




# DC Unit Pulse Jet Type (Sugar Grinding) For English Biscuit Cap - 10500 CFM



# DC Unit Bin for Dust Collection





# Introduction to Dust Collection System

- ▶ With increased local and global attention being given to the control of air pollution, containment of nuisance dust in all industrial applications is becoming increasingly important. This calls for the proper design, installation, operation and maintenance of dust collection equipment. Since its inception, the fabric style (bag type) dust collector has offered companies the ability to effectively capture airborne particulate from an air stream. Dust collectors are devices that filter dust from polluted air generated by industrial processes and discharge clean the environment. Efficient dust collectors protect employees and society from exposure to pollution, recover product the dust filled air and facilitate compliance with health and air emission standards. There are various types of dust that efficiently treat different type of air pollution. The most commonly used ones are inertial separators, bughouse collectors, air washers and air scrubbers, electrostatic precipitators and cartridge dust collectors. By understand dust collection technologies we can ensure a cleaner, purer environment at our work place, homes and so city.

# Pulse Jet Bag Type Dust Collector: How it Work

- ▶ The filter bags are usually 16 oz. Felt (polyester, acrylic, polypropylene, aramid or others) and are supported by cages. The bags and cages are clamped to collars of the tube sheet or a part of the venturi which extends through the tube sheet. "Blow Pipes" with drilled orifices are located above each row of filter bags such that the orifices are directly above the throat of each venturies. Dust laden air enters the collector under pressure or suction from a fan or other air moving device. Pulse jet cleaning takes place when the PLC-timer actuates a normally closed solenoid pilot valve causing it to open. The diaphragm valve opens as a result of the decrease in pressure from the opening of the solenoid. A momentary inrush of high pressure air (80- 100 psig) flows from the header to the blow pipe, down through each venturi, and into each bag. Thus all the bags in a single row are cleaned simultaneously. The collector housing is divided by the tube sheet. The dirty air plenum is below, with the bags, an inlet, and hopper. For some applications the collector mounts directly to a bin or silo, eliminating the hopper and inlet. The discharge of the hopper can be fitted with an airlock to enable continuous discharge of material during dust collecting operations. It can also be fitted with a slide gate or inflatable seal with reusable or disposable drum. The clean air plenum is above the tube sheet and houses the blow pipes, supports the valve, and provides an exhaust outlet for the filtered air stream



## ▶ PARTS

- ▶ PLC . Bags . Cages . Clamps . Diaphragm Valve . Solenoid Pilot Valve . Rotary Airlock . Pressure Differential Gauge . Venturies. Cent Fan with Motor
- ▶ Blow Pipe 1. Inlet with Baffle 1. Header 1. Housing . Clean Air Plenum . Clean Air Outlet . Service Gate . Seal 1. Drum 1. Tube sheet. Dust Bin

## ▶ PRESSURE DROP

- ▶ Pressure drop, or differential pressure, is the amount of static resistance experienced when operating a positive or negative pressure. This pressure drop is typically measured across the filter bags in inches of water column (in wc). Pressure drop is a good indicator regarding the amount of dust that has collected on the filter media, and if continually monitored and logged, the condition of the bags themselves. New filter bags have the lowest pressure drop because of the inherent permeability of the media. In fact, the highest efficiency a dust collector can offer is just before the cleaning mechanism is initiated. However, high differential pressures can cause bleed thru the filter media. Keeping a daily log of a dust collector differential pressure, from the time the filter media is new, will provide the opportunity

# HOPPER DISCHARGE

- ▶ The hopper on a bag type pulse jet dust collector is not to be used for storage of the collected product. Storing material in a hopper can lead to bridging of the dust, or it may set up as a solid mass requiring considerable labor and down time to correct. Material build up, if not discovered in time, can fill a hopper to its inlet and plug the unit. .) It should be inspected frequently. This inspection should also be followed at shut down and bag changes



# EXHAUST FAN & SYSTEM DESIGN

- ▶ In a dust collection system, an exhaust/ Suction fan is needed to accelerate ventilation/Contaminated air from the point of pick-up, through the ductwork and bag filter media, and out the exhaust stack. Should an exhaust fan experience loose or worn belts or an imbalanced impeller, it will not exhaust the volume of air it was originally designed to handle. Without adequate ventilation air, a dust collection system will not operate effectively.



# ***FILTER MEDIA***

- ▶ The most important item in a bag type pulse jet dust collector is the filter media because it allows for the accumulation and support of a dust. This dust is what provides high filtering efficiencies during operation. Inspect the clean air side of the bag for leaks, and the bags for tears. However, if the dust has hardened to the bags and will not dislodge easily, the most probable cause is moisture. Moisture in a dust collector may have resulted from dew point excursions, high moisture content in the process gas, in the compressed air supply, or a leak in the collector or ductwork that allowed water to enter the dust collector.



# Centrifugal Collectors or Cyclones

- ▶ Cyclones are a dust collection device that separates Heavy particulate from the air by centrifugal force. The cyclone works by forcing the incoming airstream to spin in a vortex. As the airstream is forced to change direction, the inertia of the particulates causes them to continue in the original direction and to be separated from the airstream. Cyclones are cost-effective and low-maintenance devices, and they can handle high temperatures. They also reduce loading on the primary collector and allow for the dry recovery of product. However, it is difficult to predict the performance of cyclones and they pose particular design challenges. Accurate inlet data are necessary and they require significant plant space. Typical design of a cyclone dust collector.

# INSPECTION

- ▶ This program consists of a schedule for periodic inspections that are performed on a daily, weekly, monthly, semi annual and annual basis. When a dust collector is not periodically inspected, the effectiveness of its operation can be adversely affected. Size available are virtually unlimited. From a small unit for a few hundred cfm, to over one 100,000 cfm. AMCO/MME has a dust collector to meet your specifications.



# SELECTION TABLE

**INDUSTRIES**

Fan Operation - Inverter Base or VFD Operated  
 Filter Pulsation - PLC Base Programmer

DC Unit Model No	Air Flow (CFM)	ESP In WG	Motor HP
AMCO-05	100 ~500	5'' to 7.5''	1 To 3
AMCO-10	500~ 1000	5'' to 7.5''	3 To 5
AMCO-20	1000~2000	5'' to 7.5''	5
AMCO-30	2000~3000	5'' to 7.5''	5.5
AMCO-40	3000~4000	5'' to 12''	5 to 7.5
AMCO-50	4000~5000	5'' to 14''	7.5 to 10
AMCO-60	5000~6000	5'' to 14''	10
AMCO-70	6000~7000	5'' to 14''	10
AMCO-80	7000~8000	5'' to 14''	10 To 15
AMCO-90	8000~9000	5'' to 14''	15 to 25
AMCO-100	9000~15000	5'' to 14''	25 to 40

# AMCO / MM Engineering

INDUSTRIES

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