

MASTER JAYA MECHANICAL CYCLONE

A cyclone is centrifugal separator where the particles are swung as a result of their mass by the centrifugal force to the outside. Entering air is automatically forced a rapidly spinning double vortex movement, so-called "double-vortex". This double vortex movement exists from the outside stream, that flows spirally down and the inside stream that flows spirally up. On the border area of both flows the air flows from one to the other. The particles present in the air flow is swung to the outside wall and leaves the separator by means of a reception space situated to the base.

HOW DOES MASTER JAYA CYCLONE WORKS ?

Generally, a cyclone which separates by centrifugal force, has an efficiency of from 80 to 90 % depending on the type of handled and the cyclone's design. The remainder escapes with the exhaust air and may, if necessary, be collected either by a system of filter sleeves. In spite of their limited efficiency cyclones are still widely used due to their simplicity and low cost.

Cyclone dust collection efficiencies mainly depends on the followings, but factors like density, shape, temperature, humidity and the particle size distribution are also important conditions :

- Particle size (particles with larger mass being subjected to greater force)
- Force exerted on dust particles
- Time that the force is exerted on the particles

Applications

Coarse dusts, heavy dusts loading

Capacity

1,000 to 200,000 m³/h

Cyclones are most efficient at high air entrance speed, small cyclone diameter and large cylinder length (pencil cyclones). The advantages of a cyclone as separator for substance are:

- Simple construction
- No moving components
- Little maintenance
- Low investment and functioning costs
- Constant pressure drop
- Saves room
- Dry relief during wet cyclone

The disadvantages are:

- High pressure drop (0.5 - 2.5 kPa), depending on of the construction version
- Low output for low particle diameter
- Erosion sensitive and constipation danger to the entrance
- Possibly noise nuisance

Usually a cyclone is used for its relatively high remaining emission because of its relatively small efficiency and used as a pre-separator to remove the largest dust load for second dust removal installation like for example a scrubber or cloth filter.

The pre-separator happen generally on particles $> 20\mu\text{m}$ and are employed its in:

- The wood - and piece of furniture industry
- The construction sector
- The glass industry
- The transport sector with storage - and shipment
- The foods industry
- Detritus combustion installations
- The chemical industry
- Melting processes in metallurgy
- Coffee heathers



