

CLEANING THE AIR FOR BETTER RETURNS



# CYCLOMAX T-T

HIGH EFFICIENCY CYCLONES



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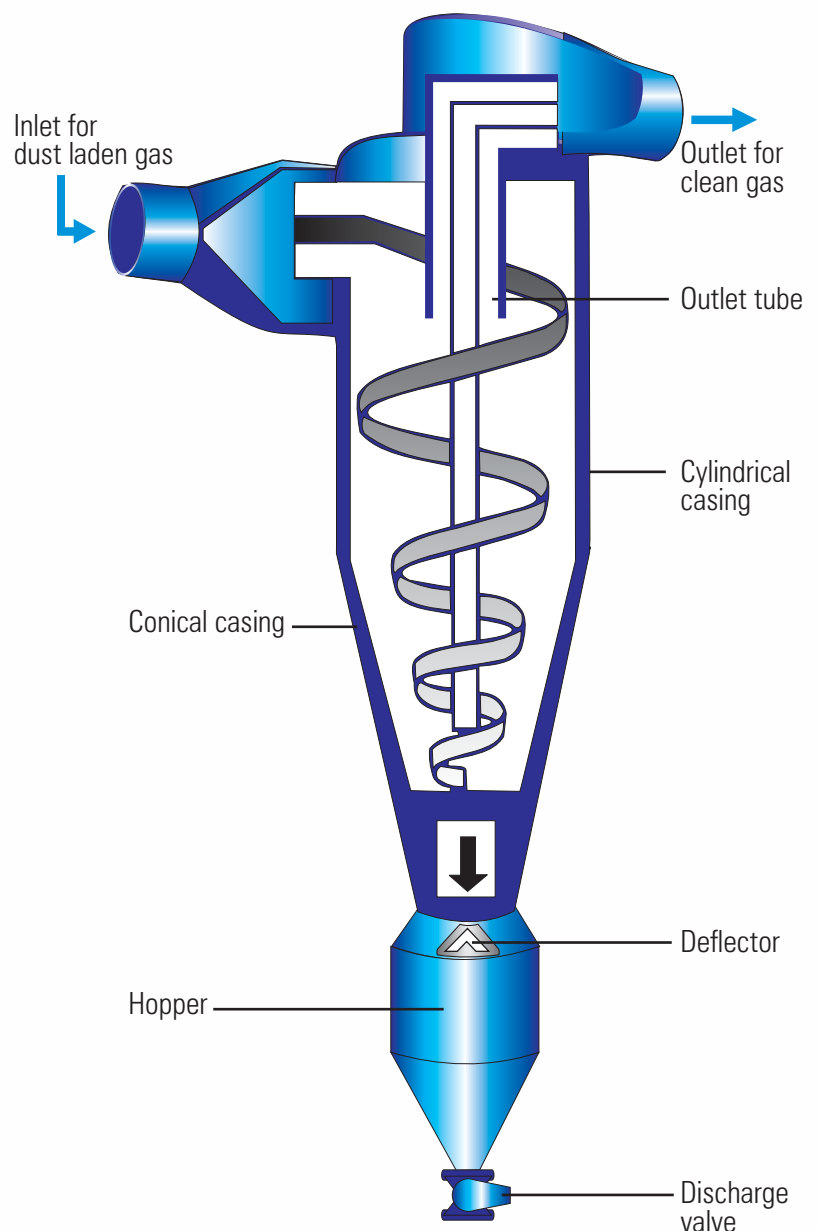
Thermax Enviro offers high efficiency 'CYCLOMAX T-T' cyclones based on technology from Trema, Germany.

In a Cyclomax, dust laden gas enters the upper cylinder tangentially, and moves down the conical section in a spiral path. The centrifugal force thus developed makes the dust particles move radially outward. They then strike the wall and drop out of the gas stream into the hopper. Clean gas flows out through the exit tube.

Designing Cyclomax T-T is a state-of-the-art technique. Specific application parameters like the dust load, gas velocity, dust characteristics, particle size distribution and the overall system decide the optimum cyclone geometry and the internals. Factors such as length of the outlet tube inside the cyclone, length of the cylindrical portion, inlet and outlet areas, deflectors, length of conical portion etc. play an important role in determining the performance of the cyclone. Proper consideration of all these ensure a high collection efficiency, enhanced product (resource) recovery and very low emission levels, which is not possible in conventional cyclones.

For boiler applications it is possible to achieve emissions as low as 300 - 350 mg/Nm<sup>3</sup> for agro-waste (husk) firing which makes the Cyclomax suitable as a final collector. In fact, this equipment from the Thermax stable was instrumental in finding an economical answer to the problem of handling fly-ash in husk fired fluidised bed boilers in the Punjab - Haryana belt when norms of the above order were first introduced. Today, a multitude of users, spread across the country, bear testimony to the efficiency and success of this equipment.

The  
technology  
makes the  
difference



A cross sectional view

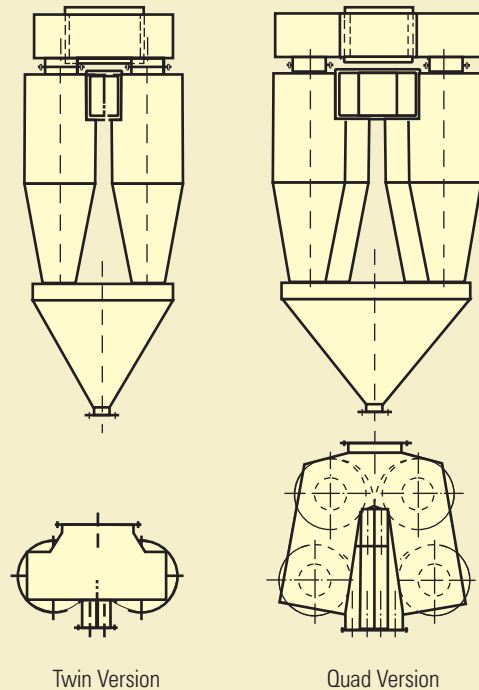
# Versions of Cyclomax

With increasing gas volumes, it is difficult to obtain the desired dust collection efficiency in a single cyclone construction. Thermax can configure high efficiency cyclones into various versions - Twin (two cyclones), Quad (four cyclones) and Double Quad (eight cyclones) with the help of computer aided simulations to achieve higher efficiencies.

Optimisation of dimensions to ensure maximum efficiency remains the basic approach in the final selection of any of these versions. Application requirements and site conditions are other important selection factors that influence the choice of an appropriate version.

For special applications like in the fertilizer industry, individual collection hoppers with each cyclone in twin/quad version are provided instead of common hoppers. This prevents dust re-entrainment and facilitates free dislodging of dust from the hoppers.

Dust discharge is effected through a motorised leak proof double flap dump valve or a rotary air lock valve.



Twin Version

Quad Version

## Special Features

- Deflectors at hopper top and a leak proof dust discharge arrangement
- Computerised sizing, specially designed gas flow paths and internal contours
- Unique outlet tube design
- Application based material selection from steel to fibre reinforced plastics
- Special lining in conical casing for abrasive dust laden gas applications
- Computer aided design. Hence, efficiency and pressure drop can be precisely predicted for varying inlet parameters
- Partial sectionalisation possible for twin and quad versions

## Advantages

- Minimises pollution due to particle re-entrainment in the gas stream
- High collection efficiency, low emission levels.
- Efficiency can be increased to meet future norms without major structural changes
- Ability to handle variety of dusts ranging from abrasives to food grade material
- Robust and wear resistant construction. Enhanced life of internals. Specially suited for husk-fired boilers.
- Customised cyclone for every application
- Effective at partial loads, too



# Proven Applications in Industry

- Boilers : Coal, husk, bagasse and other solid fuel fired
- Wood-products : Saw dust and wood ash
- Sugar industry : Sugar dust and bagasse
- Fertiliser industry : Dedusting, dryer and cooler
- Cement industry : Pre-collector for cement mill, pneumatically conveyed cement dust for ship loading & unloading etc.
- Metal fines : Aluminium dust, copper chips, induction furnace exhaust and other metal dust
- Abrasives and sand application : Fluid bed dryer, foundry sand and sand blasting system
- Fabric, lint paper and fibrous material : Synthetic fibre, fibreglass, cotton/wool/polyester/nylon, paper fluff
- Plastics, resins and chemicals : PVC, foam rubber etc.

## Thermax Enviro Division

Pollutants are inevitable, pollution is not. Fully comprehending this, Thermax has a human, as well as a technological commitment to pollution control. Enviro Division was established in the late seventies in line with the organisational philosophy of 'conserving energy, preserving the environment'.

For over two decades now, the division has offered state of the art equipment and systems to combat the ever growing problem of air pollution. The division also offers complete systems and turnkey project services - from concept to commissioning.



*Insulated Quad Cyclones for cooler application in a fertiliser plant*

## Our Other Products

- **Air pollution control**
  - Multiclones & Spray Cyclones
  - Bag filters & Baghouses
  - Scrubbers - Particulate & Gaseous
  - Electrostatic Precipitators
  - Dedusting & Fume Extraction Systems
  - Flue Gas Desulphurization (FGD) Systems
  - Coal Preparation Plants
  - Pushing Emission Control Systems for Coke Ovens
- **Purafil Chemical Air filters**

The division also undertakes turnkey projects to offer complete technology on air pollution control and its management.

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**THERMAX**

An ISO 9001:2000  
& ISO 14001  
Company

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