

HIGH EFFICIENCY CYCLONES

HARNESSING FLUID DYNAMICS FOR MAXIMUM PARTICLE CAPTURE



HOW CYCLONES WORK

High Efficiency Cyclones use centrifugal force—generated by their shape and tangential gas entry—to separate particles from a gas stream. As gas spirals downward along the cyclone wall, heavier particles are flung outward and settle into a hopper below. Meanwhile, cleaner gas reverses direction at the bottom and exits upward through the cyclone's core. This reverse-flow vortex pattern enables efficient separation with no moving parts.



KEY BENEFITS

Compact Footprint for Seamless Integration

Compact, configurable designs enabling easy integration into both new builds and space-constrained retrofit projects.

Proven Performance, Guaranteed Results

Can be engineered to consistently capture fine particulate, even down below 5 micron.

Cost-Effective Operation

Lower initial investment and reduced lifetime costs compared to baghouses or scrubbers.

Tailored Solutions for Any Application

Fully adaptable to process and energy needs across industries like cement, minerals, food, and chemicals.

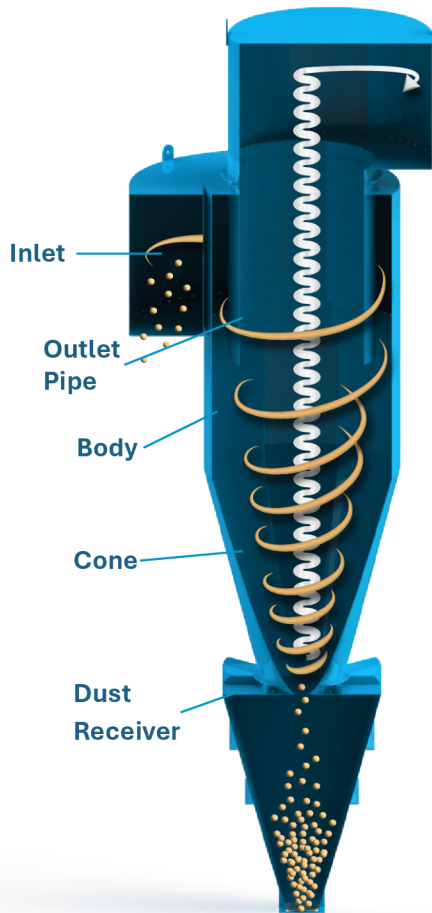
Exceptional Solids Handling

Built for durability in harsh industrial environments, delivering reliable operation and extended service life.

Low-Maintenance by Design

No moving parts or filters means less wear, fewer breakdowns, and faster, easier service.

THE SCIENCE BEHIND THE SEPARATION



Performance hinges on two engineered flow patterns:

- Primary rotational flow creates the centrifugal field that forces particles outward.
- Secondary axial flow carries gas downward along the outer wall, then upward through the center.

By adjusting tangential velocity and vortex geometry, we amplify centrifugal force, boosting collection of even fine particles. Optimizing factors like inlet velocity, cyclone diameter, and outlet size allows engineers to tune performance to specific process needs.

As gas spirals inward, velocity increases, creating a “free vortex”

that transitions into a “forced vortex” as viscosity takes over. This dynamic generates the system’s pressure drop, underscoring a key design trade-off: higher separation efficiency vs. increased energy consumption.

● YOUR OPERATIONAL ADVANTAGE

WHY IT MATTERS

High Efficiency Cyclones are designed to outperform standard models by overcoming fluid drag forces that let fine particles escape. Through careful geometric design and process integration, they achieve near-filter efficiency without the ongoing maintenance and cost of traditional baghouses.

AVAILABLE FEATURE OPTIONS

COMPLIANCE AND CERTIFICATIONS

- Can be designed and built to ASME Pressure Vessel Code or CE certification standards
- Explosion venting, suppression, or containment options compliant with NFPA requirements

WEAR & CORROSION PROTECTION

- Abrasion-resistant linings such as weld overlays, refractories, ceramics and vulcanized rubber
- Non-stick coatings including Teflon® for material flow improvement

HIGH-TEMPERATURE & HEAT MANAGEMENT

- High-temperature designs rated up to 2,250°F
- Steam tracing and jackets, insulating refractories, and external insulation to retain heat or prevent condensation

MATERIALS OF CONSTRUCTION

- Carbon steel, abrasion-resistant steel, stainless steel, duplex, chrome moly, and nickel alloys

SANITARY & SPECIALTY FINISHES

- Interior polishing and surface finishes suitable for food, dairy, and pharmaceutical applications

MAINTENANCE & ACCESSIBILITY ENHANCEMENTS

- Break-apart construction for simplified clean-out and maintenance access

PROCESS-SPECIFIC CONFIGURATIONS

- Multiple models tailored to meet specific performance goals
- Parallel or series arrangements to suit capacity needs and space limitations