

High temperature, high pressure, ultra high efficiency and severe service cyclones are available for a wide variety of applications.

Fisher-Klosterman Entrol has supplied cyclones for industry's most challenging applications for over 65 years. We are a global leader in the supply of severe service cyclones for high temperature, high pressure, and abrasive/corrosive environments. Our success is predicated on our unparalleled experience, engineering excellence, and commitment to quality control.

Fisher-Klosterman Entrol is the leading supplier of cyclone technology for refinery, petrochemical, and gasification severe service processes. Our cyclones are specified by the majority of Licensors for these processes due to our unmatched cyclone efficiency and longevity.

Fisher-Klosterman Entrol's design capabilities include the following:

- High temperature design to over 2,000° F continuous service
- Abrasion resistant linings including refractory, tile lining, hard- facing, and other options
- Insulating refractory to minimize heat loss, prevent condensation, and reduce skin temperature
- Tube wrapping, dimple jacketing, or double wall construction for heating or cooling
- Explosion venting or containment design per NFPA
- Tremendous variation of design to meet space and performance requirements
- Design per ASME code for pressure vessels to over 750 psig
- Custom deigned units with guaranteed collection efficiency



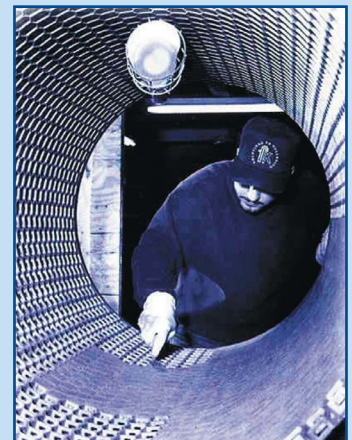
Polypropylene reactor cyclone



Petrochemical cyclone

Fisher-Klosterman Entrol has successful installations for a wide variety of applications, including the following:

- Petrochemical reactors and regenerators
- Gasification
- Complete Fluidized Catalytic Cracking (FCC) and Acrylonitrile systems
- Chemical production
- Coal coking and handling
- Power generation
- Waste incineration



Installation of refractory over hex mesh at shop



Heat curing of refractory at shop before shipment

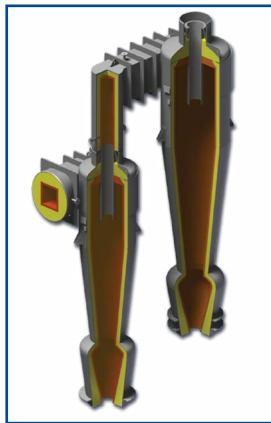
“Guaranteed Gas Cleaning Technologies”

Cyclones with Explosion Venting or Containment

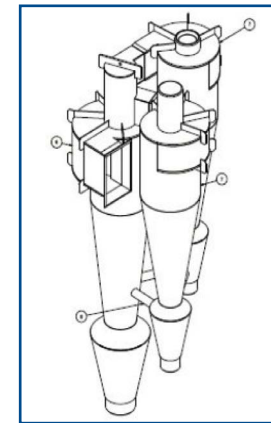
An explosion can occur when a combustible dust, which reacts with oxygen to form oxides and heat, is dispersed in air. Fisher-Klosterman Emtrol will design your equipment to comply with applicable combustible dust codes and maintain our performance guarantee. We have designed fabric collectors and cyclones for explosion venting and isolation, suppression, and containment (ASME vessels). Once the dust properties are known, our engineers will help you determine the best method for compliance based on your application. Custom designs are often employed to accommodate specific requirements such as high efficiency cyclones, space restrictions, and vent locations.



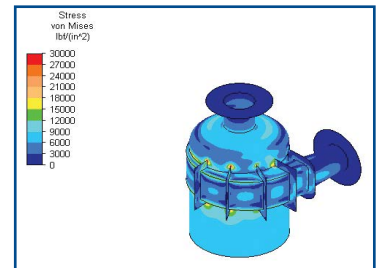
Fisher-Klosterman Emtrol
Ultra high efficiency cyclones
with explosion vents



Two stage Gasification cyclone
with dual layer refractory lining



Two stage Fluidized bed
reactor cyclone system for
Petrochemical process



Fisher-Klosterman Emtrol's engineering and design team is capable of handling nearly any challenge that they are presented. The following is a partial list of our engineering experience and capabilities on custom designed projects:

Codes and Standards		Engineering & Design Tools:
ASME	PED	Autodesk Inventor / AutoCad
ASCE 7	SQL	PVElite
IBC	China GB	Abaqus FEA
NFPA 654	ASME BPE	Autodesk Simulation Mechanical
3A Sanitary		STAR-CCM+ CFD

Our base of installations on high temperature, high pressure, and other severe service applications is unmatched. Please contact an Fisher-Klosterman Emtrol engineer for our installation list for your specific project. As one of the preeminent suppliers of severe service equipment globally, Fisher-Klosterman Emtrol is the best partner for solving your most difficult air pollution control and product recovery challenges.

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