

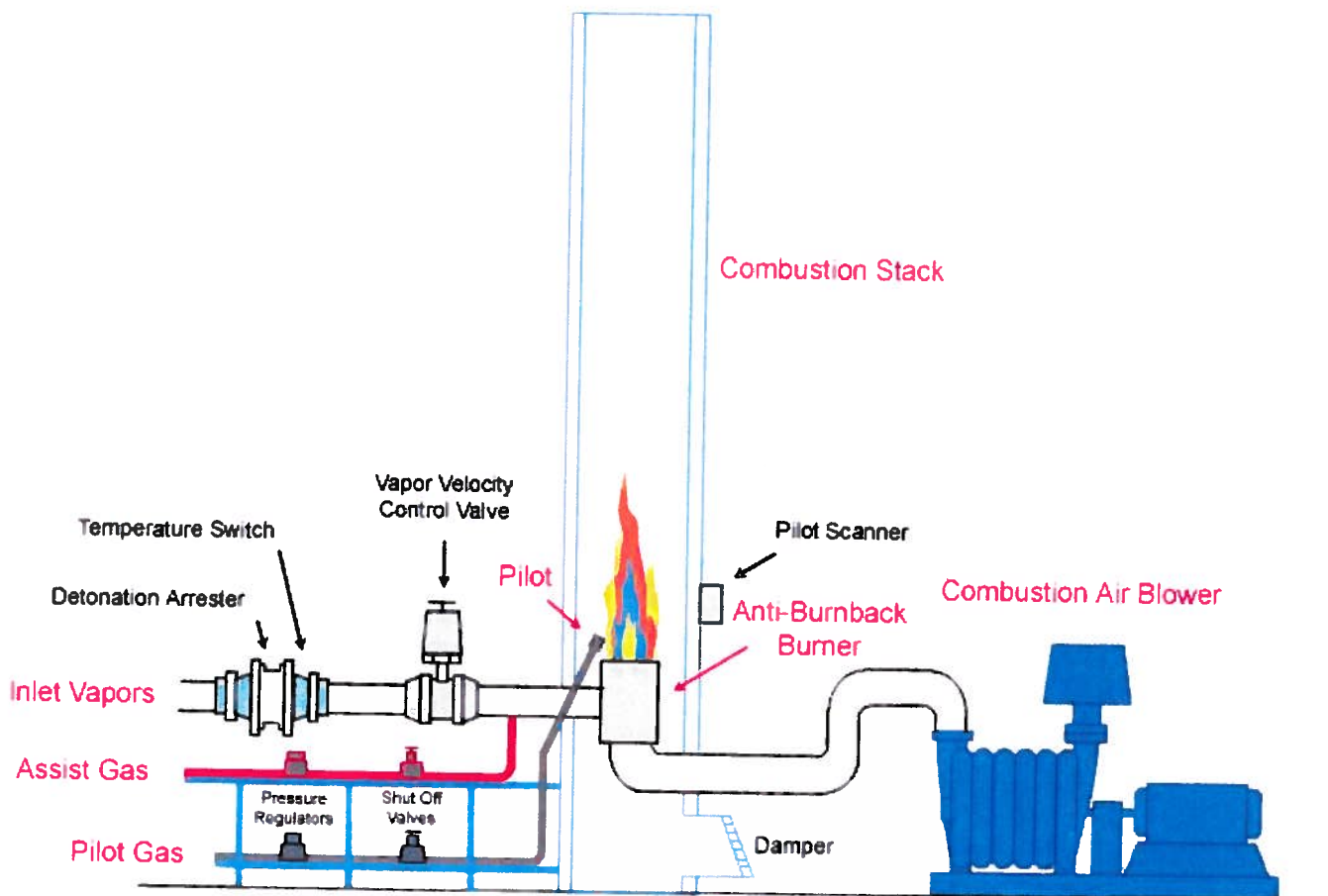
**Industry:** Petroleum Refining

**Application:** Thermal Oxidation

**Process:** Thermal oxidizing covers a broad range of applications with a common goal, to reduce volatile organic compound pollutants to carbon dioxide and water. A tail gas incineration application in sulfur recovery would be considered "thermal oxidizing", where our blowers provide combustion air.

Thermal oxidizers can vary from fairly simple flares to more sophisticated incinerators. They can range from small, pre-packaged combustion units to large stacks fifty feet high. The volume of contaminants to be removed and the quality of the effluent required determine the type of system needed. Also, the type of contaminant being treated can determine design variations. In waste streams containing organic or inorganic salts, thermal oxidizers are down-fired to prevent the accumulation of molten salts. In another configuration, removing chlorinated hydrocarbons, a refractory lined thermal oxidizer sustains the required 1500 to 2200 °F. A caustic scrubber is needed to remove the halogen acid created during combustion and a scrubber further cleans the effluent before entering the stack.

A typical system has an anti-burnback burner element to prevent explosions and automatic pilots with monitoring to assure safe ignition. Since low temperature often results in visible smoke, blowers are usually used to enhance combustion. Assist gas maintains a consistent combustion.



**Thermal Oxidation System**



# Application Database

Centrifugal Products Group

**Description:** The multistage centrifugal blower is for combustion air, feeding the flare to achieve the desired burn qualities.

- **Gas Composition:** Air
- **Operating Conditions:** The airflows vary, but are high. Pressures are generally low, 2-4 psig.
- **Sizing Criteria:** CF Select will determine the most efficient or cost effective exhauster for each situation.

**Competitors:**

<u>Manufacturer</u>	<u>Technology</u>	<u>Models</u>
HSI	Multistage Centrifugal	
Continental	Multistage Centrifugal	
Spencer	Multistage Centrifugal	
Roots	Positive Displacement	

**Gardner Denver Products:** Various series of multistage centrifugal blowers are typical offerings for these Combustion Air blowers, but they are usually 1200 to 2400 Series. API 617 Spec Compliance is often required. Since condensate can build-up, a section drain pipe assembly is recommended for convenience.

- **Marketing Position:** Refineries are probably not as familiar with Gardner Denver, Lamson or Hoffman as some other market segments; however our multistage centrifugal blowers are commonly used in many industries for combustion air. There is a good chance project engineers are familiar with our blowers.
- **Differentiation Strategy:** Nobody builds more blowers with 20" and 24" inlets than Gardner Denver. We have more "big blower" experience than anyone.
- **Advantages:** We have many thermal oxidation (combustion air) applications around the world.
- **Disadvantages:** XXXXXXXXXXXXXXXXXXXX

**Key Users:**

Refineries, Loading Terminals, Chemical/Petrochemical Plants, Pharmaceutical, Pulp & Paper Mills, Marine Facilities (vapor control) and Paint Booths.

**More Information:**

Contact Marketing Services for the following:

- Sales brochure *Multistage Centrifugal Blowers / Exhausters* (GDCF-1-300)