

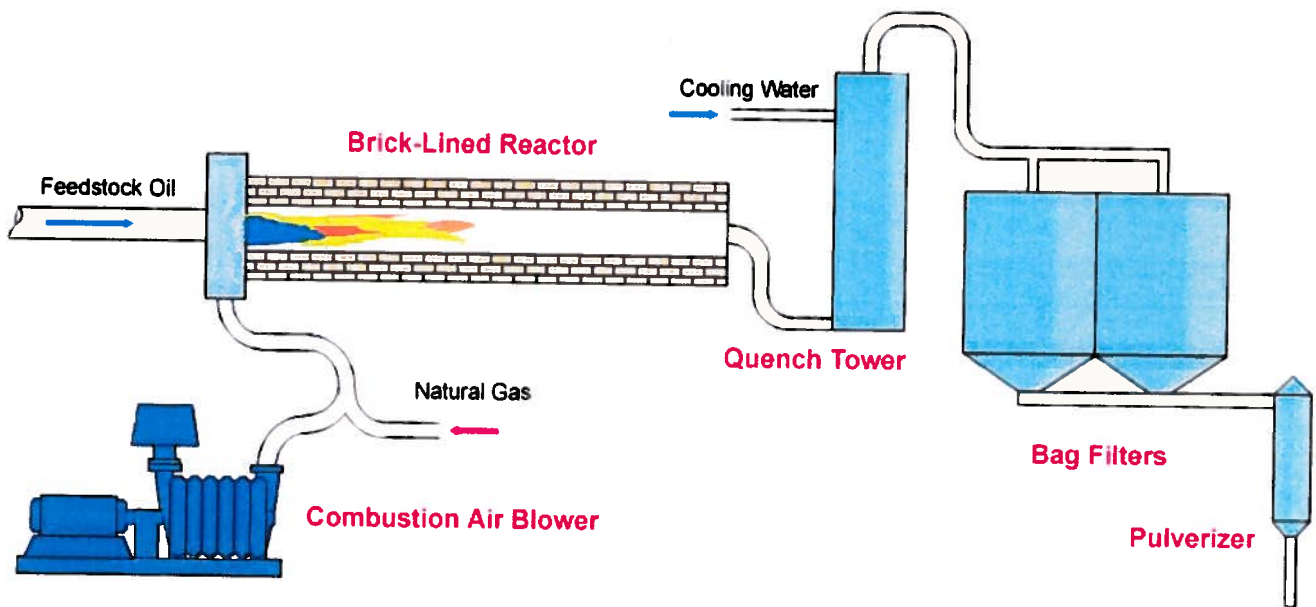
**Industry:** Chemical / Petrochemical

**Application:** Carbon Black

**Process:** Carbon black is produced by introducing hydrocarbon fuels, such as oil or gas with high temperatures of 1320 to 1540 °C (2400 to 2800 °F). 90% of the processes in the United States are "Oil Furnace Process" and 10% are "Thermal Process". The Thermal Process uses natural gas only, whereas the Oil Furnace Process uses oil as a feedstock and natural gas as a heat source.

An aromatic hydrocarbon feedstock is heated and continually injected into the combustion zone of a gas fired, brick-lined furnace. The oil is decomposed and forms carbon black. Quench water is introduced to the gases to stop the cracking process. Now at 500 °C (1000 °F), the gases and carbon particles pass through heat exchangers and direct water spray to further reduce the temperature to 230 °C (450 °F). Bag filters separate the carbon black from the exhaust gases.

The carbon particles are pulverized and pelletized and conveyed to bulk storage for transport.



**Carbon Black Process**



# Application Database

Centrifugal Products Group

**Description:** The multistage centrifugal blower creates a high volume of air at a high pressure to provide forced air through the combustion process. Measured amounts of natural gas are injected into the blower's airflow. The large volumes of air and increased pressures greatly enhance combustion efficiency necessary for the decomposition to occur. Also, the airflow carries the carbon particulate and exhaust gases through the quench tower and into the bag filters.

- **Gas Composition:** Air
- **Operating Conditions:** The airflow is usually 12,000 cfm (20,300 m<sup>3</sup>/h) and up and the pressure is usually around 12 psig (.83 barg).
- **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	

**Gardner Denver Products:** 2000 and 2400 series multistage centrifugal blowers are typical offerings. Since condensate can build-up, a section drain pipe assembly is recommended for convenience.

- **Marketing Position:** Gardner Denver, Lamson and Hoffman 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 carbon black installations, around the world.
- **Disadvantages:** More expensive than some competitive large blowers.

**Key Users:**

Oil furnace process carbon black producers.

**More Information:**

Contact Marketing Services for the following:

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