

# Circulating Fluidized-Bed Boiler CFB

## Design features:

Top-supported, one- or two-drum designs; uses normally difficult to burn fuels in a circulating bed of inert particles to control the combustion process and gaseous emissions such as NO<sub>x</sub> and SO<sub>2</sub>; solids-laden flue gas exits the furnace to the U-beam particle separator where approximately 97% of solids are collected and internally recirculated to the furnace; an additional 3% of solids are collected at and recycled from a multi-cyclone dust collector.

## Capacity:

Subcritical: To 1,500,000 lb/h (189 kg/s).

Supercritical: From 2,000,000 lb/h (252 kg/s) to more than 10,000,000 lb/h (1260 kg/s).

## Steam pressure:

Subcritical: To 2600 psig (17.9 MPa) design.

Supercritical: Usually at 3500 psi (24.1 MPa) throttle pressure with 5% overpressure; higher pressures available.

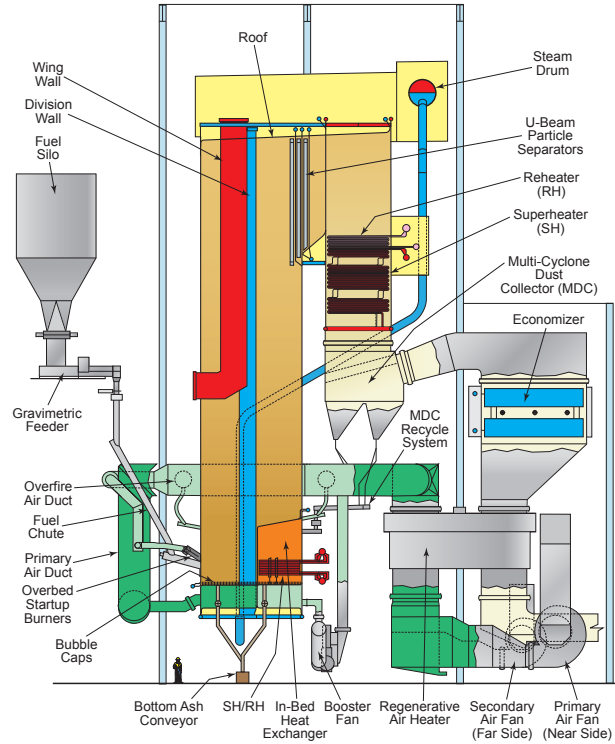
## Steam temperature:

Subcritical: As required, usually to 1050F (566C).

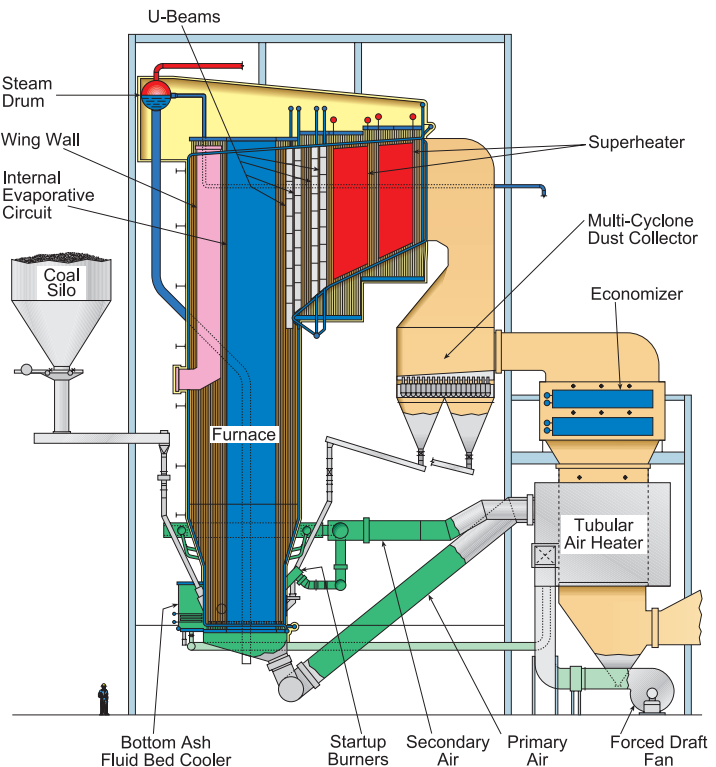
Supercritical: As required, usually in the 1100F (595C) range.

## Fuels:

High sulfur and high ash fuels and various waste fuels (petroleum coke, waste coal, sludge and oil pitches), wood, biomass, gob, and culm.



Utility and Large Industrial



Industrial  
(Non-reheat)

# Bubbling Fluidized-Bed Boiler

## BFB

### Design features:

Top- or bottom-supported, one- or two-drum designs; proven attractive in new or retrofit applications and also provides an option to reduce SO<sub>2</sub> and NO<sub>x</sub> emissions; open-bottom design for ease of large ash particle removal; burns wet wood-based fuels that other technologies can not combust [between approximately 2800 and 3500 Btu/lb HHV (6513 and 8141 kJ/kg) without support fuels]; reduces sludge volume while producing steam.

### Capacity:

Bottom-supported: Up to 225,000 lb/h (28.4 kg/s).

Top-supported: From 225,000 to 1,000,000 lb/h (28.4 to 126 kg/s).

### Steam pressure:

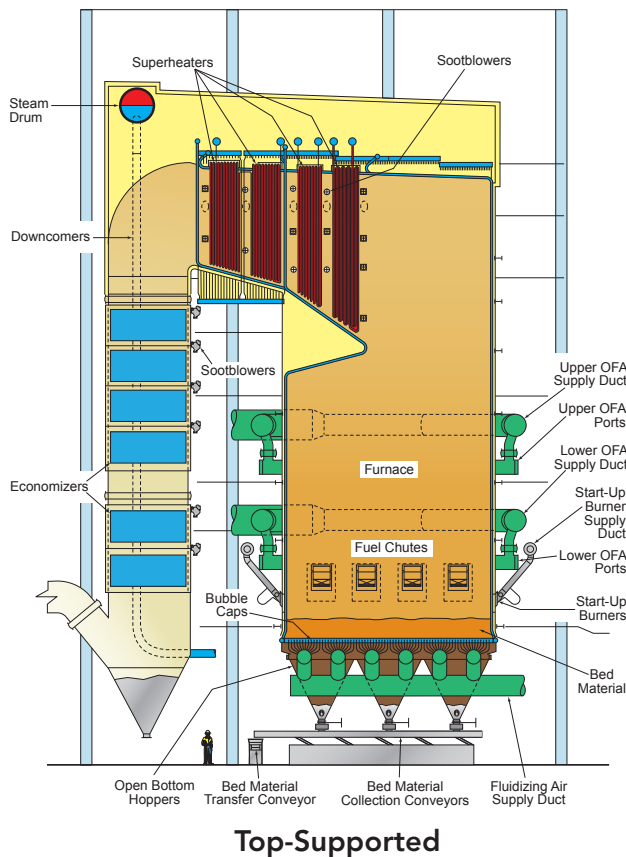
To 2600 psig (17.9 MPa).

### Steam temperature:

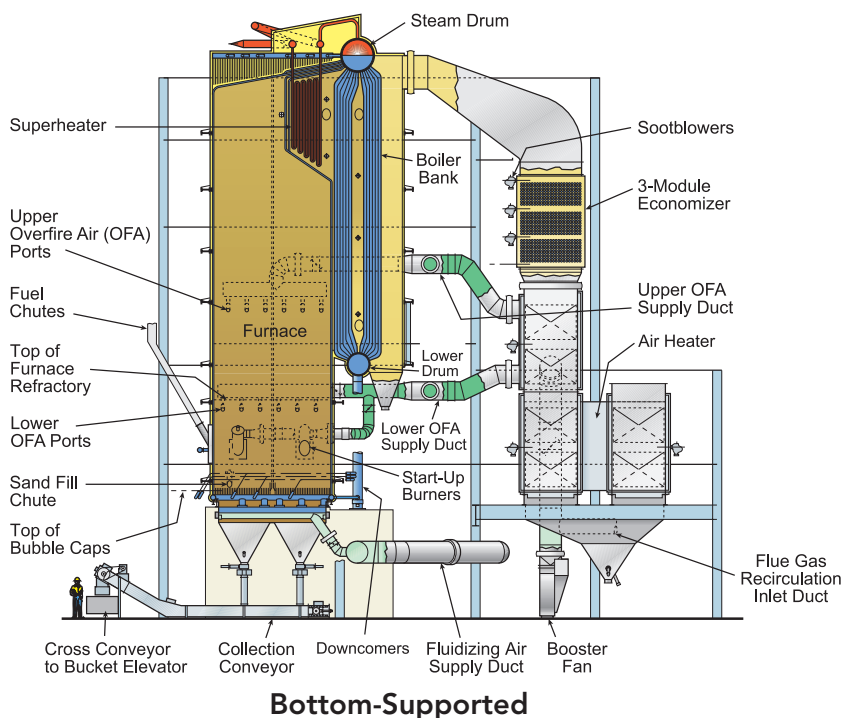
To 1000F (538C).

### Fuels:

Ideal for biomass and high moisture waste fuels such as sewage sludge, and the various sludges produced in pulp and paper mills and recycle paper plants, for both new boiler and retrofit projects; can burn wood wastes, bark, coal, tire derived fuel, oil, natural gas, and various coals.



Top-Supported



Bottom-Supported