



- 1. Air Central Door and Frame, top hinged, rather type, heavy duty, for manual control. Surfaces are machined to a close fit.
- 2. Fuel Oil Suction Strainer, single type. Large basket area insures low pressure drop; cover and basket easily removed for cleaning.
- 3. Wide-View Peephole, safety, curtain type. Cobalt glass removed to show heating surface for carbon. Curtain halves are interlocked—cannot be removed without releasing the other.
- 4. Ignition Post with Refractory Tile No. M896 . . . for use with standard 3" pipe. Also serves as a peephole.
- 5. Flame Relief and Access Door, heavy construction, practically air tight. Door casting correctly weighted, lined with plastic refractory and includes interlocking with observation port and cover.
- 6. Fuel Oil Monitor, Self-Cleaning, Spiral Cell type. High oil velocity in coil, resultant turbulence prevents carbon formation. No internal connections or joints.
- 7. Fuel Oil Pumping and Heating Unit . . . Twin or Single Pumps, Steam Driven; Electric driven or combination Steam-Electric, with Single or Double or Oil Heaters and accessories for feeding oil at constant pressure and temperature.

... yes, just as we are proud of supplying the right liquid fuel or gas burning equipment (over 41 years experience throughout industry), so, also, are we proud of our full line of highest quality accessories to supplement your every combustion need. Within our modern, "daylight" factory, storerooms and general offices NATIONAL AIRQIL likes and adheres to the phrase, "nothing but the best!" We believe that our record speaks for itself... i.e., the "right combination" for you in achieving maximum combustion economy is: NATIONAL AIRQIL Fuel Oil, Gas or Kerosene Burners, Boilers, Heating Equipment, NATIONAL AIRQIL Combustion Accessories and, NATIONAL AIRQIL Engineering Consultation.

May we be of help to you in accomplishing your particular installation or in solving that difficult problem?



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INDUSTRIAL OIL BURNERS, GAS BURNERS, FURNACE EQUIPMENT

Design and operating characteristics of conventional spreader systems differ in many ways from those of the distributor. The front of the distributor is at an elevation of 3 to 4 ft above grate level. In the distributor, the fuel is lifted, its flight of fuel from the distributor is quickly completed, and the fuel particles are relatively short and flat. In the conventional spreader, on the other hand, the fuel particles will be carried upward in a gas stream and thus never reach the grate. The major portion of the fuel, however, has already started its drying and devolatilization process before it reaches the grate. As a result, the fuel has a greater part of the drying process actually taken place after it has rested on the grate. This characteristic of the conventional spreader makes it necessary to supply all the air for combustion through the grate and thereby limits the amount of air that can be used to preheat the feed. Furthermore, if the feed is erratic or slug feeding, where moisture content of the feed is high, partial quenching of the feed immediately follows periods of high feed. During the interval between feedings, the fuel bed will gradually be dried by the fresh charge of feed. Semi-static motion pictures of this action, which is not appreciable during normal operation, cause its frequency may be less than during the start-up.

Operating results under these conditions, however, are usually less favorable than those obtained with a controlled feed.

Fuel size, regardless of the used for firing, has considerable influence on furnace performance. Certain wood refuse which can be handled by the conveyor system can also be used for spreader stokers or controlled air feeders. Control of operating results will favor those installations where size fuel is hogged and feed rate is constant as reasonably possible.

During the past several years, there have been placed in service a number of spreader stokers which use some form of cellulose fiber refuse as primary fuel. ASME Paper No. 52-A-104.

Furnace Heat Absorption in a
Stoker-Fired Steam Generator
James W. Myers and Richard
Bureau of Mines.

An investigation was conducted

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