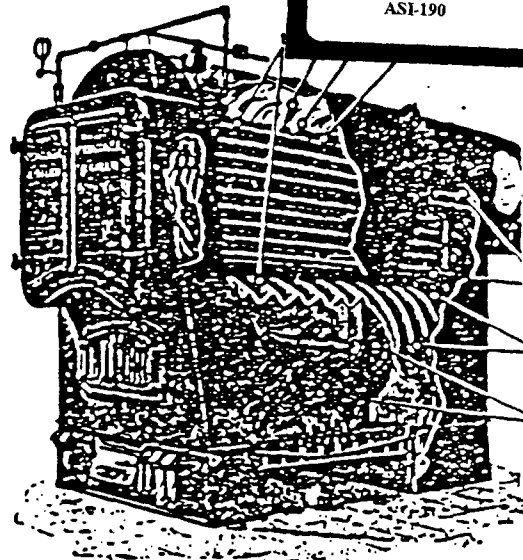


STEEL BOILER TYPE C

DESIGN AND CONSTRUCTION CHARACTERISTICS

PLAINTIFF'S EXHIBIT

ASE-190



Material:

The component parts consist of only seven simple shapes compacted together so as to limit the bulk and shorten the seams. Flange steel plate, extra thickness is used. Tensile strength 50,000 to 60,000 pounds per square inch. This boiler plate is of homogeneous quality with high ductility and low carbon content (not exceeding 0.25%) as required for sound arc fusion welds.

Construction:

The requirements of the A. S. M. E. Code for low pressure heating boilers are fully complied with.

In building Type C boilers there is applied all the skill in manufacture and all the approved procedure evolved by expert boiler makers throughout forty years of continuous practical experience. Fanciful and untried hinks are eliminated and a high degree of workmanship is assured with no unnecessary shop expense. Contact surfaces on door castings are ground to dust-proof finish.

Performance:

Positive proof of actual performance beyond the specified duty is to be found in the figures derived from extended tests on the Type C boiler series made at Kewanee Boiler Corporation laboratory under practical operating conditions. The knowledge gained from this research has been so well applied in the design that the completed product carries handsomely all radiation loads up to the full catalog rating plus, for each size, with high efficiency.

Backing:

The name KEWANEE means as much on the new Type C boiler as it has meant for nearly half a century on all Kewanee boilers. That is, the dependable heating service of Type C boilers is guaranteed by Kewanee.

Design:

Distribution of the materials of construction is so arranged to ensure most of the effective heating surface around the hot fire zone with a consequent quick transfer of more heat to the water.

- a. The water content is sub-divided so that there is ample volume at all hottest parts, and aided by the header all the water is kept in active circulation, sweeping steam bubbles from the heating surfaces as fast as they form thus permitting the absorption of more of the useful heat of the furnace.
- b. Although the circulation is rapid it is so orderly that the water level runs steady. There is no danger of a dry crown sheet. No moisture or sludge water are carried over into the steam main.
- c. With the high and wide steam space which is provided, there is plenty of room for a reserve supply of dry steam.
- d. The distancing area at the surface of the water line is unbroken and large enough to prevent priming which otherwise might be caused by carrying the expanded bubbles at the moment steam is liberated. In other words the flues interfere with the liberation of steam as the water line is artificially lowered below the upper flues which in consequence can even make steam.
- e. But in the Type C boiler the top rows of flues are under water, all the time effective in making steam.
- f. Grouping the flues in banks not only permits free circulation of water around them, but it also offsets any tendency for sediment to become packed and lodged thereon. The expanded gases are thoroughly stirred through these nests of flues so that as much heat as possible is lifted during their travel to and fro their full length.
- g. In order to promote perfect combustion, there is extra width and height both in the furnace and in the rear combustion chamber. This gives room for enough air to penetrate the fuel and mingle with the products of combustion. An arch is arranged to deflect any unburnt gases over the glow fuel bed at the rear. In this way combustion is completed and waste channeled at all loads.

Uniform Rating

"The ratings published in this catalog are in conformity with the Steel Heating Boiler Institute's Code for Rating Low Pressure Heating Boilers."

Type C rating is Total Radiation Load at boiler outlet expressed in equivalent surface of cast iron radiators emitting 240 units of heat or B. T. U.'s per square foot per hour for Steam, at 2 lbs. pressure and 150 B. T. U. for Water at 1 degrees temperature.

Total Radiation Load corresponds with the estimated design load which is the sum of 3 items—

1. Normal heat emission of connected radiation required to heat the building to 70 degrees.
2. Maximum heat required for water heaters and other apparatus.
3. Heat emission of all mains and piping connections.

Provided the stack and breeching connections are in accordance with the manufacturer's specification, each Type C Boiler will carry all the radiation load listed as its capacity, and in addition will easily handle large overloads with long firing periods and with low stack temperatures.



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