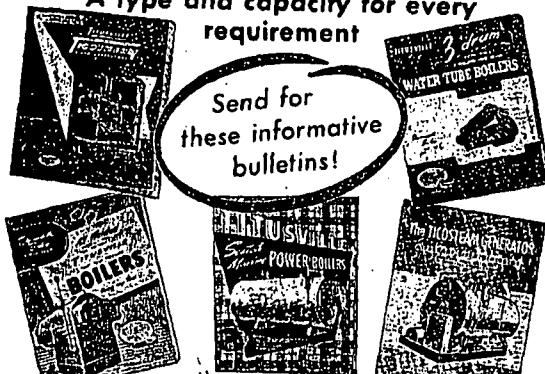
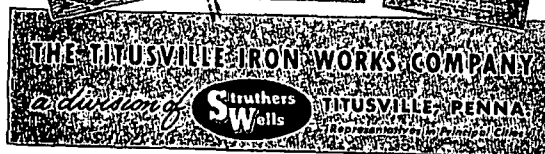


Meet the TITUSVILLE Boiler Family

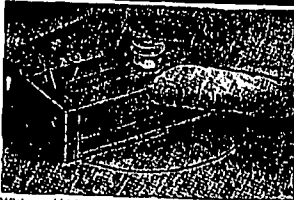
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More TECHNICAL BRIEFS

parison, the salt concentration in water is approximately 2000 mg. gal. ASME Paper No. 52-A-163

Steam Generation

European Practice with Sulzer tube Steam Generators. By Caspar, Sulzer Bros. Ltd.

Increasing circulation in generators by applying forced circulation and improving control by special devices has been much on the minds of boiler engineers.

Steam generators with forced circulation divide into two main groups: a) drum-type steam generators which the forced circulation on an additional circulating drum. This system, which requires a drum, was first developed in 1897 and has been applied to designs with more or less modifications.

b) drumless-type steam generators the once-through system in which the working medium, in principle, passes only once through the total system. The additional pressure required for forced circulation is provided by the main feedwater pump.

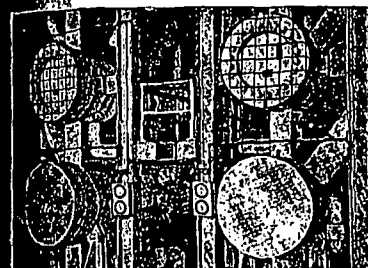
By the end of the last century small steam generators of the once-through type had been built. One was exhibited by de Laval in Sweden in 1897. The fundamental principles and conditions which had to be met were not sufficiently understood and analyzed. The regulating and control problems had not been solved. The lack of knowledge and experience with such generators was, at that time, far from encouraging.

In 1926 a boiler of the once-through type went into service at the Sulzer works in Winterthur. It supplied high-pressure steam at 1,500 psi for about 10,000 hours in all. This installation was satisfactory in service and also in aspect of efficiency. Nevertheless, it was considered doubtful whether the conventional type of boiler with drum and natural circulation, as originally designed for low and medium pressures, was really the best solution in the run for higher pressures and capacities. For the very highest pressures, the value of some of its characteristics and advantages at least decreased with increasing pressures and capacities, so that under extreme conditions they may even become a hindrance. Sulzer Brothers decided to carry out their Post World War I investigation

Directions for ordering papers on p. 163

check off your power plant needs

ALCO can meet them



Example—Feedwater heaters made by ALCO will meet your most exacting requirements because they have the following important features:

UNOBSTRUCTED, TROUBLE-FREE OPERATION—support structure of 1/4 inch thickness or heavier, with tube holes spaced and reamed to a close fit and edges chamfered. Consideration is given to arrangement and spacing of supports to guard against vibration.

IMPINGEMENT PREVENTED—alloy steel impingement shields, one-quarter inch thick or heavier, are rigidly attached to the tube bundle support structure at points where steam and drip connections to protect against erosion.

HEAT TRANSFER SURFACE EFFICIENTLY DESIGNED—bundles are designed to provide generous escape for the free-flowing distribution of the vapor throughout the tubes. Internal desuperheating and condensate return are furnished where required.

JOINTS ASSURED—in all ALCO feedwater heaters, tubes are roller-expanded into precision-drilled tube holes provided with parallel grooves. Full groove-gasketed joints are standard design.

STRICTLY FOLLOW-UP—all ALCO feedwater heaters are designed and built to comply with the requirements of the ASME Code.

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- 2 Closed Type Feedwater Heaters
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- 5 Lubricating Oil Coolers
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