

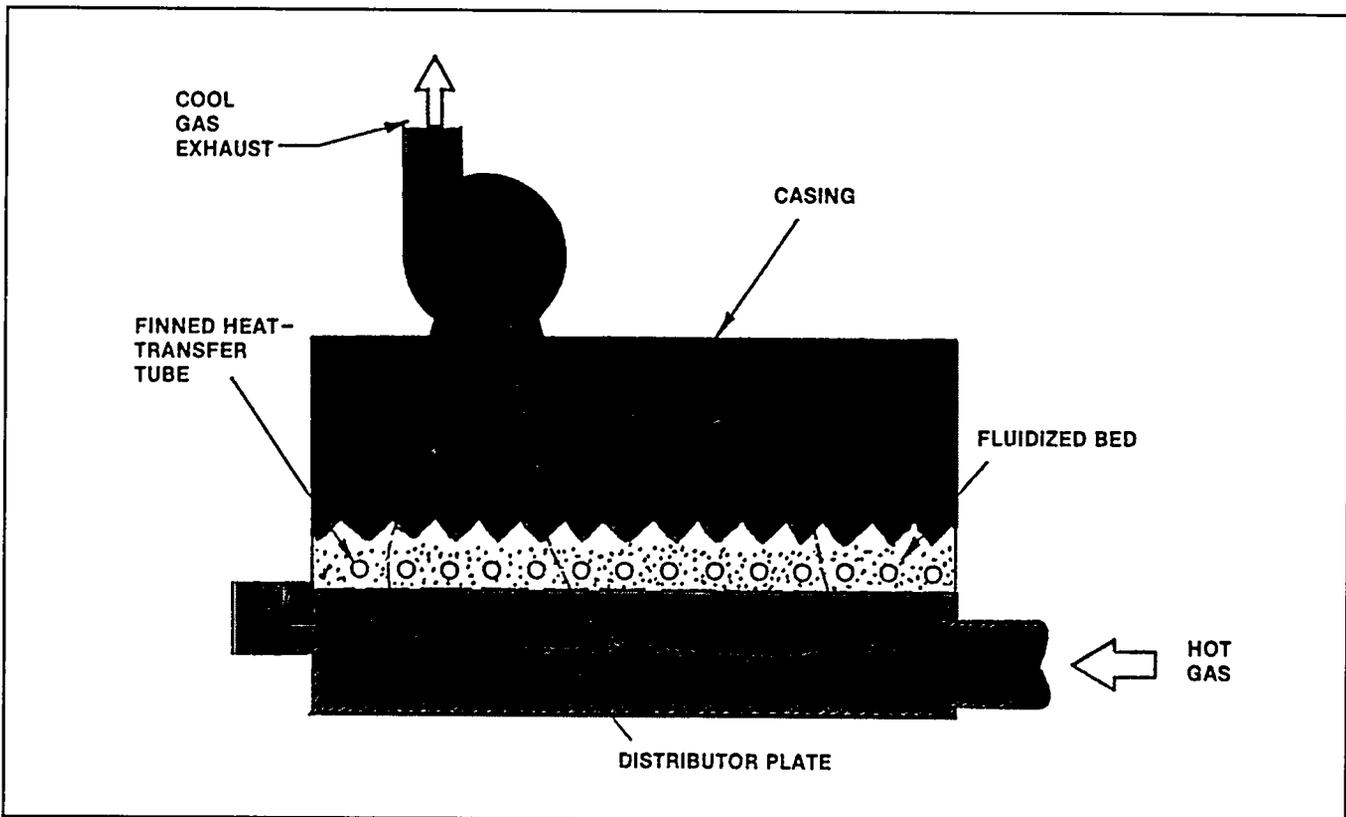
requirements, and increasing plant productivity. DOE has accelerated the adoption of the process by industry. At least 68 foam processing units are now in operation and over 2.5 billion yards of fabric and carpet have been processed, saving 1.38 trillion Btu annually. Foam processing is projected to save about 5 trillion Btu per year by 2010.

### Fluidized Bed Waste Steam Boiler

In this cost-shared project, Aerojet General developed an advanced heat recovery system using a fluidized bed waste steam boiler to operate in fouling exhaust gas streams. Heat is recovered in the form of steam or hot water. The first U.S. industrial fluid bed heat recovery boiler has been installed in an ALCOA plant on an aluminum remelt furnace. The system has the potential to save 13 billion Btu per year, representing 85 to 90 percent of the energy entering the waste heat boiler. Aerojet General is now commercializing this technology, projected to save about 40 trillion Btu per year by 2010.

### High-Efficiency Welding Unit

The greatest potential for significant energy savings in welding processes lies with improving power supply efficiency. Conventional arc-welding power supplies use a low-frequency transformer which is responsible for their inefficient use of power and for the large size and weight of the units. Because current continuously flows through the transformer, considerable energy is wasted when the unit is idling between steps in a welding job. Developed through funding from DOE and Cyclomatics, Inc., the "Inverter Technology" applied to arc welding power supplies has brought significant savings to the welding industry. The DOE/Cyclomatics inverter technology uses a silicon-controlled rectifier (SCR) and a high-frequency, high-efficiency transformer which together dissipate little energy. The SCR shuts off power to the transformer when the system is idling, greatly reducing electrical energy consumption. Typical power losses for the high-efficiency welding unit are 15 percent, as compared



**Aerojet fluidized-bed waste-heat recovery system.**