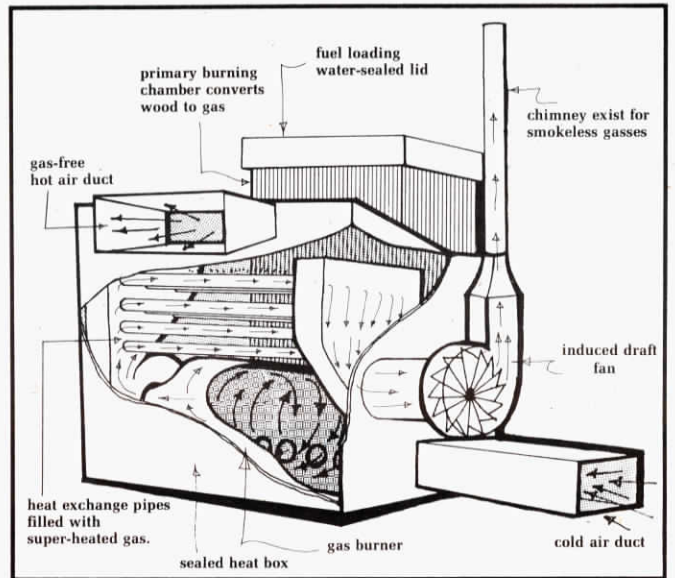


Direct-fired burner supplies heat for grain drying and buildings, and can be fitted to boilers or kilns. Produces up to 3 million btu's at up to 1400° C. Burns wood, straw or other solid fuels.



REDUCES HEATING, DRYING COSTS UP TO 70%, SAYS MANUFACTURER

90% Efficiency Claimed For Smokeless Burner

"We've been swamped with inquiries from all parts of the world," says Paul Williams, managing director of Waterwide Systems of New Zealand, manufacturer of a revolutionary portable furnace that, according to Williams, burns wood, straw and other solid fuels with up to 90% or more efficiency — and for about one-tenth the cost of diesel fuel.

"Because of its high efficiency, no smoke is emitted when burning wood, straw or other solid fuels. And, under normal operation, the burner will never require ash removal. There are no internal parts in the burner and no grate to burn out," Williams told FARM SHOW.

Although especially suited for crop drying with wood or straw, it's really a "burn anything" furnace that's portable and can go where needed to provide heat, explains Williams. "We can burn fuel from about 100 lb. chunks down to small chips. Combustion efficiency can be as high as 99.9%, making our burner the most efficient of any we know, and this is proved by exhaustive testing. For crop drying, there is no fan in the

burner since it derives its draft from the drier.

"We can hook the burner to virtually any crop drier in the range of 500,000 to 900,000 btu's per hour, which pretty well covers the field. Any large dryers needing more heat can be fitted with multiple burners," Williams points out.

He adds that, "Many people have asked about automatic loading, and we are working on this. However, when you consider the small amount of wood being handled, and the frequency of loading, the problem isn't so great. Generally, dumping in a large front end loading bucket of wood every hour or two will run the burner for drying corn. Straw has given good results, especially when mixed with wood. However, more frequent loading is necessary owing to the bulk nature of straw, which we use in ordinary small bales.

"Costwise, straw proves much more expensive than wood since all costs, such as baling and storing, must be considered. During the heating period, the burner supplies the correct amount of heat by auto-

matically starting and stopping. Comparing dry wood purchased at around \$60 per cord, the cost to operate is about 1/10 the cost of diesel fuel."

The Waterwide burner's high efficiency stems from its exclusive two-stage burning system, explains Williams: "Think of blocks of wood as gas cylinders — wood is gas in solid form. Under the controlled combustion conditions in the primary chamber, wood goes through various chemical changes resulting in its conversion to gas (hydrogen, carbon monoxide, nitrogen, etc.) which passes into the secondary or "after burner" stage. Here, air is metered in, and the gases burned as they spin in the cyclone. Heavy particles and dense gases are centrifuged to the outside of this whirlpool type swirl, and the exit from this chamber is arranged centrally so that only totally combusted gases emerge.

"The temperature of these gases is about 1,300° C (steel is red hot at about 400° C) and, at this high temperature, virtually anything burns. Cold air is mixed at this point to

lower the temperature to the desired level. The burner is lined with refractory insulation to prevent heat loss and to protect the steel. Because of the virtually total combustion efficiency, the flue gases are free from smoke and no external heat exchanger or chimney is normally necessary. This increases efficiency about 35 to 50% over other systems because all the heat output is used. The burner is controlled by changing the setting of its air valves. An electronic modulator to control heat output is available," according to Williams.

The burner is 6.5 ft. long, 5.5 ft. wide, 11 ft. tall with the lid open and about 8.5 ft. tall with the lid closed. It weighs 5,500 lbs. and has a 2.08 sq. yd. fuel capacity.

Cost of the burner fob New Zealand is right at \$5,500 for the 70 DF model (3 million btu's). The company will ship direct to the U.S. and Canada, and is looking for distributors.

For more information, contact: FARM SHOW Followup, Waterwide Systems, P.O. Box 4, Haumoana, Hawke's Bay, New Zealand (ph Hastings 750 187; Telex NZ31569).

ATTRACTIVE SPACE SAVER

Hexagon Rack Organizes Firewood

Marlyn Rodi of Inglewood, Cal., needed some way to clean up and organize a stack of firewood into a small space. He built a hexagonal rack to solve the problem.

Rodi used a dozen 32-in. 2 by 2 in. struts to form the six sections of the frame. A dozen 16-in. 2 by 2 in. inside braces give support to the main frame. These pieces are all glued together, then fastened with 1 in. flathead screws for maximum strength.

For the back of the rack, he cut a 10¼-in. dia. center hub from 3/4-in. plywood. Six 28-in. 2 by 2 in. supports are screwed to the hub. The ends of each support are then butt-jointed to the apex of each triangle.

Plywood braces, cut to fit over each triangular section, are secured to the main frame with 1 in. screws. Finally, the entire rack is bolted to 4 by 4 in. base rails for extra stability.

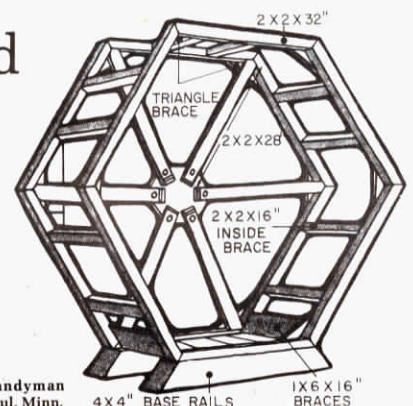


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