No wood burner on the market burns cleaner than the Kuuma Vapor-Fire 100, in-house furnace, according to the manufacturer.

The hot air furnace recently tested out at 86 percent heat transfer efficiency, 98 percent combustion efficiency, and produced less than a gram per hour of particulates. At a slow burn it did even better with an overall combustion efficiency of 99.9 percent. The smaller Vapor-Fire 200 scored nearly as well. These results make both stoves eligible for tax credits of up to $1,500 for purchase and installation.

Daryl Lamppa says the furnace is unique to the industry. “Ours is the only non-boiler, non-catalytic combustion furnace in the industry that we are aware of.” Unlike other true gasification burners, logs in the fire chamber of the Kuuma burn at a controlled rate from front to back. Controlled release gas and vapors result in near complete burnout as the fuel travels lengthwise through the fire chamber.

These results make both stoves eligible for tax credits of up to $1,500 for purchase and installation.

Lamppa explains that the fan in the plenum for distribution throughout the house is hot enough. When the house thermostat is set on the lid.

Another sign of an efficient burning furnace is that you burn less wood, notes Lamp- pa. Even with a continuously burning design, he says the Kuuma takes half the wood of a conventional non-gasification furnace.

“With a mild winter this year, and I left my furnace set at the low setting all winter,” says Lamp- pa. “I have a 3,200-sq. ft. house, my furnace set at the low setting all winter,” says Lamp- pa. “I have a 3,200-sq. ft. house, and I only burn 4 to 5 cords of wood a year.”

The Kuuma Vapor-Fire 100 combustion chamber is only 23 in. long by 15 1/2 in. wide by 20 in. high. The fire door is 12 in. by 28 in. and takes a maximum wood length of 22 in. Even with that limited size, Lamp- pa says that when set on medium burn, a single hardwood fill will last for 10 to 12 hours. Hardwood coals will last another 6 to 12 hours. When reloading the chamber, coals are simply pulled forward before fresh wood is added. Once the door is shut, the logs quickly ignite and burn at the preset rate.

“I have customers who tell me they light their furnace once in the fall and never light another match all winter,” says Lamp- pa. The Kuuma Vapor-Fire 100 is priced at $4,350. It stands 50 in. high, 32 in. wide and 52 1/2 in. deep. The slightly smaller Kuuma Vapor-Fire 200 is priced at $3,850.

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Add-On Axle Pto Lets Semi Drive Farm Equipment

Low horsepower pto’s have been available for trucks for decades, but Harry Wallace has figured out a relatively inexpensive way to add 250 to 1,000 hp pto’s to semi trucks.

“I sell the axle ready to go,” says the Galva, Ill., inventor of a modified power divider axle complete with parallel shaft gearbox and pressurized oil system.

“The secret for long life is a pressure-lube cooling system,” Wallace says. “Semi tractor operators have huge radiators, which is great for running a pto — lots of cooling. You can idle a large semi engine down and change gears in the transmission and use a third less fuel than a tractor.”

His truck is equipped with a vacuum switch so he can drive it where he needs to go, then flip that switch to disconnect traction drive when he wants to run the pto. He uses cruise control to keep the speed he wants.

Wallace put the axle on one of his trucks to run a bagger machine. He and his son-in-law run a self-propelled forage harvester for their custom harvesting business. A lot of time was wasted arranging to get the tractor to run the bagger. Adding a pto to a truck makes the bagging operation self-sufficient.

“Instead of using a $200,000 tractor to run pto-driven equipment, why not look for an older semi tractor and put our axles on it?” Wallace asks, noting that his customers have put a truck and axle together for as little as $12,000. It can then be used for a variety of jobs: running grain vacuums, manure pumps, silage blowers, hay tugs and even generators.

One customer picks up 250,000 bushels of seed beans from different farmers with a grain vac, and with his semi pto he won’t have to worry about tractors not starting on cold days. Another customer plans to grind corn.

Wallace sells his smallest horsepower axle, rated at 180 hp, for $4,800. The 250-hp rated version sells for $6,800. He has gone through design planning with gearbox engineers to achieve up to 1,000 hp.

“Semi pto can be used for a variety of jobs including operating grain vacuums, manure pumps, silage blowers, hay tugs and even generators.

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