

# AIR today – gone tomorrow!

Here at **FBT**, we try to get out and about as often as possible to keep in touch with what's going on in the world of forestry and arb. Occasionally, we have a ring around to see if anything new is on the scene and if we hear about something we like the sound of we trundle off and take a look at it. Kingwell Holdings\* have come up with a few surprises in the past and a little while ago we rang them to see if they had anything new. Well guess what? Over to **Justin Kingwell ...**



**T**ry to imagine if you can, being able to destroy any type of wood waste from pallets, to stumps with a machine that is quieter than the loader filling it and produces virtually no emissions.

'Then imagine, reducing your waste to approximately 2% of its original volume. Just remember that this leftover 2% is completely inert and can be disposed off by mixing with soil. You will only have to do this every couple of days. Now check what the latest selling rates are for fuel chip and the disposal rates for mulch.

'Finally, form a picture in your mind's eye, of the expenses involved in purchasing and operating large processing machinery. Have you done that? Good. Now stop: knock several zeros of that figure. Oh yes, put away the keys to the low-loader as well. Now wake up. This is not a dream. You are imagining an "air burner."

'The concept of "air burning" is certainly not a new one and has been tried as far back as the Manchester Airport expansion works a decade ago and during the Foot and Mouth outbreak as well with great success.

'They have been extensively tested by

## ▲ Burning stumps from large windrows.

DEFRA (Who now own two machines) at the research facility at Cardington, and now form part of the future DEFRA FMD Contingency Plan. They are in extensive use in the USA and other countries, burning all types of wood waste but can only be legally used for the moment in the UK for clean tree waste.

'There are already a small number of machines that have been imported into the country in the last few years and Kingwell Holdings are now working closely with the EA to sort out the final permitting issues and a Code of Practice for present and future users.

'When we first saw the machines at Manchester burning trees and later during the Foot and Mouth outbreak destroying carcasses, we knew that they had a promising future on site clearance work and after a lot of research, we took delivery of an S217 box burner in February this year, and we have been more than pleased with the results.

'Extensive trials began with some agencies and work has expanded, along with the types of material that

### Off-loading before starting work. ►

we were being asked to destroy. We have now also decided to try and obtain specific permitting from the EA to enable the widespread use of these machines on all types of wood waste, even when treaded or imported from off-site.

Airburners LLC ([www.airburners.com](http://www.airburners.com)) who manufacture the equipment in Palm City Florida, have now awarded Kingwell Holdings Ltd a dealership to market and sell the full range of air burners in the UK and Ireland.

## BACK TO BASICS

'Air curtain destructors or air burners can be used for burning all forestry, tree-surgery and timber waste, such as stumps, whole timber, fly-tipped wood waste, demolition and waste stream timber. Even green material and rings can be burnt and require no drying time. They are particularly suitable for processing timber that is highly contaminated with objects that would damage other processing machines, such as metal, stone, concrete and wire and on sites where a low environmental impact is required.

'With a volume reduction rate of approximately 98%, 100 tons of wood waste will reduce to approximately two tons of inert ash that can be mixed in to the site soils as an improver or removed if required. Also, metal and other contaminants can then easily be removed for recycling.

'These machines are incredibly quiet, simple to maintain and use and are virtually dust-free. They are also considerably cheaper to buy than a chipper, tub grinder, shredder or mulcher and operate with a fraction of the costs.

'The obvious financial and ecological benefits of keeping tippers off the roads and material out of land-fill go without saying.



◀ At full temp, burning green rings with no smoke.

## HOW IT WORKS

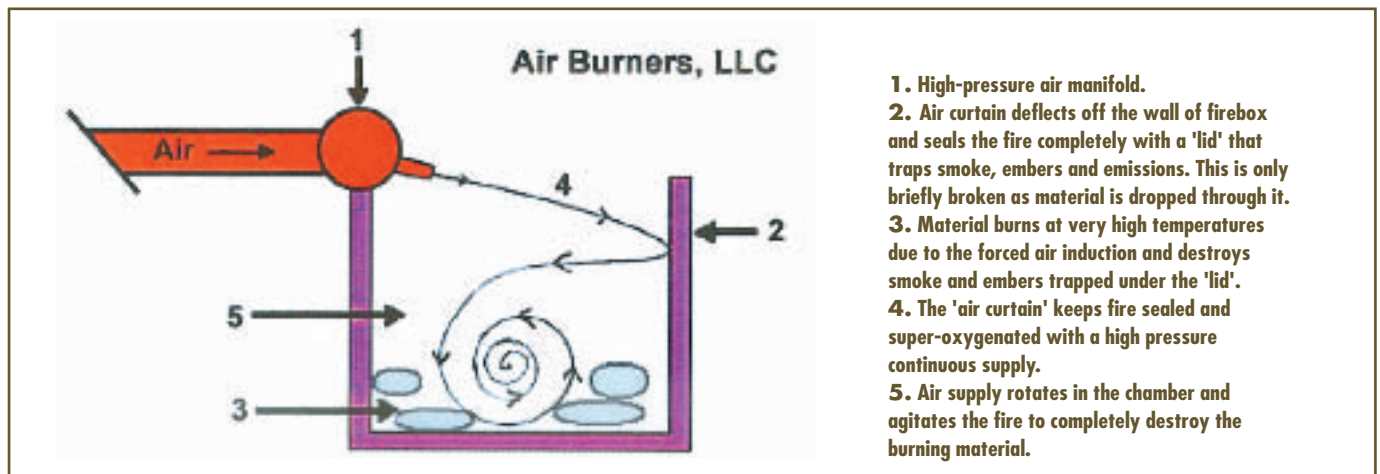
'At the heart of the machine is a super-tough fire-box with no floor, made with a patented refractory lining that can withstand repeated impacts even when at maximum temperature. This is mounted on a skid base with a fan on one end, powered by a small diesel engine. This fan then blows air along a manifold on the top side of

one of the fire-box walls.

'High velocity air is directed across and downwards at an angle into the fire-box creating the "air curtain" or lid across the top of the fire and a rotational turbulence within. The rotational turbulence provides a super, oxygen-enriched environment within the combustion area and accelerates the combustion process by raising the temperatures inside to approximately 1832°F (approx. 1000°C).

'This is many times hotter than a conventional open fire. The high velocity air curtain across the top traps unburned particulate and smoke inside, until it is almost completely consumed. The end result achieves nearly 100% combustion with minimal escaped particulate and smoke.

'These machines have a very low environmental impact and can be used in close proximity to existing structures and on site in complete safety. At a large (8ha of 4-10m high birch) rail



clearance job in the Midlands recently, we worked for seven weeks within 50 meters of a large housing estate, without one complaint about noise or smoke and apart from the machinery transport, not one lorry left the site carrying tree waste or product.

Larger machines in the air burner range, such as the S327 have throughput rates of up to 15 tons per hour, depending on material type and density. These rates may seem slow when compared to our mulchers and chippers, but when you consider the fact that you can safely destroy material all day that would itself destroy any mechanical process in a few minutes, along with the incredibly low running and purchase costs, things start to stack up.

Mulchers and chippers will always have their place in site clearance, but air burners have now arrived and will start to carve out a whole new sector of the market. Even if you are a small operator, tree surgeon or contractor, there's a machine for you. There's even a box-less burner that can be towed behind a 4x4 pickup called a "trench burner".

## TRENCH BURNERS

A trench burner is a fully self-contained mobile trailer-mounted system without a burning box. The unit has a folding manifold that delivers the "air curtain" along the top of the trench. The trench acts like a box



buried in the ground and is constructed using an excavator by either digging down into the soil or by piling up soil to achieve a trench that is the length of the manifold and 3 to 3.5 meters deep. After burning operations the trench can be back-filled and the ash buried. This machine is ideal for large sites and upland forest areas, but is not suitable for very sandy or rocky sites where digging a trench will be difficult, or where a high water table may prevent the construction of a

▲ **Burning whole birch on heavily-contaminated rail sidings.**

proper trench.

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