

wood burning stoves





Burley's range of wood burning stoves featuring Thornhill Thermal Technology is the result of thousands of hours of designing and prototyping, based and inspired by over 100 years of experience in the heating industry.

Designed, developed and manufactured entirely in the United Kingdom, the T³ range boasts advances which result in unsurpassed fuel efficiency and clean burning. This is made possible by the patent pending Cyclone™ method of introducing air.

The flame picture created when burning by this method is so impressive that to do it justice the largest possible glass door had to be developed.



Brampton 9108–8kW

The idea which drove the design of the **Burley T³** stove was to invent the cleanest burning and most energy efficient wood burning stove on the market.

Measuring the efficiency of a stove is difficult, for the public it is impossible. As a layman you would think that if you buy an 8kW stove which is 50% efficient you will get 4kW of heat. Wrong. The efficiency indicates how complete (or clean) the combustion is and the kW rating is how much wood the stove burns every hour. Neither have any relevance to how much heat ends up in the room. To create a stove which heats effectively, you need high efficiency and an effective means to extract the heat before it is lost up the chimney.

How perfect combustion of wood is achieved

Three part combustion

Burning wood efficiently requires a primary, secondary and tertiary combustion process.

Primary combustion

Primary combustion is the initial burning of the wood at relatively low temperatures. During primary burn, water is evaporated and large amounts of creosote gas are produced. This creosote holds 60% of the potential energy of the wood, but it is deposited on the inside of the stove and the lining of the chimney.

Secondary combustion

If, however, the combustion chamber is insulated sufficiently to raise the core temperature and exactly the correct amount of oxygen is introduced, at 600°C the creosote spontaneously combusts. This creates a chain reaction which increases the temperature inside the stove from 600°C to 900°C with no extra use of fuel. This is the secondary burn.

Introducing the air



The **Burley T³** range of stoves has a unique and patent pending system of introducing air for combustion, this is called The Cyclone™. A tubular framework channels air from the intake at the rear, around the fuel bed where it is preheated. The framework extends up each corner of the combustion chamber where the hot air is injected horizontally

along the inside of the stove. This creates a vortex which spins anticlockwise and ensures every area of the fire box receives exactly the correct amount of oxygen.

Tertiary combustion

Tertiary combustion occurs by fully burning the carbon, charcoal and ash which is left behind. These contain a huge amount of energy and provide a long rate of heat. Anyone who has barbequed will be aware of how much heat is present in semi-combusted wood. Blacksmiths melt steel on it.

The vortex created by the Cyclone technology also envelops the entire fuel bed, burning it so completely that there is no need for an ash pan. 100kg of wood can be reduced to 1 pint of ash (a ratio of 350:1) which is simply scooped out. No more carrying bucket loads of ash through the house every time you want a fire.

Quaternary combustion

Burley's stoves have a unique quaternary (fourth) combustion process. As the hot gases exit the combustion chamber they pass through a mesh filter. The mesh is heated to such a high temperature that, when any particles of soot or creosote which have escaped the secondary combustion touch it, they are ignited on contact. This creates even more heat for your room and less soot for your chimney.

Results

Making a stove which will burn wood is very simple and cheap. Producing and designing a top quality stove which will burn wood efficiently and cleanly is very difficult and is expensive. During product approval, when the European test house was measuring the emissions from Burley's T³ stove, the combustion was so clean they assumed that their gas analyser had broken and sent it away for recalibration!

Combustion efficiency of market leading stoves

Burley Holywell 4105	89.1%
Clearview Pioneer 5kW	71.9%
Charnwood Island 6kW	72.1%
Euroheat Harmony 5.9kW	65.7%
Hunter Herald 5.5kW	68.5%
Aarrow Ecoburn 5kW	68.1%

Converting combustion efficiency into warmth for your home

Heat exchanger

Having created an insulated combustion chamber to keep the heat in, many stoves then allow most of the warmth to go straight up the chimney. The T³ stoves force the hot gases into a heat exchanger where they pass back and forth before being allowed to exit. Within the heat exchanger are pipes which scrub the heat from the hot gases and convect the warm air into your room.

Room seal your Burley T³ stove

The majority of wood burners draw their air from the room, often through vents at the top or bottom of the door. Whilst this is a very cheap and simple method, it is also very inefficient and results in comparatively poor combustion. Drawing air from the front of the fire for combustion means that you are dragging huge amounts of warm air from the room (which you have already paid to heat) and losing it up the chimney. This is replaced by cold air from outside, creeping around windows and under doors, chilling your living room.

The T³ stoves draw all their air through a vent at the rear where it is cooler. If you wish, you may attach the optional room sealing kit to the back of the stove so it ONLY draws cold air from outside. All the lovely heat stays in your room. British standards dictate that any room with a stove rated greater than 5kW must have an air vent fitted. With the room sealing kit fitted to the T³ stove you do NOT need to fit a vent in the room, conserving yet more energy.

Glass door

One of the main reasons that anyone buys a stove is to view the flames. The most expensive component of a wood burning stove is the glass in the door. For safety reasons it is actually made from a ceramic material so it can withstand thermal shock and impact without shattering.

The T³ range of stoves have the largest windows in their class. When the mesmerising Cyclone flame picture is viewed, it imparts an unbelievable feeling of homeliness and ambience to a room. As a bonus, as the window increases in size, the amount of radiated infrared heat increases proportionately. This is the heat which you directly appreciate when sitting in front of the fire, or when you return from a long winter's walk to stand and defrost your backside.

To go a step further, not only do the T³ stoves have the largest window, they are also double glazed. Double glazing the window not only adds a degree of safety by keeping the outside of the outer pane cooler, it also keeps the inside of the inner pane hotter. This makes the combustion chamber hotter, which aids clean complete combustion and keeps the glass clear by vaporising any soot or creosote particles which will form on cool surfaces.

Plate steel construction

Constructing the T³ stove entirely from welded 5mm plate steel not only ensures maximum strength, but allows the heat to pass into the room in the most efficient fashion.



Hollywell 9105-5kW



*"I've been working with wood burners for 24 years
and I've never seen a flame picture as good as this"*

First customer to view these stoves

Fuel is burnt so economically and completely that in tests the ash produced from burning a 100kg stack of logs can fit into a pint glass.





Hollywell 9105-5kW

With optional log store base.

Extended base

Any of the T³ models can have an extended base. This is the perfect accompaniment for stand alone installations where height needs to be emphasised. The base also doubles as an area for storing logs. This item is a separate component and fits to the standard height stove.

Room sealing kit

Where possible it always pays to room seal a stove. The average chimney will drag ALL the warm air from a room once every single hour. The T³ range can be room sealed through an outside wall to completely eliminate this heat loss. This alone can add up to 50% efficiency.

Model	Height	Width	Depth	KW rating	Efficiency
Hollywell 9105	680	470	405	5	89.1%
Brampton 9108	680	595	405	8	85.5%
Wakerley 9112	780	750	405	12	84.1%
Extended Base	170				

All measurements are in millimeters.



Dual position handle provides additional air for easy lighting.

Because our policy is one of constant development, details may vary slightly from those given in this publication.

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