

Joyce

Thermal Reticulation System



**A BETTER CHOICE
FOR THE ENVIRONMENT**



**INNOVATION
IS OUR DRIVE**



**KEEPING YOU
COMPETITIVE**



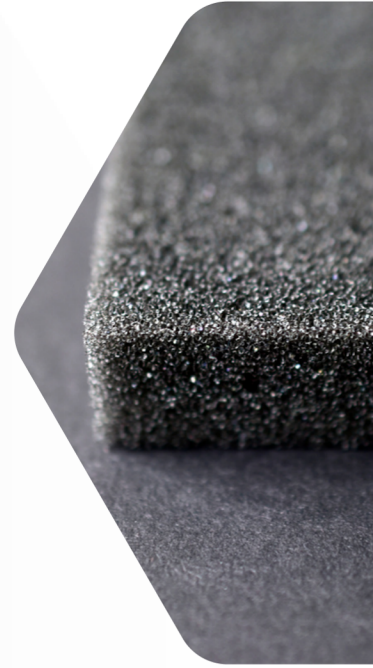
**CREATING
HEALTHIER HOMES**

Reticulated Foam

Reticulated foam is open-cell polyurethane foam which undergoes a process where the cell membranes are removed and bound to the cell walls. This process reinforces strength in the cell walls, creating a strong, filter-like structure. This unlocks new properties in the foam such as improved breathability and porosity which makes it suitable for situations where there is frequent contact with liquid.

The System

Joyce Foam developed the Thermal Reticulation System as a method of reticulating foam in a specially designed combustion chamber. The machinery is engineered with innovative design and safety features, to provide high quality reticulated foam without compromising operator safety.



The Reticulation Process

1

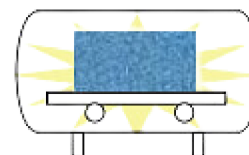
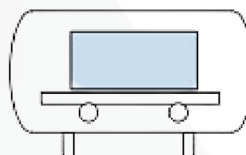
A foam block is placed inside a plastic bag and then onto an external carrier trolley. The open end of the plastic bag is attached to a vacuum manifold and securely fastened before vacuuming the air out. Once the correct vacuum is achieved the trolley is rolled inside the chamber and the door is locked.

2

Once the block size is entered into the control panel, the machine automatically calculates the gas quantity and ratio that is required to reticulate. These gasses are injected into the plastic bag and are absorbed by the block of foam. The control panel signals operators when the gas mixture fully penetrates the foam.

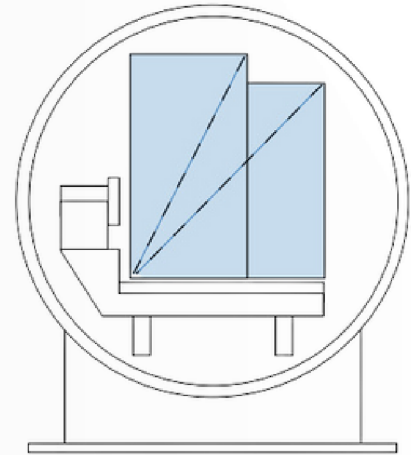
3

The automatic cycle begins and the gas mixture is ignited. This produces the high-speed, high-temperature flame required to depolymerise the foam. The heat melts cell membranes and binds them to the cell struts. The chamber pressure is now released, the door is opened and the reticulation process is complete.



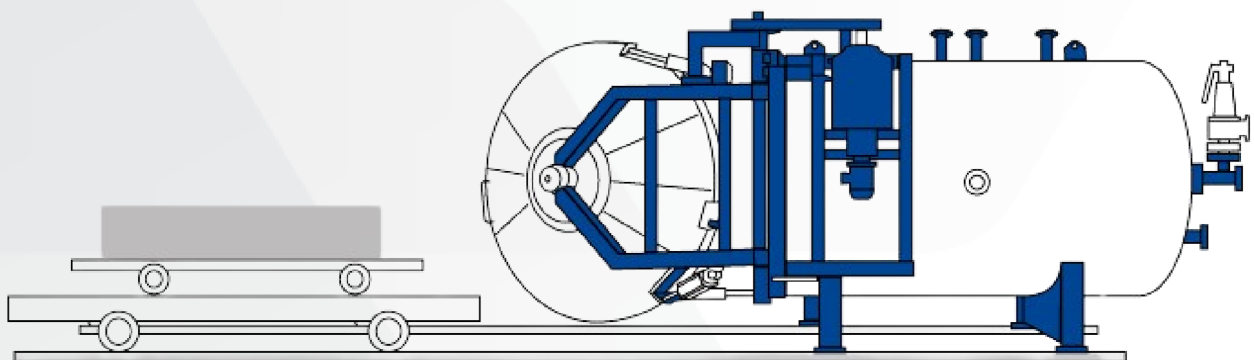
Sizing Options

Joyce aims to improve the performance of our customers by offering tailored business solutions. This is why the Thermal Reticulation System is available in a range of sizes with different manufacturing capabilities to ensure you are able to find the optimal system for your manufacturing volumes.



MODEL	DIAMETER (mm)	MAX BLOCK LENGTH (mm)	MAX BLOCK WIDTH (mm)	MAX BLOCK HEIGHT (mm)	MAX FOAM VOLUME (m ³)
V200S	1800	2100	1000	1000	2.1
V200L	1800	3000	1000	1000	3.0
V300S	2400	2100	1100	1100	2.1
V300L	2400	3000	1100	1100	3.0
V300LS	2400	2800	1500	1500	3.5

Chambers may also be designed to suit sizes outside the above range



- **Greater Gas Penetration**

The Thermal Reticulation System allows a gas mixture to penetrate the entire foam block before igniting the high-speed flame. This ensures the block of foam is thoroughly reticulated and reduces the need to re-reticulate missed areas.

- **An Inert Gas Blanket**

Prior to reticulation, a blanket of gas is formed around the block of foam. This reduces the effect of the blast on the chamber's walls which prevents damage to the chamber over extended periods of use.

- **Automated Gas Levels**

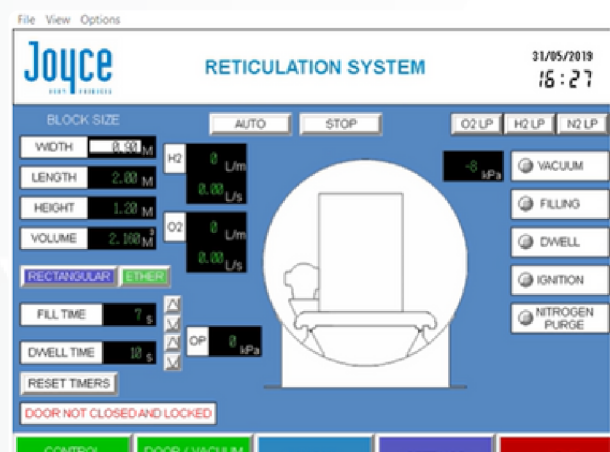
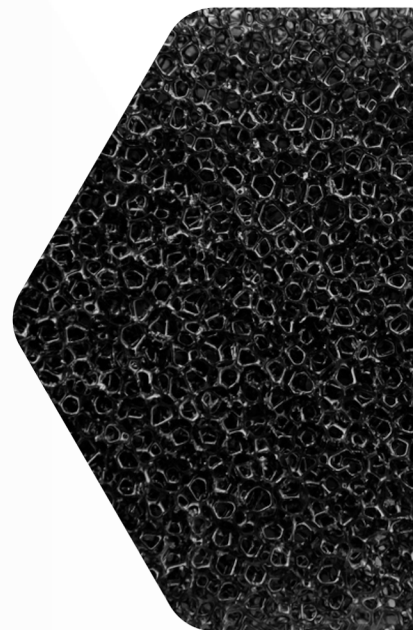
After the foam block's dimensions have been entered into the control panel, the system automatically calculates the required gas levels and reticulation time. This reduces operator error and increases consistency across all reticulated blocks.

- **Precise Pressure Sensors**

During reticulation, the chamber door is automatically locked due to the immense pressure inside the chamber. The primary safety feature of Joyce's Thermal Reticulation System is that the chamber door will only unlock once the chamber has released this pressure, greatly increasing operator safety.

- **Touch-Screen Control Panel**

The system includes a touch-screen control panel including the integrated PLC and full Joyce "Zapper Management" software. This makes the reticulation system much easier to use and provides visibility over the entire reticulation process.



- Externally insulated for sound reduction
- Heavy duty vacuum pump
- Gas & vacuum control panel, including valves and flow meters
- External trolley unloader
- Multi-stage alarm indicators
- Exhaust system
- Motorised door opening/closing with electrical safety interlocks
- Electronic high tension ignition system
- Flammable gas monitor and indicating system



Contact Information

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