

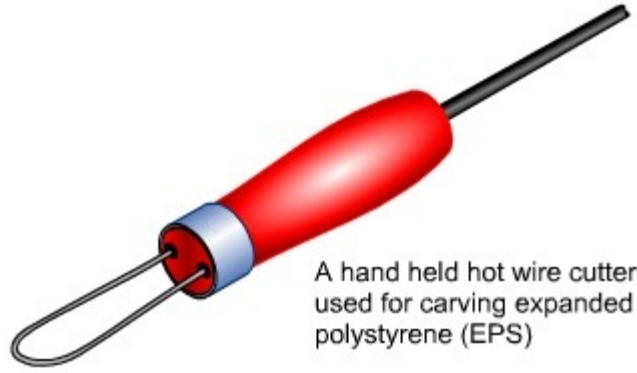
Cutting Expanded Polystyrene with a Hot Wire Cutter

Hot wire cutters

A hot wire cutter may be used to cut and shape expanded polystyrene (EPS) and extruded polystyrene (XPS).

It is possible to cut other foams with a hot wire cutter but because of the highly toxic chemicals given off when other foams are heated, it is prohibited to do so.

Only expanded polystyrene and extruded polystyrene may be cut with a hot wire cutter in schools.



A hand held hot wire cutter used for carving expanded polystyrene (EPS)

Hot wire cutters consist of a nickel chrome alloy (Nichrome) resistance wire held between two electrical connectors. A current is passed through the resistance wire, causing it to heat up. The amount of current passing through the wire is controlled so that the wire heats up just enough to allow the hot wire to pass through polystyrene.

Thin resistance wire is held taut between two connectors. Thicker resistance wire has rigidity and so does not need to be held taut. A rigid resistance wire may be shaped to any desired profile and used to carve shapes and to cut architectural mouldings.

Computer numerically controlled (CNC) hot wire cutters are used to create a vast range of polystyrene products including signs, mouldings and carved figures.

Safety Notice

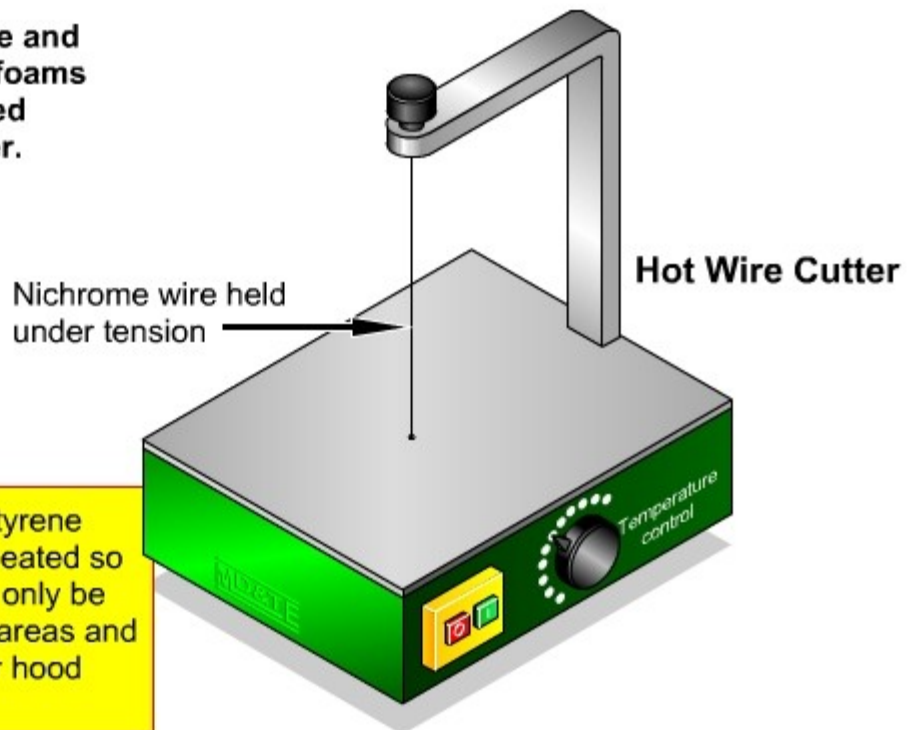
- Only expanded polystyrene may be cut with a hot wire cutter. Other foams are not allowed to be cut with this equipment.
- Styrene fumes are given off when polystyrene is over heated during a hot wire cutting operation. The room should be well ventilated and may require fume extraction facilities.

CLEAPSS

Please refer to CLEAPSS, Model Risk Assessments for Design and Technology in Secondary Schools and Colleges, Part 1.057COSH Regulations.

Hot Wire Cutter

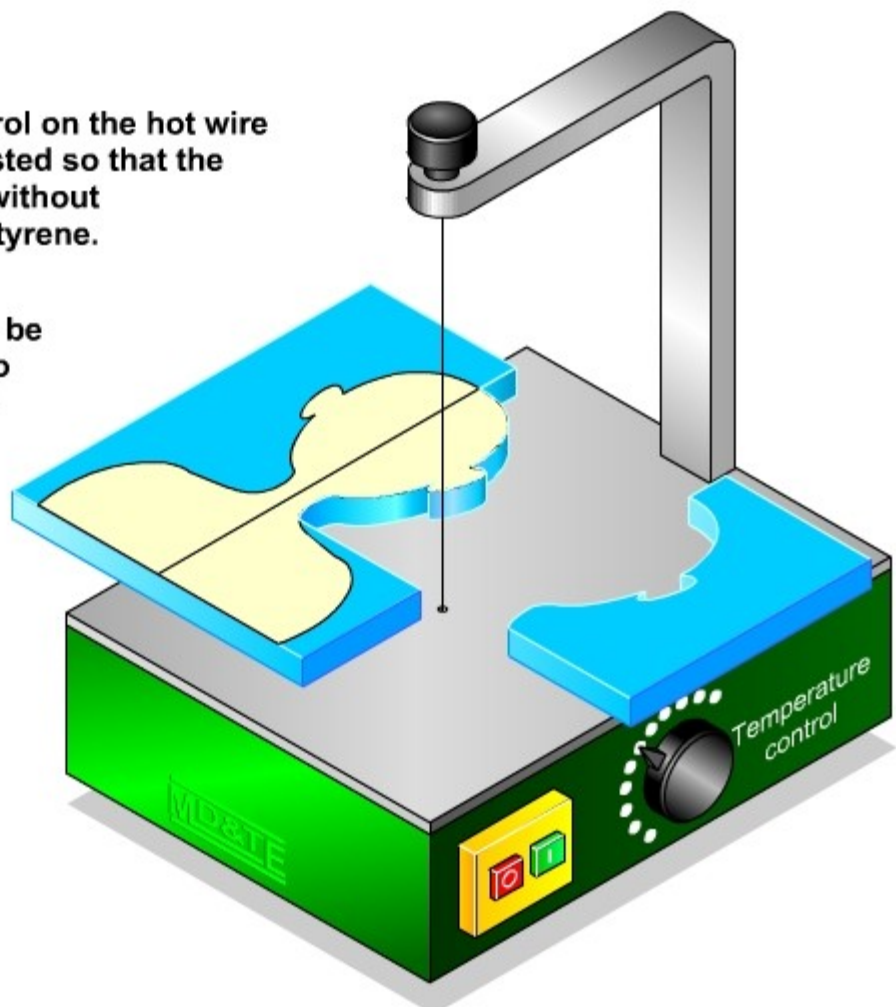
Expanded polystyrene and extruded polystyrene foams may be cut and shaped using a hot wire cutter.



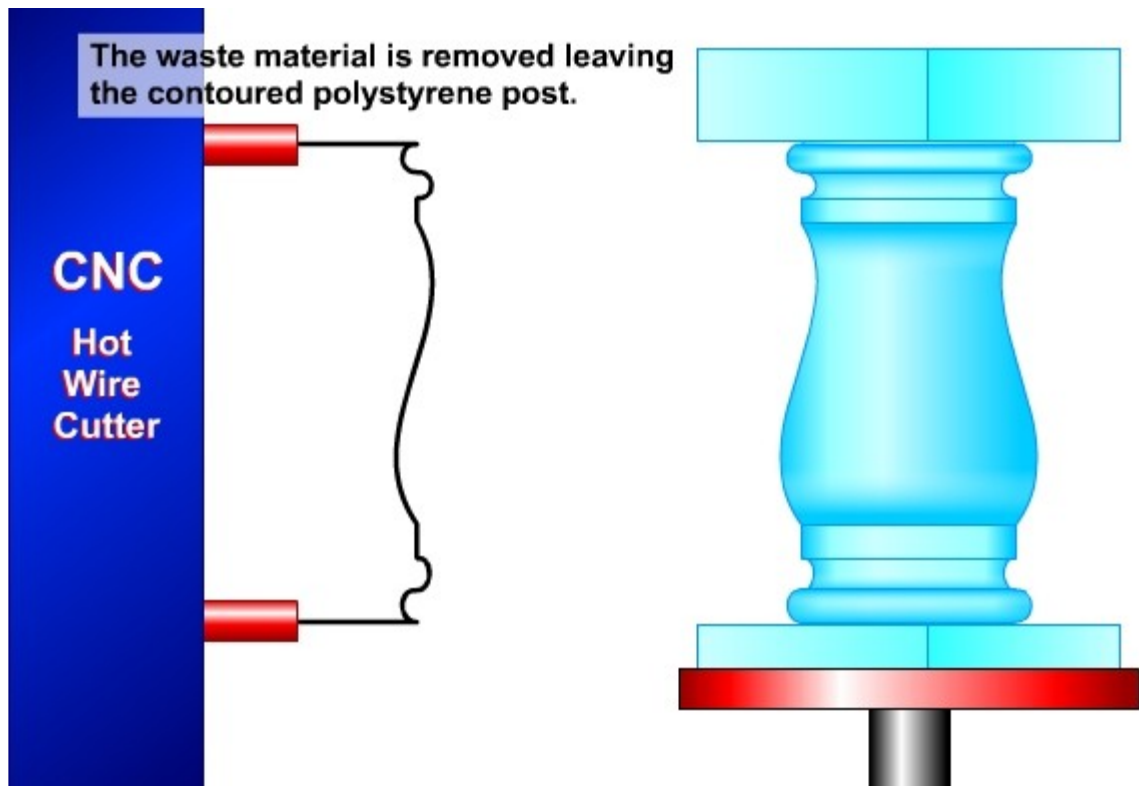
Polystyrene gives off styrene fumes when it is over heated so hot wire cutters should only be used in well ventilated areas and if possible, an extractor hood should be used.

The temperature control on the hot wire cutter should be adjusted so that the wire gives a fine cut, without overheating the polystyrene.

A paper template may be temporarily glued onto the polystyrene block.



Computer numerically controlled (CNC) hot wire cutters



Polystyrene mouldings may be cut using a CNC hot wire cutter fitted with a rigid resistance wire.

