

High-Density Urethane Tooling Foam

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Materials & Stock

High-density urethane (HDU) tooling foam is a fine-cell rigid foam used for CNC machining, model making, mould masters and signage. It machines fast with no grain, holds detail and paints like wood, making it ideal for teaching subtractive machining and 3D forms.

Key Features

- Densities from 15 to 40 lb/cu ft
- Fine closed-cell structure
- Machines quickly and smoothly
- Holds crisp edges and detail
- Paints and finishes like a solid substrate

Typical Uses in the Workshop

- CNC mill 3D models and sculptural forms
- Make mould masters for casting
- Carve signage and lettering
- Create architecture and terrain models

Safe Operation

1. Support the foam block firmly on the bed
2. Select shallow depths and appropriate speeds
3. Cut dry, with light vacuum extraction
4. Sand machined surfaces lightly
5. Seal before painting or casting

SAFETY NOTES

- Foam dust is electrically conductive - extraction is essential
- Wear a dust mask; foam dust clings
- Do not machine without chip extraction
- Keep foam away from flame sources
- Store away from solvents that dissolve it

Maintenance & Consumables

- Keep foam sheets and blocks clean
- Store stacked flat in a dry place
- Check the CNC bed is clean of foam dust
- Clean tooling that machines foam
- Keep offcuts for test pieces

Specification & Buying Notes

Buy HDU in the density matching the job: 15 lb for models, 30 lb for masters. 600 x 400 mm blocks suit school CNCs. Confirm availability of the brand's primer and adhesive for finishing.