



TB650

# Premium quality epoxy tooling board

**Trelleborg TB650 is a medium temperature, low density syntactic epoxy tooling board** designed for the manufacture of accurate and stable master models and molds.

**Features & Benefits**

TB650 is a premium quality, market leading tooling board.

- **Excellent dimensional stability**  
Maintains shape at elevated temperatures
- **Low coefficient of thermal expansion**  
Predictable and accurate performance
- **Inert surface**  
Chemically compatible with tooling prepregs
- **Suitable for use up to 120 °C**  
Can be directly used for the production of parts
- **Quick mold preparation**  
Exceptionally easy to machine or hand carve

**Applications**

TB650 offers many benefits and it can be used for the following:

- Master models
- Lay-up tools for low and medium temperature curing epoxy prepregs
- Light weight coring materials



**Product Sizes**

TB650 is available in standard board sizes of 0.5 m x 1.0 m and 1.0 m x 1.0 m at the following thicknesses: 49 mm and 123 mm. It is also available in size 1.5 m x 0.5 m at 123 mm thickness.

**Storage**

The board should be stored in a dry warehouse.

**Health & Safety**

Eye protection and a face mask should be worn when working with Trelleborg TB650.

Please refer to the Trelleborg MSDS.

	TYPICAL PROPERTIES	
Color	Green	
Density	680 kg/m <sup>3</sup>	
Shore Hardness	69 D	
Uniaxial Compressive Strength	45 MPa	BS EN ISO 604
Uniaxial Compressive Modulus	1,490 MPa	BS EN ISO 604
Heat Distortion Temperature	111 °C	BS 2782
Glass Transition Temperature	117 °C	BS EN ISO 11359-2
Coefficient of Thermal Expansion	38 x 10 <sup>-6</sup> / °C	BS EN ISO 11359-2
Tensile Strength	31.4 MPa	BS EN ISO 527
Youngs Modulus	1,116 MPa	BS EN ISO 527
Flexural Strength	41.7 MPa	BS EN ISO 178
Flexural Modulus	1,816 MPa	BS EN ISO 178
Shear Strength	24.2 MPa	BS 2782 340A
Izod Impact (Unnotched)	9.8 KJ/m <sup>2</sup>	BS EN ISO 187
Izod Impact (Notched)	0.9 KJ/m <sup>2</sup>	BS EN ISO 187

## Processing Guidelines

### Cutting

TB650 can be sawn using carbide or diamond coated saw blades or cutting wheels.

### Bonding

Large patterns can be constructed from boards using the appropriately selected epoxy adhesive system. Trelleborg adhesive system 551A/B is recommended. The adhesive system must offer adequate pot life and be capable of meeting the mechanical and thermal properties of the tooling board.

To ensure good bonding:

- The adhesive should be applied to both surfaces (dust free) using a notched spatula
- The surfaces should be brought together and a uniform clamping pressure applied by either mechanical or vacuum means
- Surplus adhesive should be witnessed extruding from all bond lines which after curing can be machined off without detriment
- Bonded joints should be left to cure for 24 hours at ambient temperature for best results

When utilizing the recommended adhesive no cupping should occur as the adhesive characteristics are matched to the TB650 material.

### Machining

In order to avoid board distortion it is recommended that stock removal should be taken equally from opposing faces. Where this is not possible, then the board should be supported by and bonded to additional layers.

To minimize distortion when machining large flat boards, it is advisable to rough cut one face, invert the board and machine the rear face, re-invert and complete the machining. The board can be finished by the use of successively finer grades of wet and dry abrasive paper.

## Machining Guidelines

The machining information provided is for guidance purposes only. It is advised that individual users should determine the appropriate speeds, feed, cutters and depths for their own specific application.

MACHINING INFORMATION	
Roughing Speed	5,000 rpm
Roughing Feed	9 m / min
Cutter Type	40 mm Ball Nose Cutter
Step Down	10 mm
Step Over	15 mm
Finishing Speed	7,500 rpm
Finishing Feed	9 m / min

### Gaps & Repair

It is recommended that Trelleborg EP patch and repair systems are used to fill gaps and repair rebuild areas if required.

### Contact Us

Trelleborg's Applied Technologies division is an industry expert in delivering innovative and reliable solutions that maximize performance for our customers. Our vast range of specialized, customizable materials ensure peace of mind at every stage of your project. With reliable and efficient project management and manufacturing we endeavor to take performance to new levels by achieving your goals safely, on time and within scope.

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