High temperature tooling for high volume part production

TD1200

TD1200 is a high temperature carbon fiber infused, polymer tooling material, designed for high volume direct to part production.Thermally stable up to 180 °C, with a low coefficient of thermal expansion (CTE), TD1200 is an alternative to Invar, aluminum, prepreg and steel, making it ideal for the aerospace and automotive industries.

TD1200 can be built into blocks and machined to a specific shape using traditional cutting tools. It is easily processed to achieve either a matt or high gloss finish, requiring minimal surface preparation.

TD1200 is specifically engineered to produce high strength, dimensionally stable tooling for high volume direct to part manufacturing. Multiple parts can be made from the tooling as the material provides excellent toughness and durability, maintaining its shape at elevated temperatures.

Applications:

- Direct to part tooling
- Alternative to Invar, aluminum, prepreg and steel
- High volume part production

Benefits:

TD1200 is a premium high temperature tooling board offering a wide range of benefits:

- Low coefficient of thermal expansion (CTE) of 2.85 ppm/°C
- Alternative to Invar, aluminum, prepreg and steel
- Suitable for maximum service temperature use up to 180 °C
- Multiple finished parts can be made direct from tooling
- Consistent, reliable performance
- Excellent toughness and durability
- Can be machined to any shape required
- Matt or high gloss finish
- Requires minimal surface preparation

TECHNICAL PROPERTIES		
PROPERTY	TYPICAL DATA	TEST METHOD
Color	Black	
Density	1,290 kg/m³	BS ISO 1183-3:1999
Shore Hardness	85° D	ISO 868:1998
Uniaxial Compressive Strength	208 MPa	BS EN ISO 604:2003
Maximum Service Temperature	180° C	
Flexural Modulus	22 GPa	ISO 178:2010
Coefficient of Thermal Expansion	3 ppm/°C	ASTM 831-2
Flexural Strength	337 MPa	ISO 178:2010

Product Sizes

TD1200 is available in a standard board size of 1,300mm x 800mm at the following thicknesses:

	Length	Width	Thickness
Type 1	1,300mm	800mm	5mm
Type 2	1,300mm	800mm	10mm
Type 3	1,300mm	800mm	20mm

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 TD1200. Please refer to the Trelleborg MSDS.

Cutting Guidelines

TD1200 can be sawn using carbide or diamond coated saw blades or cutting wheels.

Bonding Guidelines

Large patterns can be constructed from boards using the appropriately selected epoxy adhesive system. Trelleborg adhesive system EP661 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 (decreased and dust free) using a notched spatula.
- The surfaces should be brought together and a uniform clamping pressure applied by either mechanical or vacuum means.
- Any surplus adhesive that extrudes from bond lines after curing can be machined off.
- Bonded joints should be left to cure for 72 hours at ambient temperature for best results.

The recommended adhesive has matched characteristics to the TD1200 material.

Machining Advisory

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.

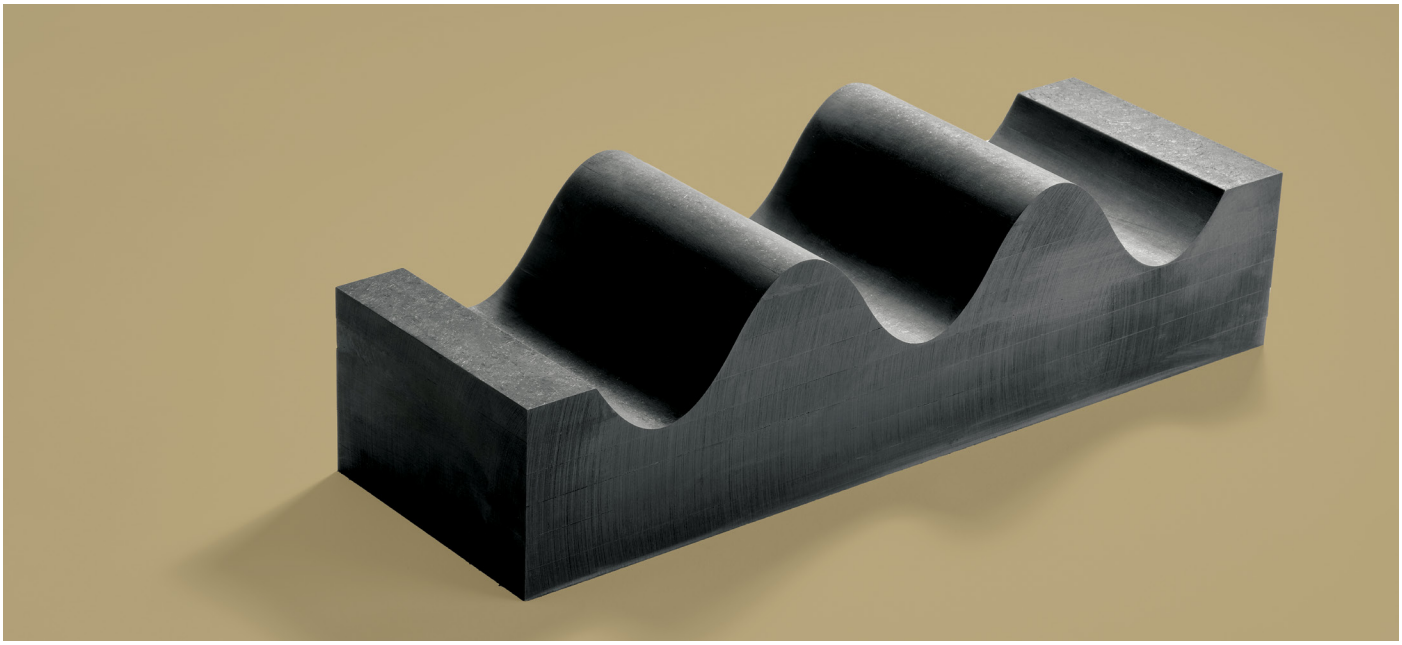
To minimize distortion when machining large flat boards, it is advisable to rough cut one face, invert the board and machine the rear face, re-invert and complete machining. The board can be finished by the use of successively finer grades of wet and dry abrasive paper.

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.

TYPICAL PROPERTIES	
Roughing Speed	12,000 RPM
Roughing Feed	10,000 MM/PM
Cutter Type	40mm Dia TR4 Carbide Inserts
Step Down	1.5mm
Step Over	15mm
Finishing Speed	14,000 RPM
Finishing Feed	15,000 MM/PM
Cutter Type	12mm Solid Carbide Ball nose
Step Down	0.5mm
Step Over	0.4mm

*Figures are for guidance purposes only



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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