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**Advanced Materials**

**RenShape® 460**

**MODELING BOARD**

**DESCRIPTION**

RenShape® 460 modeling board features a higher density and lower coefficient of thermal expansion than other boards to produce precision models with better dimensional stability over a broader temperature range. RenShape® 460 provides the same good edge definition and accuracy as other RenShape® boards. Typical applications include temporary and throwaway master models, styling and visual models, prototypes, prototype foundry patterns and vacuum-form molds, architectural and automotive die models, tooling aids and fixtures. RenShape® 460 board machines quickly with carbide cutters producing high-quality model surfaces. It features properties including:

<b>ADVANTAGES</b>	<ul style="list-style-type: none"> <li>• Ultra-fine surface finish</li> <li>• Good reproduction of intricate detail</li> <li>• Good resistance to shrinkage and warping</li> </ul>
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<b>ACCESSORIES</b>	<b>Matched Epoxy Adhesive</b>	<b>Repair Paste</b>
	Ren-Weld® 103	Freeman Quik-Fil

<b>TYPICAL PROPERTIES*</b>	<b>Test Method</b>	<b>Test Values</b>
Color	Visual	Light brown
Density, lb./ft <sup>3</sup> (g/cm <sup>3</sup> )	ASTM D-792	48 (0.77)
Hardness, Shore D	ASTM D-2240	64
Ultimate Flexural Strength, psi (MPa)	ASTM D-790	3,700 (25.6)
Flexural Modulus, psi (MPa)	ASTM D-790	185,000 (1,276)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638	1,800 (12.4)
Tg by DMA, E", °F(°C)	ASTM D-4065	219 (104)
Compressive Strength, 0.2% offset, psi (MPa)	ASTM D-695	2,200 (15.2)
Compressive Modulus, psi (MPa)	ASTM D-695	181,000 (1,248)
Coefficient of Thermal Expansion	ASTM D-3386	
-22° to 86°F, in/in/°F		29.9 x 10 <sup>-6</sup>
-30° to 30°C, in/in/°C		53.8 x 10 <sup>-6</sup>

\* Tested @ 77°F (25°C) unless otherwise noted.

**NOTE :** These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed in establishing product specifications, please consult with our Product Management Department.



MACHINING	Roughing Speed	Roughing Feed	Finishing Speed	Finishing Feed
	1,600 RPM	40 IPM (101cm/min.)	10,000 RPM	100 IPM (254cm/min.)

**Cutters :** **Roughing** 1 in. (2.5cm) Hog Ball End Mill 4-Flute HS Steel 8% cobalt  
**Finishing** 5/8 in (16mm) Ball End Mill 2-Flute Carbide  
**Depth** Roughing varies from 0.25 in. to 2.5 in. (6mm to 6.35cm) with a 40% stepover  
Finishing depth is 1/8 in. (3mm) leaving a 0.002 in. (0.05mm) scallop height

**These machining parameters are represented as starting points.** Cutter type and material, spindle speed, feed rate, machine power and rigidity all affect machining results. User must determine the best parameters for specific situations.

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**PACKAGING :**

RenShape<sup>®</sup> 460 board is available in a limited number of standard combinations of 1 in., 2 in., 3 in., 4 in., 5 in. and 6 in. (2.5cm, 5cm, 7.6cm, 10cm, 12.7cm, 15cm) thicknesses, widths of 12 in., 16 in., 20 in and 24 in. (30.5cm, 40cm, 51cm, 60cm) and length of 60 in. (152cm). Boards are finished on top and bottom faces and on all edges. Please contact Customer Service (800) 367-8793 for currently available options, price and availability.

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**STORAGE :**

RenShape<sup>®</sup> 460 boards should be stored flat in a dry place, in the sealed original container, at temperatures between +2°C and +40°C (+35.6°F and 104°F). Under these storage conditions, the shelf life is 10 years. The product should not be exposed to direct sunlight.

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**PRECAUTIONARY STATEMENT :**

Huntsman Advanced Materials Americas LLC maintains up-to-date Material Safety Data Sheets (MSDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

**First Aid!**

Refer to MSDS as mentioned above.

**KEEP OUT OF REACH OF CHILDREN  
FOR PROFESSIONAL**

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