

Advanced Materials

RenShape® 5166

METALFORMING BOARD

DESCRIPTION :

RenShape® 5166 board is a tough, durable polyurethane material designed for use in forming metal parts for prototype and low-volume production. Typical applications for RenShape® 5166 board include draw dies, stretch forming dies, and low-pressure hydroforming dies. It also can be CNC-machined with carbide tools and produces low cutter wear.

ADVANTAGES	
	• CNC machinable at high speeds
	• Good edge definition
	• Good dimensional stability
	• Good impact and abrasion resistance

ACCESSORIES	Matched Epoxy Adhesive	Polyurethane Repair Paste/Adhesive
	Ren-Weld® 100	RenCast® 6470/Ren® 6470/DT 082

TYPICAL PROPERTIES*	Test Method	Test Values
Color	Visual	Cream
Density, lb./ft. ³ (g/cm ³)	ASTM D-792/ISO 1183	103 (1.7)
Hardness, Shore D	ASTM D-2240/ISO 868	90
Ultimate Flexural Strength, psi (MPa)	ASTM D-790/ISO 178	8,000 (55.2)
Flexural Modulus, psi (MPa)	ASTM D-790/ISO 178	965,000 (6,655)
Ultimate Tensile Strength, psi (MPa)	ASTM D-638/ISO 527	4,875 (33.6)
Tg by DMA, E", °F (°C)	ASTM D-4065/ISO 6721-1	228 (109)
Compressive Strength, 0.2% offset, psi (MPa)	ASTM D-695/ISO 604	9,500 (66)
Compressive Modulus, psi (MPa)	ASTM D-695/ISO 604	840,000 (5,793)
Coefficient of Thermal Expansion -22° to 86°F, in/in/°F -30° to 30°C, in/in/°C	ASTM D-3386/ISO 11359	22 x 10 ⁻⁶ 39.6 x 10 ⁻⁶

* 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.

PACKAGING :

RenShape® 5166 board is available in a limited number of standard combinations of 2 in. and 4 in. (5cm, 10cm) thicknesses, width of 20 in. (51cm) and lengths of 30 in. and 60 in. (76cm, 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.

STORAGE :

RenShape® 5166 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.

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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