



RenShape®

Tooling & High-Temp Work Boards



Huntsman Advanced Materials' RenShape Tooling & High-Temperature Work Boards

These boards are designed and formulated to meet the needs of today's precise and demanding tooling applications, including duplicating aids, foundry patterns, hammer-form dies, metal-form and vacuum-form molds, nickel electroforming mandrels, and intermediate temperature-resistant tooling.

The RenShape line also includes two epoxy formulations that are syntactic, pre-preg compatible and generally offer higher temperature resistance as well as chemical resistance when compared to polyurethane tooling boards.



RenShape Tooling and High-Temperature Work Boards

RenShape 470 High-Density Fixture Board

- 104 Pound Density
- Light Gray Color
- Extremely Tough and Dense

RenShape 470 is a high-density polyurethane board designed for machining of production fixtures capable of withstanding extended use and handling. It is very dimensionally stable and features excellent wear resistance.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075209	RenShape 470	2"	20"	60"	16.67

RenShape 472 Medium-Density Fixture Board

- 55 Pound Density
- Light Gray Color
- Excellent for Foundry Patterns and Thermoform Tools

RenShape 472 is a polyurethane board designed for machining of production fixtures capable of withstanding extended use and handling. Combines light weight with toughness and abrasion resistance to withstand demanding production environments.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075242	RenShape 472	1"	20"	60"	8.33
075243	RenShape 472	2"	20"	60"	16.67
075245	RenShape 472	3"	20"	60"	25
075244	RenShape 472	4"	20"	60"	33.33
075238	RenShape 472	5"	24"	30"	25
075239	RenShape 472	6"	24"	30"	30

RenShape 473 Lighter Density Fixture Board

- 50 Pound Density
- Light Gray Color
- Excellent Combination of Durability and Surface Finish with Less Weight

RenShape 473 is a polyurethane fixture board that offers a lighter density than traditional fixture boards. May be used for check fixtures, model bases, patterns and thermoform tools where requirements are less demanding.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075153	RenShape 473	2"	16"	60"	13.33
075154	RenShape 473	3"	16"	60"	20
075155	RenShape 473	4"	16"	60"	26.67
075156	RenShape 473	6"	16"	60"	40

RenShape 474 Lighter Density Fixture Board

- 50 Pound Density
- Gray Color
- Durable Tooling Board for Creating Economical Fixtures

RenShape 474 (formerly Epoxical 670) is gray in color and manufactured to machine well, with good detail, and produce less dust than other board materials. It is ideal for creating economical check fixtures, trim fixtures, and drill fixtures.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075610	RenShape 474	2"	16"	60"	13.33
075626	RenShape 474	4"	16"	60"	26.67
075606	RenShape 474	1"	24"	60"	10
075614	RenShape 474	2"	24"	60"	20
075622	RenShape 474	3"	24"	60"	30
075630	RenShape 474	4"	24"	60"	40
075638	RenShape 474	5"	24"	60"	50
075646	RenShape 474	6"	24"	60"	60

RenShape 550 Intermediate Temperature Board

- 53 Pound Density
- Cream Color
- High Temperature Resistance and Compressive Strength

RenShape 550 is a polyurethane board that is designed for forming dimensionally accurate aerospace models and curing tools requiring elevated temperature resistances up to 200°F. Carbide cutting tools required.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075207	RenShape 550	2"	15.9"	56.9"	12.56

RenShape 5166 Metal-Forming Board

- 103 Pound Density
- Cream Color
- Metal Forming Applications

RenShape 5166 is a polyurethane board that is designed for use in forming metal parts for prototype and low volume production. Carbide cutting tools required.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075237	RenShape 5166	2"	20"	60"	16.67
075199	RenShape 5166	4"	20"	30"	16.67

RenShape 5169 Foundry Pattern and Tooling Board

- 75 Pound Density
- Red Color
- Foundry Patterns and Tools

RenShape 5169 is a polyurethane board that is designed for machining extremely durable and wear resistant foundry patterns, core boxes and other tools that require high wear and impact resistance. Its superior edge definition, dimensional stability and polishing characteristics also make it an excellent material for thermoforming tools designed to produce clear plastic parts.

Catalog Number	Description	Diameter	Thickness	Width	Length	Bd. Ft.
075246	RenShape 5169		1"	20"	60"	8.3
075232	RenShape 5169		2"	20"	60"	16.7
075233	RenShape 5169		3"	20"	60"	25
075234	RenShape 5169		4"	20"	60"	33.3
075127	RenShape 5169		5/8"	24"	30"	3.1
075131	RenShape 5169		3/4"	24"	30"	3.8
075128	RenShape 5169		1"	24"	60"	10
075129	RenShape 5169		1 1/4"	24"	60"	12.5
075130	RenShape 5169		1 1/2"	24"	60"	15
075164	RenShape 5169		2"	24"	60"	20
075165	RenShape 5169		3"	24"	60"	30
075166	RenShape 5169		4"	24"	60"	40
075247	RenShape 5169		5"	24"	30"	25
075248	RenShape 5169		6"	24"	30"	30
075160	RenShape 5169	28"	2"	Round		
075161	RenShape 5169	28"	3"	Round		
075162	RenShape 5169	28"	4"	Round		

RenShape 5179 Foundry Pattern and Tooling Board

- 73 Pound Density
- Red Color
- Foundry Patterns and Tools

RenShape 5179 is a red colored polyurethane board that is specifically designed for the machining of highly accurate, dimensionally stable, and wear resistant foundry patterns. This board machines well with minimal chipping.

Catalog Number	Description	Diameter	Thickness	Width	Length	Bd. Ft.
075546	RenShape 5179		1"	24"	60"	10
075554	RenShape 5179		2"	24"	60"	20
075562	RenShape 5179		3"	24"	60"	30
075570	RenShape 5179		4"	24"	60"	40
075577	RenShape 5179		5"	24"	30"	25
075585	RenShape 5179		6"	24"	30"	30

RenShape 5008 Intermediate Temperature Epoxy Modeling Board

- 42 Pound Density
- Light Blue Color
- Superior Dimensional Stability and Prepreg Compatibility

RenShape 5008 is an epoxy modeling board designed for tooling use up to 250°F (121°C) and is well-suited for building master models, layup tools for low and medium temperature curing prepregs, and other heat resistant tooling. This medium density epoxy material features a very low coefficient of thermal expansion to produce outstanding accuracy and dimensional stability.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075289	RenShape 5008	2"	24"	60"	20
075290	RenShape 5008	4"	24"	60"	40
075291	RenShape 5008	6"	24"	60"	60

RenShape 2000 High-Temperature Epoxy Injection Mold Board

- 112 Pound Density
- Gray Color
- Prototype Injection Molds

RenShape 2000 is specifically designed for the fast machining of injection molds, resin transfer molds, vacuum form molds, and other tooling that requires very high temperature and chemical resistances. Molds created from RenShape 2000 may be polished to a metallic finish and are capable of producing hundreds of accurate thermoplastic parts.

Catalog Number	Description	Thickness	Width	Length	Bd. Ft.
075269	RenShape 2000	2"	24"	30"	10
075271	RenShape 2000	4"	24"	30"	20

RenShape Accessories & Machining Specifications

RenShape Matched Adhesives

Product	Matched Adhesive
RenShape 470	Freeman 690, RenWeld 100, RenLam 1700-1
RenShape 472	Freeman 690, RenWeld 103, RenLam 1700-1
RenShape 473	Freeman 690, RenWeld 103, RenLam 1700-1
RenShape 474	Freeman 690, RenWeld 103, RenLam 1700-1
RenShape 550	RenLam 4005/Ren 1500
RenShape 5166	Ren Weld 100
RenShape 5169	Ren Weld 5169, Rapid Patch
RenShape 5179	Ren Weld 5169, Rapid Patch
RenShape 5008	Ren Weld 5008
RenShape 2000	RenLam 4026/Ren 1501

RenShape Matched Repair Pastes

Product	Matched Repair Paste
RenShape 470	Freeman TUF-Fil Aluminum
RenShape 472	Freeman TUF-Fil Aluminum
RenShape 473	Freeman TUF-Fil Aluminum
RenShape 474	Freeman TUF-Fil Aluminum
RenShape 550	Freeman Hi-Temp TUF-Fil, Ren TDT 177-119
RenShape 5166	RenCast 6470/DT 082
RenShape 5169	Ren Patch 5169, Rapid Patch
RenShape 5179	Ren Patch 5169, Rapid Patch
RenShape 5008	Ren Patch 5008
RenShape 2000	RenLam 4026/Ren 1501

	Roughing Speed (RPM)	Roughing Feed (IPM)	Finishing Speed (RPM)	Finishing Feed (IPM)
RenShape 470	1,600	40	10,000	100
RenShape 472	1,600	40	10,000	100
RenShape 473	1,600	40	10,000	100
RenShape 474	1,600	40	10,000	100
RenShape 550	1,600	40	10,000	100
RenShape 5166	1,600	40	10,000	100
RenShape 5169	1,600	70-140	10,000	100-200
RenShape 5179	1,500	60	10,000	100
RenShape 5008	1,600	40	10,000	100
RenShape 2000	6-10,000	240+	15,000	300+

Cutters Used:

- Roughing – 1" Ball End mill, 4-Flute, Carbide
- Finishing – 5/8" Ball End Mill, 2-Flute, Carbide

Depth:

- Roughing – varied from 1/4" to 2 1/2" deep with a 40% stepover
- Finishing – 1/8" deep leaving 0.002 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 best parameters for specific applications.

RenShape Tooling & High-Temperature Boards Specifications

	Hardness Shore D	Density (g/cc)	Density (lbs/ft. ³)	Tensile Strength (psi)	Compressive Strength (psi)	Compressive Modulus Elasticity (psi)	Flexural Strength (psi)	Flexural Modulus (psi)	Glass Transition Temp (°F)	Coefficient Thermal Expansion (in/in/°F)	Color
RenShape 470	90	1.67	104	4,700	9,500	866,000	8,700	983,000	232	22.7 x 10 ⁻⁶	Lt. Gray
RenShape 472	81	0.88	55	7,000	10,900	460,000	9,540	416,000	248	25.8 x 10 ⁻⁶	Lt. Gray
RenShape 473	73	0.80	50	2,500	3,500	210,000	4,000	200,000	212	30.0 x 10 ⁻⁶	Lt. Gray
RenShape 550	82	0.85	53	7,000	10,500	415,000	8,800	414,000	289	27.5 x 10 ⁻⁶	Cream
RenShape 5166	90	1.66	103	4,875	9,500	840,000	8,000	965,000	228	22.0 x 10 ⁻⁶	Cream
RenShape 5169	85	1.20	75	9,000	8,800	366,000	14,000	380,000	206	40.8 x 10 ⁻⁶	Red
RenShape 5179	85	1.17	73	10,000	12,700	325,000	15,600	409,000	239	35.4 x 10 ⁻⁶	Red
RenShape 5008**	68	0.67	42	3,500	8,200	350,000	4,600	350,000	287	18.0 x 10 ⁻⁶	Lt. Blue
RenShape 2000**	91	1.80	112	9,000	36,500	900,000	12,000	1,200,000	496	21.0 x 10 ⁻⁶	Gray

**epoxy board

Terms and Conditions

Ordering

For fast and accurate ordering, always refer to the catalog number for each product.

Quotations & Prices

Quotations will be given upon request. Prices are subject to change without prior notice and do not include sales or excise taxes which may be applicable in your area.

Shipping Information

When specific shipping information is NOT given by the customer, we will make every attempt to ship best way.

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To save transportation charges, and facilitate handling of merchandise upon our receipt, we request that no merchandise be returned without prior written authorization.

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Merchandise given to a transportation firm is their responsibility to deliver in satisfactory condition. If merchandise is delivered damaged, the customer should note as such on freight bill and file a claim with the delivering carrier. Regulations require that hidden damage, identified upon unpacking, must be reported within ten (10) days of delivery in order to file a proper claim.

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Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty or merchantability or fitness, nor is protection from any law of patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental, or consequential damages.

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