REN SHAPE® 450

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Prototype Tool & Modeling Board

REN Shape 450 is the preferred modeling board for pattern makers throughout the world. The outstanding dimensional stability and its ability to hold precise tolerances even after exposure to heat have also made this material a favorite of thermoformers for prototype applications. REN Shape 450 is easily hand carved or CNC machined with minimal cutter wear. Important features include:

- Superior edge definition
- Low shrinkage and water absorption
- Good quality surface finish

Typical Properties

Color	Light Brown
Density	41 lb/ft^3
Hardness	65 Shore D
Flexural Strength	4,000 psi
Flexural Modulus	144,000 psi
Compressive Strength	2,800 psi
Compressive Modulus	135,000 psi
Tensile Strength	2,300 psi
Glass Transition Temp	205°F
Coefficient of Thermal Expansion (-22° F to 86°F)	36 x 10 $^{-6}$ in/in /°F

Available Sizes

1"x 20"x 60"
2"x 20"x 60"
1"x 24"x 60"
2"x 24"x 60"
3"x 20"x 60"
4"x 20"x 60"
3"x 24"x 60"

Accessories

REN -Weld 103 or RP 6465 Ultrafast for matched adhesives

TDT 177-113 R/H or REN Patch 440 for Repair Pastes

Applications

REN 450 applications may include temporary or throw away master models, styling and visual models, prototypes and prototype foundry patterns, vacuum form molds, architectural and automotive die models, tooling aids and fixtures, and other applications requiring fast machining and good model surfaces.

Machining

Cutters: Roughing - 1" Hog Ball End Mill, 4-Flute, HS Steel 8% Cobalt
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

Roughing Speed 2,000 RPM Roughing Feed 100 IPM Finishing Speed 15,000 RPM Finishing Feed 200 IPM

Safety

Do not use or handle this product until the Material Safety Data Sheet has been read and understood.