STREAM INFINITY
ThermaCore Max

High-Density Closed-Cell Foam Blocks Engineered for Precision-Cut OEM Window & Door Inserts

1. PRODUCT Overview

ThermaCore Max™ is a high-performance, closed-cell polyurethane foam system engineered specifically for **block casting**, allowing Stream Infinity to produce **dimensionally stable, high-density foam blocks** that are later **CNC-cut into precision-fit insulation inserts** for OEM window and door frame cavities.

Unlike traditional spray-applied insulation, ThermaCore Max is **sprayed into controlled molds**, forming uniform blocks with predictable density, consistent cell structure, and highly repeatable thermal performance. This manufacturing approach eliminates the variability of field spraying and allows Stream Infinity to deliver **tight-tolerance, custom-fit inserts** without requiring expensive or complex equipment.

The result is a **stable, machinable, high-performance foam block** that can be shaped to any OEM profile geometry — ideal for improving thermal performance, reducing condensation risk, and eliminating thermal bridging in modern fenestration systems.

2. KEY BENEFITS

THERMAL PERFORMANCE

- R-value of ~7 per inch
- Reduces frame thermal bridging
- Improves NFRC-modeled U-factors
- Enhances condensation resistance
- Thermal conductivity of 0.024 W/(m·K)

PRECISION MANUFACTURING

- Foam is **spray-cast into blocks**, not field-applied
- Controlled density, uniform curing, consistent cell structure
- CNC-machined to match OEM cavity geometry
- Repeatable tolerances without specialized equipment

SUPERIOR THERMAL PERFORMANCE

- High LTTR R-value per inch
- Closed-cell structure minimizes heat transfer
- Reduces frame thermal bridging
- Enhances NFRC-modeled U-factors and condensation resistance

DIMENSIONAL STABILITY

- Stable under temperature and humidity cycling
- Maintains shape during machining and installation
- Ideal for tight-tolerance cavity inserts

MOISTURE & AIR CONTROL

- Extremely low air permeance
- Very low water absorption
- Helps control condensation and moisture migration

ENVIRONMENTALLY RESPONSIBLE

- HFO blowing agent with ultra-low GWP
- GREENGUARD GOLD certified
- Low VOC emissions

3. MANUFACTURING PROCESS

STEP 1 — CONTROLLED BLOCK CASTING

ThermaCore Max resin is sprayed into molds, forming **uniform, high-density blocks**.
This process ensures:

- Consistent density
- Predictable curing
- Uniform thermal performance
- No field variability

STEP 2 — BLOCK CONDITIONING

Blocks are conditioned to stabilize internal temperature and moisture levels.

STEP 3 — CNC PRECISION CUTTING

Blocks are machined into **custom-fit inserts** using Stream Infinity's proprietary cutting process.

This allows:

- ±1.0 mm tolerances
- Complex multi-chamber geometries
- Reinforcement-compatible designs
- Preservation of drainage and pressure-equalization paths

STEP 4 — OEM INTEGRATION

Finished inserts are delivered ready for:

- Vinyl window frames
- Aluminum window frames
- Curtainwall mullions
- Hybrid/composite systems

4. TYPICAL PHYSICAL PROPERTIES

Property	Result	Standard
Apparent Core Density	35 kg/m^3	ASTM E1622-14
Compressive Strength	183 kPa	ASTM D1621-16
Tensile Strength	216 kPa	ASTM D1623-17
Open Cell Content	5%	ASTM D6226-15
Water Absorption	0.7%	ASTM D2842
Water Vapour Permeance	47 Pa·s·m^2	ASTM E96
Dimensional Stability (-20°C)	-1%	ASTM D2126
Dimensional Stability (80°C)	+2%	ASTM D2126
Dimensional Stability (70°C, 97% RH)	+6%	ASTM D2126
Surface Burning Characteristics	FSR 220	CAN/ULC S102-18
Air Permeance	0.004 L/s·m^2	ASTM E2178-13
Fungi Resistance	No growth	ASTM C1338
Service Temperature	-60°C to 80°C	—

5. LONG-TERM THERMAL RESISTANCE (LTTR)

TEST METHOD: CAN/ULC S770-09

Thickness	R-Value	RSI
50 mm	11	1.87
75 mm	17	2.90
102 mm	24	4.23
152 mm	38.05	6.70
203 mm	52.6	9.26

6. SAFETY & HANDLING

HAZARDS

- Respiratory irritant and potential sensitizer
- Causes skin and eye irritation
- Harmful if inhaled

PPE REQUIREMENTS

- Chemical-resistant gloves
- Protective goggles
- Protective clothing
- Respiratory protection during spraying

STORAGE

- Keep sealed and dry
- Avoid heat, moisture, and sunlight
- Store away from copper or galvanized metals

7. APPLICATIONS IN FENESTRATION

ThermaCore Max inserts are ideal for:

- Vinyl window frame chambers
- Aluminum window thermal cavities
- Curtainwall mullions (pressure plate, shear block, intermediate vision)
- Hybrid and composite systems
- Reinforcement-adjacent chambers
- Condensation-risk zones
- Thermal break enhancement

8. TECHNICAL ASSISTANCE

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