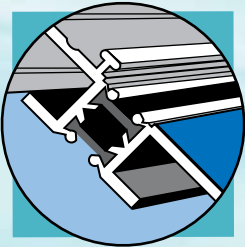




## Get the Exact Fit with Thermal Barrier and Custom Extrusion.

Bonnell Aluminum™ leads the way in creating a full range of high-quality aluminum extrusions for use throughout North America and overseas. Our various combinations of barrier design ensure thermally-efficient, strong and cost-effective solutions for every project.



### Thermal-Bar®

#### Dual-finish Design Flexibility in an Efficient Thermal System.

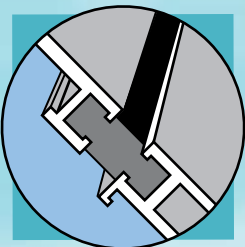
The most innovative insulation system, Thermal-Bar® from Bonnell can combine dual finish capability at no extra charge over single-finish design. At the same time it offers superior insulation and structural strength for windows, doors, storefronts and curtain walls.



### Skip Debridged

#### Maximum Structural Integrity for One-Color Applications

Bonnell's Skip Debridged system sets the industry standard for thermally broken extrusions. It's the most affordable option for standard, low-impact applications such as storefronts and residential and commercial windows. Although the skip debridged system sacrifices minimal thermal efficiency, its significantly increased strength makes it a good choice for the intense sheer loads needed for single-color curtain walls, heavy window walls and load-bearing windows.



### Pour & Debridged

#### Cost-Effective, Strong and Efficient for One-Color Applications

Bonnell's Pour & Debridged system is a thermally broken extrusion that sets the industry standard for quality.

- **Cost-Effective.** The Pour & Debridged system is the most affordable option for standard, low-impact applications.
- **Strength.** Where optimal load strength is not a primary consideration, the Pour & Debridged system works efficiently.
- **Applications.** Residential and commercial windows where high impact resistance is not necessary.



*Pour & Debridged sample subjected to dry ice with a surface temperature of -109° F demonstrating the effectiveness of the thermal break properties.*



### Azo-Brading

In order to improve the adhesion between the metal and the chemical resin, we also offer Azo-Brading for both Skip Debridged and Pour & Debridged applications. This process locks the chemical barrier in place. This stronger hold results in the polyurethane remaining in position within the thermal barrier pocket. A 10-year warranty is exclusively available on Azo-Brading products.

To find out more see your Bonnell Aluminum representative or visit us on the web.

[WWW.BONLALUM.COM](http://WWW.BONLALUM.COM)

**THE THERMAL-BAR STRIP DATA SHEET**  
Insulating Strips of PA 6,6 - 25% glass fiber - dry impact resistant

Imperial Units						
no.	characteristic	reference ISO standard related (ASTM standard)	unit	samples prepared from extruded insulation strips		injection-molded samples
				dry <sup>(1)</sup>	humidity equilibrium <sup>(2)</sup>	dry <sup>(1)</sup>
1	Melting Temperature	ISO 11357-3 ASTM D 3418	°F	min. 482	min. 482	min. 482
2	Density	ISO 1183-1 OR -3 ASTM D 792	lb/in <sup>(3)</sup>	0.047 ± 0.0018	0.047 ± 0.0018	0.047 ± 0.0018
3	Annealing Residue (glass fiber content)	ISO 1172 ASTM D 5630	%	25 ± 2.5	25 ± 2.5	25 ± 2.5
4	Shore Hardness D	ISO 868 ASTM D 2240		82 ± 4	78 ± 4	84 ± 4
5	Impact Strength	ISO 179-1 <sup>(3)</sup>	kJ/m <sup>(2)</sup>	min. 30 or without break	min. 40 or without break	min. 35 or without break
6	Tensile Strength	ISO 527-2 AND -4 ASTM D 638	lb/in <sup>(2)</sup>	min. 11600	min. 7250	min. 15950
7	Young's Modulus <sup>(4)</sup>	ISO 527-2 AND -4 ASTM D 638	lb/in <sup>(2)</sup>	min. 652500	min. 290000	min. 870000
8	Elongation at Break	ISO 527-2 AND -4 ASTM D 638	%	min. 3	min. 7	min. 3

(1) Sample water content less than 0.2% by weight (2) Stored at 73°F and 50% relative humidity (3) Method 1fu (4) Determined in elongation range 0.05% and 0.25%

SI Units						
no.	characteristic	reference ISO standard	unit	samples prepared from extruded insulation strips		injection-molded samples
				dry <sup>(1)</sup>	humidity equilibrium <sup>(2)</sup>	dry <sup>(1)</sup>
1	Melting Temperature	ISO 11357-3	°C	min. 250	min. 250	min. 250
2	Density	ISO 1183-1 OR -3	g/cm <sup>(3)</sup>	1.3 ± 0.05	1.3 ± 0.05	1.3 ± 0.05
3	Annealing Residue (glass fiber content)	EN ISO 1172	%	25 ± 2.5	25 ± 2.5	25 ± 2.5
4	Shore Hardness D	EN ISO 868		84 ± 4	78 ± 4	84 ± 4
5	Impact Strength	EN ISO 179-1 <sup>(3)</sup>	kJ/m <sup>(2)</sup>	min. 30 or without break	min. 40 or without break	min. 35 or without break
6	Tensile Strength	EN ISO 527-2 AND -4	N/mm <sup>(2)</sup>	min. 80	min. 50	min. 110
7	Young's Modulus	EN ISO 527-2 AND -4	N/mm <sup>(2)</sup>	min. 4500	min. 2000	min. 6000
8	Elongation at Break	EN ISO 527-2 AND -4	%	min. 3	min. 7	min. 3

(1) Sample water content less than 0.2% by weight (2) Stored at 23°C and 50% relative humidity (3) Method 1μ

Pour & Debridge Properties and AAMA Specifications		
MATERIAL PROPERTIES	AZON TECHNOLOGY	PROCESSING
Shear Strength	1171 g/m <sup>2</sup>	Quality Assurance Processing Guide AAMA QAC 1-98
Impact Strength, ASTM D 256	1.9 ft/lbs/in	Structural Performance Technical Report AAMA TIR-A8-90
Percent Elongation, ASTM D 638	80%	Thermal Cycling Test Procedure AAMA 505-98
Flexural, ASTM D 790	19,000 psi	ASTM Performance Standards ASTM 5410-95
Thermal Conductivity, ASTM C 518	0.84 Btu *in/ft <sup>2</sup> *h*F	
Ultraviolet Degradation	No effect	

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