PRELCO

PRODUCT DATASHEET

R-max™ Warm-Edge Spacers

GENERAL INFORMATION

What is awarm-edge spacer ?

Warm-edge spacers are made from material whose thermal insulating properties are superior to those of traditional spacers. They cut heat transmission around the edges of the glass and increase its total U value and resistance to condensation. Warm-edge spacers are considered to be an essential component in all high performance glazing systems.

How does insulating glass lose heat?

Heat loss in insulating glass occurs in the center and around the edges. The edges extend about 2½" (63 mm) from the outside edge of the glass. No matter what zone heat loss occurs in, it can be reduced by using components having high thermal resistance (see figure 1).

Heat transmission through the **center** of insulating glass can occur three ways:

- **Radiation**: this kind of heat loss can be reduced by the use of Low-E glass
- **Thermal Conduction:** this kind of heat loss can be reduced by the use of noble gas fill such as argon
- **Convection**: this kind of heat loss can be reduced by the presence of a sufficiently wide air

.

Heat transmission around the **edge** of insulating glass can only occur one way:

- **Thermal Conduction**: this kind of heat loss can be reduced by the use of warm-edge spacers

Heat loss varies according to the degree of conductibility of the various window components. Heat transmission is greater at the edges than the center of the glazing because it is affected by both the spacer and the frame, which is why it is important to use a high performance spacer.

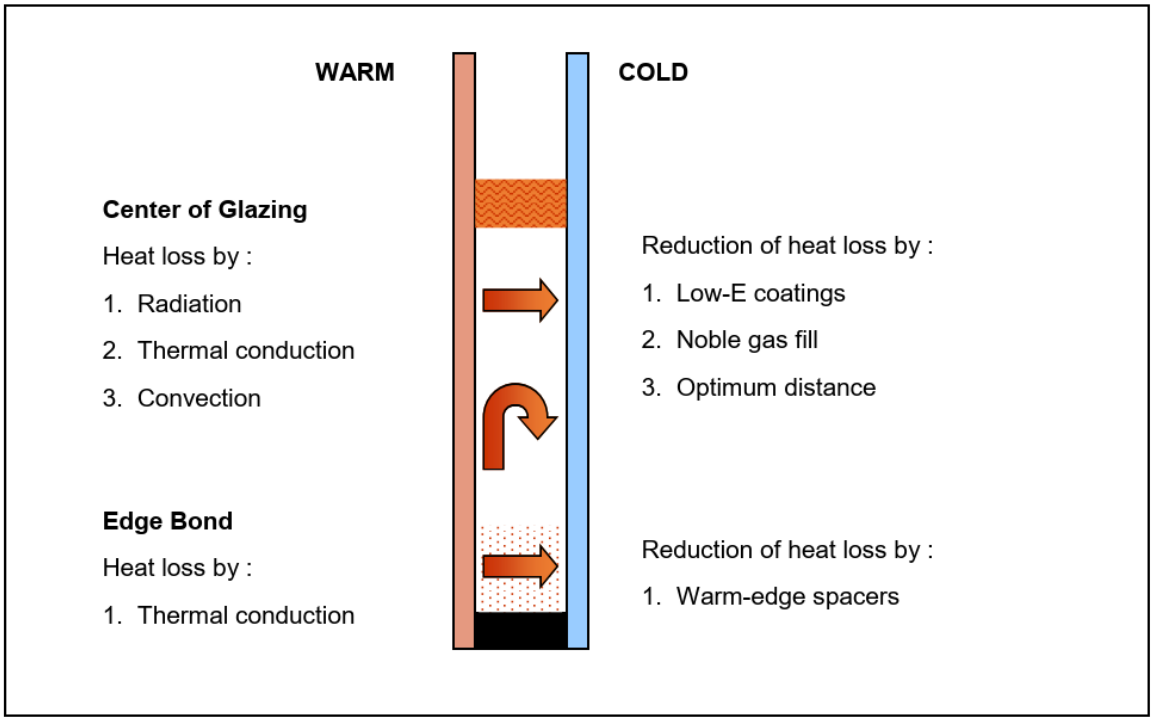

Figure 1 : Heat transmission throught a double glazing [1]

How do you measure heat transmission at the edge of a window ?

The thermal conductivity allows us to measure how much heat a building's structural elements transmit. This value is expressed as Btu/hr-ft²-°F or W/m²-K. The lower the value, the better the performance of the material (see figure 2 and 3).

CHARACTERISTICS OF R-MAX™ SPACERS

- Composition : high insulating polypropylene and stainless steel
- Available colours: light grey or black
- Wall Thickness: .04¨ (1mm)
- Height: .28¨ (7mm)

mm	7.5	9.5	11.5	12.5	13.5	15.5	17.5	19.5	21.5	23.5
in	.30	.37	0.45	0.48	0.53	0.61	.69	.77	0.85	0.93

* Add 1 mm (.04") to the dimension given to determine the total air space width of a double sealed unit.

PRELCO		Aluminum Spacer	Stainless Steel	R-Max
Double sealed unit 25.4mm (1") overall	U Value[1] Center of glass	Effective U Value[2] W/m²-K (Btu/hr-ft²-°F)		
Conventional curtain wall system	1.42 (0.25)	2.10 (0.37)	2.02 (0.36)	1.96 (0.34)
		CI[3] 59	CI[3] 59	CI[3] 60
2 sides structural curtain wall system	1.42 (0.25)	1.91 (0.34)	1.83 (0.32)	1.76 (0.31)
		CI[3] 59	CI[3] 59	CI[3] 60
4 sides structural curtain wall system	1.42 (0.25)	1.82 (0.32)	1.74 (0.31)	1.67 (0.29)
		CI[3] 66	CI[3] 68	CI[3] 69

Figure 2

1. The U Value at the center of the glass is calculated using the simulation software WINDOW 7.8.71.
2. The effective U Value of the rough opening is generated using thermal model simulation software THERM 7.8.71.
3. CI (Condensation Index): A relative indicator of the ability of a window product to resist condensation formation depending on environmental conditions according to NFRC 500-2023. The higher the index value, the greater the resistance to condensation formation.
4. The data were calculated by an independent simulation laboratory accredited by the NFRC and CSA.
5. Data may vary depending on the width of the interlayer.

PRELCO		Aluminum Spacer	Stainless Steel	R-Max
Triple sealed unit 44.5mm (1 3/4") overall	U Value[1] Center of glass	Effective U Value[2] W/m²-K (Btu/hr-pi²-°F)		
Conventional curtain wall system	0.68 (0.12)	1.44 (0.25)	1.36 (0.24)	1.30 (0.23)
		CI[3] 71	CI[3] 74	CI[3] 75
2 sides structural cur-	0.68 (0.12)	1.21 (0.21)	1.11 (0.20)	1.04 (0.18)
		CI[3] 73	CI[3] 75	CI[3] 76
4 sides structural curtain wall system	0.68 (0.12)	1.11 (0.20)	1.00 (0.18)	0.93 (0.16)
		CI[3] 78	CI[3] 80	CI[3] 82

Figure 3

1. The U Value at the center of the glass is calculated using the simulation software WINDOW 7.8.71.
2. The effective U Value of the rough opening is generated using thermal model simulation software THERM 7.8.71.
3. CI (Condensation Index): A relative indicator of the ability of a window product to resist condensation formation depending on environmental conditions according to NFRC 500-2023. The higher the index value, the greater the resistance to condensation formation.
4. The data were calculated by an independent simulation laboratory accredited by the NFRC and CSA.
5. Data may vary depending on the width of the interlayer.

ADVANTAGES

- Increase the total U value of the window;
- Reduces condensation around the edges ;
- Prevents the deterioration of frames caused by condensation and mildew ;
- Helps cut heating costs ans consequently helps protect the climate ;
- Make the room more comfortable by keeping the surface temperature of the glass higher ;
- Great stability to discoloration caused by UV rays

Source: QUEL Ingrid, RANALLO Chris «Warm-Edge Spacers», *USGlass*, vol.35, n° 3 (mars 2000), pp. 52-54.

PRELCO

PRELCO INC.

94, boulevard Cartier
Rivière-du-Loup (Québec)
G5R 2M9

P. 418 862-2274
Toll free. 1 800 463-1325
sales@prelco.ca
prelco.ca