

Characteristics

Thermal values	<ul style="list-style-type: none"> • Low thermal transmittance • Stainless steel = 15 W/mK • Plastic = 0.17 W/mK (Chromatech Ultra®) • Low Y (Psi) value • Higher surface temperature on the glass • Uw improvement of 0.1-0.2 W/m²K
IG-unit System	<ul style="list-style-type: none"> • Minimal system risk • Fulfilment of EN 1279 • CEKAL • No chemical condensation (fogging) • High frame stability • Minimal shape and material changes secures long durability
Workability	<ul style="list-style-type: none"> • Bending with empty spacer bar • Bending with prefilled spacer bar • High productivity • Also suitable for models • Easy to fill - side and back are possible
Spacer Bar / System cost	<ul style="list-style-type: none"> • Long lifetime - stainless steel lasts forever • Excellent value for money • Flexible easy production
User advantages	<ul style="list-style-type: none"> • Reduces energy bill • Condensation inside is reduced • Minimal frame damage from fungus • Improved indoor climate

CHROMATECH®
 CHROMATECH Plus®
 CHROMATECH Ultra®

Long-lasting optimal IG-unit solution
 and high value for money...

ALU PRO
 ALUMINIUM PROFILES



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 ALUMINIUM PROFILES

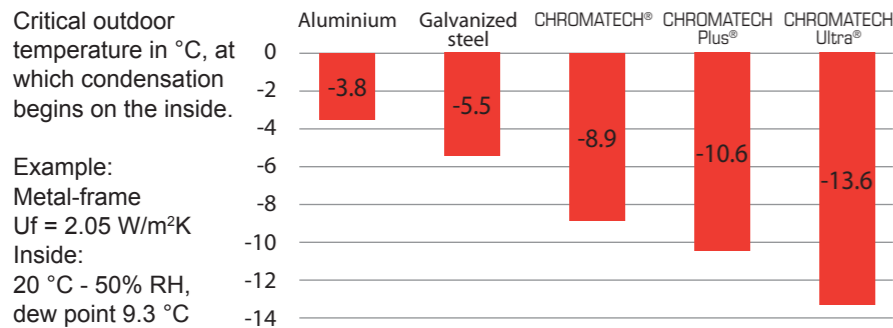
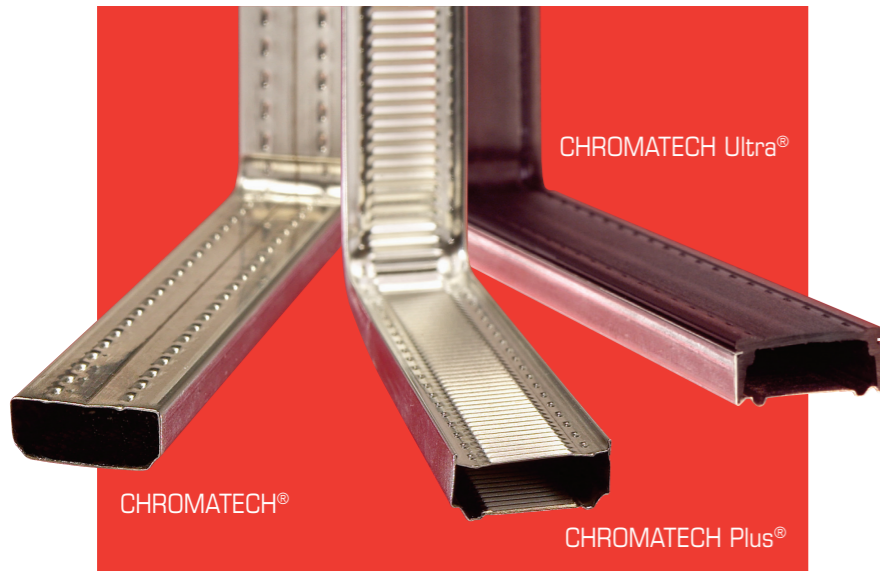


WARM EDGE spacers in stainless steel

CHROMATECH®
 CHROMATECH Plus®
 CHROMATECH Ultra®
 for the modern windows

ALU-PRO has 3 ranges of WARM EDGE spacer bars

- Well-known stainless steel technology - CHROMATECH Ultra® - combined with plastic top
- High spacer stability and very strong corners enable a smooth production flow
- Excellent corners giving optimal conditions for butyle application



- Warm edge spacers reduce the energy bill and improve indoor climate. Alu-Pro spacers provide further advantages:
- 100% recyclable
 - 50 - 70% of raw material made of recycled material
 - Reduce CO² emission
 - Probably the most environmentally friendly spacers in the world

Sizes

Type	Width	CHROMATECH®	CHROMATECH Plus®	CHROMATECH Ultra®
8	7.5 mm	✓	✓	✓
10	9.5 mm	✓	✓	✓
12	11.5 mm	✓	✓	✓
13	12.5 mm	✓	✓	✓
14	13.5 mm	✓	✓	✓
15	14.5 mm	✓	✓	✓
16	15.5 mm	✓	✓	✓
18	17.5 mm	✓	✓	✓
20	19.5 mm	✓	✓	✓
22	21.5 mm	✓	✓	✓
24	23.5 mm	✓	✓	✓
Height		6.5 mm	7.0 mm	6.9 mm
Wall thickness		0.18	0.15	0.1/0.9
Geometry				

100% gastight austenitic stainless steel gasbarrier with optimal adhesion in all spacers. CHROMATECH® and CHROMATECH plus® can be supplied in all RAL and NCS colours. CHROMATECH ultra® can be supplied in RAL colours: 9004 (black), 7035 (light grey), 7040 (window grey), 8003 (clay brown), 8016 (mahogany brown) and 9016 (traffic white).

- ✓ CEKAL
- ✓ EN 1279
- ✓ ISO 9001

Accessories



Steel connector:
CHROMATECH®
CHROMATECH Plus®
CHROMATECH Ultra®



Steel corner:
CHROMATECH®



Nylon connector:
CHROMATECH®
CHROMATECH Plus®
CHROMATECH Ultra®



Nylon corner:
CHROMATECH®
CHROMATECH Plus®
CHROMATECH Ultra®

Other accessories, crosses, flexible corners etc., also available.

Thermal data

Ψ values for spacer bars for different representative frame systems as defined in the ift guideline IFT WA-17/1 e IFT WA-08/2 "Thermally improved spacers - Part 1: Determination of the representative Psi values for window frame profiles".

Double IG-unit: 4/16/4 with U_g = 1.1 W/m²K

Ψ values in W/mK

Frame	Spacer Bar			
	Aluminium	CHROMATECH®	CHROMATECH Plus®	CHROMATECH Ultra®
Aluminium	0.111	0.068	0.064	0.048
Wood/ Aluminium	0.092	0.059	0.056	0.043
Wood	0.081	0.053	0.051	0.039
PVC	0.077	0.051	0.049	0.039

Triple IG-unit: 4/12/4/12/4 with U_g = 0.7 W/m²K

Ψ values in W/mK

Frame	Spacer Bar			
	Aluminium	CHROMATECH®	CHROMATECH Plus®	CHROMATECH Ultra®
Aluminium	0.111	0.066	0.060	0.043
Wood/ Aluminium	0.097	0.060	0.056	0.041
Wood	0.086	0.054	0.051	0.038
PVC	0.075	0.050	0.048	0.037

This directive also governs the area of validity and application of the representative Psi values. In order to avoid rounding errors, the psi values in the data sheet have been given to 0.001 W/mK. The method used for the arithmetic determination of the psi values has an accuracy of ±0.003 W/mK. Differences of less than 0.005 W/mK are not significant.

Please note:

- Y value depends on many factors:
- Actual position of IG-unit in the frame
 - U_f - U value of the window frame
 - U_g - U value of the IG-unit

Window - U_w - calculation after EN 10077:

$$U_w = \frac{U_g \cdot A_g + U_f \cdot A_f + \Psi \cdot I}{A_g + A_f}$$