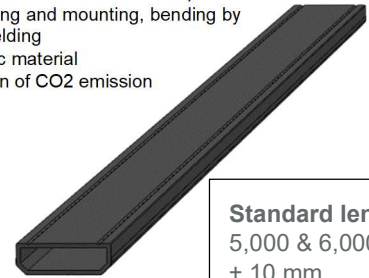


- Optimal Psi value
- Special designed MULTILAYER gasbarrier foil
- Optimized adhesion to sealants without primer
- Processing: Sawing and mounting, bending by pre-heating or welding
- Recyclable plastic material
- Superior reduction of CO2 emission



Standard length
5,000 & 6,000 mm
± 10 mm

DIMENSIONS

Sizes	B [mm] +/- 0.10
MULTITECH G 8	7.50
MULTITECH G 10	9.50
MULTITECH G 12	11.50
MULTITECH G 13	12.50
MULTITECH G 14	13.50
MULTITECH G 15	14.50
MULTITECH G 16	15.50
MULTITECH G 18	17.50
MULTITECH G 20	19.50
MULTITECH G 22	21.50
MULTITECH G 24	23.50
MULTITECH G 27	26.50

H = 6.5 +/- 0.1 mm

MATERIALS

SAN PLAST

The wall thickness is standard 0.95 mm

ACCESSORIES

Connectors

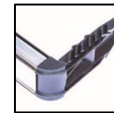


Plastic/Nylon



Steel

Corner



Plastic/Nylon



Butyl

Other accessories as flexible corners etc. are also available

COLORS

WHITE

≈ RAL 9016



LIGHT GREY

≈ RAL 7035



TITANIUM GREY

≈ RAL 9023



BLACK

≈ RAL 9004



LIGHT BROWN

≈ RAL 8003



DARK BROWN

≈ RAL 8016



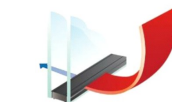
EN1279 Normative test references and other methods



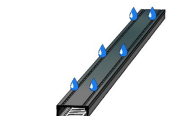
Connector insert force max. 10 kg
Pull force depends on chosen connector



Rectitude from production
Sideways max. 5 mm/m
Up/down max. 10 mm/m



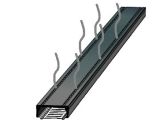
Two box model characteristic value
IFT WA-17/1
 $\lambda_{eq,2B_{MTG}} = 0.125 \text{ W/mK}$



Permeability
Checked with airflow
humidity uptake 1-5wt% pr. 24 hours



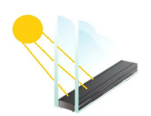
Compression data (16 mm spacer)
Max 40 N/cm standard pressure



Volatile elements
EN 1279-4 Annex H
 $M_v < 0.3\%$



Thermal linear expansion (IFT test)
 $T_{\alpha,foil} \text{ 16 mm spacer} = 1.83 \times 10^{-5} \text{ 1/K}$
 $T_{\alpha,poly} \text{ 16 mm spacer} = 2.01 \times 10^{-5} \text{ 1/K}$



UV stability
EN ISO 4892-2 / A Closed unit
3,000 hours of radiation with no significant color change

QUALITY ASPECTS

Quality management

EN ISO 9001 for quality

Tests of the product

Processes and routines are established to secure the quality of the delivered material. During production the spacers are continuously monitored through systematic and random checks. Data will be available for a period of 10 years.

Full filing external demands according to:

- EN 1279 for CE marking
- Passive House Component Class phB for cold climate
- RAL gütezeichen

CUSTOMER FOCUS AND WARRANTY

On all spacers ALU-PRO offers a 5 years' product warranty. The warranty covers free exchange of spacers in case of a defect. The warranty does not cover any other cost than the mere exchange of the defect spacers, and the warranty expressly does not cover installation of the spacers. The spacers must have been stored, installed and used according to present norms and technical standards. Special solutions and **usage that are not standardized** will need prior approval in writing from ALU-PRO in order to be covered. Related to temperature standardized condition for IG is -30° to 80°C.

Storage and use

To secure the performance of the spacers, the stock conditions must be acceptable. Broken packaging, humidity and variation in temperature will have an effect on the spacer in general. Make sure the spacer is conditioned at room temperature before use.

Preferred conditions will be temperatures over 15°C and humidity RH of minimum 45%. Avoid having an environment with high concentration of dust.

General handling and attention according to safety data sheet for the spacer. Use gloves when handling the spacer/frames and make sure there is exhausting when cutting the spacer.

System performance

The user (the IG producer) must secure the whole system consisting of spacer, connector/corner key, bending machine, desiccant, butyle and sealant works well together in the chosen setup. Focus on compatibility, adhesion, dust and corner quality.

After handling and transport of the frames, it's important to check if the connector/corner keys are still in the correct position, if not there is a significant risk for desiccant dust inside the IG unit. Foam behind the connector/corner can be used to avoid such problems.

Cleaning the plastic surface

If for some reason, the plastic surface is defiled by dust from other materials it can be cleaned again by use of water or air. Dust can easily be removed with antistatic loaded compressed air or a moist cloth. If solvent based cleaners are used, it is recommended to test influence on products.

It is recommended to investigate and control all the specific points above.

ADDITIONAL SPECIFICATIONS AND INSTRUCTIONS

Packaging, volumes and options

Packaging Sizes	Quantity meter cardboard boxes		Quantity meter stillages		
	5 meters	6 meters	NM type (5 meters)	NM type (6 meters)	ZM type (6 meters)
8	960	1,152			19,584
10	800	960	10,240	12,288	19,584
12	640	768	8,640	10,368	16,128
13	560	672	7,680	9,216	14,976
14	560	672	7,680	9,216	14,976
15	480	576	7,040	8,448	13,248
16	480	576	6,720	8,064	13,248
18	400	480	6,080	7,296	12,096
20	400	480	5,440	6,528	10,944
22	320	384	4,480	5,376	8,640
24	320	384	4,480	5,376	7,488
27	240		3,840		

Packaging Sizes	Quantity pcs. / box		
	Steel (DF*)	Plastic/Nylon (DF*)	Plastic/Nylon corner
8	2,500	2,000	2,000
10	2,500	2,000	2,000
12	2,500	2,000	2,000
13		2,000	5,000
14	2,500	2,000	2,000
15	2,500	2,000	2,000
16	2,500	2,000	2,000
18	2,500	2,000	2,000
20	2,500	2,000	2,000
22	2,500	2,000	2,000
24	2,500	2,000	2,000
27			1,400

Sizes	Content [g/m] Desiccant 0.5-0.9 mm grain	Connector			Corner
		Steel (DF*)	Plastic/Nylon (DF*)	Plastic/Nylon P (DF*)	Plastic/Nylon Corner
8	18	✓	✓		✓
10	25	✓	✓		✓
12	31	✓	✓		✓
13	34		✓		✓
14	38	✓	✓		✓
15	42	✓	✓		✓
16	45	✓	✓		✓
18	52	✓	✓		✓
20	58	✓	✓		✓
22	65	✓	✓		✓
24	72	✓	✓		✓
27	82				✓

*DF = Direct flow

All connectors are basically U-shaped and with passage for flow of desiccant during P after filling.

The P-connector has a closed backside part (bridge) to prevent dust leak.

Note that there will be a difference in pull force between preinserted- and direct inserted connectors.

Energy labeling

For thermal calculations, these values are given (according to EN 10077 and EN 10088). Ask for drawing.

Materials	λ [W/mK]
Butyle	0.24
Desiccant	0.10
Secondary sealing	0.40
SAN plast	0.18*
Foil	0.25*

*Calculated in WinISO by ROLLTECH

Thermal data

An overview of thermal data with different constructions. These data are calculated by Bauwerk according to BF guidelines (Bundesverband Flachglas).

Frame: Aluminum profile – $U_f = 1.6 \text{ W/m}^2\text{K}$

Glass	Double IG - $U_g = 1.1 \text{ W/m}^2\text{K}$ (4-16-4)				Triple IG - $U_g = 0.7 \text{ W/m}^2\text{K}$ (4-12-4-12-4)			
	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]
CHROMATECH	0.068	0.12/0.13*	8.4 / 10.3	1.439	0.066	0.11/0.11	10.6 / 12.2	1.174
CHROMATECH Plus	0.064	0.11/0.12*	8.7 / 10.3	1.429	0.060	0.10/0.10*	10.9 / 12.4	1.159
MULTITECH A	0.059	-	9.2 / 11.0	1.417	0.055	-	11.4 / 12.8	1.147
MULTITECH G	0.035	0.072/0.076*	10.9 / 12.4	1.359	0.030	0.060/0.062*	13.0 / 14.2	1.087
CHROMATECH ultra S	0.050	0.092/0.097*	9.8 / 11.5	1.395	0.046	0.079/0.083*	12.0 / 13.3	1.126
THERMIX TX Pro	0.049	0.091/0.096*	9.8 / 11.5	1.393	0.044	0.079/0.082*	12.0 / 13.3	1.121
CHROMATECH ultra F	0.048	0.089/0.094*	9.9 / 11.6	1.390	0.043	0.076/0.079*	12.1 / 13.4	1.118

Frame: PVC profile – $U_f = 1.2 \text{ W/m}^2\text{K}$

Glass	Double IG - $U_g = 1.1 \text{ W/m}^2\text{K}$ (4-16-4)				Triple IG - $U_g = 0.7 \text{ W/m}^2\text{K}$ (4-12-4-12-4)			
	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]
CHROMATECH	0.051	-	8.3 / 10.3	1.257	0.050	-	9.9 / 11.6	0.982
CHROMATECH Plus	0.049	-	8.5 / 10.3	1.253	0.048	-	10.1 / 11.8	0.977
MULTITECH A	0.045	-	9.0 / 10.8	1.243	0.043	-	10.6 / 12.2	0.965
MULTITECH G	0.031	-	10.5 / 12.1	1.218	0.029	-	12.1 / 13.4	0.931
CHROMATECH ultra S	0.040	-	9.5 / 11.3	1.230	0.038	-	11.1 / 12.6	0.953
THERMIX TX Pro	0.040	-	9.5 / 11.3	1.230	0.038	-	11.1 / 12.6	0.953
CHROMATECH ultra F	0.039	-	9.6 / 11.3	1.228	0.037	-	11.2 / 12.7	0.950

Frame: Wood profile – $U_f = 1.4 \text{ W/m}^2\text{K}$

Glass	Double IG - $U_g = 1.1 \text{ W/m}^2\text{K}$ (4-16-4)				Triple IG - $U_g = 0.7 \text{ W/m}^2\text{K}$ (4-12-4-12-4)			
	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]
CHROMATECH	0.053	-	7.3 / 9.4	1.322	0.054	-	9.6 / 11.3	1.045
CHROMATECH Plus	0.051	-	7.6 / 9.7	1.317	0.051	-	9.9 / 11.6	1.038
MULTITECH A	0.047	-	8.0 / 10.0	1.307	0.047	-	10.4 / 12.0	1.028
MULTITECH G	0.030	-	9.8 / 11.5	1.265	0.028	-	12.2 / 13.5	0.980
CHROMATECH ultra S	0.041	-	8.6 / 10.5	1.293	0.040	-	11.0 / 12.5	1.010
THERMIX TX Pro	0.040	-	8.7 / 10.6	1.290	0.039	-	11.0 / 12.5	1.008
CHROMATECH ultra F	0.039	-	8.8 / 10.7	1.288	0.038	-	11.2 / 12.7	1.005

Frame: Wood aluminum profile – $U_f = 1.4 \text{ W/m}^2\text{K}$

Glass	Double IG - $U_g = 1.1 \text{ W/m}^2\text{K}$ (4-16-4)				Triple IG - $U_g = 0.7 \text{ W/m}^2\text{K}$ (4-12-4-12-4)			
	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]	Ψ_g [W/mK]	Ψ_{fac} [W/mK]	$\Theta_{si(-10/-5 \text{ } ^\circ\text{C})}$	U_w [W/m ² K]
CHROMATECH	0.059	0.086	6.1 / 8.4	1.342	0.060	0.084	8.7 / 10.6	1.075
CHROMATECH Plus	0.056	0.083	6.4 / 8.7	1.335	0.056	0.079	9.0 / 10.8	1.065
MULTITECH A	0.051	-	6.9 / 9.1	1.323	0.051	-	9.5 / 11.3	1.053
MULTITECH G	0.031	0.054	8.9 / 10.8	1.274	0.029	0.052	11.5 / 12.9	0.999
CHROMATECH ultra S	0.045	0.069	7.6 / 9.7	1.308	0.043	0.064	10.2 / 11.8	1.033
THERMIX TX Pro	0.043	0.068	7.6 / 9.7	1.303	0.042	0.063	10.3 / 11.9	1.031
CHROMATECH ultra F	0.043	0.066	7.8 / 9.8	1.303	0.041	0.061	10.4 / 12.0	1.028

* $d_j = 100\text{mm}$ / $d_j = 200\text{mm}$, Θ Internal glass temperature

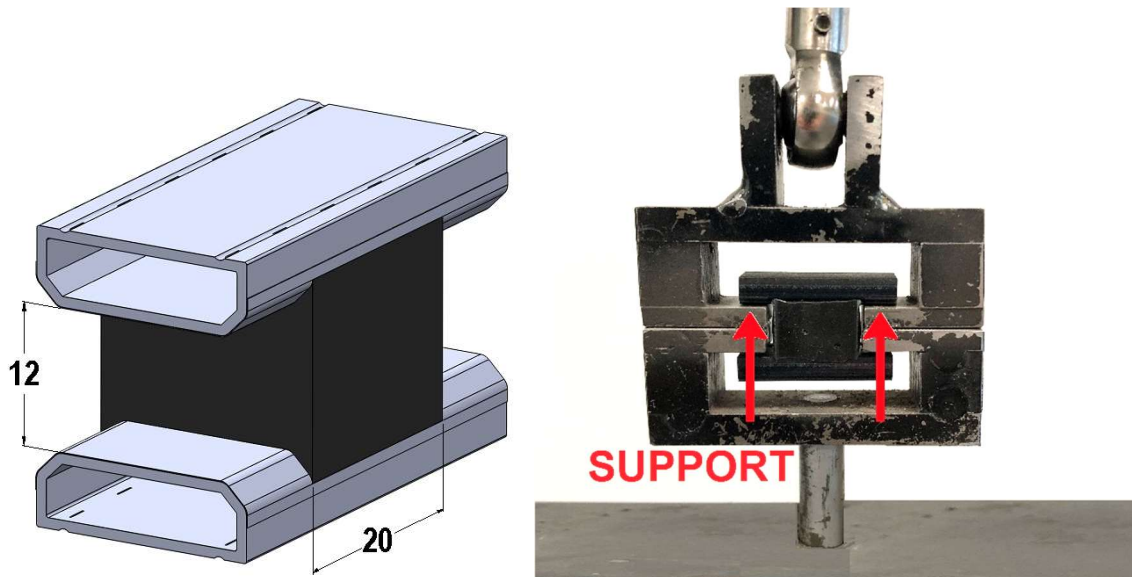
To calculate with other U-values for glass please refer to our homepage where a calculator can be found (<https://www.winuw.de/rolltech/>).

Adhesion check

According to EN1279-6 D.2 the following test must be done in order to check mixing and secure the adhesion between spacer and sealant. To complete the test a pull at 0.3 MPa applies for 10 minutes. No adhesive breakage is allowed (slip to surface).

The following is a guide to achieve the correct results for ALU-PRO's spacer products (check homepage for further guiding).

The sealant shall cover 20 mm of the spacer back as shown on the drawing. No precleaning of spacer is allowed. It is important to secure a proper contact between sealant and spacer back. The support from the test machine shall be as close as possible to the sealant and direct to the spacer back as illustrated.



Ask actual sealant supplier for the conditions required during curing. Here some general guidelines:

- For PS curing at 20°C over a period of 24 to 48 hours is normally enough.
- For PU curing at 20°C can take much longer depending on the PU version. 28 days or more is quite normal. Ask sealant supplier for guidelines, it might be possible to accelerate the curing at a higher temperature.

Check the samples for type of breakage. Adhesive breakage is not allowed, and if seen analyzing is needed. Sources to failure: Wrong mix of sealant (A&B compound), insufficient application, contamination, or deformation of spacers.

Bending and welding of corners

- Use bending tools recommended by bending machine supplier
- Adjust side pressure until correct corner width is obtained (max +0.3 mm)
- Over bending due to resilience is to be adjusted for perfect 90° corners
- Cut with suitable saw blade or abrasive wheel
- Room temperature during processing over 15°C

For further instructions, contact your machine supplier. Pay careful attention to ***Instruction for processing***.