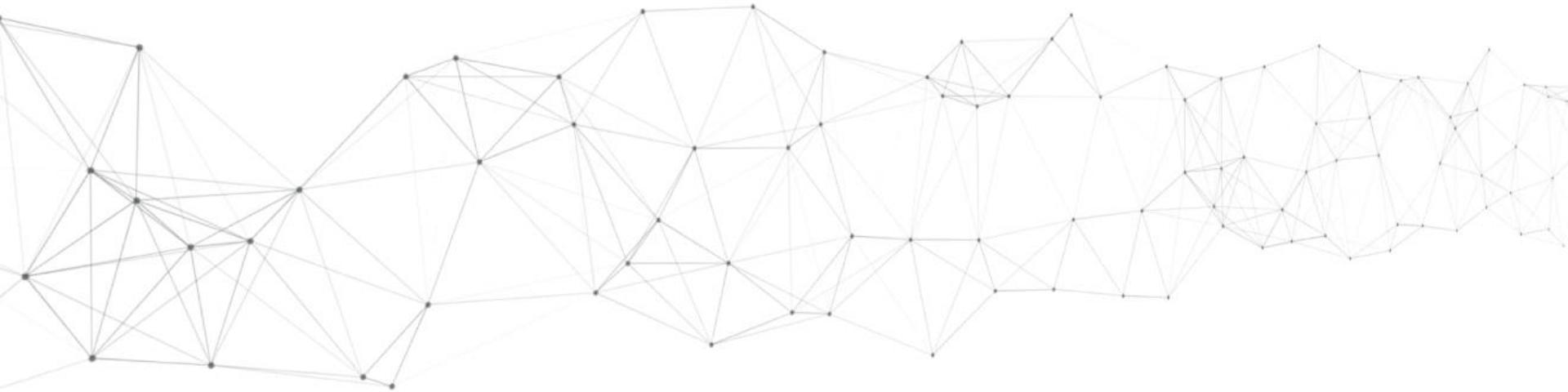




Profile Solutions
Worldwide



The logo for Exelliq, featuring the word "exelliq" in a white, lowercase, sans-serif font. The letter "e" is stylized with three horizontal lines inside it. The background is a solid red color with a large, semi-transparent white circle behind the text.

exelliq

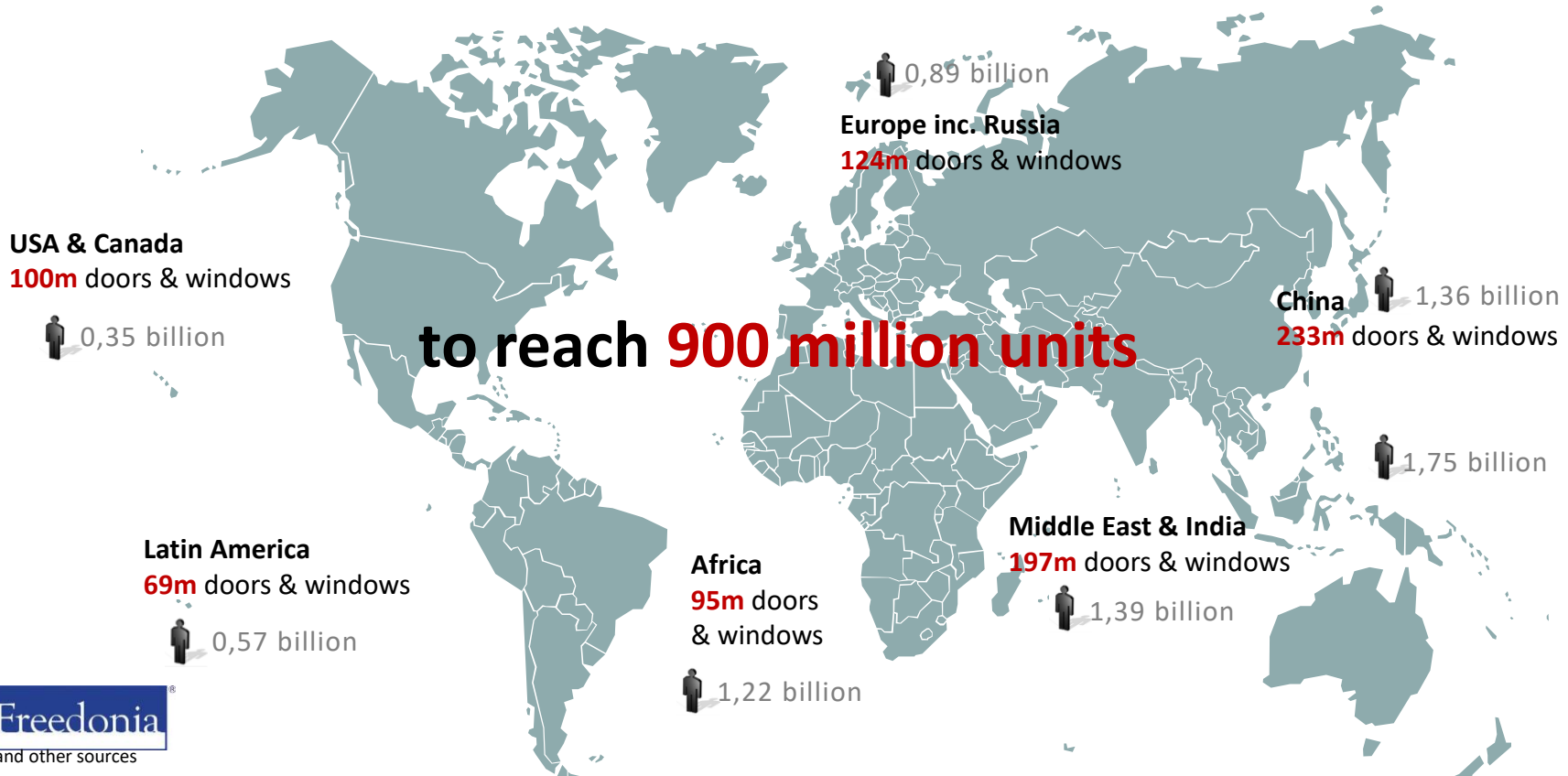
Profile Solutions
Worldwide

**Why choose Exelliq
for your profile design?**

Advantages of uPVC windows & doors



Global window & door industries 2022



Material comparisons



Frame material:	Density:	Tensile strength:	E-Modulus:	Thermal conductivity:
uPVC	1.4 g/cm ³	70 MPa	3 GPa	0.1 W/mK
Timber	0.7 g/cm ³	80 MPa	12 GPa	0.1 W/mK
Aluminum	2.7 g/cm ³	250 MPa	70 GPa	170 W/mK
Steel	7.8 g/cm ³	400 MPa	210 GPa	40 W/mK

The best frame materials in Europe



uPVC



 57.9 %

Austria 58 %
Germany 61 %

Aluminum



 17.9 %

Spain 70 %
Italy 37 %

Hybrid



 9.3 %

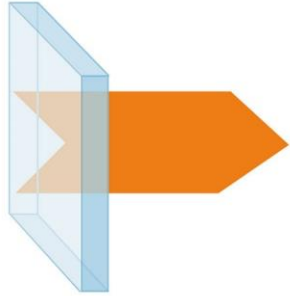
Wood



 14.9 %

Sweden 70 %
Finland 72 %
Norway 73 %

UG values of glass

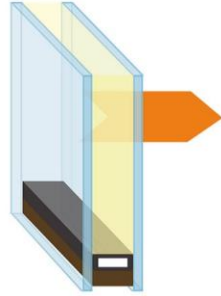


Single glazed

$U_g = 5.8 \text{ W/m}^2\text{K}$



$62 \text{ l/m}^2\text{a}$

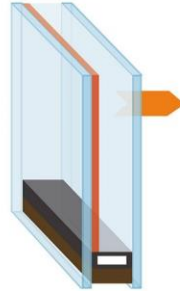


Double glazed

$U_g = 2.9 \text{ W/m}^2\text{K}$



$30 \text{ l/m}^2\text{a}$

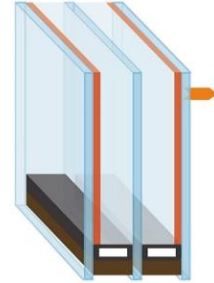


High performance
Double glazed Low
E-coating

$U_g = 1.1 \text{ W/m}^2\text{K}$



$12 \text{ l/m}^2\text{a}$



High performance
Triple glazed Low
E-coating

$U_g = 0.7 \text{ W/m}^2\text{K}$



$8.5 \text{ l/m}^2\text{a}$

Future:



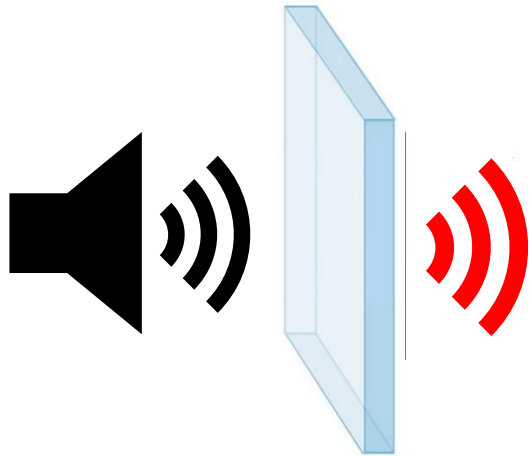
High performance
Vacuum glazed

$U_g = 0.5-0.3 \text{ W/m}^2\text{K}$



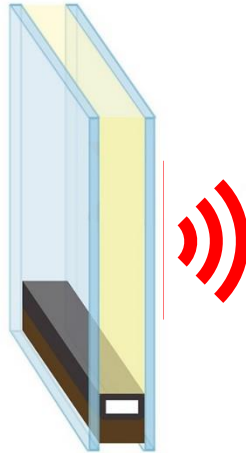
$3 \text{ l/m}^2\text{a}$

Rw values (noise reduction of glass)



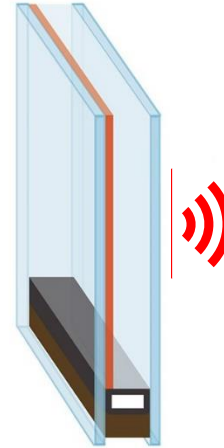
Single glazed

~Rw 24 dB



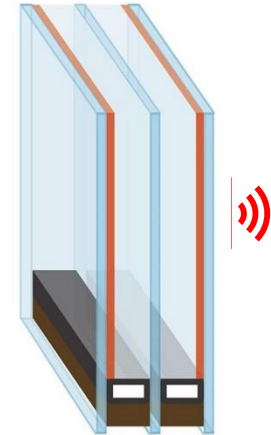
Double glazed

~Rw 37 dB



High performance
Double glazed Low
E-coating

~Rw 44 dB



High performance
Triple glazed Low
E-coating

~Rw 52 dB

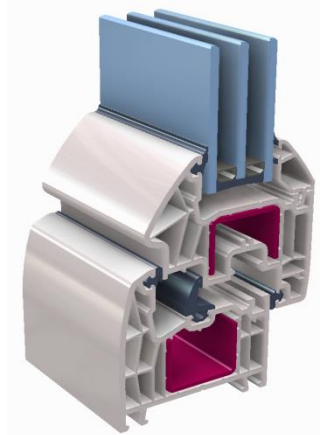
Advantages of uPVC windows & doors

State-of-the art window technology in EU

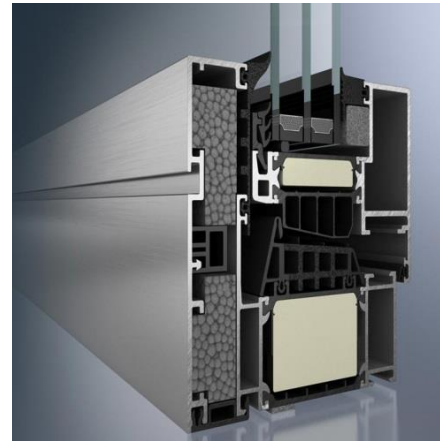


Tilt&turn 1
x 1,5 m

uPVC



Aluminum



$U_g = 0.6 \text{ W/m}^2\text{K}$

$U_f = 1.0 \text{ W/m}^2\text{K}$

$U_w = 0.8 \text{ W/m}^2\text{K}$

€ 155,- / € 230,-

$U_g = 0.6 \text{ W/m}^2\text{K}$

$U_f = 1.2 \text{ W/m}^2\text{K}$

$U_w = 0.8 \text{ W/m}^2\text{K}$

€ 390,- / € 480,-

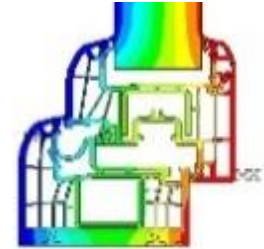
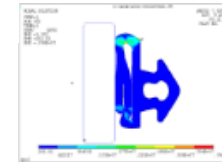
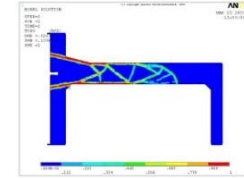
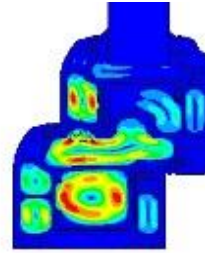
Saving of 1,226 liter oil and 3,941 kg CO₂ emission/year compared to European windows of the 80ties

DESIGN – Modern technology

- reliability
- fast customer service
- continuous improvements
- creativity

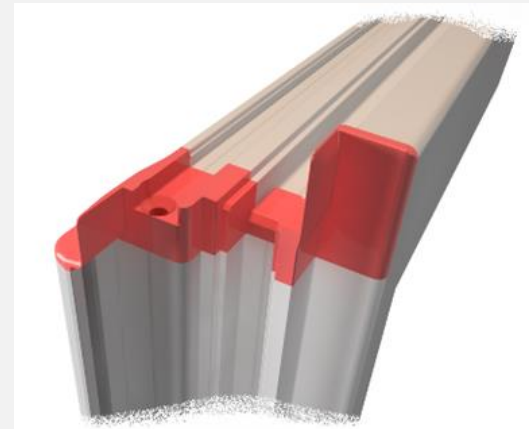
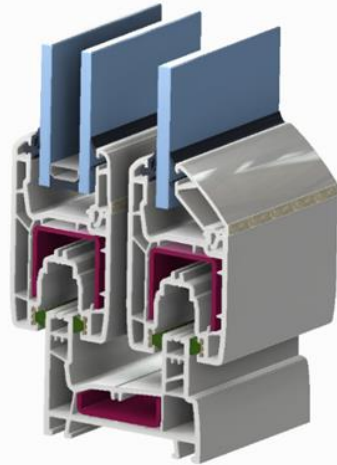
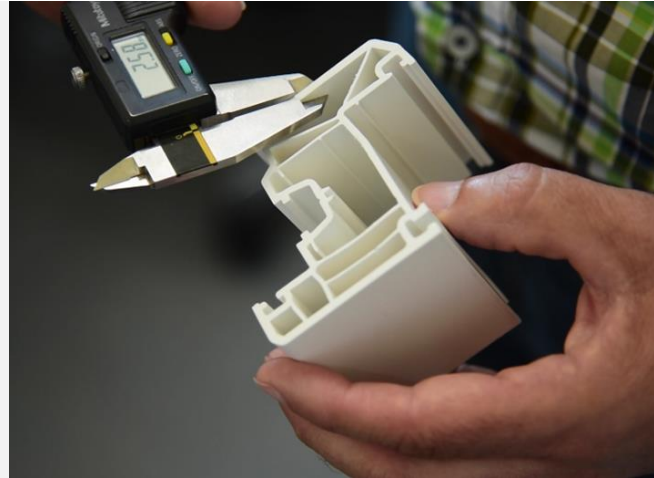
Our simulation programs help design work at an early stage:

- statics
- best extrudability
- u-value
- 3D-printer



DESIGN – Quality and Precision

- extrusion-friendly
- profile design in combination with tools
- material competence



DESIGN – Savings

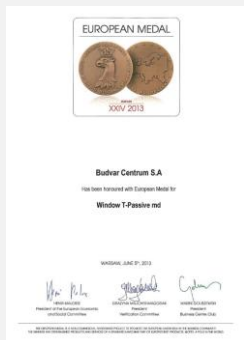
- cost effectiveness
- supporting to choose the right profile shape (Safety)
- faster tuning
- lowest material consumption (LAYER.COEX PLUS)
- highest process stability



Due to ...



- 30 years of experience
- more than 700 window designs worldwide
- outside of the box solutions



Company Budvar
European medal
passive window
designed by Exelliq



Company PLAFEN
Best 5 chamber system
in Russia
designed by Exelliq



Company Fenesta
Brand of the year 2018
UPVC windows
designed by Exelliq



You are next?!

designed by Exelliq

Brand of the year 2021

uPVC



huge benefits

- Resistant to salt atmosphere
- Highly smudge-resistant
- Low-maintenance
- Security features
- Fire resistant BAL 40
- 100 % Recyclable
- Insect proof



uPVC



huge benefits

- Low impact on the environment
- Convincing long lifecycle
- Welded joints
- Best price /
insulation ratio
- Chambers reduce sound
- Rain impact proof
- UV-radiation resistant





Fenesta  **Windows**
Transforming Homes

Success Story

India

5000 to. of PVC profile/year



BUDVAR
CENTRUM



Success Story

Poland

9000 to. of PVC profile/year



Success Story

Spain

18 000 to. of PVC profile/year



OXXO

Success Story

Algeria

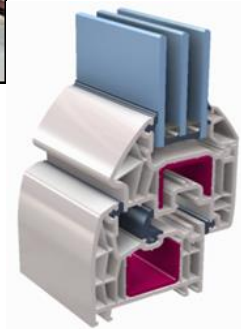
25 000 to. of PVC profile/year



Success Story

Turkey

35 000 to. of PVC profile/year



Success Story

Uzbekistan

62 000 to. of PVC profile/year



Success Story

Poland

7000 windows/day !



DRUTEX
ENGINEERED FOR YOU

Internorm

ATHEX
INDUSTRIAL SUPPLIERS



Ekopen

PAVCO

BUDVAR
CENTRUM

DÖLKEN

SCHÜCO
INTERNATIONAL

aluplast
Kunststoff-Fenstersysteme

OXXO

FIRATPEN



REHAU
Unlimited Polymer Solutions

NAWAFID
Portes & fenêtres PVC

GEALAN

Fenesta
Better by Design



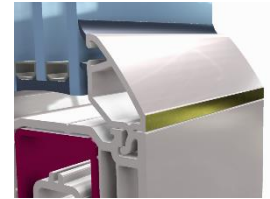
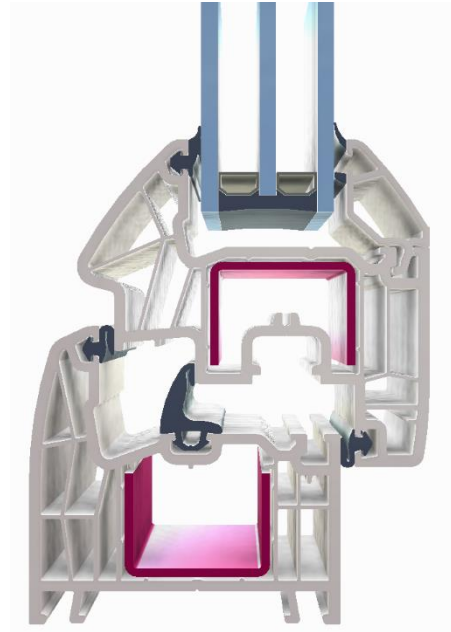
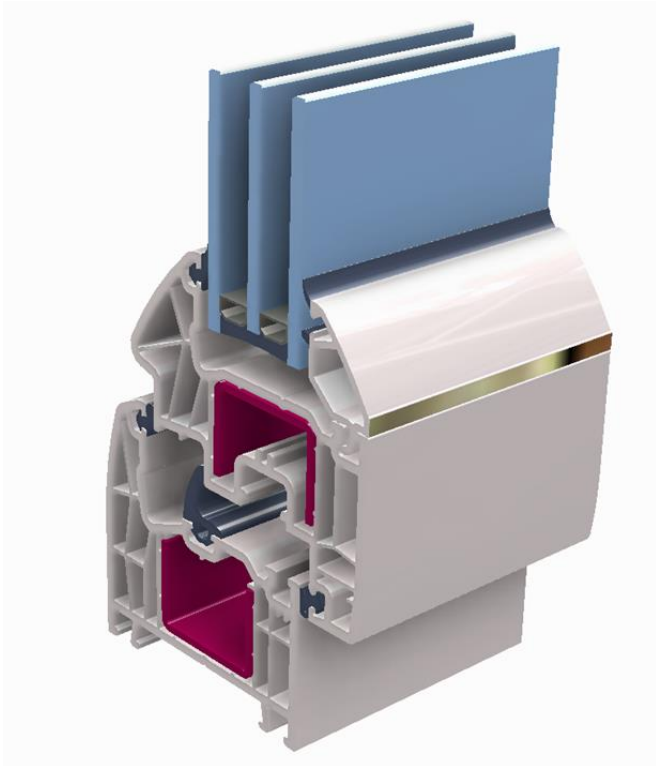
eurocell
All together better



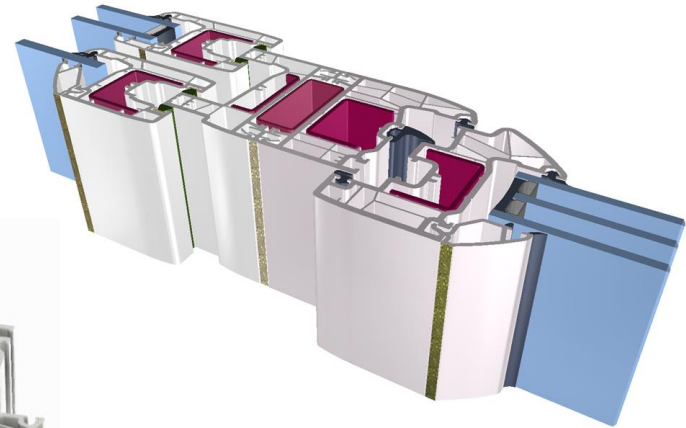
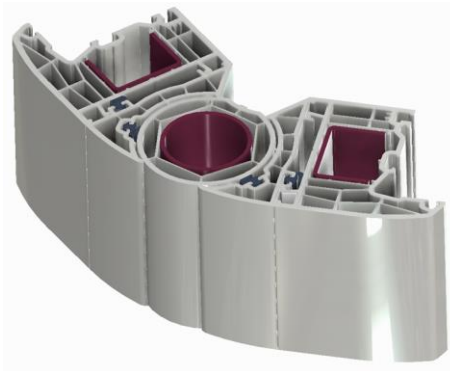
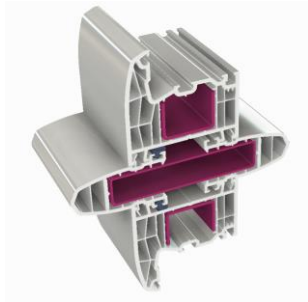
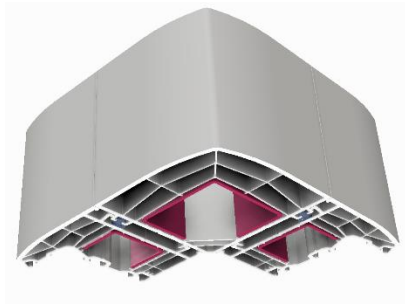
Success Story

500 customer brands in 50 countries

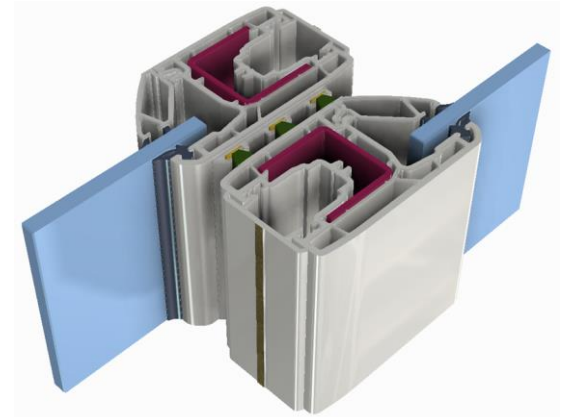
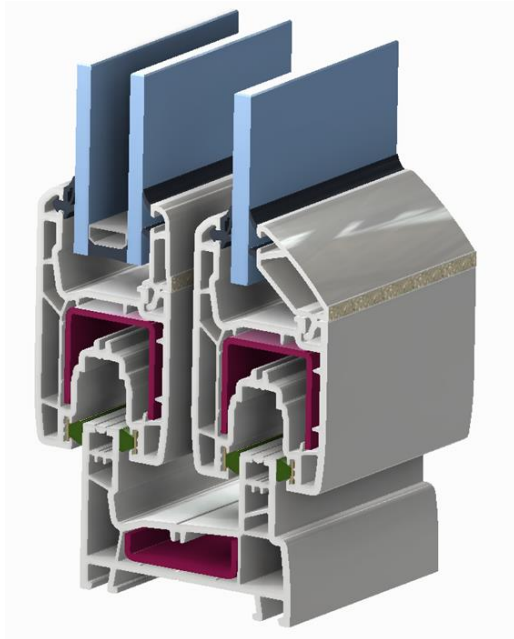
Design concepts T&T



Design concepts

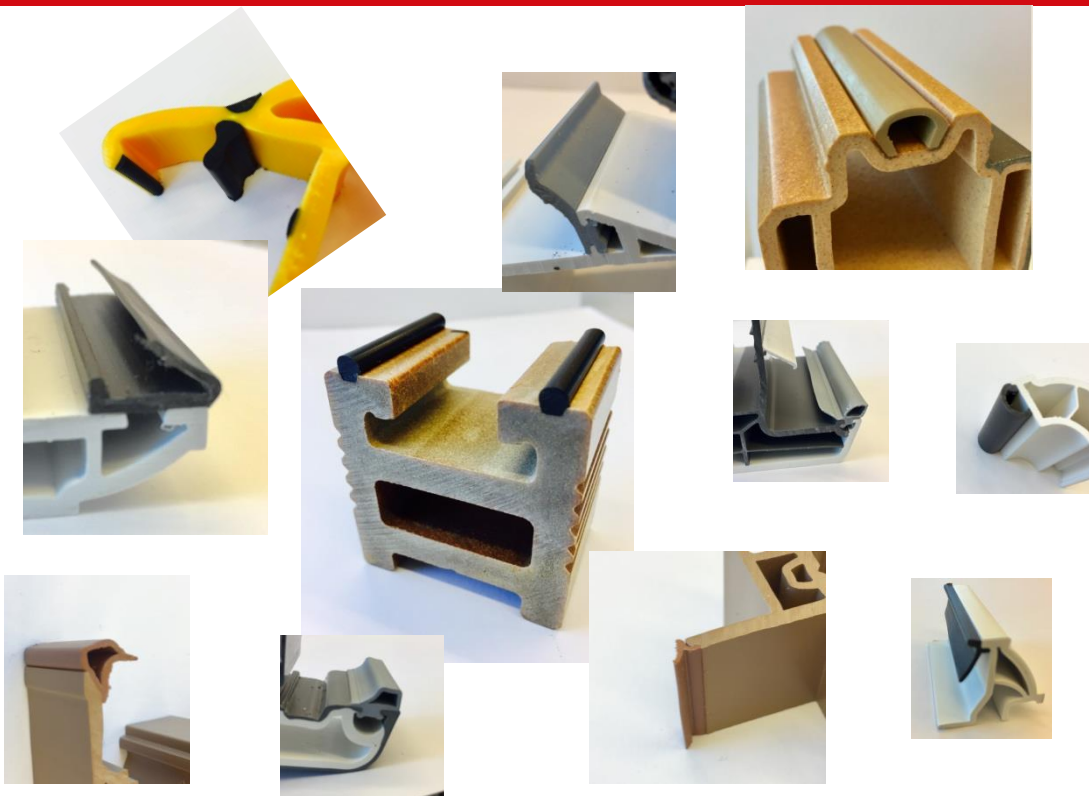


Design concepts slider

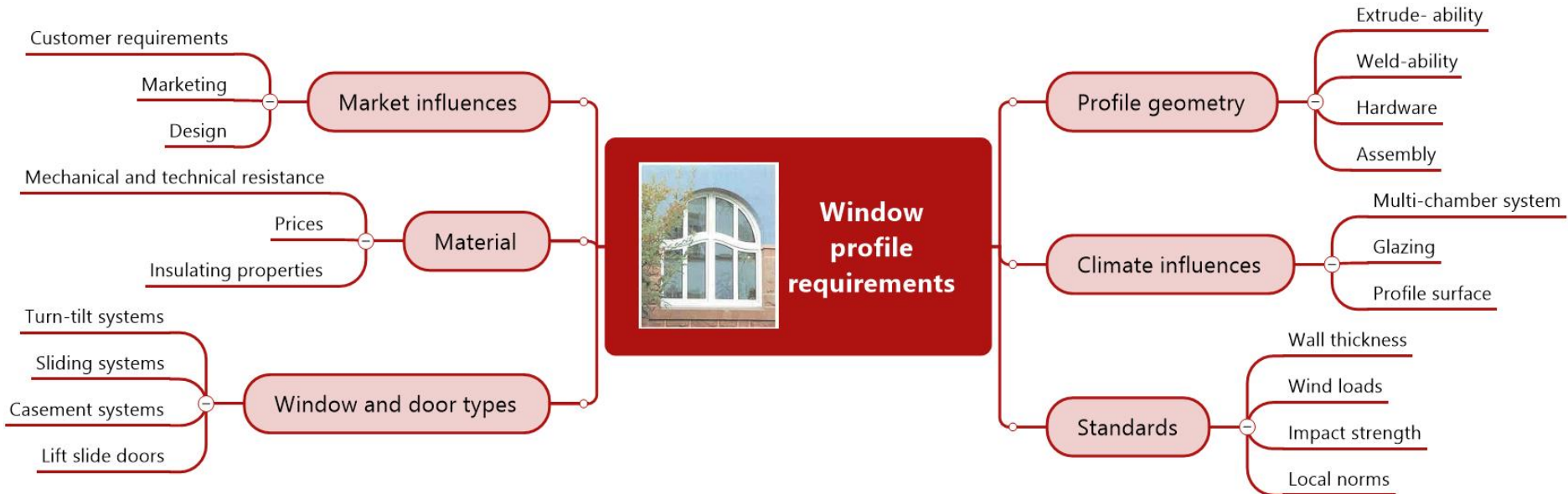


RED.PCE

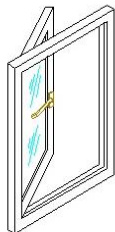
Post Co-Extrusion product design



Window profile requirements

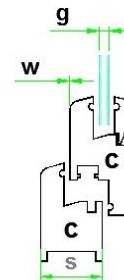


Checklist via TEAMS



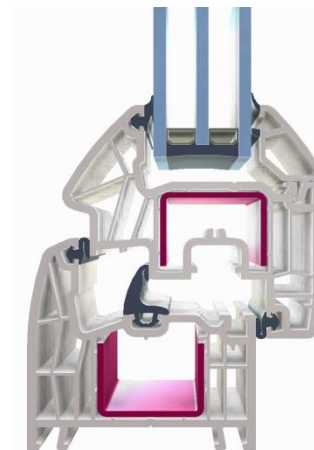
Casement, Awning and Tilt&Turn Windows

The figures are based on values taken from an average of different projects and therefore may vary depending on customer requirements.

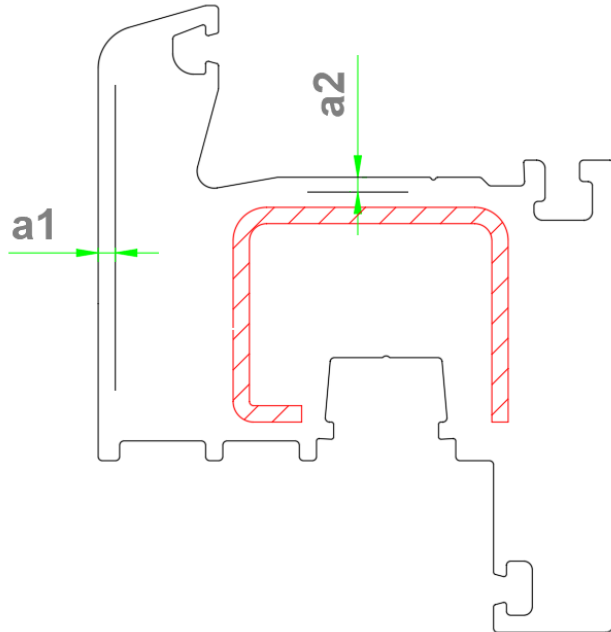



EnEV 2014
 $U_w = 1,3 \text{ W/m}^2\text{K}$

System width:	S	35 mm	45 mm	50 mm	55 mm	60 mm	70 mm	75 mm	80 - 88mm	90- 100 mm
Market value		*	**	***	***	****	****	*****	*****	*****
		* = Eco ***** = Best								
Amount of Chambers:	C	1	1	2	2 - 3	3 - 4	4 - 6	6 - 7	6 - 8	6 - 9
Main wall thickness:	W	1,8-2,0	2,0-2,2	2,2-2,5	2,2-2,5	2,5-2,7	2,7-3,0	2,7-3,0	2,7-3,0	2,7-3,0
Window unit weight per m ² :		~ 5,4 kg/m ²	~ 8,5 kg/m ²	~ 9,0 kg/m ²	~ 10,1 kg/m ²	~ 10,5 kg/m ²	~ 12,8 kg/m ²	~ 14 kg/m ²	~ 16 kg/m ²	~ 18 kg/m ²
Used glass unit thickness :	g	3-6 mm	3-18 mm	3-25 mm	3-28 mm	3-32 mm	20-43 mm	24-50 mm	24-60 mm	24-70 mm
Steel reinforcement weight per m ² :		~ 3,0 kg/m ²	~ 5,0 kg/m ²	~ 5,5 kg/m ²	~ 7,0 kg/m ²	~ 8,5 kg/m ²	~ 11,0 kg/m ²	~ 11,2 kg/m ²	~ 11,6 kg/m ²	~ 11,8 kg/m ²
Steel reinforcement moment of inertia		~ 2 cm ⁴	~ 2,4 cm ⁴	~ 2,4 cm ⁴	~ 2,6 cm ⁴	~ 2,8 cm ⁴	~ 3,0 cm ⁴	~ 3,0 cm ⁴	~ 3,5 cm ⁴	~ 3,5 cm ⁴
Uf Value Insulation of frame		2,8 W/m ² K	2,6W/m ² K	2,2W/m ² K	1,9W/m ² K	1,6W/m ² K	1,3W/m ² K	1,2 W/m ² K	1,1 W/m ² K	0,8 W/m ² K



Wall thickness ?



EN 12608 - A

$\geq 2,8 / 2,5 \text{ mm}$

RAL 716/1 - A

$\dots \text{mm}$
 $- 0,2 \text{ mm}$ $3,0 / 2,7 \text{ mm}$

EN 12608 - B

$\geq 2,5 / 2,0 \text{ mm}$

RAL 716/1 - B

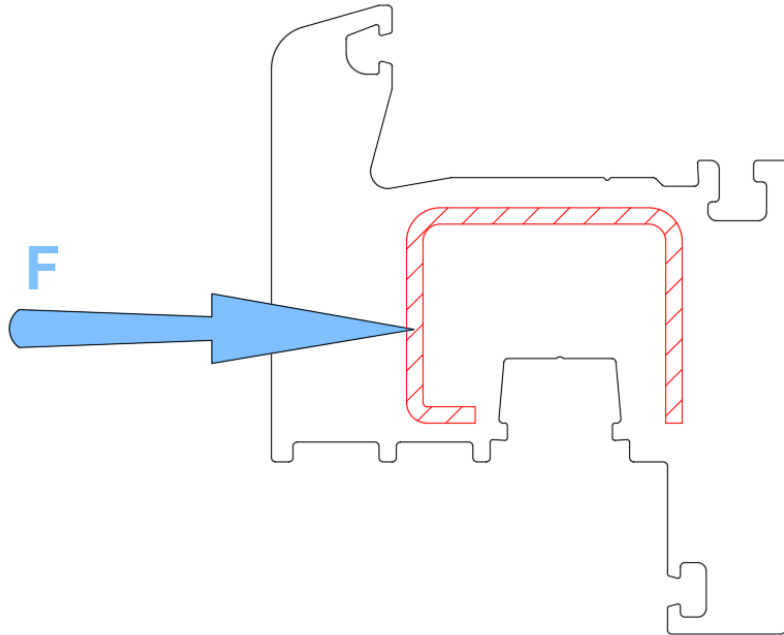
$\dots \text{mm}$
 $- 0,2 \text{ mm}$ $2,7 / 2,2 \text{ mm}$

EN 12608 - C

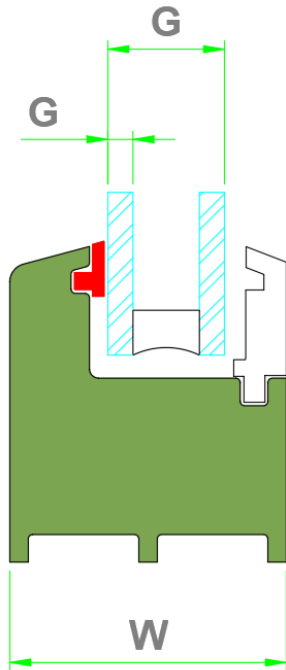
$\geq 2,0 / 1,8 \text{ mm}$



Wind load ?



<i>Storm</i>	400 Pa ~ 90 km/h
<i>Violent storm</i>	800 Pa ~ 130 km/h
<i>Hurricane</i>	1000 Pa ~ 145 km/h
	1200 Pa ~ 160 km/h
	1800 Pa ~ 195 km/h
	2000 Pa ~ 205 km/h
	2500 Pa ~ 230 km/h
	3000 Pa ~ 250 km/h



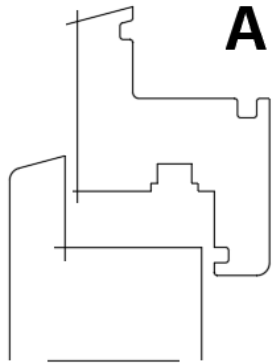
System thickness „W“ ?

- 1, W = 30-35 mm
- 2, W = 36-45 mm
- 3, W = 46-50 mm
- 4, W = 51-55 mm
- 5, W = 56-60 mm
- 6, W = 61-70 mm
- 7, W = 71-80 mm
- 8, W = 81-90 mm
- 9, W = 91-100 mm
- 10, W = more ?

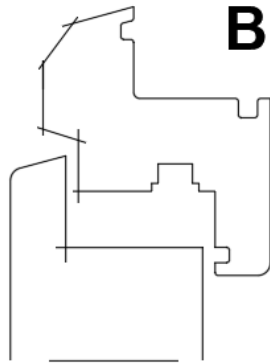
Glass thickness „G“ ?

- G = 3-6 mm
- G = 3-18 mm
- G = 3-25 mm
- G = 3-28 mm
- G = 3-32 mm
- G = 20-43 mm
- G = 24-50 mm
- G = 24-55 mm
- G = 32-60 mm

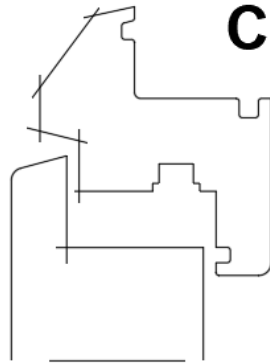
Profile design - displacement ?



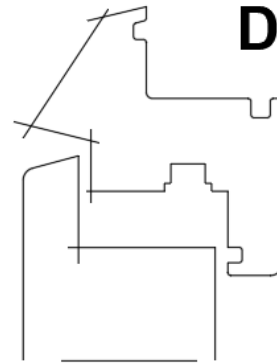
Displaced
system-A



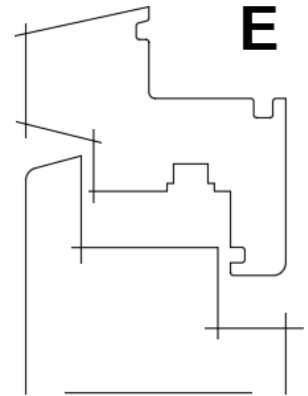
Semi-displaced
system-B



Semi-displaced
system-C



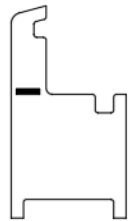
Semi-displaced
system-D



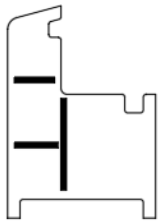
Semi-flush
system-E



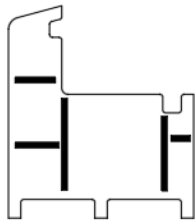
Profile chambers ?



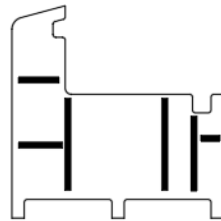
1-chamber



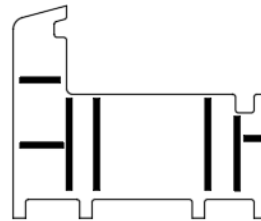
2-chamber



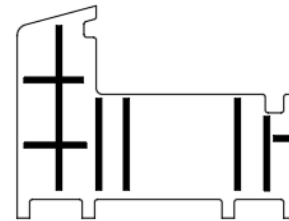
3-chamber



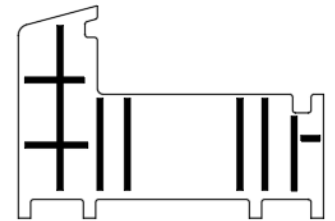
4-chamber



5-chamber



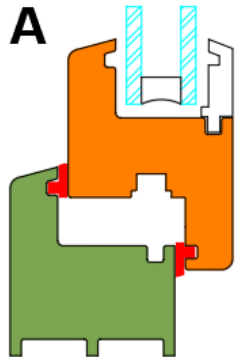
6-chamber



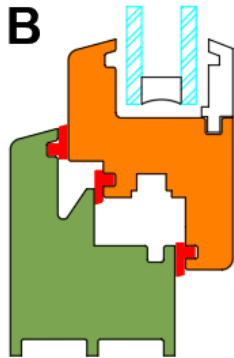
7-chamber

More?

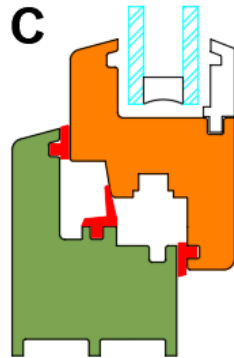
Design style / gasket system?



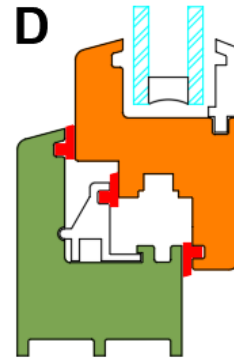
Internal gasket system



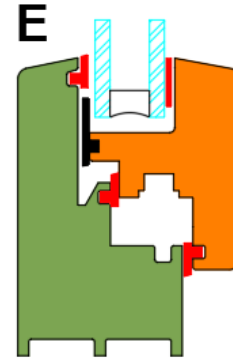
Central gasket system **on sash**



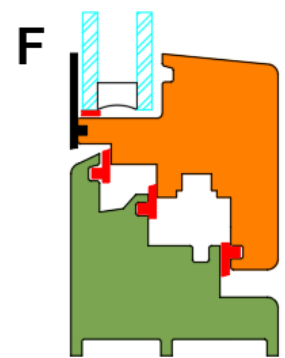
Central gasket system **on frame**



Centrall gasket system **+ clip**

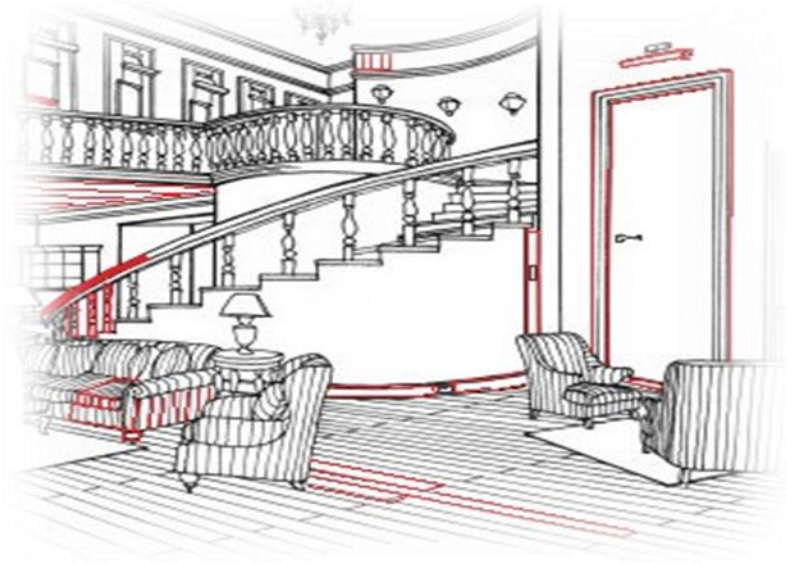


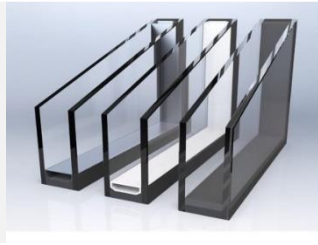
Central gasket system with **overlapping frame**



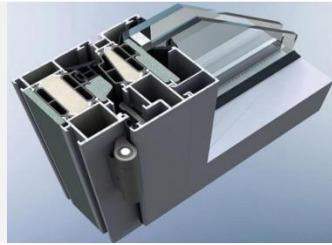
Central gasket system with **flush frame**

What we design else?





Spacer bars



Thermal insulation strips



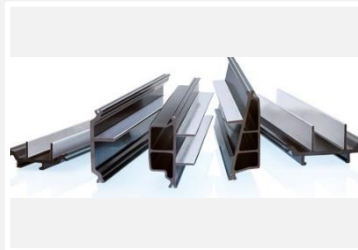
Lightning profiles



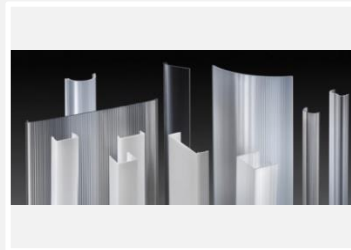
Pool profiles



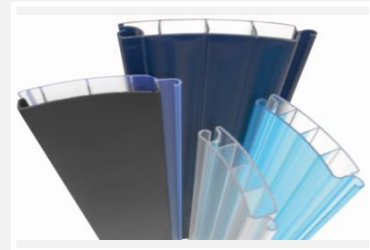
PVC + foil
PP reinforced



PA-reinforced
ABS



PC-2 colour
PC + PMMA
PMMA

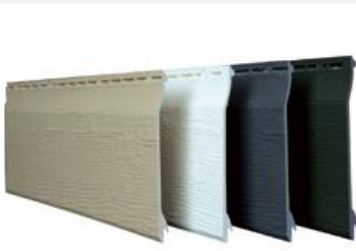


PC
PC + PMMA
Co-extrusion-UV

Technical product design



Siding



PVC
ASA
Co-extrusion



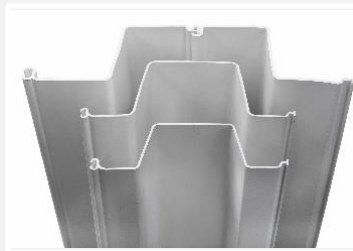
Fences



PVC
PP / PE
Foam
Co-extrusion



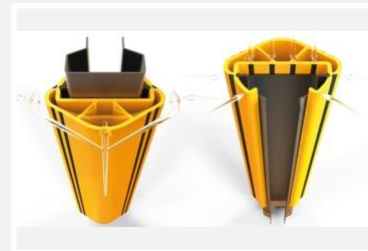
Sea walls



PVC
PVC-reinforced



Safe bumpers



PP / HDPE
Co-extrusion TPE

Technical product design



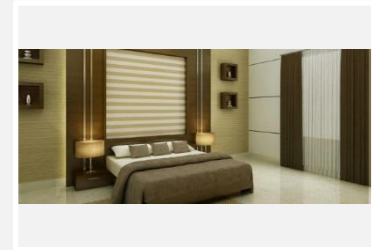
Cable ducts



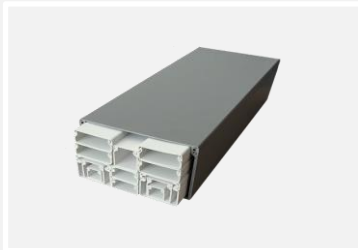
Rain gutters



Partitions for animals



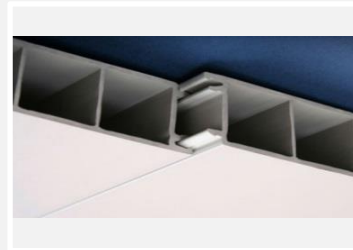
Cladding



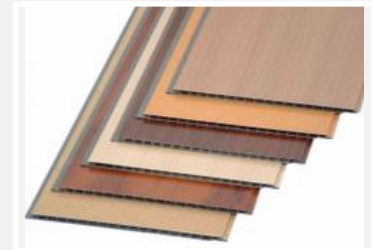
PVC
PC-ABS



PVC
ASA
Co-extrusion PMMA



PVC
Co-extrusion



PVC
ASA
Co-extrusion

All benefits for you



DESIGN	TURN KEY PROJECTS	MACHINERY	TOOLING	SERVICE	FUTURE EXTRUSION 4.0
<ul style="list-style-type: none"> Market-Know-how Technology Creativity Material competence Quality Experience Safety 	<ul style="list-style-type: none"> Know-how Quality Time-saving Cost-saving Technology 	<ul style="list-style-type: none"> Cost-saving Stable production Energy saving Ready for Extrusion 4.0 Quality Experience Safety 	<ul style="list-style-type: none"> Secured production Production-Cost-saving COEX competence Longer Life time Ready for Extrusion 4.0 	<ul style="list-style-type: none"> Support Hotline for technical assistance Spare parts on demand Preventive maintenance support Product Upgrades Reliable & experienced technicians Process Consulting 	<ul style="list-style-type: none"> Assured reproducibility Enhanced profile quality Minimized material input Improved productivity Cost-saving up to €100.000 / year / line



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