TECHNICAL CATALOGUE

OPENING WINDOW AND DOOR SYSTEM WITH THERMAL BREAK

E1600 E75 E52 E40 E68 Q72 EW70EF50 E2300 ES70 E85 ES38

ETEM

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ETEM HISTORY

ETEM is a leading aluminium extrusion company. It was founded in 1971 as a part of the largest metal manufacturing holding on the Balkans. With over 40 years of experience ETEM is a fully integrated designer and producer of architectural systems and aluminium profiles for industrial applications.

Our mission is to listen and promptly respond to our customers' requests and design and manufacture aluminium products and systems, taking into consideration technical and aesthetic requirements.

ETEM focuses on sustainable development and has proven its concern about the protection of the natural environment by making considerable investments in anti-pollution measures and by optimizing production processes following the applicable standards of the European Union.

SERVICES WE PROVIDE

ETEM supports you with the following:

⊳ design of conventional and bespoke architectural system solutions

⊳ innovative engineering in the field of curtain walls, ventilated facades, doors, windows

⊳ professional consultation and adequate technical advices ensured by our engineering team with wide experience in the field of profile extrusion as well as architectural systems' engineering

⊳ reliable customer care constant support trainings, technical support and audits on site

⊳ high quality engineering which guarantees offering the best solution according to the specific features of every single project

⊳ managing the process of certification in accordance with the applicable European standards in Notified Bodies

⊳ production of non-standard length profiles and non-standard processing

⊳ high quality powder coating

ETEM PRODUCTS AND SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS.*

For many, sustainable development is about environmental conservation. This is true but it also includes two other aspects: a social aspect and an economic aspect.

Sustainable development means striking the right balance between economic development, social equity and environmental protection.

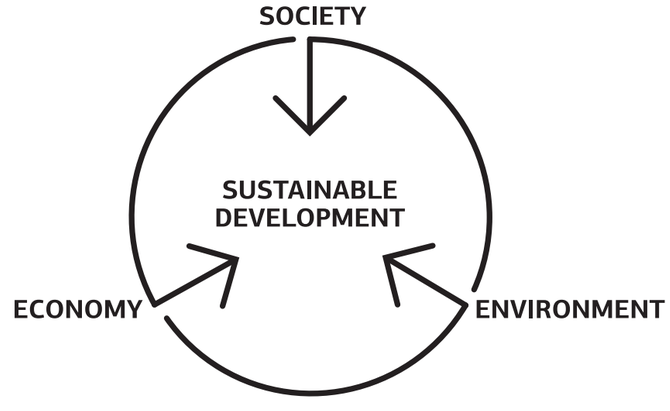
For us meeting this objective translates into the challenge of satisfying market demands at the lowest economic, social and environmental cost possible.

ETEM has always designed architectural systems which are in compliance with all requirements for achieving high energy efficiency.

In order to assure the comfort of the building inhabitants, ETEM systems adapt their functions to the changing environment.

As a moderator between outside and inside our systems provide:

› ENERGY EFFICIENCY
› DAYLIGHT
› SUN-SHADING
› VENTILATION AND GOOD AIR QUALITY
› SAFETY AND SECURITY



* Extract from Brundtland Report, from the United Nations World Commission on Environment and Development WCED

BUILDING PHYSICS

DIMENSIONING / FORMULAS / EXAMPLES

ALUMINIUM AS MATERIAL

ALUMINIUM IS A VERY YOUNG METAL, EXTRACTED FOR THE FIRST TIME IN 1854. COMMERCIALLY PRODUCED AS A PRECIOUS METAL FROM 1886, ITS INDUSTRIAL PRODUCTION FOR CIVIL APPLICATIONS ONLY ACHIEVED WIDE USE IN THE 1950'S.

NOW ALUMINIUM PLAYS A KEY ROLE FOR THE SUSTAINABILITY OF NEW BUILDINGS AND THE RENOVATION OF EXISTING ONES. THANKS TO ITS PERFORMANCE PROPERTIES ALUMINIUM CONTRIBUTES TO THE ENERGY PERFORMANCE, SAFETY AND COMFORT OF NEW BUILDINGS.

ADVANTAGES

DESIGN FLEXIBILITY
The extrusion process offers an almost infinite range of forms and sections, allowing designers to integrate numerous functions into one profile

LONG SERVICE LIFE
Aluminium building products are made from alloys that are weatherproof, corrosion-resistant and immune to the harmful effects of UV rays, ensuring optimal performance over a very long period of time

HIGH STRENGTH-TO-WEIGHT RATIO
Thanks to the metal's inherent strength and stiffness, aluminium window and curtain wall frames can be very narrow. Material's light weight makes it easier to transport and handle on-site, reducing the risk of work-related injury

HIGH-REFLECTIVITY
This characteristic feature makes aluminium a very efficient material for light management. Aluminium shading devices can be used to reduce the need for air conditioning in summer

FIRE SAFETY
Aluminium does not burn and therefore is classified as a non-combustible construction material (European Fire Class A1). Aluminium alloys will nevertheless melt at around 6500 C, but without releasing harmful gases

NO RELEASE OF DANGEROUS SUBSTANCES
Several studies have proved that aluminium building products do not present a hazard to occupants or the surrounding environment. Aluminium building products have no negative impact, either on indoor air quality or on soil, surface and groundwater

OPTIMAL SECURITY
Where high security is required, specially designed, strengthened aluminium frames can be used. While the glass for such applications may well be heavy, the overall weight of the structure remains manageable thanks to the light weight of the aluminium frames.

ALLOYS

Aluminium in its pure form is a very soft metal. Thanks to the addition of alloying elements such as copper, manganese, magnesium, zinc, etc. and thanks to suitable production processes, the physical and mechanical properties can be varied in a wide range to satisfy the requirements of a large number of different applications.

ETEM profiles are extruded from the following alloys:
EN AW-1050 [Al 99.5]
EN AW-6060 [Al Mg Si]
EN AW-6063 [Al Mg0,7 Si]
EN AW-6061 [Al Mg1 Si Cu]
EN AW-6005 [Al Si Mg]
EN AW-6082 [Al Si1 Mg Mn]

The most common aluminium alloy which is used by ETEM is EN AW 6060.
Here are the properties of this alloy:

MATERIAL PROPERTIES	
Aluminium alloy	EN AW 6060 T66
Ultimate tensile strength	R_m = 215 N/mm^2
Yield strength	$R_{p0,2}$=160 N/mm^2
Modulus of elasticity	E_{al} = 70 000 N/mm^2
Coefficient of thermal expansion	α = 23.4 x 10^{-6}/°K

EXTRUSION PROCESS

ETEM profiles are obtained through extrusion process, which consists of pushing a hot cylindrical bullet of aluminium through a shaped die. The extrusion process offers almost infinite range of forms and sections, allowing our designers to integrate numerous functions into one single profile.

FINISHING

POWDER COATING
It is a type of paint that is applied as a dry powder. Coating is applied on ETEM profiles electrostatically and then is cured under heat to allow it to flow and form a "skin".
ETEM is authorized to use the quality sign QUALICOAT for powder coatings on aluminium for architectural applications. A wide range of colors and gloss levels can be achieved.
ETEM also offers timber imitations painting, in addition to all RAL colors.

ANODIZING
It is an electrochemical process whereby to reinforce the natural oxide film on the aluminium surface, increasing hardness, corrosion and abrasion resistance. Anodizing gives a very decorative silver matt surface finish, and colored can also be obtained by sealing metallic dyes into the anodized layer.

MAINTENANCE

Apart from routine cleaning for aesthetic reasons, ETEM aluminium profiles do not require any maintenance which translates into a major cost and ecological advantage over lifetime of the product.

RECYCLING

Aluminium scrap can be repeatedly recycled without any loss of value or properties.
In many instances, aluminium is combined with other materials such as steel or plastics, which are most frequently mechanically separated from aluminium before being molten.

WIND LOAD

Wind action

Wind action depends on the dimensions of the window and location.

As a guideline, the wind pressure values with respect to the structure height are given in the table below:

Building Height	Wind Velocity	Wind Load		Wind Pressure		Wind Suction in a middle zone				Wind Suction in an edge zone	
h	v	$q = \frac{V^2}{16}$		Wp* = 1.25 x cp x q c_p = 0.8		h/b ≤ 0.25 $W_s = c_p \times q$ c_p = 0.5		h/b ≥ 0.5 $W_s = c_p \times q$ c_p = 0.7		b/8 ≤ 2 m $W_s = c_p \times q$ c_p = 2.0	
m	m/s	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2	kg/m2
0 - 8	28.3	50	0.5	50	0.5	25	0.25	35	0.35	100	1.0
8 - 20	35.8	80	0.8	80	0.8	40	0.40	56	0.56	160	1.6
20 - 100	42.0	110	1.1	110	1.1	55	0.55	77	0.77	220	2.2
> 100	45.6	130	1.3	130	1.3	65	0.65	91	0.91	260	2.6

where:

h - building height, m
b - building width, m
v - wind velocity, m/s
q - wind load, kg/m^2 and kN/m^2
$w_{p/s}$ - wind pressure / suction, kN/m^2
c_p - correction factor

*Note: When calculating wind pressure w_p the load is increased with 25%

UNITS CONVERTER

1 m = 100 cm = 1000 mm

1 kg = 10 N
1 kN = 100 kg = 1000 N

1 kg/m^2 = 0.01 kN/m^2
1 Pa = 1 N/m^2 = 0.1 kg/m^2
1 kPa = 1000 Pa = 1 kN/m^2 =100 kg/m^2
1 MPa = 1000 kPa = 1 000 000 Pa
1 MPa = 1 N/mm^2 = 0.1 kN/cm^2 =100 000 kg/m^2

MULLION SELECTION

*Wind load actions:

The required moment of inertia of a mullion due to the wind action is given by:

a) triangle load

$$\text{If } \frac{H}{c} \le 1,\ I_{yc} \ge \frac{w \cdot (H/2) \cdot H^4 \cdot 10^8}{120 \cdot E_{al} \cdot f_{max}},\text{cm}^4$$

or

b) trapezoid load

$$\text{If } \frac{H}{c} > 1,\ I_{yc} \ge \frac{w \cdot (C/2) \cdot H^4}{1920 \cdot E_{al} \cdot f_{max}} \cdot 10^8 \cdot \left[25-40 \cdot \frac{(C/2)^2}{H^2} + 16 \cdot \frac{(C/2)^4}{H^4}\right],\text{cm}^4$$

Use the same method to calculate I_{yd}

Total of required moment of inertia:
$I_y = I_{yc} + I_{yd}$, cm^4

Where:
I_y – Moment of inertia of a transom, cm^4
w – Wind pressure, kg/m^2
E_{al} – Modulus of Elasticity of aluminium, kg/m^2
f_{max} – Maximum transom deflection, m
H – Length of a mullion, m
a,b – Distance between mullions, m

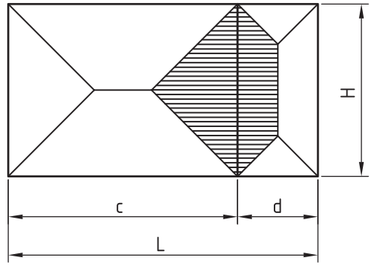
Maximum transom deflection f_{max} by wind load:

$f = \frac{H}{200}$,m or 0.015 m – whichever is less (EN 14351-1)

Use ETEM Catalogue to choose the appropriate mullion with I_y exceeding or equal to the required I_y.

Use ETEM Catalogue to choose the appropriate profile which characteristics exceed or are equal to both calculated values I_x and I_y.

Example:



Initial data:
H = 2,2 m
c = 2,4 m
d = 0,8 m
w = 60 kg/m^2
E_{al} = 7.10^9 kg/m^2

$f = \frac{H}{200} = \frac{2,2}{200} = 0,011m$ or 0,015 m (EN 14351-1)

$\Longrightarrow f_{max} = 0,011m$ in the following formulas:

$\frac{H}{c} = \frac{2,2}{2,4} = 0,91 < 1$

$$I_{yc} \ge \frac{w \cdot (H/2) \cdot H^4 \cdot 10^8}{120 \cdot E_{al} \cdot f_{max}},\text{cm}^4$$

$$I_{yc} \ge \frac{60 \cdot (2,2/2) \cdot 2,2^4 \cdot 10^8}{120 \cdot 7 \cdot 10^9 \cdot 0,011},\text{cm}^4 \Longrightarrow I_{yc} \ge 16,73\ cm^4$$

$\frac{H}{d} = \frac{2,2}{0,8} = 2,75 > 1$

$$I_{yd} \ge \frac{w \cdot (d/2) \cdot H^4}{1920 \cdot E_{al} \cdot f_{max}} \cdot 10^8 \cdot \left[25 - 40 \cdot \frac{(d/2)^2}{H^2} + 16 \cdot \frac{(d/2)^4}{H^4}\right],\text{cm}^4$$

$$I_{yd} \ge \frac{60 \cdot (0,8/2) \cdot 2,2^4}{1920 \cdot 7 \cdot 10^9 \cdot 0,011} \cdot 10^8 \cdot \left[25 - 40 \cdot \frac{(0,8/2)^2}{2,2^2} + 16 \cdot \frac{(0,8/2)^4}{2,2^4}\right],\text{cm}^4$$

$I_{yd} \ge 9,01\ cm^4$

$I_y = I_{yc} + I_{yd}$, cm^4 $\Longrightarrow I_y = 16,73 + 9,01 = 25,74\ cm^4$

Use ETEM Catalogue to choose the appropriate mullion with
$I_y \ge 25,74\ cm^4$
We choose mullion E68300 with $I_y = 33,27\ cm^4$
and $I_x = 14,17\ cm^4$

TRANSOM SELECTION

*Dead load actions:

*Glass pane self weight:

Weight of the glass pane G is calculated as follows:

The required moment of inertia of a transom due to the weight of the glazing is given by:

$$I_{x1} \ge \frac{G \cdot a \cdot 10^8}{48 \cdot E_{al} \cdot f_{max}} \cdot (3 \cdot L^2 - 4 \cdot a^2),\text{cm}^4$$

Where:
G – Weight of glass pane, kg
t – Glass pane thickness, mm
ρ_{glass} – Density of glass material, $kg/m^2/mm$
l_g – Horizontal dimension of the glass pane, m
h_g – Vertical dimension of the glass pane, m

*Transom self weight:

The required moment of inertia of a transom due to its self weight is given by:

$$I_{x2} \ge \frac{5 \cdot q \cdot L^4 \cdot 10^8}{384 \cdot E_{al} \cdot f_{max}},\text{cm}^4$$

Total of required moment of inertia:
$I_x = I_{x1} + I_{x2}$,cm^4

Where:
a=0,15 – Distance of a glazing supports of the glass pane, m
I_x – Moment of inertia of a transom, cm^4
q – Self weight of a transom per linear meter, kg/m
E_{al} – Modulus of Elasticity of aluminium, kg/m^2
f_{max} – Maximum transom deflection, m
L – Length of a transom, m

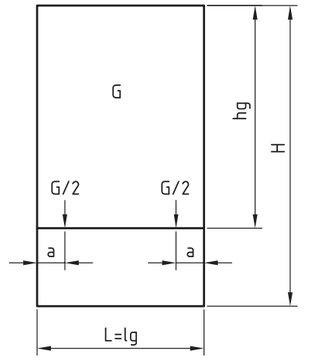
Maximum transom deflection f max by dead load:

$f = \frac{L}{500}$,m or 0.003 m – whichever is less (EN 14351-1)

Use ETEM Catalogue to choose the appropriate transom with I_y exceeding or equal to the required I_y.

Use ETEM Catalogue to choose the appropriate profile which characteristics exceed or are equal to both calculated values I_x and I_y.

Example: $G = t \cdot \rho_{glass} \cdot l_g \cdot h_g$



Initial data:
t = 10 mm
l_g = 1,5 m
h_g = 2,0 m
a = 0,15 m
E_{al} = 7.10^9 kg/m^2
ρ_{glass} = 2,5 $kg/m^2/mm$
q = 2 kg/m

$G = t \cdot \rho_{glass} \cdot l_g \cdot h_g = 10 \cdot 2,5 \cdot 1,5 \cdot 2,0 = 75$ kg

$\Longrightarrow f_{max} = \frac{L}{500} = \frac{1,5}{500} = 0,003$ m or 0,003 m (EN 14351-1)

$\Longrightarrow f_{max} = 0,003m$ in the following formulas:

$$I_{x1} \ge \frac{G \cdot a \cdot 10^8}{48 \cdot E_{al} \cdot f_{max}} \cdot (3 \cdot L^2 - 4 \cdot a^2),\text{cm}^4$$

$$I_{x1} \ge \frac{75 \cdot 0,15 \cdot 10^8}{48 \cdot 7 \cdot 10^9 \cdot 0,003} \cdot (3 \cdot 1,5^2 - 4 \cdot 0,15^2),\text{cm}^4$$

$$I_{x1} \ge \frac{75 \cdot 0,15 \cdot 10^8}{48 \cdot 7 \cdot 10^9 \cdot 0,003} \cdot (3 \cdot 1,5^2 - 4 \cdot 0,15^2),\ cm^4 \Longrightarrow I_{x1} \ge 7,43cm^4$$

$$I_{x2} \ge \frac{5 \cdot q \cdot L^4 \cdot 10^8}{384 \cdot E_{al} \cdot f_{max}},\text{cm}^4\ \ I_{x2} \ge \frac{5 \cdot 2 \cdot 1,5^4 \cdot 10^8}{384 \cdot 7 \cdot 10^9 \cdot 0,003},\text{cm}^4 \Longrightarrow I_{x1} \ge 0,63cm^4$$

$I_x = I_{x1} + I_{x2}$,cm^4

$I_x = 7,43 + 0,63 = 8,06\ cm^4$

Use ETEM Catalogue to choose the appropriate transom with
$I_x \ge 8,06\ cm^4$
We choose transom E68300 with $I_x = 14,17\ cm^4$
and $I_y = 33,25\ cm^4$

TRANSOM SELECTION

*Wind load actions:

The required moment of inertia of a transom due to the wind action is given by:

a) triangle load

$$\text{If } \frac{L}{a} \le 1,\ I_{ya} \ge \frac{w \cdot (L/2) \cdot L^4 \cdot 10^8}{120 \cdot E_{al} \cdot f_{max}},\ cm^4$$

or

b) trapezoid load

$$\text{If } \frac{L}{a} > 1,\ I_{ya} \ge \frac{w \cdot (a/2) \cdot L^4}{1920 \cdot E_{al} \cdot f_{max}} \cdot 10^8 \cdot \left[25 - 40 \cdot \frac{(a/2)^2}{L^2} + 16 \cdot \frac{(a/2)^4}{L^4}\right],\ cm^4$$

Use the same method to calculate I_{xb}

Total of required moment of inertia:
$I_y = I_{ya} + I_{yb},\ cm^4$

Where:
I_y – Moment of inertia of a transom, cm^4
w – Wind pressure, kg/m^2
E_{al} – Modulus of Elasticity of aluminium, kg/m^2
f_{max} – Maximum transom deflection, m
L – Length of a transom, m
a,b – Distance between transoms, m

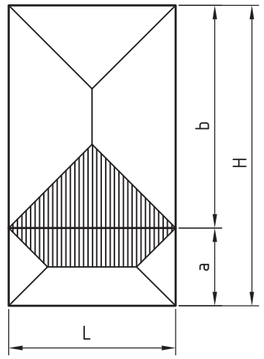
Maximum transom deflection f_{max} by wind load:

$$f = \frac{L}{200},m$$ or 0.015 m – whichever is less (EN 14351-1)

Use ETEM Catalogue to choose the appropriate transom with I_x exceeding or equal to the required I_x.

Use ETEM Catalogue to choose the appropriate profile which characteristics exceed or are equal to both calculated values I_x and I_y.

Example:



Initial data:
L = 1,5 m
a = 0,7 m
b = 2,0 m
w = 60 kg/m^2
E_{al} = 7.10 kg/m^2

$$f = \frac{L}{200} = \frac{1,5}{200} = 0,0075\ m \text{ or } 0,015\ m \text{ (EN 14351-1)}$$

$\Rightarrow f_{max}$ = 0,0075 m in the following formulas:

$$\frac{L}{a} = \frac{1,5}{0,7} = 2,14 > 1$$

$$I_{ya} \ge \frac{w \cdot (a/2) \cdot L^4}{1920 \cdot E_{al} \cdot f_{max}} \cdot 10^8 \cdot \left[25 - 40 \cdot \frac{(a/2)^2}{L^2} + 16 \cdot \frac{(a/2)^4}{L^4}\right],cm^4$$

$$I_{ya} \ge \frac{60 \cdot (0,7/2) \cdot 1,5^4}{1920 \cdot 7 \cdot 10^9 \cdot 0,0075} \cdot 10^8 \cdot \left[25 - 40 \cdot \frac{(0,7/2)^2}{1,5^2} + 16 \cdot \frac{(0,7/2)^4}{1,5^4}\right],cm^4$$

$I_{ya} \ge 2,41\ cm^4$

$$\frac{L}{b} = \frac{1,5}{2,0}, = 0,75 < 1$$

$$I_{yb} \ge \frac{w \cdot (L/2) \cdot L^4 \cdot 10^8}{120 \cdot E_{al} \cdot f_{max}},cm^4 \quad \Rightarrow I_{yb} \ge \frac{60 \cdot (1,5/2) \cdot 1,5^4 \cdot 10^8}{120 \cdot 7 \cdot 10^9 \cdot 0,0075},cm^4$$

$\Rightarrow I_{yb} \ge 3,62\ cm^4$

$I_y = I_{ya} + I_{yb},cm^4$

$\Rightarrow I_y = 2,41 + 3,62 = 6,03\ cm^4$

Use ETEM Catalogue to choose the appropriate mullion with $I_y \ge 6,03\ cm^4$
We choose mullion E68300 with I_y = 33,25 cm^4
and I_x = 14,17 cm^4

CALCULATION OF GLASS PANE THICKNESS

*Glazing thickness:

For single glazing the minimum thickness is given by the following equations:

a) $\text{If } \frac{h_g}{l_g} \le 3,\quad t = \sqrt{\frac{10 \cdot l_g \cdot h_g \cdot w}{72}},mm$

or

b) $\text{If } \frac{h_g}{l_g} > 3,\quad t = \frac{l_g \cdot \sqrt{10 \cdot w}}{72},mm$

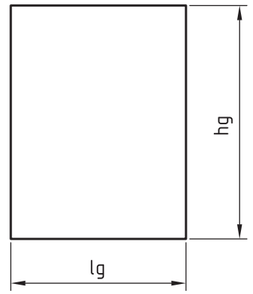
Where:
t – Minimum theoretical glass thickness, mm
w – Wind pressure, kg/m^2
l_g – The smallest dimension of the glass pane, m
h_g – The largest dimension of the glass pane, m

For double glazing, the total thickness of both glasses in the panel is equal to the thickness of a single glass pane (evaluated using the above equations) multiplied by 1.5

For triple glazing, the total thickness of all glasses in the panel is equal to the thickness of a single glass pane (evaluated using the above equations) multiplied by 1.7

Always consult facade engineer or glazing manufacturer when calculating for required glazing thickness and maximum allowable dimensions.

Example:



Initial data:
l_g = 1,5 m
h_g = 2,0 m
w = 60 kg/m^2

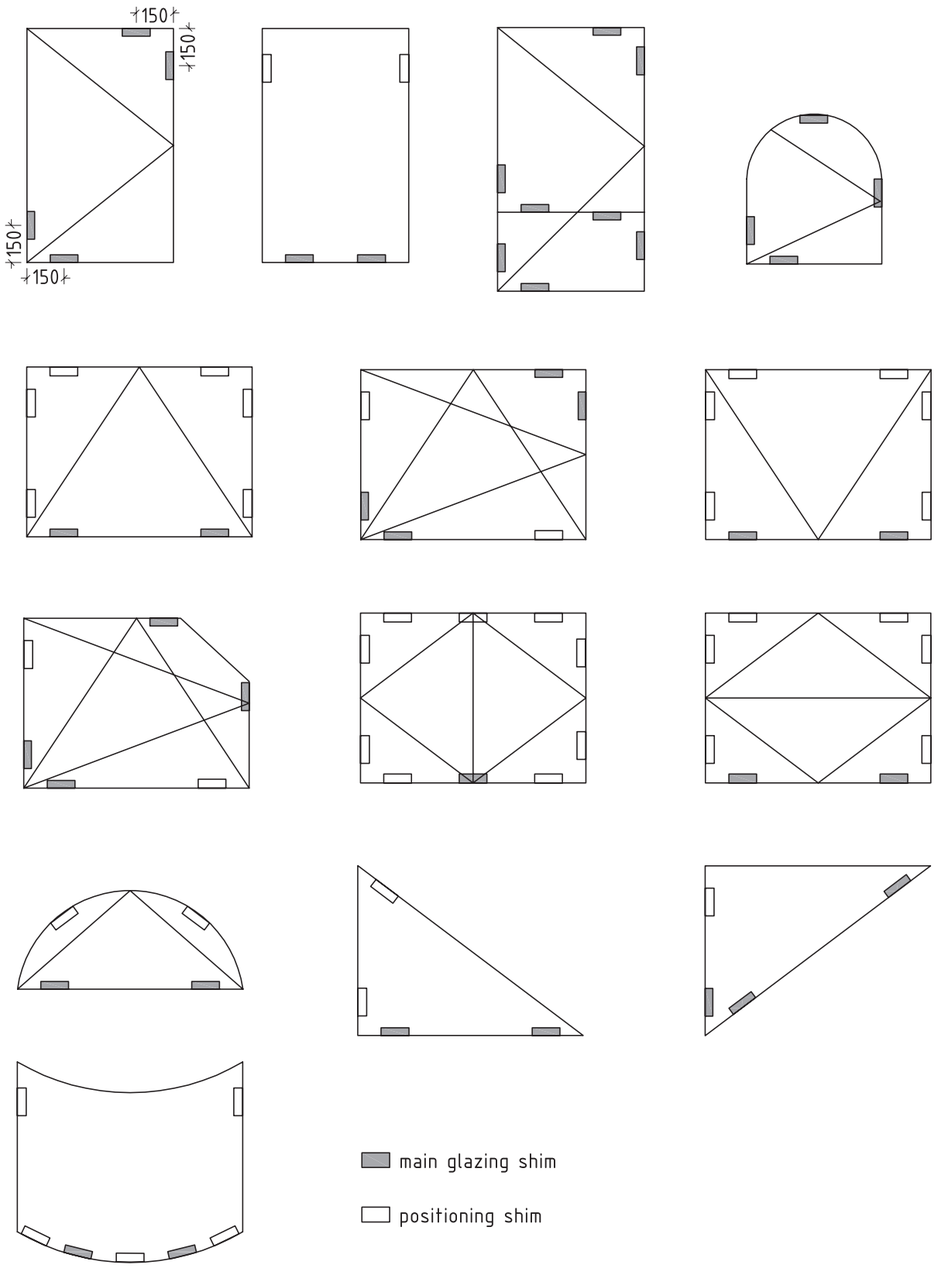
$$\frac{h_g}{l_g} = \frac{2}{1,5} = 1,33 \le 3$$

$$t = \sqrt{\frac{10 \cdot l_g \cdot h_g \cdot w}{72}} = \sqrt{\frac{10 \cdot 1,5 \cdot 2 \cdot 60}{72}} = \sqrt{\frac{1800}{72}} = 5\ mm$$

For double glazing t_{req} = 1,5 . 5 = 7,5 mm

We choose double glazing 5/14/5

GLAZING SHIMS



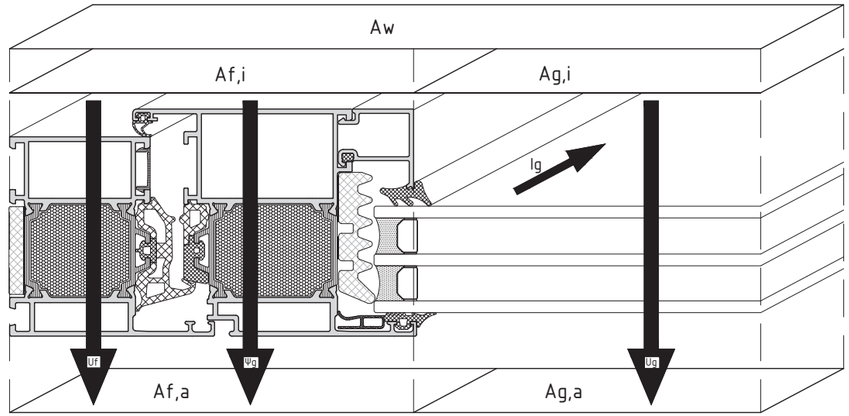
Note:
Main glazing shims should be positioned on 150 mm distance from the glazing edge.
Positioning shims do not have exactly defined position.

METHOD FOR CALCULATION OF THERMAL TRANSMITTANCE ACCORDING to EN ISO 10077-2

$$U_w = \frac{A_g \times U_g + A_f \times U_f + l_g \times \Psi_g}{A_g + A_f} \qquad (1)$$

U_w – thermo-transmittance coefficient of the whole structure
U_g – glass thermal transmittance coefficient
U_f – thermo-transmittance coefficient of the aluminium frame (frame and sash)
Ψ_g – spacer linear thermal transmittance
l_g – total length of the spacer
A_g – glass area
A_f – aluminium frame area (frame and sash)

U_w – is calculated by formula (1)
U_g – is given by the glass manufacturer
U_f – is given by the manufacturer of the aluminium profiles

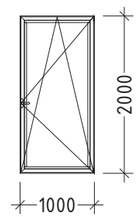


EXAMPLE FOR CALCULATING THERMAL TRANSMITTANCE COEFFICIENT

frame:	E68	U_f	1.6	$W/(m^2K)$
spacer:	warm edge	Ψ_g	0.051	$W/(m^2K)$
glass:	triple glazing	U_g	1.00	$W/(m^2K)$

window width: 1.00 m
window height: 2.00 m
length of glass edge l_g: 4,89 m

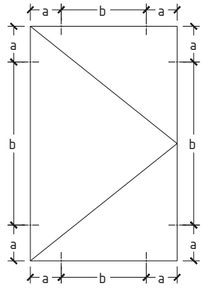
$A_g = 1.24\ m^2$; $A_f = 0.76\ m^2$



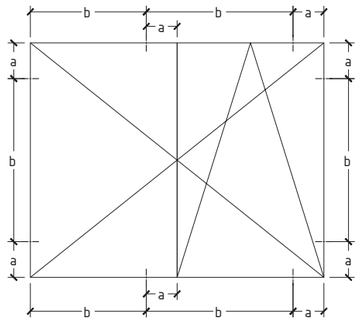
$$U_w = \frac{1.24 \times 1 + 0.76 \times 1.6 + 4.89 \times 0.051}{1.24 + 0.76}$$

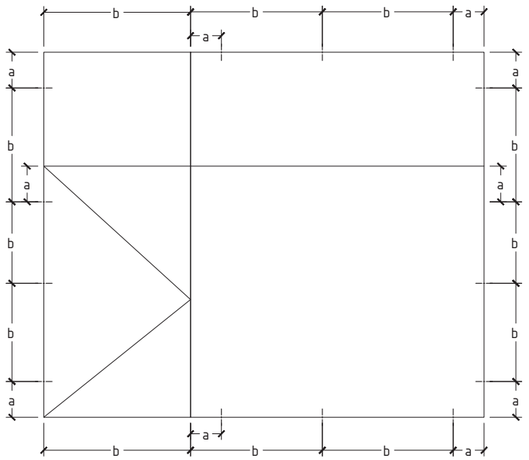
$U_w \approx 1{,}4\ W/(m^2K)$

CALCULATION OF GLASS PANE THICKNESS



a = 150 ÷ 200 mm
b ≤ 800 mm



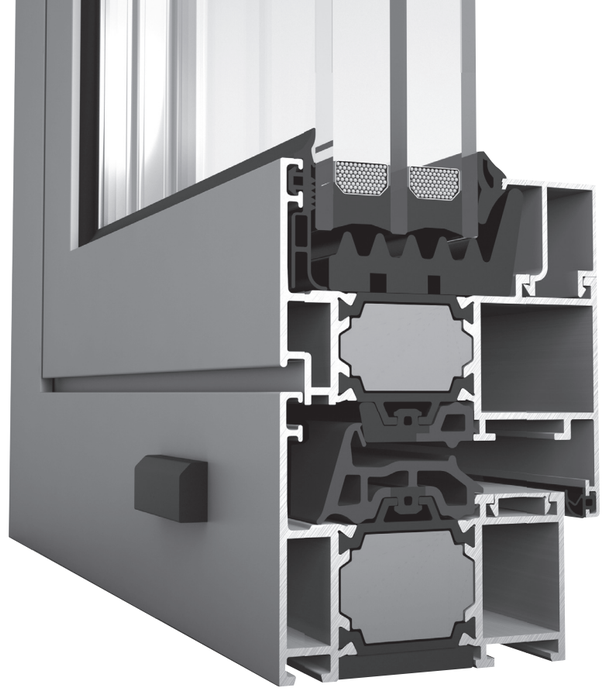


E68

WINDOW AND DOOR SYSTEM WITH THERMAL BREAK

GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES



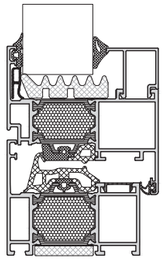
E68 CONCEPT

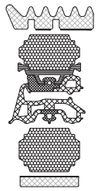
E68 IS A SYSTEM CORRESPONDING TO THE MOST STRINGENT REQUIREMENTS WITH REGARDS TO THERMAL INSULATION, FUNCTIONALITY AND AESTHETICS.

- Elegant straight design
- 68 mm system width allowing usage of triple glazing
- Excellent thermal insulation from Uf = 1.6 W/m2.K
- Additional insulator in the thermal-break chamber
- Additional insulator around the glazing
- Effective drainage
- Excellent behavior against weather testing
- Co-extruded central gaskets
- Can accommodate anti-burglar hardware for increased security
- Extruded corners for crimping machine with glue allowing reliable joint
- Variety of Thermal insulation typologies
- Compatible with ETEM Curtain wall systems

HIGH +

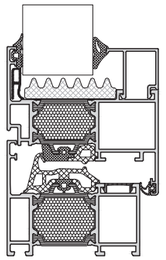
Uf≈1.6

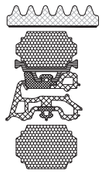




HIGH

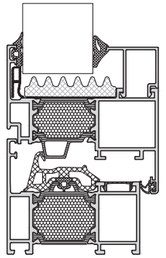
Uf≈1.7

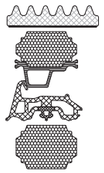




STANDARD +

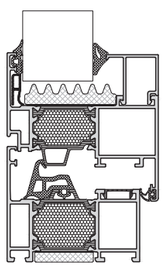
Uf≈1.8

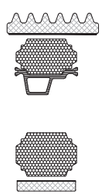




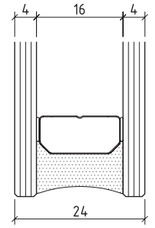
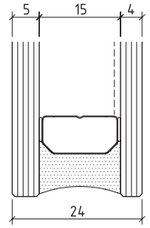
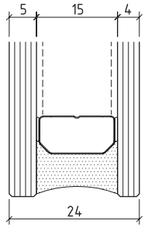
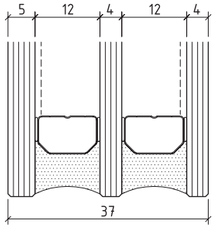
STANDARD

Uf≈1.9





ADVANTAGES AND COMBINATIONS

PERFORMANCE CHARACTERISTICS	Type of glazing			
	Double Glazing	Double Glazing	Double Glazing	Triple Glazing
	4/16/4 Low Emission	5/15/4 Low Emission Argon	5 Sun Guard/15/4 Low Emission	5 Sun Guard/12/4/12/4 Low Emission
				
Uglass	1,4	1,1	1,0	0,6
Uwindow[1] hight	1,6	1,4	1,3	1,1
g value[2]	0,6	0,6	0,5	0,46

ADVANTAGES					
Energy Efficiency		*	**	***	****
Sound Insulation		*	**	***	****
Ventilation		□	□	□	□
Daylight		****	***	**	*
Sunshading	**E 66**	*	**	***	****
Automation		□	□	□	□
Safety and security		□	□	□	□

Notes:
1. Uw value is calculated by using warm edge spacer.
2. g value is calculated without external sunshading.
* good
** better
*** the best
**** excellent
□ compatible

COMPLIANCE WITH APPLICABLE REGULATIONS
Production management

Quality Management system is certified in accordance with EN ISO 9001:2008.

Environmental management system is certified in accordance with EN ISO 14001.

Factory production control system is certified according to the requirements of EN 15088. All ETEM profiles are CE marked and in compliance with applicable European Standards.

ETEM is authorized to use the QUALICOAT quality sign for paint, lacquer and powder coating on aluminium for architectural applications.

Occupational Health & Safety Management System is certified in accordance with OHSAS 18001.

PERFORMANCE CHARACTERISTICS OF E68

Characteristic	Classification / value	Standard
Air permeability	class 4	EN 1026 / EN 12207
Watertightness	up to class E1500	EN 1027 / EN 12208
Resistance to wind load	class 5C	EN 12211 / EN 12210
Thermal transmittance	from 1,6 W/m^2.K	EN 12412-2 / EN ISO 10077-2
Acoustic performance	up to 44dB	EN ISO 717-1

*calculation result according to Annex B of EN 14351-1

CLASSIFICATION OF CHARACTERISTICS
for windows without resistance to fire and/or smoke leakage characteristics according to EN 14351-1

Characteristic / value / dimension	Classification / Value									
Resistance to wind load Test pressure P1 (Pa)	npd	1 (400)		2 (800)		3 (1200)		4 (1600)		5 (2000)	Exxxx (>2000)
Resistance to wind load Frame deflection	npd	A (≤1/150)				B (≤1/200)				C (≤1/300)	
Resistance to snow and permanent load	npd	Declared information on the infill (e.g. type and thickness of glass)									
Reaction to fire	npd	F		E		D		C		B	A2	A1
External fire performance	npd	According to EN 13501-5									
Watertightness Non-shielded (A) Test pressure (Pa)		1A (0)	2A (50)	3A (100)	4A (150)	5A (200)	6A (250)	7A (300)	8A (450)	9A (600)	Exxxx (>600)
Watertightness Shielded (B) Test pressure (Pa)	npd	1B (0)		2B (50)		3B (100)		4B (150)		5B (200)	6B (250)	7B (300)
Dangerous substances	npd	As required by regulations									
Impact resistance Drop height (mm)	npd	200		300		450		700		950	
Load-bearing capacity of safety devices	npd[a]	Threshold value									
Acoustic performance Sound insulation R_w (C;C_{tr}) (dB)	npd	Declared values									
Thermal transmittance U_w (W/(m^2.K))	npd	Declared values									
Radiation properties Solar factor (g)	npd	Declared values									
Radiation properties Light transmittance (τv)	npd	Declared values									
Air permeability Max. test pressure (Pa) Reference air permeability at 100 Pa (m^3/(h · m^2) or m^3/(h · m))	npd	1 (150) (50 or 12,50)			2 (300) (27 or 6,75)			3 (600) (9 or 2,25)			4 (600) (3 or 0,75)	
Operating forces[b]	npd	1						2				
Mechanical strength	npd	1			2			3			4	
Ventilation Air flow exponent n Air flow characteristic K Air flow rates	npd	Declared values										
Bullet resistance	npd	FB1	FB2		FB3	FB4		FB5	FB6		FB7	FSG
Explosion resistance Shock tube	npd	EPR1			EPR2			EPR3			EPR4	
Explosion resistance Range test	npd	EXR1			EXR2		EXR3		EXR4		EXR5	
Resistance to repeated opening and closing Number of cycles	npd	5000				10 000				20 000		
Behaviour between different climates	npd	Under development										
Burglar resistance	npd	1		2		3		4		5	6	

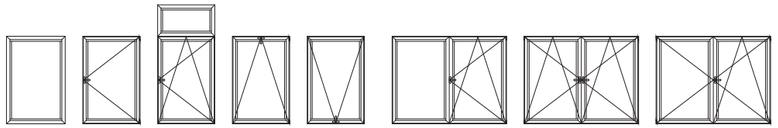
NOTE 1: npd: no performance determined
NOTE 2: The figures in brackets are for information

[a] Only if safety device(s) is(are) not provided
[b] Manually operated windows only

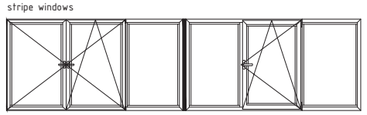
TABLES

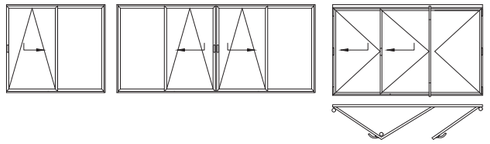
TYPOLOGIES / LIST OF PROFILES / CHARACTERISTICS

opening system with thermal break E68



stripe windows

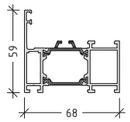
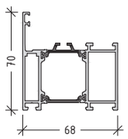
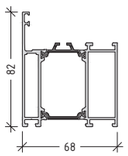
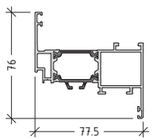
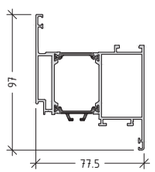
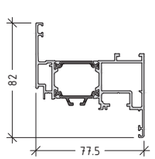
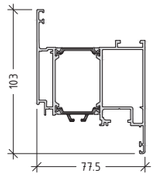
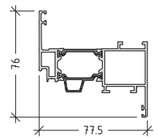
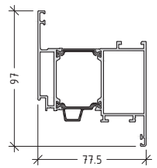
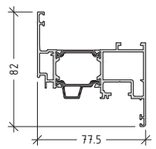
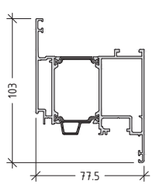
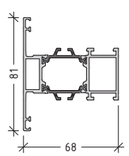




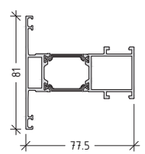
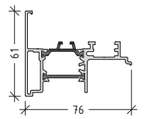
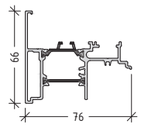
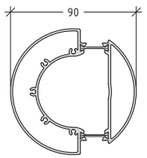
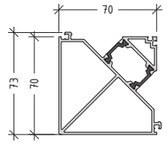
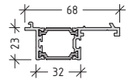
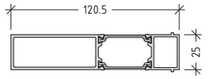
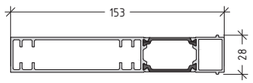
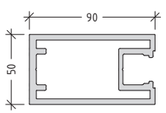
opening schemes:

321;330;431;541;550;
532;651;633;761;770;743

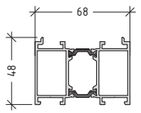
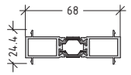
G68-1

code	profile	weight length moment of inertia
E68100 frame		1491 g/m L=6.01 m Ix=9.76 cm^4 Iy=30.15 cm^4
E68101 frame		1701 g/m L=6.01 m Ix=17.5 cm^4 Iy=35.21 cm^4
E68102 frame		1913 g/m L=6.01 m Ix=29.78 cm^4 Iy=40.73 cm^4
E68200 casement EURO groove HI version		1549 g/m L=6.01 m Ix=11.8 cm^4 Iy=41.63 cm^4
E68201 casement EURO groove HI version		1936 g/m L=6.01 m Ix=30.95 cm^4 Iy=54.2 cm^4
E68220 casement PVC groove HI version		1690 g/m L=6.01 m Ix=14.86 cm^4 Iy=45.54 cm^4
E68221 casement PVC groove HI version		2077 g/m L=6.01 m Ix=37.2 cm^4 Iy=58.18 cm^4
E68205 casement EURO groove STANDARD version		1550 g/m L=6.01 m Ix=11.8 cm^4 Iy=41.63 cm^4
E68206 casement EURO groove STANDARD version		1935 g/m L=6.01 m Ix=30.95 cm^4 Iy=54.2 cm^4
E68225 casement PVC groove STANDARD version		1691 g/m L=6.01 m Ix=0.00 cm^4 Iy=0.00 cm^4
E68226 casement PVC groove STANDARD version		2078 g/m L=6.01 m Ix=14.86 cm^4 Iy=45.54 cm^4
E68300 T profile for frame		1597 g/m L=6.01 m Ix=30.95 cm^4 Iy=54.2 cm^4

L68-01

code	profile	weight length moment of inertia
E68340 T profile for casement		1613 g/m L=6.01 m Ix=14.17 cm^4 Iy=33.25 cm^4
E68500 overhung EURO groove		1359 g/m L=6.01 m
E68540 overhung PVC groove		1443 g/m L=6.01 m
E75603 round column		L=6.01 m 2232 g/m Ix=56.34 cm^4 Iy=55.75 cm^4
E75602 adapter		L=6.01 m 216 g/m
E62600 cap		85 g/m L=6.01 m
E4268600 90° column		2085 g/m L=6.01 m Ix=43.17 cm^4 Iy=43.17 cm^4
E68606 adapter for facade		865 g/m L=6.01 m Ix=1.49 cm^4 Iy=10.96 cm^4
E50690 Intermediate profile		1550 g/m L=6.01 m Ix=5.03 cm^4 Iy=79.15 cm^4
E50691 Intermediate profile		2046 g/m L=6.01 m Ix=7.09 cm^4 Iy=161.25 cm^4
E62050 reinforce profile		3555 g/m L=6.01 m Ix=47.52 cm^4 Iy=129.45 cm^4
E22616 cap		105 g/m L=6.01 m

L68-02

code	profile	weight length moment of inertia
E68610 frame extension		1570 g/m L=6.01 m
E68655 connecting profile		916 g/m L=6.01 m
E4275606 alignment profile		120 g/m L=6.01 m
E2308 operating rod		L=4.4 m 159 g/m
E2357 drip profile		L=6.01 m 144 g/m
E4275607 dilatation profile		257 g/m L=6.01 m

code	profile	weight length moment of inertia
E4060307 glazing bead		262 g/m L=6.01 m
E4060310 glazing bead		277 g/m L=6.01 m
E4060312 glazing bead		287 g/m L=6.01 m
E4060315 glazing bead		287 g/m L=6.01 m
E4060317 glazing bead		297 g/m L=6.01 m
E4060320 glazing bead		305 g/m L=6.01 m

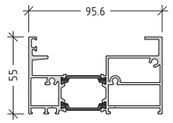
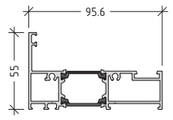
L68-03

code	profile	weight length moment of inertia
E4060322 glazing bead		314 g/m L=6.01 m
E4060325 glazing bead		324 g/m L=6.01 m
E4060327 glazing bead		335 g/m L=6.01 m
E4060330 glazing bead		345 g/m L=6.01 m
E4060332 glazing bead		355 g/m L=6.01 m
E4060335 glazing bead		385 g/m L=6.01 m

code	profile	weight length moment of inertia
E4060337 glazing bead		395 g/m L=6.01 m
E4060807 glazing bead		318 g/m L=6.01 m
E4060810 glazing bead		328 g/m L=6.01 m
E4060812 glazing bead		338 g/m L=6.01 m
E4060815 glazing bead		337 g/m L=6.01 m
E4060817 glazing bead		347 g/m L=6.01 m

L68-04

code	profile	weight length moment of inertia
E4060820 glazing bead		357 g/m L=6.01 m
E4060822 glazing bead		356 g/m L=6.01 m
E4060825 glazing bead		366 g/m L=6.01 m
E4060827 glazing bead		376 g/m L=6.01 m
E4060830 glazing bead		386 g/m L=6.01 m
E4060832 glazing bead		396 g/m L=6.01 m

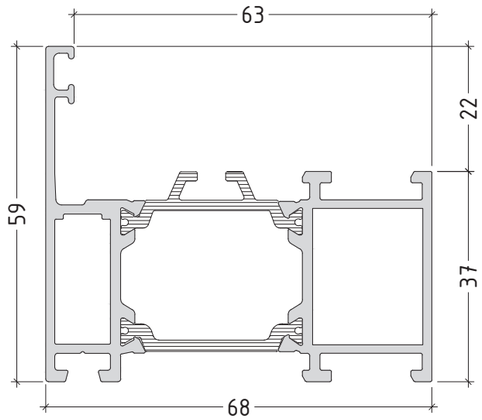
code	profile	weight length moment of inertia
E4060835 glazing bead		430 g/m L=6.01 m
E4060837 glazing bead		440 g/m L=6.01 m
E4268610 top receptor		2196 g/m L=6.01 m
E4268611 bottom receptor		1686 g/m L=6.01 m
E4260613 glazing bead		343 g/m L=6.01 m
E4260612 glazing bead		362 g/m L=6.01 m

L68-05

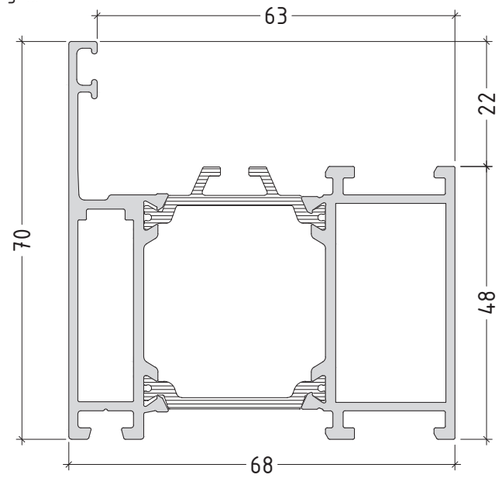
PROFILES

DRAWINGS SCALE 1:1

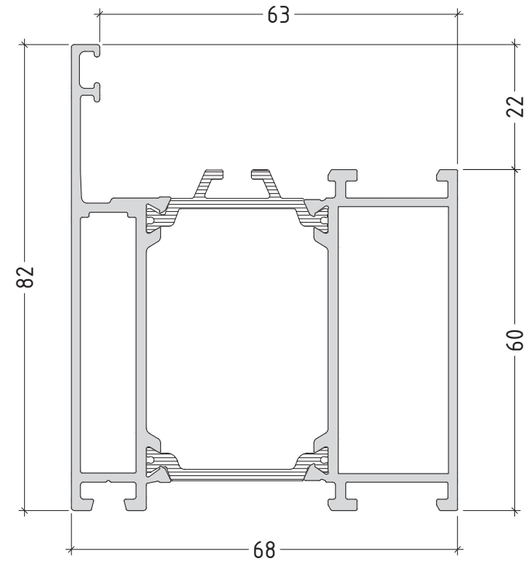
E68100
1491 g/m



E68101
1701 g/m



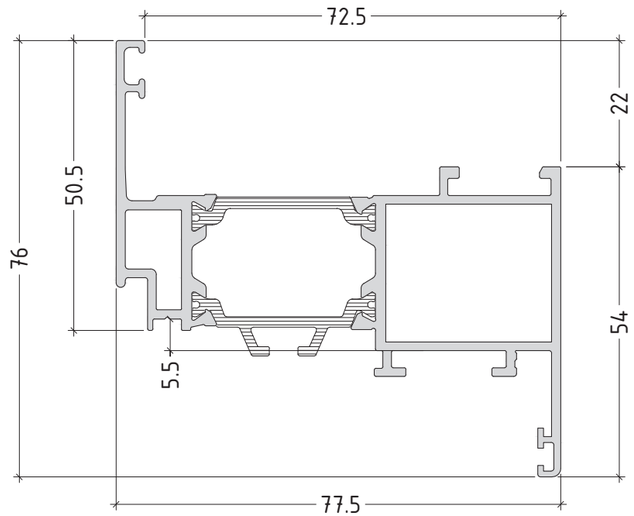
E68102
1913 g/m



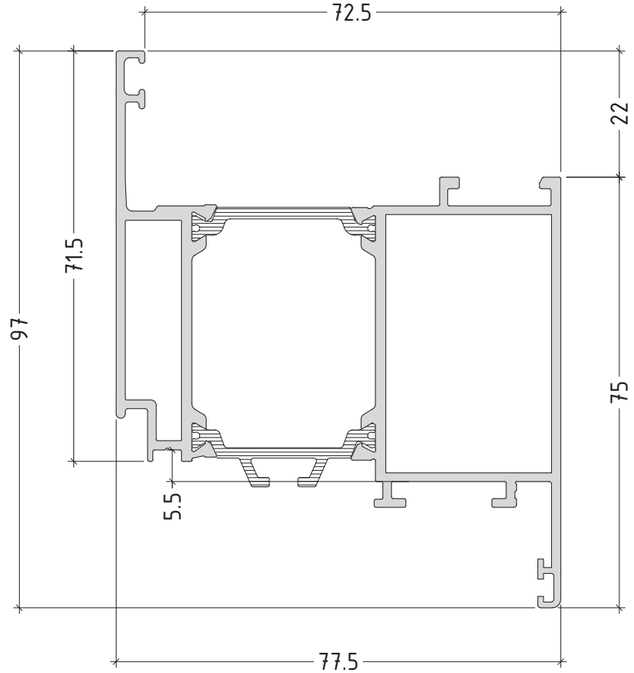
scale : 1:1

P68-01

E68200
1549 g/m



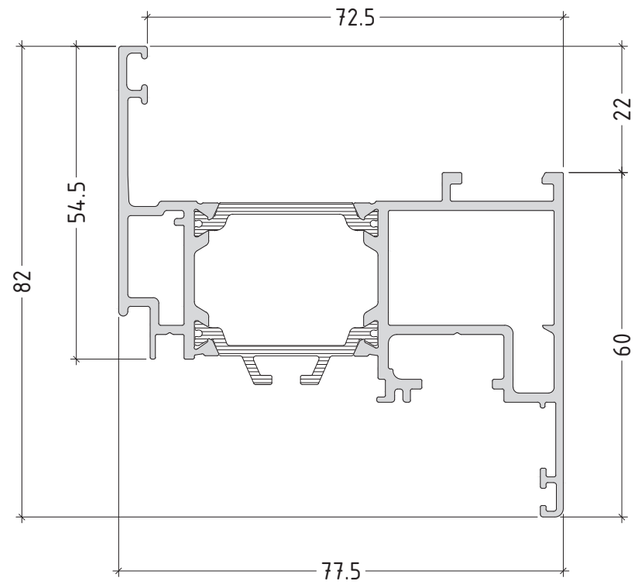
E68201
1936 g/m



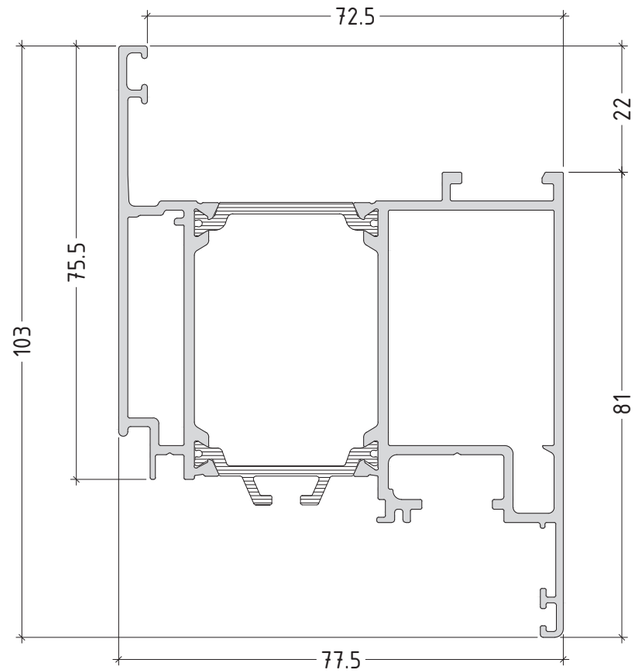
scale : 1:1

P68_02

E68220
1690 g/m



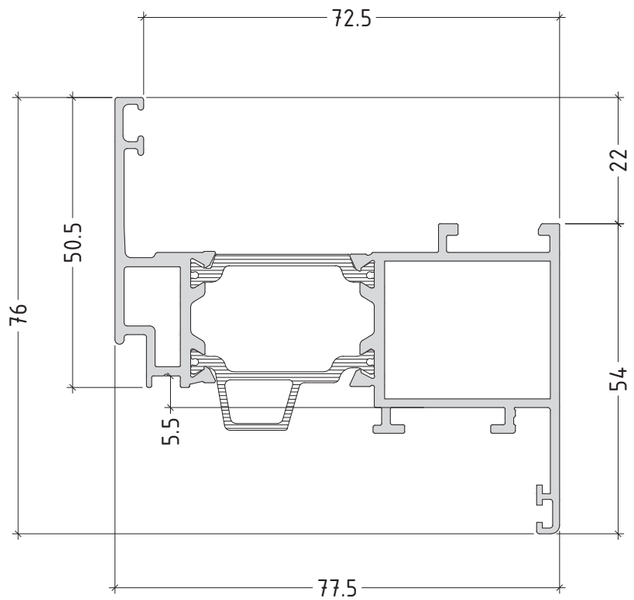
E68221
2077 g/m



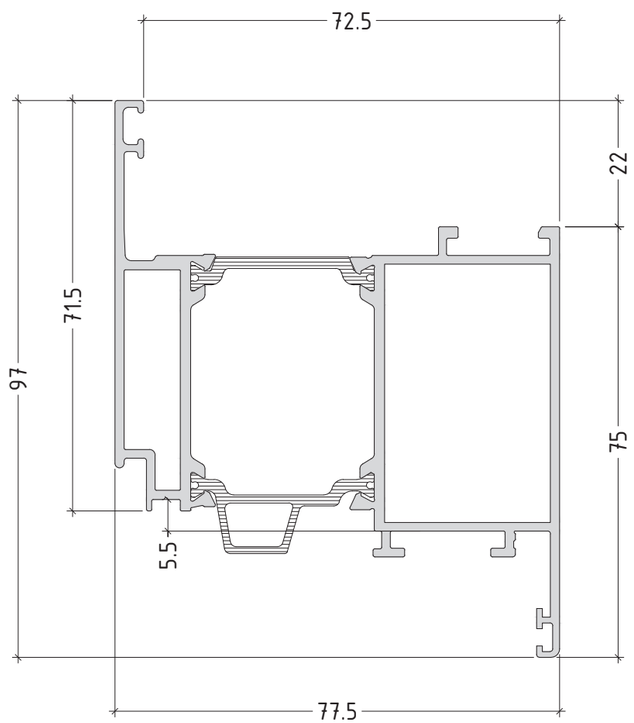
scale : 1:1

P68_03

E68205
1550 g/m



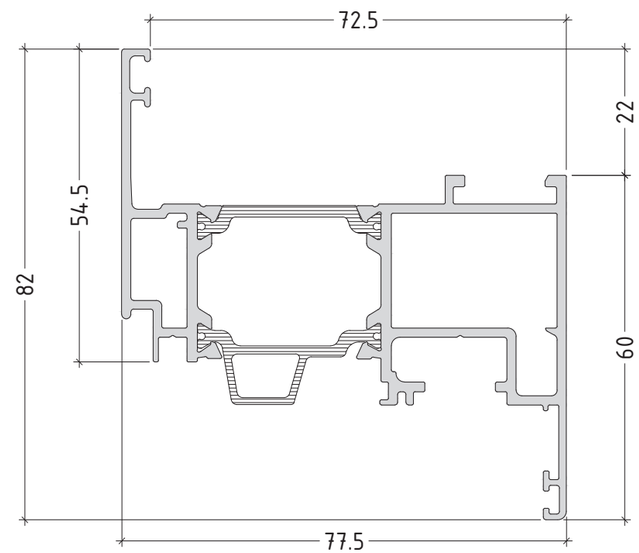
E68206
1935 g/m



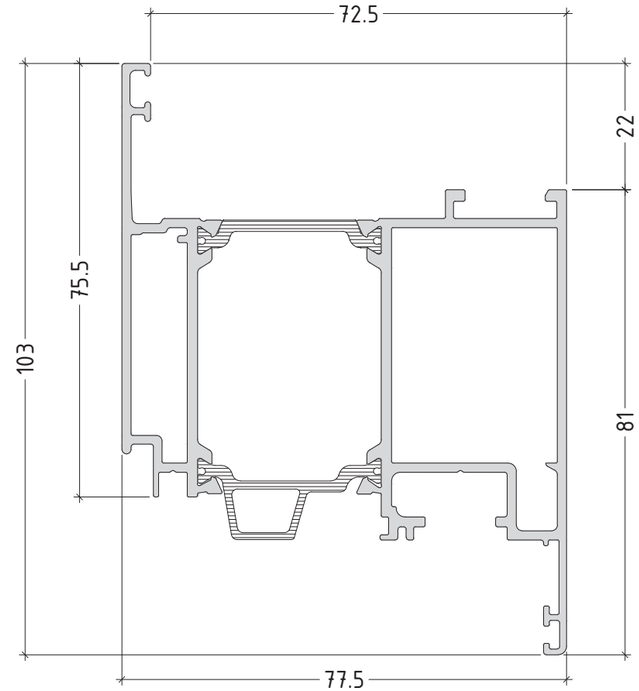
scale : 1:1

P68_04

E68225
1691 g/m



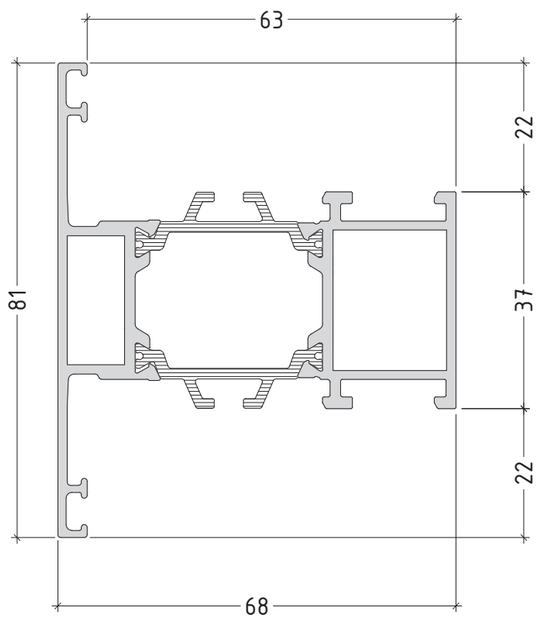
E68226
2078 g/m



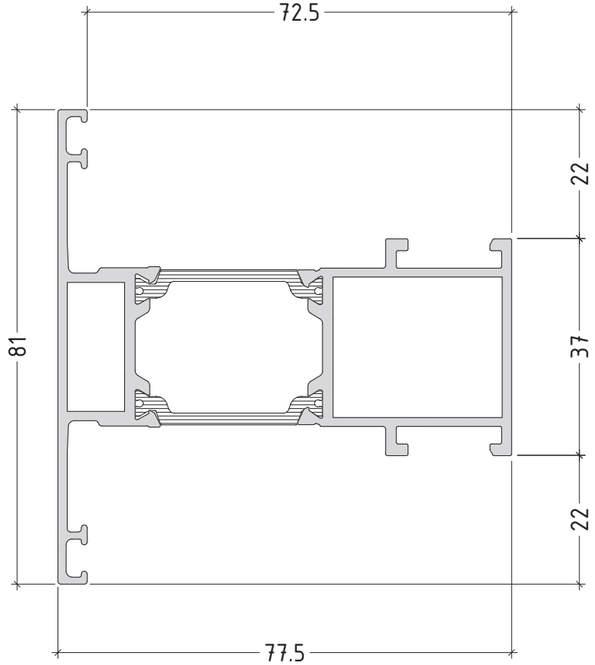
scale : 1:1

P68_05

E68300
1597 g/m



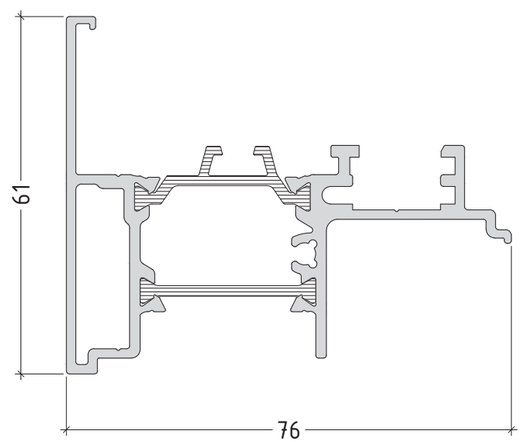
E68340
1613 g/m



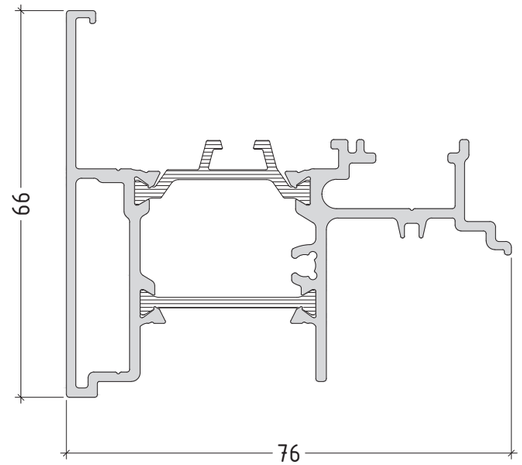
scale : 1:1

P68-06

E68500
1359 g/m



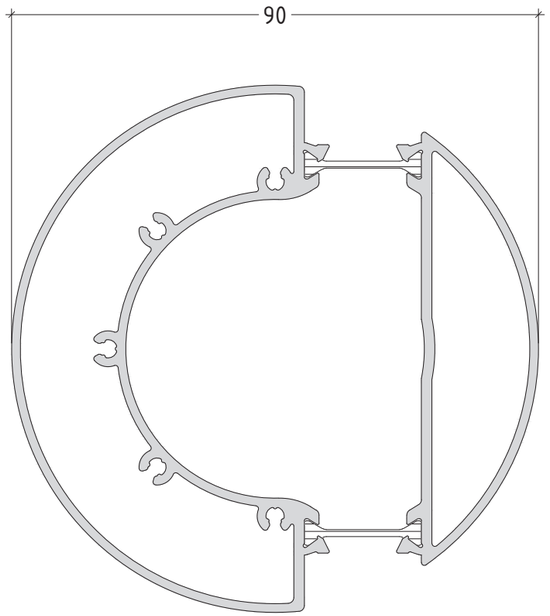
E68540
1443 g/m



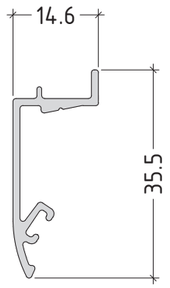
scale : 1:1

P68-07

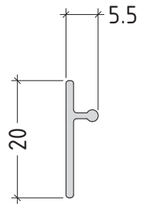
E75603
2232 g/m



E75602
216 g/m



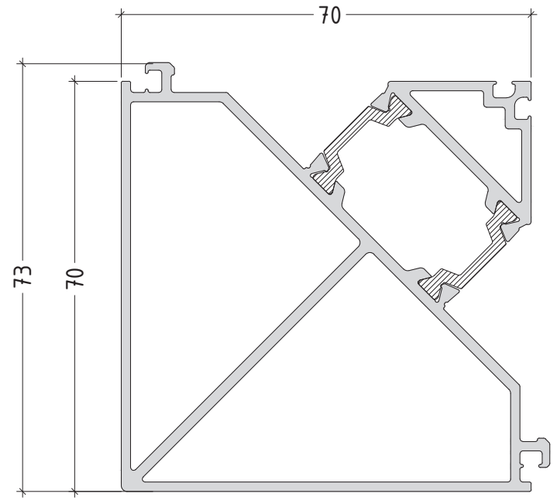
E62600
85 g/m



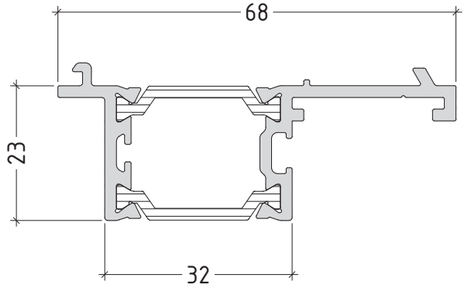
scale : 1:1

P68_08

E4268600
2085 g/m



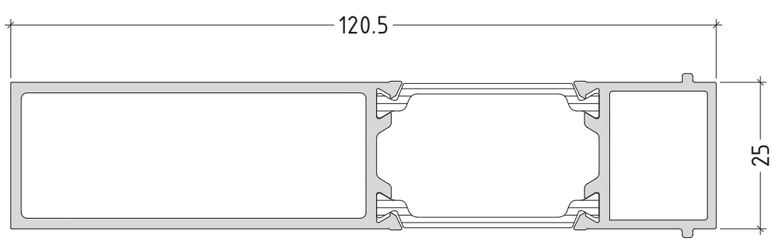
E68606
865 g/m



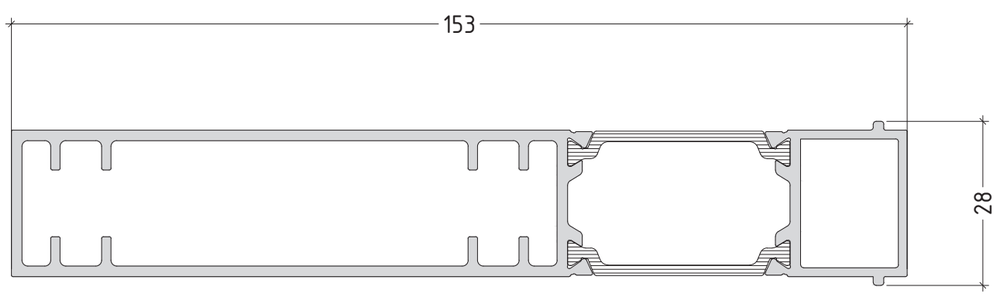
scale : 1:1

P68_09

E50690
1550 g/m



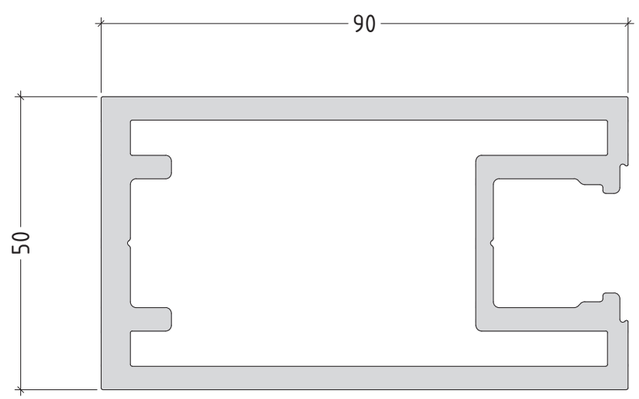
E50691
2046 g/m



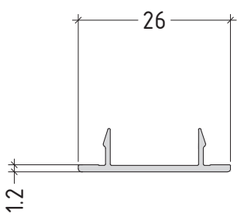
scale : 1:1

P68-10

E6205
3555 g/m



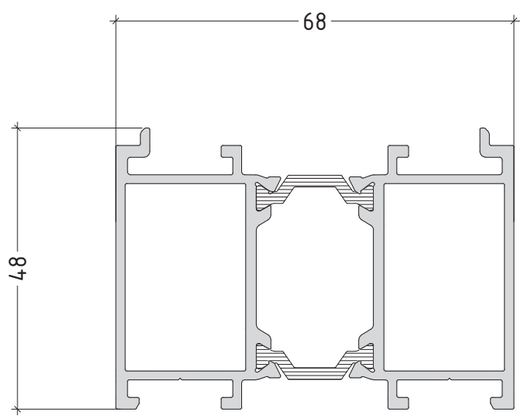
E22616
105 g/m



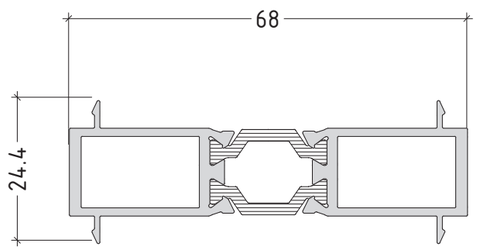
scale : 1:1

P68-11

E68610
1570 g/m



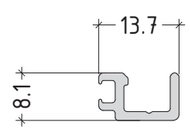
E68655
916 g/m



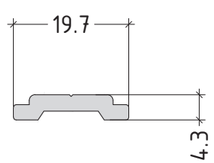
scale : 1:1

P68-12

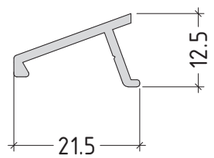
E4275606
120 g/m



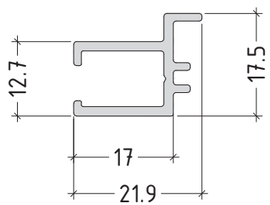
E2308
159 g/m



E2357
144 g/m

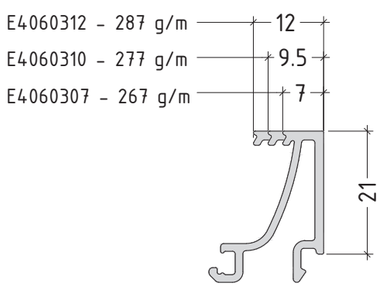


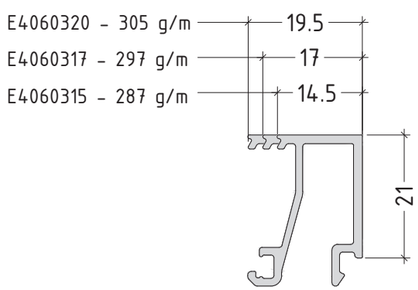
E4275607
257 g/m

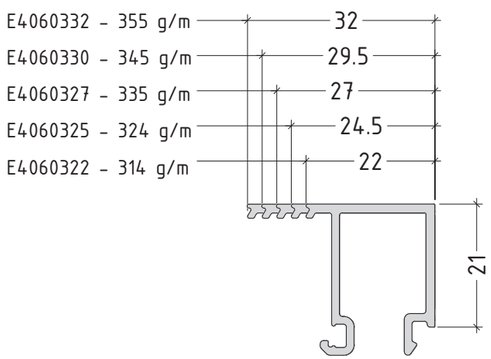


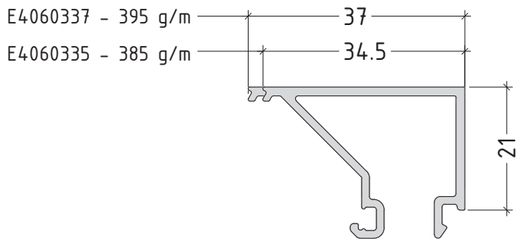
scale : 1:1

P68-13



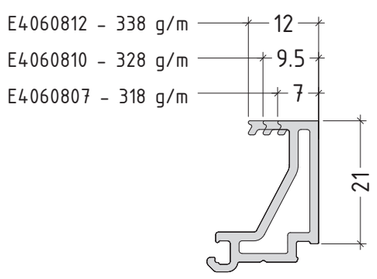


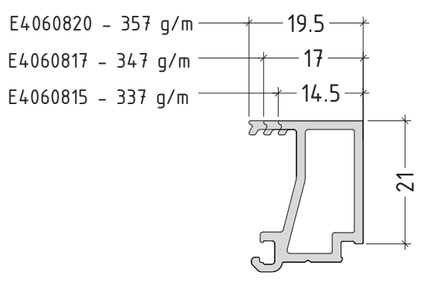


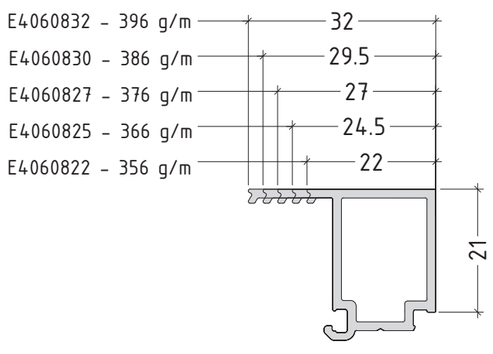


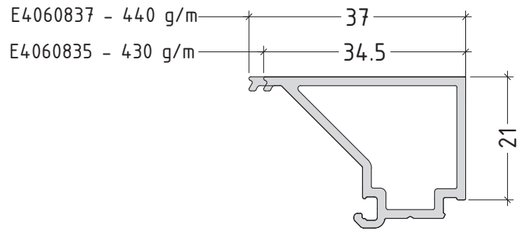
scale : 1:1

P68-14





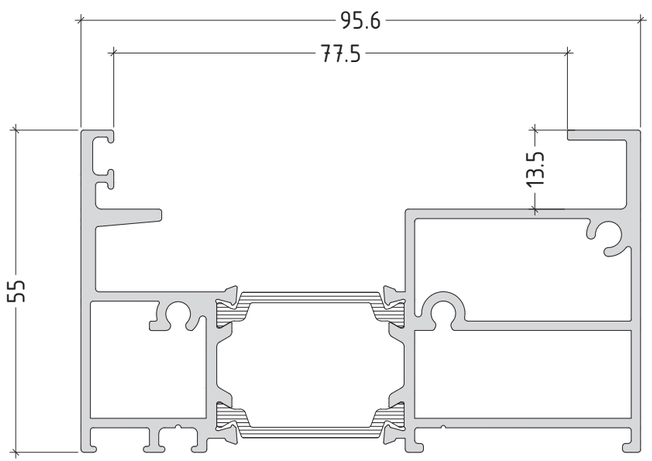




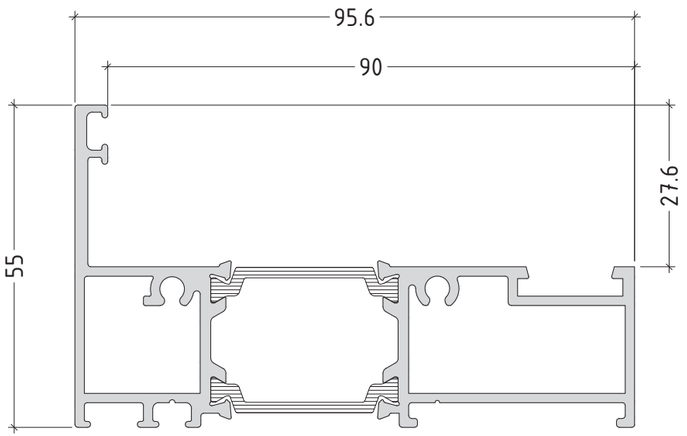
scale : 1:1

P68-15

E4268610
2196 g/m



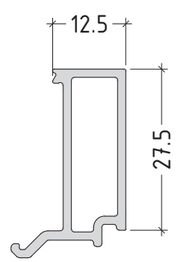
E4268611
1686 g/m



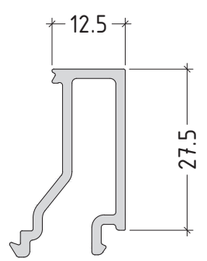
scale : 1:1

P68-16

E4260613
343 g/m



E4260612
362 g/m



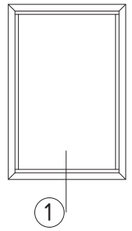
scale : 1:1

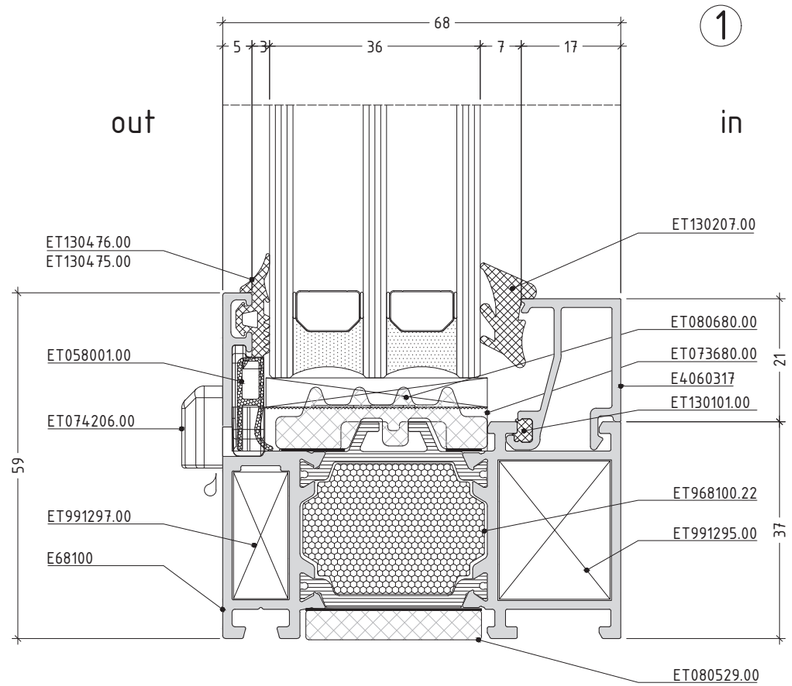
P68-17

SECTIONS

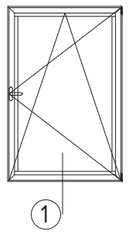
SECTIONS / DETAILS

E68
HIGH +

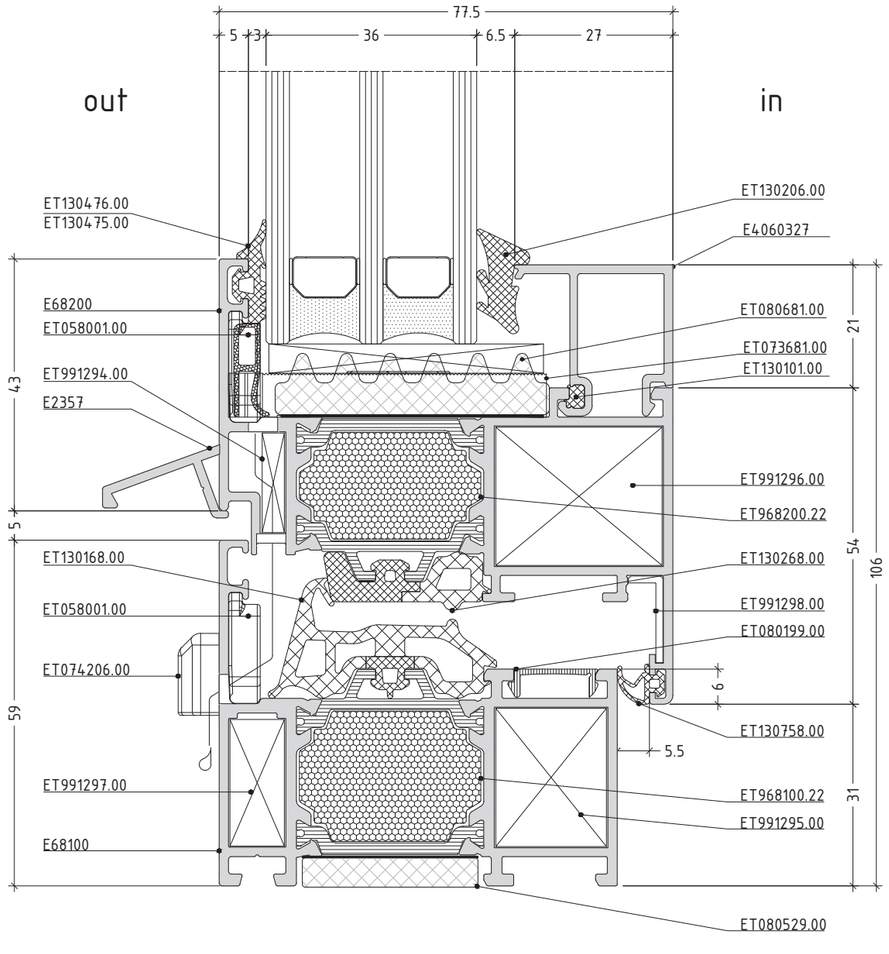

1


1
out
in
68
5
3
36
7
17
ET130476.00
ET130475.00
ET058001.00
ET074206.00
ET991297.00
E68100
ET130207.00
ET080680.00
ET073680.00
E4060317
ET130101.00
ET968100.22
ET991295.00
ET080529.00
59
21
37

scale : 1:1



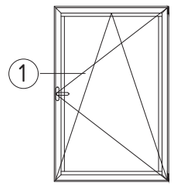
1



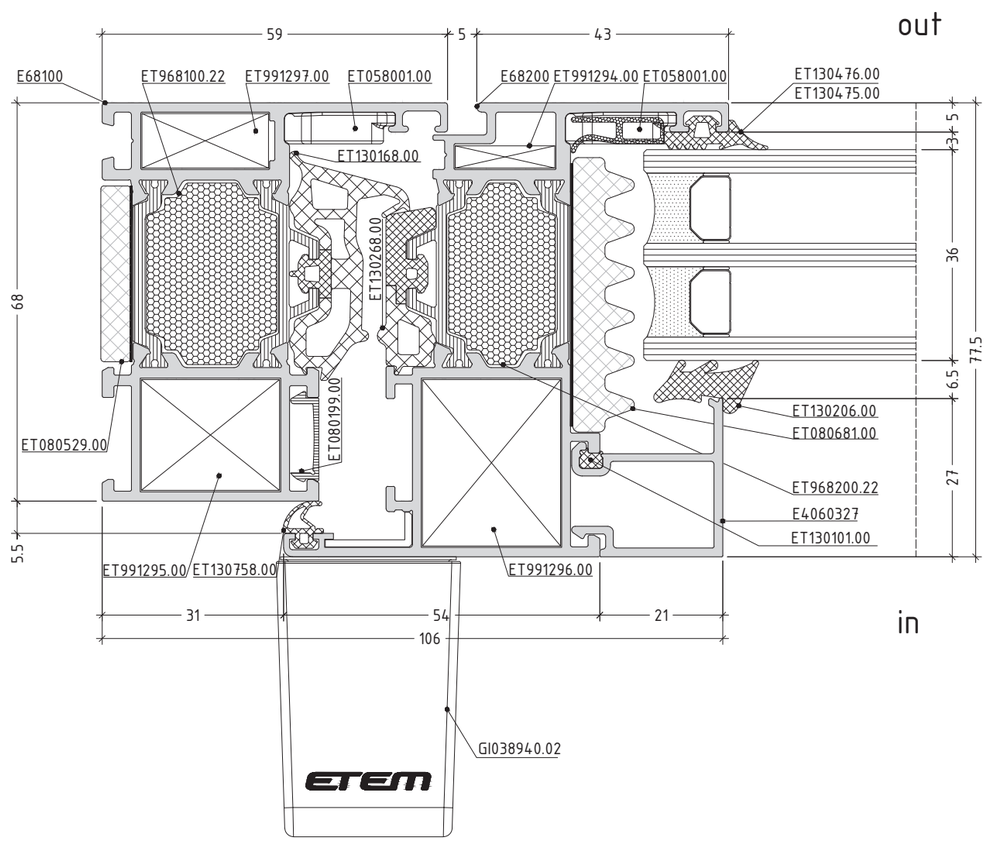
scale : 1:1

D68-2

opening system with thermal break E68

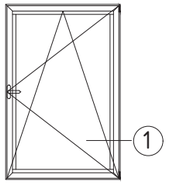


1

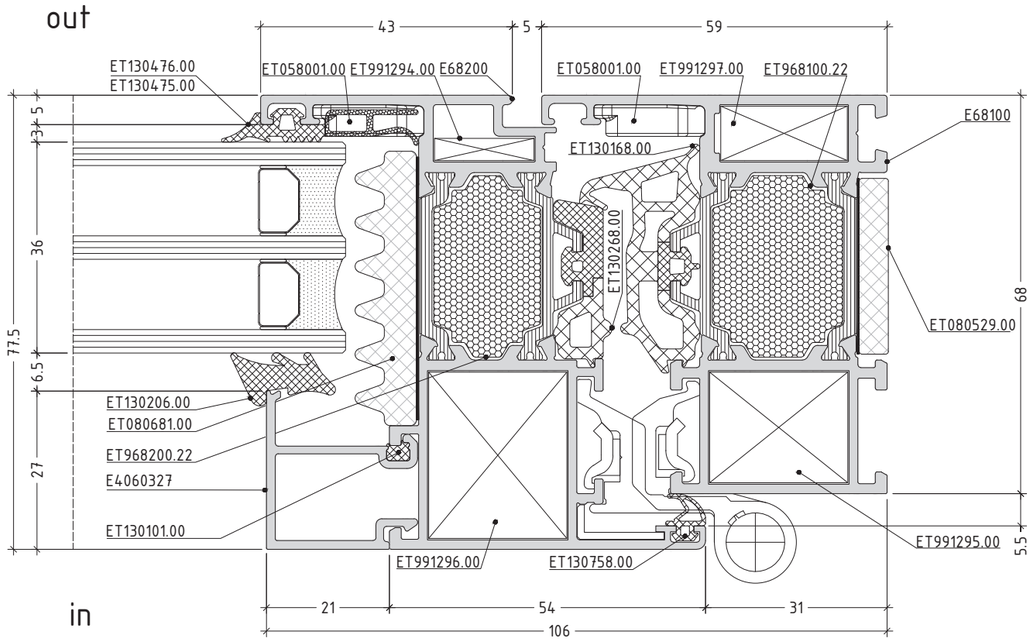


scale : 1:1

D68-3

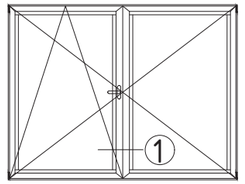


1



scale : 1:1

D68-4



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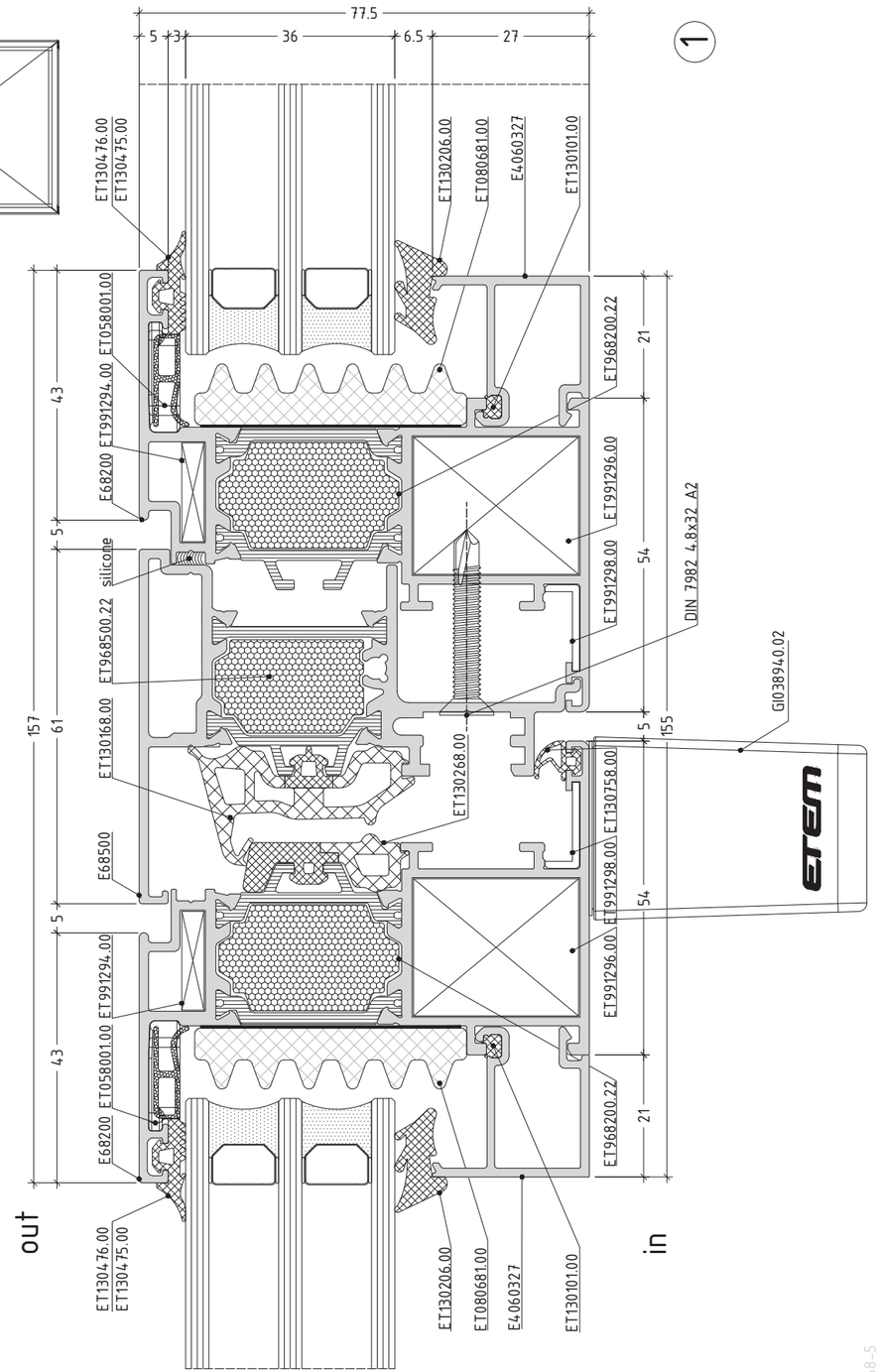
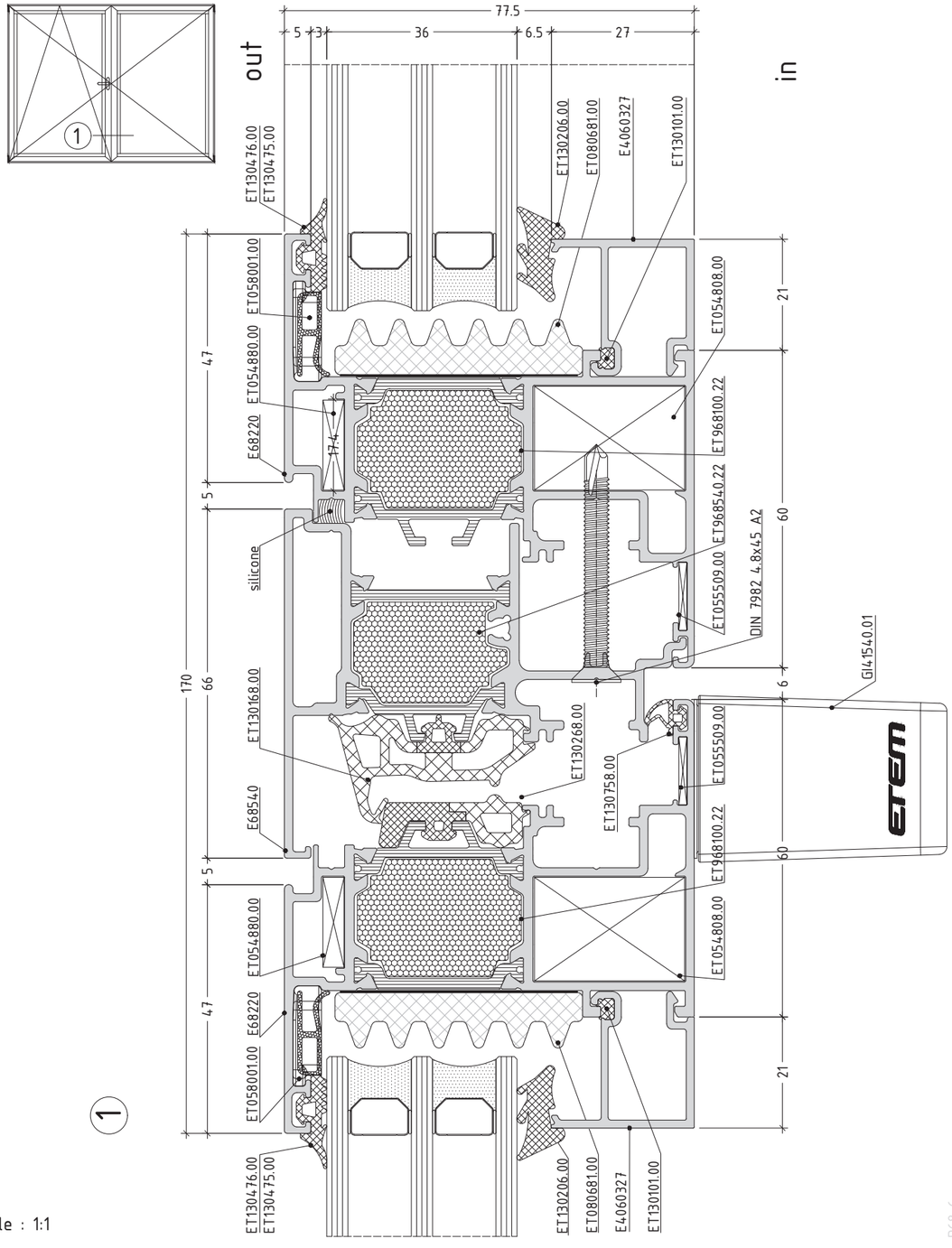


scale : 1:1

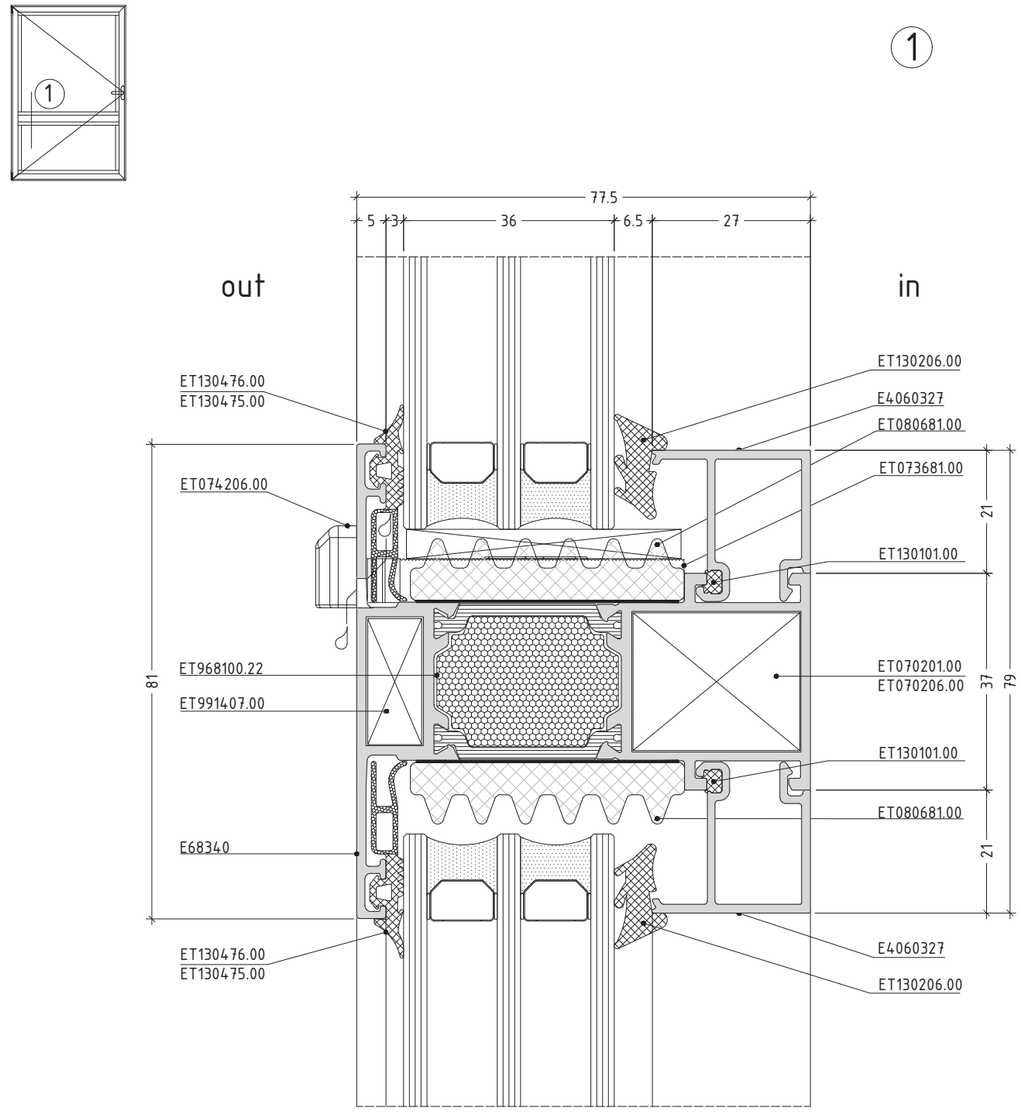
D68-5



scale : 1:1

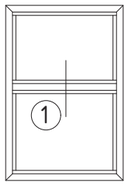
D68-6

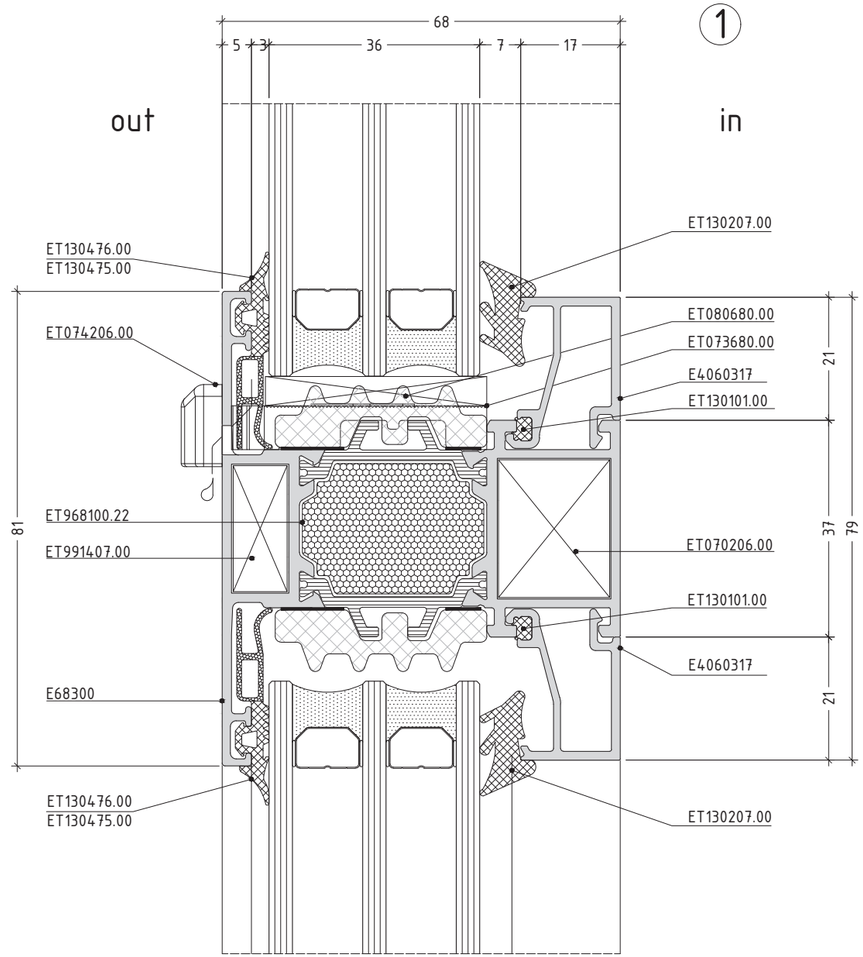
opening system with thermal break E68



scale : 1:1

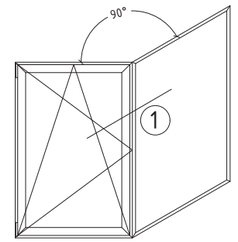
D68-7

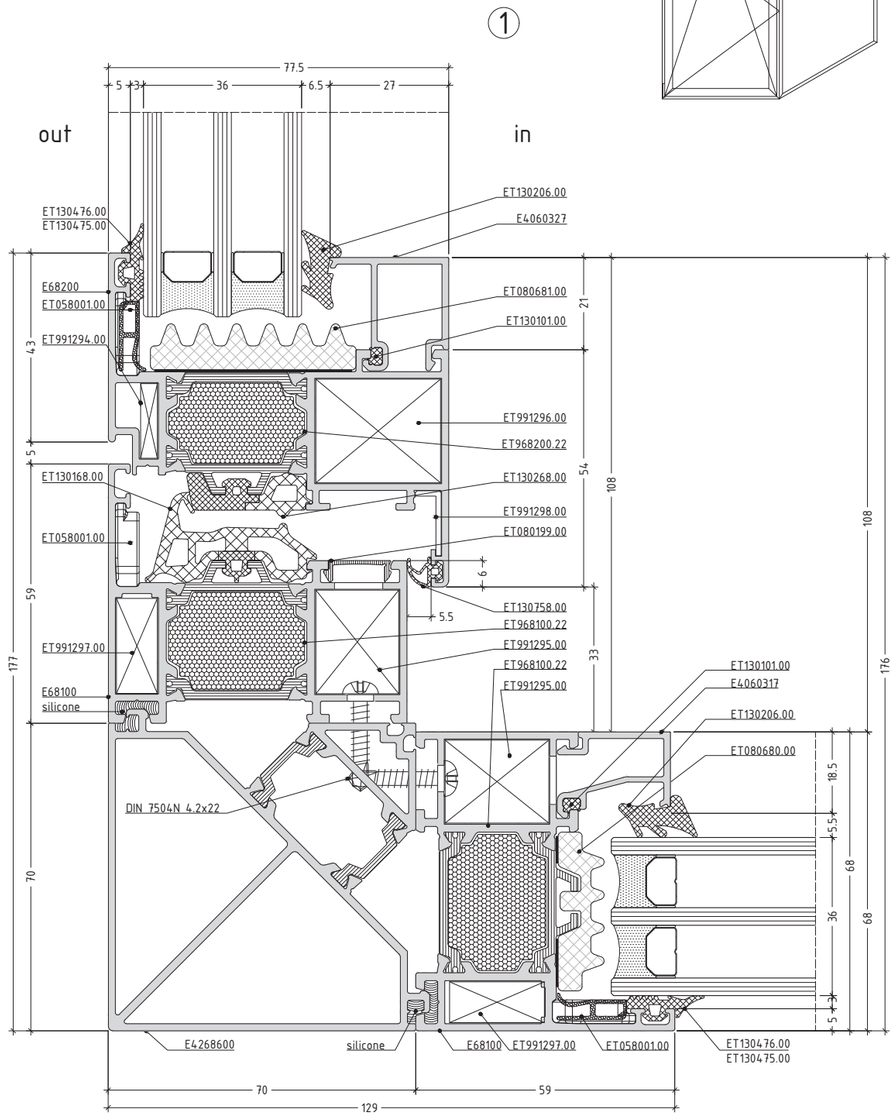




scale : 1:1

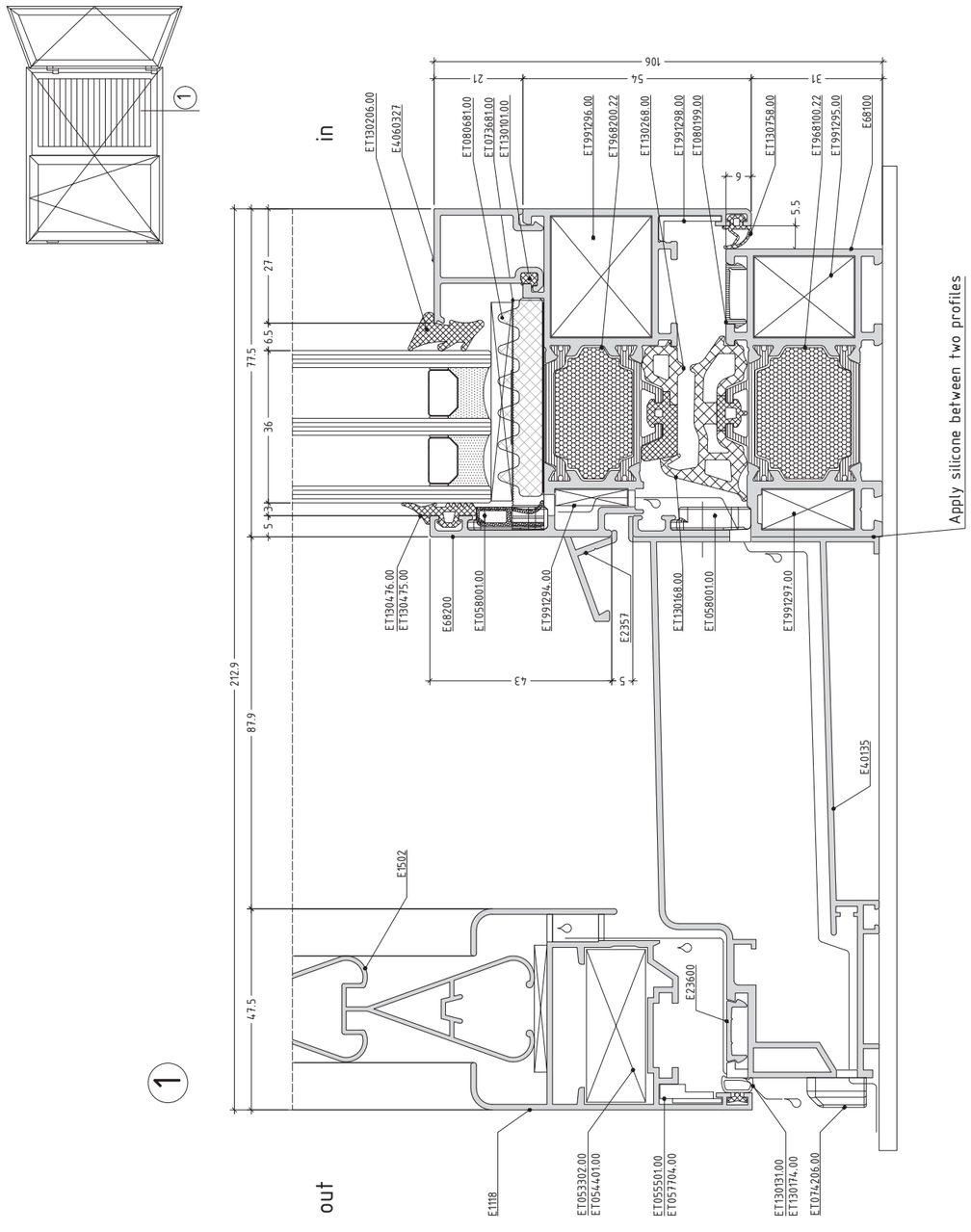
D68-8





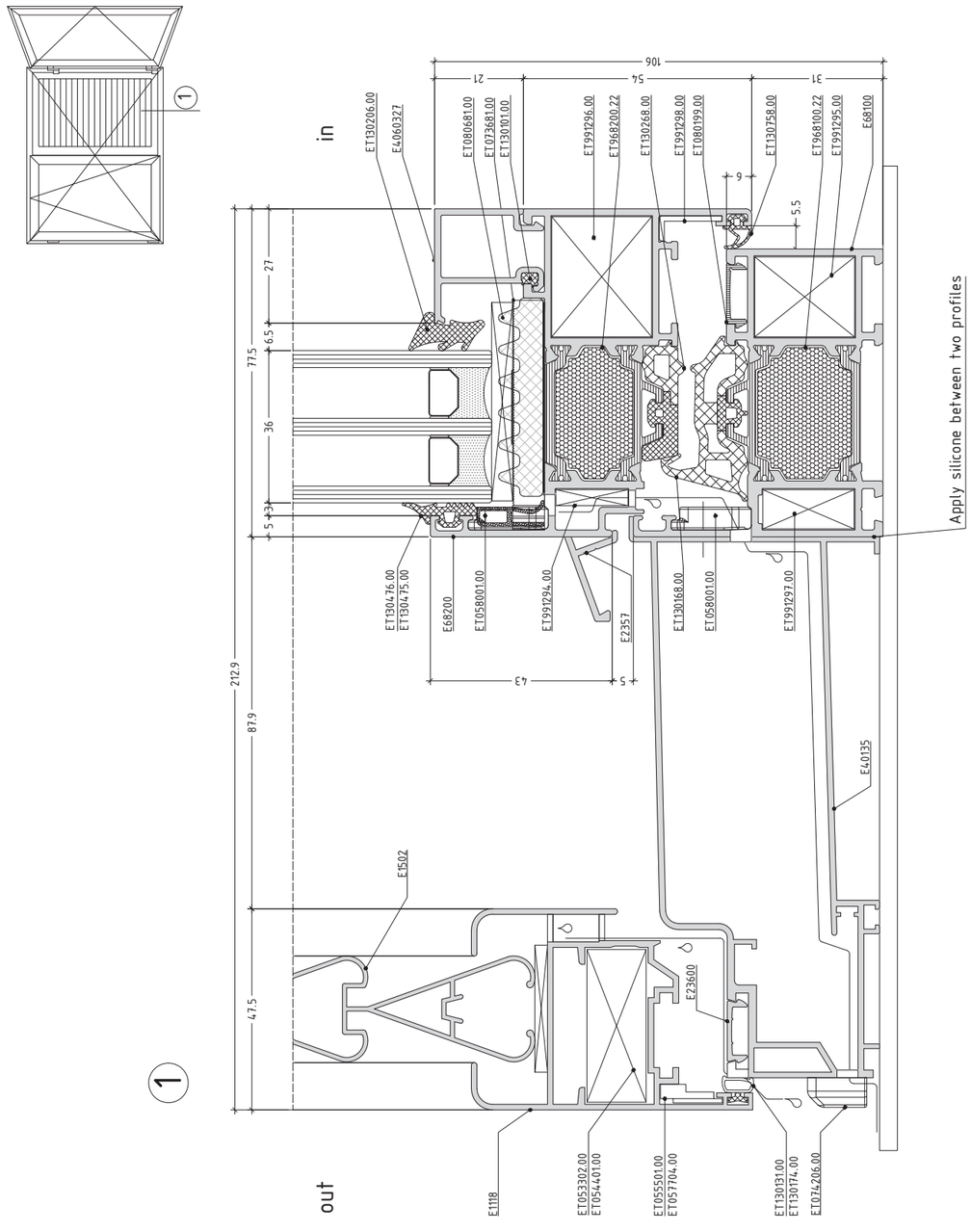
scale : 3/4

D68-9

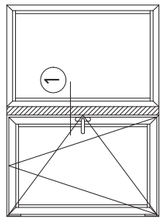


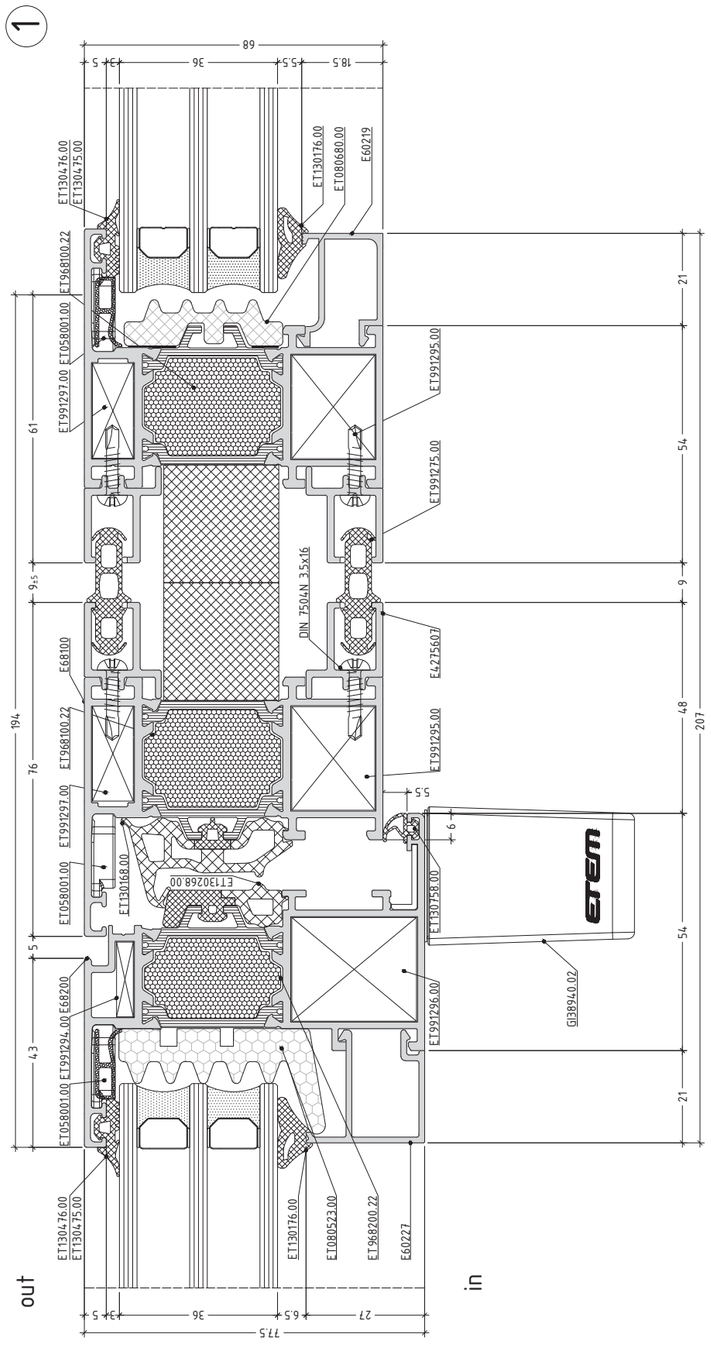
scale : 3/4

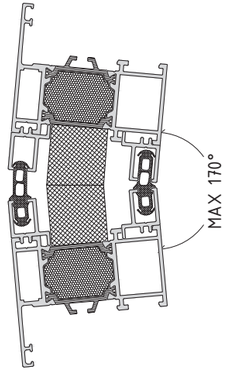
opening system with thermal break E68



scale : 3/4



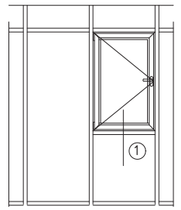


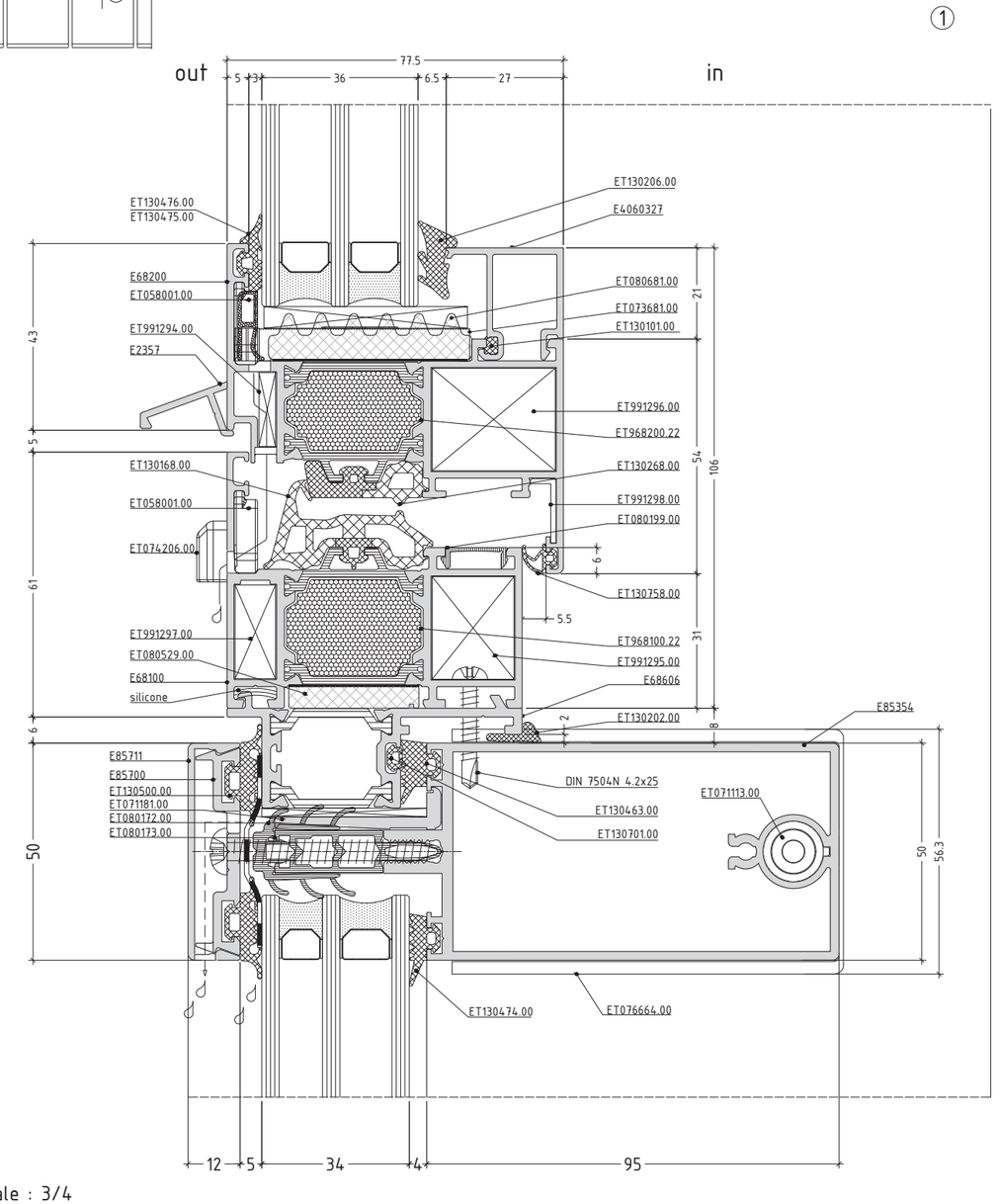


scale : 3/4

D68-12

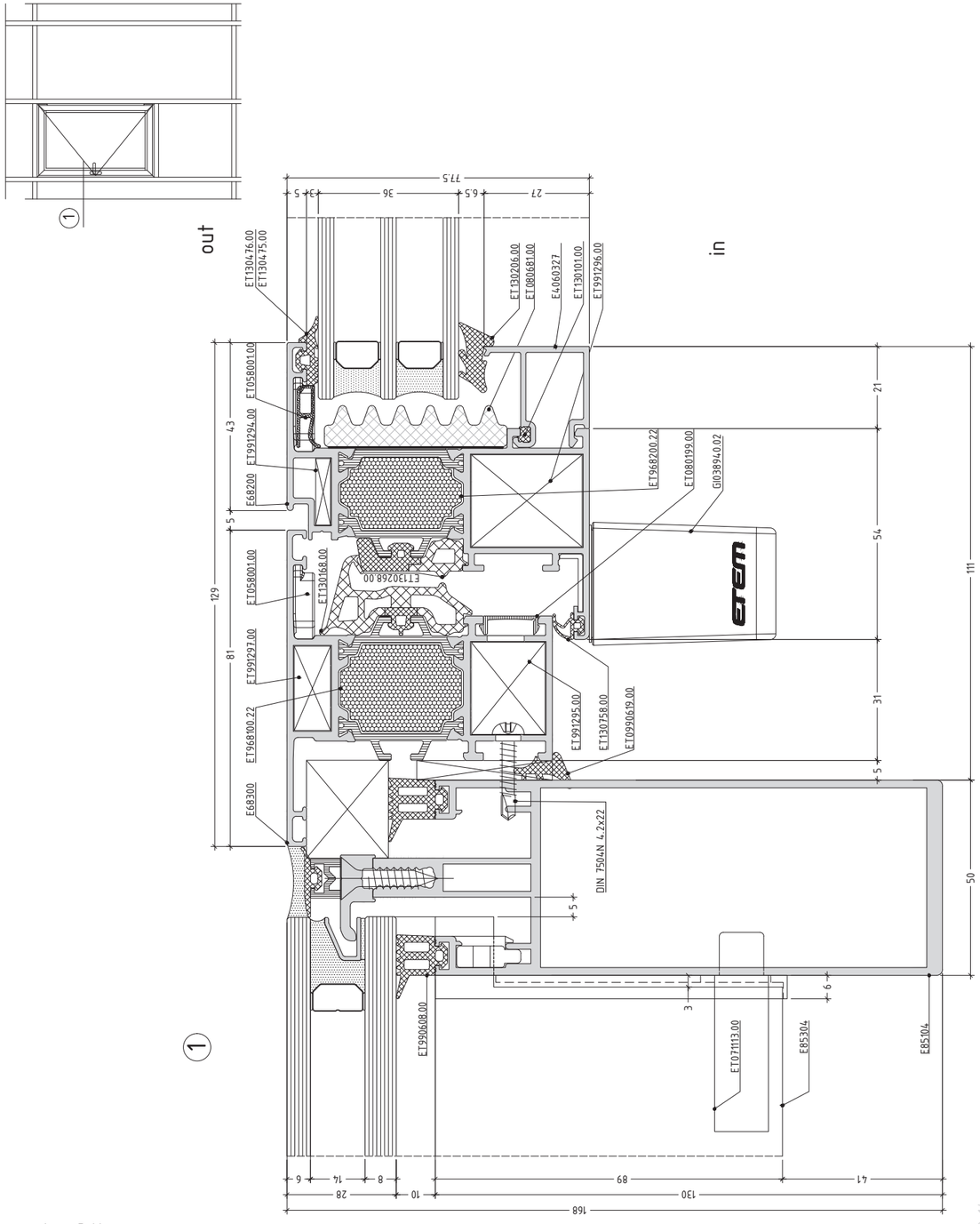
HIGH +





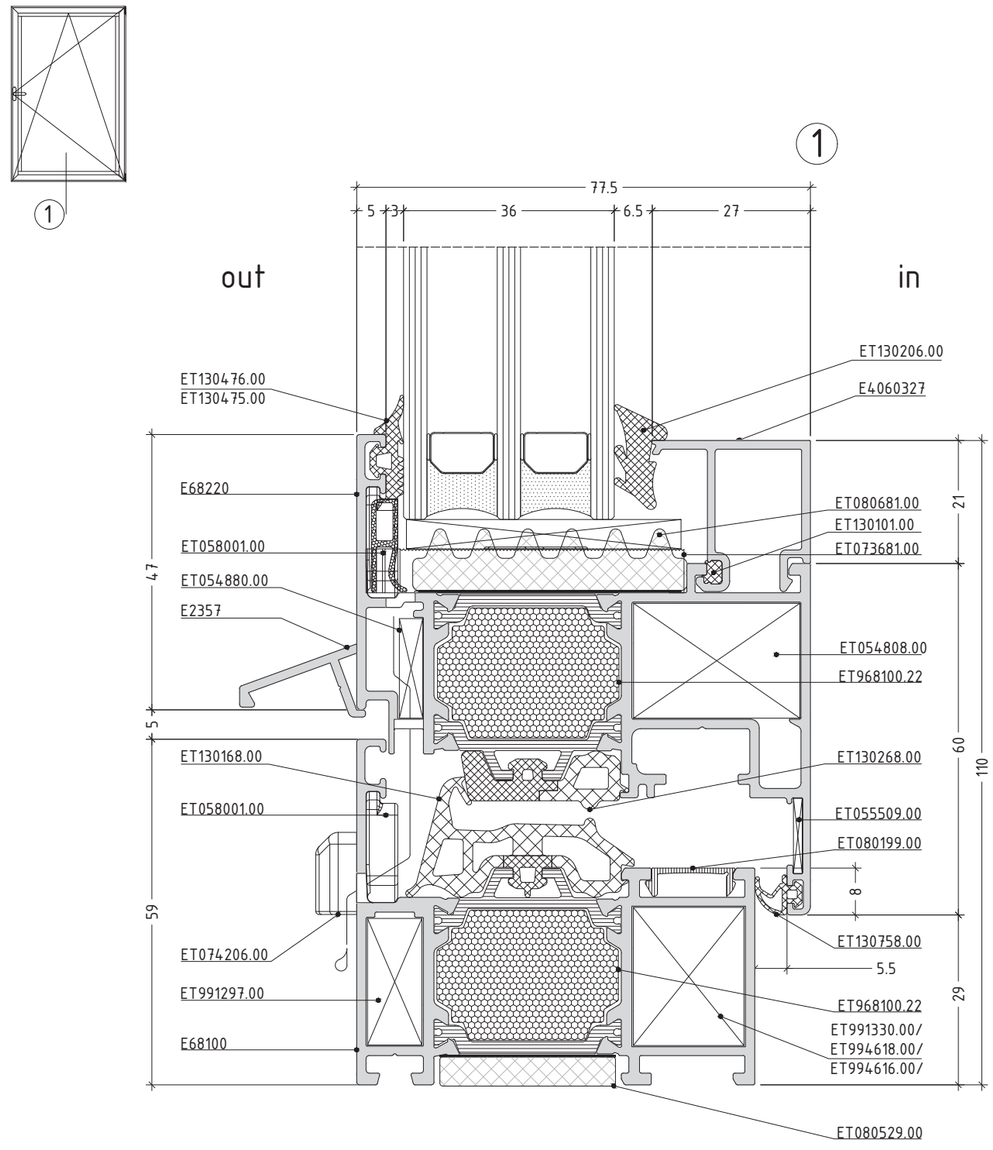
scale : 3/4

D68-13-1



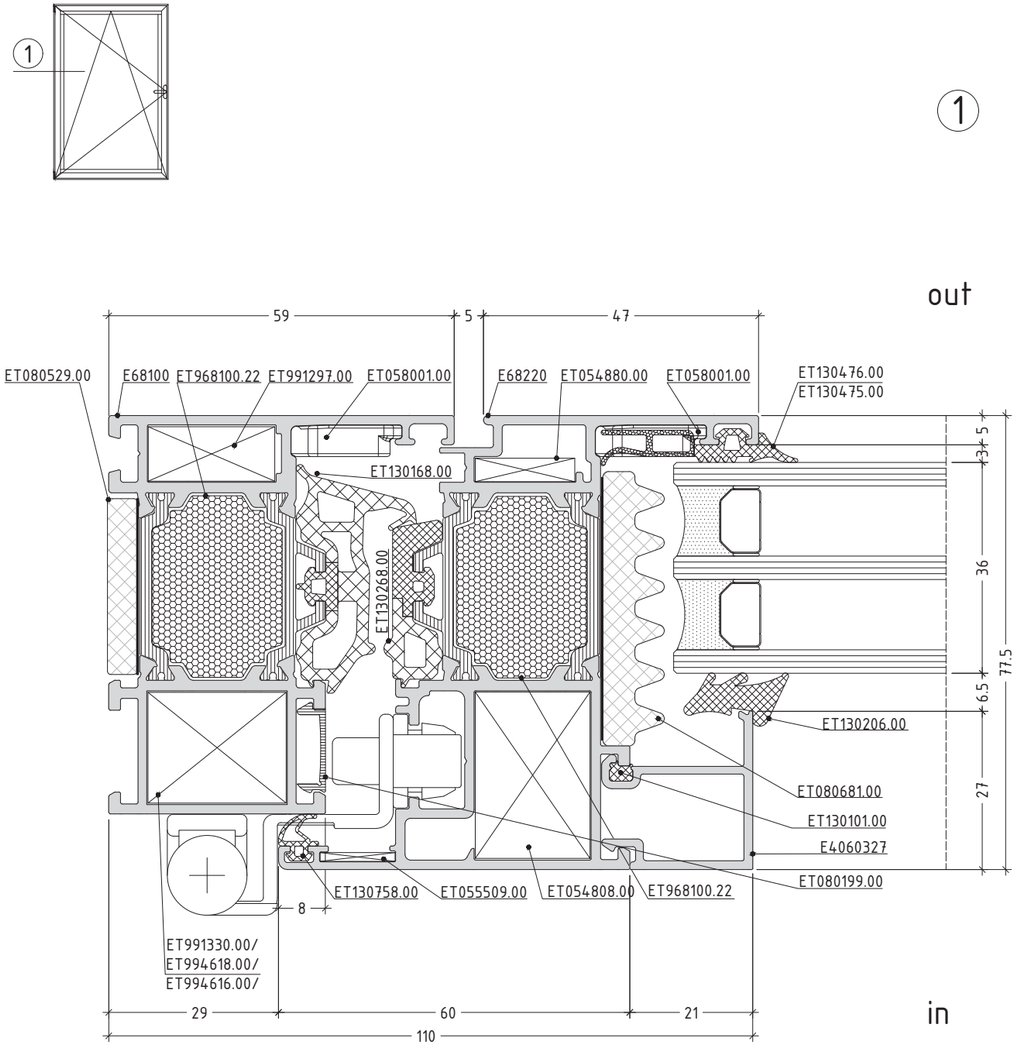
scale : 3/4

D68-14



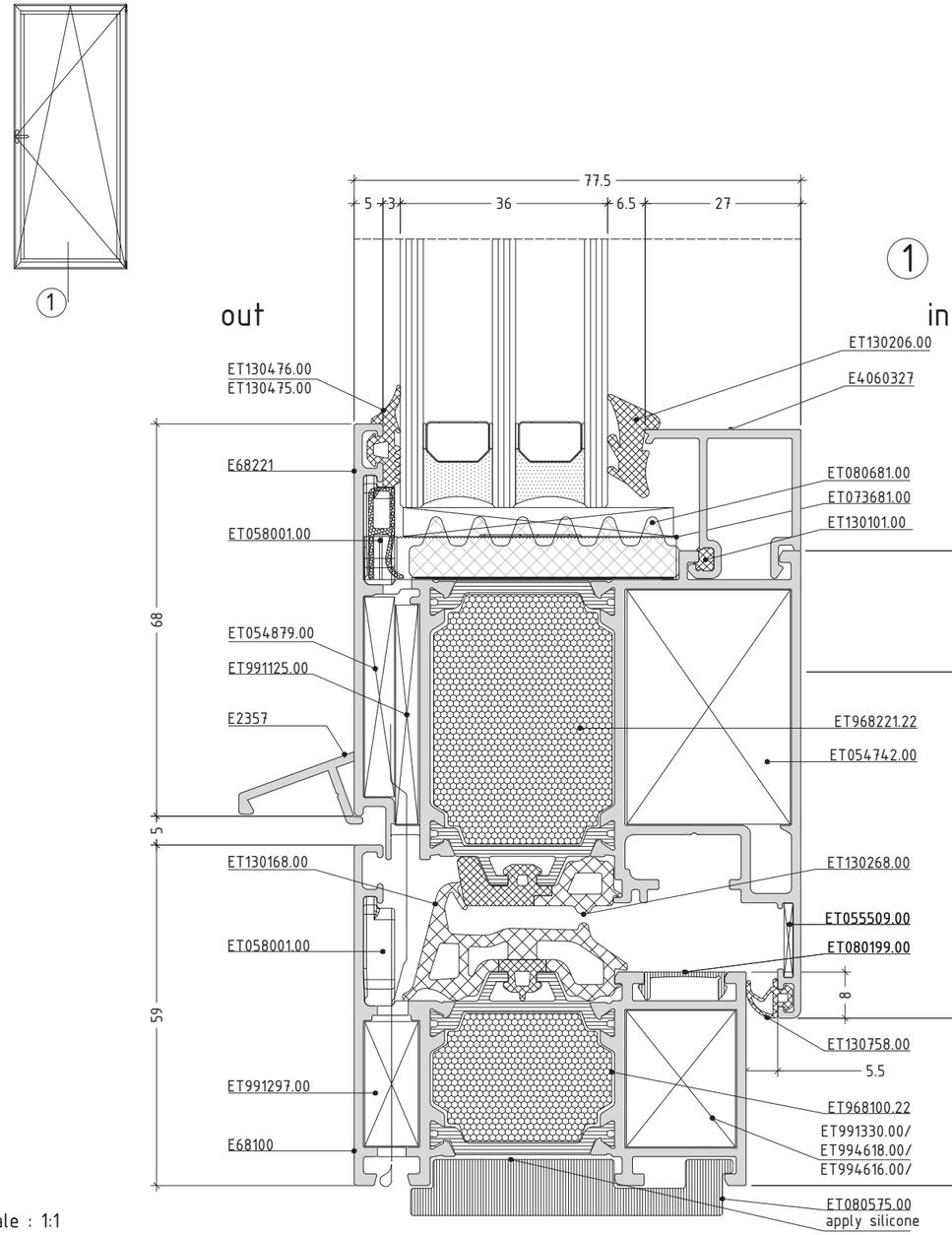
scale : 1:1

D68-15



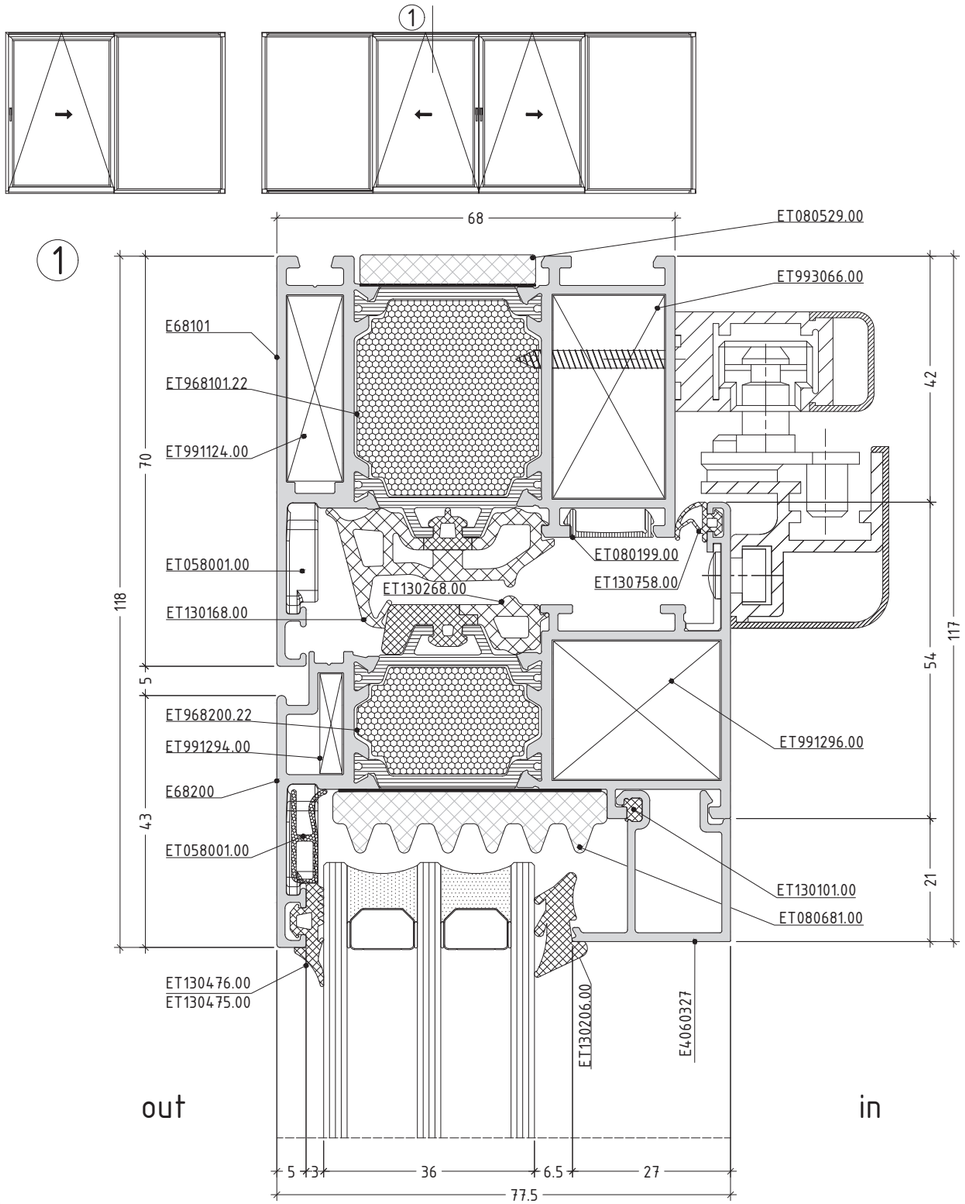
scale : 1:1

D68-16



scale : 1:1

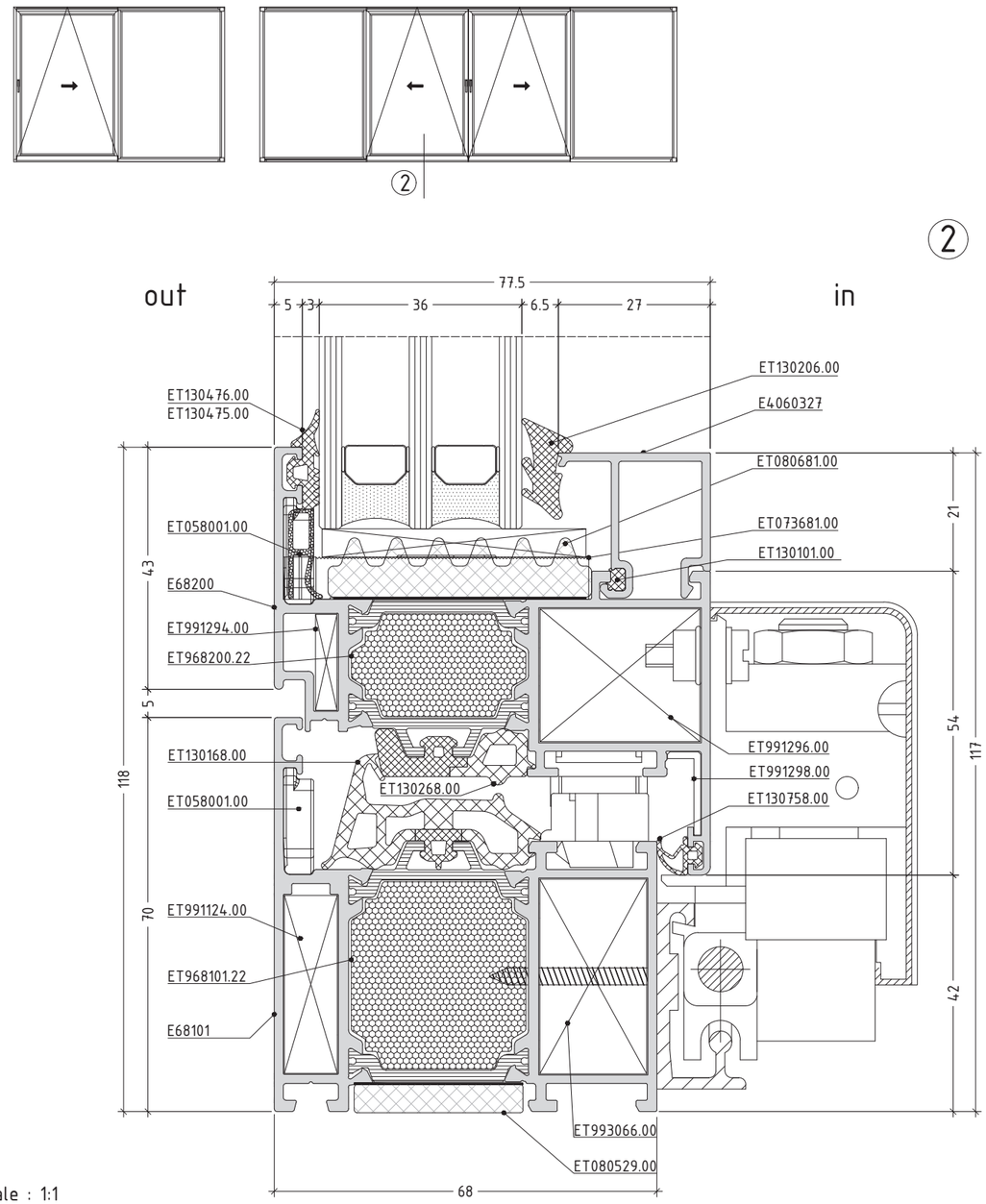
D68-17



Note:
Profile selection may be different, for specific hardware!

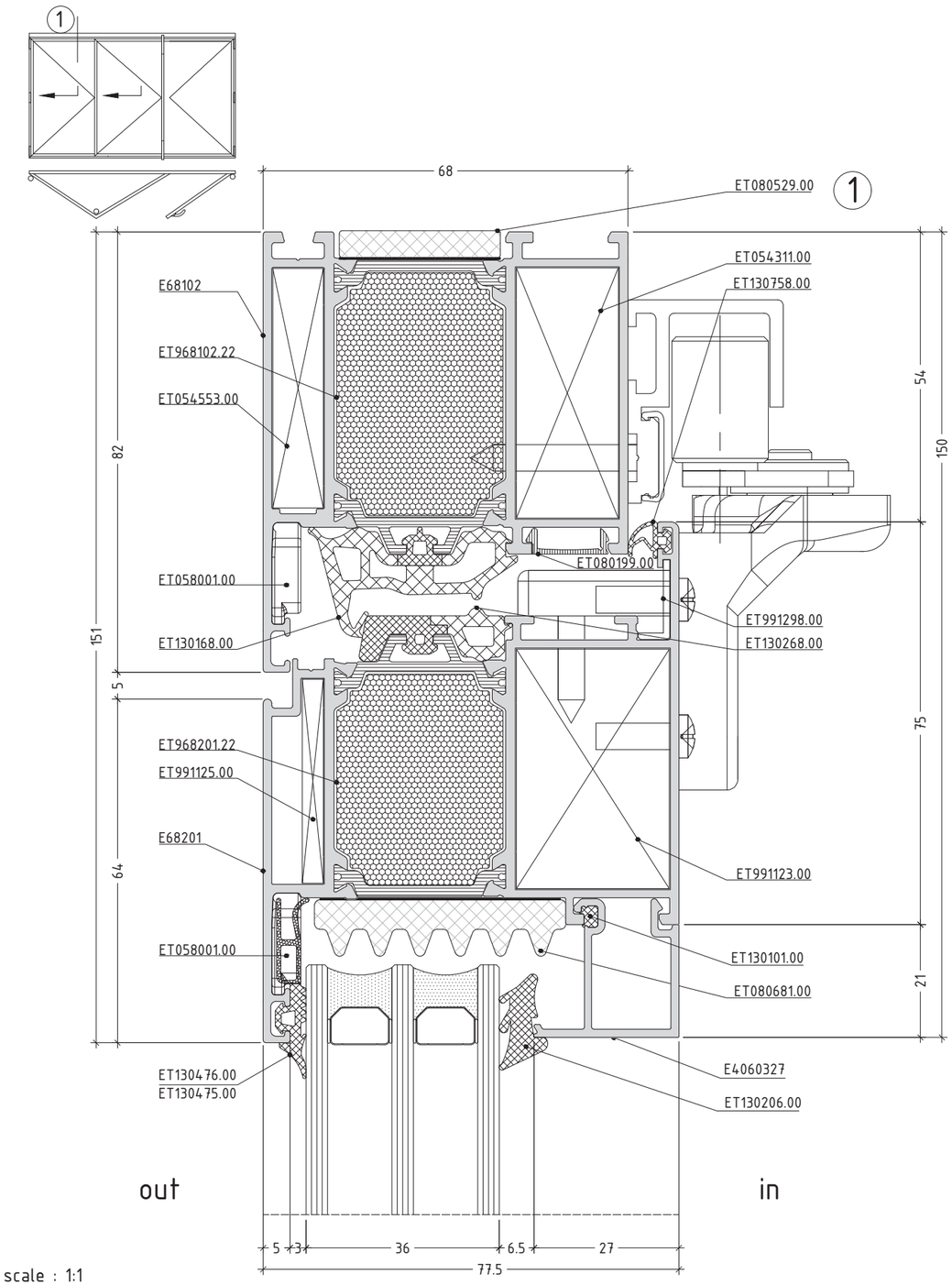
scale : 1:1

D68-19



scale : 1:1

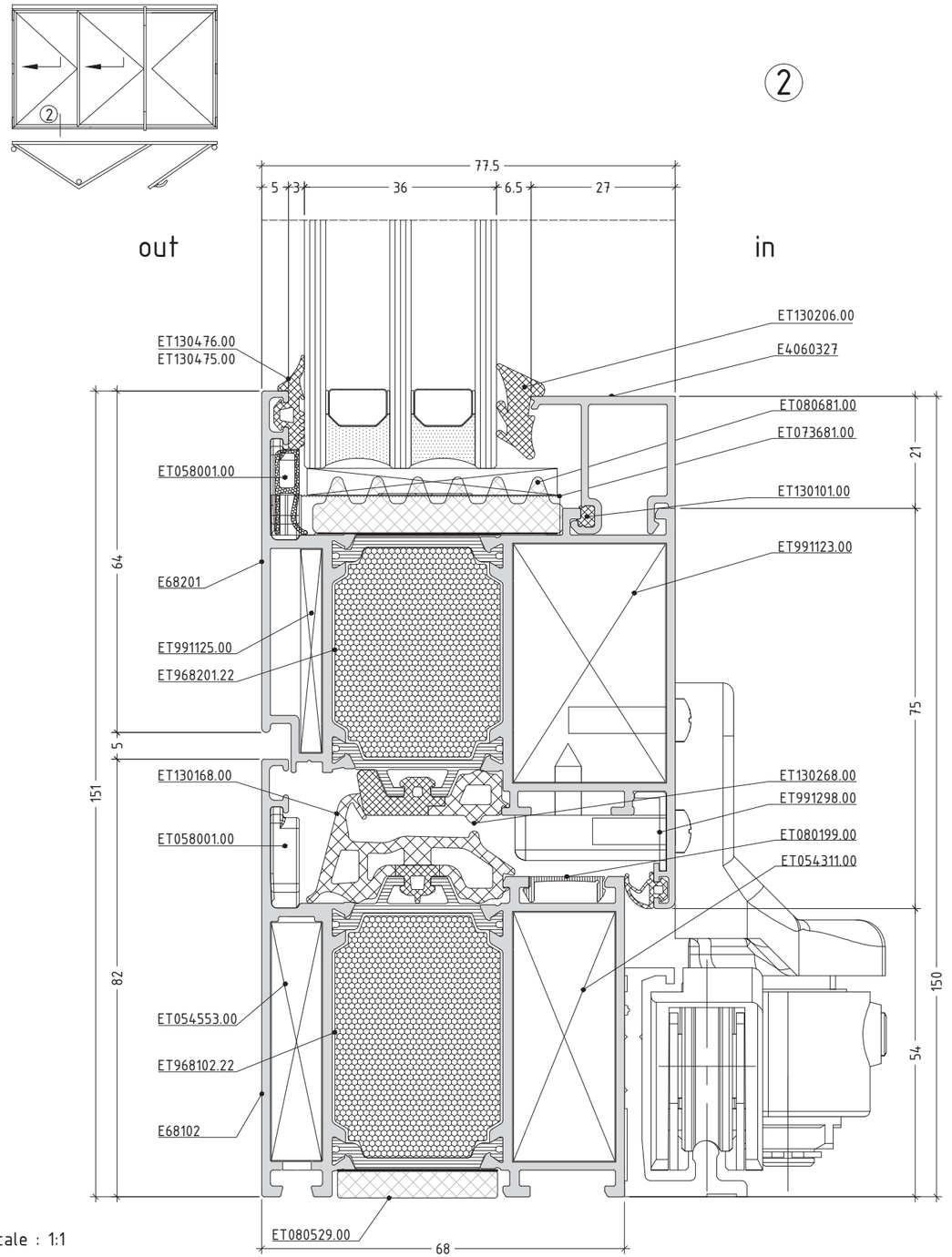
D68-20



scale : 1:1

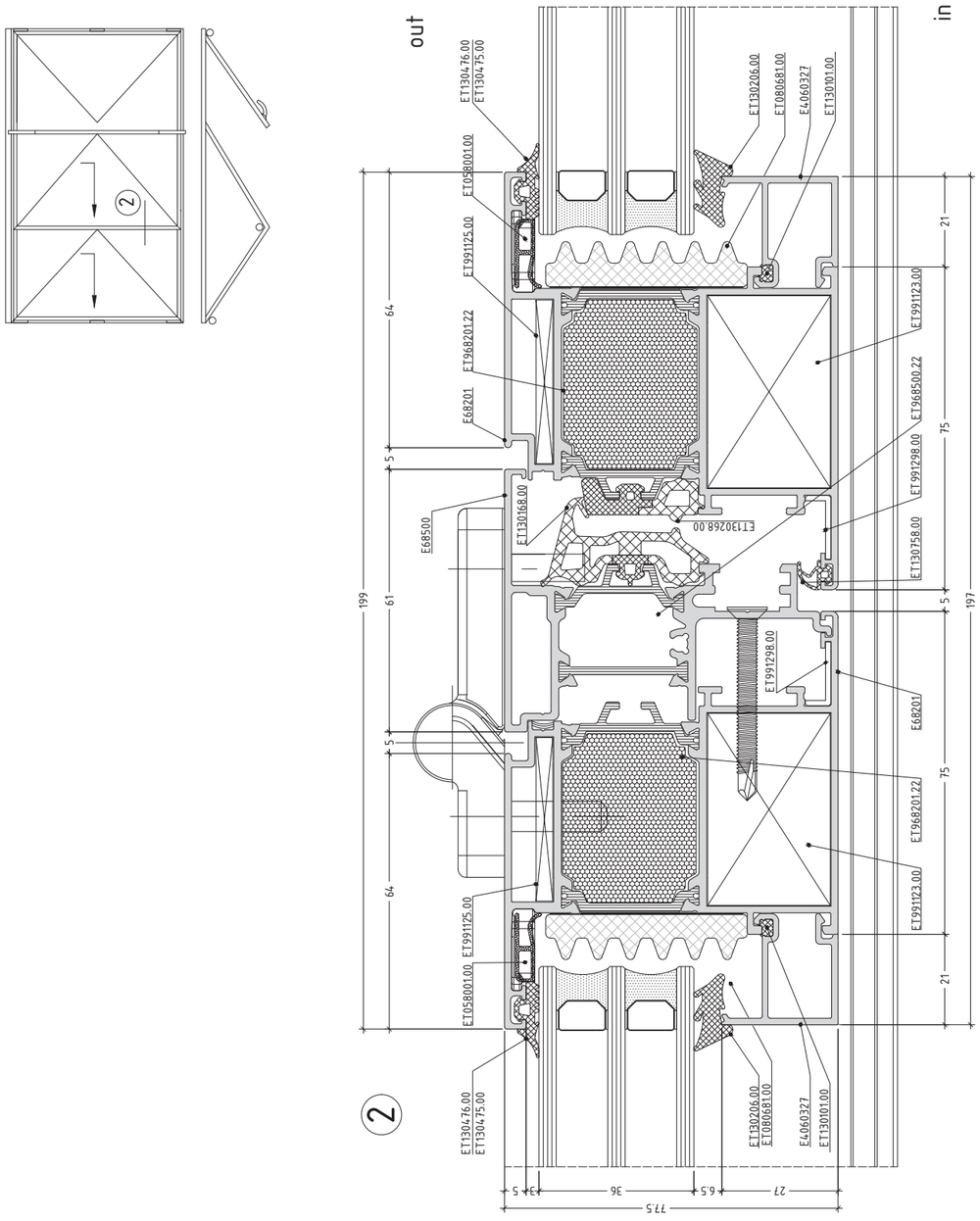
D68-21

opening system with thermal break E68



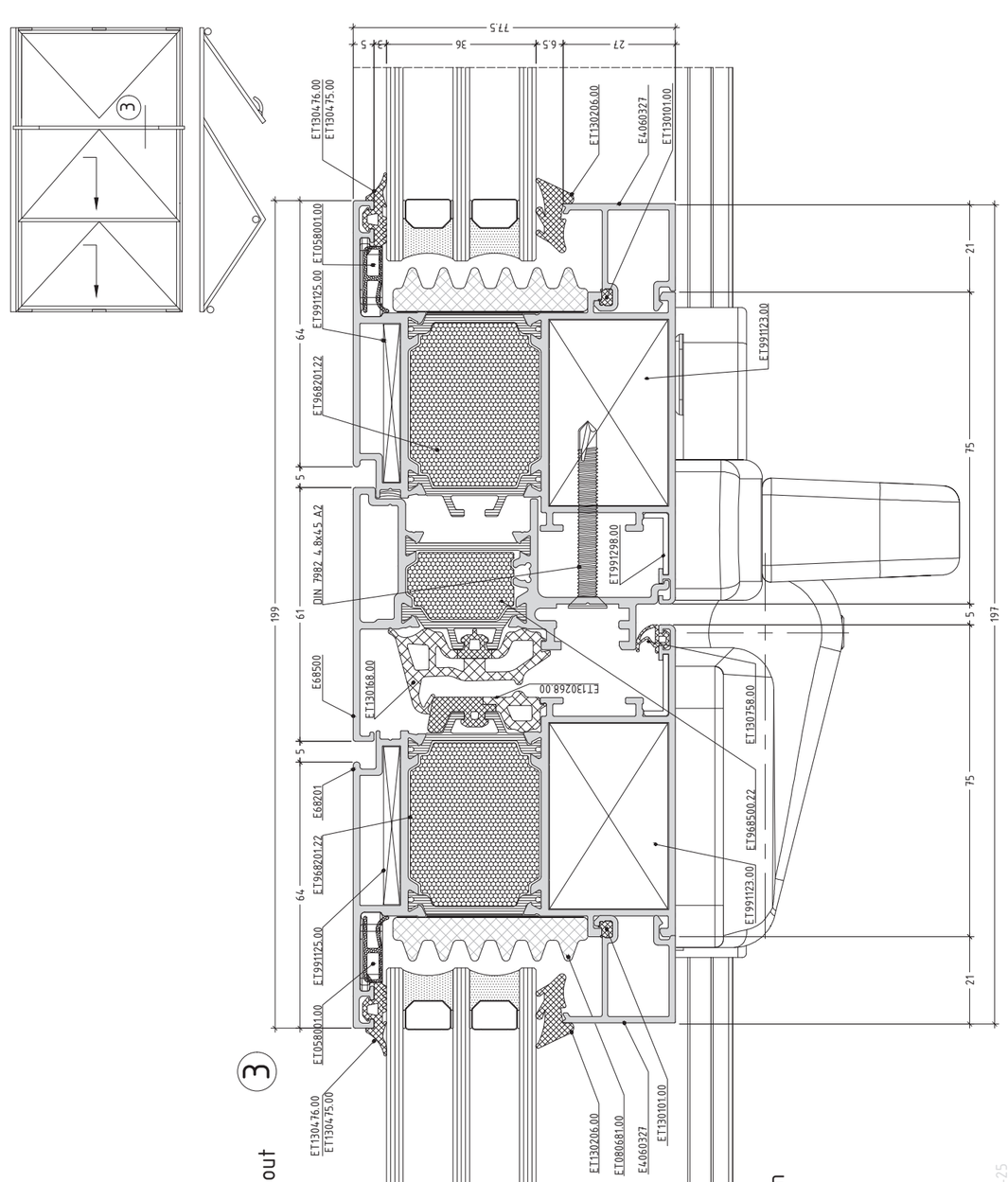
scale : 1:1

D68-22



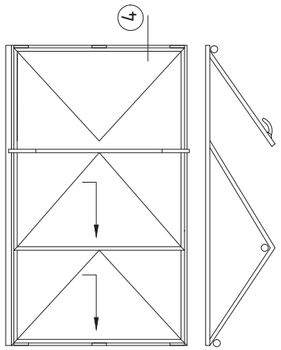
scale : 3/4

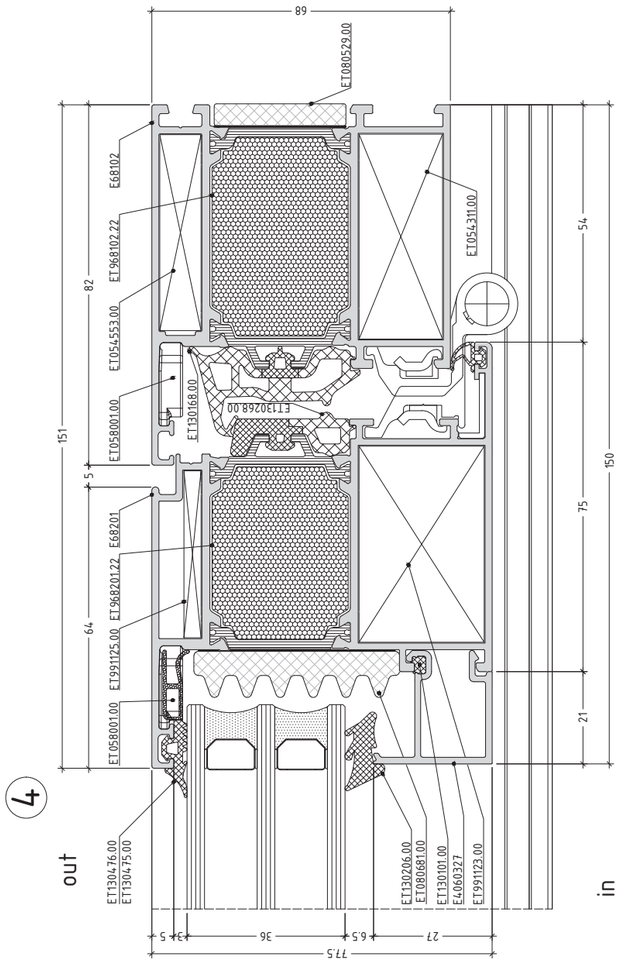
D68-24



scale : 3/4

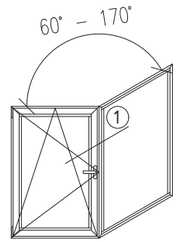
D68-25

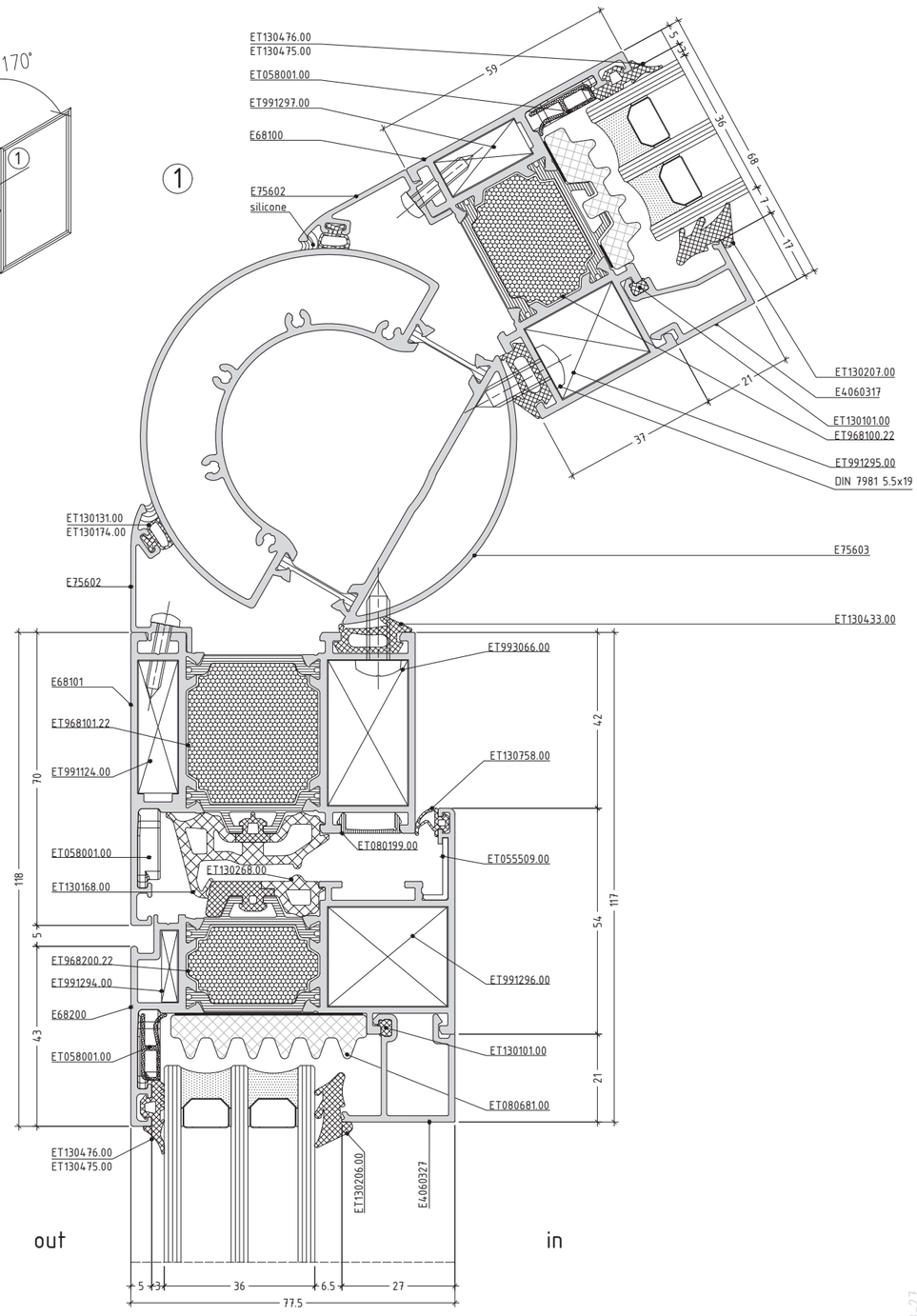




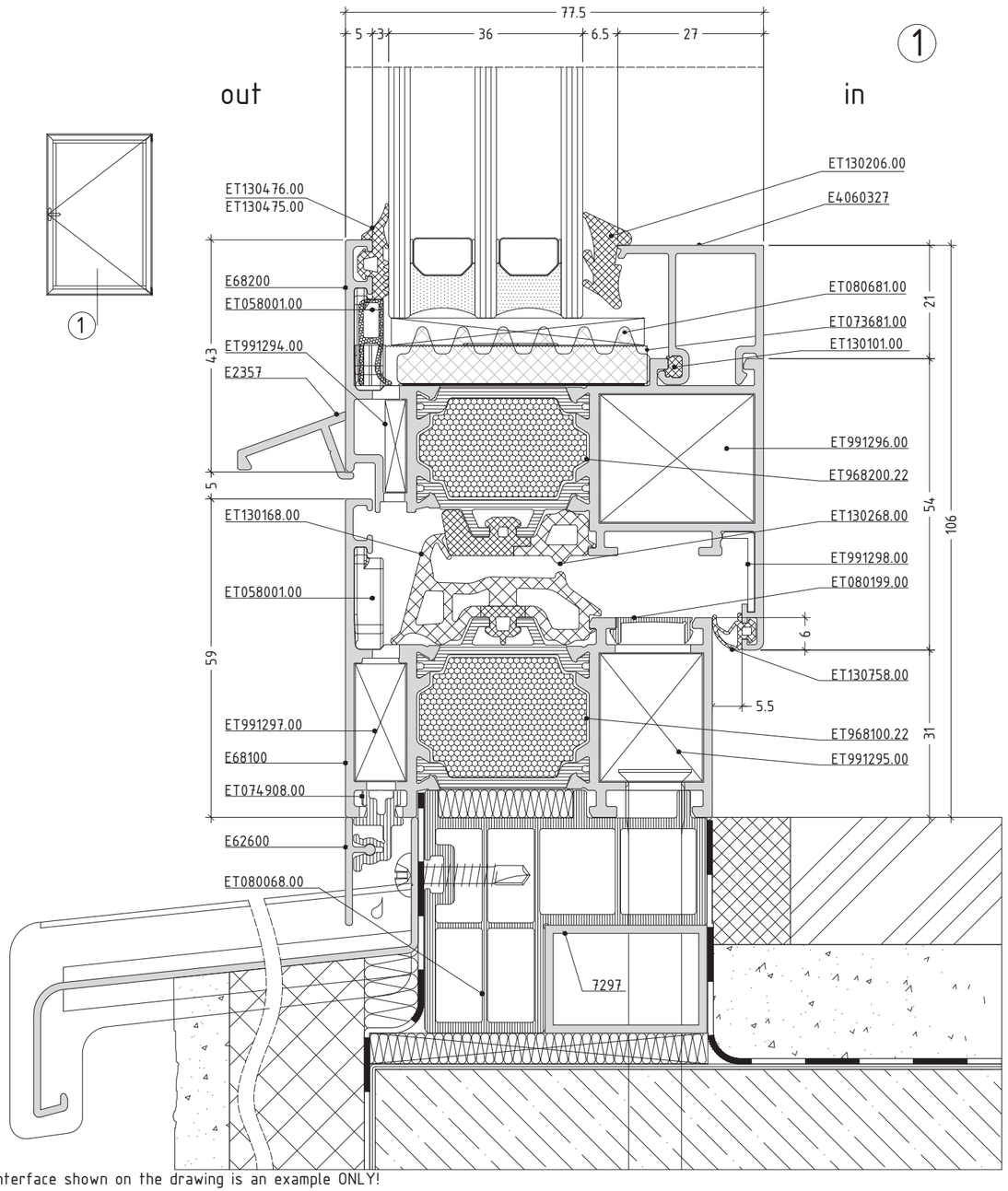
scale : 3/4

opening system with thermal break E68





scale : 3/4

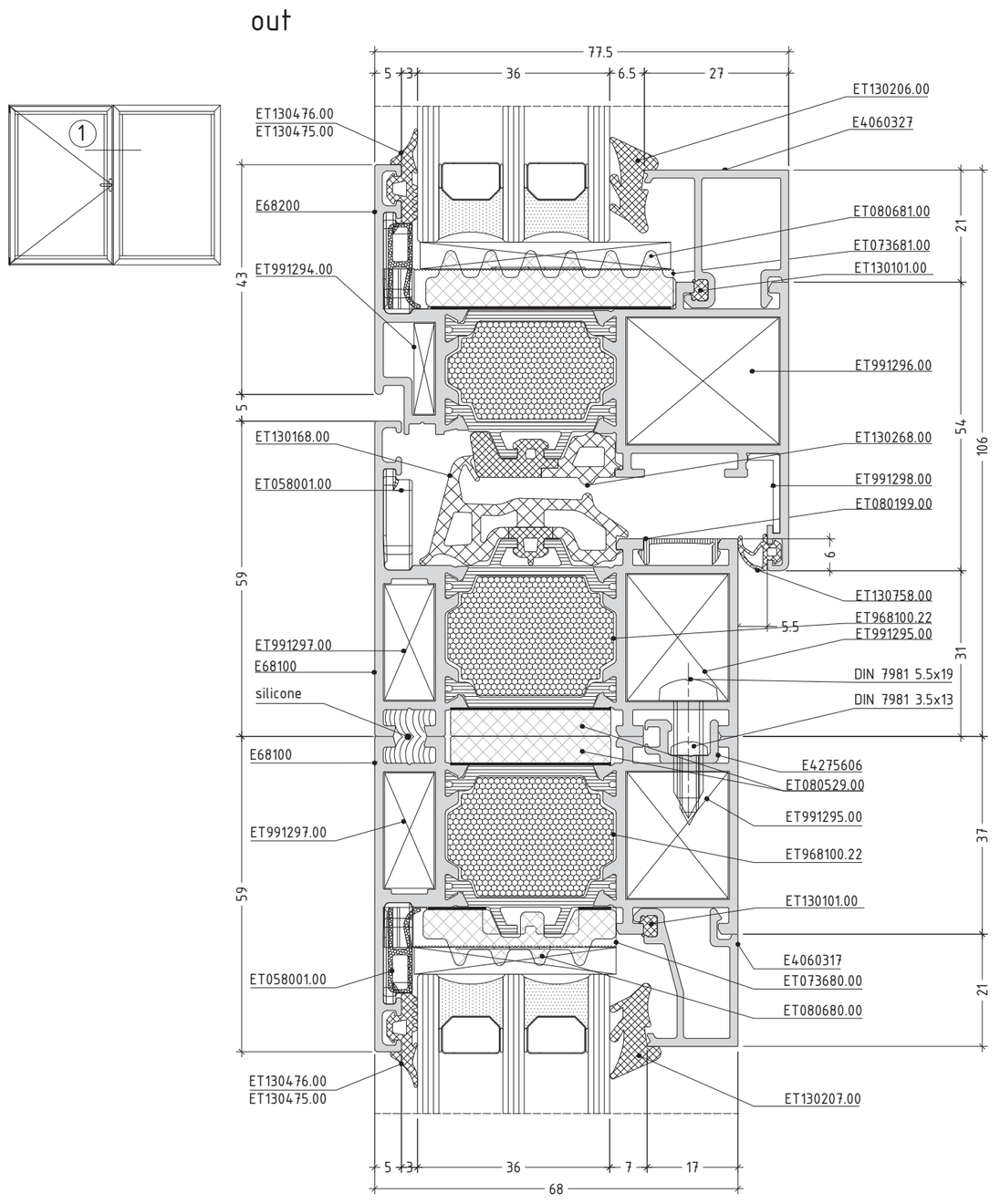


Interface shown on the drawing is an example ONLY!
Connection between backing wall and frame is specific for each single project. It is obligatory to observe different projects' features. All final decisions about materials used, interface finishing, etc. should be approved by the structural / façade engineer responsible for the specific project.

scale : 1:1

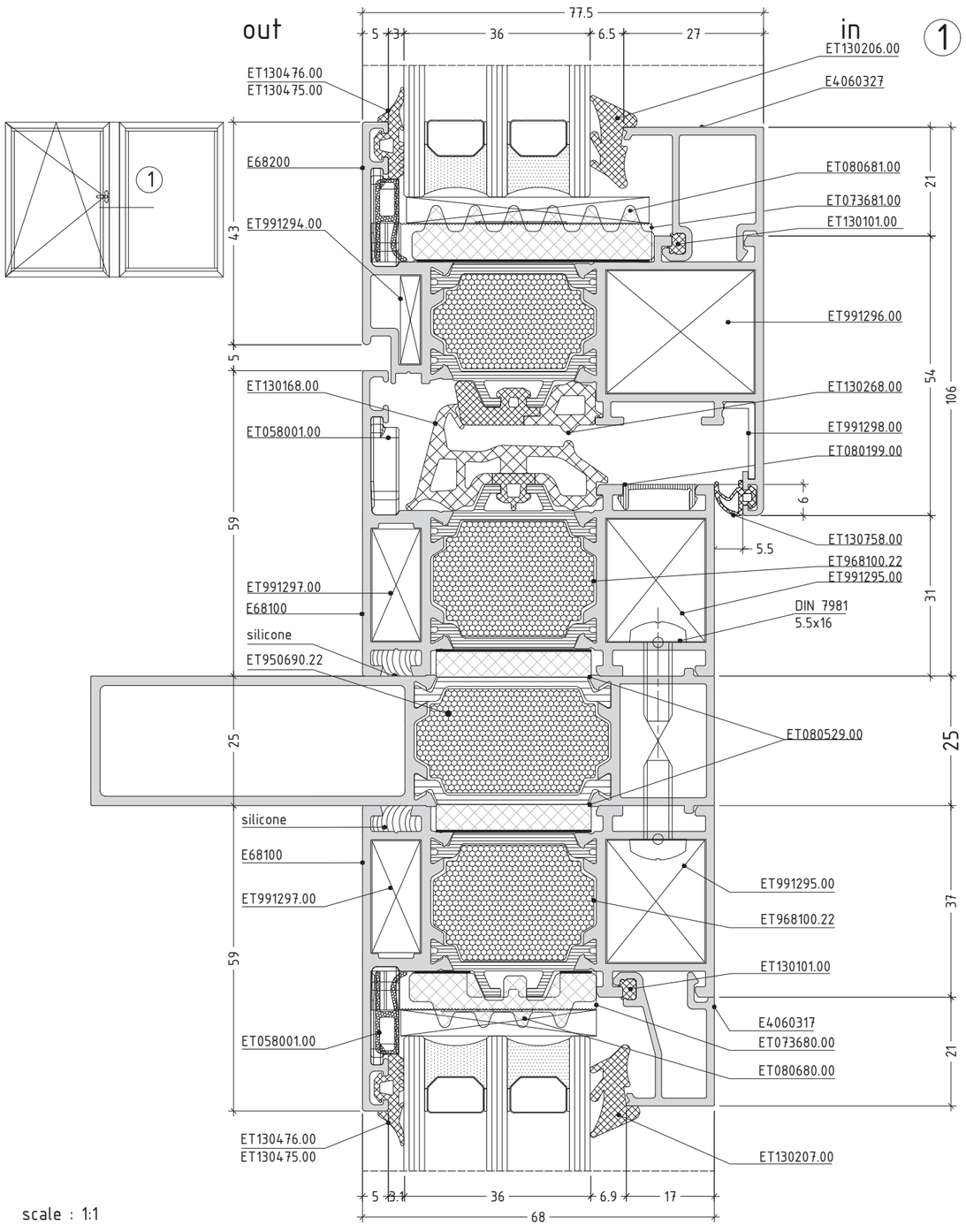
D68-28

opening system with thermal break E68



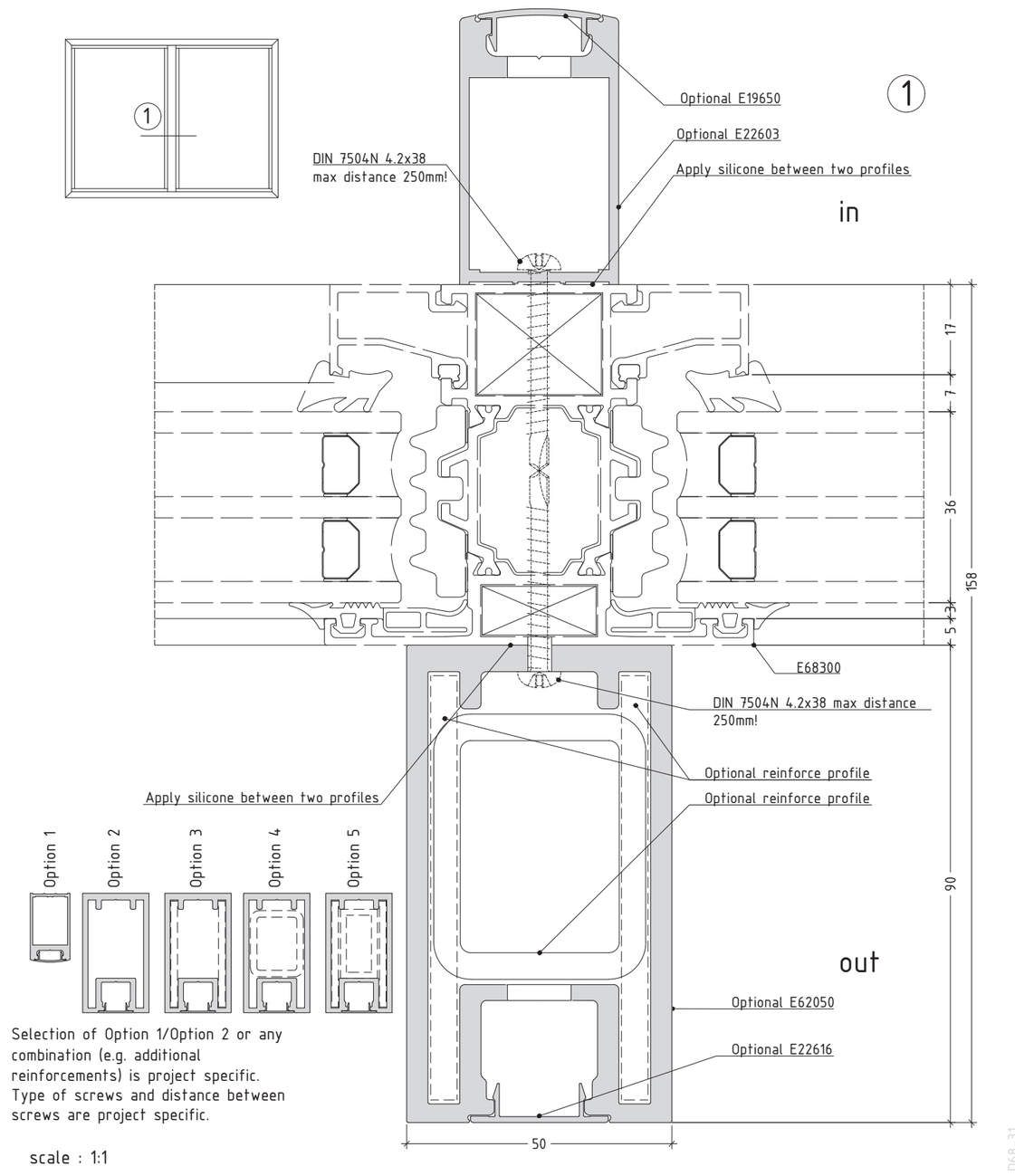
scale : 1:1

D68-29



scale : 1:1

D68-30

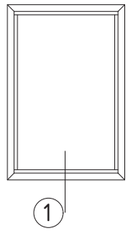


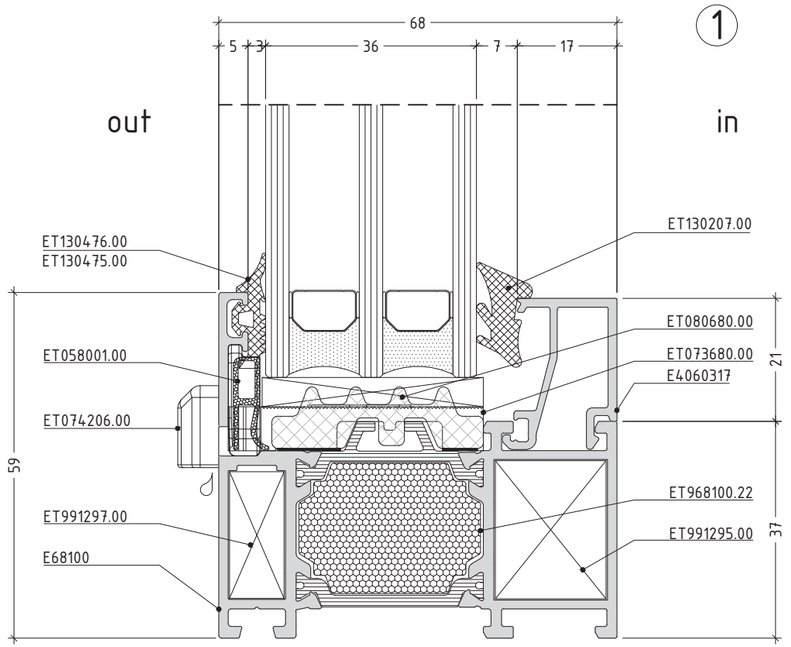
Selection of Option 1/Option 2 or any combination (e.g. additional reinforcements) is project specific. Type of screws and distance between screws are project specific.

scale : 1:1

D68-31

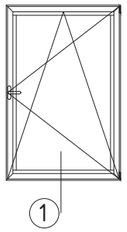
E68
STANDARD +

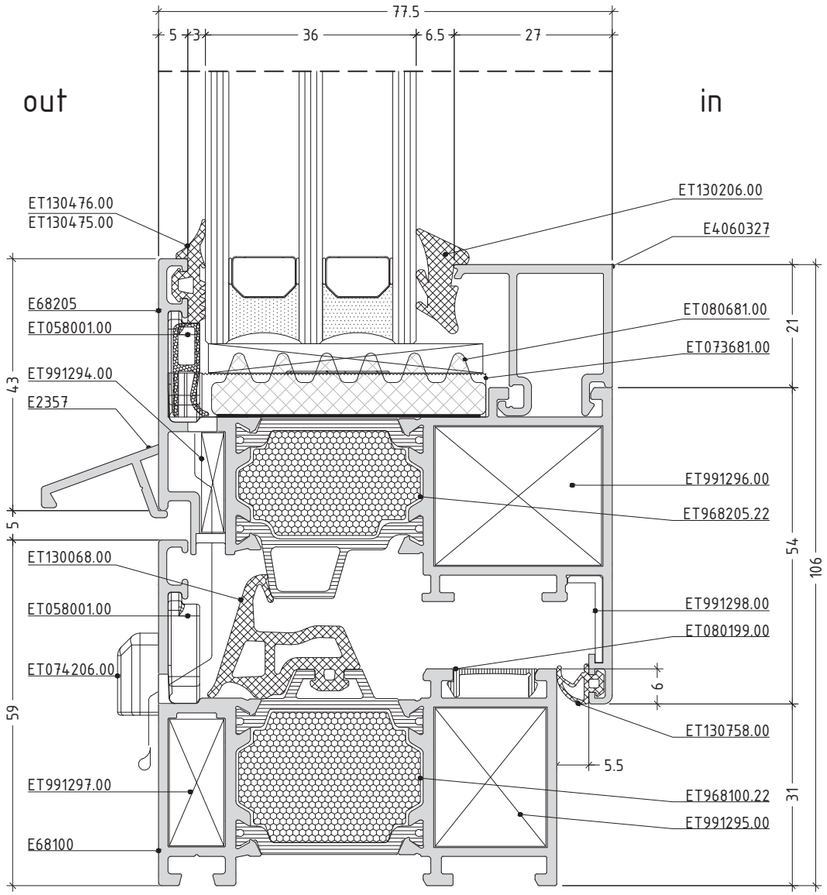




scale : 1:1

P68-01

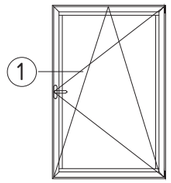




scale : 1:1

P68-01

opening system with thermal break E68



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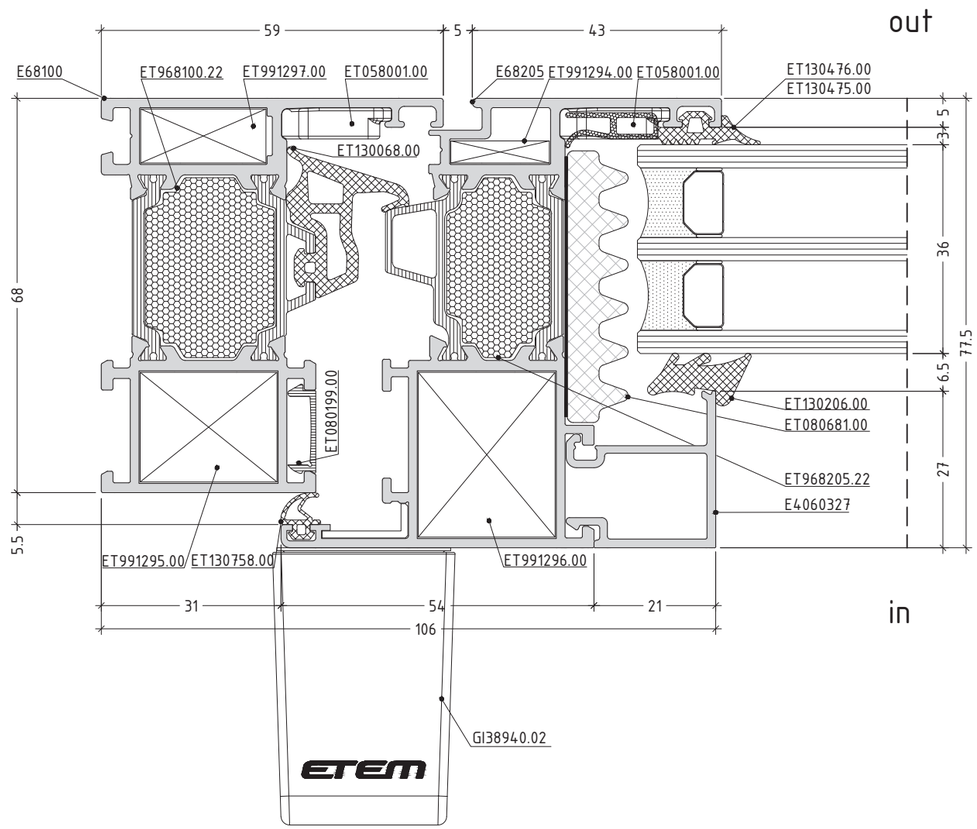
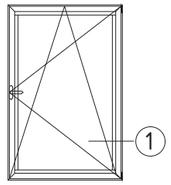


scale : 1:1

P68-01



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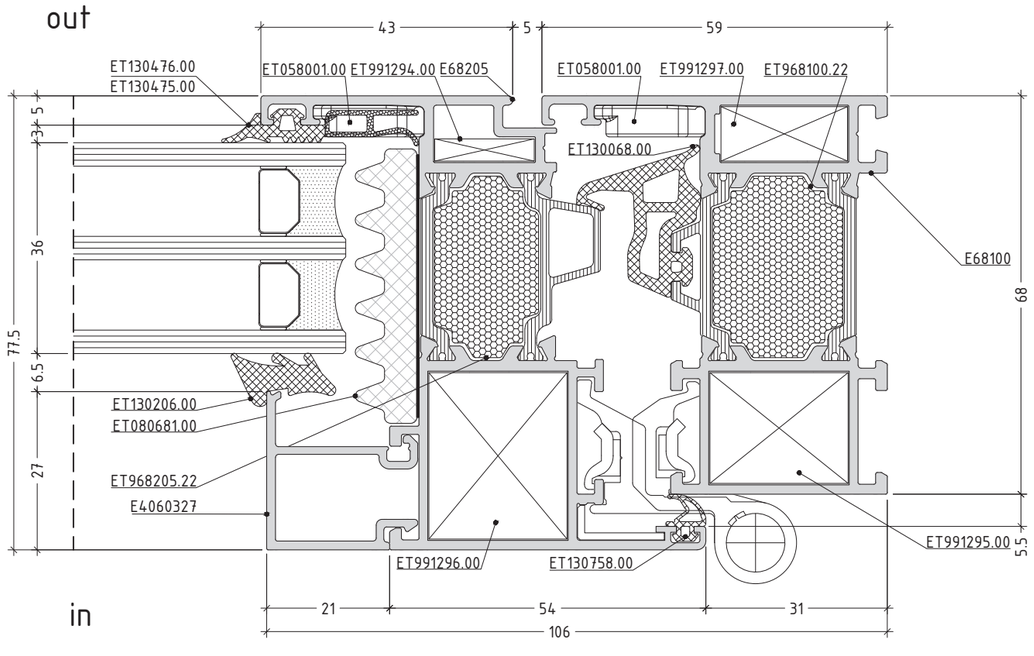
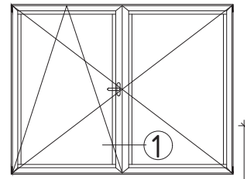


scale : 1:1

P68-01



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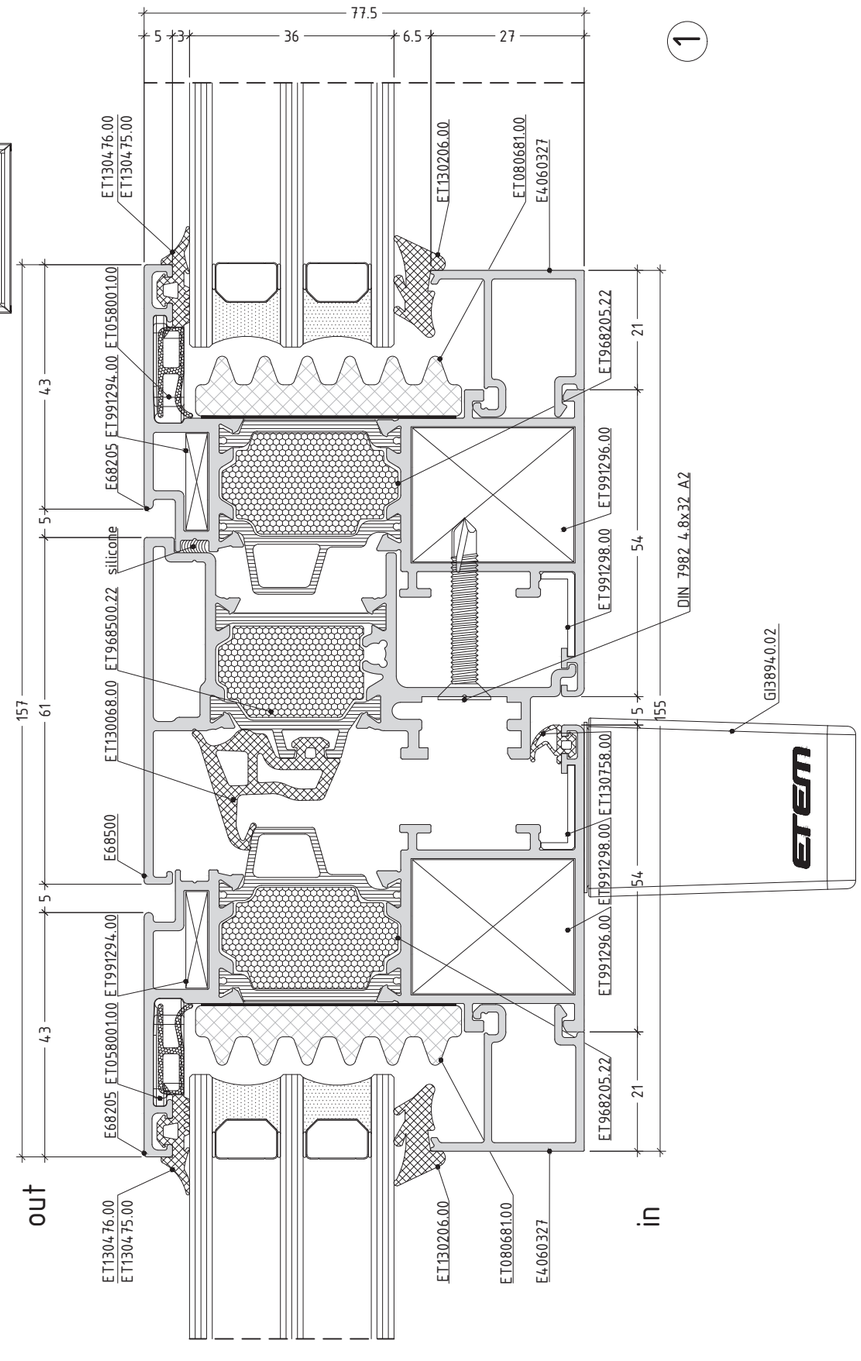
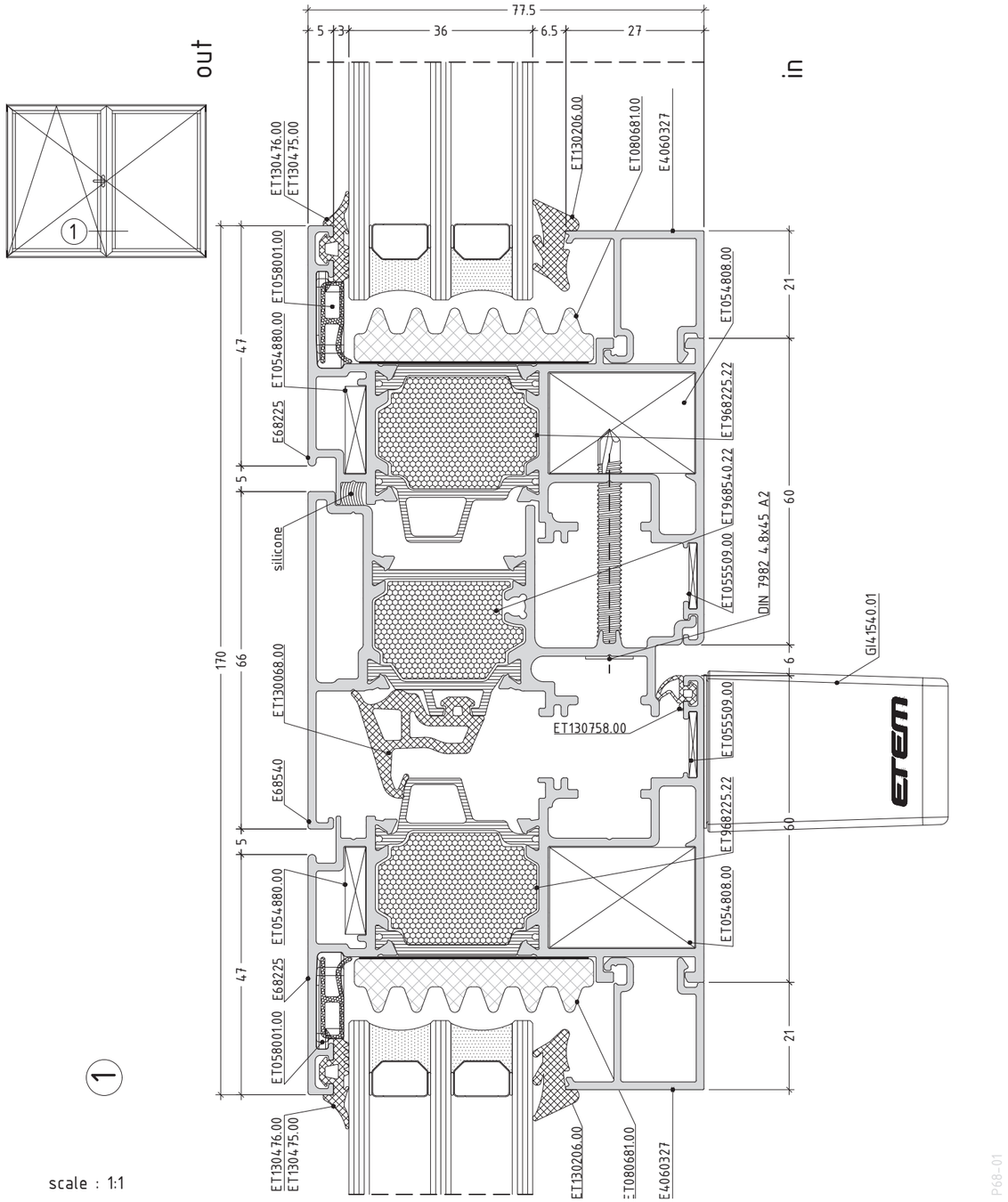


scale : 1:1

P68-01



scale : 1:1

P68-01

GLAZING OPTIONS

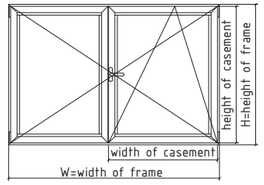
GLAZING OPTIONS FOR FRAME						
external gaskets	INTERNAL GASKETS				GLAZING BEADS	
3 mm 130475	5 - 6 mm 130176		7 - 8 mm 130177		63 X	
3 mm 130476	5 mm 130205	6 mm 130206	7 mm 130207	8 mm 130208		
	X mm				STANDARD	SECURITY
130475 130476	48	47	46	45	7 E4060307	7 E4060807
130475 130476	45	44	43	42	9.5 E4060310	9.5 E4060810
130475 130476	43	42	41	40	12 E4060312	12 E4060812
130475 130476	40	39	38	37	14.5 E4060315	14.5 E4060815
130475 130476	38	37	36	35	17 E4060317	17 E4060817
130475 130476	35	34	33	32	19.5 E4060320	19.5 E4060820
130475 130476	33	32	31	30	22 E4060322	22 E4060822
130475 130476	30	29	28	27	24.5 E4060325	24.5 E4060825
130475 130476	28	27	26	25	27 E4060327	27 E4060827
130475 130476	25	24	23	22	29.5 E4060330	29.5 E4060830
130475 130476	23	22	21	20	32 E4060332	32 E4060832
130475 130476	20	19	18	17	34.5 E4060335	34.5 E4060835
130475 130476	18	17	16	15	37 E4060337	37 E4060837

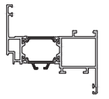
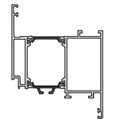
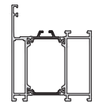
GLAZING OPTIONS FOR VENT						
external gaskets	INTERNAL GASKETS				GLAZING BEADS	
3 mm 130475	5 - 6 mm 130176		7 - 8 mm 130177		72.5 X	
3 mm 130476	5 mm 130205	6 mm 130206	7 mm 130207	8 mm 130208		
	X mm				STANDARD	SECURITY
130475 130476	57	56	55	54	7 E4060307	7 E4060807
130475 130476	55	54	53	52	9.5 E4060310	9.5 E4060810
130475 130476	52	51	50	49	12 E4060312	12 E4060812
130475 130476	50	49	48	47	14.5 E4060315	14.5 E4060815
130475 130476	47	46	45	44	17 E4060317	17 E4060817
130475 130476	45	44	43	42	19.5 E4060320	19.5 E4060820
130475 130476	42	41	40	39	22 E4060322	22 E4060822
130475 130476	40	39	38	37	24.5 E4060325	24.5 E4060825
130475 130476	37	36	35	34	27 E4060327	27 E4060827
130475 130476	35	34	33	32	29.5 E4060330	29.5 E4060830
130475 130476	32	31	30	29	32 E4060332	32 E4060832
130475 130476	30	29	28	27	34.5 E4060335	34.5 E4060835
130475 130476	27	26	25	24	37 E4060337	37 E4060837

EW68-1

CUTTING LISTS

calculation of cutting length for two leaf window



frame profile selection		casement profile selection: E68200/E68205 	casement profile selection: E68201/E68206 
E68100 	width of casement	$\frac{W - 68}{2}$	$\frac{W - 68}{2}$
	height of casement	H - 63	H - 63
	height of secondary casement profile	H - 135	H - 135
E68101 	width of casement	$\frac{W - 90}{2}$	$\frac{W - 90}{2}$
	height of casement	H - 85	H - 85
	height of secondary casement profile	H - 157	H - 157
E68102 	width of casement	$\frac{W - 114}{2}$	$\frac{W - 114}{2}$
	height of casement	H - 109	H - 109
	height of secondary casement profile	H - 181	H - 181

T68-1

calculation of cutting length for one leaf window

frame profile selection		casement profile selection: E68200/E68205	casement profile selection: E68201/E68206
E68100	width of casement	W - 63	W - 63
	height of casement	H - 63	H - 63
E68101	width of casement	W - 85	W - 85
	height of casement	H - 85	H - 85
E68102	width of casement	W - 109	W - 109
	height of casement	H - 109	H - 109

T68-2

calculation of cutting length for glass unit

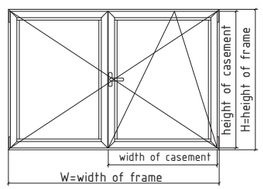
dimension of glass unit		casement profile: E68200/E68205	casement profile: E68201/E68206
	width of glass unit	W - 123	W - 165
	height of glass unit	H - 123	H - 165

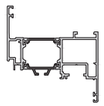
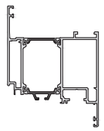
calculation of cutting length for glass unit

dimension of glass unit		frame profile: E68100	frame profile: E68101	frame profile: E68102
	width of glass unit	W - 88	W - 110	W - 134
	height of glass unit	H - 88	H - 110	H - 134

T68-3

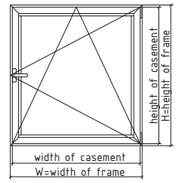
calculation of cutting length for double leaf window

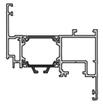
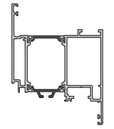


frame profile selection / casement profile selection		E68220/E68225 	E68221/E68226 
E68100 	width of casement	$\frac{W - 64}{2}$	$\frac{W - 64}{2}$
	height of casement	H - 58	H - 58
	height of secondary casement profile	H - 134	H - 134

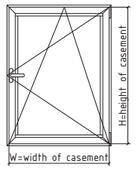
T68-4

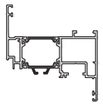
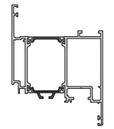
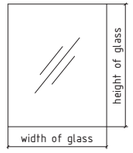
calculation of cutting length for one leaf window



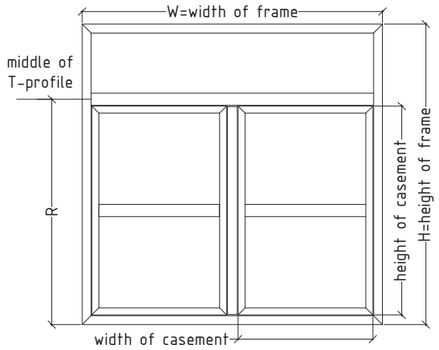
frame profile selection / casement profile selection		E68220/E68225 	E68221/E68226 
E68100 	width of casement	W - 58	W - 58
	height of casement	H - 58	H - 58

calculation of cutting length for glass unit



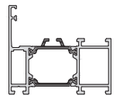
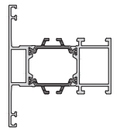
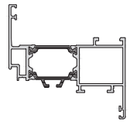
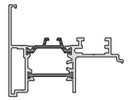
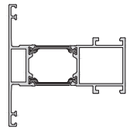
dimension of glass unit / casement profile		E68220/E68225 	E68221/E68226 
	width of glass unit	W - 135	W - 177
	height of glass unit	H - 135	H - 177

T68-5



Sample for manufacturing E68 position
with combination of profile with EURO groove

calculation of cutting length and angle for E68 profile

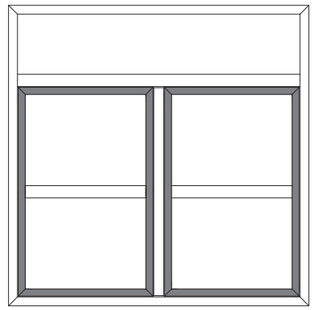
profile selection		pieces	cutting formula	cutting angles
E68100 	width of frame	2	W	2x45°
	height of frame	2	H	2x45°
E68300 	width of T profile	1	W - 65.5	2x90°
E68200 	width of casement	4	$\frac{W - 68}{2}$	2x45°
	height of casement	4	R - 44.5	2x45°
E68500 	height of overhung	1	height of casement - 72	2x90°
E68340 	width of T profile	2	width of casement - 99.5	2x90°

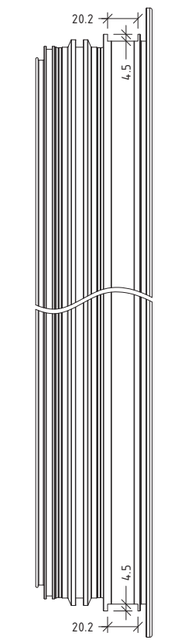
M68-1

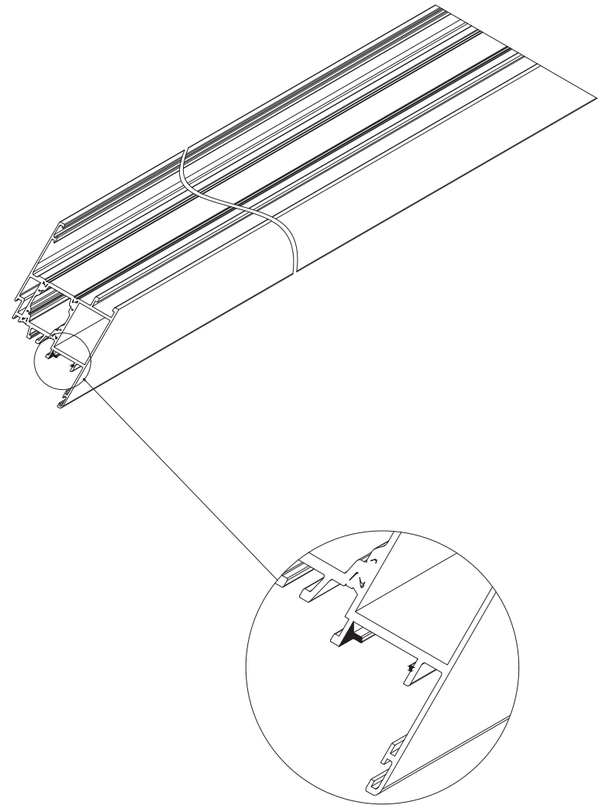
MACHININGS

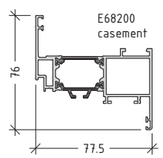
Additional treatment of profiles after cutting
casement E68200 – machining for connecting rod E2308

exterior view







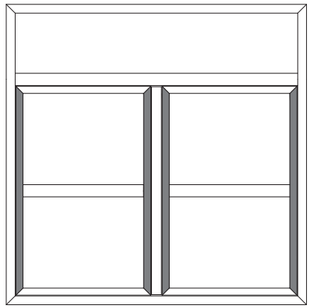


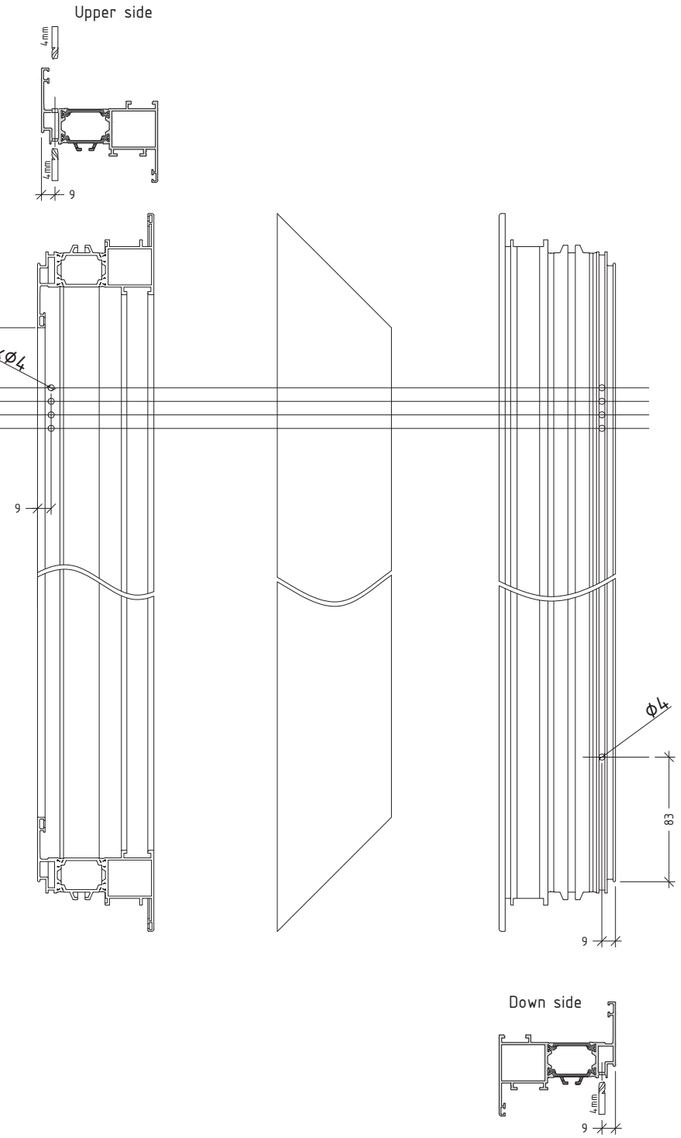
Note:
This machining's is valid for all the casement profiles with Euro groove in the system

M68-4

Additional treatment of profiles after cutting
casement E68200 – machining for ventilation

exterior view



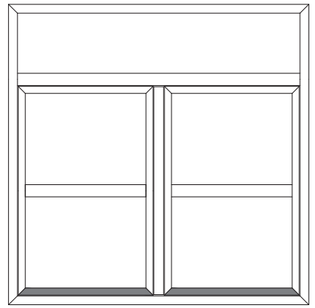


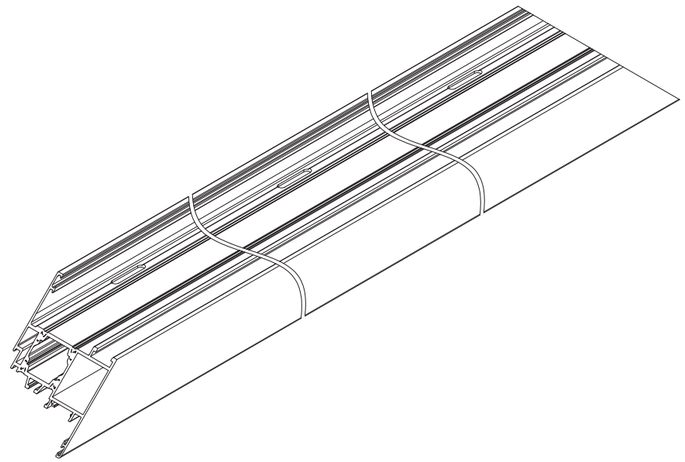
Note:
This machining's is valid for all the casement profiles with Euro groove in the system

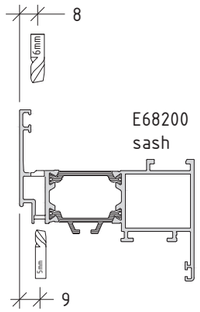
M68-4.1

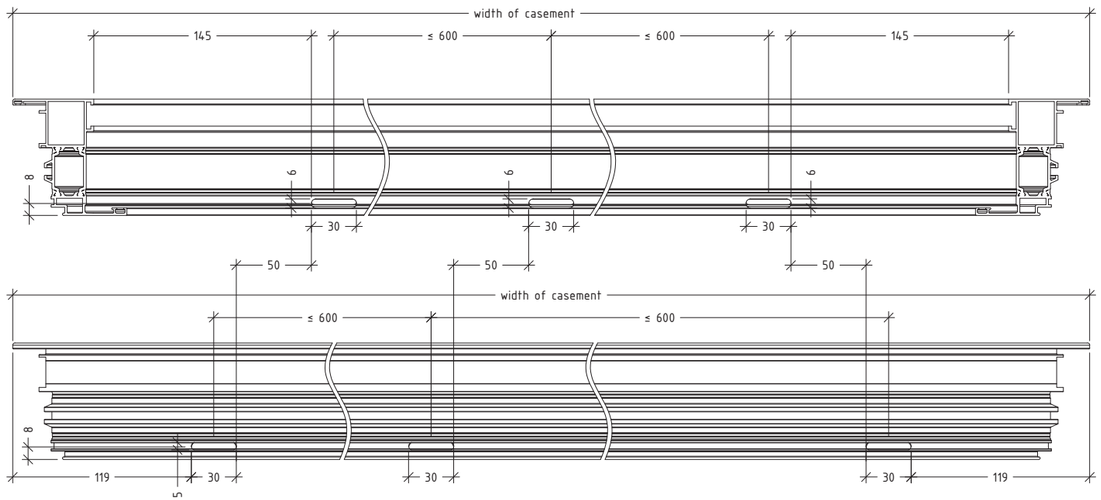
Additional treatment of profiles after cutting
casement E68200 – machining for drainage

exterior view







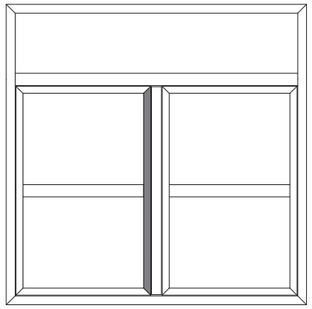


Note:
This machining is valid for all the casement profiles in the system

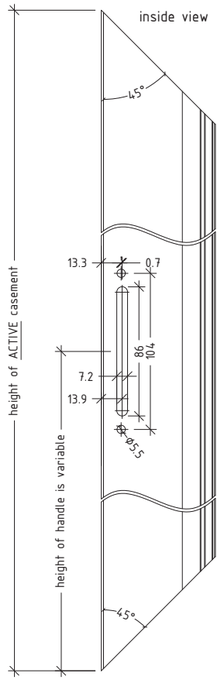
M68-5

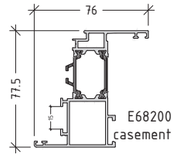
Additional treatment of profiles after cutting
casement E68200 - machining for handle on active casement

exterior view

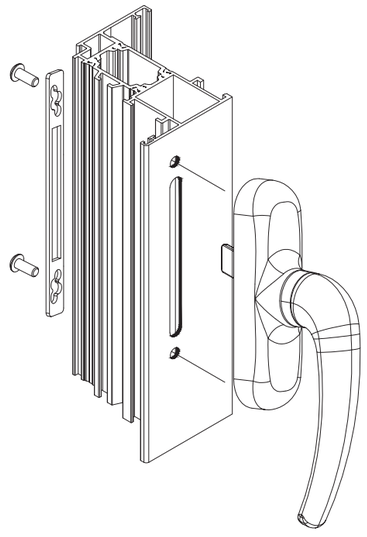


inside view





machining's to fix T/T handle



NOTE:

- For different cases active and passive casement positions varied!
- For different hardware the machining for handle may not fit!
(use mounting scheme for hardware supplier!!)

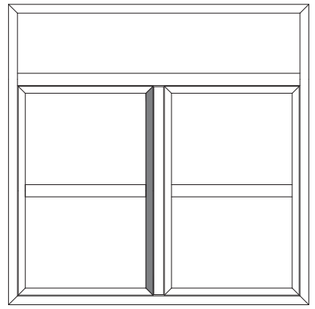
Note:
This machining is valid for all the casement profiles with Euro groove in the system

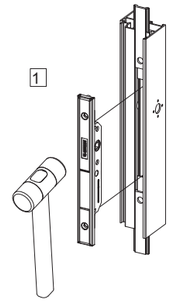
M68-6

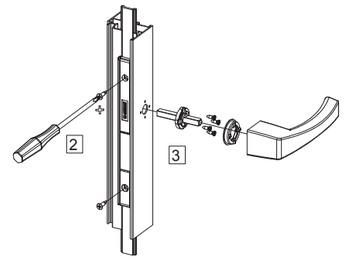
opening system with thermal break E68

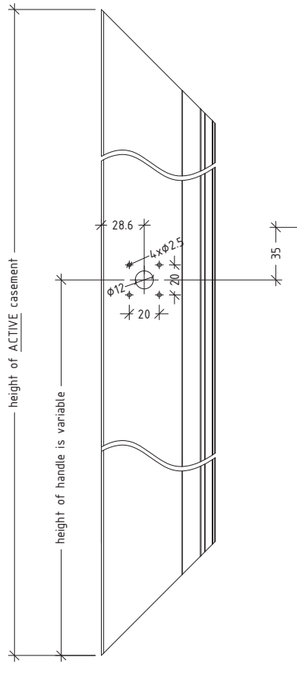
Additional treatment of profiles after cutting
casement E68200 - machining for handle on active casement

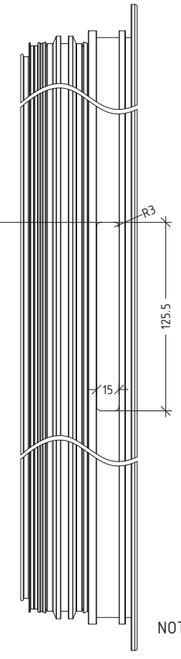
exterior view

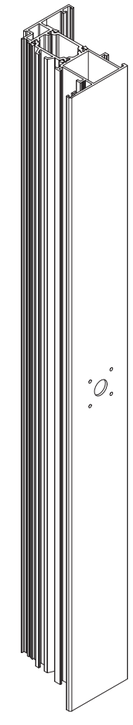


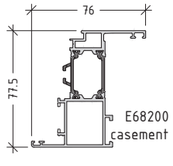












NOTE:

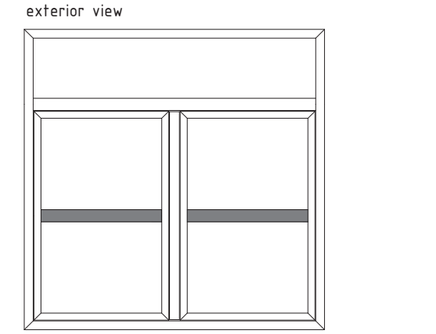
- For different cases active and passive casement positions varied!
- For different hardware the machining for handle may not fit!
(use mounting scheme for hardware supplier!!)

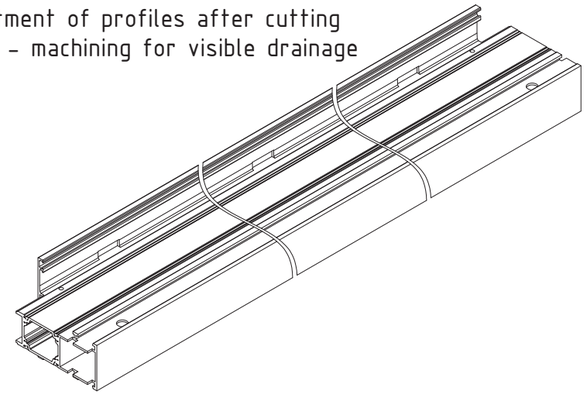
Note:
This machining is valid for all the casement profiles with Euro groove in the system

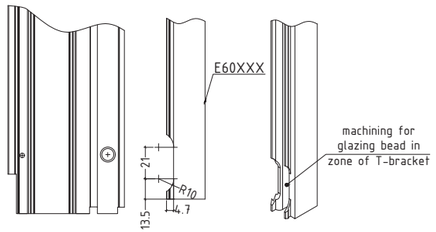
M68-6.1

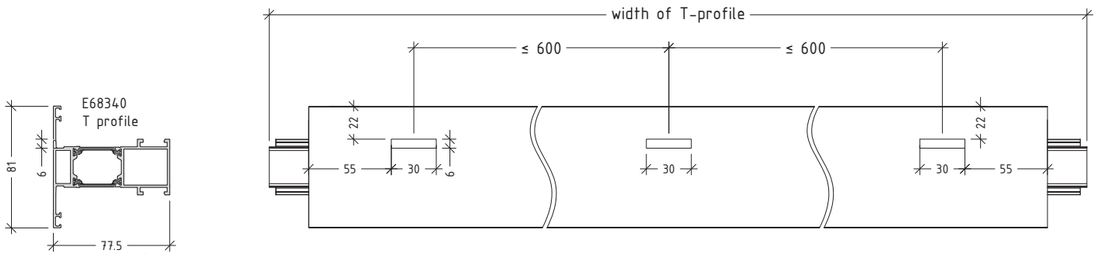
Additional treatment of profiles after cutting
T-profile E68340 - machining for visible drainage

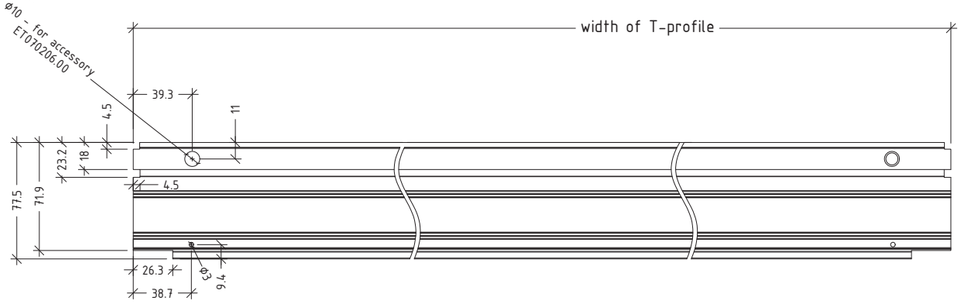
exterior view

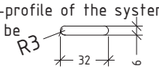








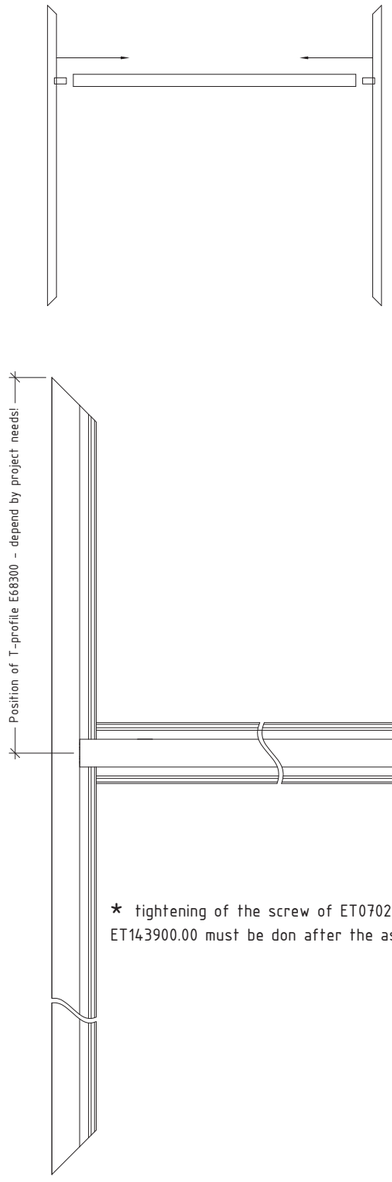


Note:
This machining is valid for all the T-profile of the system
For CNC machine drainage hole must be 

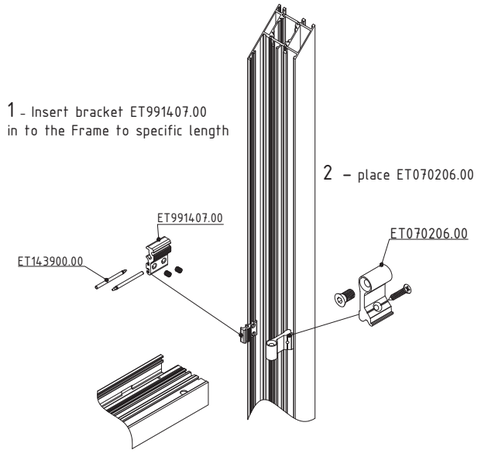
for punching machine is 

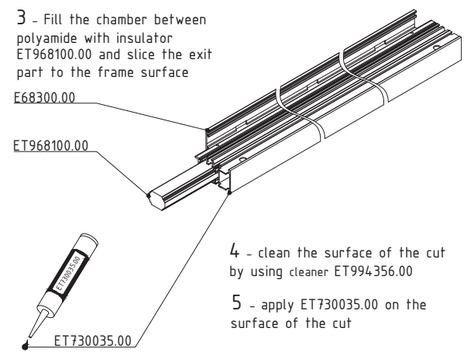
M68-7

Sequence for mounting of T-profile E68300 to the frame E68100



* tightening of the screw of ET070206.00 and application of ET143900.00 must be don after the assembly of the frame!

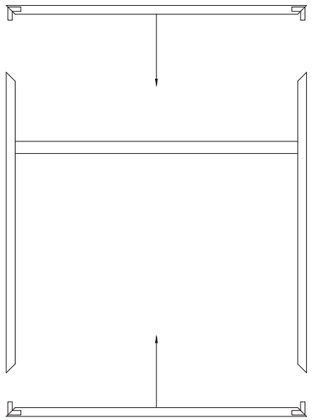




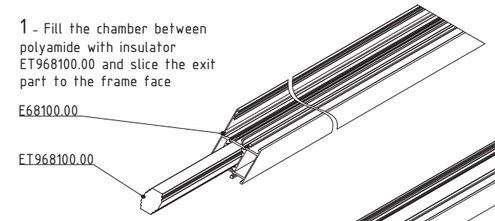
Note:
This mounting sequence is valid for all the frames in the system

M68-8

Sequence for assembly the frame E68100

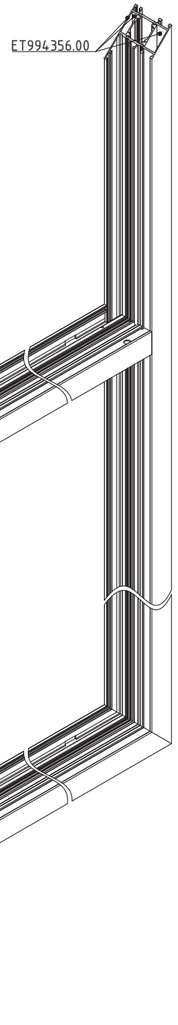


1 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the frame face

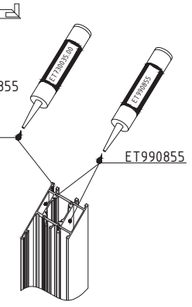


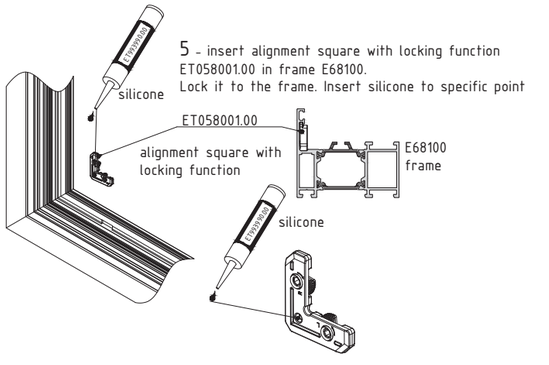
2 - clean the surface of the cut and the grooves for the joints by using cleaner ET994356.00

4 - put the joints in the chambers of frame E68100



3 - apply ET730035.00 on the surface of the cut and ET990855 in the grooves for the joints



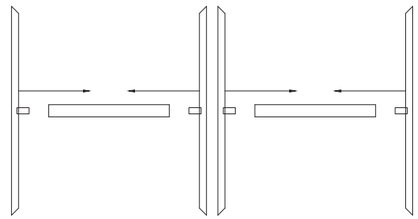


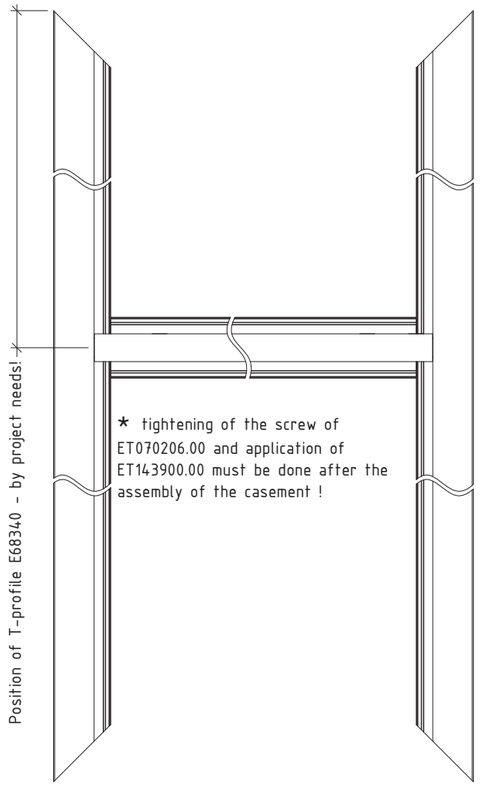
5 - insert alignment square with locking function ET058001.00 in frame E68100.
Lock it to the frame. Insert silicone to specific point

Note:
* This mounting sequence is valid for all the frame profiles in the system by using corresponding joint corners and insulators
* Clean the joints before application

M68-9

Sequence for mounting of T-profile E68340 to the casement E68200

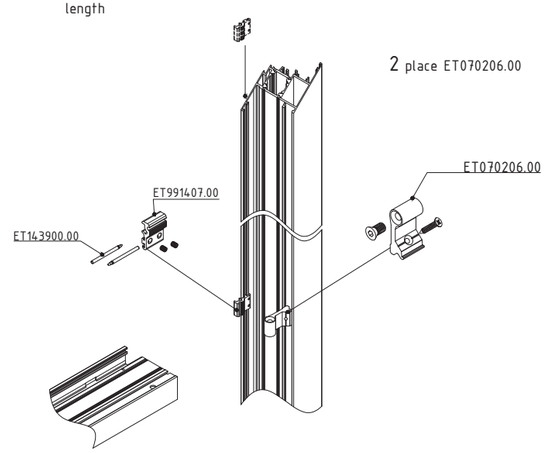




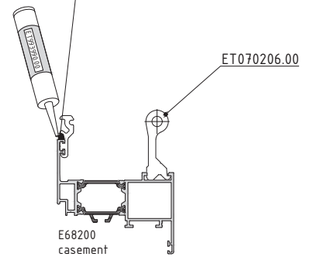
* tightening of the screw of ET070206.00 and application of ET143900.00 must be done after the assembly of the casement !

1 Insert bracket ET991407.00 in to the casement to specific length

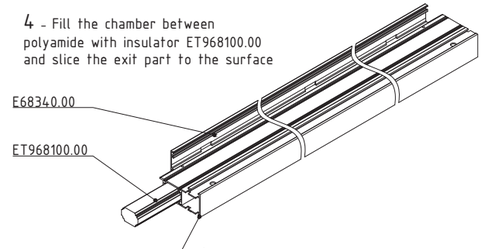
2 place ET070206.00



3 Apply silicone to the indicated place before final frame assembly



4 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the surface



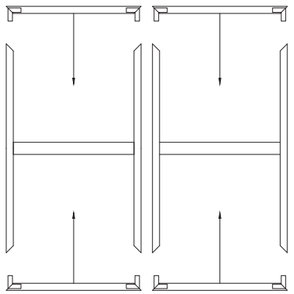
4 - clean the surface of the cut by using cleaner ET994356.00

5 - apply ET730035.00 on the surface of the cut

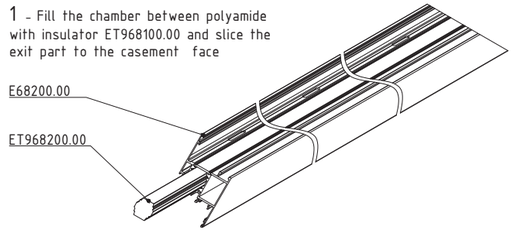
Note:
* This mounting sequence is valid for all casement profile with Euro groove in the system

M68-10

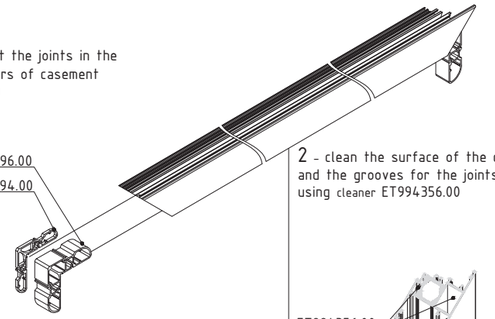
Sequence for assembly the casement E68200



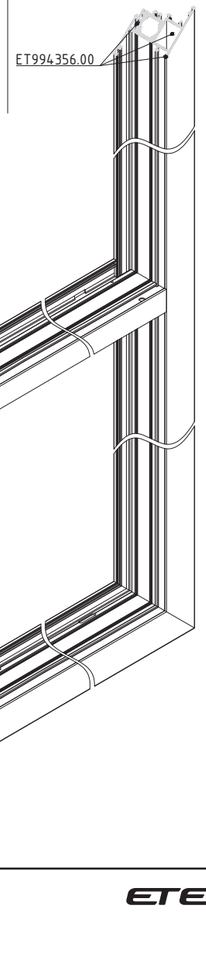
1 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the casement face



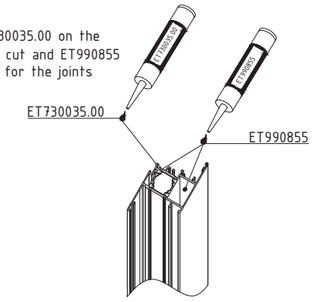
4 - put the joints in the chambers of casement E68200



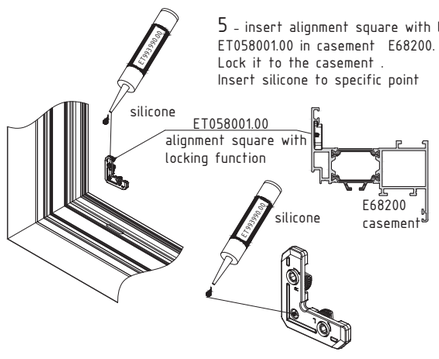
2 - clean the surface of the cut and the grooves for the joints by using cleaner ET994356.00



3 - apply ET730035.00 on the surface of the cut and ET990855 in the grooves for the joints



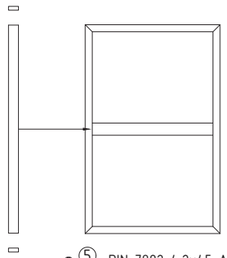
5 - insert alignment square with locking function ET058001.00 in casement E68200.
Lock it to the casement .
Insert silicone to specific point

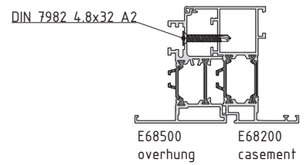


Note:
* This mounting sequence is valid for all the casement profiles in the system by using corresponding joint corners and insulators
* Clean the joints before application

M68-11

Sequence for assembly the E68500 overhung and mounting to the casement E68200





⑤ DIN 7982 4.2x45 A2

④ ET074680.00

① Fill the chamber between polyamide with insulator ET968540.00 and slice the exit part to the overhung face

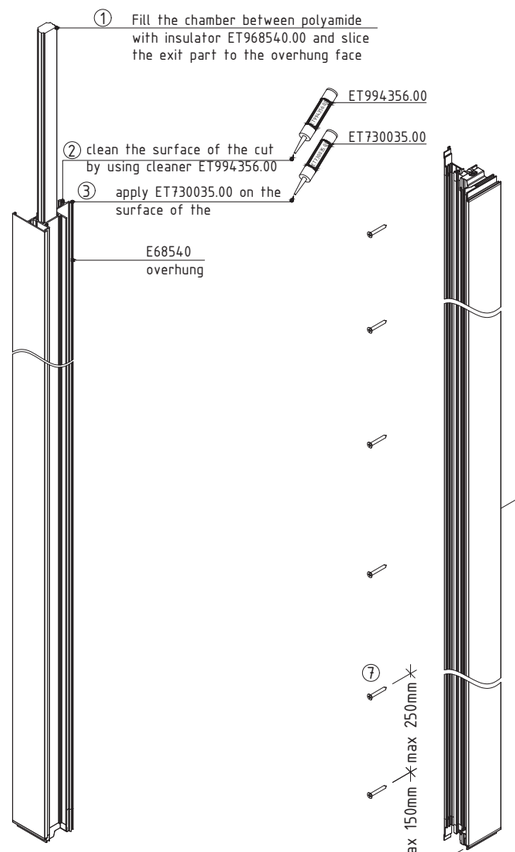
ET994356.00

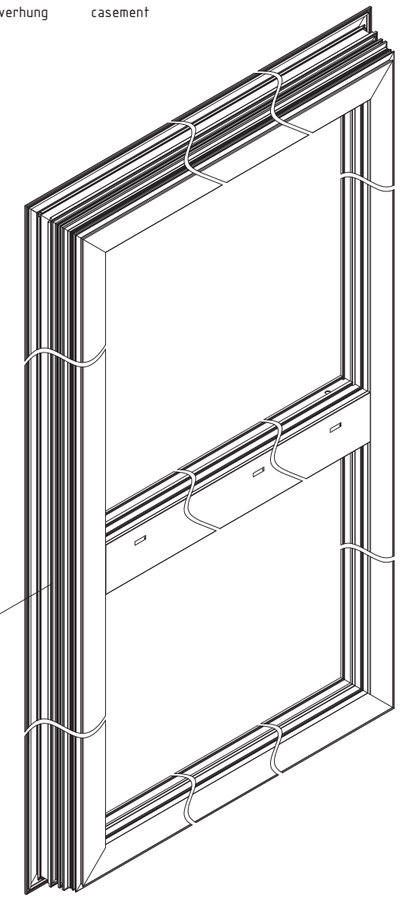
ET730035.00

② clean the surface of the cut by using cleaner ET994356.00

③ apply ET730035.00 on the surface of the

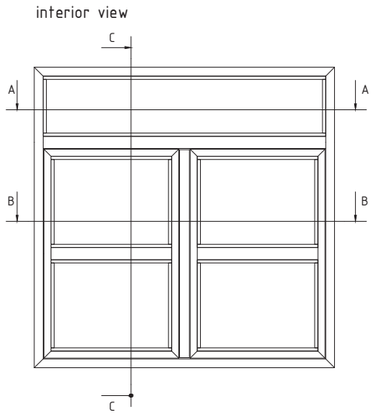
E68540
overhung

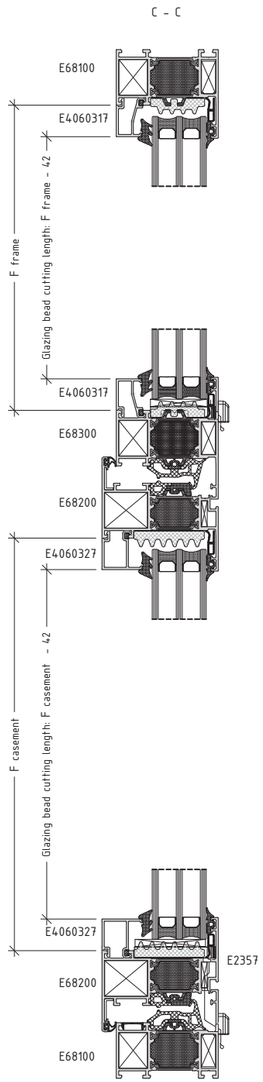


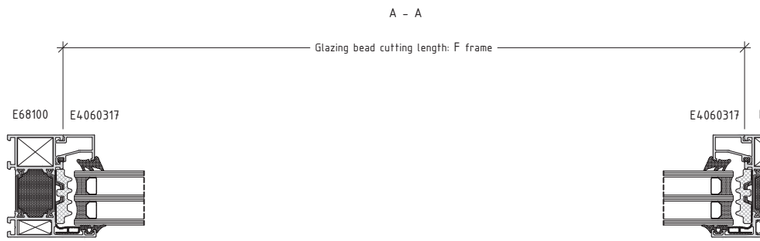


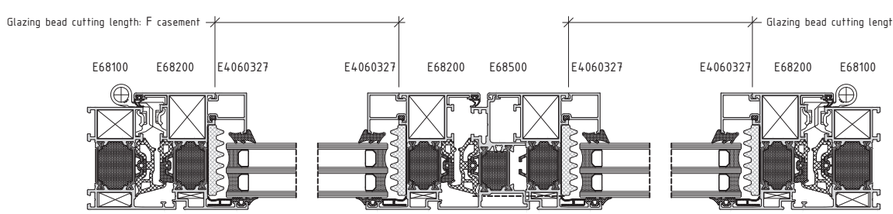
M68-12

Sequence for cutting of glazing bead



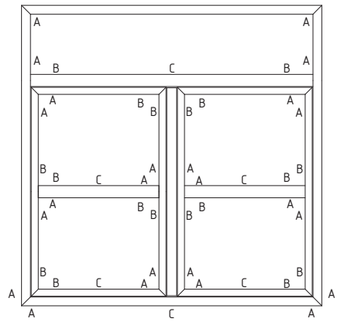


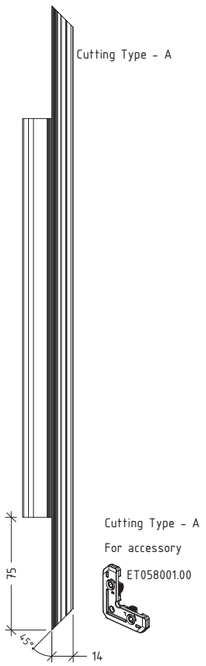


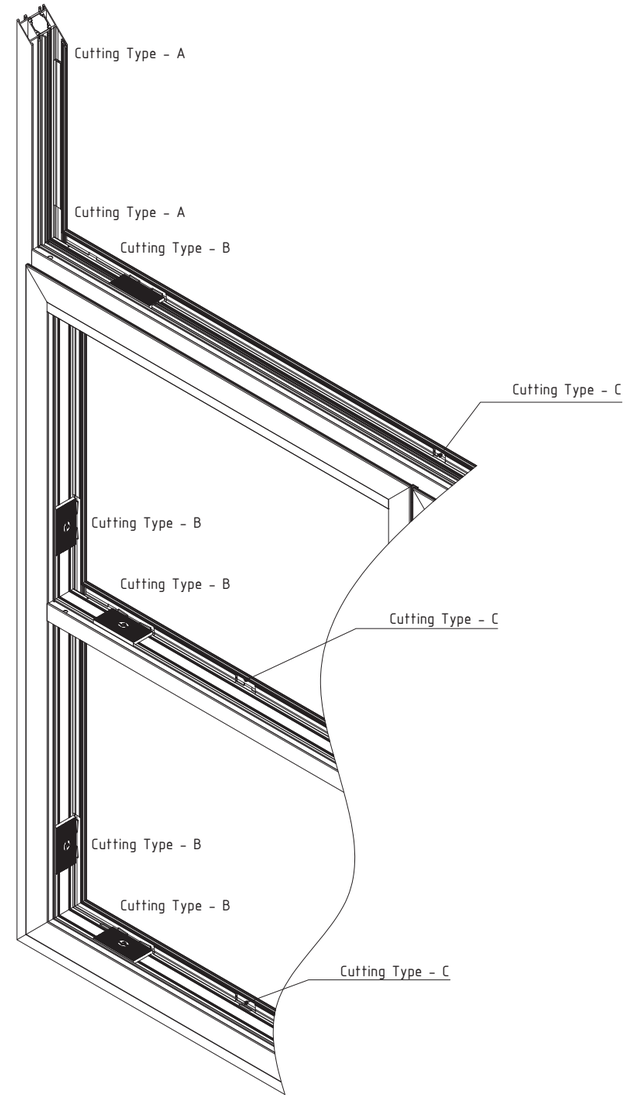


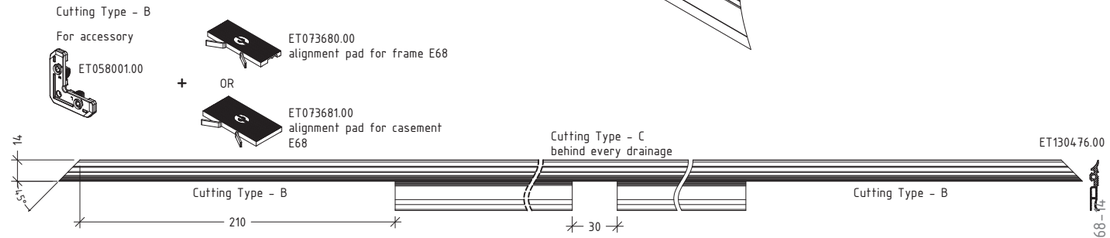
M68-13

Sequence for cutting of gasket ET130476.00





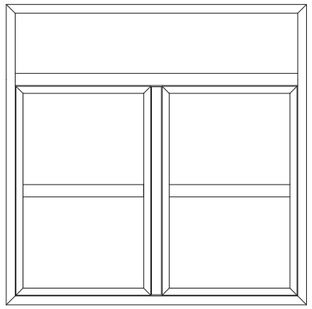


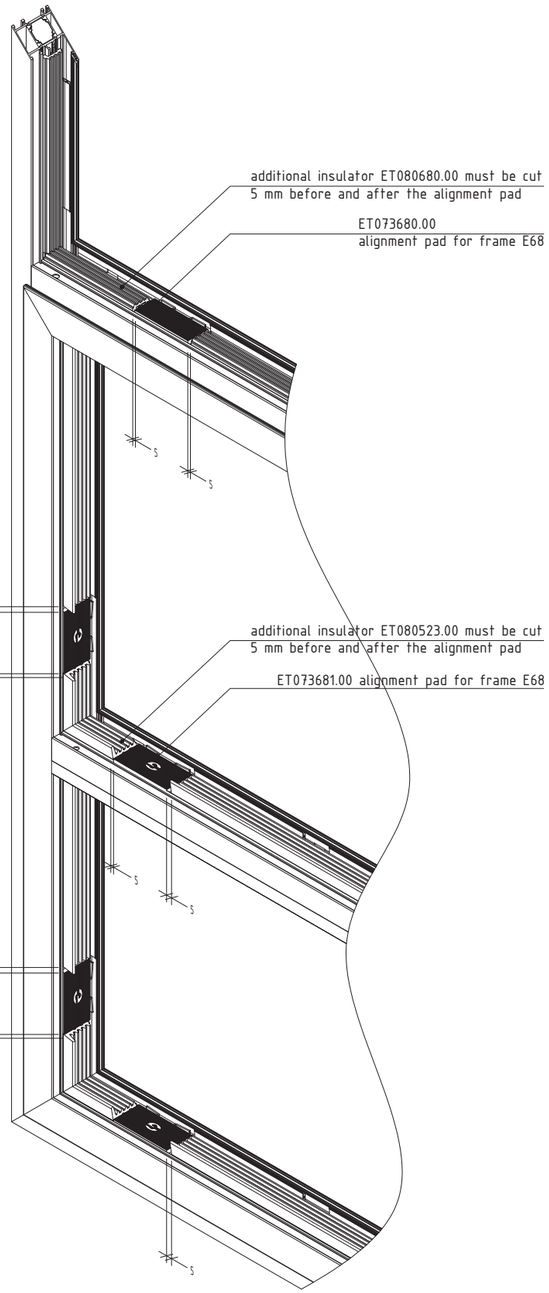


M68-14

Sequence for cutting of additional insulators

exterior view





ET080680.00

ET073680.00
alignment pad for frame E68

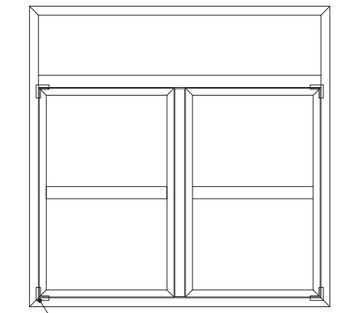
ET073681.00
alignment pad for casement E68

* ET080680.00 or ET080523.00 is applied after the application of the glazing pane

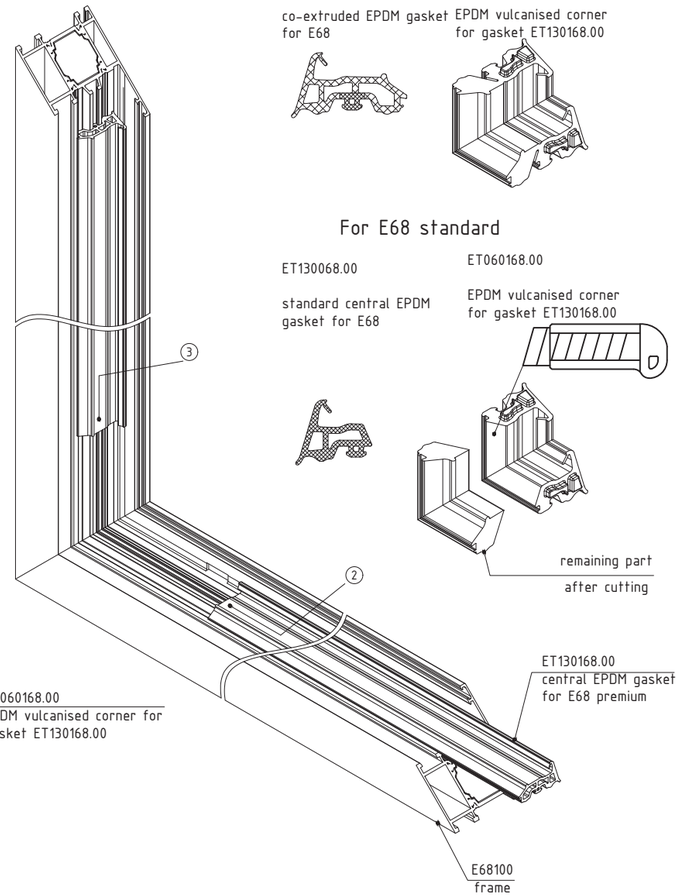
M68-15

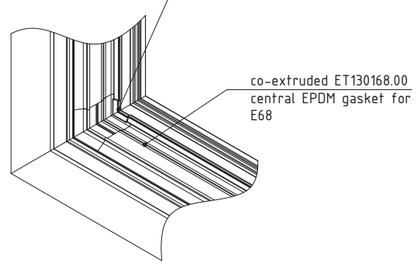
Sequence for mounting central EPDM gasket to the frame for E68

exterior view



ET060168.00
EPDM vulcanised corner for gasket ET130168.00





co-extruded ET130168.00
central EPDM gasket for E68

For E68 HIGH+/HIGH/STANDARD+

ET130168.00
co-extruded EPDM gasket for E68

ET060168.00
EPDM vulcanised corner for gasket ET130168.00

For E68 standard

ET130068.00
standard central EPDM gasket for E68

ET060168.00
EPDM vulcanised corner for gasket ET130168.00

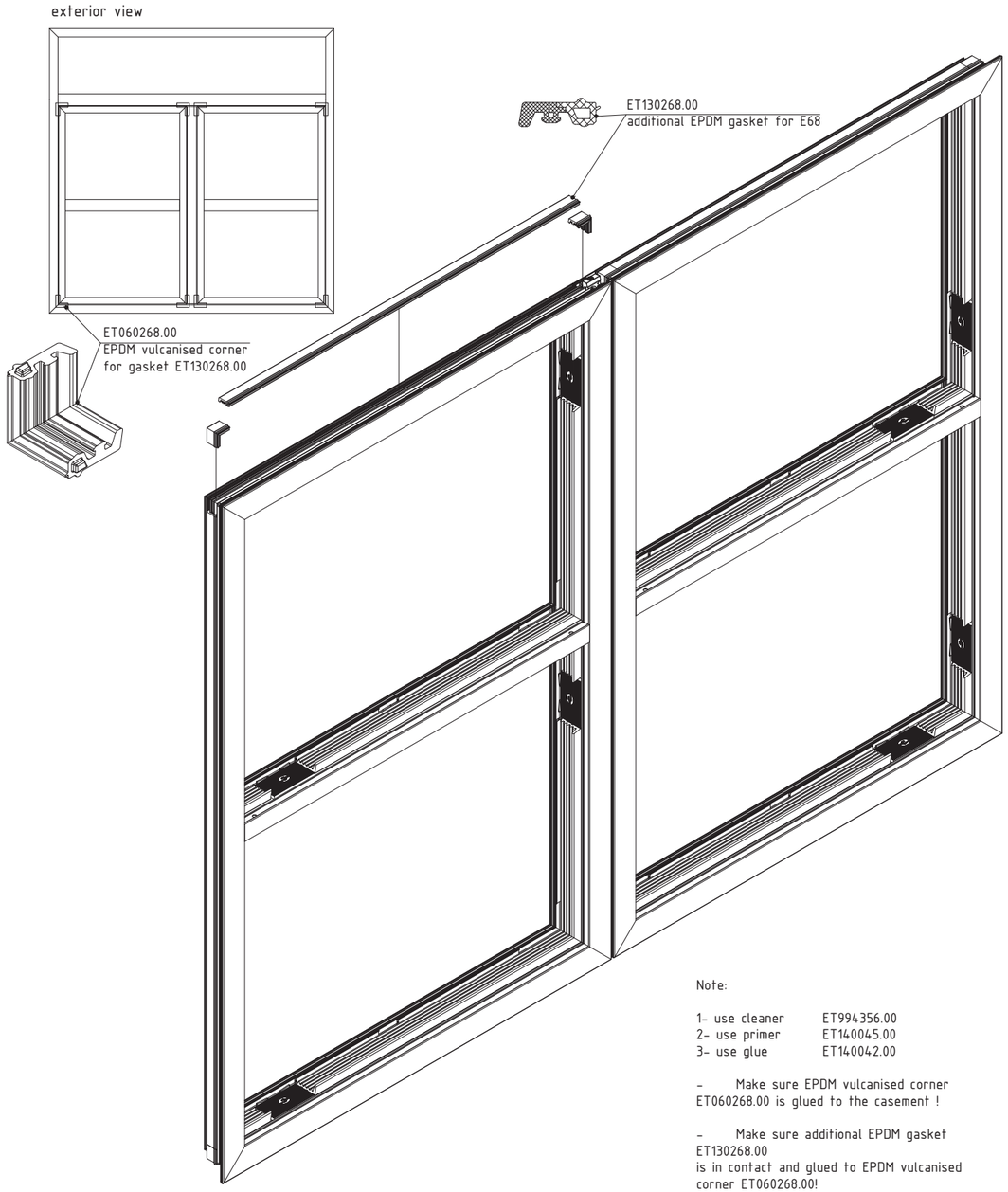
Note:

1- use cleaner	ET994356.00
2- use primer	ET140045.00
3- use glue	ET140042.00

- Make sure central EPDM gasket ET130168.00 is in contact and glued to EPDM vulcanised corner ET060168.00!

M68-16

Sequence for mounting additional EPDM gasket to the casement for E68



Note:

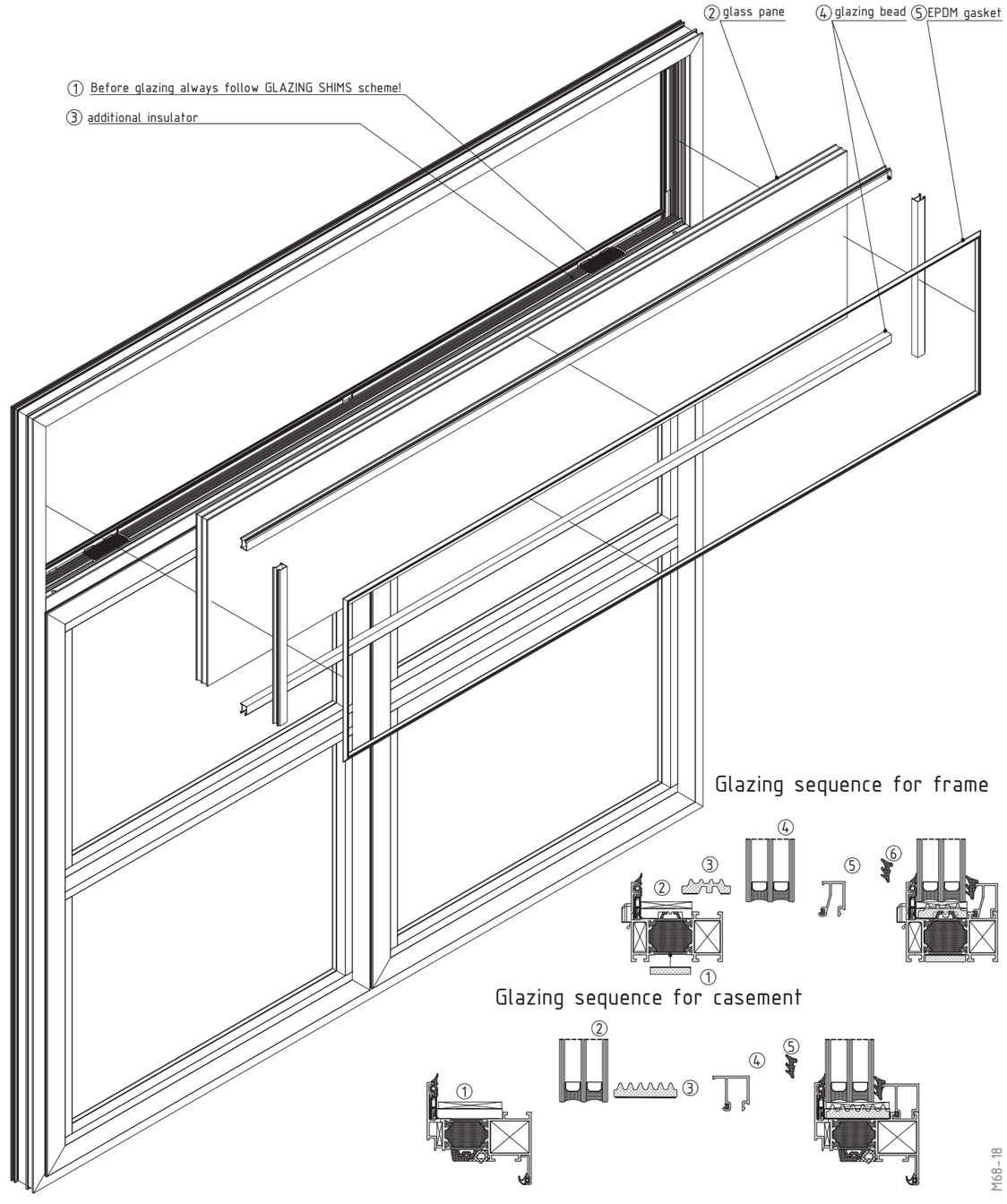
1- use cleaner ET994356.00
2- use primer ET140045.00
3- use glue ET140042.00

- Make sure EPDM vulcanised corner ET060268.00 is glued to the casement !

- Make sure additional EPDM gasket ET130268.00 is in contact and glued to EPDM vulcanised corner ET060268.00!

M68-17

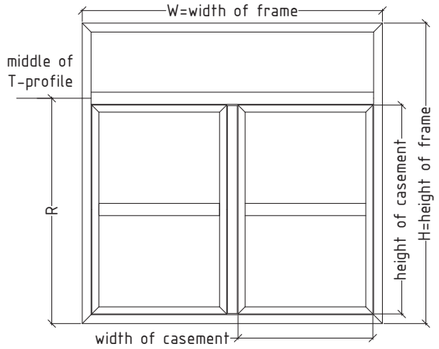
Sequence for mounting glass pane; glazing bead and gasket



Glazing sequence for frame

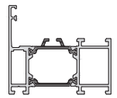
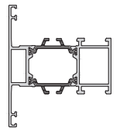
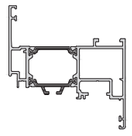
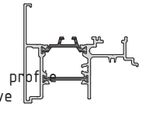
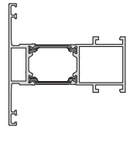
Glazing sequence for casement

M68-18



Sample for manufacturing E68 position
with combination of profile with PVC groove

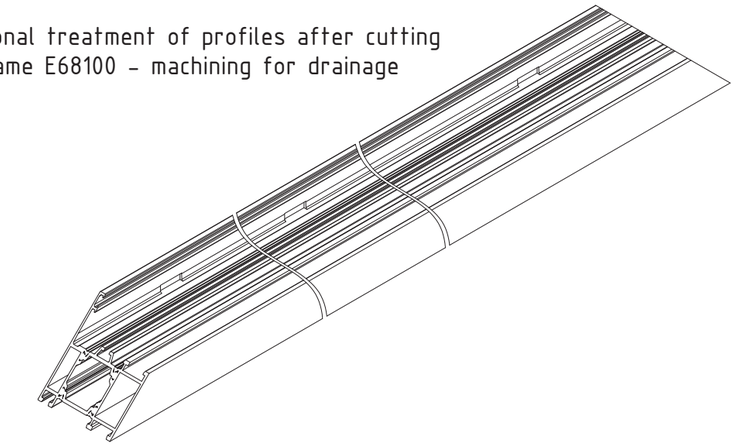
calculation of cutting length and angle for E68 profile

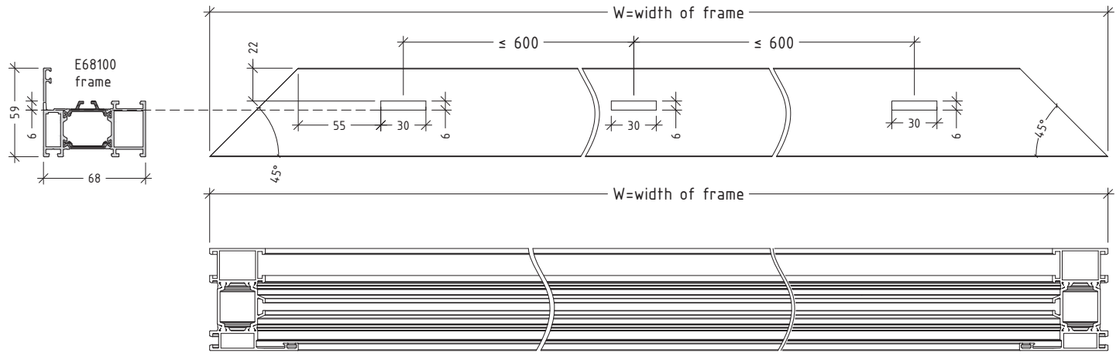
profile selection		pieces	cutting formula	cutting angles
E68100 frame 	width of frame	2	W	2x45°
	height of frame	2	H	2x45°
E68300 T profile 	width of T profile	1	W - 65.5	2x90°
E68220 casement 	width of casement	4	$\frac{W - 64}{2}$	2x45°
	height of casement	4	R - 39.5	2x45°
E68540 overhung secondary casement profile PVC groove 	height of overhung	1	height of casement - 76	2x90°
E68340 T profile 	width of T profile	2	width of casement - 111.5	2x90°

M68-P1

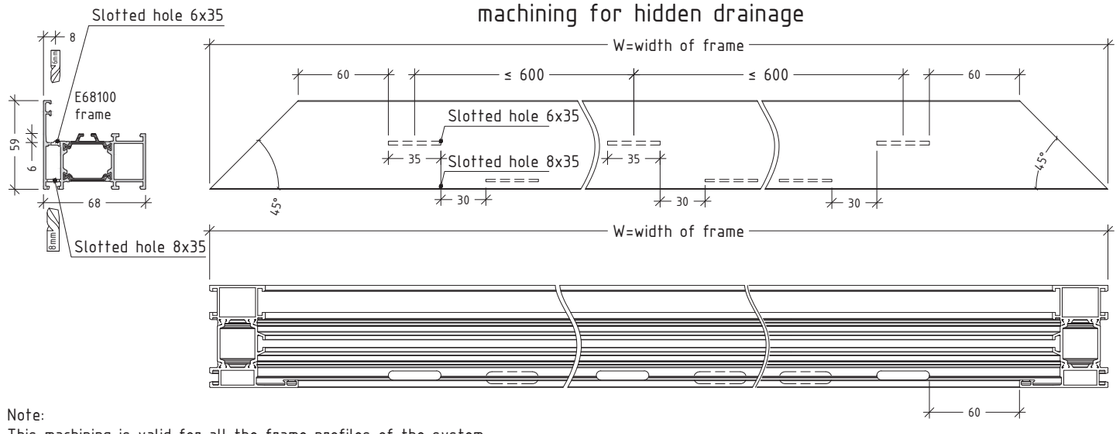
Additional treatment of profiles after cutting
Frame E68100 - machining for drainage

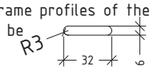
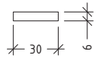
exterior view





Optional
machining for hidden drainage

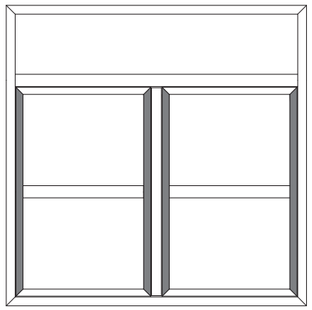


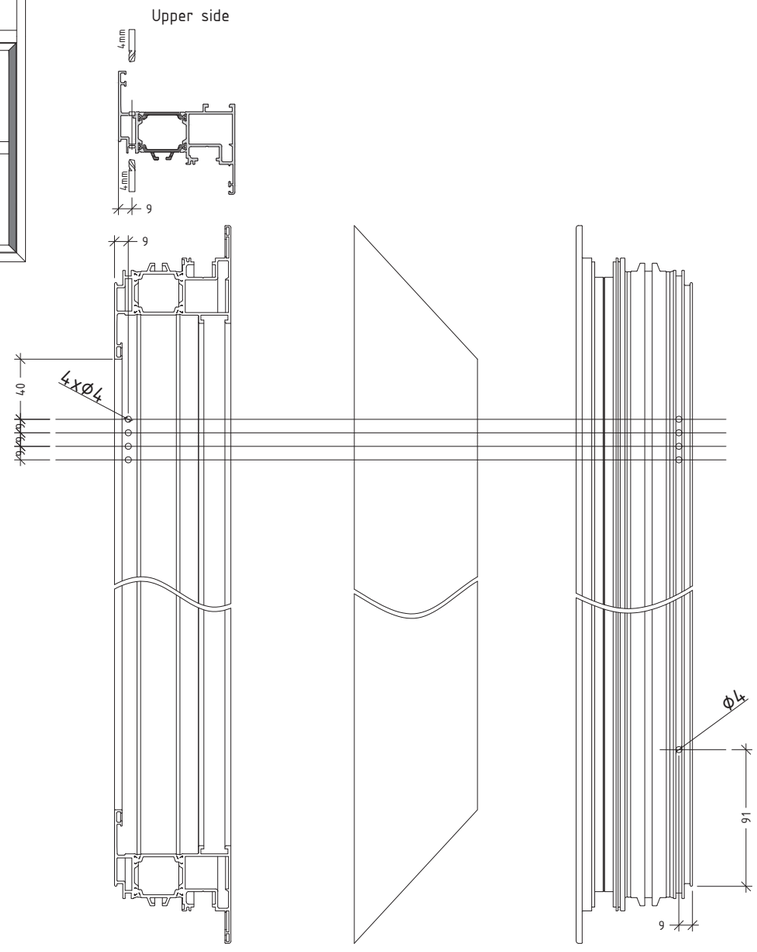
Note:
This machining is valid for all the frame profiles of the system
For CNC machine drainage hole must be  for punching machine is 

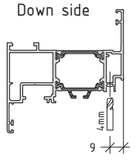
M68-P2

Additional treatment of profiles after cutting
casement E68220 - machining for ventilation

exterior view





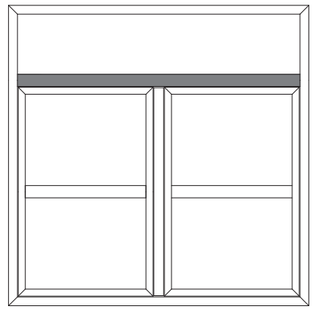


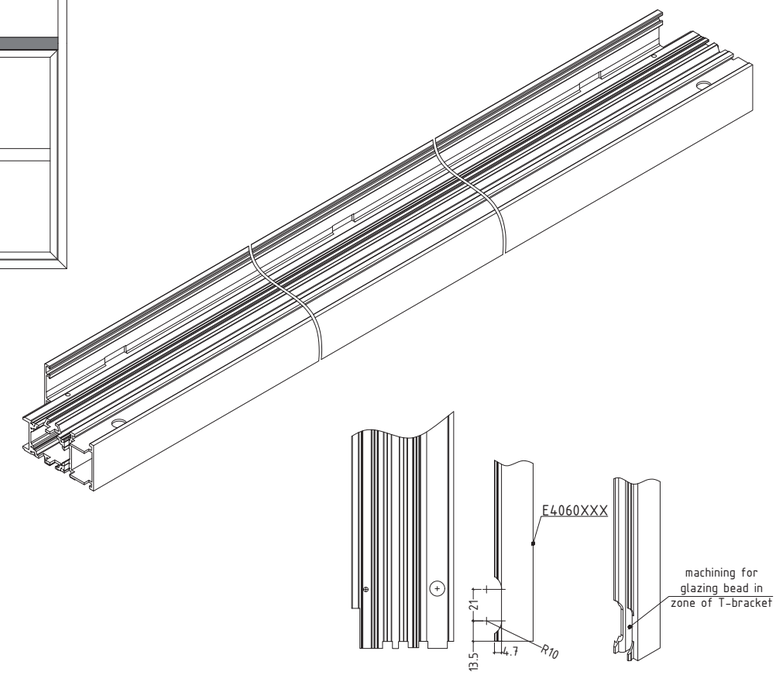
Note:
This machining is valid for all the casement profiles in the system with PVC groove!

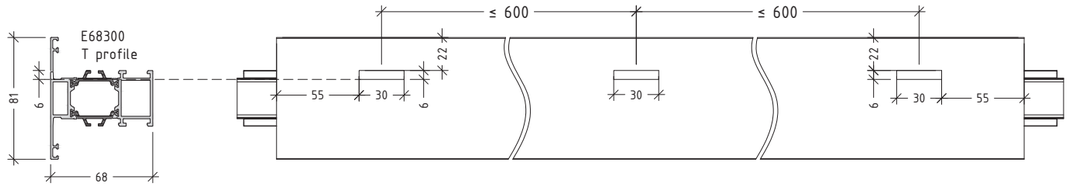
M68-P2-1

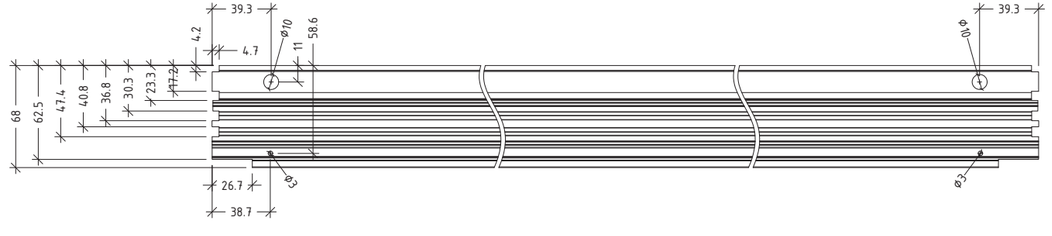
Additional treatment of profiles after cutting
T profile E68300 - machining for visible visible drainage and connecting to the frame

exterior view





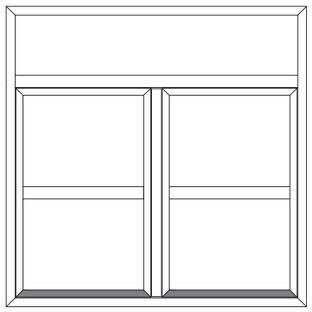


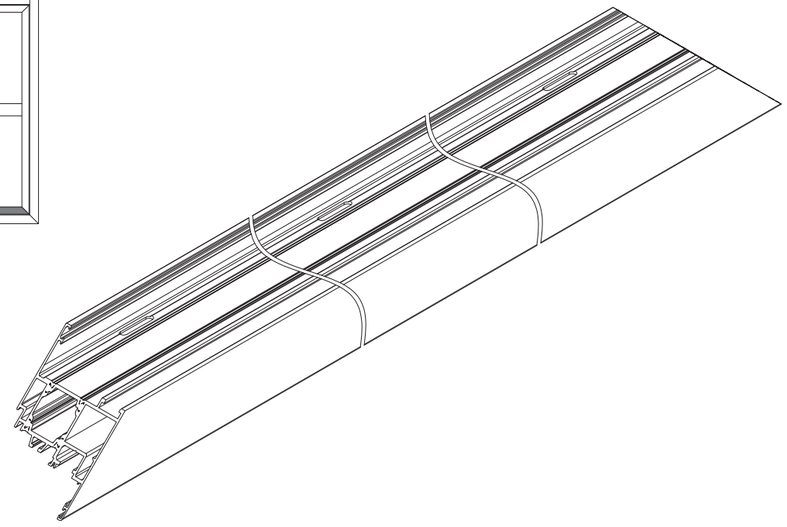


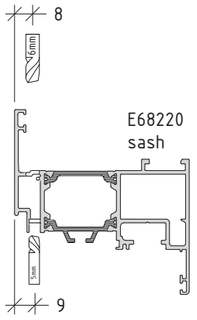
M68-P3

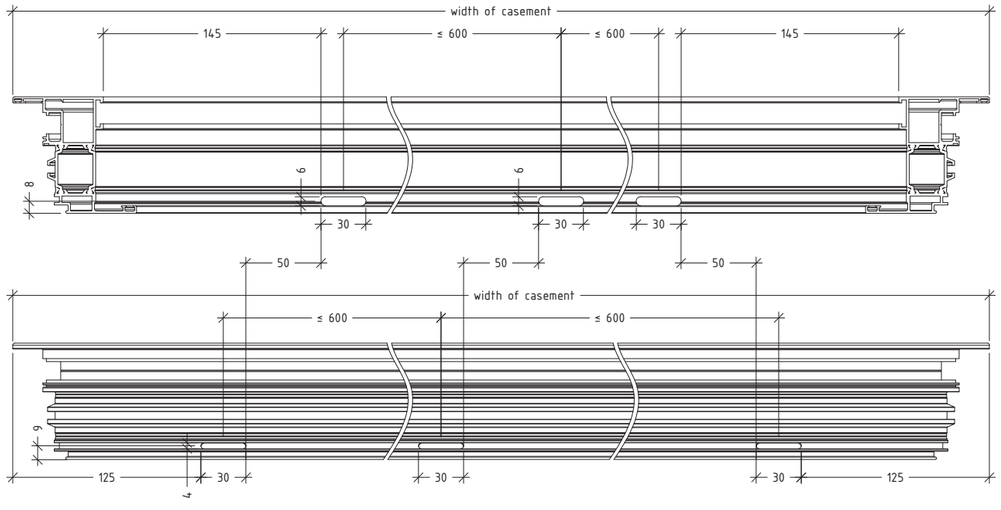
Additional treatment of profiles after cutting
casement E68220 - machining for drainage

exterior view







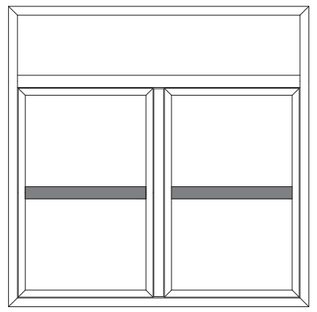


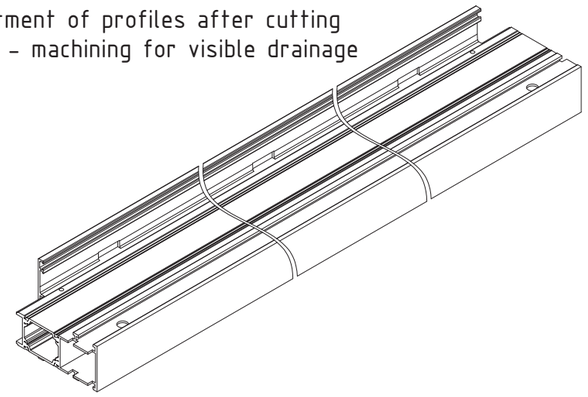
Note:
This machining is valid for all the casement profiles in the system with PVC groove!

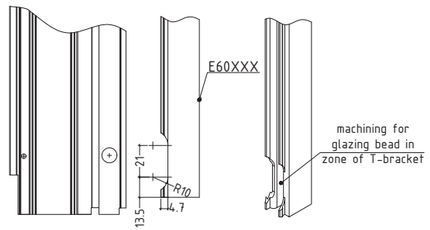
M68-P4

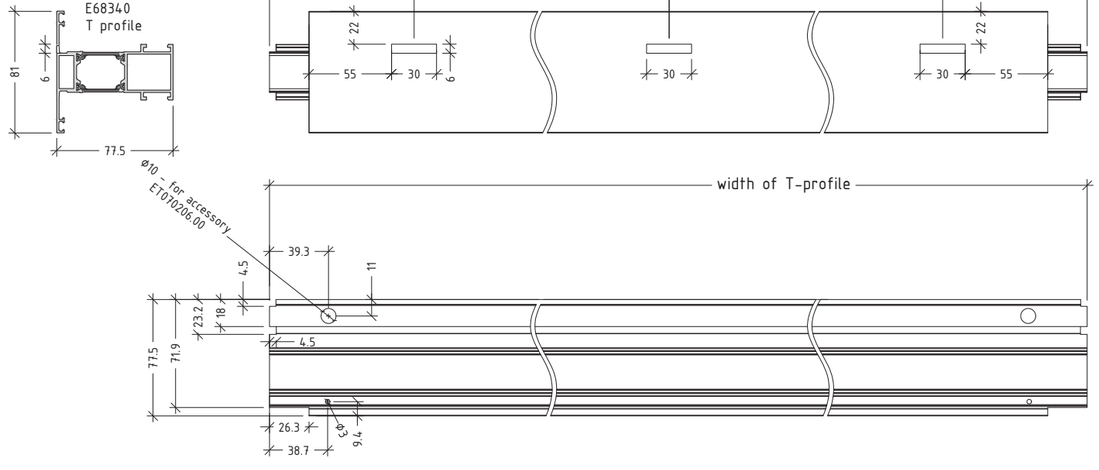
Additional treatment of profiles after cutting
T-profile E68340 - machining for visible drainage

exterior view





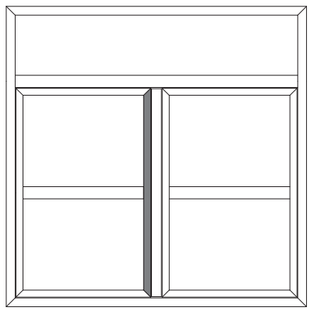




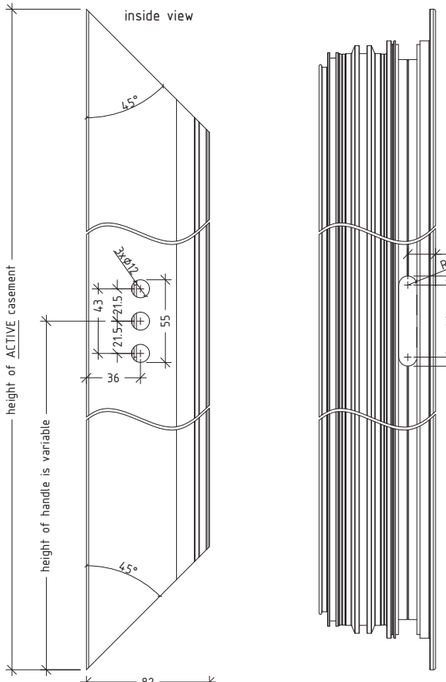
M68-P5

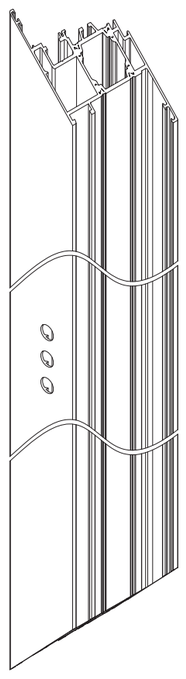
Additional treatment of profiles after cutting
casement E68220 – machining for handle on active casement

exterior view

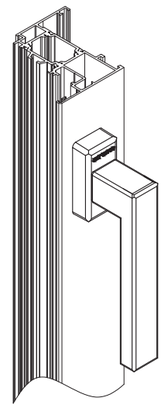


inside view



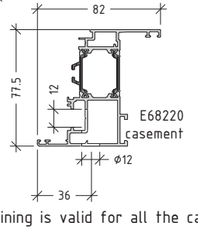


machining for GU mechanism



NOTE:

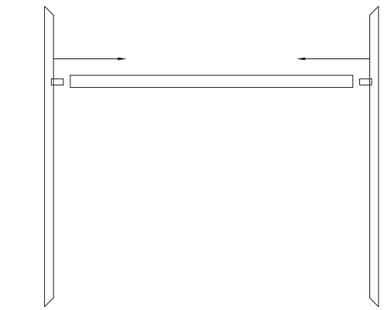
– For different cases active and passive casement positions varied!
– For different hardware the machining for handle may not fit!
(use mounting scheme for hardware supplier!!)

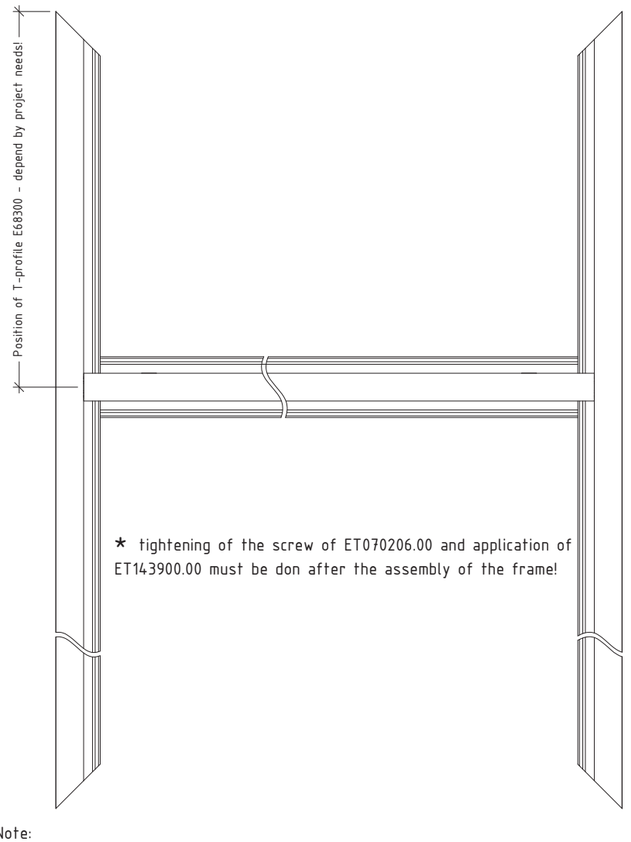


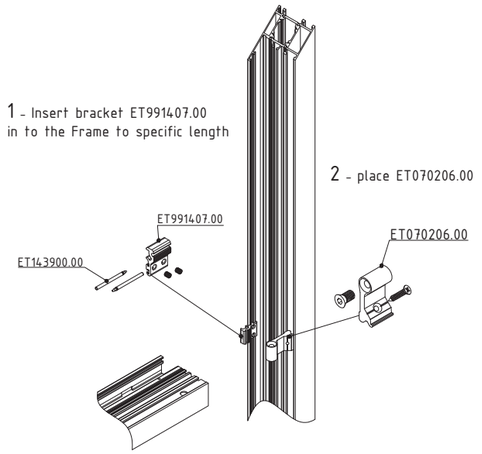
Note:
This machining is valid for all the casement profiles with PVC groove in the system

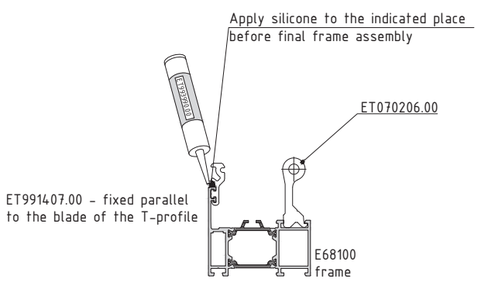
M68–P6

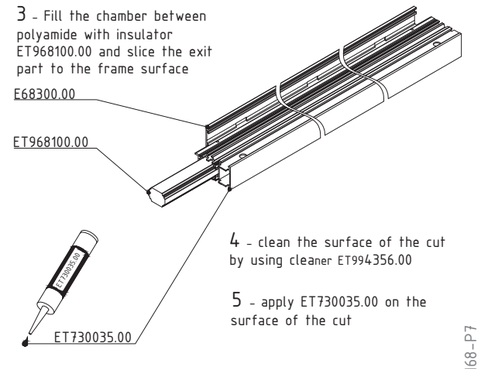
Sequence for mounting of T-profile E68300 to the frame E68100







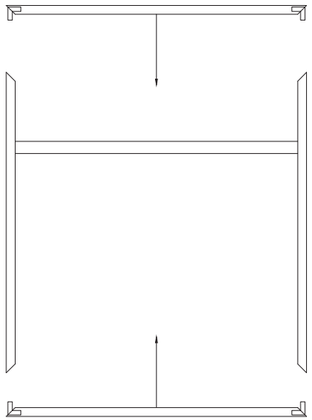




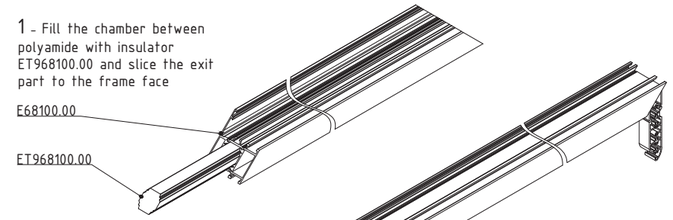
Note:
This mounting sequence is valid for all the frames in the system

M68–P7

Sequence for assembly the frame E68100

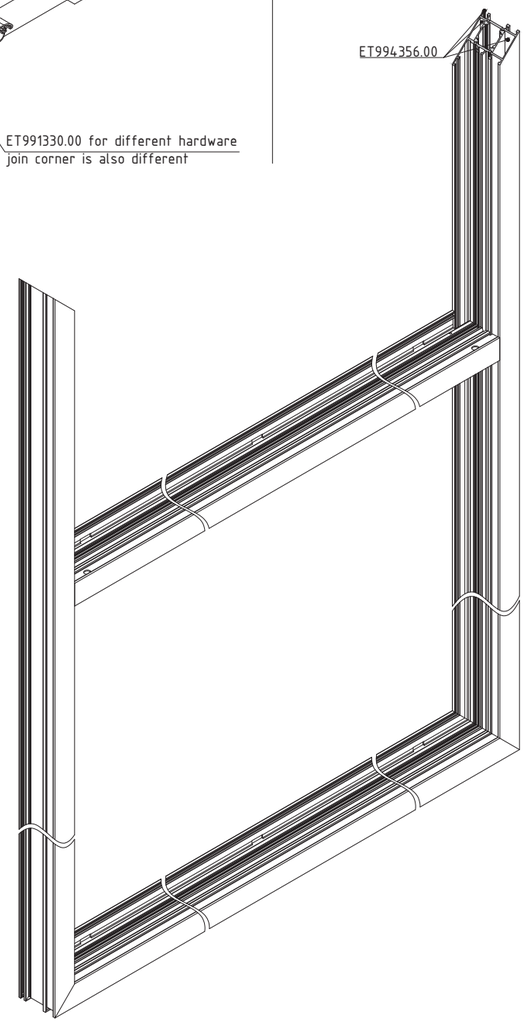


1 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the frame face

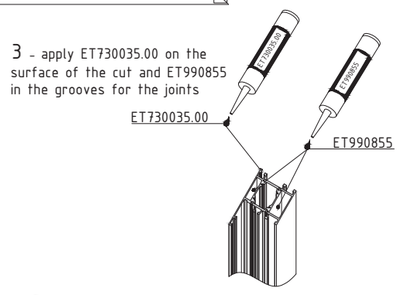


4 - put the joints in the chambers of frame E68100

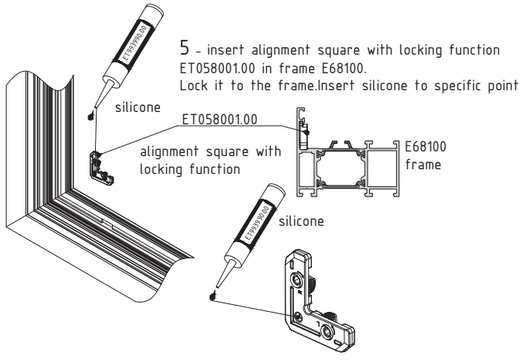
2 - clean the surface of the cut and the grooves for the joints by using cleaner ET994356.00



3 - apply ET730035.00 on the surface of the cut and ET990855 in the grooves for the joints



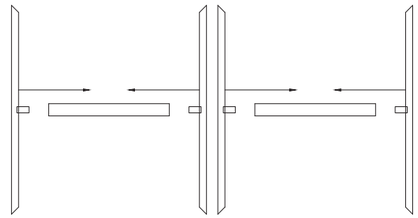
5 - insert alignment square with locking function ET058001.00 in frame E68100.
Lock it to the frame.Insert silicone to specific point

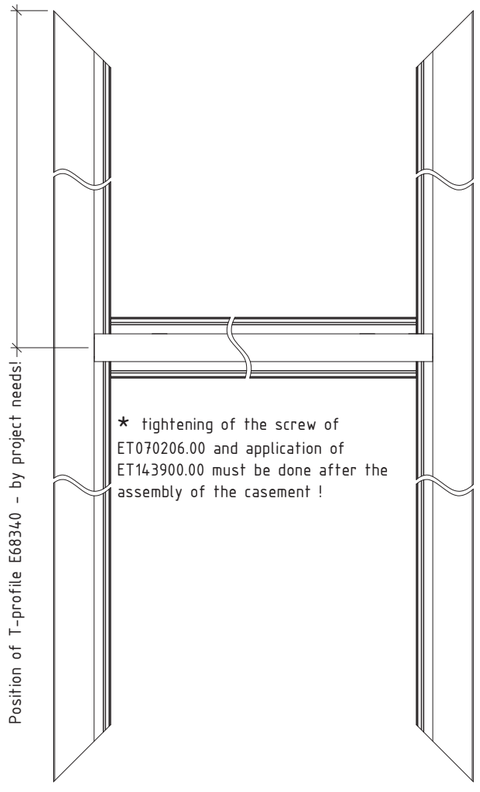


Note:
* This mounting sequence is valid for all the frame profiles in the system
by using corresponding joint corners FOR PVC HARDWARE and insulators
* Clean the joints before application

M68-P8

Sequence for mounting of T-profile E68340 to the casement E68220

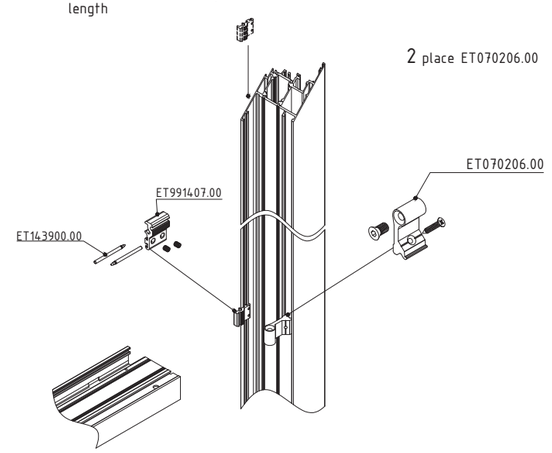




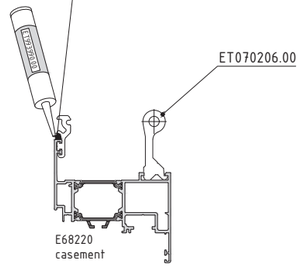
* tightening of the screw of ET070206.00 and application of ET143900.00 must be done after the assembly of the casement !

1 Insert bracket ET991407.00 in to the casement to specific length

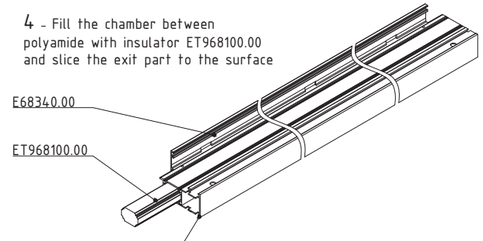
2 place ET070206.00



3 Apply silicone to the indicated place before final frame assembly



4 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the surface



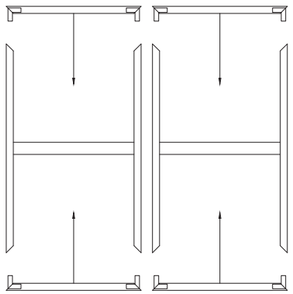
4 - clean the surface of the cut by using cleaner ET994356.00

5 - apply ET730035.00 on the surface of the cut

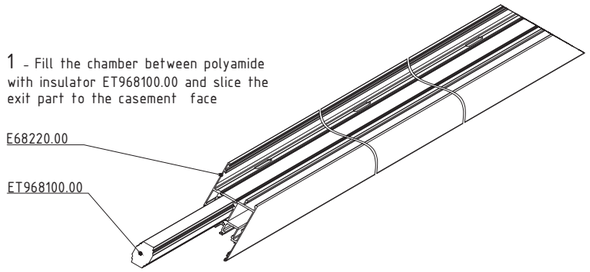
Note:
This mounting sequence is valid for all casement profile with Euro groove in the system

M68-P9

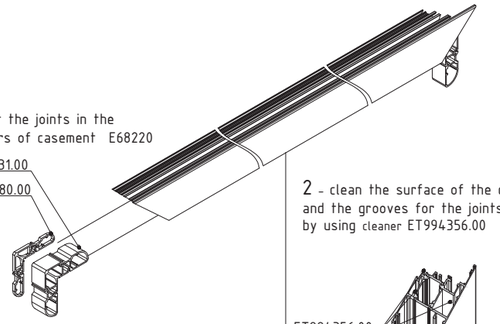
Sequence for assembly the casement E68220



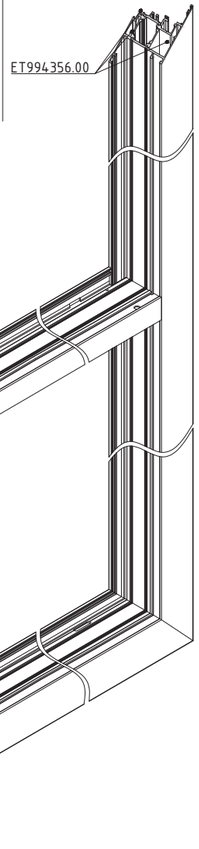
1 - Fill the chamber between polyamide with insulator ET968100.00 and slice the exit part to the casement face



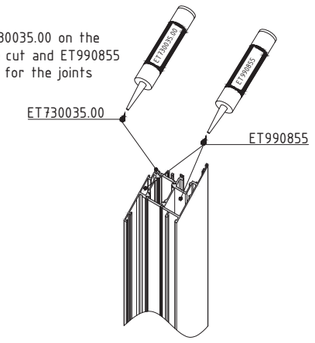
4 - put the joints in the chambers of casement E68220



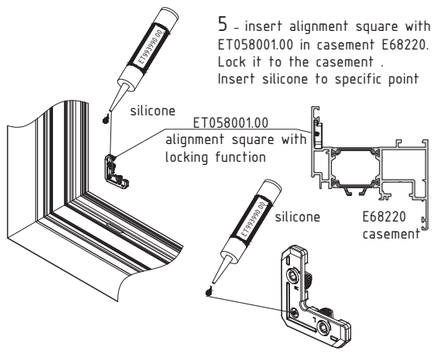
2 - clean the surface of the cut and the grooves for the joints by using cleaner ET994356.00



3 - apply ET730035.00 on the surface of the cut and ET990855 in the grooves for the joints



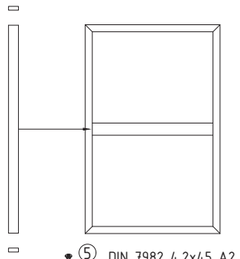
5 - insert alignment square with locking function ET058001.00 in casement E68220.
Lock it to the casement .
Insert silicone to specific point

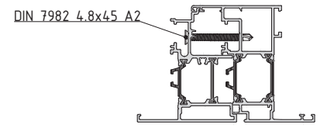


Note:
* This mounting sequence is valid for all the casement profiles in the system by using corresponding joint corners and insulators
* Clean the joints before application

M68-P10

Sequence for assembly the E68540 overhung and mounting to the casement E68220





⑤ DIN 7982 4.2x45 A2

④ ET074681.00

① Fill the chamber between polyamide with insulator ET968540.00 and slice the exit part to the overhung face

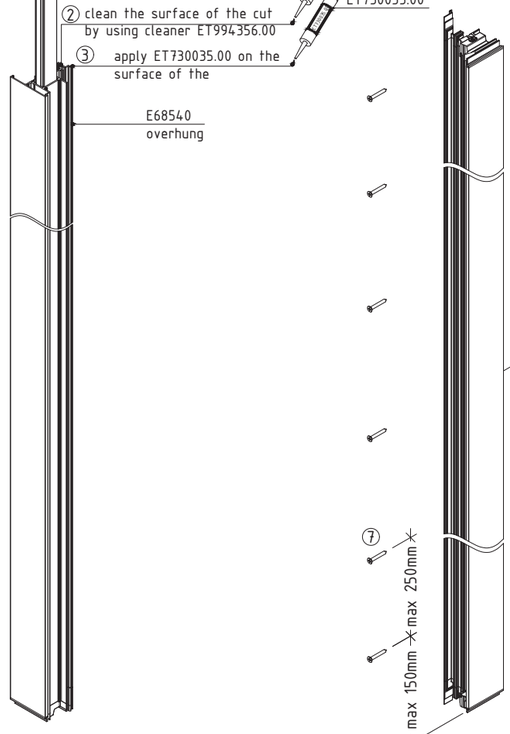
ET994356.00

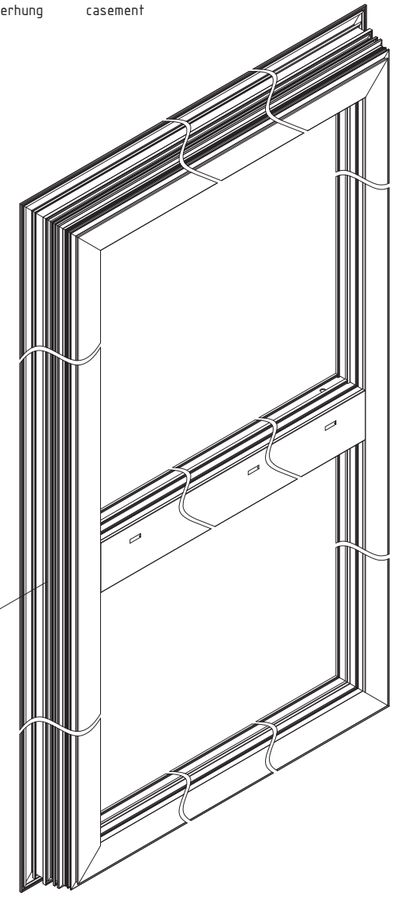
ET730035.00

② clean the surface of the cut by using cleaner ET994356.00

③ apply ET730035.00 on the surface of the

E68540
overhung





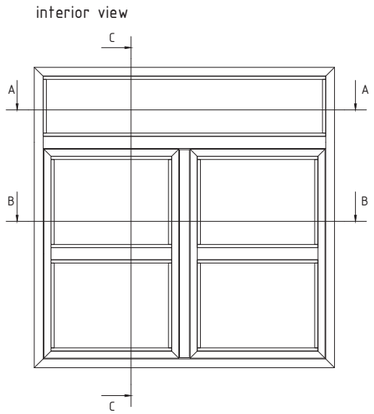
⑥

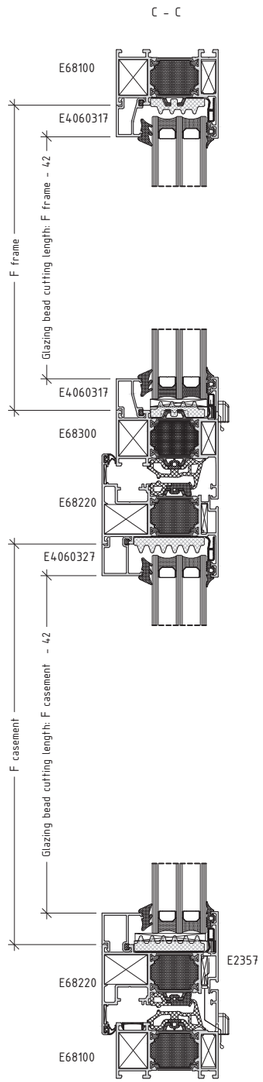
⑦

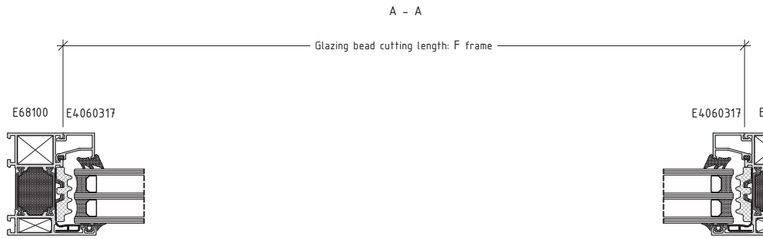
max 150mm max 250mm

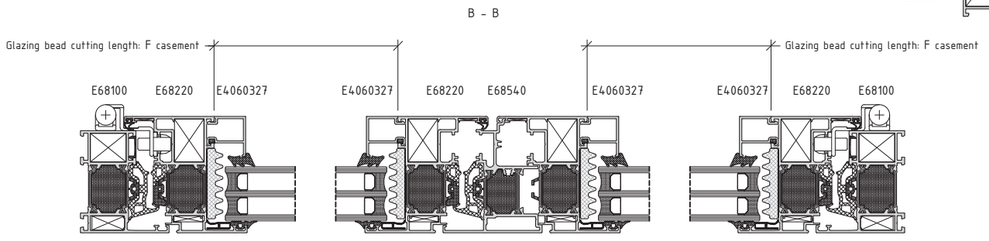
M68-P11

Sequence for cutting of glazing bead



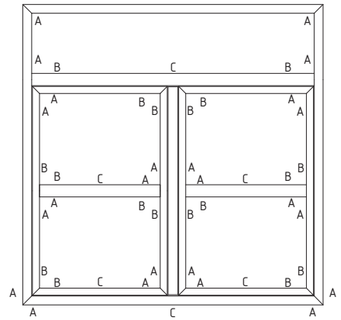


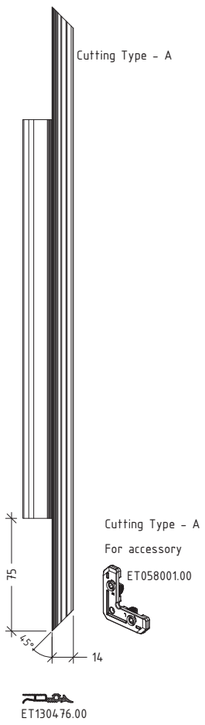


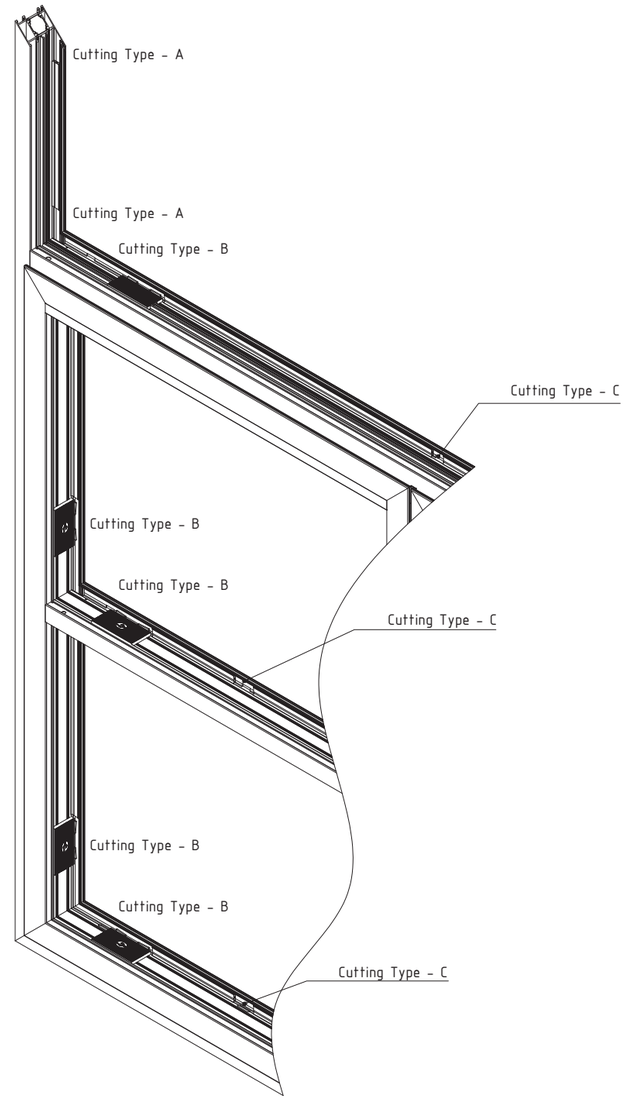


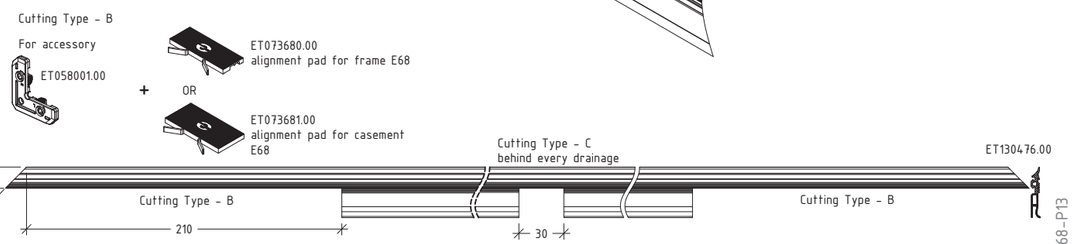
M68-P12

Sequence for cutting of gasket ET130476.00





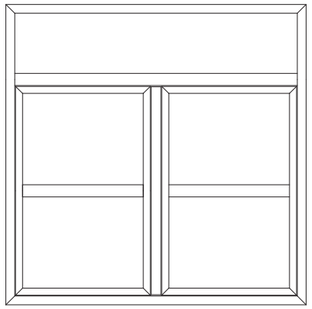


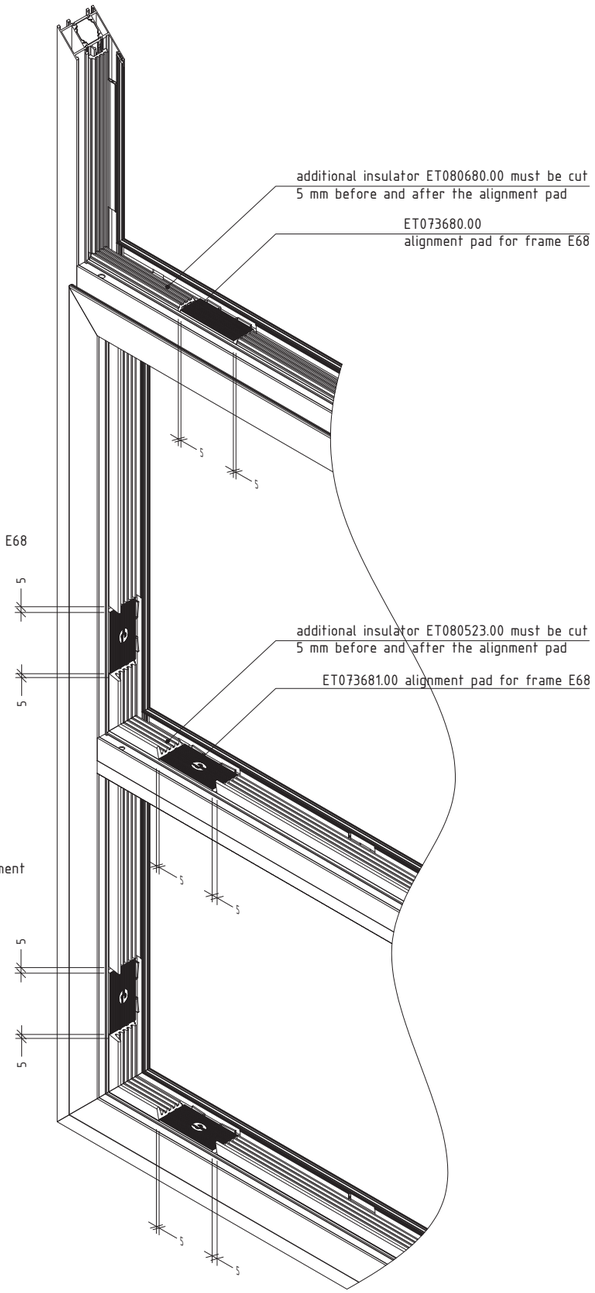


M68-P13

Sequence for cutting of additional insulators

exterior view





ET080680.00

ET073680.00
alignment pad for frame E68

ET080681.00

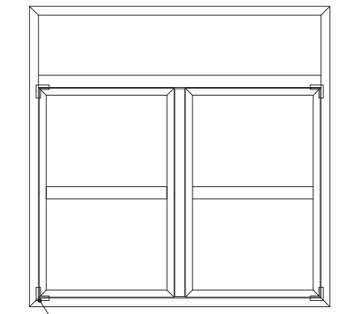
ET073681.00
alignment pad for casement E68

* ET080680.00 or ET080523.00 is applied after the application of the glazing pane

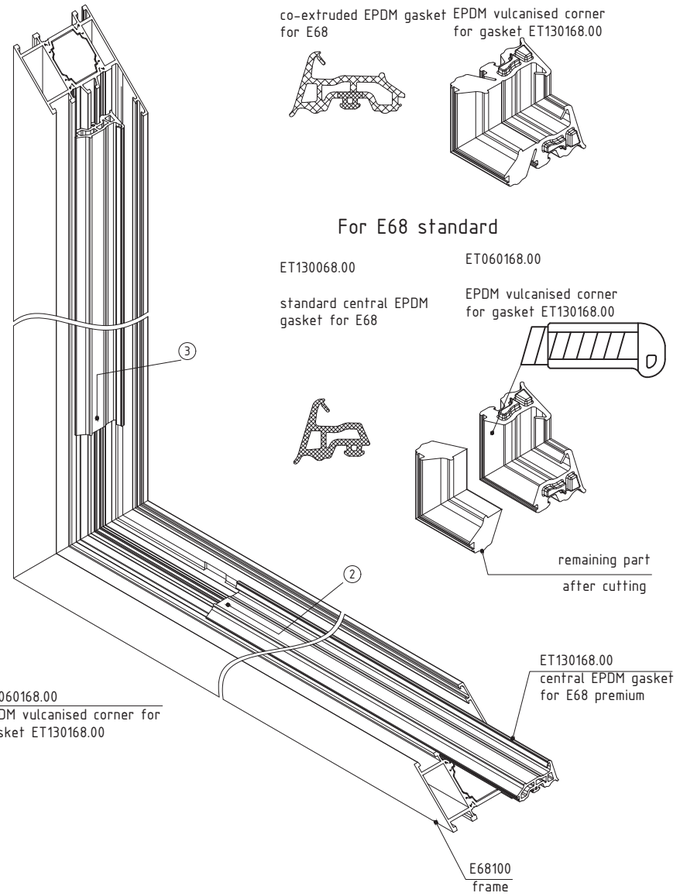
M68-P14

Sequence for mounting central EPDM gasket to the frame for E68

exterior view



ET060168.00
EPDM vulcanised corner for gasket ET130168.00



ET060168.00
EPDM vulcanised corner for gasket ET130168.00

co-extruded ET130168.00
central EPDM gasket for E68

For E68 HIGH+/HIGH/STANDARD+

ET130168.00
co-extruded EPDM gasket for E68

ET060168.00
EPDM vulcanised corner for gasket ET130168.00

For E68 standard

ET130068.00
standard central EPDM gasket for E68

ET060168.00
EPDM vulcanised corner for gasket ET130168.00

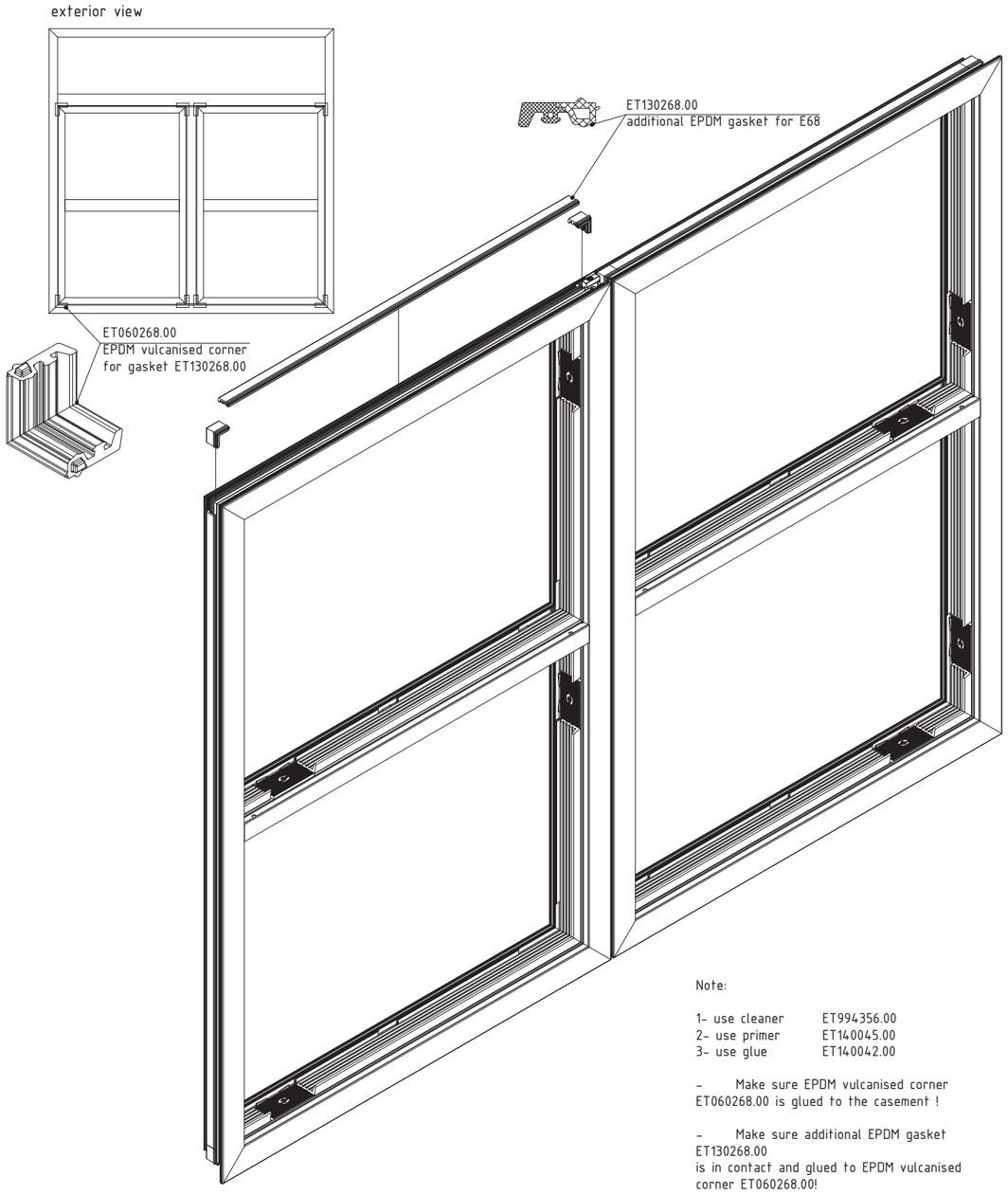
Note:

1- use cleaner ET994356.00
2- use primer ET140045.00
3- use glue ET140042.00

- Make sure central EPDM gasket ET130168.00 is in contact and glued to EPDM vulcanised corner ET060168.00!

M68-P15

Sequence for mounting additional EPDM gasket to the casement for E68



Note:

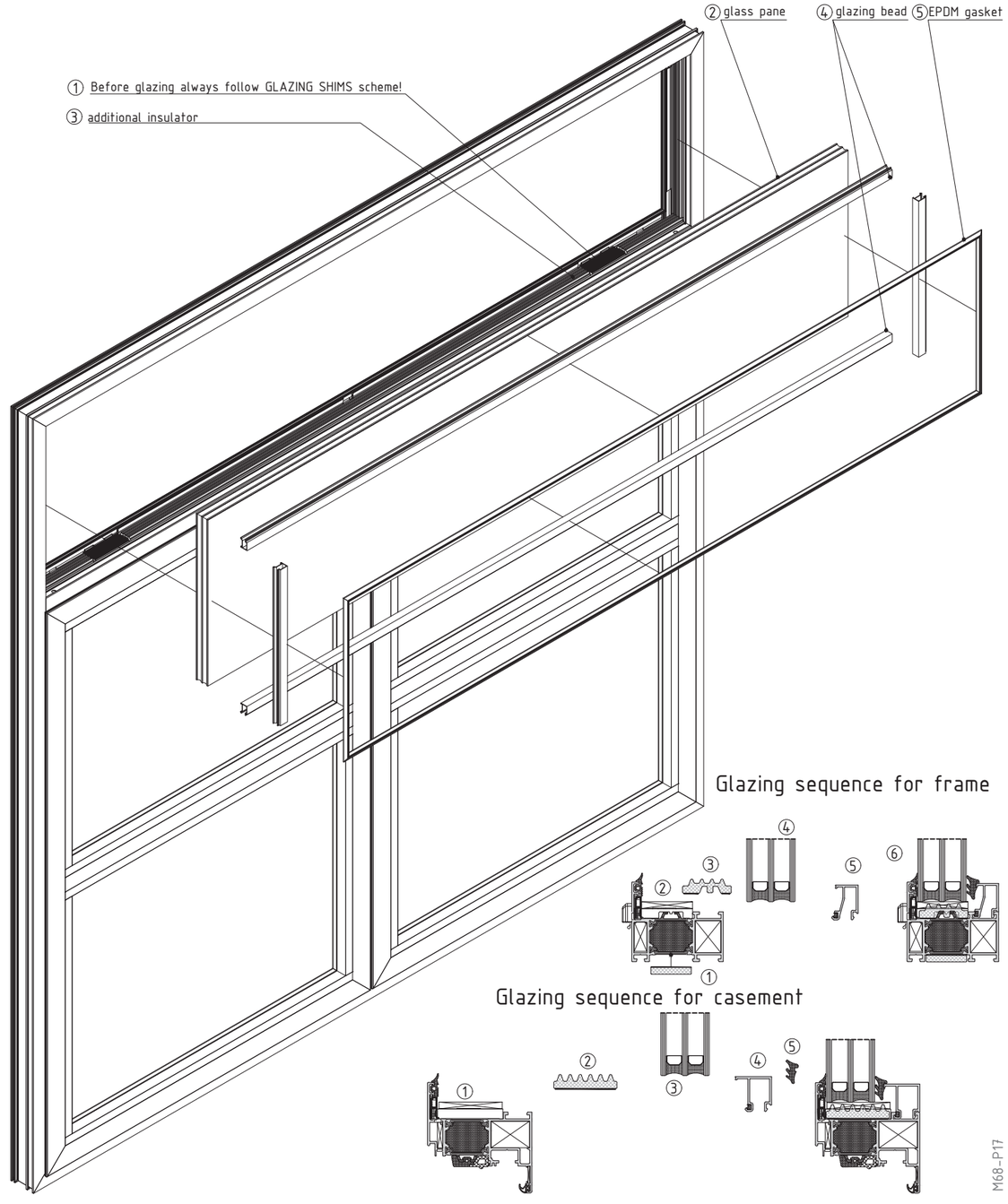
1- use cleaner ET994356.00
2- use primer ET140045.00
3- use glue ET140042.00

- Make sure EPDM vulcanised corner ET060268.00 is glued to the casement !

- Make sure additional EPDM gasket ET130268.00 is in contact and glued to EPDM vulcanised corner ET060268.00!

M68-P16

Sequence for mounting glass pane; glazing bead and gasket



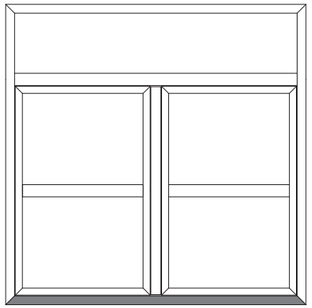
Glazing sequence for frame

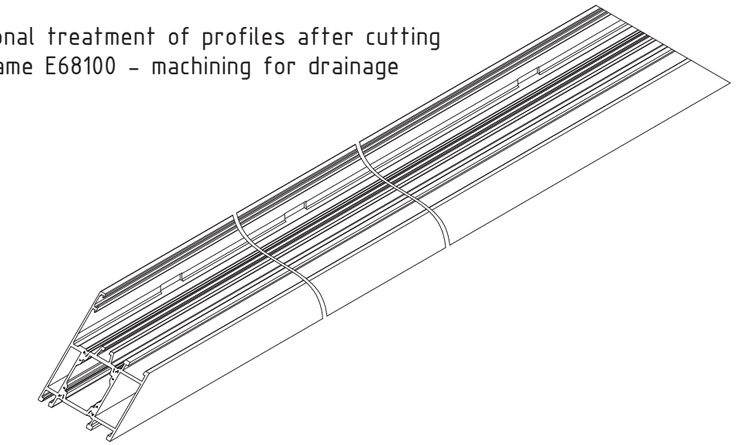
Glazing sequence for casement

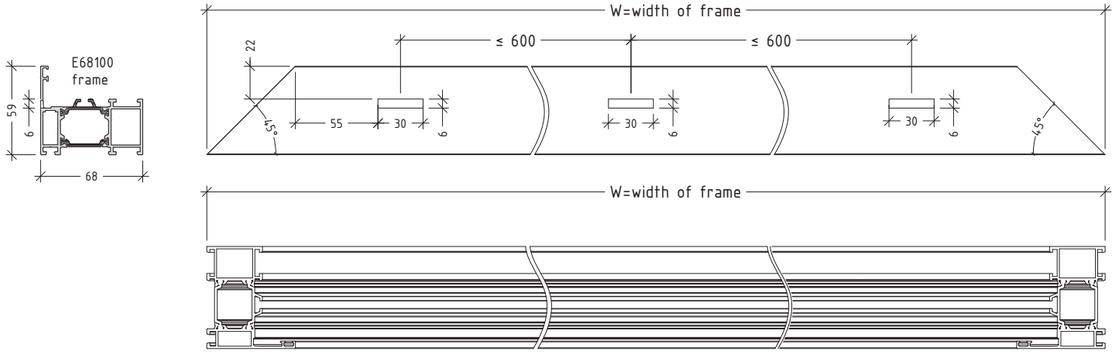
M68-P17

Additional treatment of profiles after cutting
Frame E68100 - machining for drainage

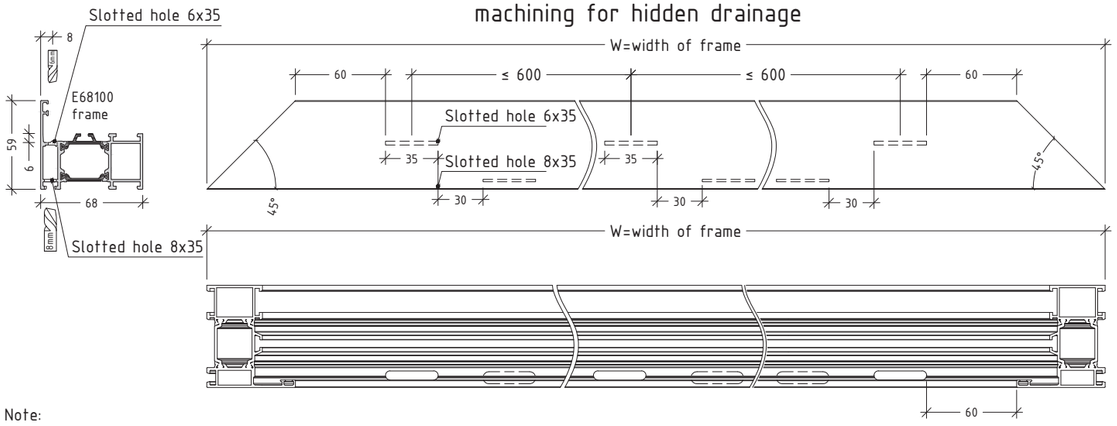
exterior view

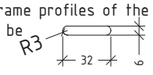






Optional
machining for hidden drainage

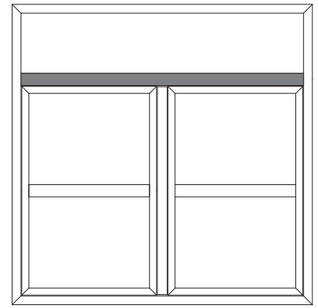


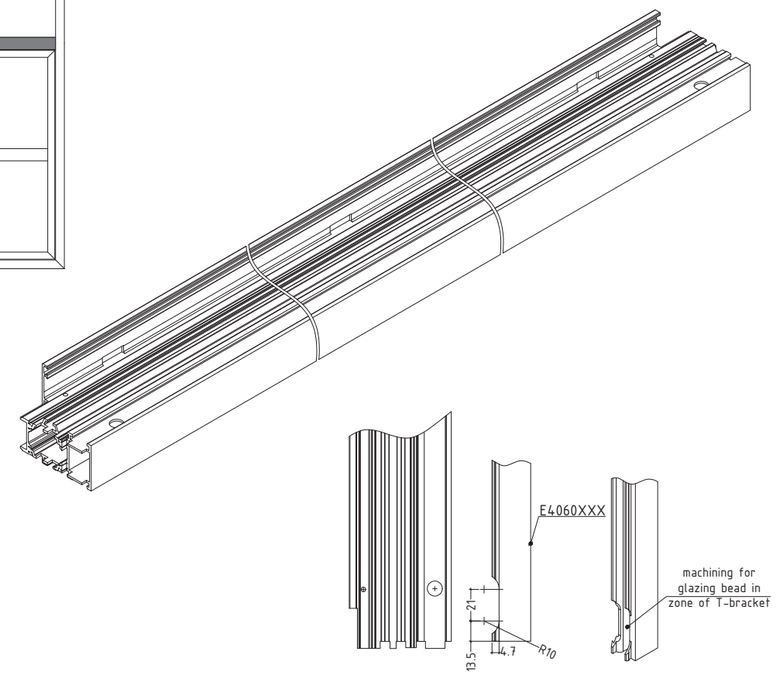
Note:
This machining is valid for all the frame profiles of the system
For CNC machine drainage hole must be  for punching machine is 

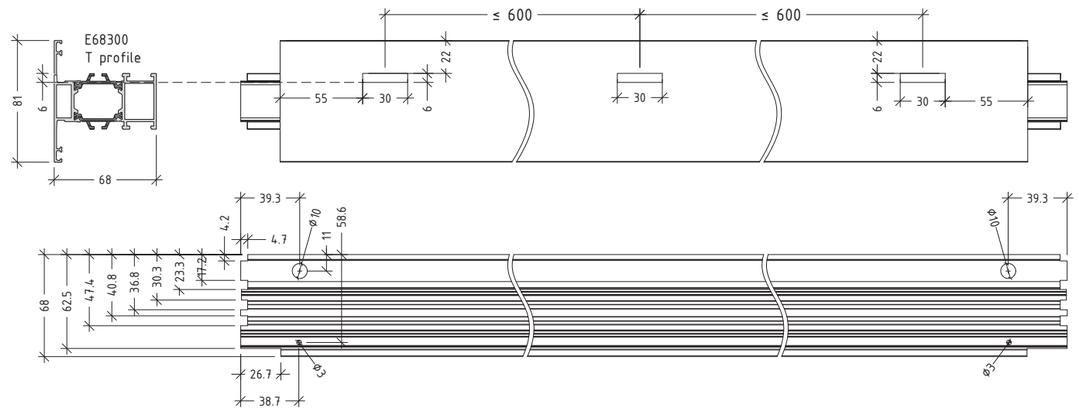
M68-2

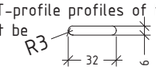
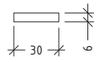
Additional treatment of profiles after cutting
T profile E68300 - machining for visible visible drainage and connecting to the frame

exterior view







Note:
This machining is valid for all the T-profile profiles of the system
For CNC machine drainage hole must be  for punching machine is 

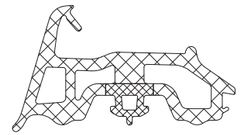
M68-3

ACCESSORIES

IMAGES / DESCRIPTIONS

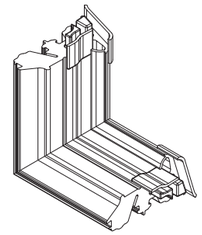
code/description	package/pcs	colour
ET **130168.00**	20	

central EPDM gasket for
E68 premium



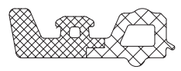
ET **060168.00**	50	

EPDM vulcanised corner for
gasket ET130168.00



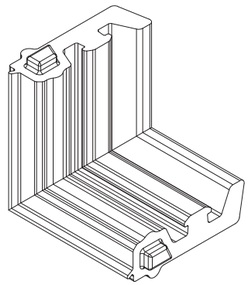
ET **130268.00**	50	

additional EPDM gasket for
E68



ET **060268.00**	50	

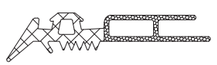
EPDM vulcanised corner for
gasket ET130268.00



A68-1

code/description	package/pcs	colour
ET **130476.00**	60	●

EPDM gasket for glass
elongated



ET **130176.00**	80	●

glazing EPDM gasket
press-in 5-6 mm

ET **130177.00**	60	●

glazing EPDM gasket
press-in 7-8 mm

ET **130205.00**	125	●

glazing EPDM gasket
press-in 5 mm

A68-3

code/description	package/pcs	colour
ET **130206.00**	125	●

glazing EPDM gasket
press-in 6 mm

ET **130207.00**	75	●

glazing EPDM gasket
press-in 7 mm

ET **130208.00**	40	●

glazing EPDM gasket
press-in 8 mm

ET **130758.00**	300	●

interior EPDM gasket
TOPLINE

A68-4

code/description	package/pcs	colour
ET **080529.00**	30	grey

additional ins. for frame E68

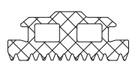
ET **130505.00**	100	●

wall-joining epdm gasket (external) for fixed frame

upon customer's request

ET **130506.00**	180	●

wall-joining epdm gasket (internal)



upon customer's request

ET **130507.00**	220	●

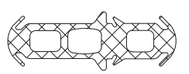
wall-joining EPDM gasket perimetric(external) for fixed frame

upon customer's request

A68-5

code/description	package/pcs	colour
ET **991275.00**	50	●

EPDM gasket for expansion joint



ET **130101.00**	–	●

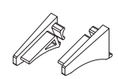
EPDM GASKET ø 4mm

ET **080199.00**	6	●
ET **991308.00**	6	○

PVC plug for euro groove

ET **74629.00**	200	●

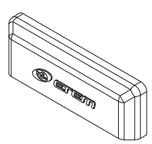
plastic plug for drip profile E2357



A68-6

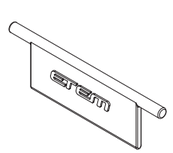
code/description	package/pcs	colour
ET **074306.00**	50	●

plastic drainage cap 30x6mm



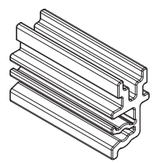
ET **074307.00**	50	●

flap for dreinage cap



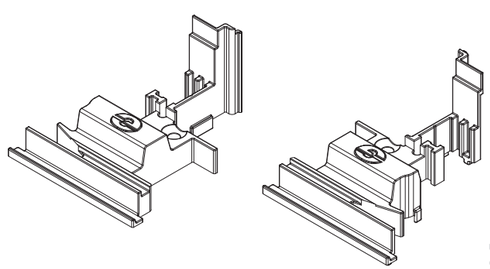
ET **074908.00**	100 pcs	●

Clips for profile E68



ET **074680.00**	5	●

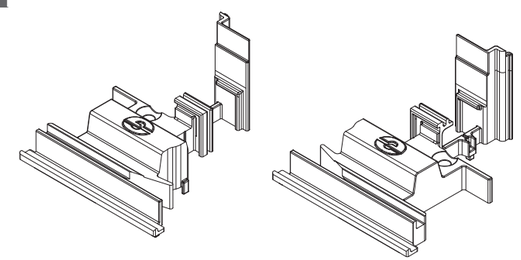
pair of plastic plugs for
secondary sash profile
E68500 euro groove



A68-7

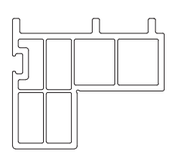
code/description	package/pcs	colour
ET **074681.00**	5	●

pair of plastic plugs for
secondary sash profile
E68540 PVC groove



ET **080068.00**	8pcs x 6m	●

mounting PVC profile for E68

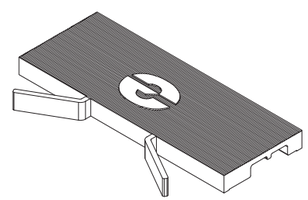


ET **080575.00**	48	●

PVC mounting profile

ET **073680.00**	50	●

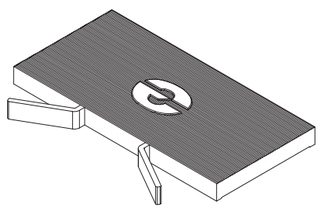
alignment pad for frame E68



A68-8

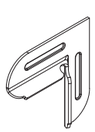
code/description	package/pcs	colour
ET **073681.00**	50	●

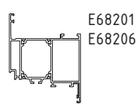
alignment pad for sash E68

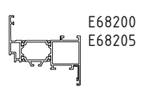


ET **991298.00**	20	●

alignment square for
E68200 / E68201

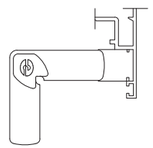






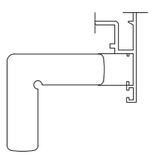
ET **057707.00**	100	MF

alignment square (plastic)
for E68220;E68221;E68225;E68226



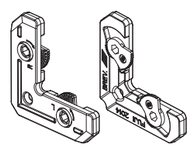
ET **055509.00**	100	INOX

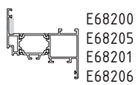
alignment square (INOX)
for E68220;E68221;E68225;E68226

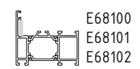


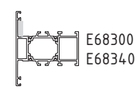
code/description	package/pcs	colour
ET **058001.00**	250	MF

alignment square with
locking function



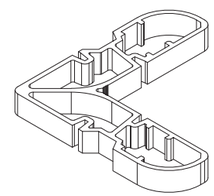




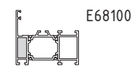


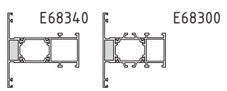
ET **991297.00**	250	MF

extruded aluminium corner
bracket 9.3 mm for
E68100 / E68300
E68340



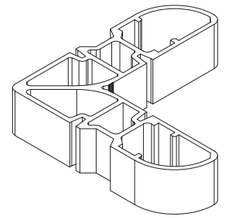
attention
always use epoxy resin
for long lasting joining



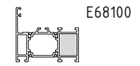


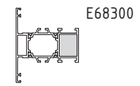
ET **991295.00**	100	MF

extruded aluminium corner
bracket 18.9 mm for
E68100 / E68300



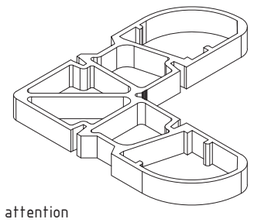
attention
always use epoxy resin
for long lasting joining



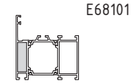


ET **991124.00**	200	MF

extruded aluminium corner
bracket 9.3 mm for
E68101

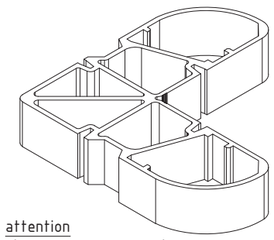


attention
always use epoxy resin
for long lasting joining



code/description	package/pcs	colour
ET **993066.00**	100	MF

extruded aluminium corner
bracket 18.9 mm for
E68101

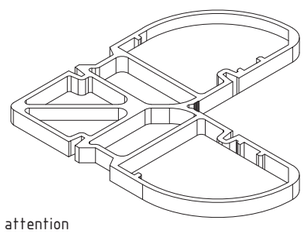


E68101

attention
always use epoxy resin
for long lasting joining

ET **054553.00**	100	MF

extruded aluminium corner
bracket 9.3 mm for
E68102

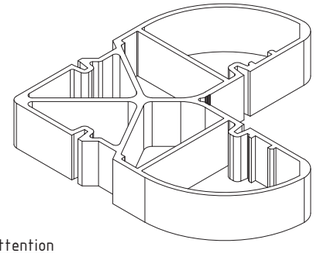


E68102

attention
always use epoxy resin
for long lasting joining

ET **054311.00**	100	MF

extruded aluminium corner
bracket 18.9 mm for
E68102

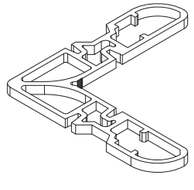


E68102

attention
always use epoxy resin
for long lasting joining

ET **991294.00**	300	MF

extruded aluminium corner
bracket 3.8 mm for
E68200



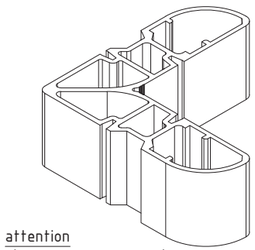
E68200
E68205

attention
always use epoxy resin
for long lasting joining

A68-11

code/description	package/pcs	colour
ET **991296.00**	100	MF

extruded aluminium corner
bracket 28.4 mm for
E68200 / E68340



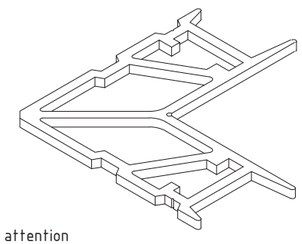
E68340

E68200
E68205

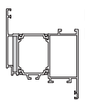
attention
always use epoxy resin
for long lasting joining

ET **991125.00**	300	MF

extruded aluminium corner
bracket 3.8 mm for
E68201



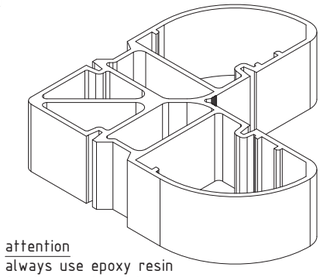
E68201
E68206



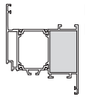
attention
always use epoxy resin
for long lasting joining

ET **991123.00**	50	MF

extruded aluminium corner
bracket 28.4 mm for
E68201



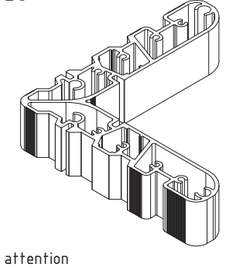
E68201
E68206



attention
always use epoxy resin
for long lasting joining

ET **054718.00**	80	MF	GU

extruded aluminium corner
bracket 18.9 mm
for GU



E68100

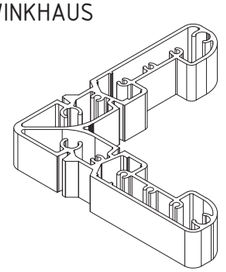
attention
always use epoxy resin
for long lasting joining

A68-12

code/description	package/pcs	colour
ET **054733.00**	70	MF

WINKHAUS

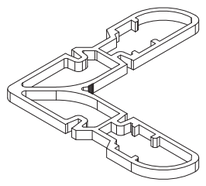
extruded al. joint corner
bracket
for WINKHAUS



attention
always use epoxy resin
for long lasting joining

ET **054880.00**	300	MF

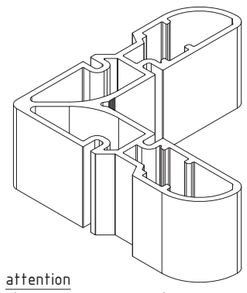
extruded aluminium corner
bracket 3.9 mm



attention
always use epoxy resin
for long lasting joining

ET **991331.00**	1	●

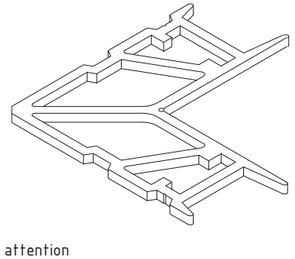
extruded aluminium corner
bracket for E68220, E68225

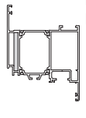


attention
always use epoxy resin
for long lasting joining

ET **991125.00**	100	MF

extruded aluminium corner
bracket



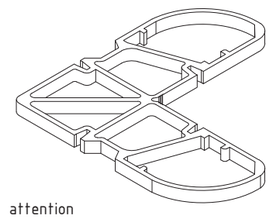


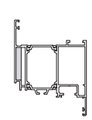
attention
always use epoxy resin
for long lasting joining

A68-13

code/description	package/pcs	colour
ET **054879.00**	–	MF

extruded aluminium corner
bracket 5.2 mm

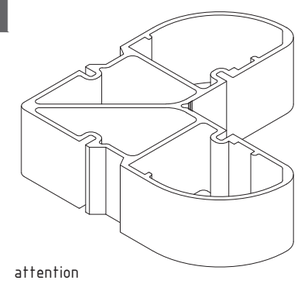


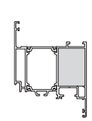


attention
always use epoxy resin
for long lasting joining

ET **054742.00**	–	MF

extruded aluminium corner
bracket 28.3 mm for
E68221

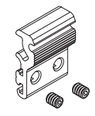




attention
always use epoxy resin
for long lasting joining

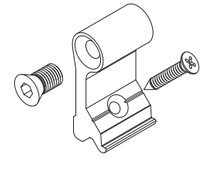
ET **991407.00**	10	MF

T - bracket external side for
E68300 / E68340



ET **070206.00**	10	MF

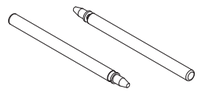
T - bracket internal side for
E68300 / E68340



A68-14

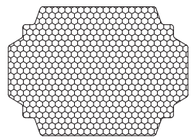
code/description	package/pcs	colour
ET **143900.00**	100	MF

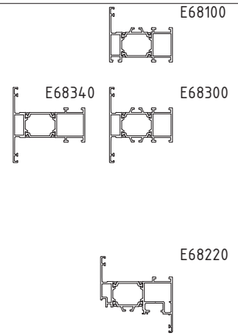
roll pin 3 x 6 mm with andle



ET **968100.22**	18pcs x 1000mm	standard

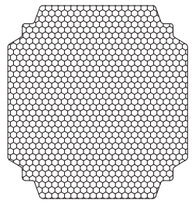
additional insulator for
E68100
E68300
E68340
E68220





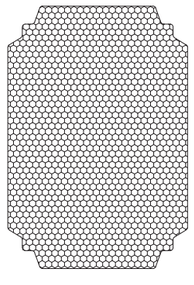
ET **968101.22**	12pcs x 1000mm	standard

additional insulator for
E68101



ET **968102.22**	9pcs x 1000mm	standard

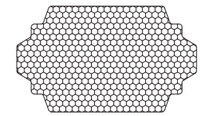
additional insulator for
E68102



A68-15

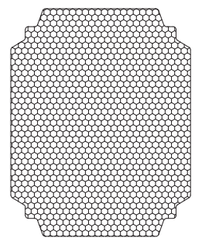
code/description	package/pcs	colour
ET **968200.22**	24pcs x 1000mm	standard

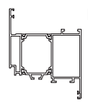
additional insulator for
E68200



ET **968201.22**	9pcs x 1000mm	standard

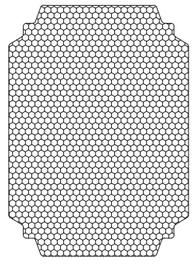
additional insulator for
E68201

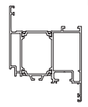




ET **968221.22**	9pcs x 1000mm	standard

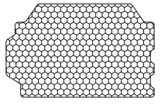
additional insulator for
E68221





ET **968500.22**	30pcs x 1000mm	standard

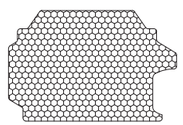
additional insulator for
E68500



A68-16

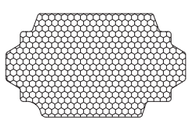
code/description	package/pcs	colour
ET **968540.22**	25pcs x 1000mm	standard

additional insulator for
E68540



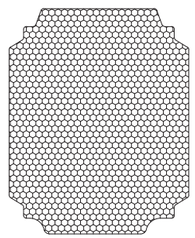
ET **968205.22**	15pcs x 1000mm	standard

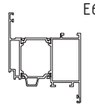
additional insulator for
E68205



ET **968206.22**	9pcs x 1000mm	standard

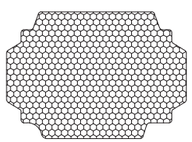
additional insulator for
E68206





ET **968225.22**	12pcs x 1000mm	standard

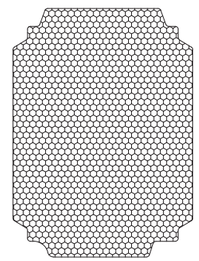
additional insulator for
E68225

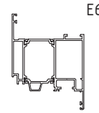


A68-17

code/description	package/pcs	colour
ET **968226.22**	9pcs x 1000mm	standard

additional insulator for
E68226





ET **995686.00**	1	–

end milling tool for
E68300

R - Ø30

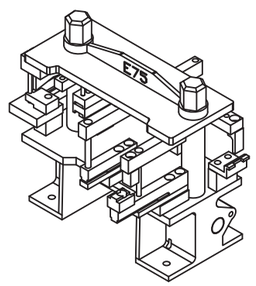
ET **995688.00**	1	–

end milling tool for
E68340

R - Ø30

ET **162262.00**	1	–

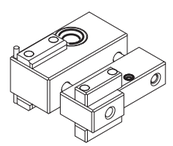
punching machine ETEM



A68-18

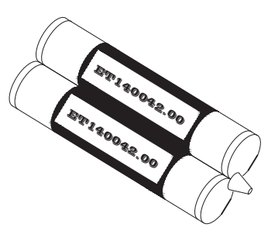
code/description	package/pcs	colour
ET **162086.00**	1	–

jig for T-profile



ET **140042.00**	–	–

adhesive for corner brackets
ETEM 600ml



ET **140044.00**	–	–

pistol

ET **140043.00**	–	–

mixer

A68-19

code/description	package/pcs	colour
ET **140045.00**	–	–

primer super bond 30ml

ET **730035.00**	–	–

Vario protect

ET **750016.00**	–	–

cleaner for Vario protect
1l

E68HV

HIDDEN VENT WINDOW AND DOOR SYSTEM WITH THERMAL BREAK

GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES

E68HV

E68HV IS A SYSTEM CORRESPONDING TO THE MOST STRINGENT REQUIREMENTS WITH REGARDS TO THERMAL INSULATION, FUNCTIONALITY AND AESTHETICS.

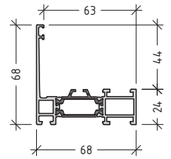
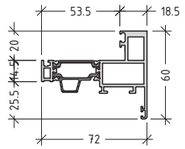
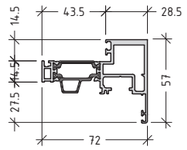
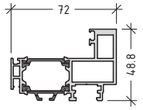
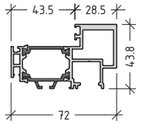
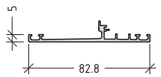
- Elegant straight design
- Hidden casement
- Options for using Eurogroove hardware and PVC groove hardware
- 68 mm system width allowing usage of triple glazing
- Additional insulator in the thermal-break chamber
- Effective drainage
- Excellent behavior against weather testing
- Can accommodate anti-burglar hardware for increased security
- Extruded corners for crimping machine with glue allowing reliable joint
- Compatible with ETEM Curtain wall systems

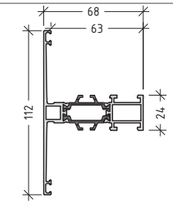
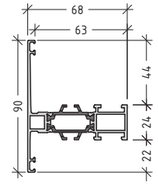
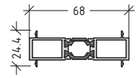
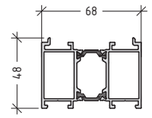
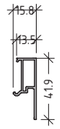
TABLES

TYPOLOGIES / LIST OF PROFILES / CHARACTERISTICS

opening system with thermal break

E68HV

code	profile	weight length moment of inertia
E68160 frame		1332 g/m L=6.01 m Ix=11.8 cm^4 Iy=27.51 cm^4
E68267 casement EURO groove		1543 g/m L=6.01 m Ix=9.7 cm^4 Iy=25.4 cm^4
E4268268 casement PVC grove		1528 g/m L=6.01 m Ix=8.72 cm^4 Iy=24.31 cm^4
E4268560 overhung EURO groove		1621 g/m L=6.01 m Ix=9.58 cm^4 Iy=29.28 cm^4
E4268565 overhung PVC grove		1548 g/m L=6.01 m Ix=7.82 cm^4 Iy=26.5 cm^4
E4268662 adapter		563 g/m L=6.01 m Ix=0.17 cm^4 Iy=11.17 cm^4

code	profile	weight length moment of inertia
E4268361 T profile		1585 g/m L=6.01 m Ix=26.31 cm^4 Iy=32.38 cm^4
E4268360 T profile		1457 g/m L=6.01 m Ix=15.76 cm^4 Iy=29.95 cm^4
E68655 connecting profile		916 g/m L=6.01 m Ix=1.01 cm^4 Iy=14.78 cm^4
E68610 frame extension		1570 g/m L=6.01 m Ix=12.00 cm^4 Iy=28.76 cm^4
E4068660 glazing bead adapter for frame		345 g/m L=6.01 m
E4068661 glazing bead		325 g/m L=6.01 m

opening system with thermal break

E68HV

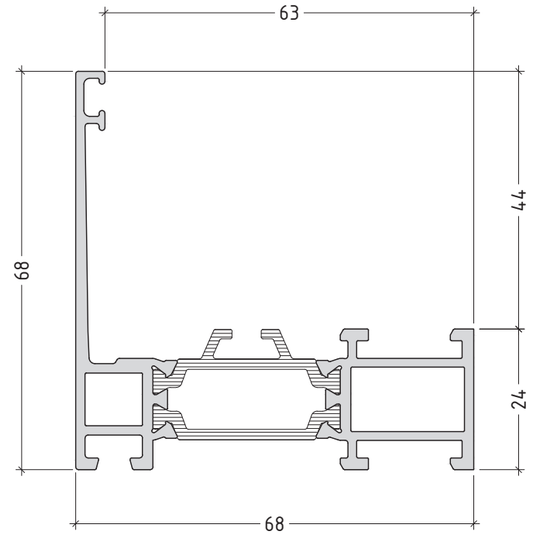
code	profile	weight length moment of inertia	code	profile	weight length moment of inertia
E68760 glazing bead		103 g/m L=6.01 m			

L68-01

PROFILES

DRAWINGS SCALE 1:1

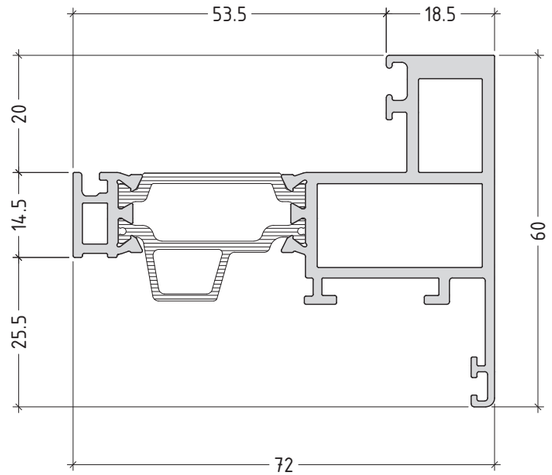
E68160
1332 g/m



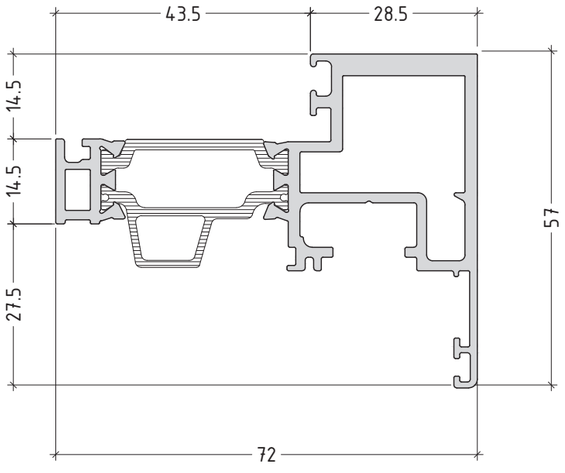
scale : 1:1

P68-02-1

E68267
1543 g/m



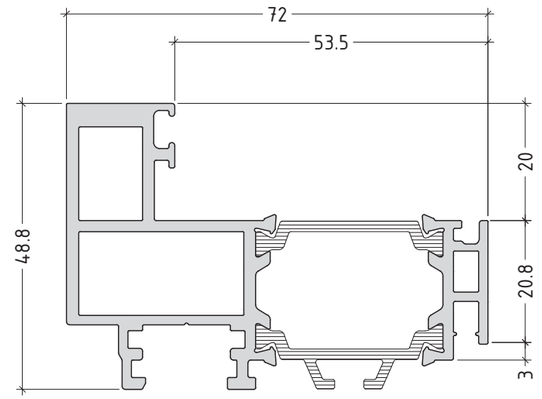
E4268268
1528 g/m



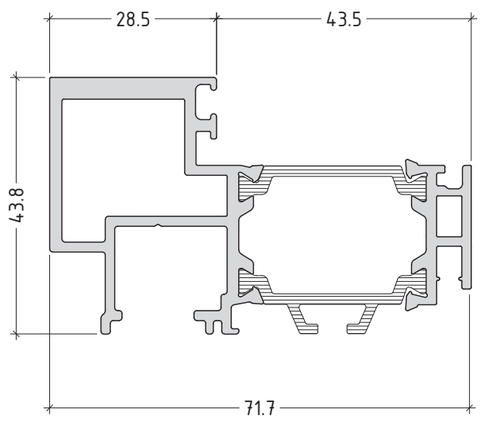
scale : 1:1

P68-02-2

E4268560
1621 g/m



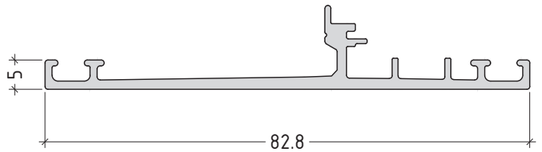
E4268565
1548 g/m



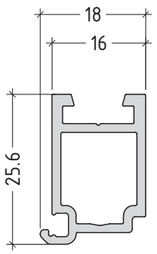
scale : 1:1

P68-02-3

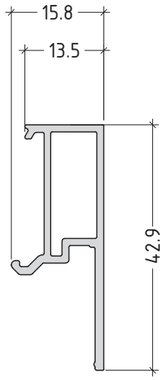
E4268662
563 g/m



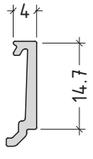
E4268660
345 g/m



E4268661
325 g/m



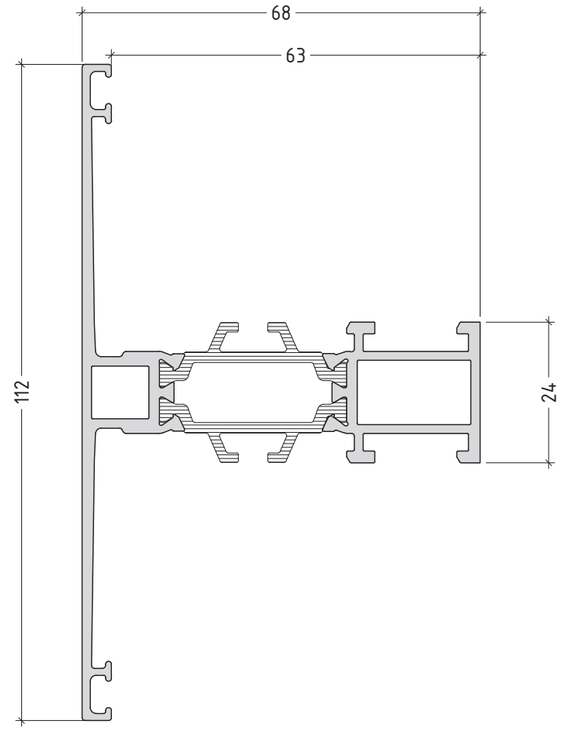
E68760
103 g/m



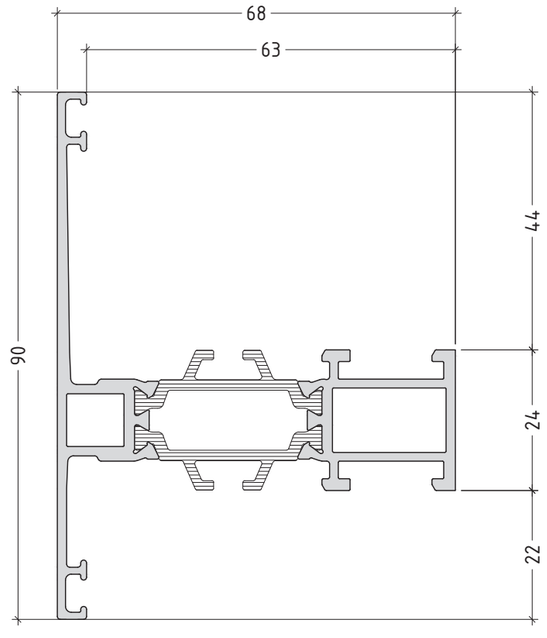
scale : 1:1

P68-02-4

E4268361
1585 g/m



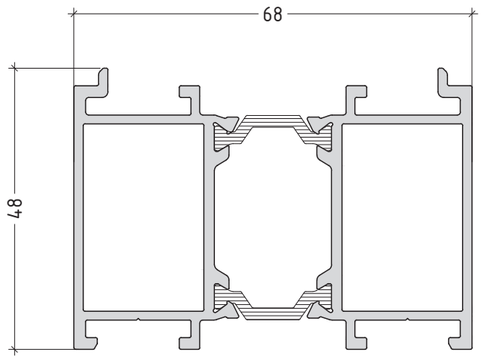
E4268360
1457 g/m



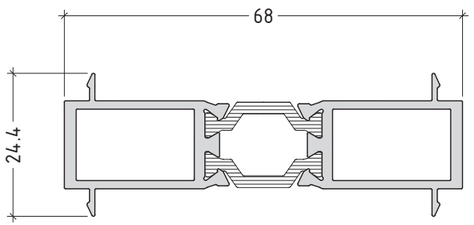
scale : 1:1

P68-02-5

E68610
1570 g/m



E68655
916 g/m

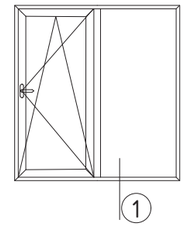


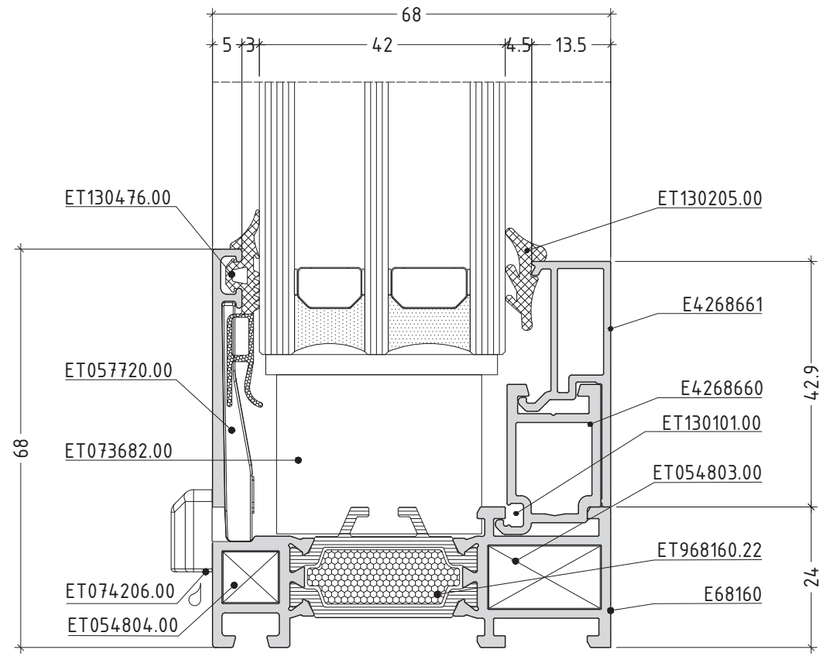
scale : 1:1

P68-02-6

SECTIONS

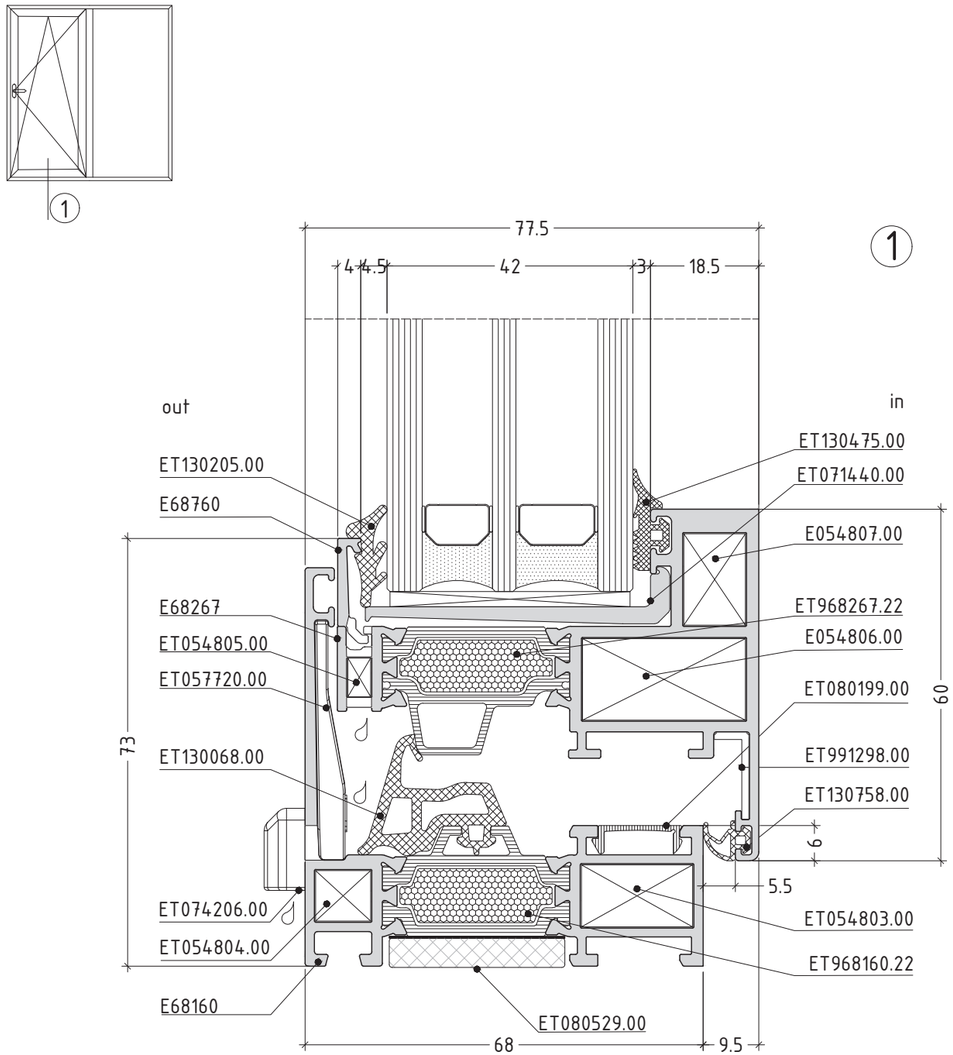
SECTIONS / DETAILS





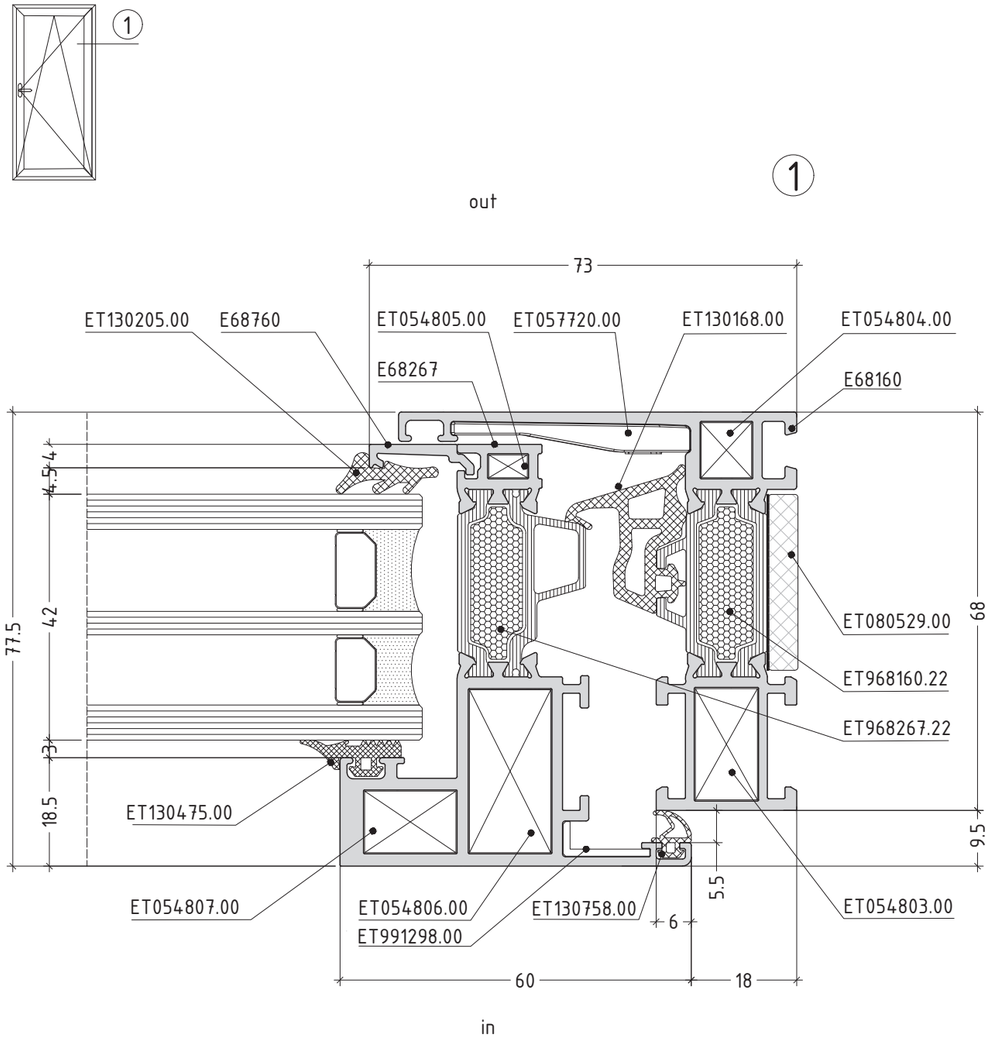
scale : 1:1

P68-1-1



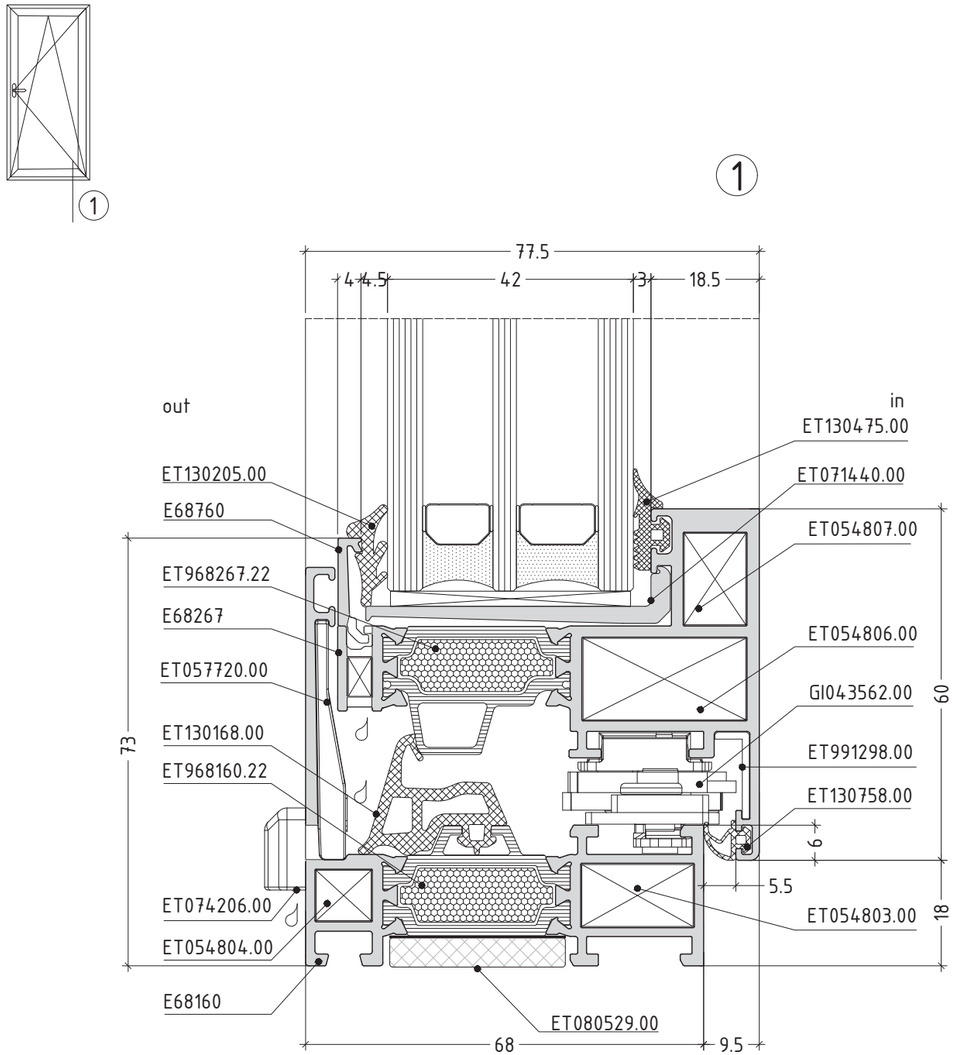
scale : 1:1

P68-1-2



scale : 1:1

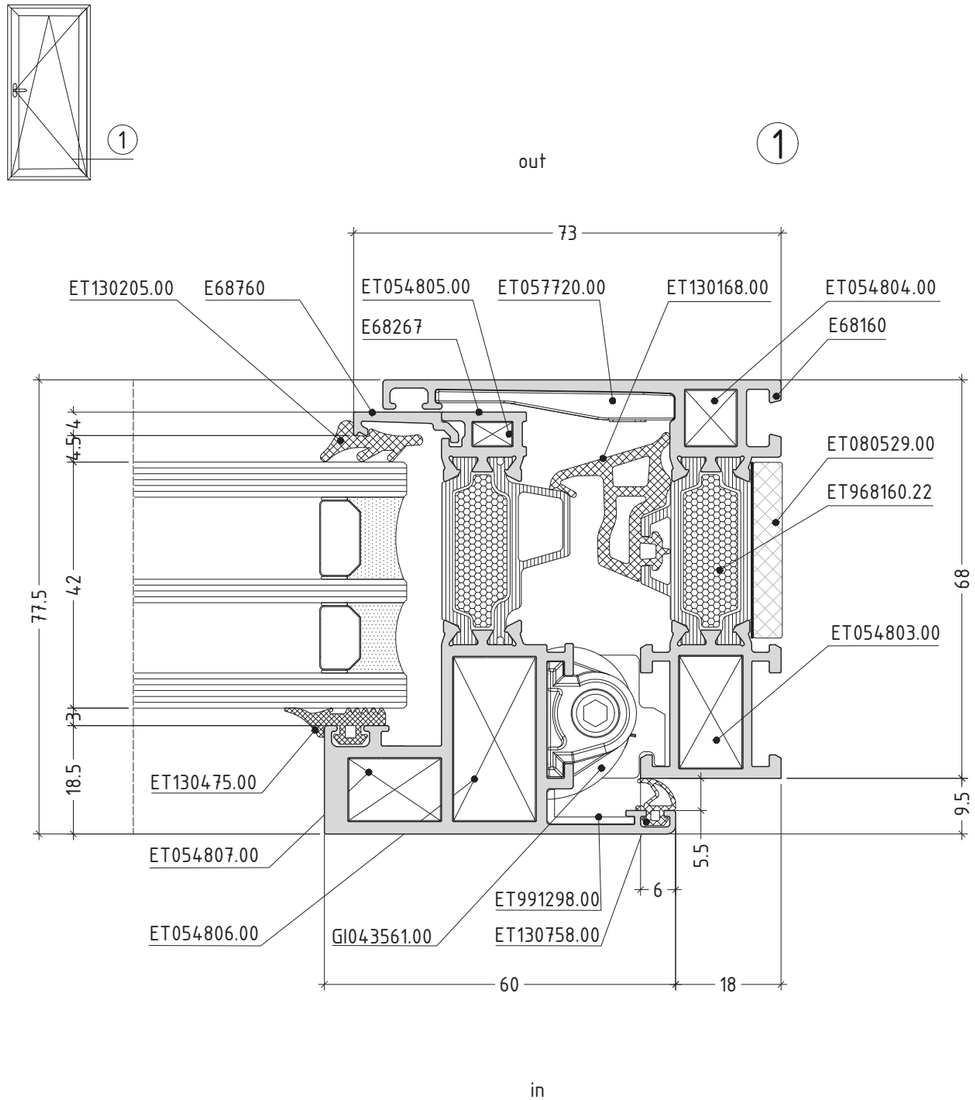
P68-1-3



scale : 1:1

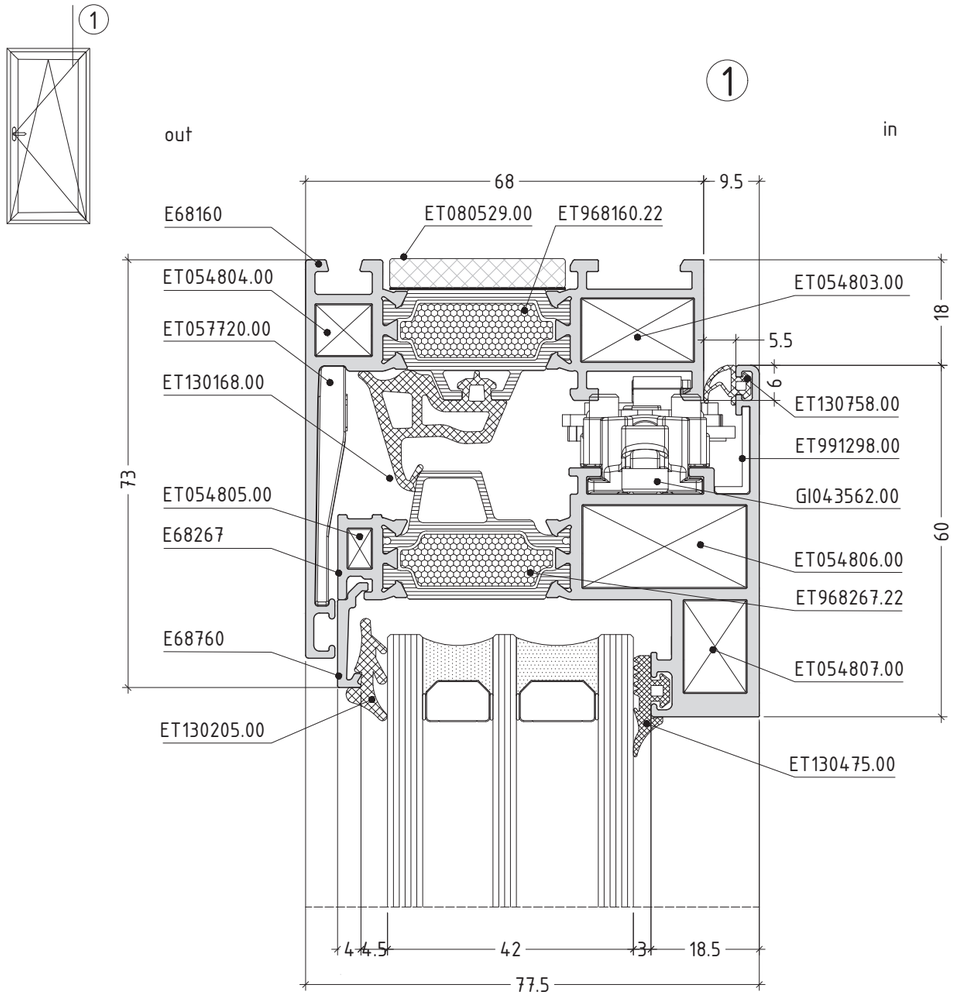
P68-1-4

opening system with thermal break E68HV



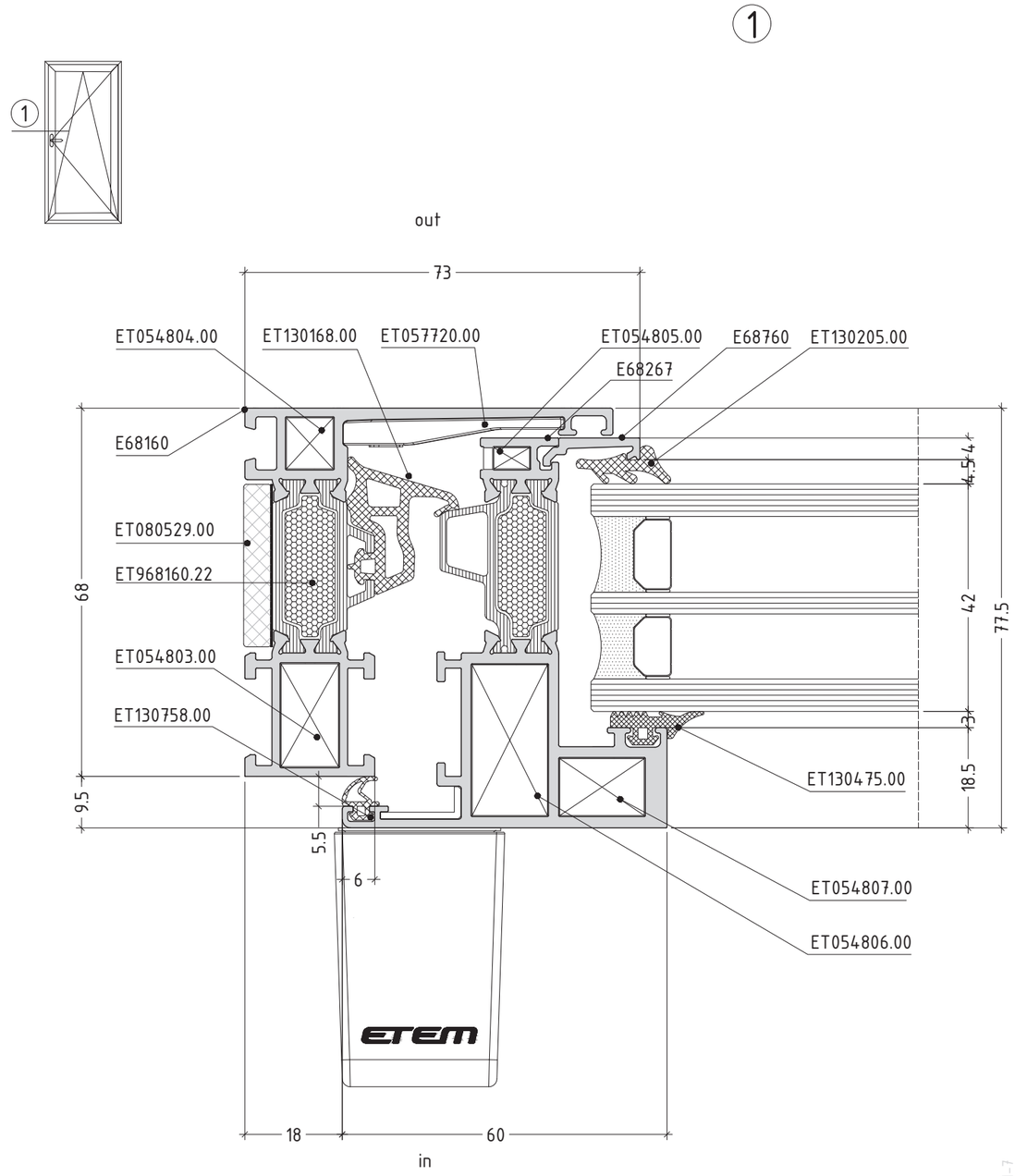
scale : 1:1

P68-1-5



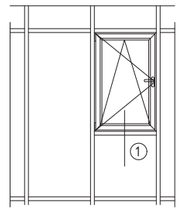
scale : 1:1

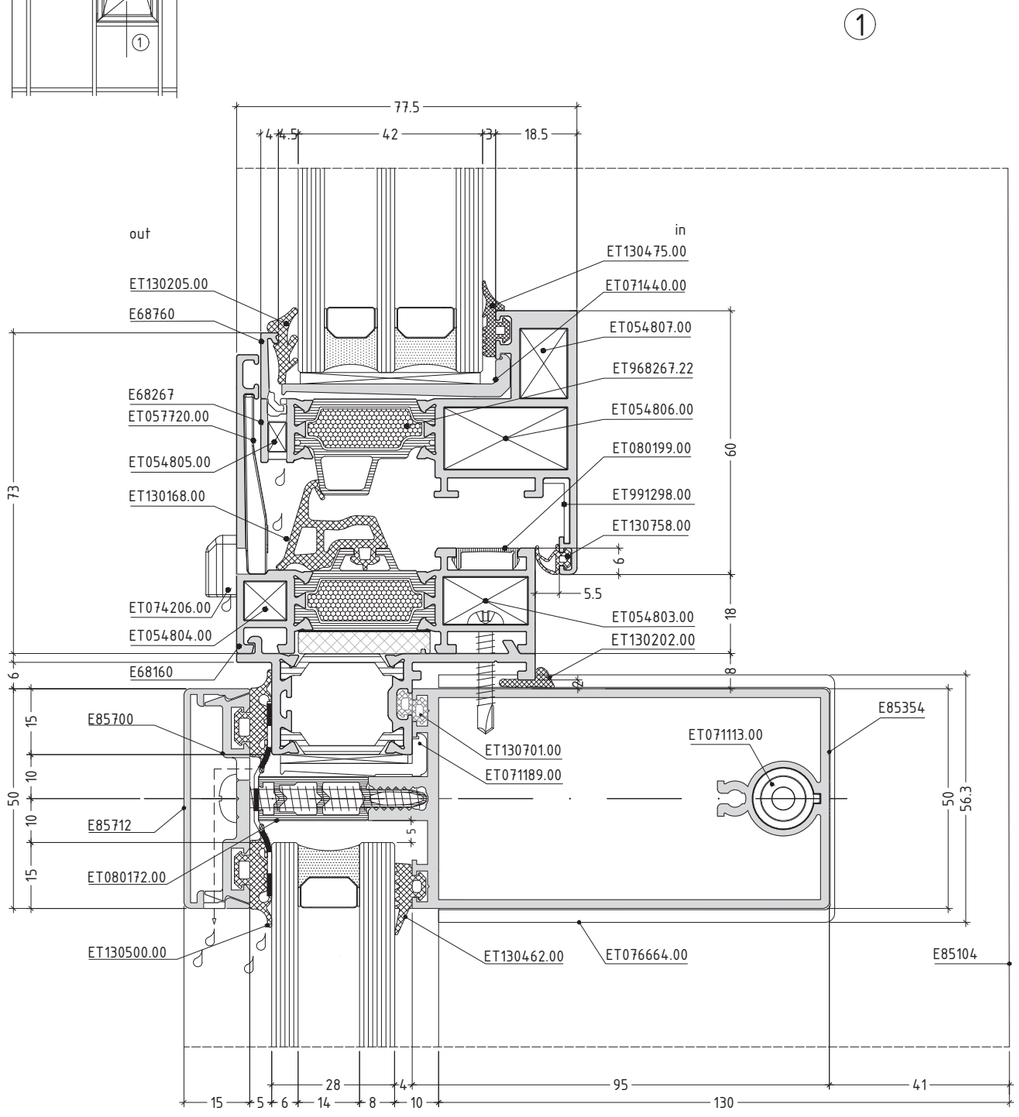
P68-1-6



scale : 1:1

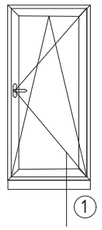
P68-1-7

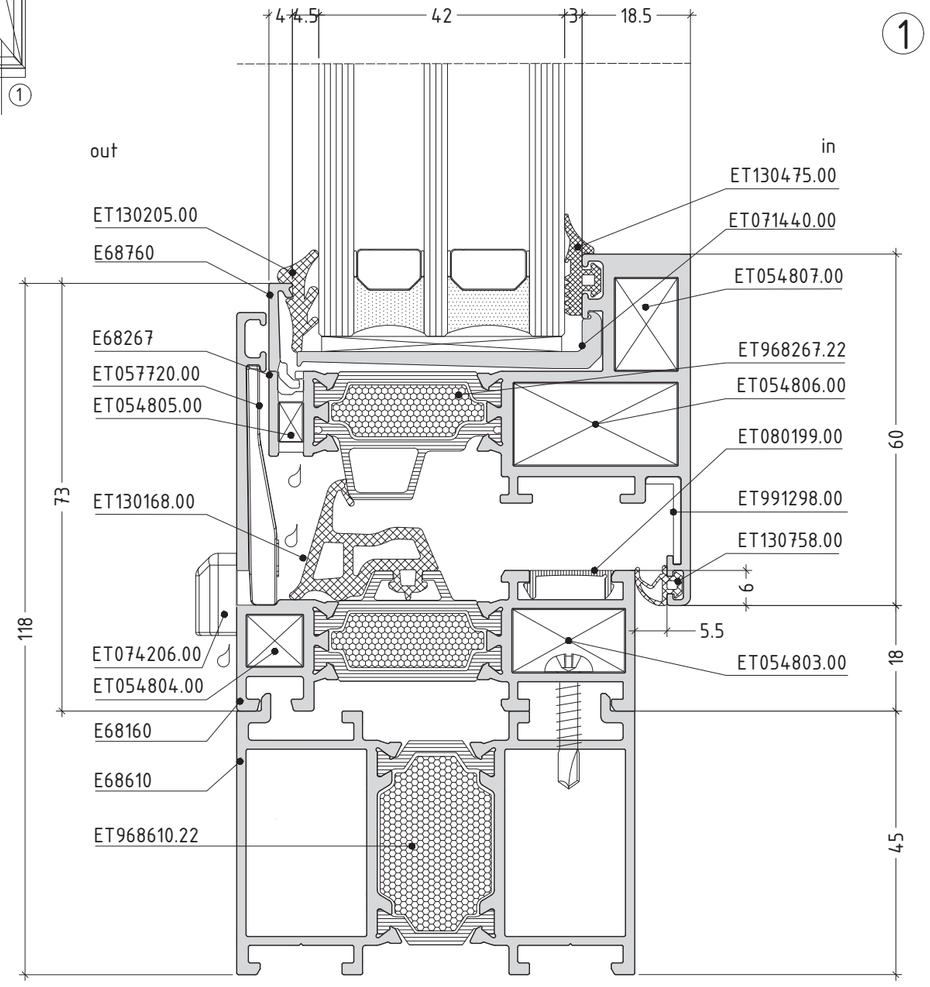




scale : 1:1

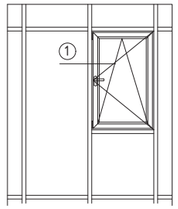
P68-1-8

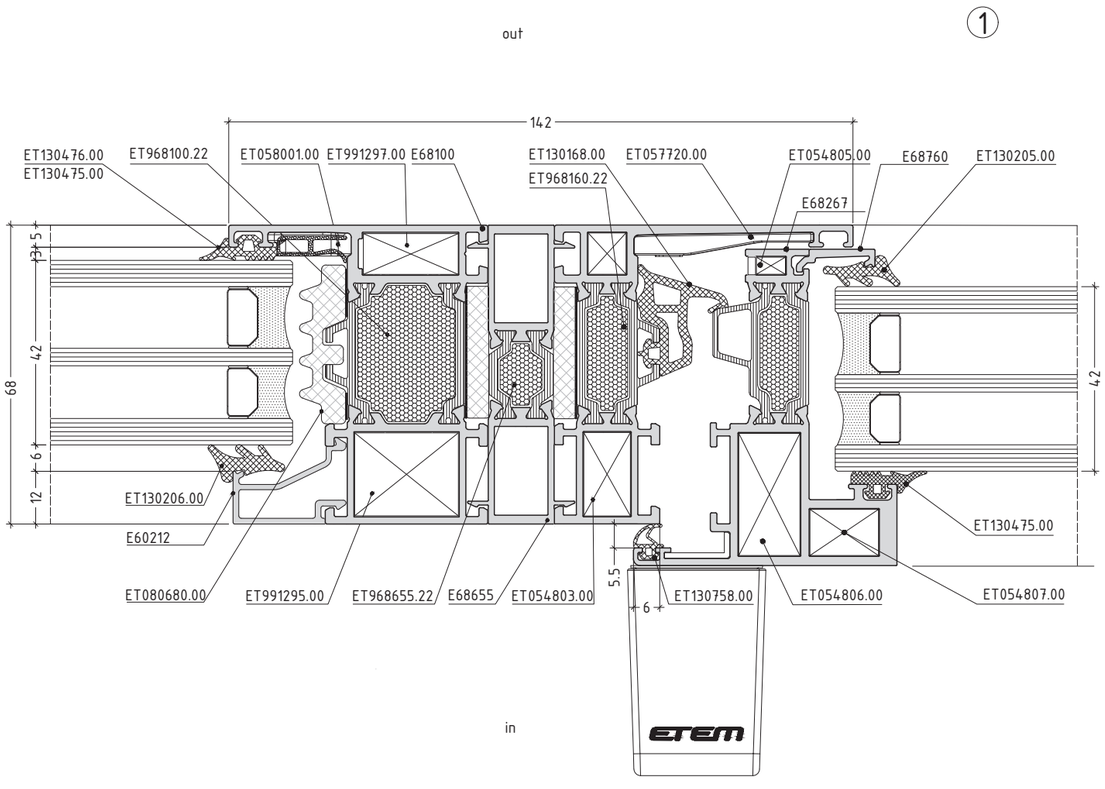




scale : 1:1

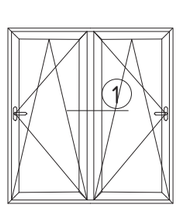
P68-1-9



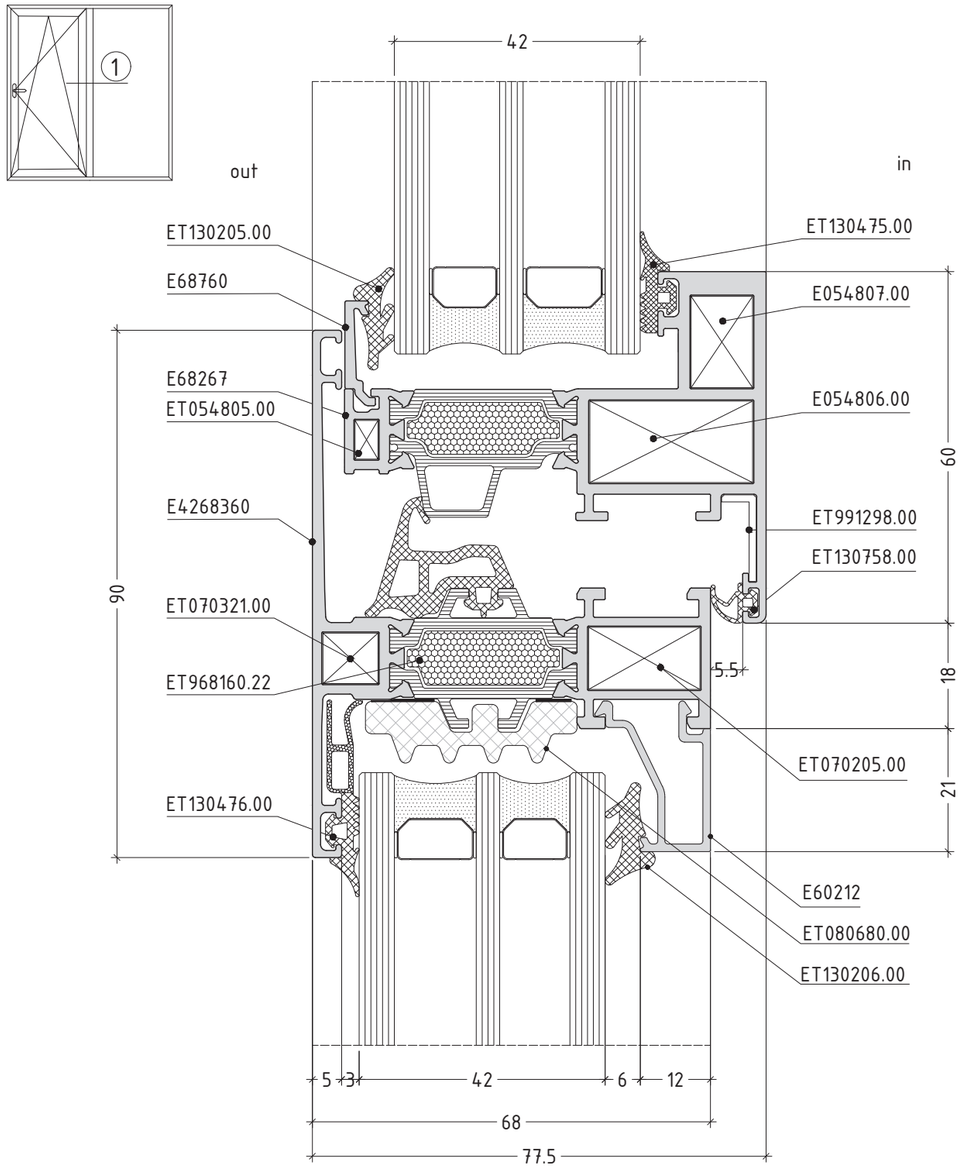


scale : 1:1

opening system with thermal break E68HV



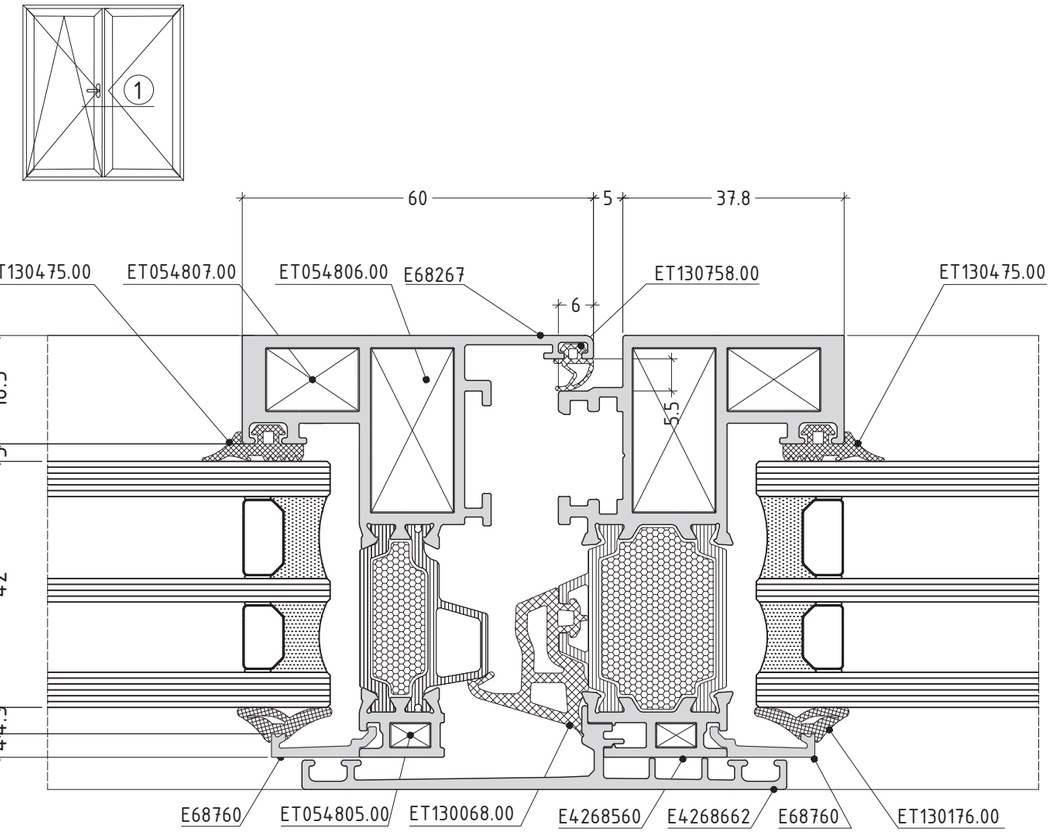
scale : 1:1



scale : 1:1

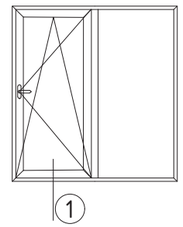
P68-1-12

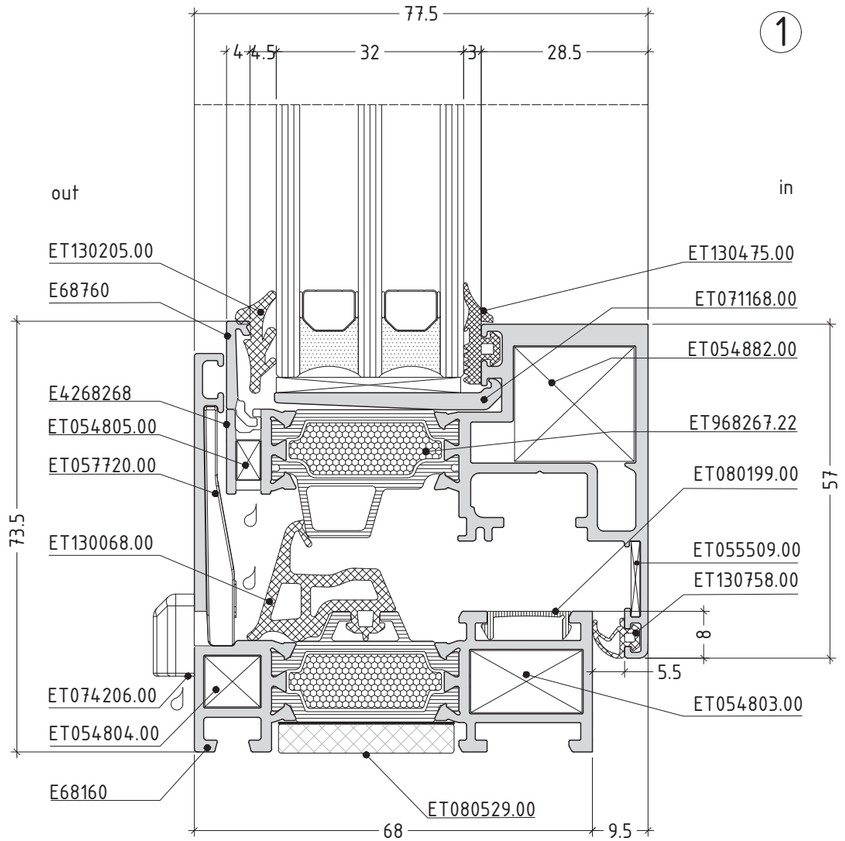
opening system with thermal break E68HV



scale : 1:1

P68-1-13

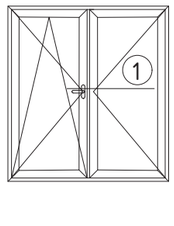


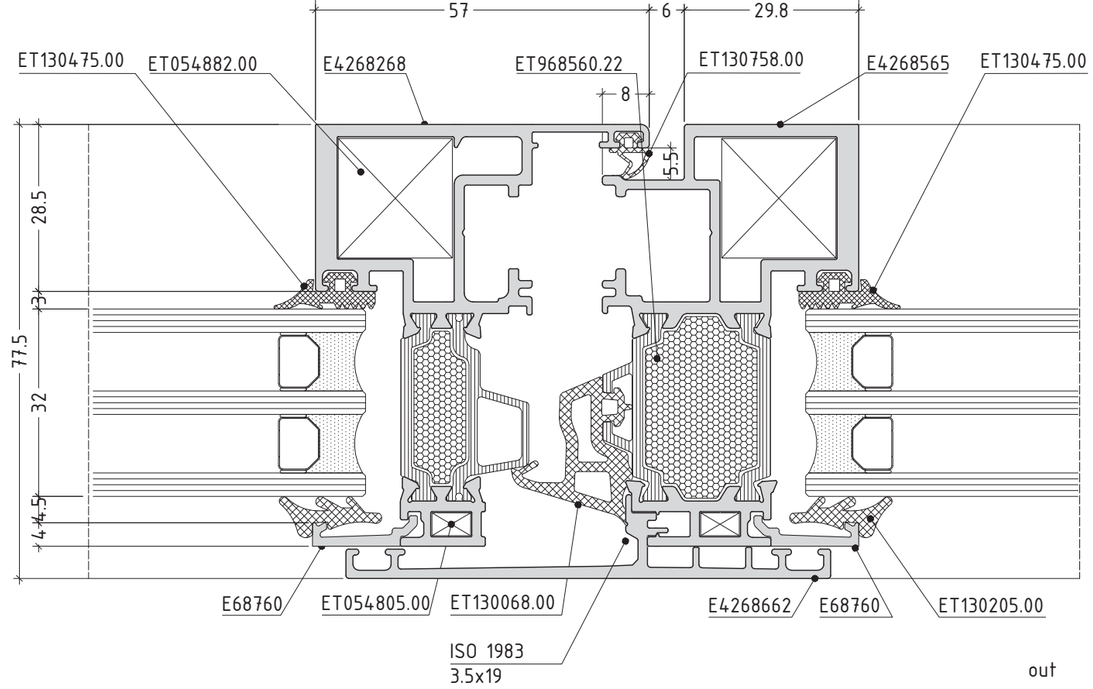


scale : 1:1

P68-1-14

opening system with thermal break E68HV

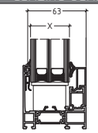


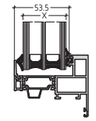


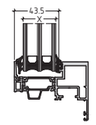
scale : 1:1

P68-1-15

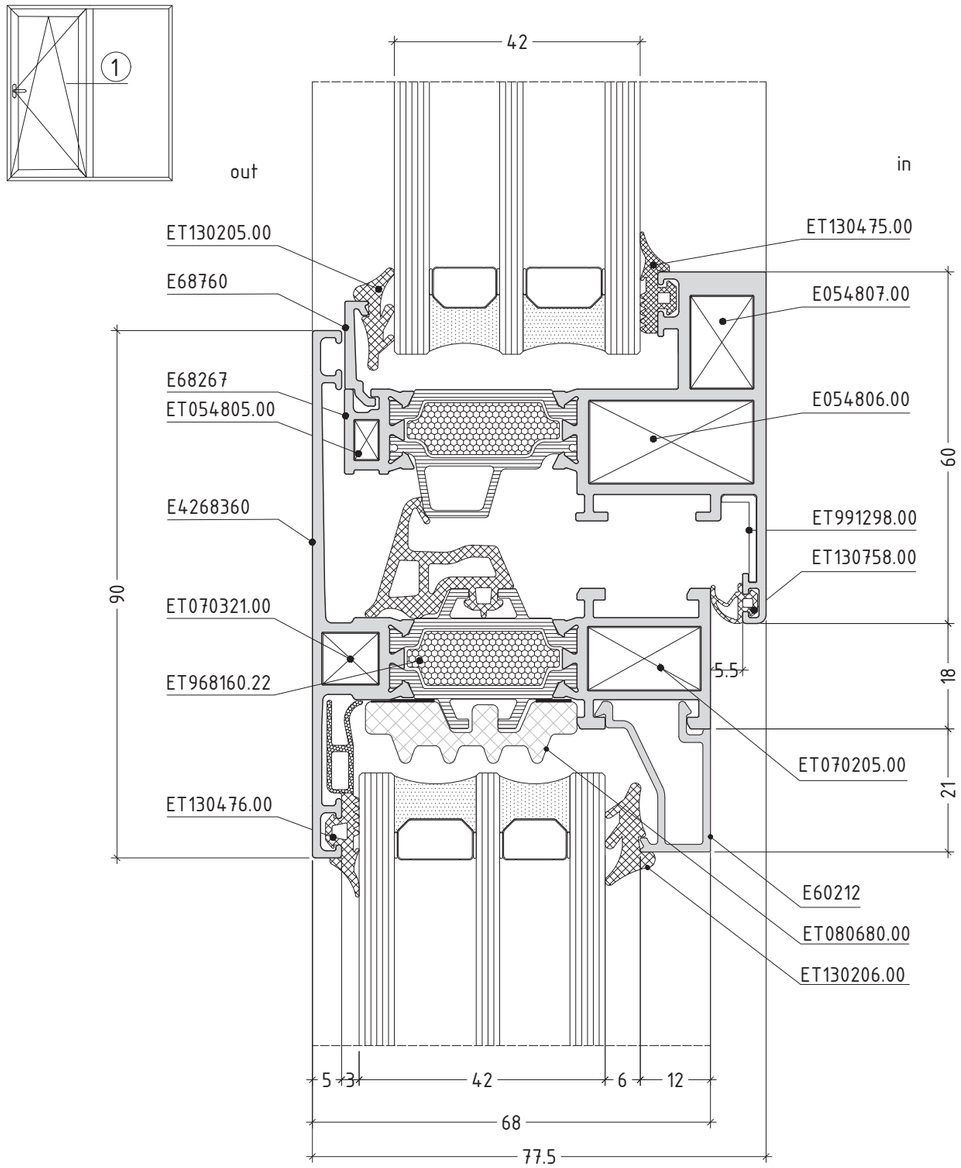
GLAZING OPTIONS

GLAZING OPTIONS										
external gaskets	INTERNAL GASKETS					GLAZING BEADS				
3 mm ET130475.00		5 - 6 mm ET130176.00		7 - 8 mm ET130177.00						
	5 mm ET130205.00	6 mm ET130206.00	7 mm ET130207.00	8 mm ET130208.00	10 mm ET130210.00					
	X mm					4068XXX				
ET130475.00	42	41	40	39	37	13.5 E4268661 E4268660				

GLAZING OPTIONS										
external gaskets	INTERNAL GASKETS					GLAZING BEADS				
3 mm ET130475.00		5 - 6 mm ET130176.00		7 - 8 mm ET130177.00		EURO groove 				
	5 mm ET130205.00	6 mm ET130206.00	7 mm ET130207.00	8 mm ET130208.00	10 mm ET130210.00					
	X mm					E687xx				
ET130475.00	42	41	40	39	37	E68760 				

GLAZING OPTIONS										
external gaskets	INTERNAL GASKETS					GLAZING BEADS				
3 mm ET130475.00		5 - 6 mm ET130176.00		7 - 8 mm ET130177.00		PVC groove 				
	5 mm ET130205.00	6 mm ET130206.00	7 mm ET130207.00	8 mm ET130208.00	10 mm ET130210.00					
	X mm					E687xx				
ET130475.00	32	31	30	29	27	E68760 				

scale : 1:1

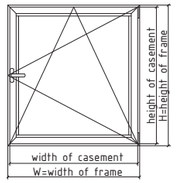


scale : 1:1

P68-1-12

CUTTING LISTS

calculation of cutting length for one casement window EURO grove

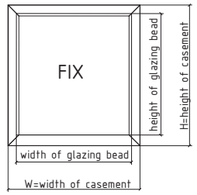


E68160 	width of frame	W	2X45°
	height of frame	H	2X45°
E68267 	width of casement	W - 37	2X45°
	height of casement	H - 37	2X45°

scale : 1:1

P68-2-1

calculation of cutting length for fix position

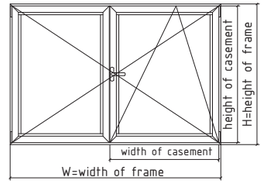


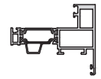
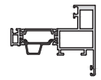
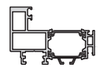
E68160 	width of frame	W	2X45°
	height of frame	H	2X45°
E4268660 	width of pad	W - 39	2X90°
	height of pad	H - 112	2X90°
E4268661 	width of glazing bead	W - 48	2X90°
	height of glazing bead	H - 134	2X90°

scale : 1:1

P68-2-2

calculation of cutting length for double casement window EURO grove

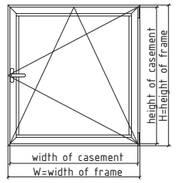


E68160 	width of frame	W	2X45°
	height of frame	H	2X45°
E68267 active casement 	width of casement	$\frac{W - 19}{2}$	2X45°
	height of casement	H - 36	2X45°
E68267 passive casement 	width of casement	$\frac{W - 19}{2}$	2X45°+ additional treatment
	height of casement	H - 36	2X45°
E4268560 			
	height of overhung	H - 59.5	2X45°+ additional treatment
E4268662 			
	height of casement	H - 146	2X90°

scale : 1:1

P68-2-3

calculation of cutting length for one casement window PVC grove

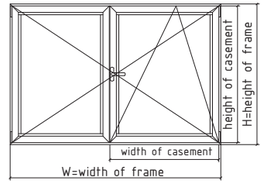


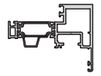
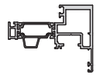
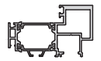
E68160 	width of frame	W	2X45°
	height of frame	H	2X45°
E4268268 	width of casement	W - 32	2X45°
	height of casement	H - 32	2X45°

scale : 1:1

P68-2-4

calculation of cutting length for double casement window PVC grove



E68160 frame 	width of frame	W	2X45°
	height of frame	H	2X45°
E4268268 active casement 	width of casement	$\frac{W - 11}{2}$	2X45°
	height of casement	H - 32	2X45°
E4268268 passive casement 	width of casement	$\frac{W - 11}{2}$	2X45°+ additional treatment
	height of casement	H - 32	2X45°
E4268560 			
	height of overhung	H - 58.5	2X45°+ additional treatment
E4268662 			
	height of adapter	H - 146	2X90°

Note:
option with equal glass pane

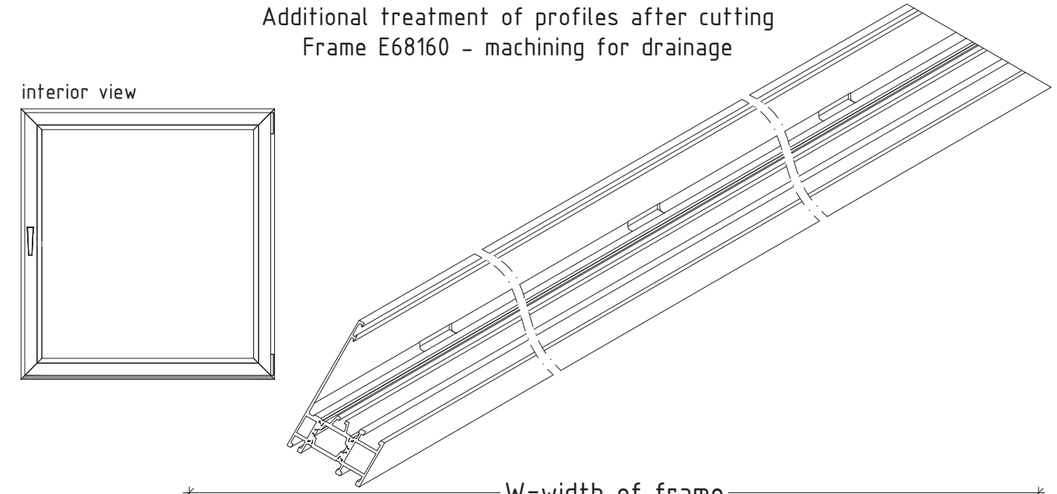
scale : 1:1

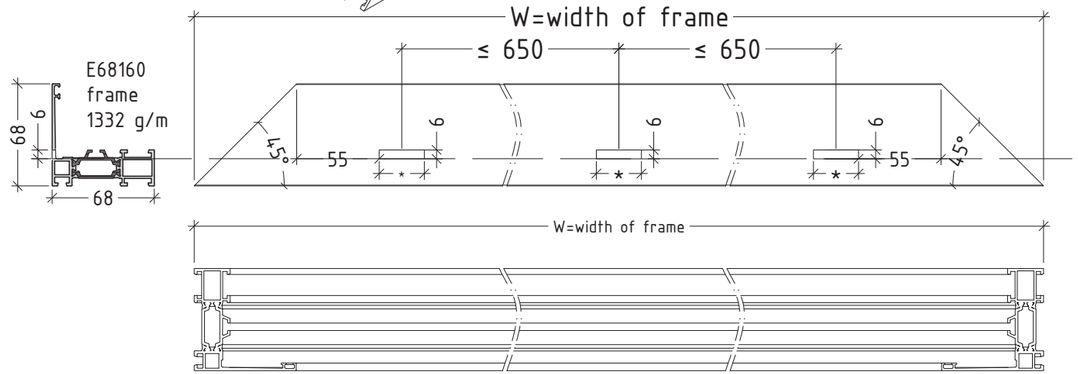
P68-2-5

MACHININGS

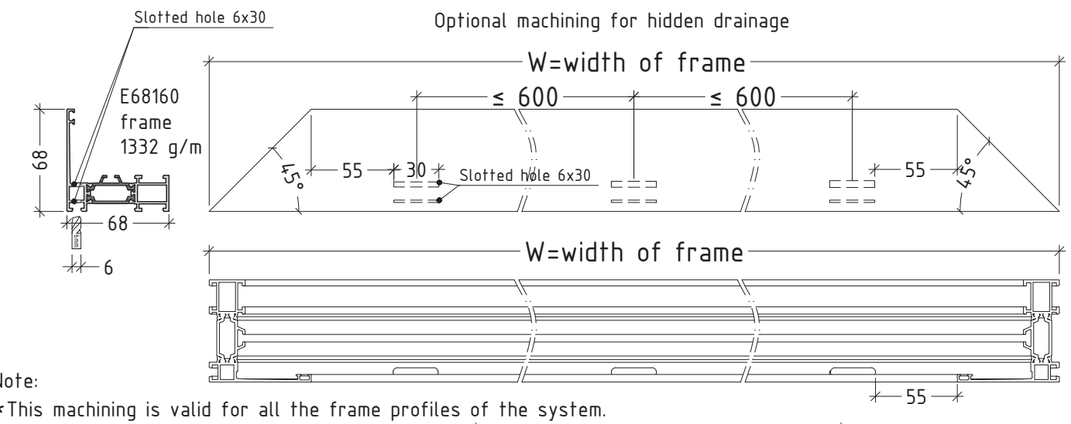
Additional treatment of profiles after cutting
Frame E68160 – machining for drainage

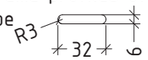
interior view





Optional machining for hidden drainage



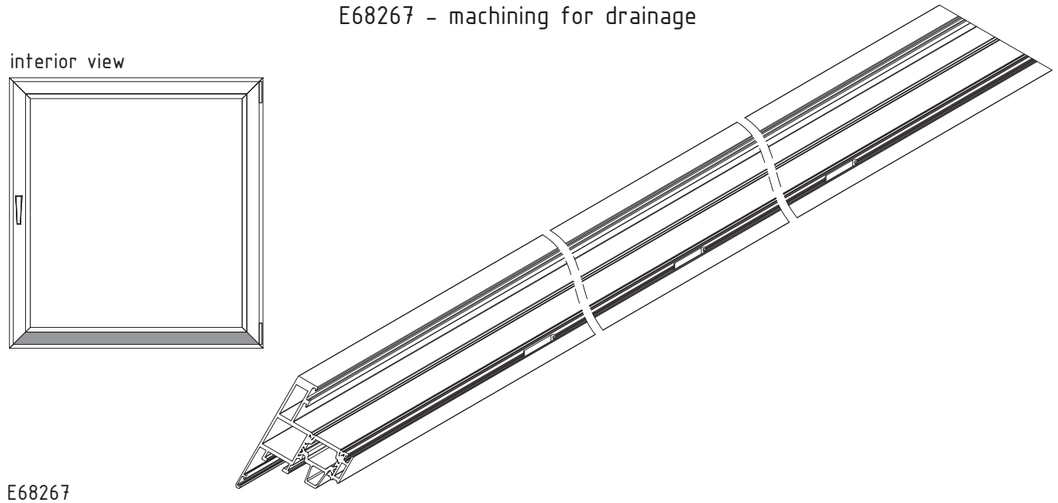
Note:
*This machining is valid for all the frame profiles of the system.
For CNC machine drainage hole must be 

for punching machine is 

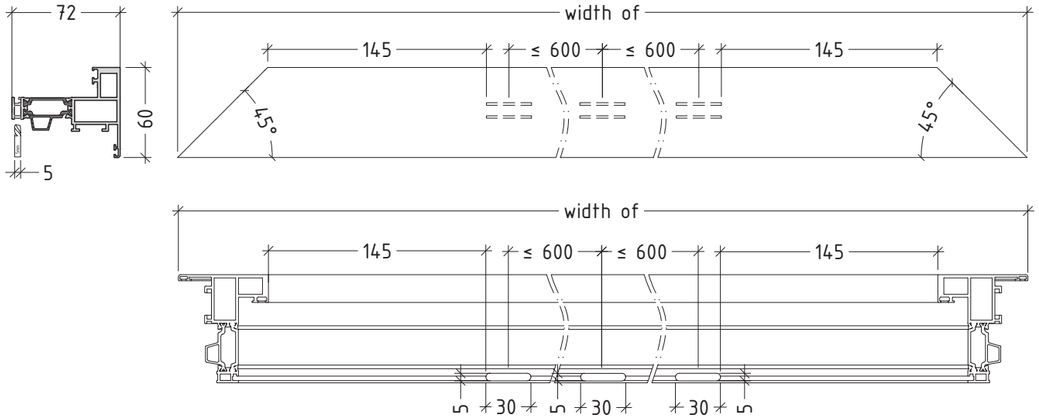
P68-3-1

Additional treatment of profiles after cutting
E68267 - machining for drainage

interior view

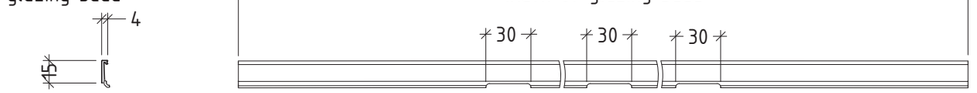


E68267
1543 g/m



Optional machining for glazing bead

E68760
glazing bead

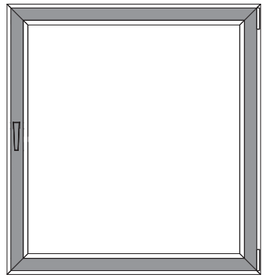


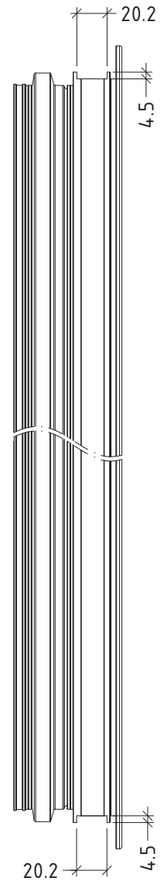
scale : 1:1

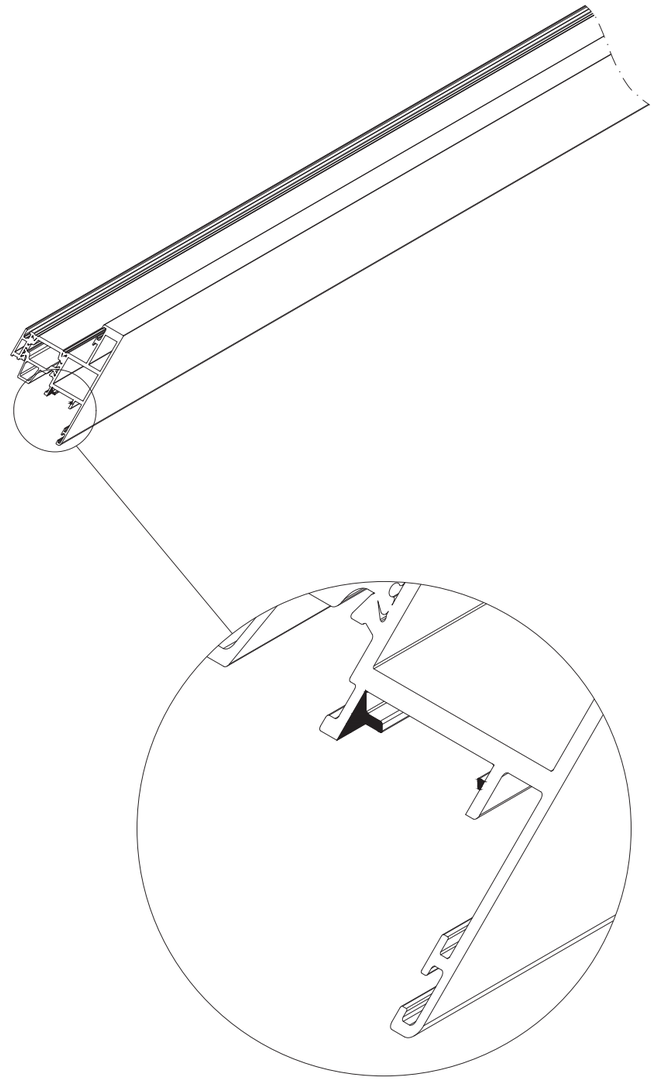
P68-3-2

Additional treatment of profiles after cutting
E68267 - machining for connecting rod E2308

interior view



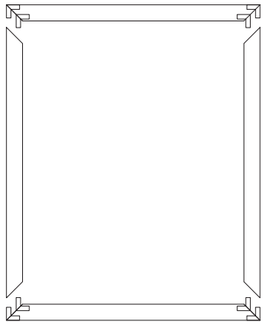




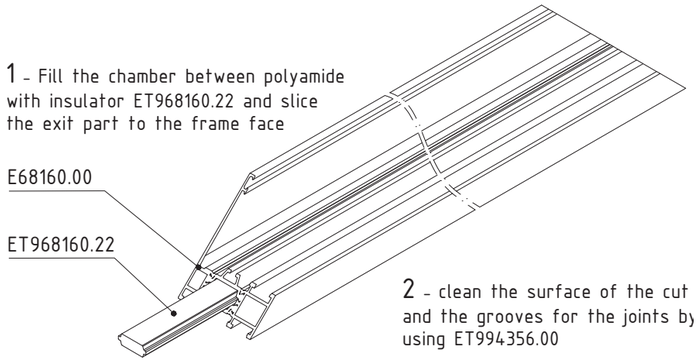
Note:
This machining's is valid for all the profiles with Euro groove in the system

P68-3-3

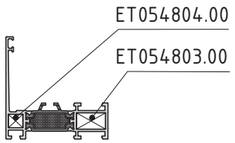
Sequence for assembly the frame E68160



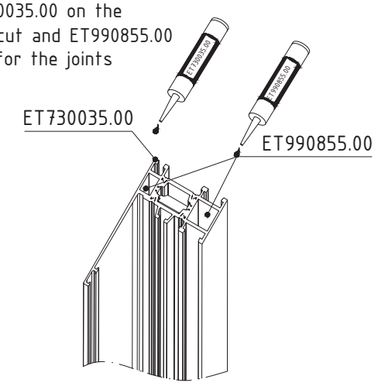
1 - Fill the chamber between polyamide with insulator ET968160.22 and slice the exit part to the frame face



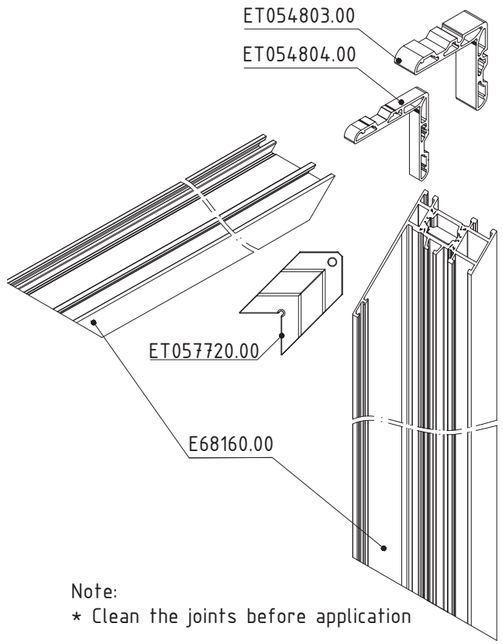
2 - clean the surface of the cut and the grooves for the joints by using ET994356.00



3 - apply ET730035.00 on the surface of the cut and ET990855.00 in the grooves for the joints

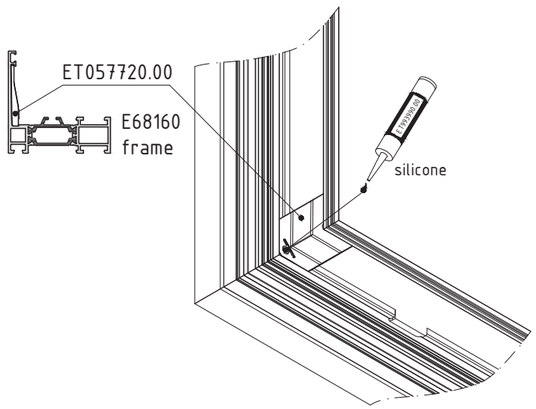


4 - put the joints in the chambers of frame E68267



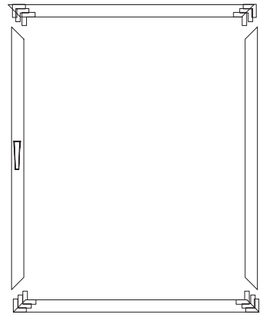
Note:
* Clean the joints before application

5 - Insert silicone to specific point

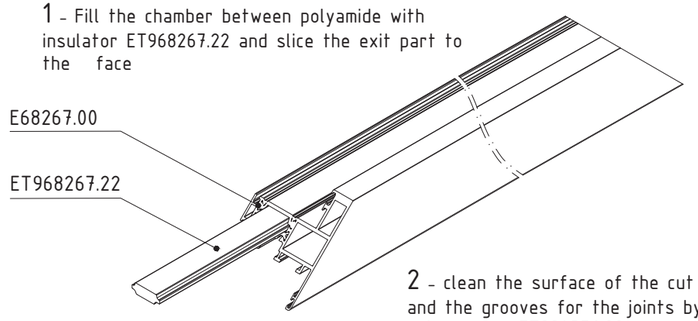


P68-3-4

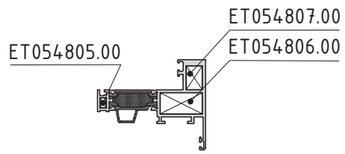
Sequence for assembly the E68267



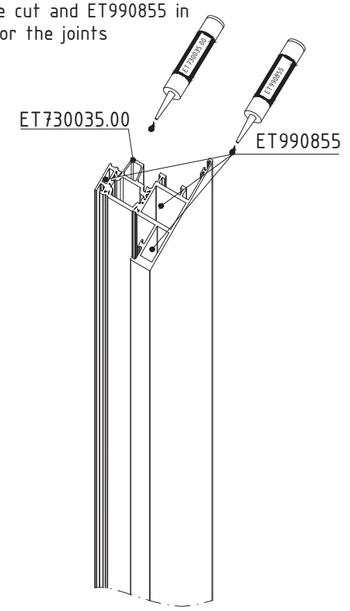
1 - Fill the chamber between polyamide with insulator ET968267.22 and slice the exit part to the face



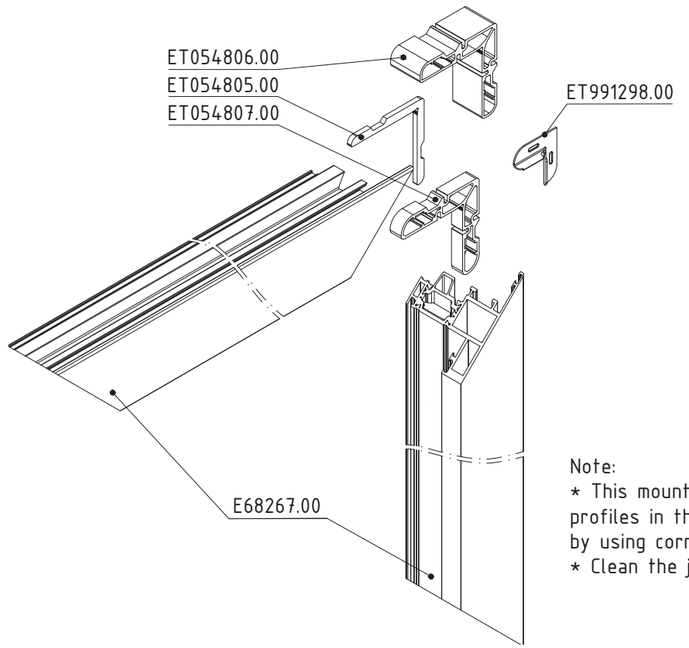
2 - clean the surface of the cut and the grooves for the joints by using cleaner ET994356.00



3 - apply ET730035.00 on the surface of the cut and ET990855 in the grooves for the joints



4 - put the joints in the chambers of frame E68267

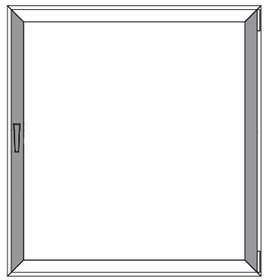


Note:
* This mounting sequence is valid for all the frame profiles in the system
by using corresponding joint corners and insulators
* Clean the joints before application

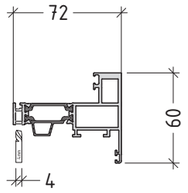
P68-3-5

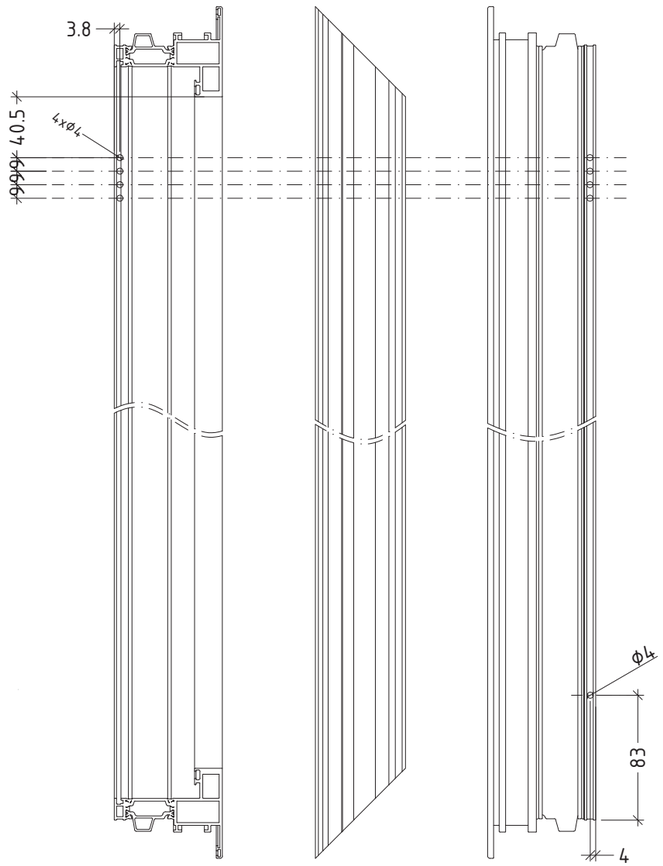
Additional treatment of profiles after cutting
E68267 - machining for ilation

interior view



E68267
1543 g/m



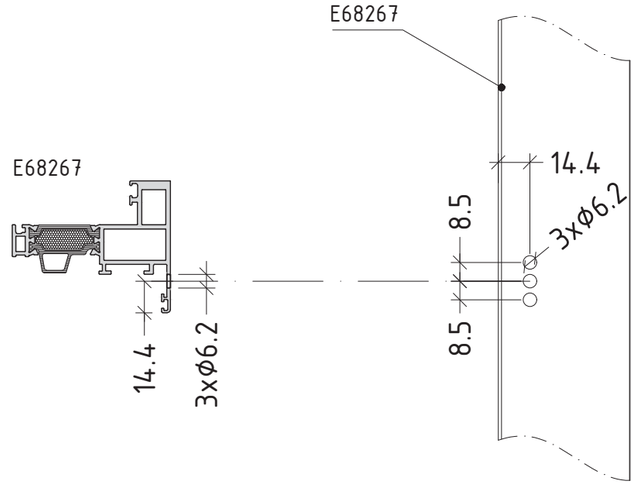


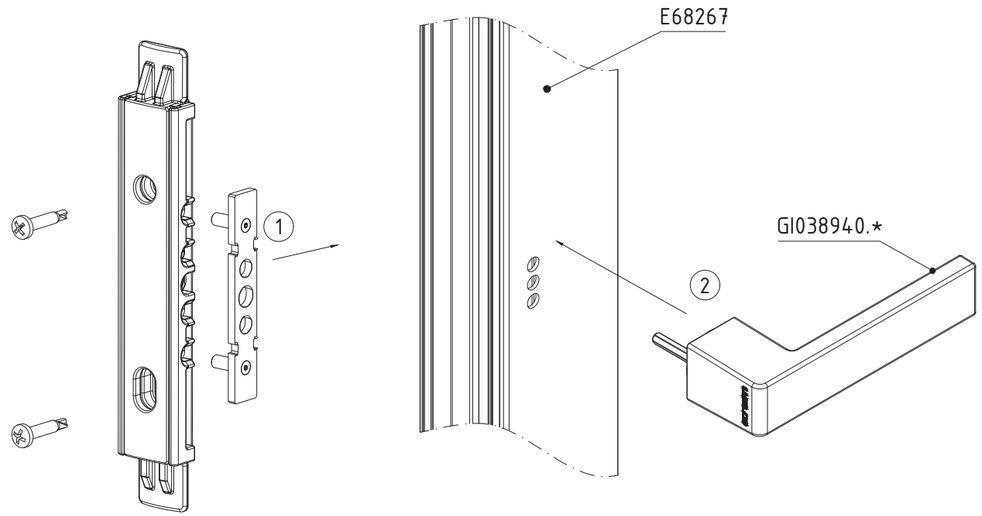
Note:
This machining's is valid for all the profiles with Euro groove in the system

scale : 1:1

P68-3-6

Additional treatment of profiles after cutting
E68267 - machining for handle on active





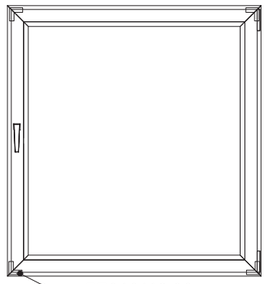
Note:
This machining's is valid for all the profiles with Euro groove in the system

scale : 1:1

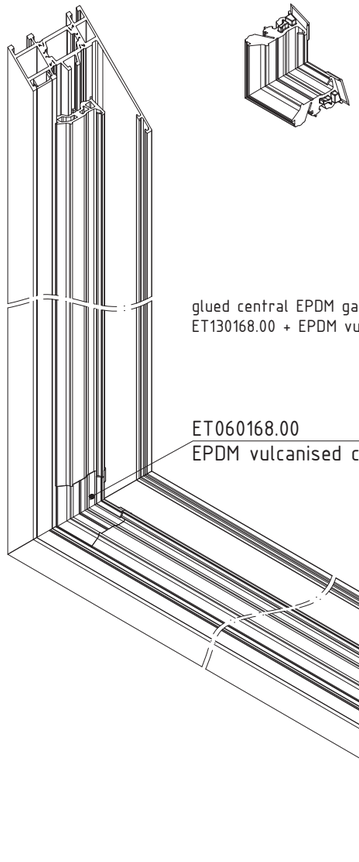
P68-3-7

Sequence for mounting central EPDM gasket to the frame for E68 Hidden

interior view



ET060168.00
EPDM vulcanised corner
for gasket ET130168.00



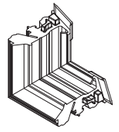
For E68 HIGH+/HIGH/STANDARD+

ET130168.00

co-extruded EPDM
gasket for E68

ET060168.00

EPDM vulcanised corner
for gasket ET130168.00



Note:

- use cleaner ET994356.00
- use primer ET140045.00
- use glue ET140042.00

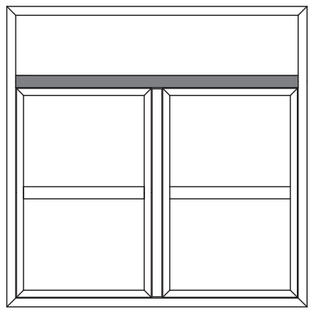
- Make sure central EPDM gasket ET130168.00 is in contact and glued to EPDM vulcanised corner

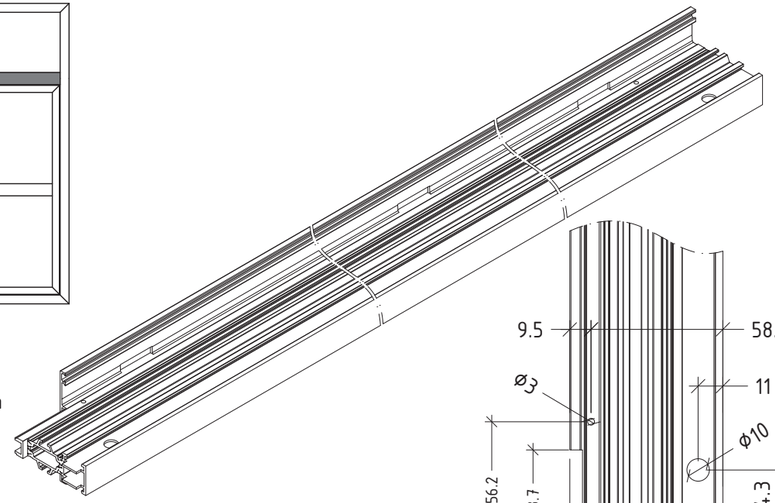
scale : 1:1

P68-3-8

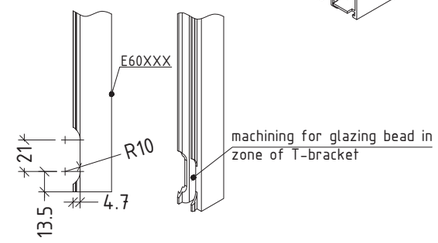
Additional treatment of profiles after cutting
T profile E4268360 – machining for visible drainage and connecting to the frame

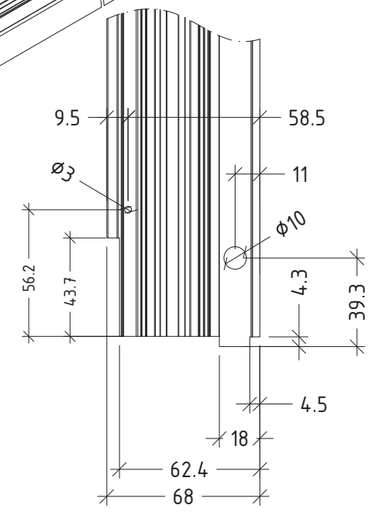
exterior view

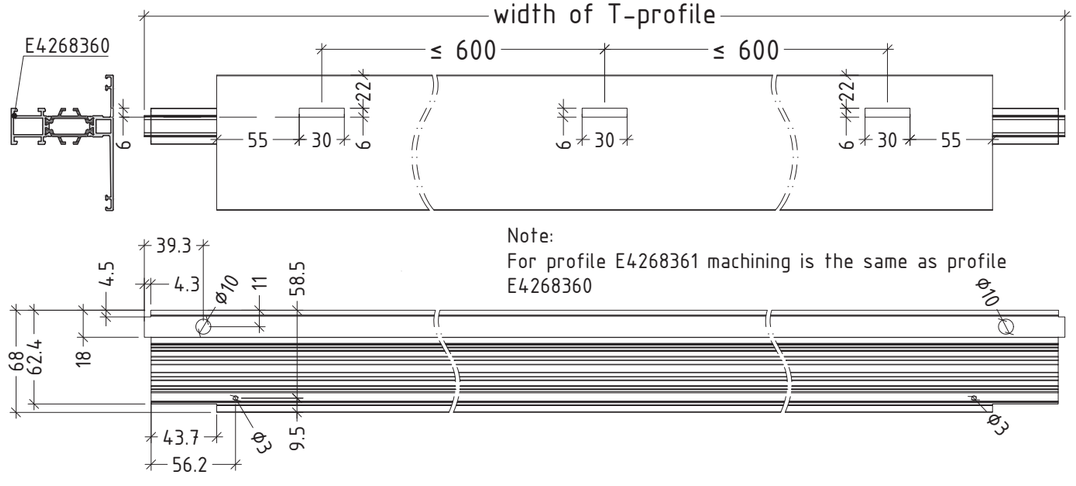




machining for glazing bead in
zone of T-bracket





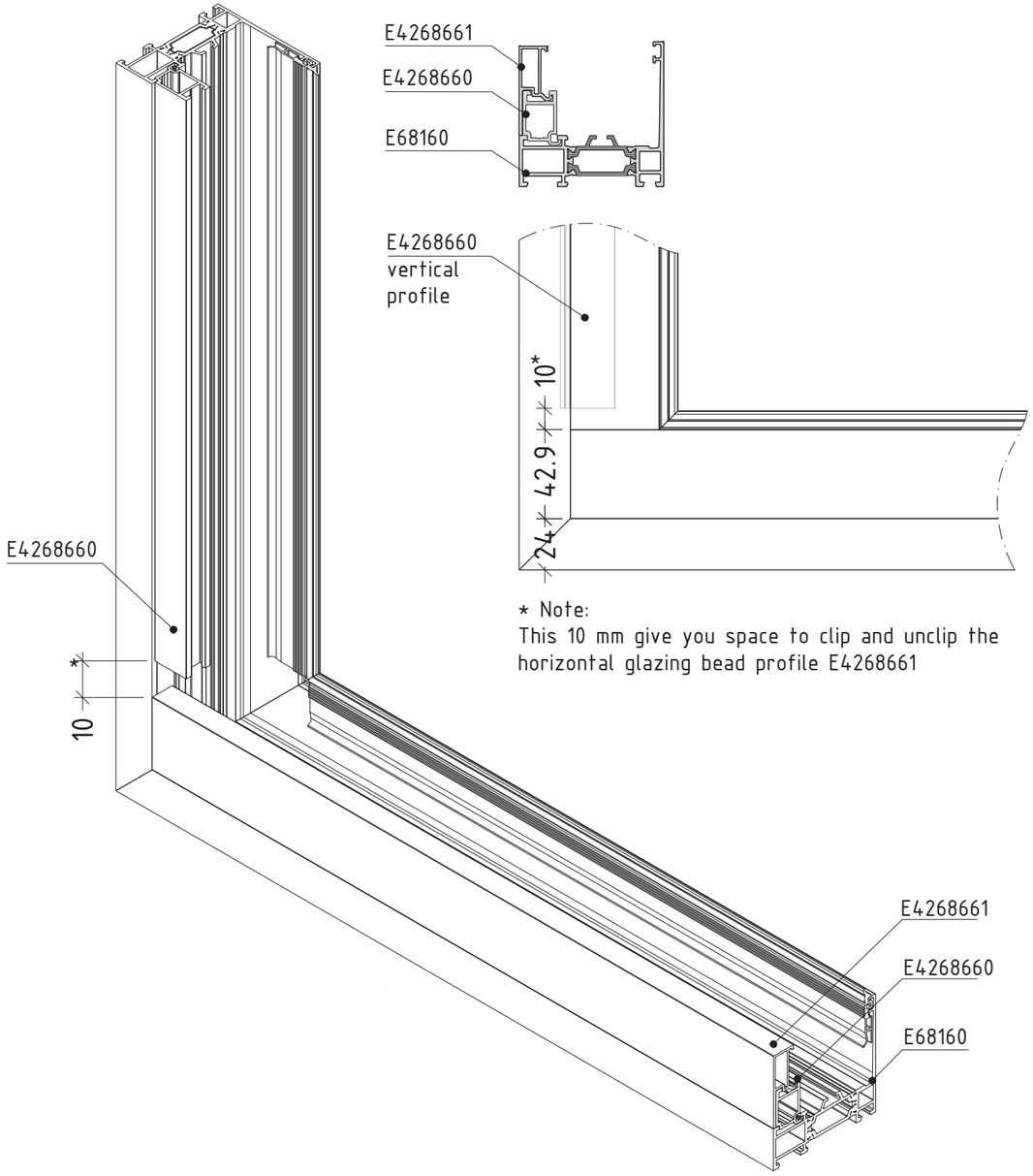


Note:
For profile E4268361 machining is the same as profile E4268360

scale : 1:1

P68-3-10

Sequence for assembly the glazing beads E4268660 + E4268661 for fixing part

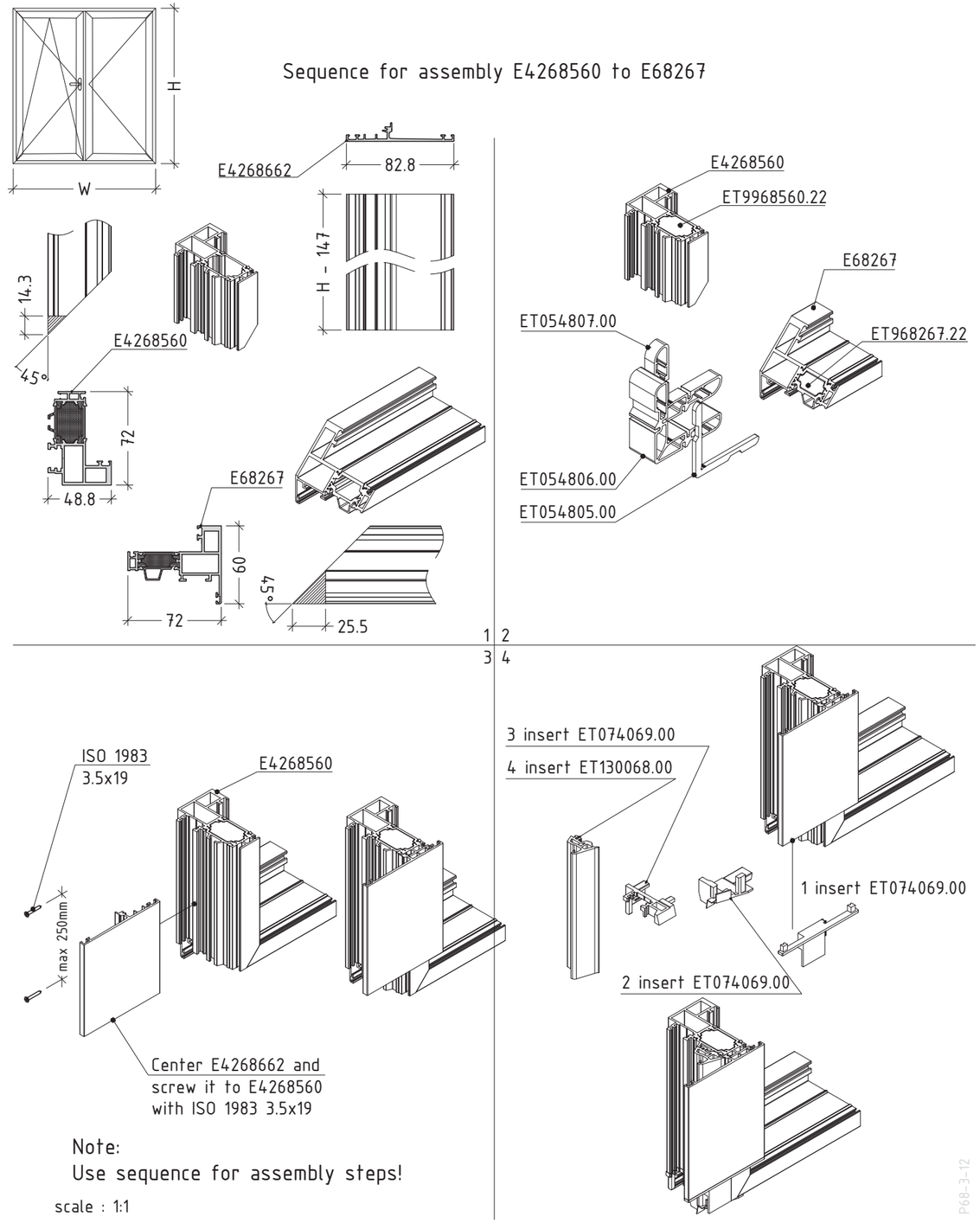


* Note:
This 10 mm give you space to clip and unclip the horizontal glazing bead profile E4268661

scale : 1:1

P68-3-11

Sequence for assembly E4268560 to E68267

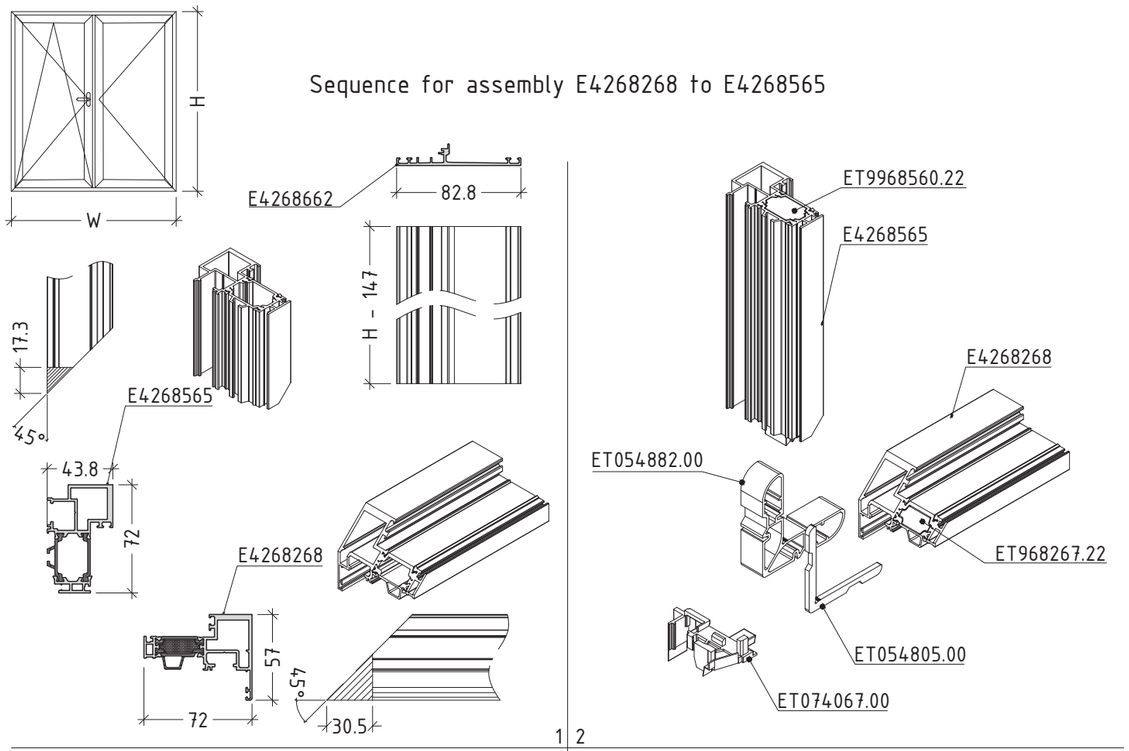


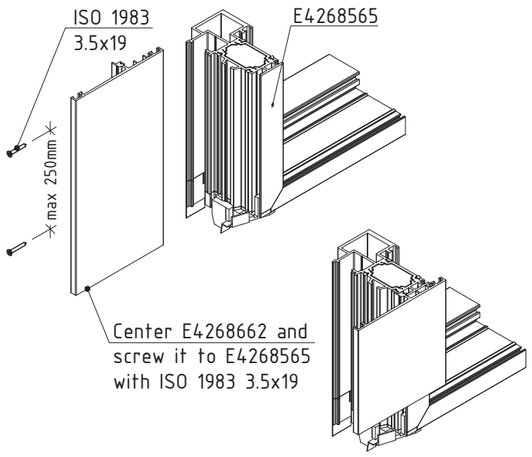
Note:
Use sequence for assembly steps!

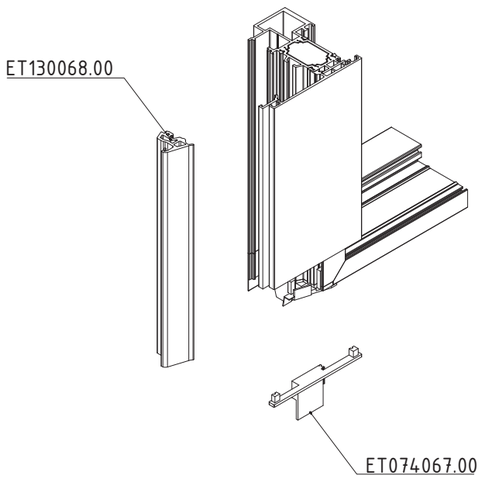
scale : 1:1

P68-3-12

Sequence for assembly E4268268 to E4268565







Note:
Use sequence for assembly steps!

scale : 1:1

P68-3-13

ACCESSORIES

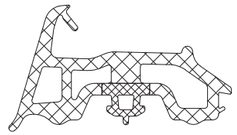
IMAGES / DESCRIPTIONS

code/description	package/pcs	colour
ET **130475.00**	50	●

additional EPDM gasket for
E68

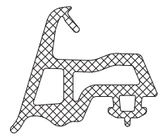
ET **130168.00**	50	●

central EPDM gasket for
E68 premium



ET **130068.00**	30	●

central EPDM gasket for
E68 standard



ET **130758.00**	50	●

interior EPDM gasket
TOPLINE

A68-4-1

code/description	package/pcs	colour
ET **130176.00**	80	●

glazing EPDM gasket
press-in 5-6 mm

ET **130177.00**	60	●

glazing EPDM gasket
press-in 7-8 mm

ET **130205.00**	125	●

glazing EPDM gasket
press-in 5 mm

ET **130206.00**	125	●

glazing EPDM gasket
press-in 6 mm

A68-4-2

code/description	package/pcs	colour
ET **130207.00**	75	●

glazing EPDM gasket
press-in 7 mm

ET **130208.00**	40	●

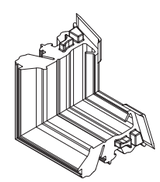
glazing EPDM gasket
press-in 8 mm

ET **130210.00**	40	●

glazing EPDM gasket
press-in 10 mm

ET **060168.00**	50	●

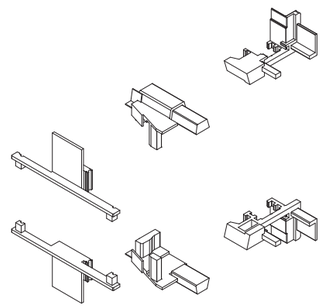
EPDM vulcanised corner



R68-043

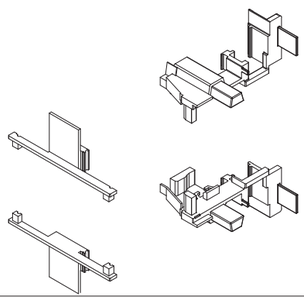
code/description	package/pcs	colour
ET **074069.00**	–	–

-



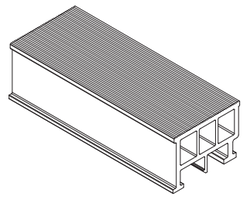
ET **074067.00**	–	–

-



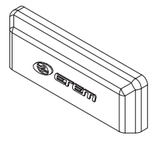
ET **073682.00**	100	–

alignment glazing shim



ET **074306.00**	50	●

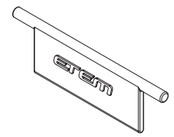
plastic drainage cap 30x6mm



A868404

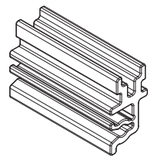
code/description	package/pcs	colour
ET **074307.00**	50	●

flap for drainage cap



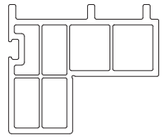
ET **074908.00**	100 pcs	●

clips for profile E68



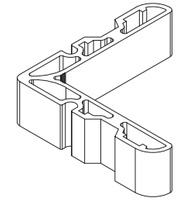
ET **080068.00**	8pcs x 6m	●

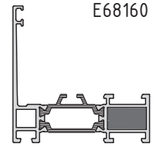
mounting PVC profile for E68



ET **054803**	50	MF

extruded aluminium corner bracket



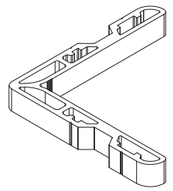


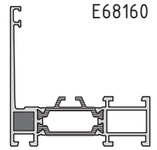
attention
always use epoxy resin
for long lasting joining

A68-4-5

code/description	package/pcs	colour
ET **054804.00**	50	MF

xtruded aluminium corner
racket

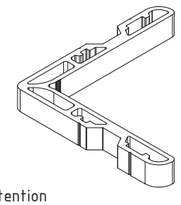


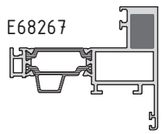


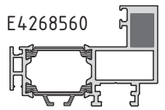
attention
always use epoxy resin
for long lasting joining

code/description	package/pcs	colour
ET **054807.00**	50	MF

xtruded aluminium corner
racket



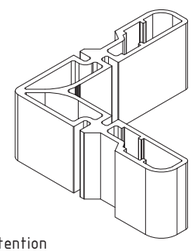


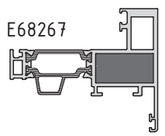


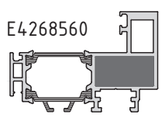
attention
always use epoxy resin
for long lasting joining

code/description	package/pcs	colour
ET **054806.00**	50	MF

xtruded aluminium corner
racket



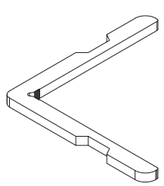


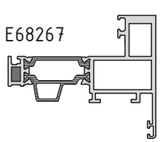


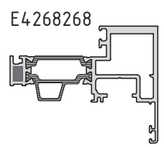
attention
always use epoxy resin
for long lasting joining

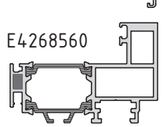
code/description	package/pcs	colour
ET **054805.00**	20	MF

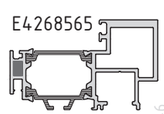
xtruded aluminium corner
racket







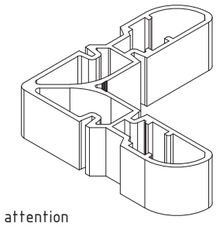


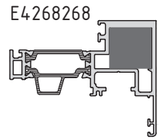


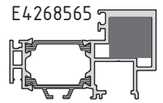
attention
always use epoxy resin
for long lasting joining

A68-4-6

code/description	package/pcs	colour
ET **054882.00**	20	MF



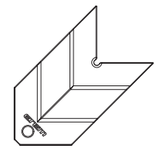




attention
always use epoxy resin
for long lasting joining

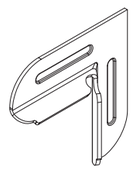
code/description	package/pcs	colour
ET **057720.00**	50	●

alignment angle for E68



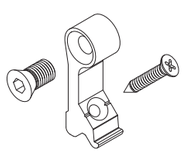
code/description	package/pcs	colour
ET **991298.00**	20	-

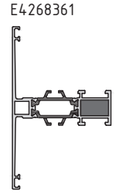
alignment square

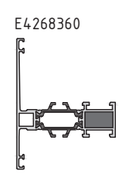


code/description	package/pcs	colour
ET **070205.00**	10	MF

T-BRACKET (E75900) for
E4268360; E4268361
screwing "T" bracket for
mullions/transoms
- 10.5 mm





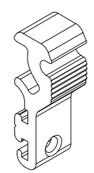


attention
always use epoxy resin
for long lasting joining

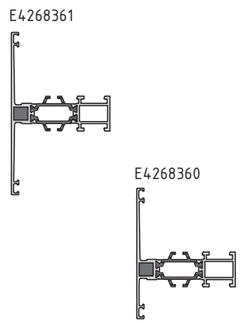
A68-4-7

code/description	package/pcs	colour
ET **070321.00**	10	MF

T-BRACKET (E75900) for
E4268360; E4268361

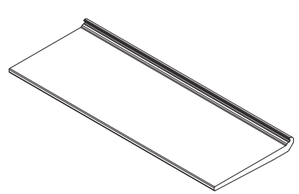


attention
always use epoxy resin
for long lasting joining



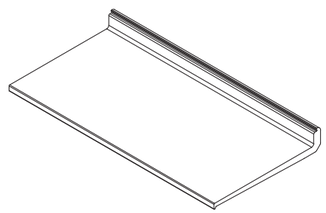
ET **071168.00**	–	MF

glazing shim



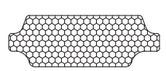
ET **071440.00**	100	MF

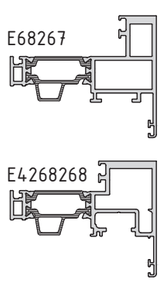
glazing shim



ET **968267.22**	20	–

additional insulator

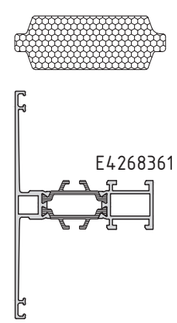


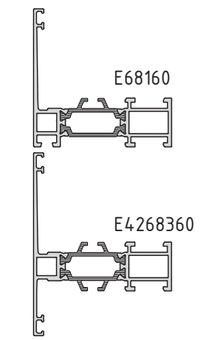


A68-4-8

code/description	package/pcs	colour
ET **968160.22**	50	–

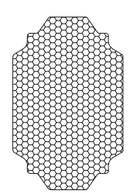
additional insulator

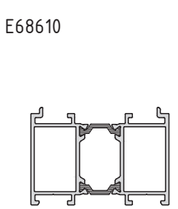




ET **968610.22**	50	–

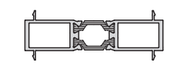
additional insulator





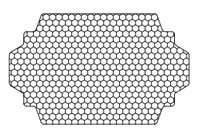
ET **968855.22**	50	–

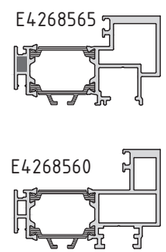
additional insulator



ET **968560.22**	50	–

additional insulator





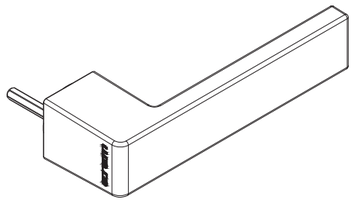
A68-4-9

code/description	package/pcs	colour
ET 080529.00	1	●

additional ins. for E68

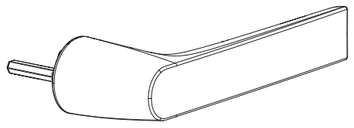
GI 38940.01	1	○
GI 38940.02	1	●
GI 38940.06	1	◐
GI 38940.12	1	BRUSHED BV1

HANDLE NP ULTRA ETEM



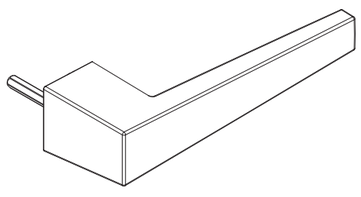
GI 039610.01	10	○
GI 039610.02	10	●
GI 039610.06	10	◐

handle NP ULTRA
(rounded)



GI 039600.01	10	○
GI 039600.02	10	●
GI 039600.06	10	◐

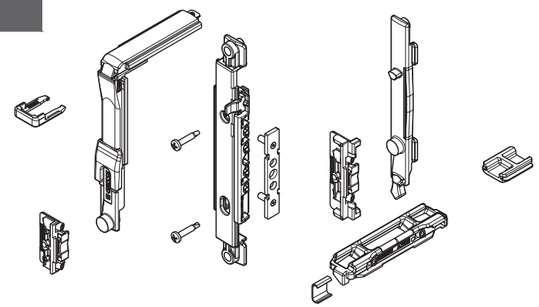
handle NP ULTRA
(squared)



A68-4-10

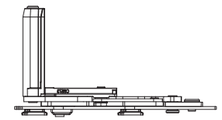
code/description	package/pcs	colour
GI039520.00	1	●

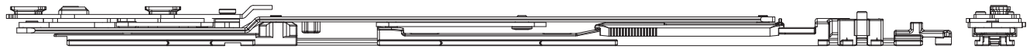
NP ULTRA - T/T MECHANISM



GI043562.00	1	●

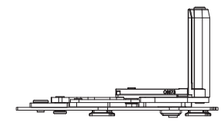
CHIC-T/T KIT HINGES ARM
LEFT 600 - 1500mm

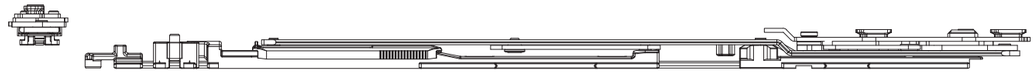




GI043561.00	1	●

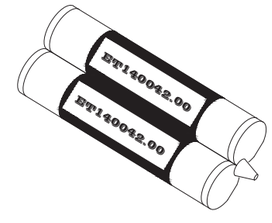
CHIC-T/T KIT HINGES ARM
RIGHT 600 - 1500mm





ET 140042.00	-	-

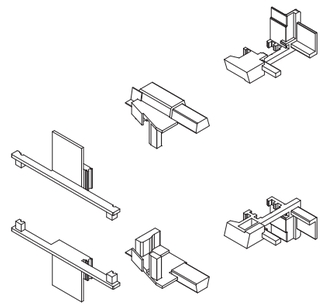
adhesive for corner brackets
ETEM 600ml



A68-4-11

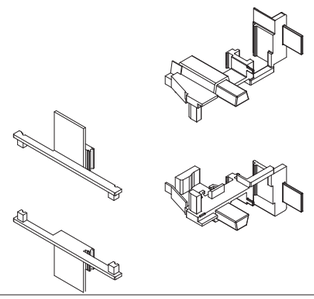
code/description	package/pcs	colour
ET **074069.00**	–	–

set of caps for E4268560 E4268662



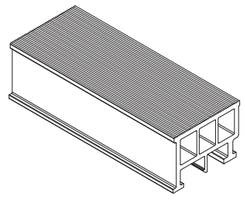
ET **074067.00**	–	–

pair of caps for E4268565 E4268662



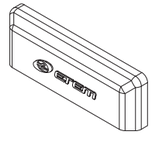
ET **073682.00**	100	–

alignment glazing shim



ET **074306.00**	50	●

plastic drainage cap 30x6mm



A68-4-04

code/description	package/pcs	colour
ET **750016.00**	–	–

cleaner for Vario protect

1l

A68-4-13

CE MARKING

STANDARDS / PERFORMANCE CHARACTERISTICS

CE MARKING

WHAT DOES THE SIGN CE MEAN?
It is an abbreviation of the French "Conformite Europeene"– i.e. European Conformity. By placing the CE marking the manufacturer declares that the product complies with the general safety requirements set out in the Construction Product Regulation 305/2011.

WHAT IS THE PURPOSE OF CE MARKING?
The CE marking represents ''the European passport'' of the product, its main objectives are:

CE is a declaration by the manufacturer that the product meets the essential requirements of relevant European legislation relating to health, safety and environmental protection;

CE indicates to officials in relevant ministries and departments that the product can be put on the market lawfully in the country;

CE ensures free movement of goods within the EU and the European Free Trade Association (EFTA);

CE permits the withdrawal of products that do not meet the standards by monitoring and custom authorities;

Marking with the CE mark is necessary in cases where the product is distributed within the internal market.

WHAT ARE THE REQUIREMENTS FOR THE CE MARKING?
Doors, windows and gates (except those intended to be used for internal communication only, for fire/smoke compartmentation and on escape routes) are covered by System 3 of assessment and verification of constancy of performance.
According to the Construction Product Regulation 305/2011, this system sets the following duties:

Tasks to be performed by the manufacturer	Tasks to be performed by Notified testing laboratory	Conformity accessment (the basis for CE marking, which is set by the final producer)
factory production control – FPC	Determination of the product type on the basis of type testing, type calculation, tabulated values, etc.	Declaration of performance issued by the manufacturer or his authorized representative based on test results.

LEGAL ACTS

- Construction Products Regulation (305/2011/EU – CPR) – replacing the Construction Products Directive (89/106/EEC – CPD)
- EN 14351-1:2006+A1:2010 – Windows and doors – Product standard, performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics

MAIN METHODS FOR OBTAINING TEST RESULTS BY THE MANUFACTURER

According to the Construction Product Regulation 305/2011 there are three main options for the manufacturers of windows and doors to obtain test results.

1

THE MANUFACTURER SELECTS A SAMPLE FOR TESTING AND CARRIES OUT FACTORY PRODUCTION CONTROL

↓

NOTIFIED TESTING LABORATORY TESTS THE SAMPLE

↓

THE MANUFACTURER OWNS THE TEST REPORT

↓

MANUFACTURER ISSUES DECLARATION OF PERFORMANCE AND AFFIXES CE MARKING

2

PARTNER (SECOND MANUFACTURER PRODUCING PRODUCT WITH CORRESPONDING PRODUCT-TYPE) SELECTS A SAMPLE FOR TESTING AND CARRIES OUT FACTORY PRODUCTION CONTROL

↓

NOTIFIED TESTING LABORATORY TESTS THE SAMPLE

↓

THE PARTNER OWNS THE TEST REPORT

↓

THE MANUFACTURER CARRIES OUT FACTORY PRODUCTION CONTROL AND IS ALLOWED TO USE THE TEST RESULTS OF HIS PARTNER AFTER OBTAINING PARTNER'S AUTHORIZATION

↓

MANUFACTURER ISSUES DECLARATION OF PERFORMANCE AND AFFIXES CE MARKING

3

THE SYSTEM PROVIDER SELECTS SAMPLES FOR TESTING

↓

NOTIFIED TESTING LABORATORY TESTS THE SAMPLE

↓

THE SYSTEM PROVIDER OWNS THE TEST REPORT

↓

THE MANUFACTURER CARRIES OUT FACTORY PRODUCTION CONTROL AND IS ALLOWED TO USE THE TEST RESULTS OF THE SYSTEM PROVIDER AFTER OBTAINING SYSTEM PROVIDER'S AUTHORIZATION

↓

- AGREEMENT BETWEEN THE MANUFACTURER AND THE SYSTEM PROVIDER
- INSTRUCTIONS FOR ASSEMBLING AND INSTALLATION OF THE SYSTEM PROVIDER RELEVANT FOR FPC OF THE MANUFACTURER
- NO REDUCTION OF PERFORMANCE LEVEL OF THE PRODUCT

↓

MANUFACTURER ISSUES DECLARATION OF PERFORMANCE AND AFFIXES CE MARKING

STANDARDS

GENERAL

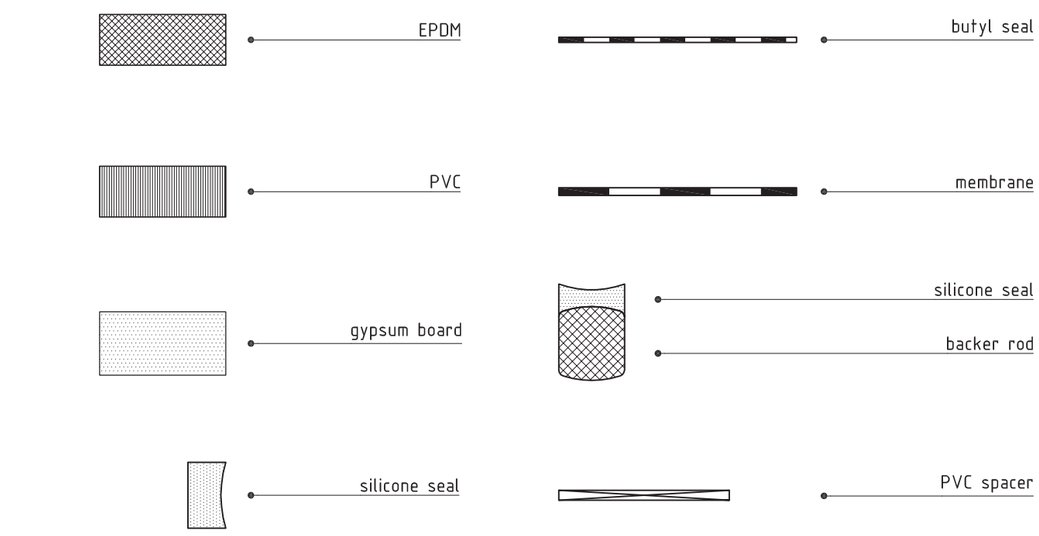
- EN 12020 (1÷2) – ALUMINIUM AND ALUMINIUM ALLOYS – EXTRUDED PRECISION PROFILES IN ALLOYS EN AW-6060 AND EN AW-6063
- EN 755 (1÷9)– ALUMINIUM AND ALUMINIUM ALLOYS – EXTRUDED ROD/BAR, TUBE AND PROFILES
- EN 573 (1÷3) – ALUMINIUM AND ALUMINIUM ALLOYS – CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS
- EN 1990 EUROCODE – BASIS OF STRUCTURAL DESIGN
- EN 1991 EUROCODE 1 – ACTIONS ON STRUCTURES
- EN 1998 EUROCODE 8 – DESIGN OF STRUCTURES FOR EARTHQUAKE RESISTANCE
- EN 1999 EUROCODE 9 – DESIGN OF ALUMINIUM STRUCTURES

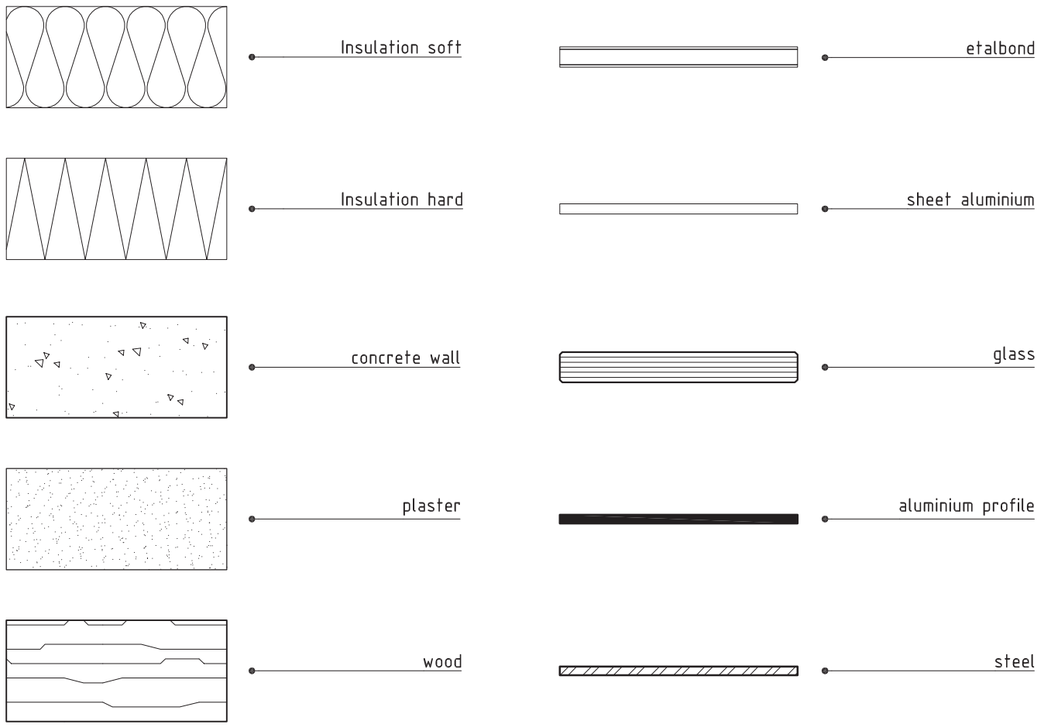
WINDOWS AND DOORS

1. EN 14351 – WINDOWS AND DOORS – PRODUCT STANDARD, PERFORMANCE CHARACTERISTICS
2. EN 12519 – WINDOWS AND PEDESTRIAN DOORS – TERMINOLOGY
3. EN 12207 – WINDOWS AND DOORS – AIR PERMEABILITY – CLASSIFICATION
4. EN 1026 – WINDOWS AND DOORS – AIR PERMEABILITY – TEST METHOD
5. EN 12208 – WINDOWS AND DOORS – WATERTIGHTNESS – CLASSIFICATION
6. EN 1027 – WINDOWS AND DOORS – WATERTIGHTNESS – TEST METHOD
7. EN 12210 – WINDOWS AND DOORS – RESISTANCE TO WIND LOAD – CLASSIFICATION
8. EN 12211 – WINDOWS AND DOORS – RESISTANCE TO WIND LOAD – TEST METHOD
9. EN 1191 – WINDOWS AND DOORS – RESISTANCE TO REPEATED OPENING AND CLOSING – TEST METHOD
10. EN ISO 10077 (1÷2) – THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS – CALCULATION OF THERMAL TRANSMITTANCE
11. EN 12412-2 – THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS – DETERMINATION OF THERMAL TRANSMITTANCE BY HOT BOX METHOD – PART 2: FRAMES
12. EN 13115 – WINDOWS – CLASSIFICATION OF MECHANICAL PROPERTIES – RACKING, TORSION AND OPERATING FORCES
13. EN 1627 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – REQUIREMENTS AND CLASSIFICATION
14. EN 1628 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE UNDER STATIC LOADING
15. EN 1629 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE UNDER DYNAMIC LOADING
16. EN 1630 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE TO MANUAL BURGLARY ATTEMPTS
17. EN ISO 717-1 – ACOUSTICS – RATING OF SOUND INSULATION IN BUILDINGS AND OF BUILDING ELEMENTS – PART 1: AIRBORNE SOUND INSULATION
18. EN ISO 10140 – ACOUSTICS – LABORATORY MEASUREMENT OF SOUND INSULATION OF BUILDING ELEMENTS

HATCHES

Hatches for different materials





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The specific conditions and technical details of every particular project have to be taken into consideration.

The right choice of all elements as well as any special requirements regarding stability of the structure must always be considered by the structural/façade engineer, responsible for the project.

The solutions presented in these pages are indicative and can not cover all possible project cases. Because of that every single project has to be evaluated by the structural/facade engineer in charge taking into consideration the specific features, such as climate conditions, location, orientation, etc.

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