

E45 E1600

E52

E19

E50 Q72

E75 E8000

E2300

E40 Q60

E85

# TECHNICAL CATALOGUE

SLIDING DOOR AND WINDOW SYSTEM WITH THERMAL BREAK







# E50

WINDOW AND DOOR SYSTEM WITH THERMAL BREAK

## TABLE OF CONTENTS

GENERAL INFORMATION	page 9
BUILDING PHYSICS	page 17
TABLES	page 25
PROFILES	page 33
SECTIONS	page 55
GLAZING OPTIONS	page 83
CUTTING LISTS	page 87
MACHINING	page 111
ACCESSORIES	page 195
CE MARKING	page 243

# ETEM HISTORY

ETEM is a leading aluminium extrusion company. It was founded in 1971 as a part of the largest metal manufacturing holding in 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.

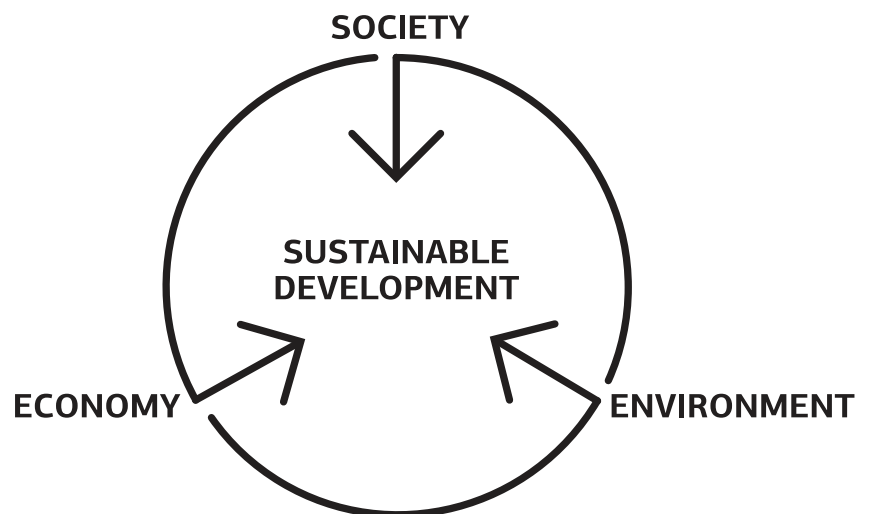
For us meeting this objective translates into the challenge of satisfying market demands at the lowest economic, social and environmental cost possible.

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



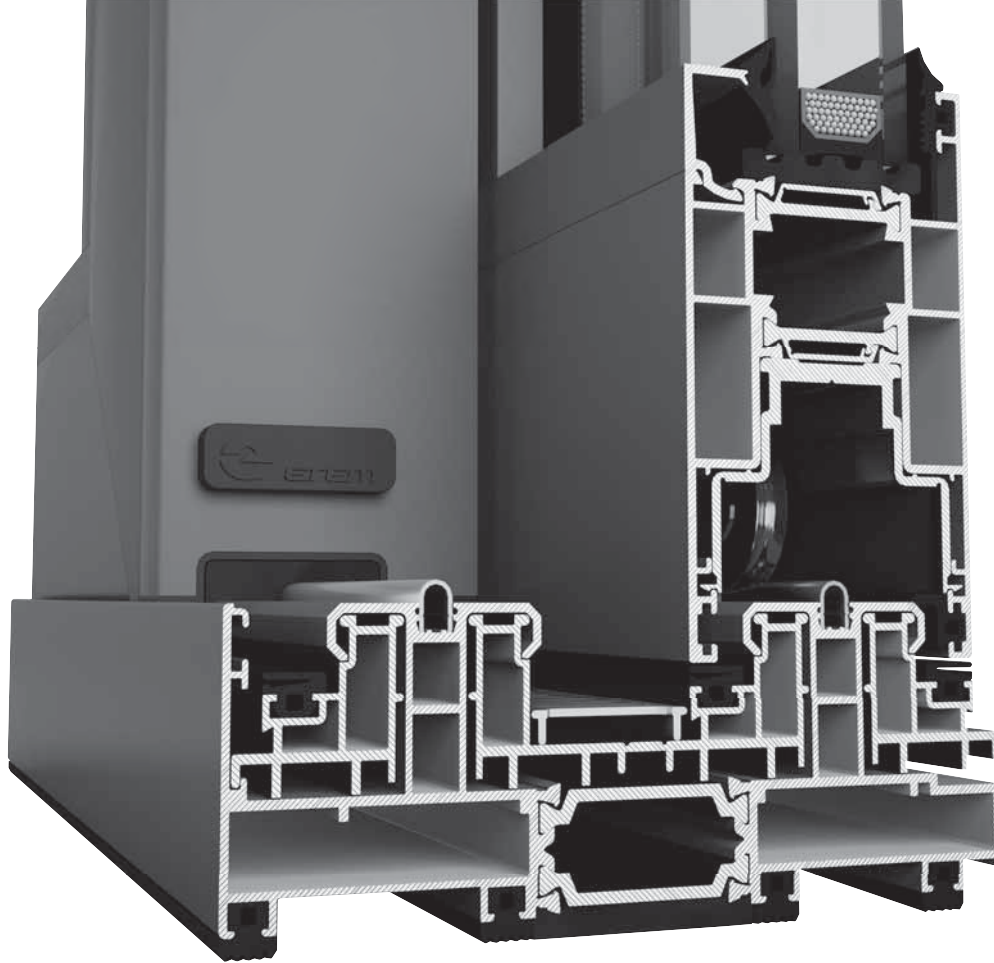




# GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES



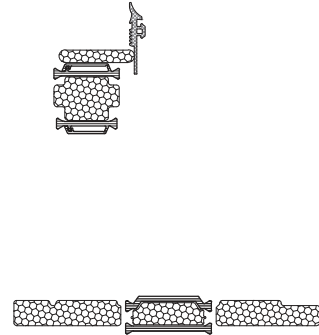
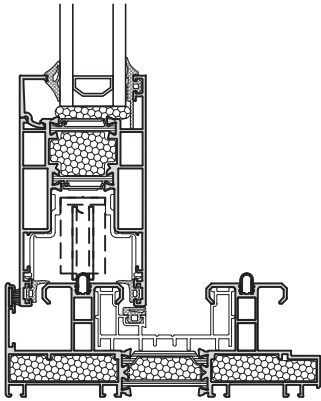


# E50 WINDOW CONCEPT

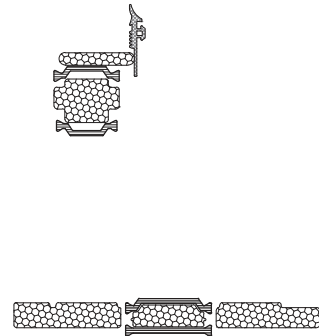
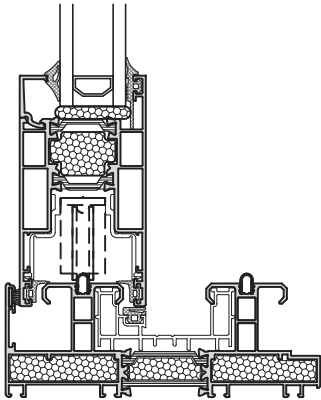
E50 IS A HIGH-END SLIDING WINDOW SYSTEM WITH THERMAL BREAK, SUITABLE FOR OPPOSED & POCKET BALCONY DOORS AND WINDOWS WITH HIGH REQUIREMENTS FOR THERMAL INSULATION, FUNCTIONALITY AND AESTHETICS.

- Elegant straight design
- Excellent water-tightness and air-permeability
- High thermal insulation
- Glazing sash with 50.0 mm width allowing glass panel from 23.0 up to 34.0 mm
- Ability of excellent view, using narrow interlock profile
- Ability of construction single and double vent pocket doors and windows
- Maximum weight per sash 200 kg
- Optimum design for excellent ratio of weight per linear meter

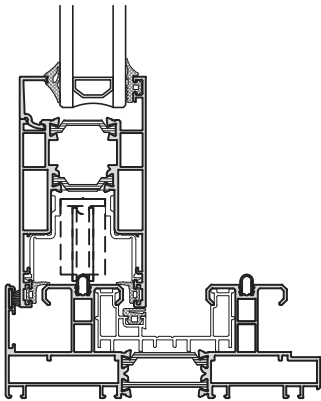
# ADVANCED



# IMPROVED

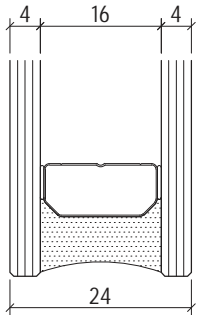
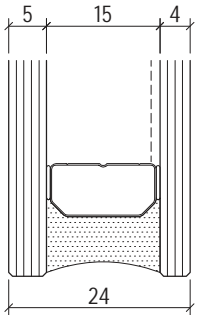
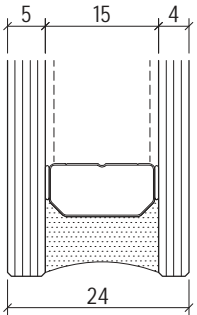


# BASIC



# ADVANTAGES AND COMBINATION

## PERFORMANCE CHARACTERISTICS

	Type of glazing		
	Double Glazing	Double Glazing	Double Glazing
	4/16/4 Low Emission	5/15/4 Low Emission Argon	5sun guard/15/4 Low Emission
			
U <sub>glass</sub>	1,4	1,1	1,0
U <sub>window</sub> <sup>1</sup>	1,7	1,5	1,4
g value <sup>2</sup>	0,6	0,6	0,5

## ADVANTAGES

Energy Efficiency		*	**	***
Sound Insulation		*	**	***
Ventilation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Daylight		****	***	**
Sunshading	E 66	*	**	***
Automation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety and security		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Notes:

1. U<sub>w</sub> value is calculating by using warm edge spacer for double vent window (exter. dimensions W4000 x H2500)

2. g value is calculating 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 E50

Characteristic	Classification / value	Standard
Air permeability	Up to class 4	EN 1026 / EN 12207
Watertightness	Up to class E1200	EN 1027 / EN 12208
Resistance to wind load	Up to class C3	EN 12211 / EN 12210
Thermal transmittance	from 2,04 W/m <sup>2</sup> .K	EN ISO 10077-2
Sound insulation	41 (-1, -3) dB	EN ISO 10140-2

# CLASSIFICATION OF CHARACTERISTICS

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

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

NOTE 1: npd: no performance determined

NOTE 2: The figures in brackets are for information

<sup>a</sup> Only if safety device(s) is(are) not provided

<sup>b</sup> Manually operated windows only





# BUILDING PHYSICS

DIMENSIONING / FORMULAS / EXAMPLES

# ALUMINIUM AS MATERIAL

ALUMINIUM IS A VERY YOUNG METAL, EXTRACTED FOR THE FIRST TIME IN 1854. COMMERCIALY 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 6063. Here are the properties of this alloy:

## MATERIAL PROPERTIES

Aluminium alloy	EN F22
Ultimate tensile strength	Rm = 210 N/mm <sup>2</sup>
Yield strength	R <sub>p0.2</sub> = 160 N/mm <sup>2</sup>
Modulus of elasticity	Eal=70 000 N/mm <sup>2</sup> = 7.10 <sup>9</sup> kg/m <sup>2</sup>
Coefficient of thermal expansion	α=0.023 mm/m .K (up to 1.2 mm/m for difference up to 50°C)

# 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.

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.

# 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. The technology EZY provides the following colors: Golden Oak, Acero, Betulla, Mogano, Verde Scuro, Wenge, Noce Fiammato, Noce Chiaro, Ciliegio Rosso, Acacia Scuro, Ciliegio Antico, Noce Reale, Ciliegio Reale.

## ANODIZING

It is an electrochemical process whereby to reinforce the natural oxide film on the

# 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

The main influence over the facade is wind action, which depends mainly on the height of the curtain wall 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	
		$q = \frac{V^2}{16}$		$W_{p*} = 1.25 \times c_p \times q$		$h/b \leq 0.25$ $W_s = c_p \times q$ $c_p = 0.5$	$h/b \geq 0.5$ $W_s = c_p \times q$ $c_p = 0.7$	$b/8 \leq 2 \text{ m}$ $W_s = c_p \times q$ $c_p = 2.0$			
m	m/s	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>	kg/m <sup>2</sup>
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<sup>2</sup> and kN/m<sup>2</sup>

$w_{p/s}$  - wind pressure / suction, kN/m<sup>2</sup>

$c_p$  - 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<sup>2</sup> = 0.01 kN/m<sup>2</sup>

1 Pa = 1 N/m<sup>2</sup> = 0.1 kg/m<sup>2</sup>

1 kPa = 1000 Pa = 1 kN/m<sup>2</sup> = 100 kg/m<sup>2</sup>

1 MPa = 1000 kPa = 1 000 000 Pa

1 MPa = 1 N/mm<sup>2</sup> = 0.1 kN/cm<sup>2</sup> = 100 000 kg/m<sup>2</sup>

## CALCULATION OF REQUIRED MOMENT OF INERTIA

### \* Wind load actions:

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

a) triangle load

If  $\frac{H}{c} \leq 1$ ,  $J_{yc} \geq \frac{w \cdot (H/2) \cdot H^4 \cdot 10^8}{120 \cdot E_{al} \cdot f_{max}}$ , cm<sup>4</sup>

or

b) trapezoid load

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

Use the same method to calculate  $J_{yd}$

Total of required moment of inertia:

$$J_y = J_{yc} + J_{yd}, \text{ cm}^4$$

where:

$J_y$	- Moment of inertia of a transom,	cm <sup>4</sup>
$w$	- wind pressure,	kg/m <sup>2</sup>
$E_{al}$	- Modulus of Elasticity of aluminium,	kg/m <sup>2</sup>
$f_{max}$	- Maximum transom deflection,	m
$H$	- Length of a mullion,	m
$a, b$	- Distance between mullions,	m

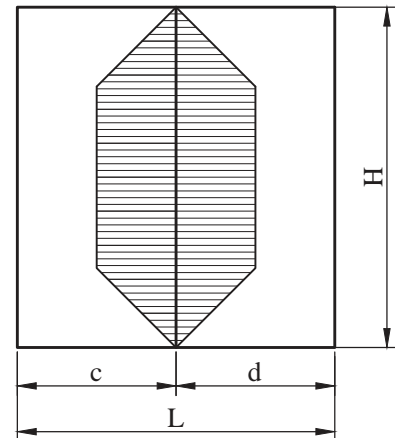
Maximum transom deflection  $f_{max}$  by wind load:

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

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

Use ETEM Catalogue to choose the appropriate profile which characteristics exceed or are equal to both calculated values  $J_x$  and  $J_y$ .

Example:



Initial data:

$H = 2,5$ m	$w = 120$ kg/m <sup>2</sup>
$c = 1,8$ m	$E_{al} = 7 \cdot 10^9$ kg/m <sup>2</sup>
$d = 1,8$ m	

$$f = \frac{H}{200} = \frac{2,5}{200} = 0,0125 \text{ m (EN 14351-1)}$$

$\Rightarrow f_{max} = 0,015$  m in the following formulas:

$$\frac{H}{c} = \frac{2,5}{1,8} = 1,39 > 1$$

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

$$J_{yc} = \frac{120 \cdot (1,8/2) \cdot 2,5^4}{1920 \cdot 7 \cdot 10^9 \cdot 0,015} \cdot 10^8 \cdot \left[ 25 - 40 \cdot \frac{(1,8/2)^2}{2,5^2} + 16 \cdot \frac{(1,8/2)^4}{2,5^4} \right] \Rightarrow J_{yc} = 42 \text{ cm}^4$$

$$\frac{H}{d} = \frac{2,5}{1,8} = 1,39 > 1$$

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

$$J_{yd} = \frac{120 \cdot (1,8/2) \cdot 2,5^4}{1920 \cdot 7 \cdot 10^9 \cdot 0,015} \cdot 10^8 \cdot \left[ 25 - 40 \cdot \frac{(1,8/2)^2}{2,5^2} + 16 \cdot \frac{(1,8/2)^4}{2,5^4} \right] \Rightarrow J_{yd} = 42 \text{ cm}^4$$

$$J_y = J_{yc} + J_{yd} = 42 + 42 = 84 \text{ cm}^4$$

In this case the combined moment of inertia of sash E50201 + interlock E50501 + ET080204 must be

$$J_y \geq 84 \text{ cm}^4$$

The moment of inertia of the combination is:  $J_y = 85 \text{ cm}^4$

## CALCULATION OF GLASS PANE THICKNESS

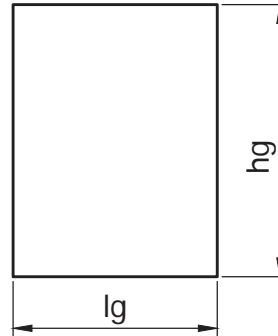
### \* Glazing thickness:

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

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

or

b) If  $\frac{h_g}{l_g} > 3$ ,  $t = \frac{l_g \cdot \sqrt{10 \cdot w}}{4,9}, mm$



where:

- t - Minimum theoretical glass thickness, mm
- w - Wind pressure, kg/m<sup>2</sup>
- l<sub>g</sub> - The smallest dimension of the glass pane, m
- h<sub>g</sub> - The largest dimension of the glass pane, m

Example:

Initial data:

l<sub>g</sub> = 2,8 m

h<sub>g</sub> = 3 m

w = 120 kg/m<sup>2</sup>

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

$$\frac{h_g}{l_g} = \frac{3}{2.8} = 1.07 \Rightarrow \frac{h_g}{l_g} \leq 3 \Rightarrow$$

$$t = \sqrt{\frac{10 \times l_g \times h_g \times w}{72}} = \sqrt{\frac{10 \times 2.8 \times 3 \times 120}{72}} \Rightarrow t = 11.8mm$$

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

For double glazing  $t_{req} = 1,5 \times 11.8 = 18 \text{ mm}$

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

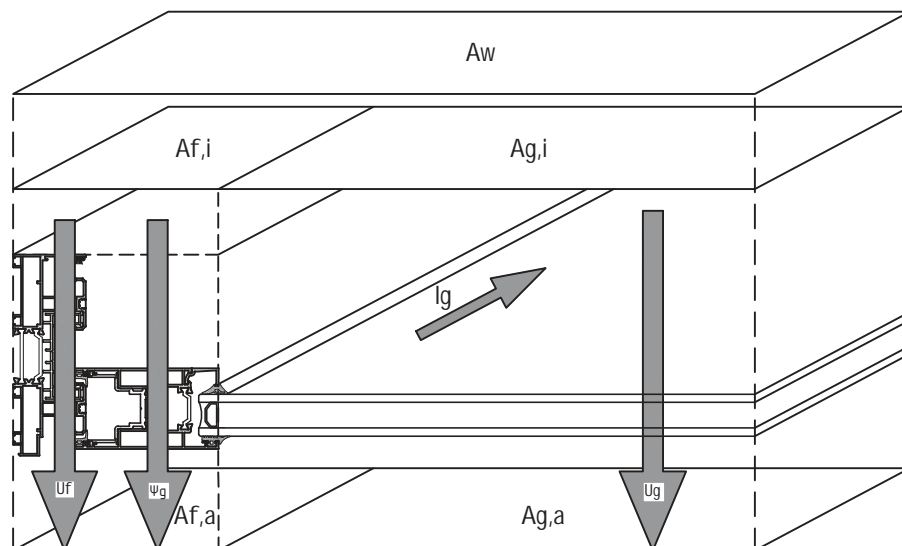
We choose double glazing 10/spacer/4+4

ATTENTION: PLEASE NOTE THAT THE ABOVE CALCULATIONS ARE INDICATIVE

Method for calculation according to EN ISO 10077-1

$$U_w = \frac{A_g \times U_g + A_f \times U_f + l_g \times \psi_g}{A_g + A_f}$$

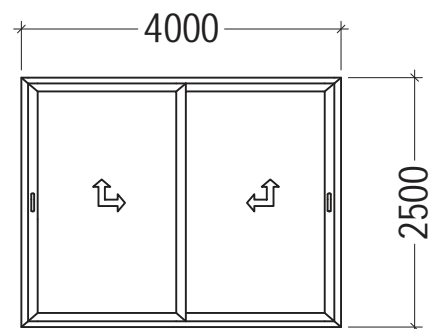
- $U_w$  – thermo-transmittance coefficient of the whole structure
- $U_g$  – glass thermo-transmittance coefficient
- $U_f$  – thermo-transmittance coefficient of the aluminium frame (frame and sash)
- $\psi_g$  – spacer linear thermal transmittance
- $l_g$  – total length of the spacer
- $A_g$  – glass 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 transmission coefficient

frame:	E 50	$U_f$	2.29	W/(m <sup>2</sup> K)
spacer:	Warm Edge	$\psi_g$	0.08	W/(mK)
glass:	double insulated glass	$U_g$	0.9	W/(m <sup>2</sup> K)

window width:	4.00 m
window height:	2.50 m
length of glass edge $l_g$ :	16.0 m
window type:	double vent sliding



$$U_w = \frac{8.0 \times 0.9 + 1.84 \times 3.34 + 16.2 \times 0.08}{8.1 + 2}$$

$$U_w \approx 1,45 \text{ W/(m}^2 \text{ K)}$$

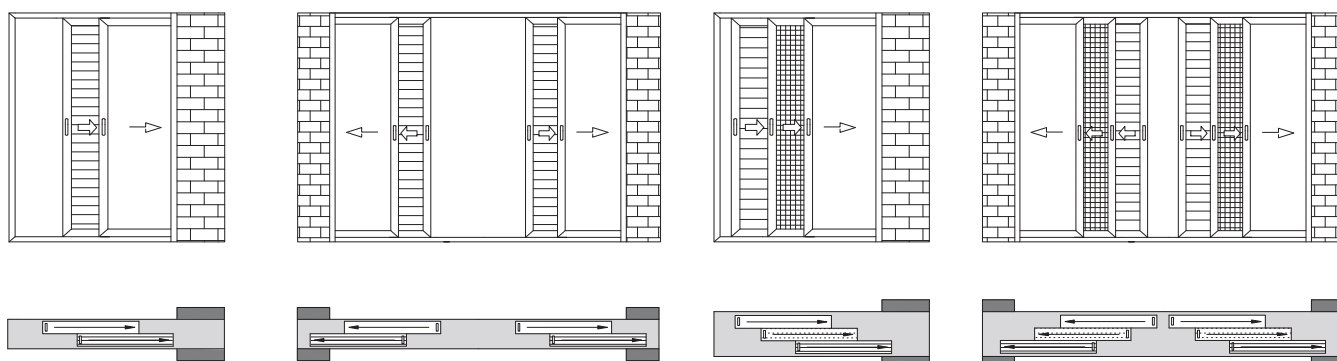
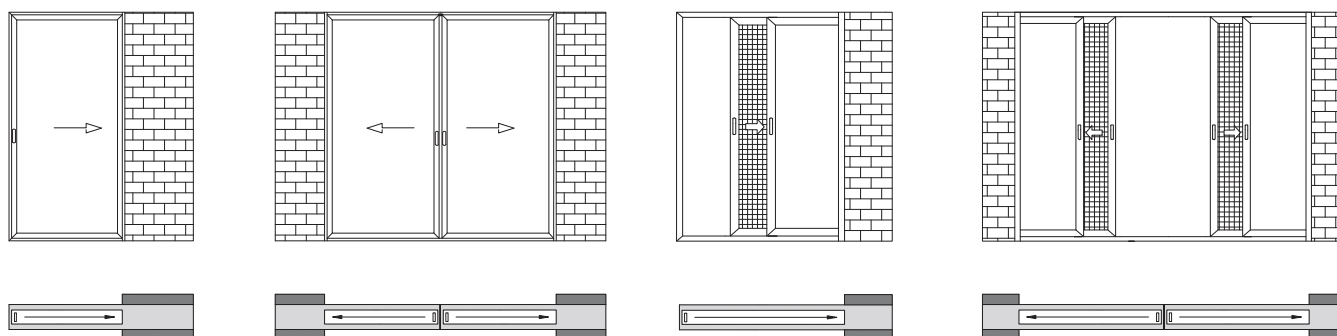
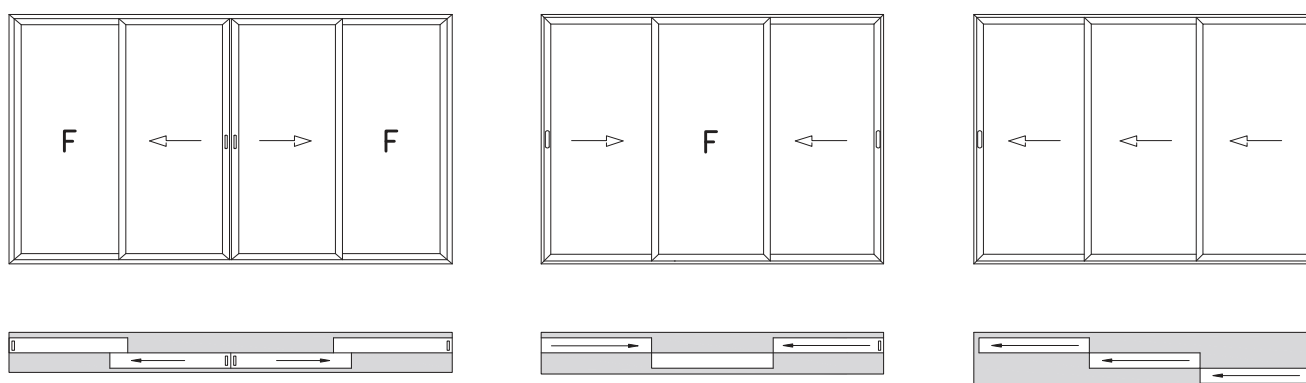
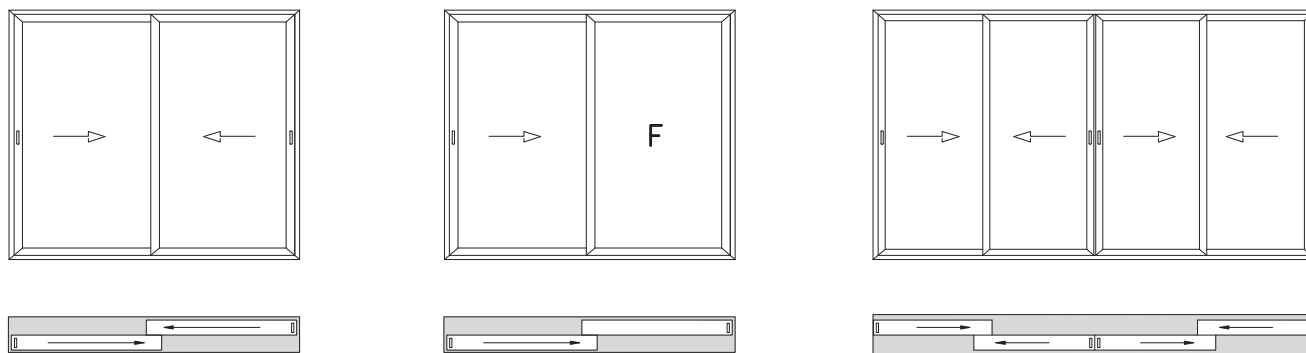




# TABLES

TYPES / LIST OF PROFILES / CHARACTERISTICS

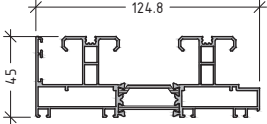
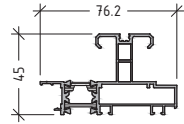
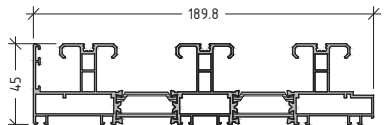
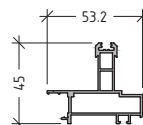
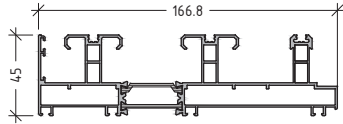
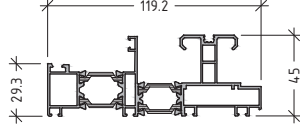
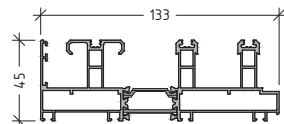
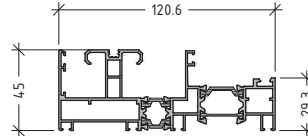
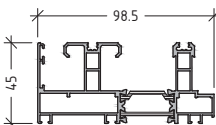
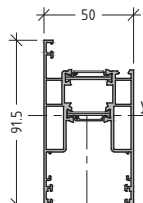
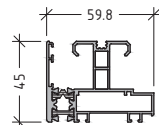




G70-01

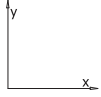

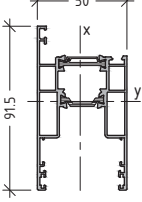
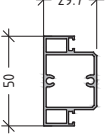
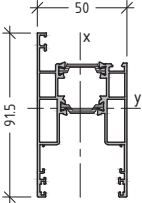
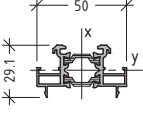
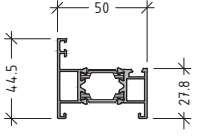
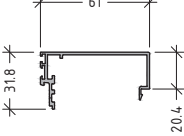
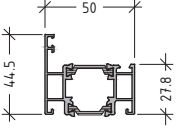
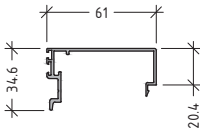
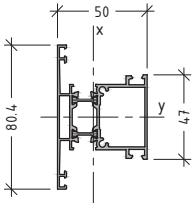
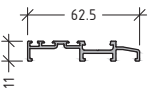
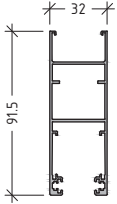
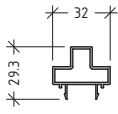
# sliding system with thermal break

# E50

code	profile	weight length moment of inertia	code	profile	weight length moment of inertia
E50100 Double rail		2098 g/m L=6.01 m	E50111 Additional fly screen rail		1216 g/m L=6.01 m
E50102 Triple rail		3169 g/m L=6.01 m	E50112 Supplementary profile		724 g/m L=6.01 m
E50103 Triple rail		2643 g/m L=6.01 m	E50150 Frame for sliding-fixed window		2052 g/m L=6.01 m
E50104 Triple rail		2398 g/m L=6.01 m	E50155 Frame for sliding-fixed window		2190 g/m L=6.01 m
E50105 Rail for glazing & insect screen		1836 g/m L=6.01m	E50201 Sash		1662 g/m L=6.01 m Jx=22.4 cm <sup>4</sup> Jy=33.8 cm <sup>4</sup>
E50110 Single rail		1313 g/m L=6.01 m			

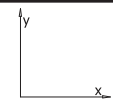
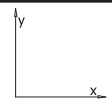
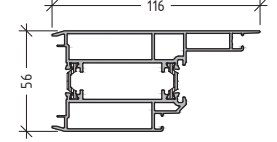
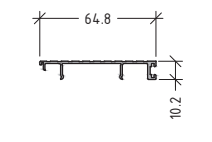
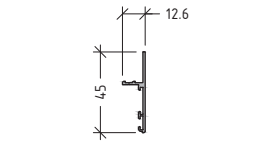
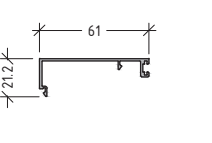
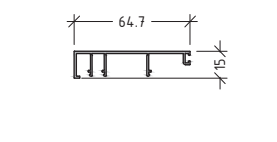
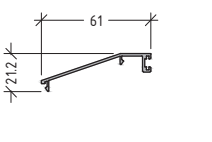
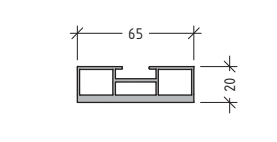
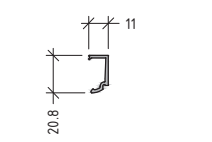
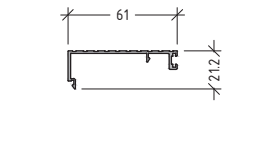
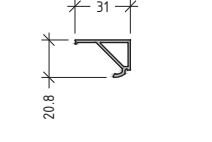
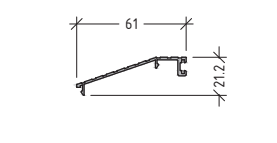
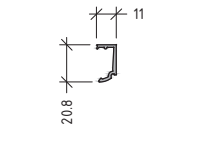
# sliding system with thermal break

E50

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E50202 Sash			1649 g/m L=6.01 m  Jx=22.2 cm <sup>4</sup> Jy=32.8 cm <sup>4</sup>	E50350 'T' profile for rails			776 g/m L=6.01 m
E50203 Sash			1633 g/m L=6.01 m  Jx=22.2 cm <sup>4</sup> Jy=32.8 cm <sup>4</sup>	E50500 Adjoining profile with wings			830 g/m L=6.01 m  Jx=6.01 cm <sup>4</sup> Jy=1.8 cm <sup>4</sup>
E50250 Narrow sash interlock			922 g/m L=6.01 m  Jx=11.1 cm <sup>4</sup> Jy=3.33 cm <sup>4</sup>	E50501 Interlock profile			537 g/m L=6.01 m  Jx=1.6 cm <sup>4</sup> Jy=10.5 cm <sup>4</sup>
E50251 Narrow sash interlock			1015 g/m L=6.01 m  Jx=11.9 cm <sup>4</sup> Jy=5.33 cm <sup>4</sup>	E50502 Interlock profile for E50250 & E50251			554 g/m L=6.01 m  Jx=2.0 cm <sup>4</sup> Jy=10.98 cm <sup>4</sup>
E50301 Sash transom			1328 g/m L=6.01 m  Jx=14.3 cm <sup>4</sup> Jy=15.2 cm <sup>4</sup>	E50503 Inverted interlock			470 g/m L=6.01 m  Jx=0.13 cm <sup>4</sup> Jy=6.03 cm <sup>4</sup>
E50210 Sash for blinds			1064 g/m L=6.01 m	E50510 Adjoining profiles for blinds			396 g/m L=6.01 m

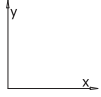

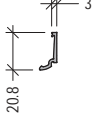
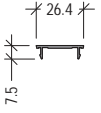
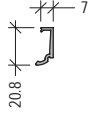
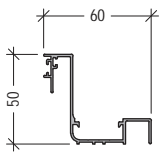
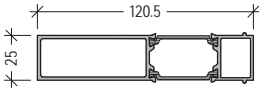
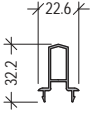
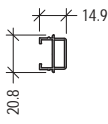
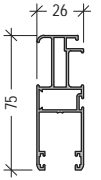
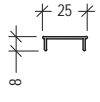
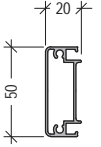
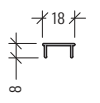
# sliding system with thermal break

# E50

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E50520 Adjoining corner profile for 90°			2252 g/m L=6.01 m  Jx=25.60 cm <sup>4</sup> Jy=76.12 cm <sup>4</sup>	E50652 Rail cover			338 g/m L=6.01 m
E50600 Drip profile			221 g/m L=6.01 m	E50660 Rail cover			365 g/m L=6.01 m
E50601 Supplementary profile for rail-frames			418 g/m L=6.01 m	E50661 Rail cover			313 g/m L=6.01 m
E50602 Reinforcement profile for sashes E50250 &E20251			1220 g/m L=6.01 m	E50680 Glazing bead			154 g/m L=6.01 m
E50650 Rail cover			352 g/m L=6.01 m	E50681 Glazing bead			300 g/m L=6.01 m
E50651 Rail cover			296 g/m L=6.01 m	E50682 Glazing bead  <u>ONLY for anodizing</u>			157 g/m L=6.01 m


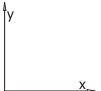
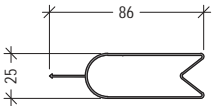
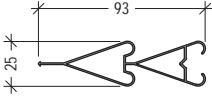
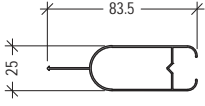
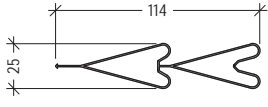
# sliding system with thermal break

E50

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E50683 Glazing bead			125 g/m L=6.01 m	E19641 Cover for E 70640			130 g/m L=4.80 m
E50687 Glazing bead			140 g/m L=6.01 m	E70640 Wall joining profile			597 g/m L=4.80 m
E50690 Intermediate profile			1550 g/m L=6.01 m	E19512 Adjoining profile for fly screen			284 g/m L=4.80 m
E50900 Connecting rod			186 g/m L=6.01 m	E22214 Fly screen sash			857 g/m L=6.01 m
E50901W1 Aluminium drainage grill (available <u>only</u> perforated)			124 g/m L=6.01 m	E22215 Transom for fly screen sash			591 g/m L=6.01 m
E50902W1 Aluminium drainage grill (available <u>only</u> perforated)			100 g/m L=6.01 m				

# sliding system with thermal break

E50

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E1505 Shutter blind			510 g/m L=6.01 m	E1508 Shutter blind			545 g/m L=6.01 m
E1507 Shutter blind			427 g/m L=6.01 m	E1509 Shutter blind			664 g/m L=6.01 m



# PROFILES

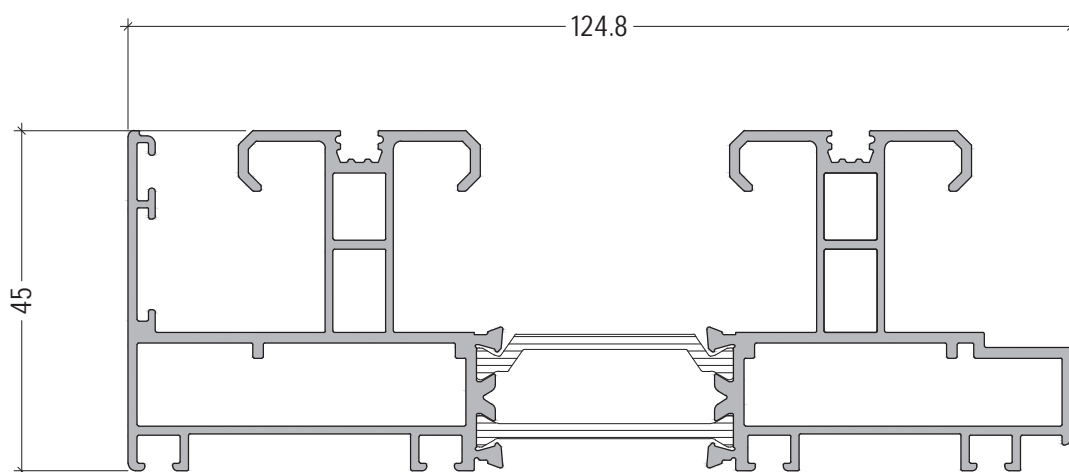
DRAWINGS / SCALE 1:1



E50100

Double rail

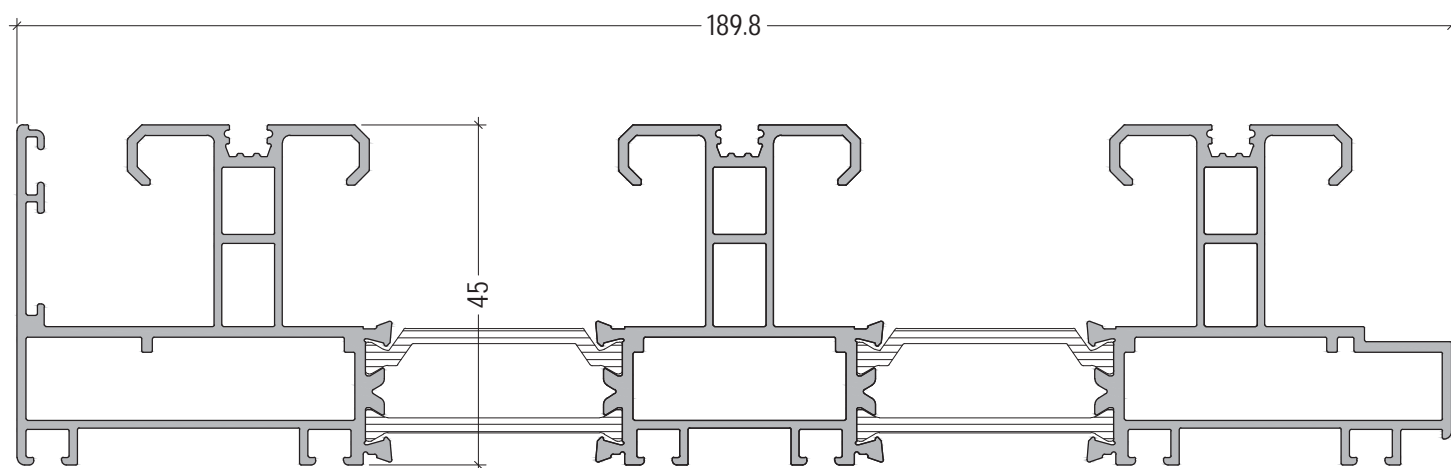
2098 gr/m



E50102

Triple rail

3169 gr/m

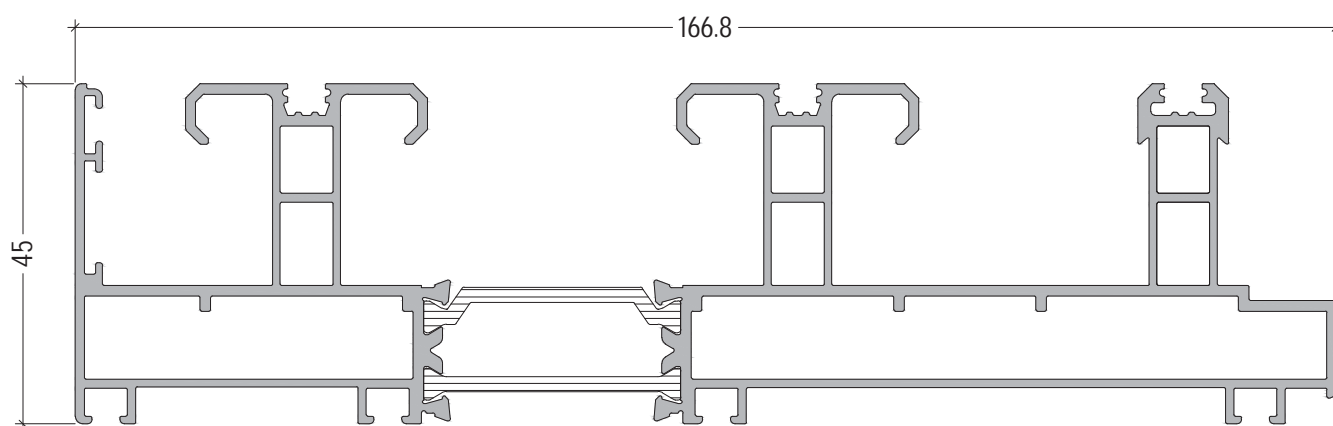


scale : 1:1

E50103

Triple rail

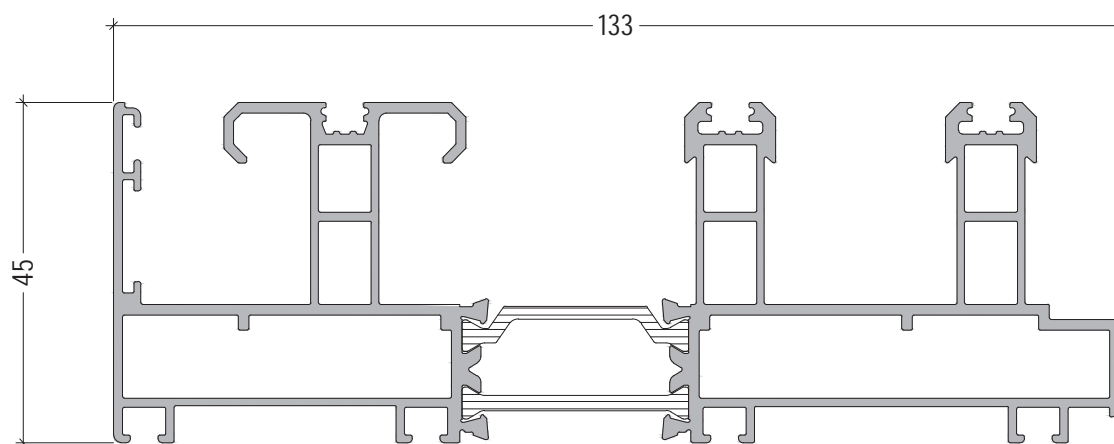
2643 gr/m



E50104

Triple rail

2398 gr/m

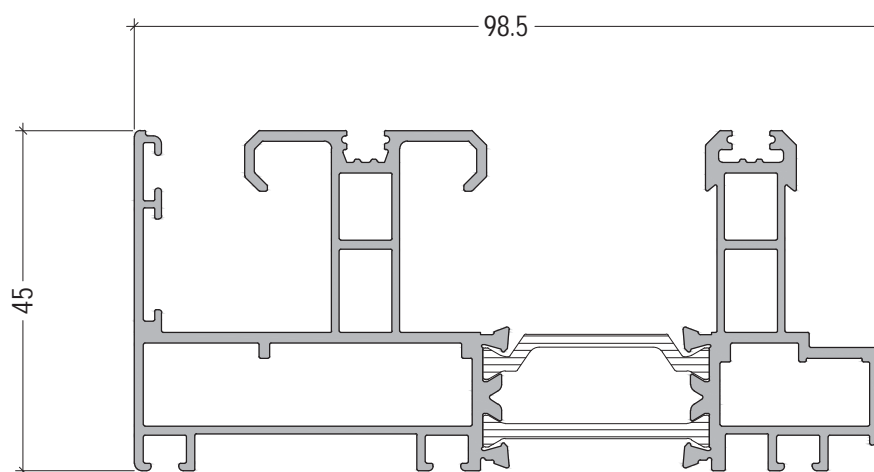


scale : 1:1

E50105

Rail for glazing - screen

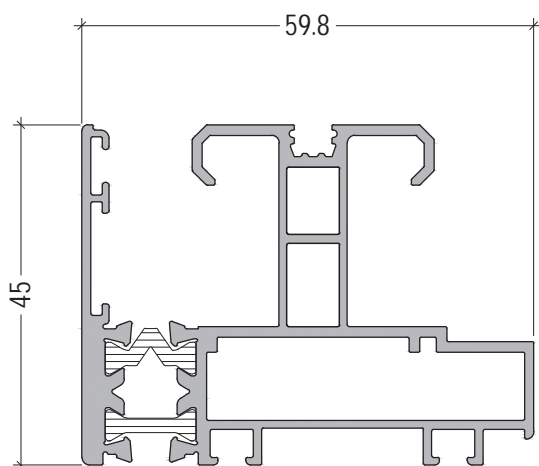
1836 gr/m



E50110

Single rail

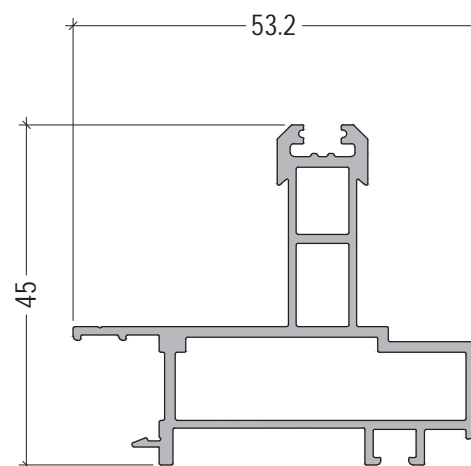
1313 gr/m



E50112

Additional fly screen rail

724 gr/m

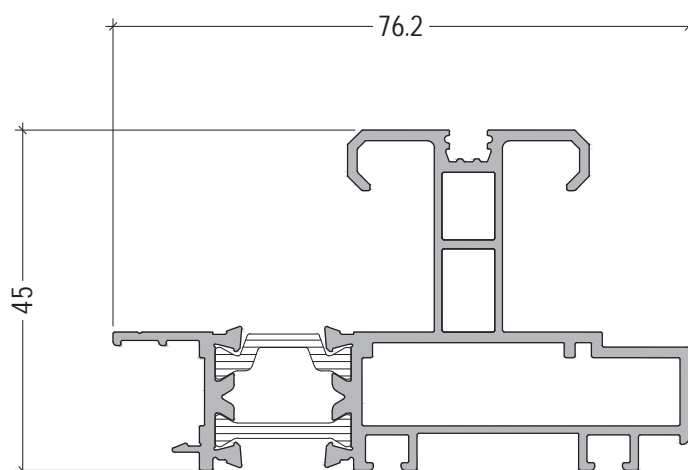


scale : 1:1

E50111

Additional single  
glazing rail

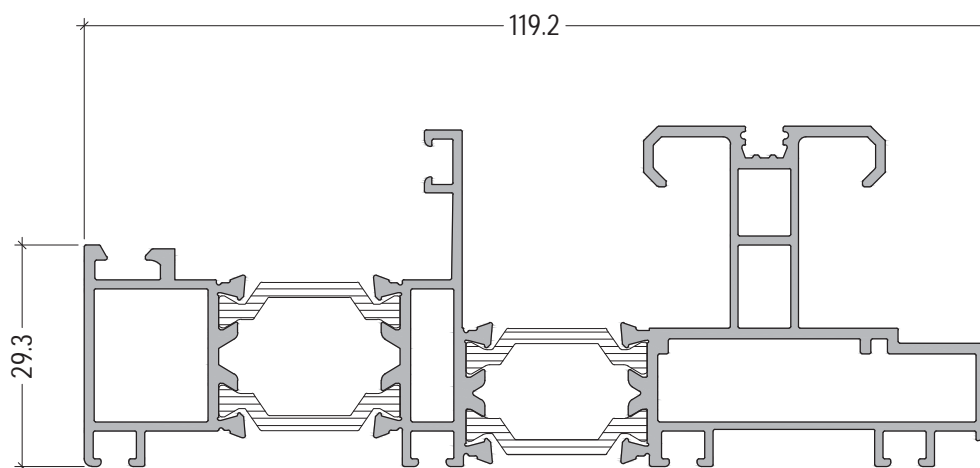
1216 gr/m



E50150

Frame for sliding-fixed  
window

2052 gr/m

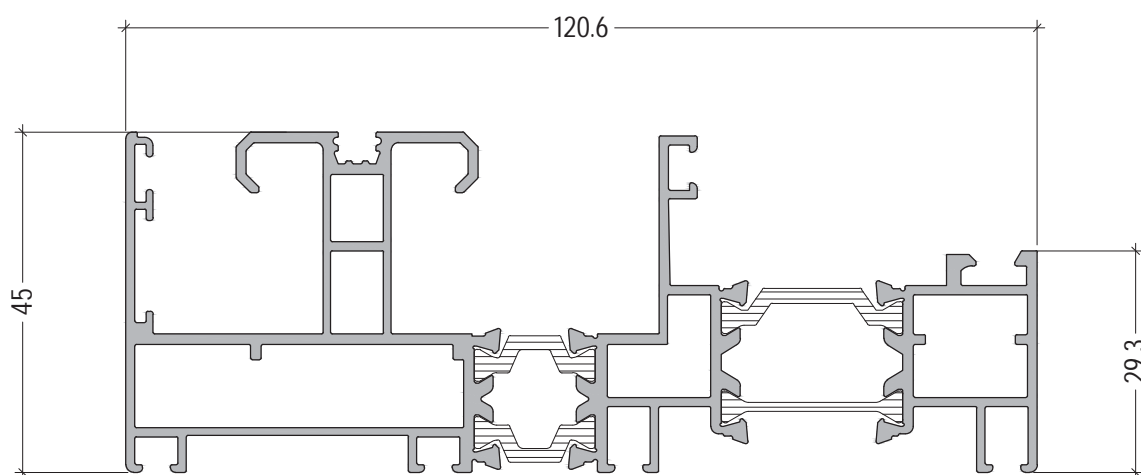


scale : 1:1

E50155

Frame for sliding-fixed  
window

2190 gr/m



scale : 1:1

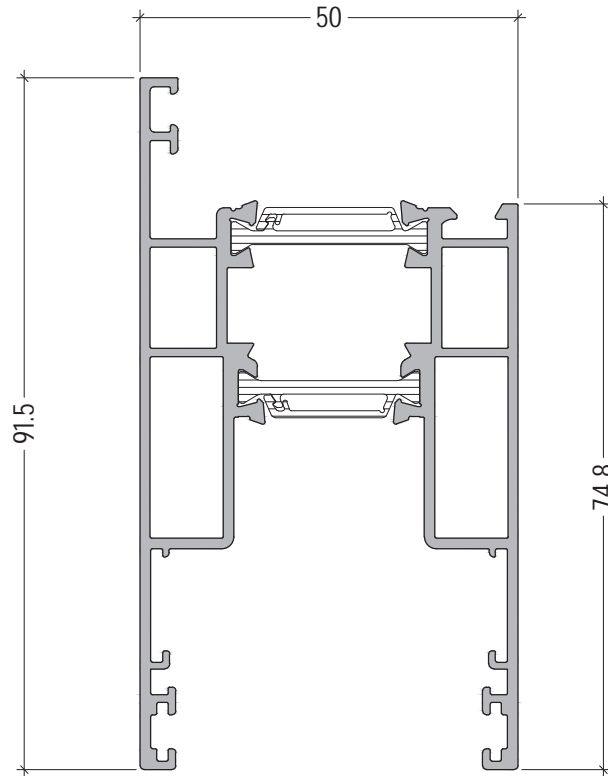
Note:

The difference between sashes E50201, E50202 and E50203 is in the type of polyamide!

E50201

Sash

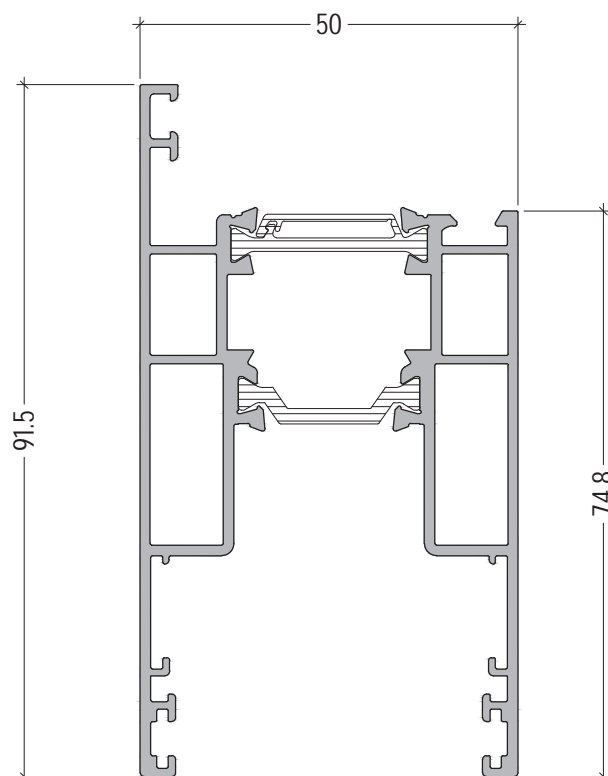
1662 gr/m



E50202

Sash

1649 gr/m



scale : 1:1



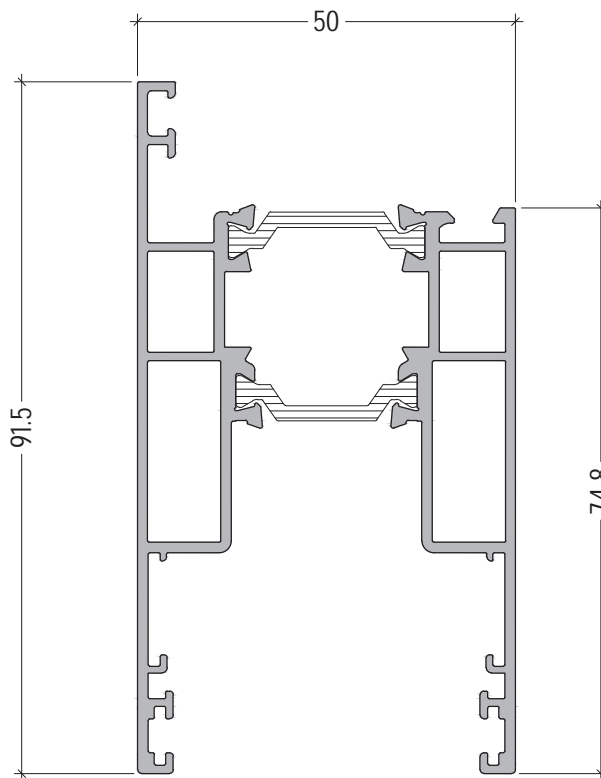
Note:

The difference between sashes E50201, E50202 and E50203 is in the type of polyamide!

E50203

Sash

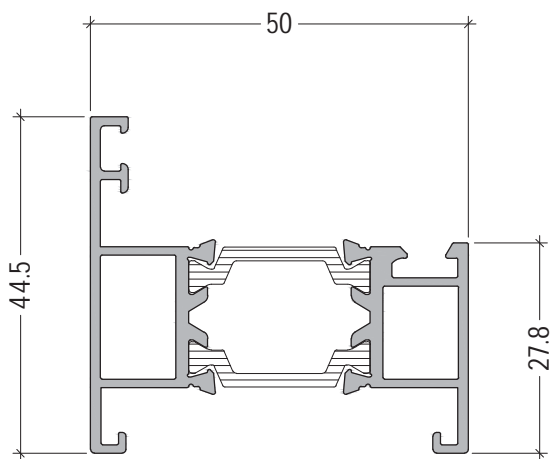
1633 gr/m



E50250

Narrow sash-interlock

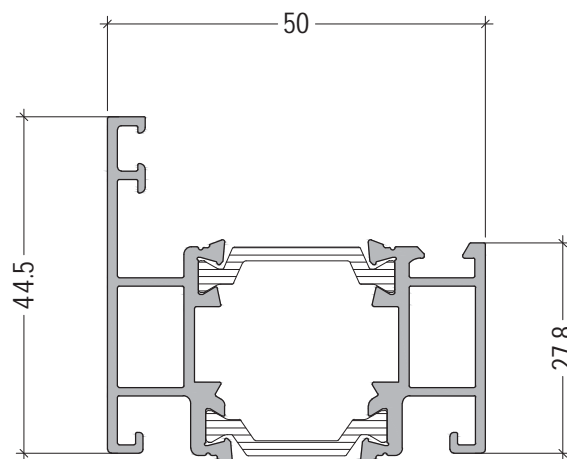
922 gr/m



E50251

Narrow sash-interlock

1015 gr/m

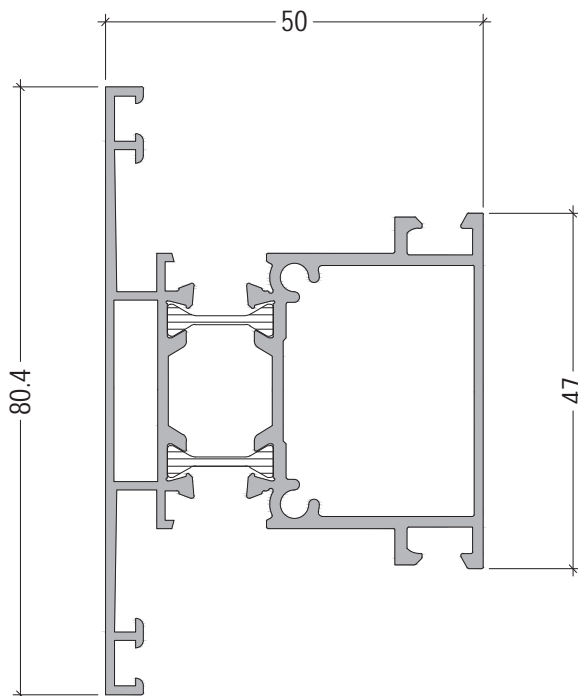


scale : 1:1

E50301

Sash transom

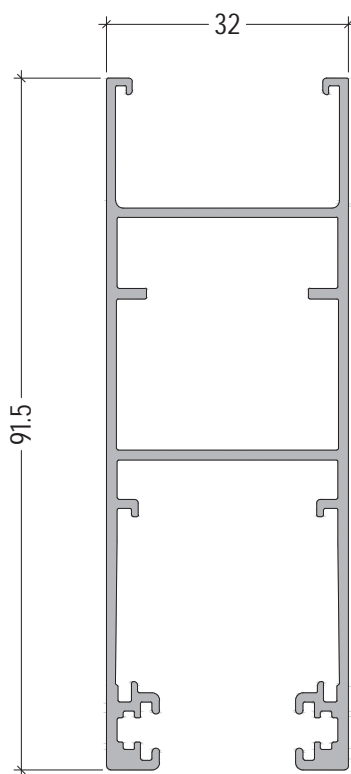
1328 gr/m



E50210

Sash for blinds

1064 gr/m

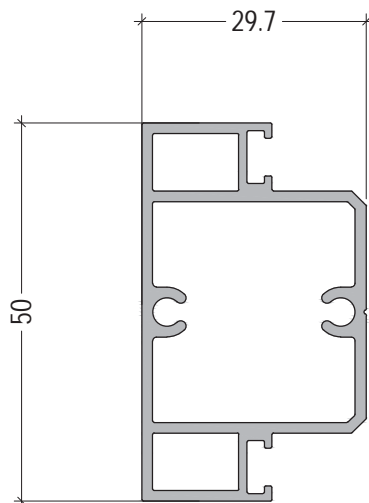


scale : 1:1

E50350

"T" profile for rails

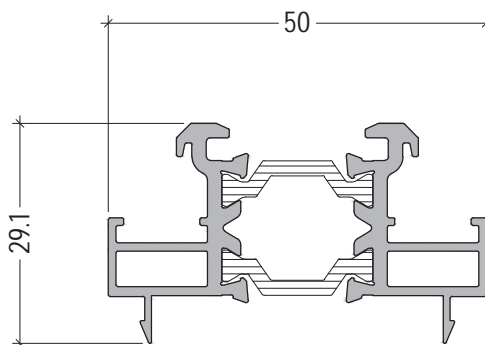
776 gr/m



E50500

Adjoining profile  
with wings

830 gr/m

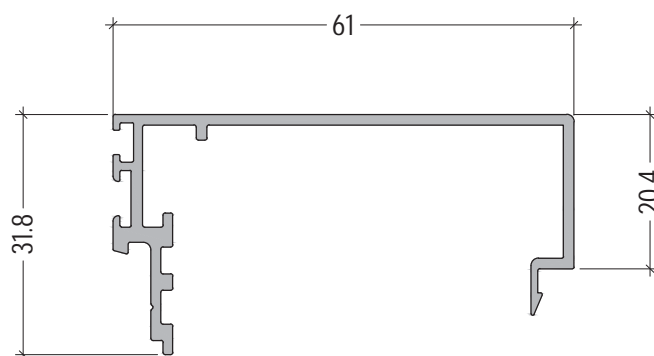


scale : 1:1

E50501

Interlock profile

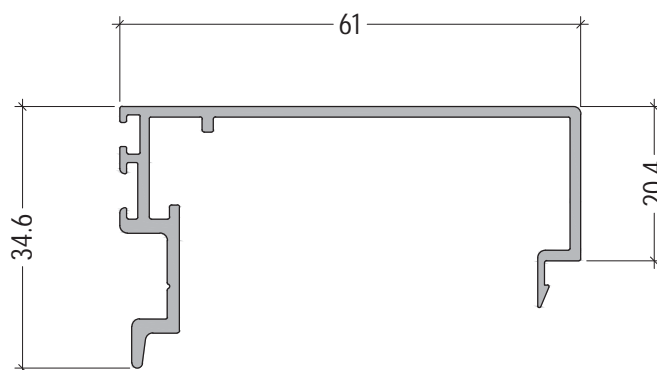
537 gr/m



E50502

Interlock profile for E50250  
& E50251

554 gr/m

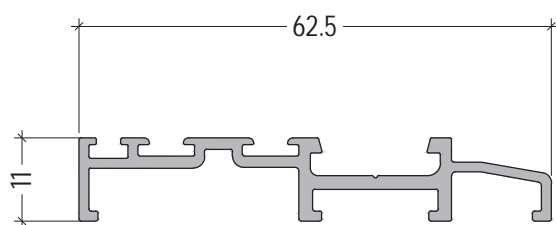


scale : 1:1

E50503

Inverted interlock

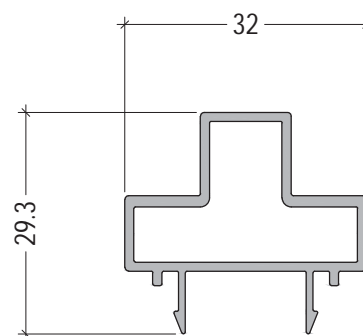
470 gr/m



E50510

Adjoining profile  
for blinds

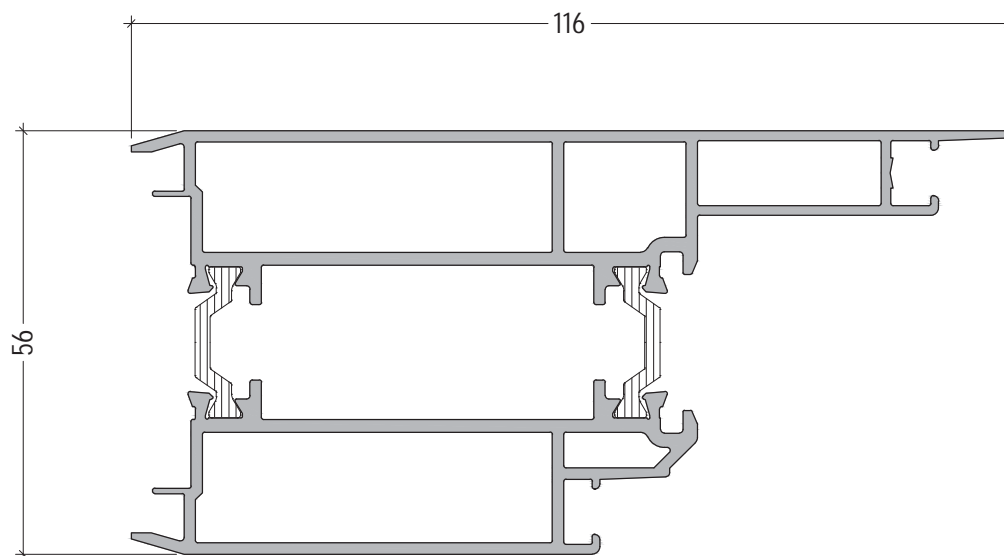
396 gr/m



E50520

Adjoining corner profile  
for 90°

2252 gr/m

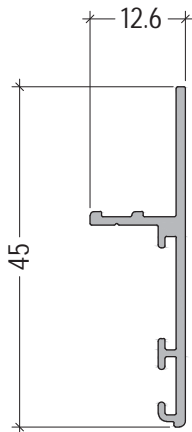


scale : 1:1

E50600

Drip profile

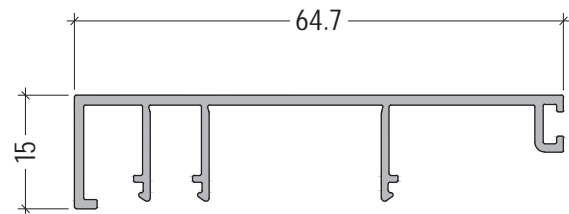
221 gr/m



E50601

Supplementary profile  
for rail-frames

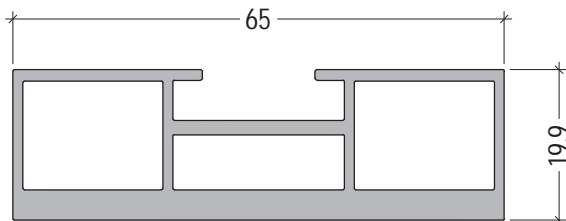
418 gr/m



E50602

Reinforcement profile  
for sashes E50250 & E50251

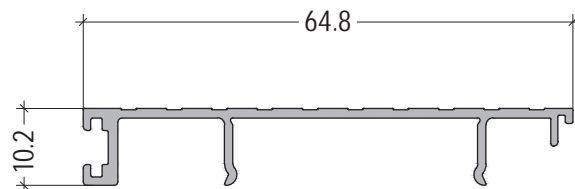
1220 gr/m



E50652

Rail cover

338 gr/m

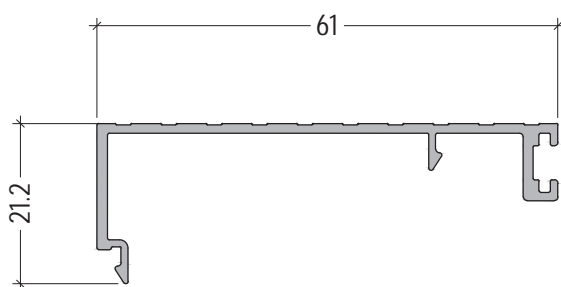


scale : 1:1

E50650

Rail cover

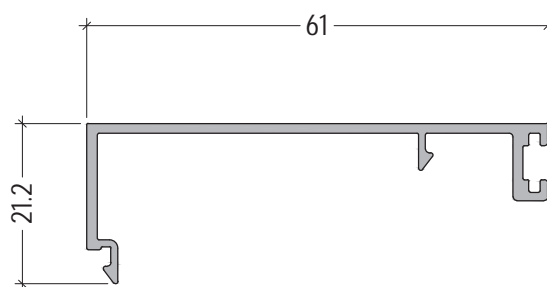
352 gr/m



E50660

Rail cover

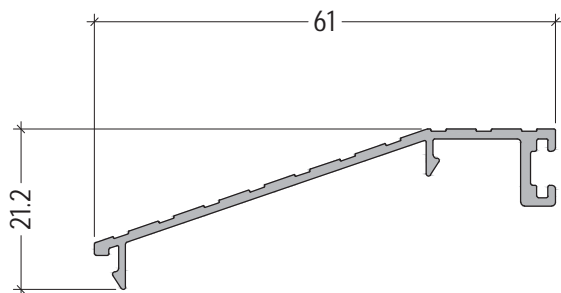
365 gr/m



E50651

Rail cover

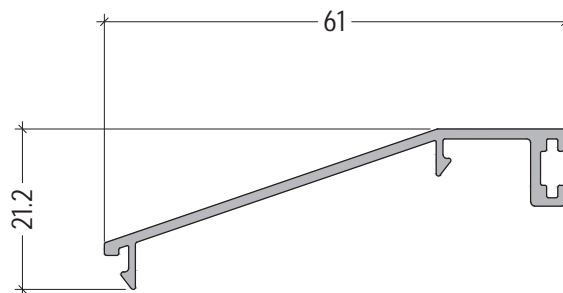
296 gr/m



E50661

Rail cover

313 gr/m

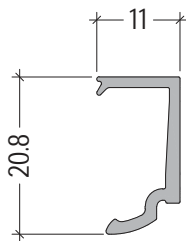


scale : 1:1

E50680

Glazing bead

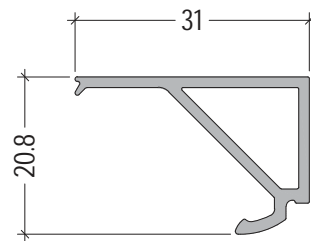
154 gr/m



E50681

Glazing bead

300 gr/m

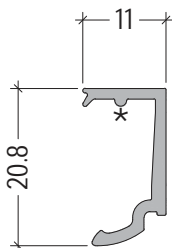


E50682

Glazing bead

⚠ only for anodising  
(\* check marking)

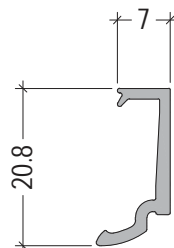
157 gr/m



E50687

Glazing bead

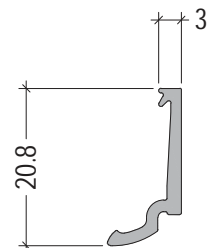
140 gr/m



E50683

Glazing bead

125 gr/m



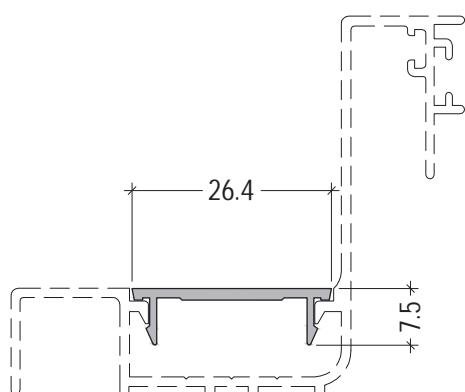
scale : 1:1



E19641

Cover for E 70640

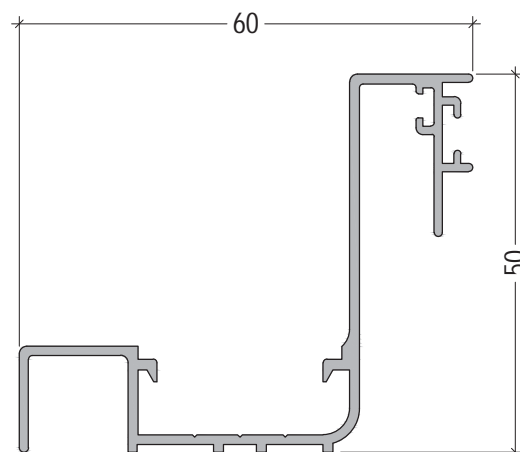
130 gr/m



E70640

Wall joining profile

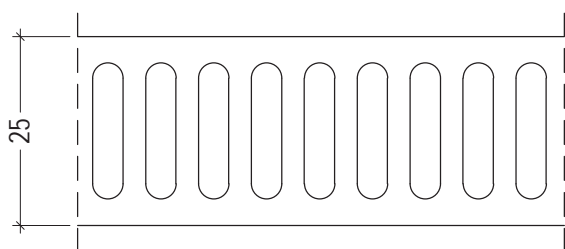
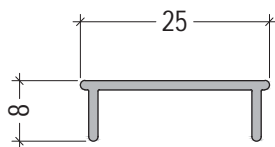
597 gr/m



E50901W1

Aluminium drainage grill  
(available only perforated)

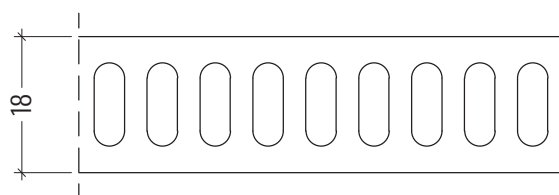
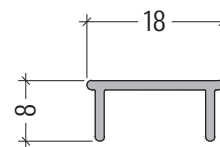
124 gr/m



E50902W1

Aluminium drainage grill  
(available only perforated)

100 gr/m

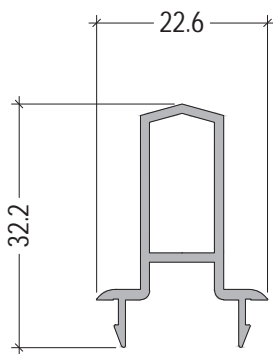


scale : 1:1

E19512

Adjoining profile  
for fly screen

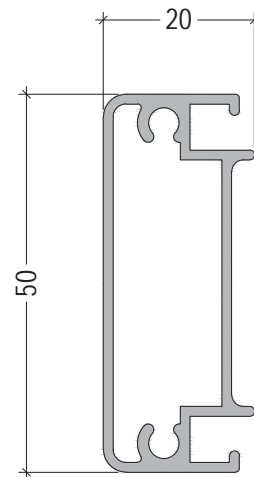
284 gr/m



E22215

Transom for  
fly screen sash

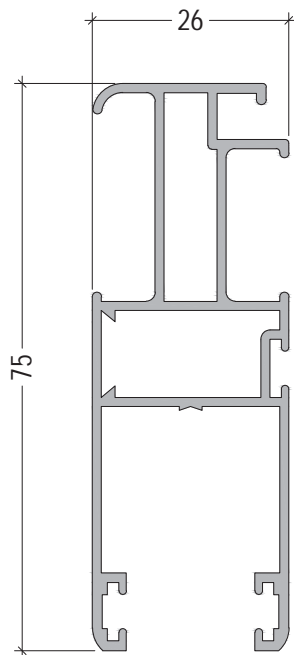
591 gr/m



E22214

Fly screen  
sash

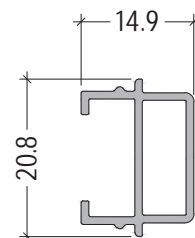
857 gr/m



E50900

Connecting rod

186 gr/m

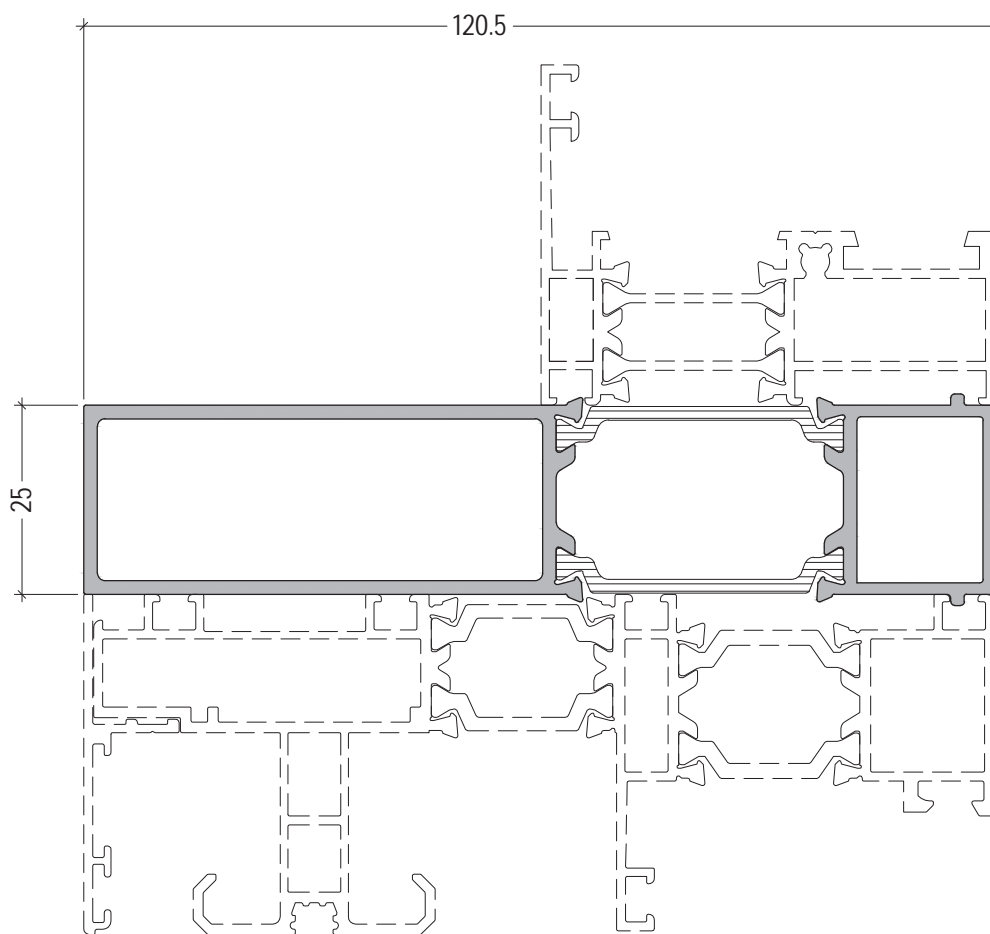


scale : 1:1

E50690

Intermediate profile

1550 gr/m



scale : 1:1

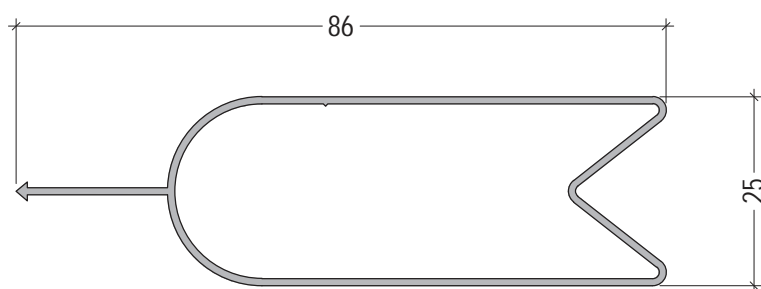
E1505

Shutter blind

510 gr/m

6.9 kg/m<sup>2</sup>

14 pcs/m<sup>2</sup>



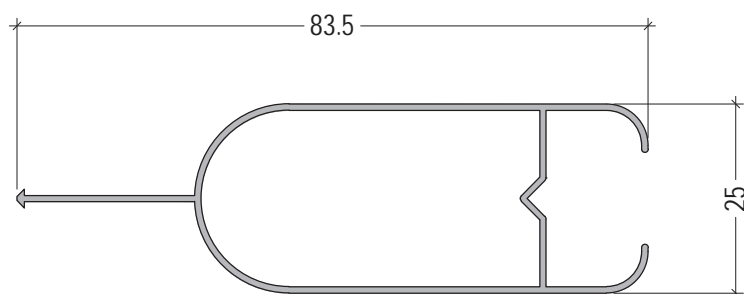
E1507

Shutter blind

427 gr/m

6.3 kg/m<sup>2</sup>

14.7 pcs/m<sup>2</sup>



scale : 1:1

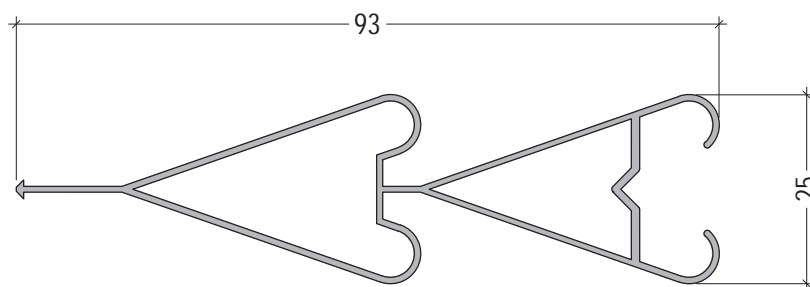
E1508

Shutter blind

545 gr/m

6.8 kg/m<sup>2</sup>

12.5 pcs/m<sup>2</sup>



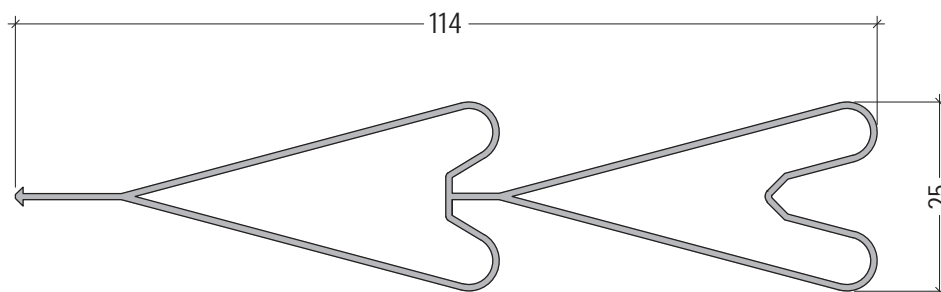
E1509

Shutter blind

664 gr/m

6.6 kg/m<sup>2</sup>

10 pcs/m<sup>2</sup>



scale : 1:1

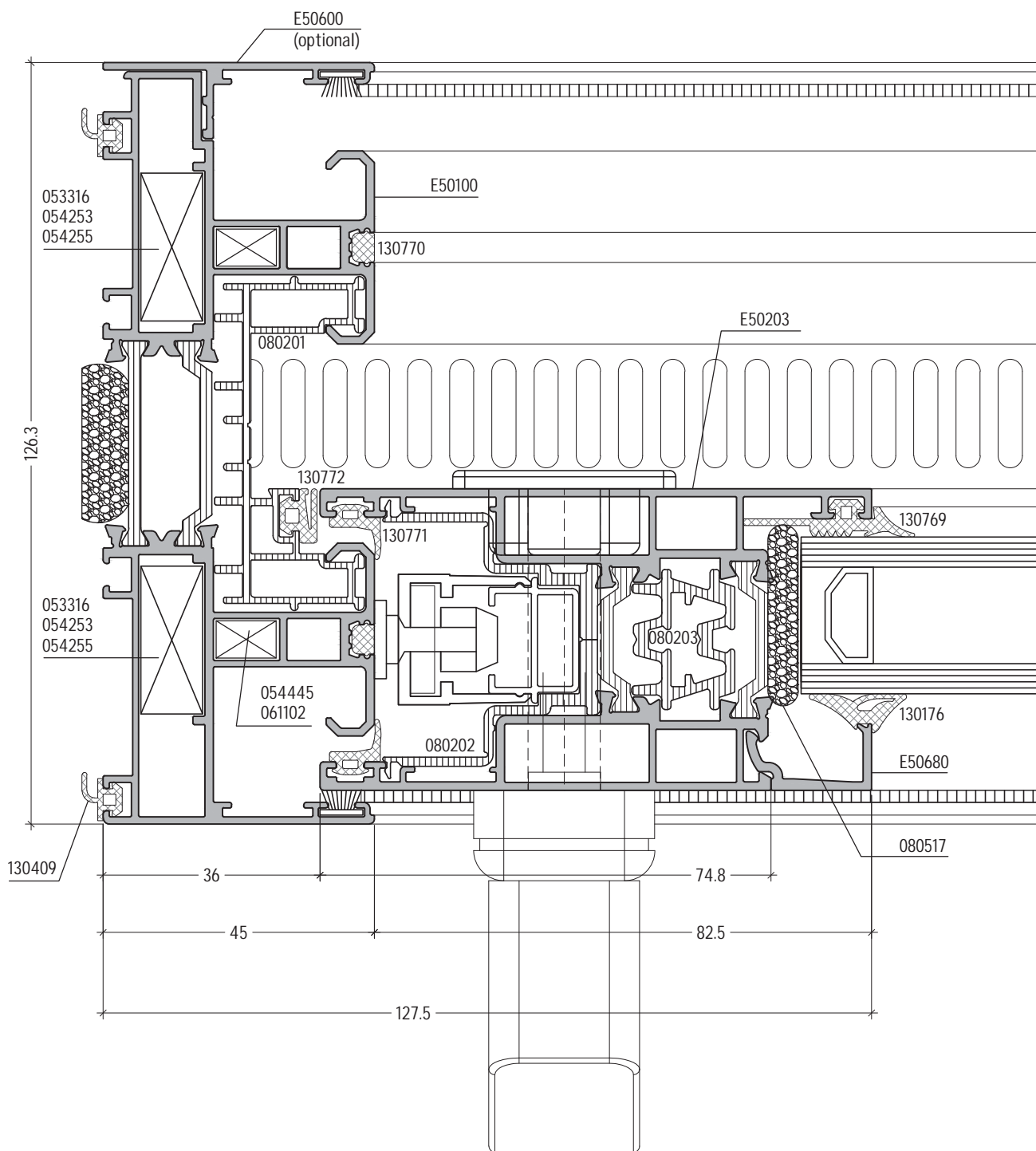
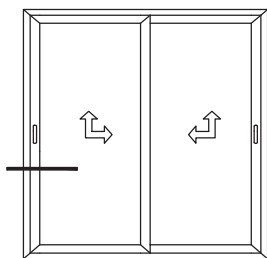


# SECTIONS

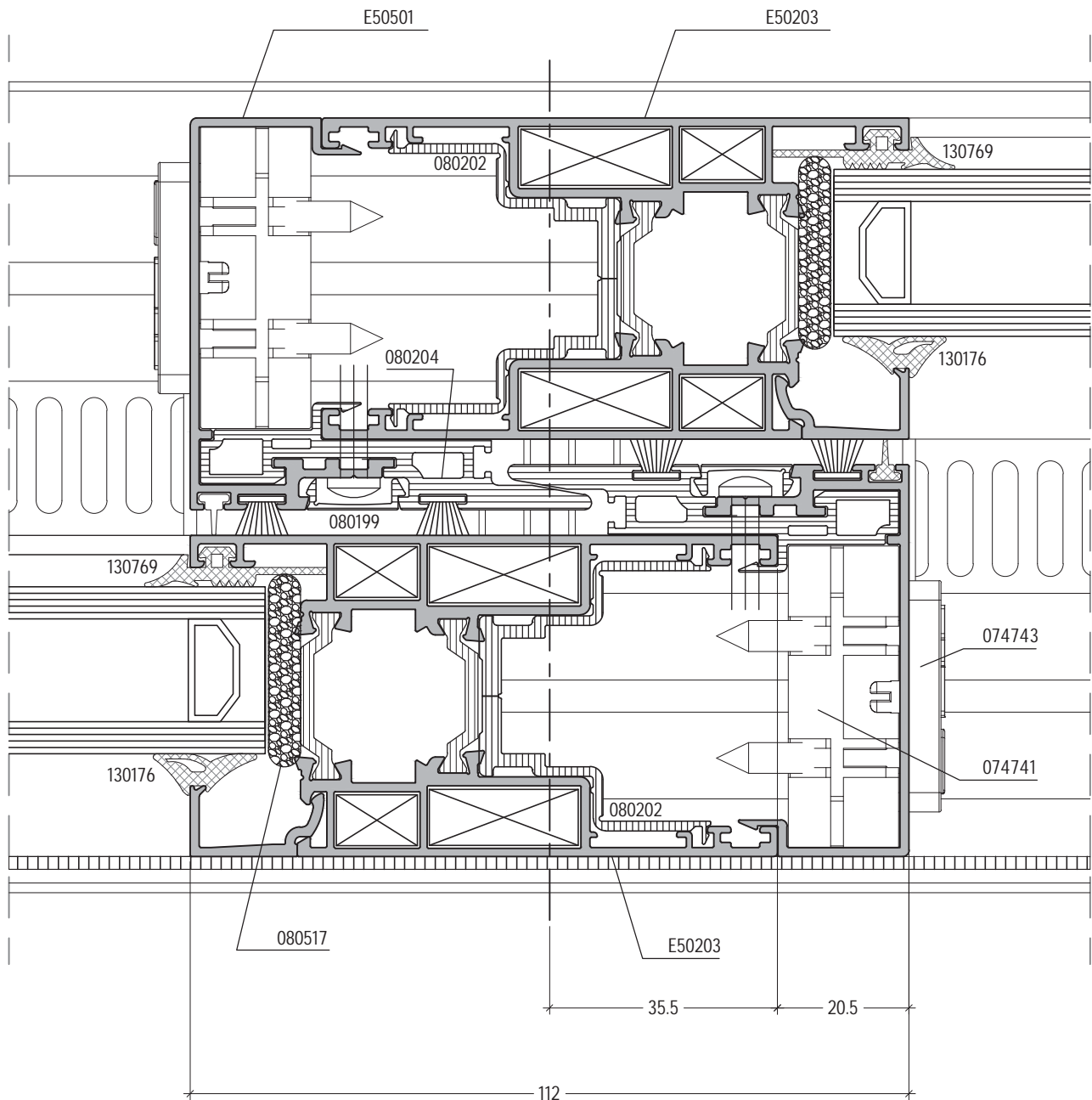
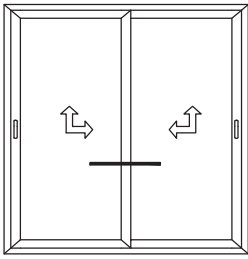
SECTIONS / DETAILS



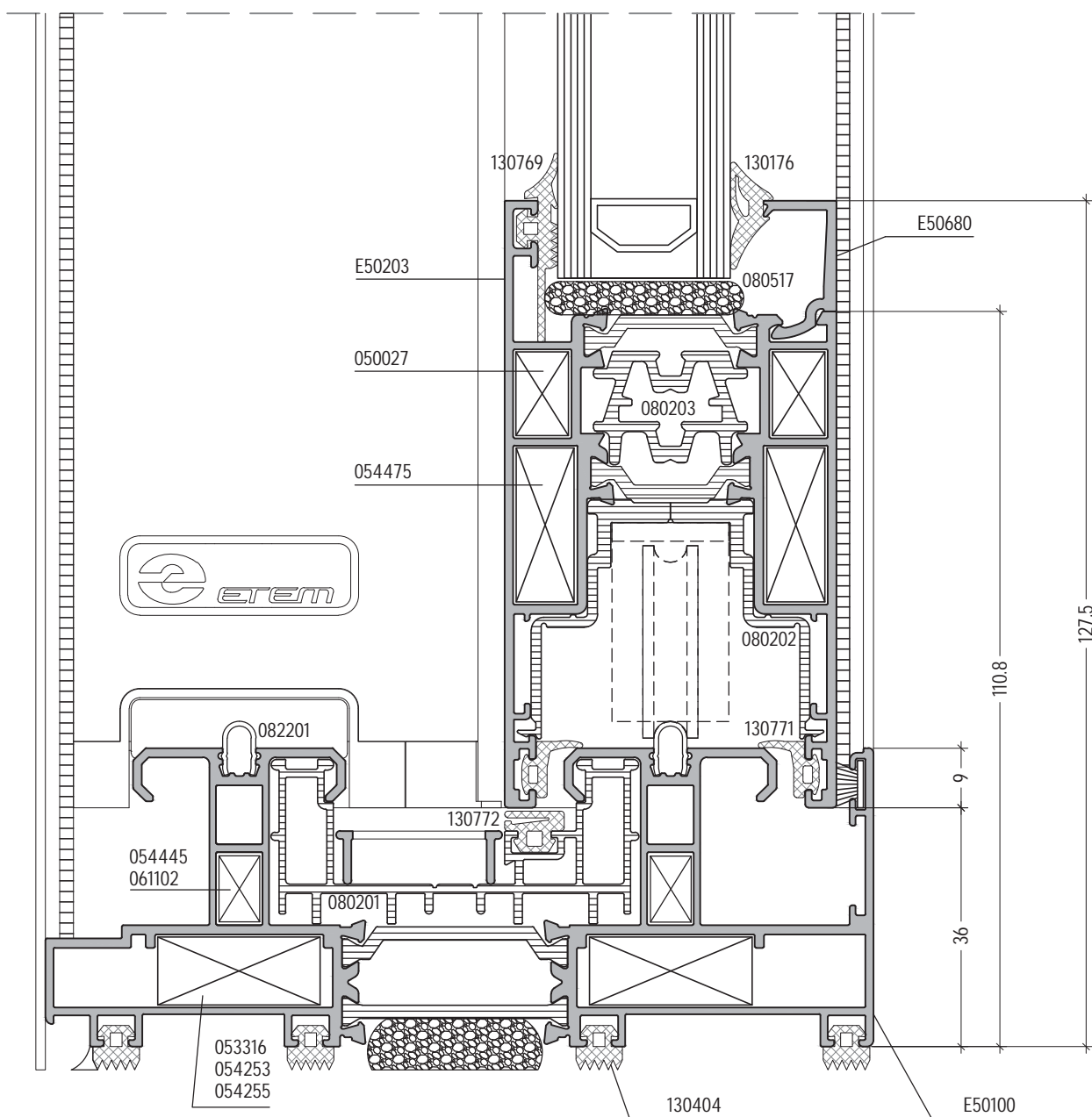
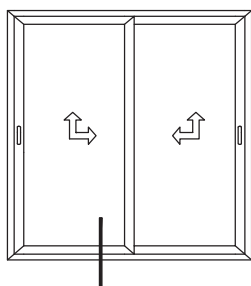




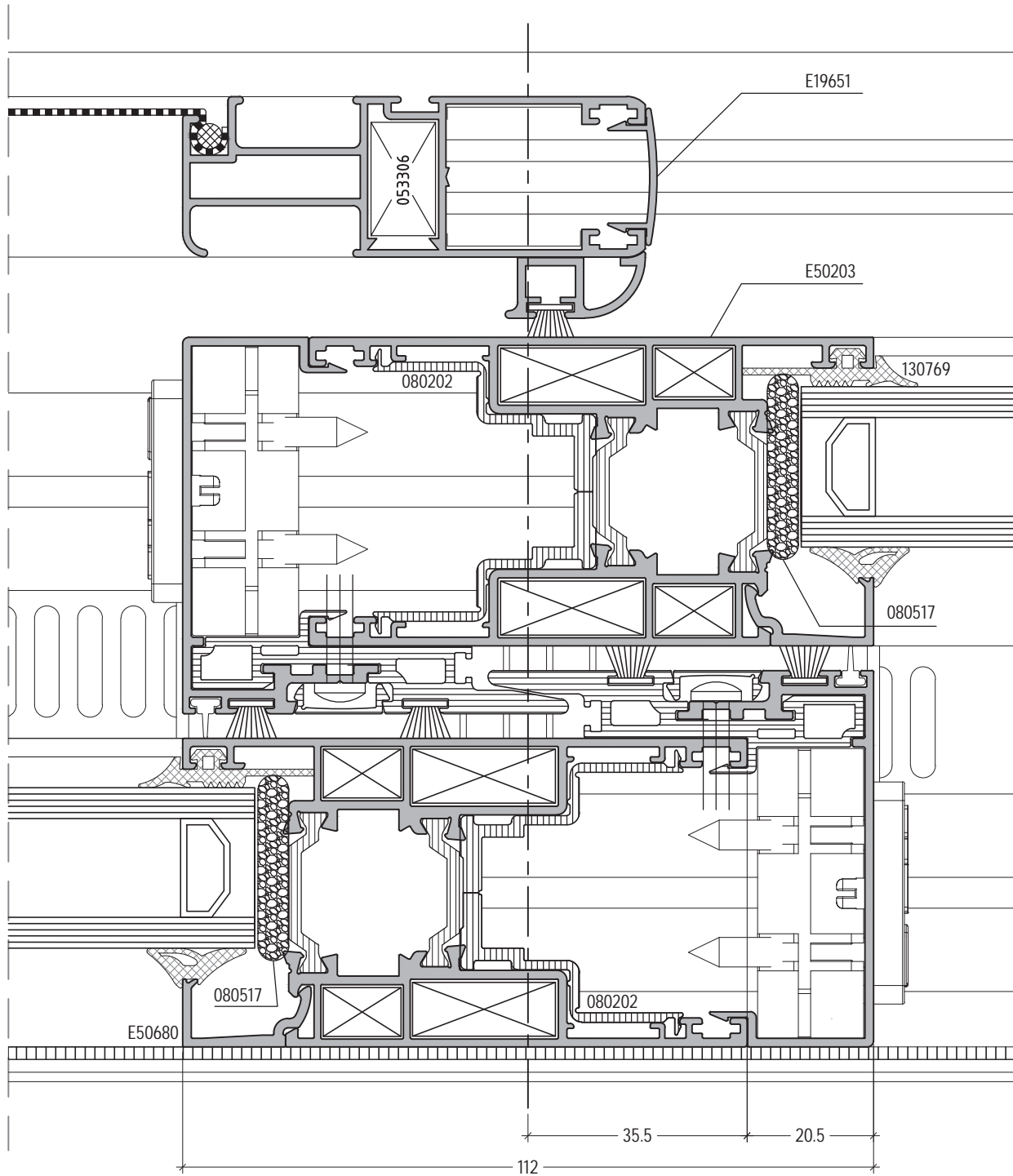
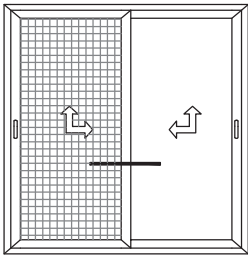
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



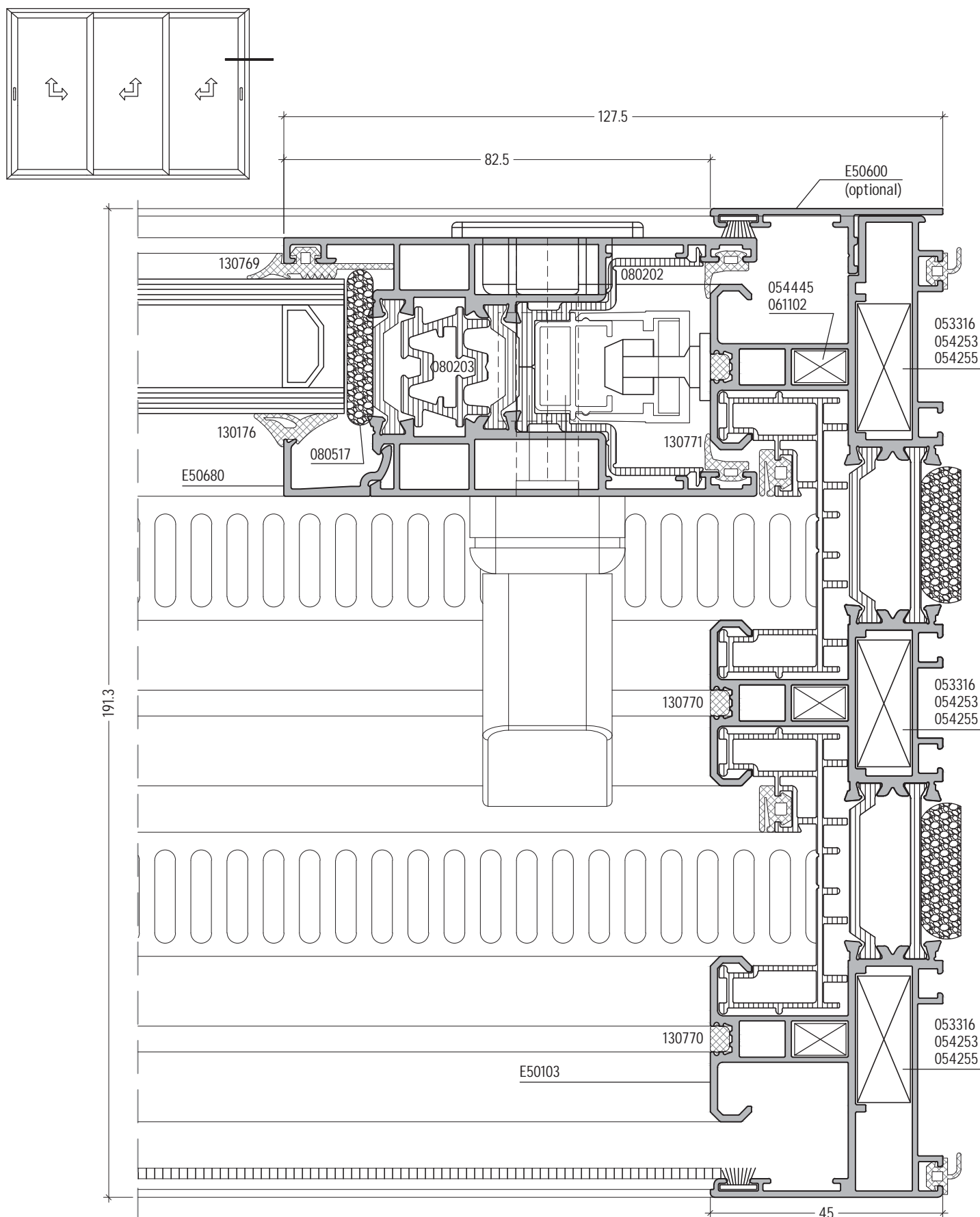
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



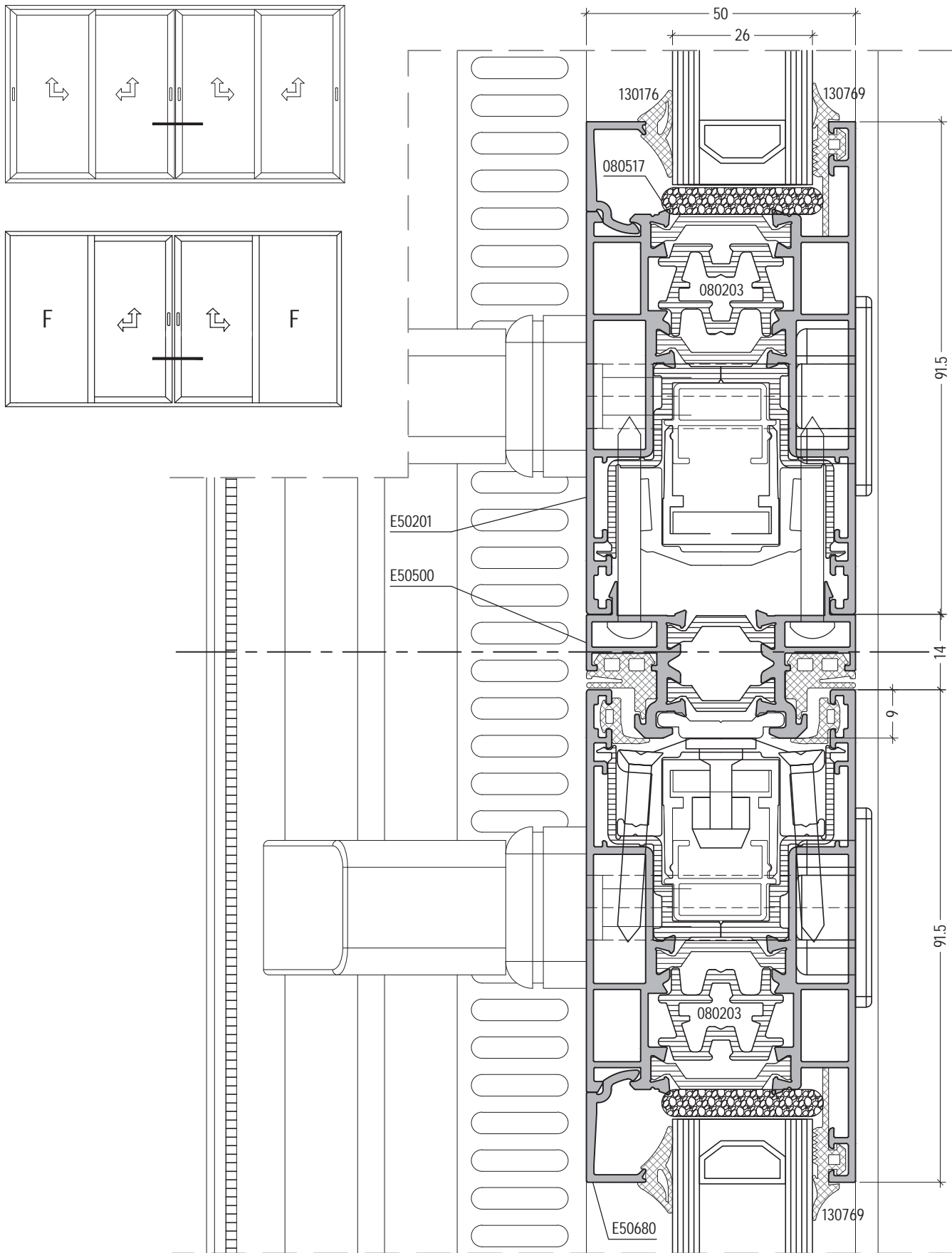
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



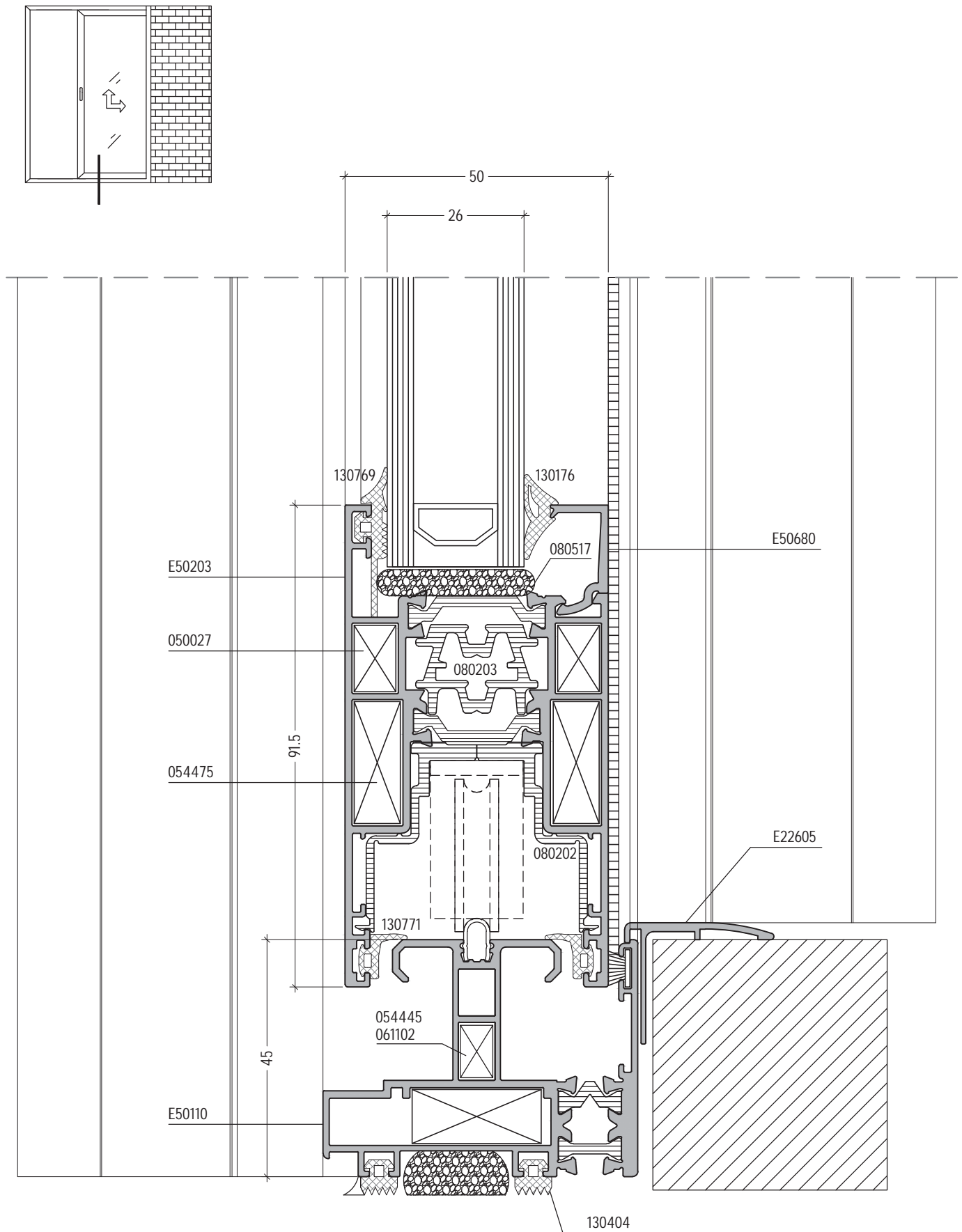
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



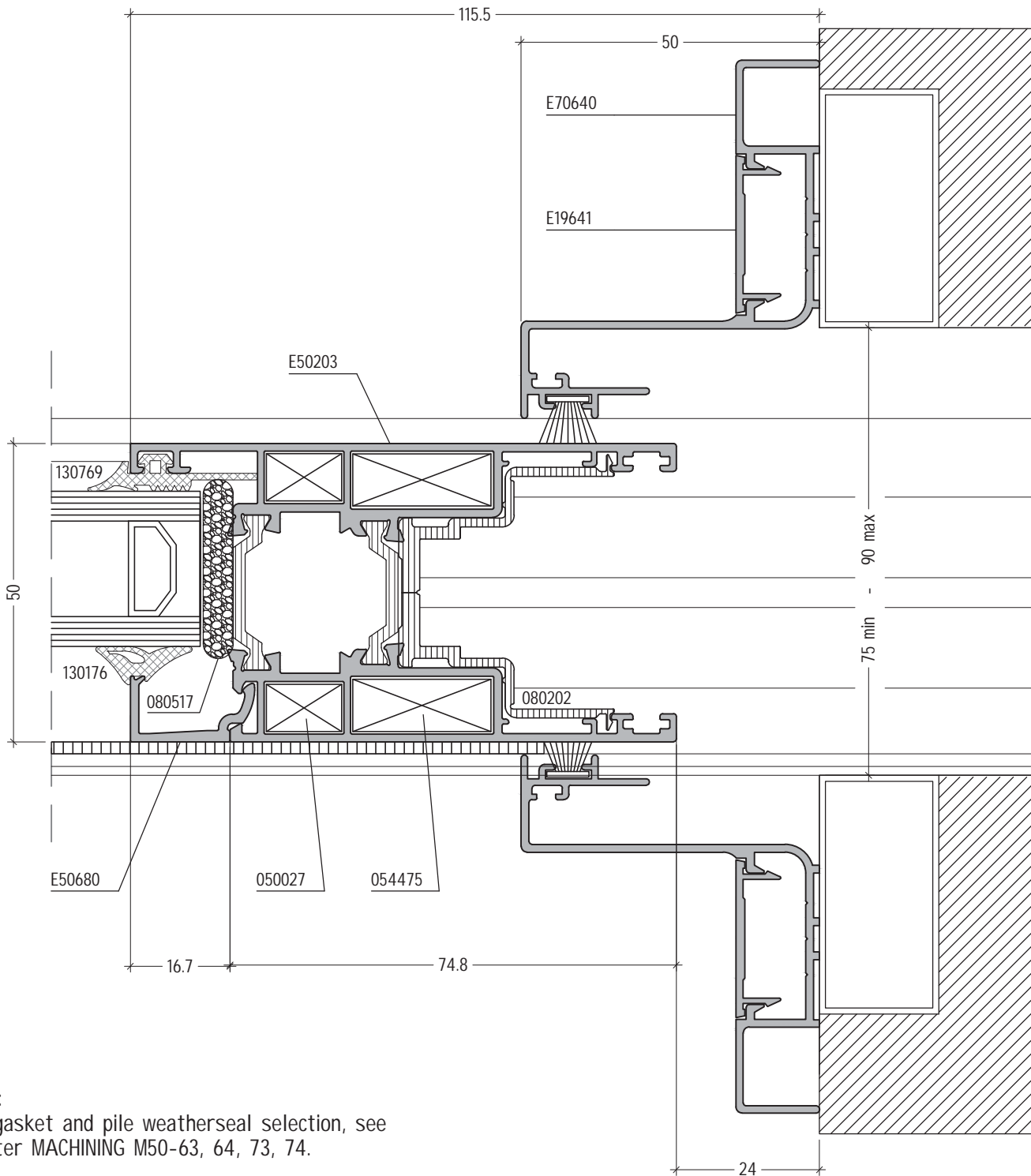
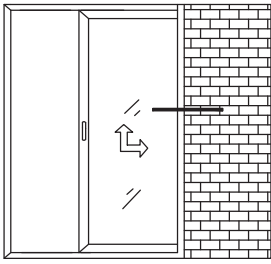
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



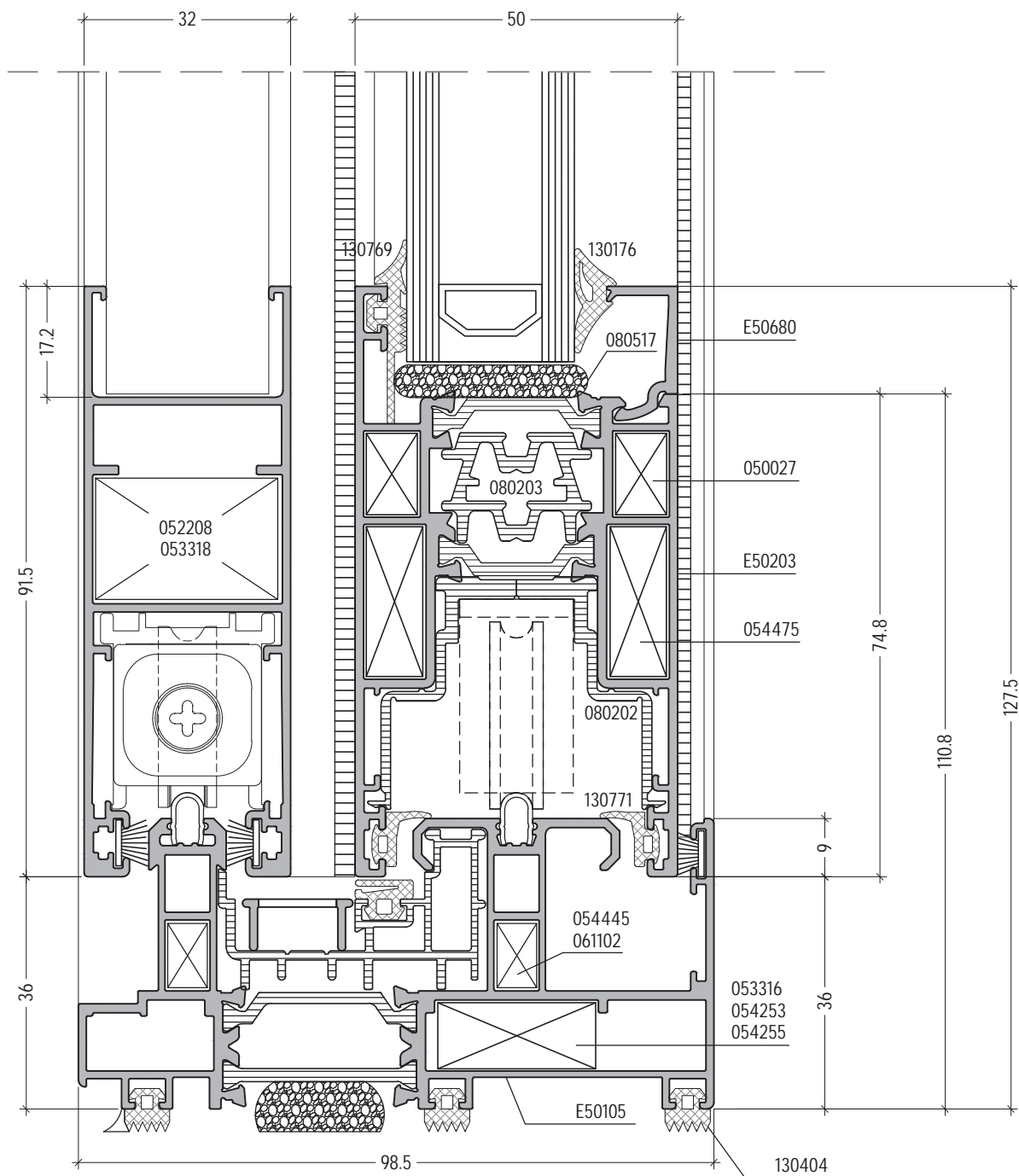
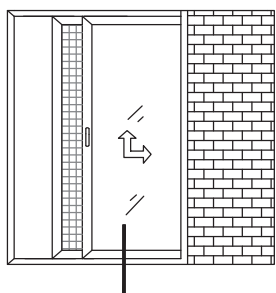
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



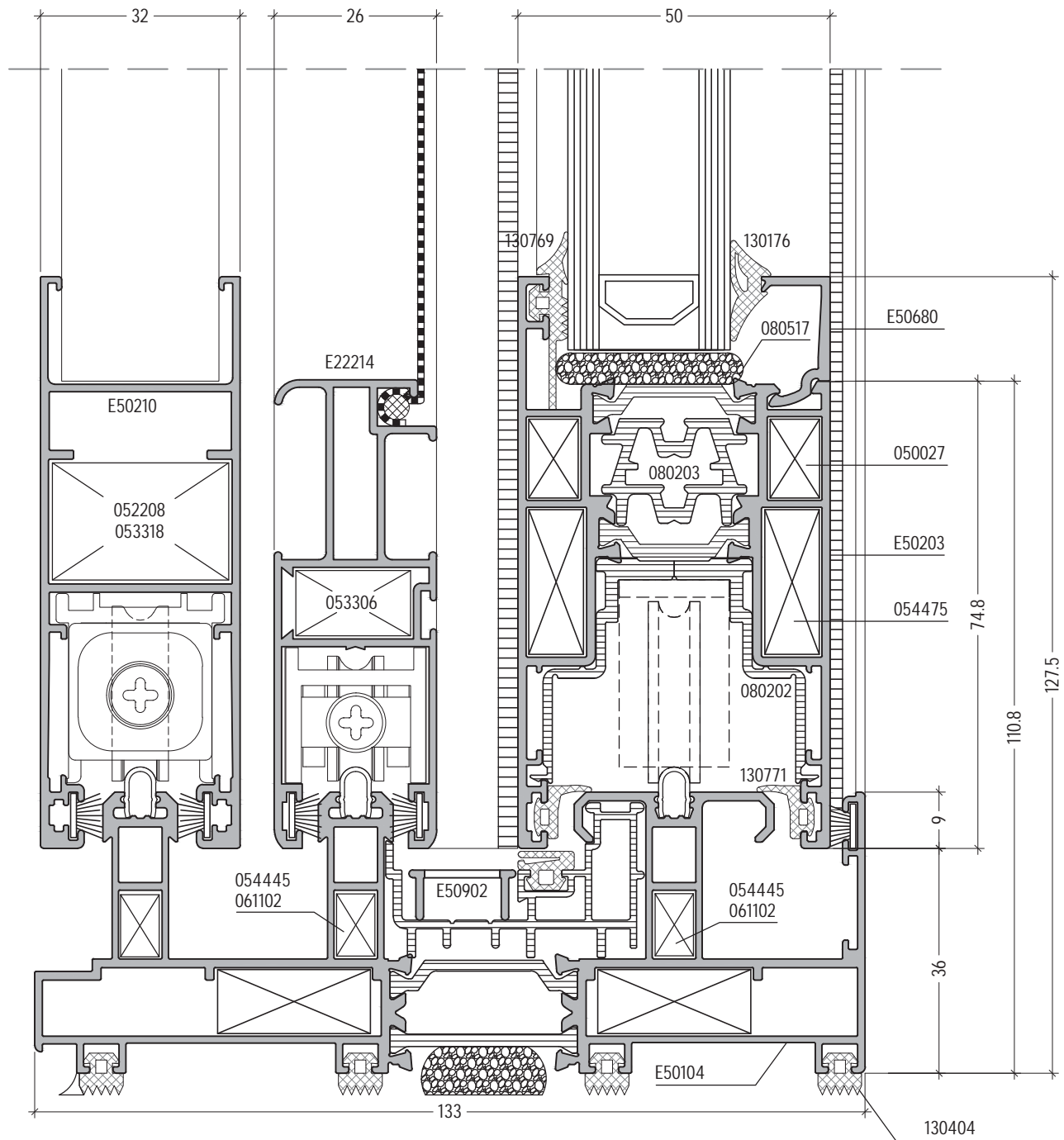
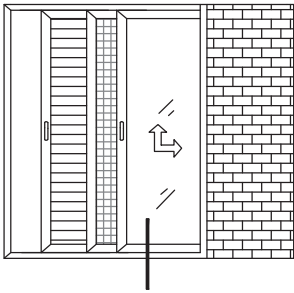
Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

scale : 1:1

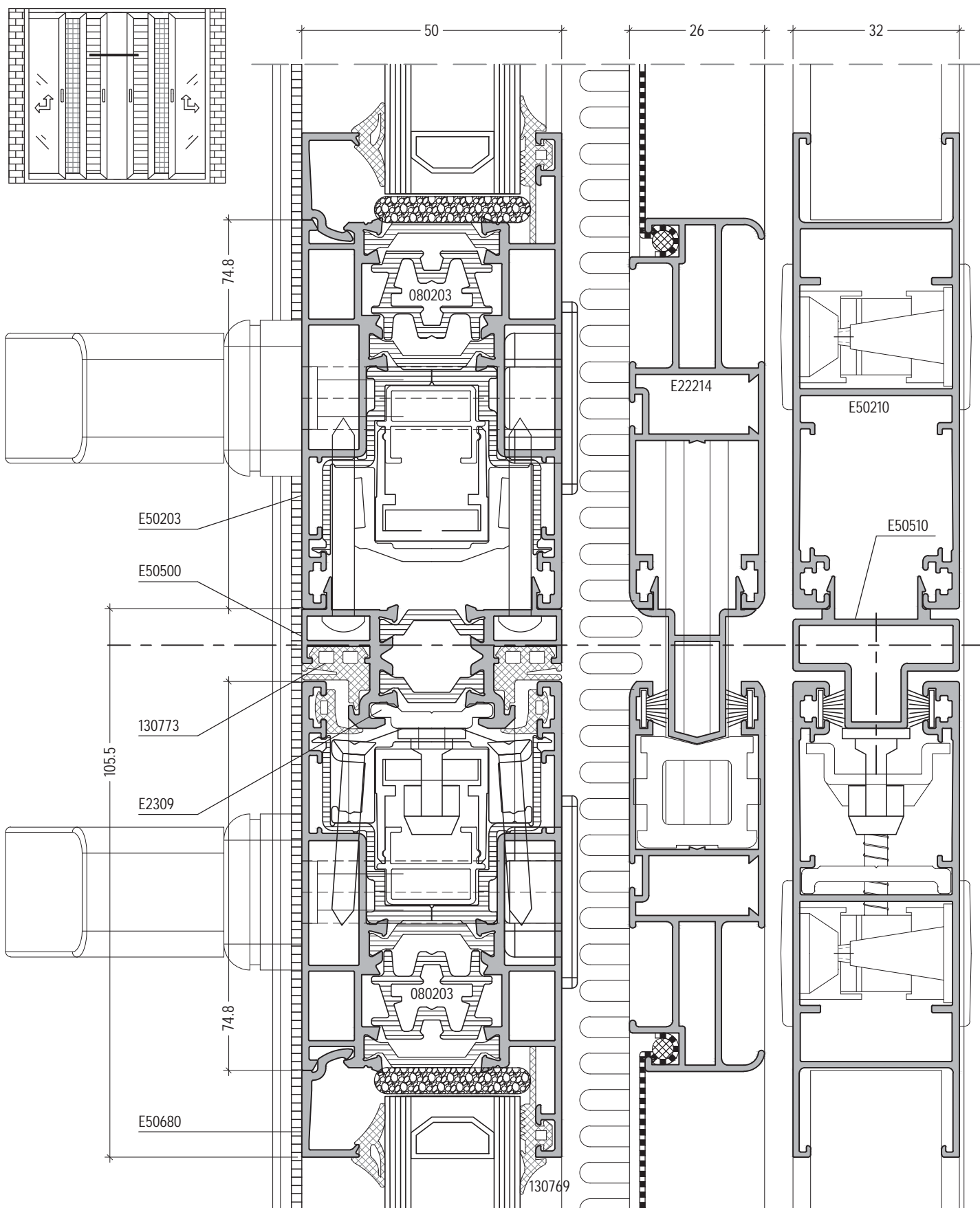




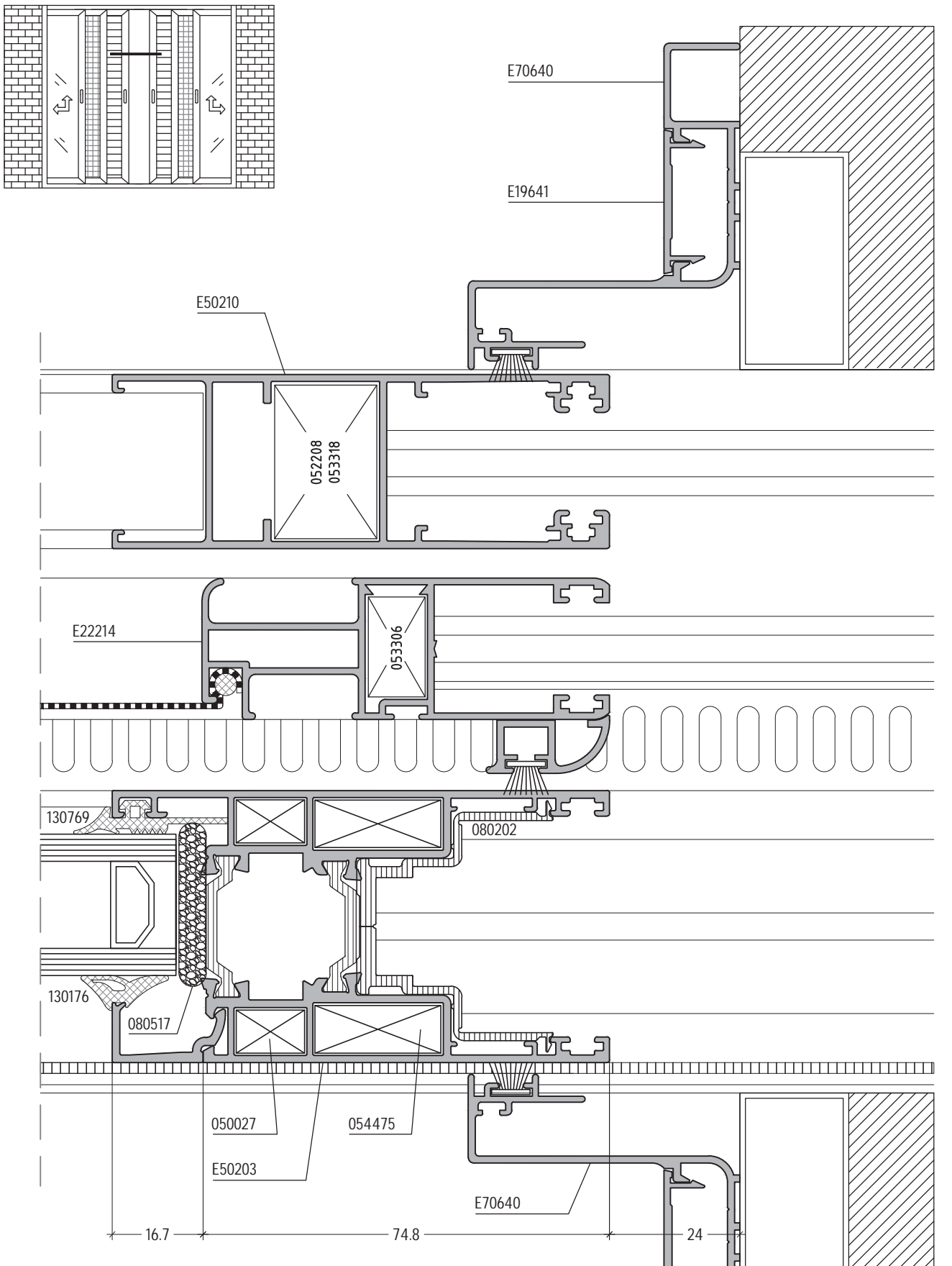
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



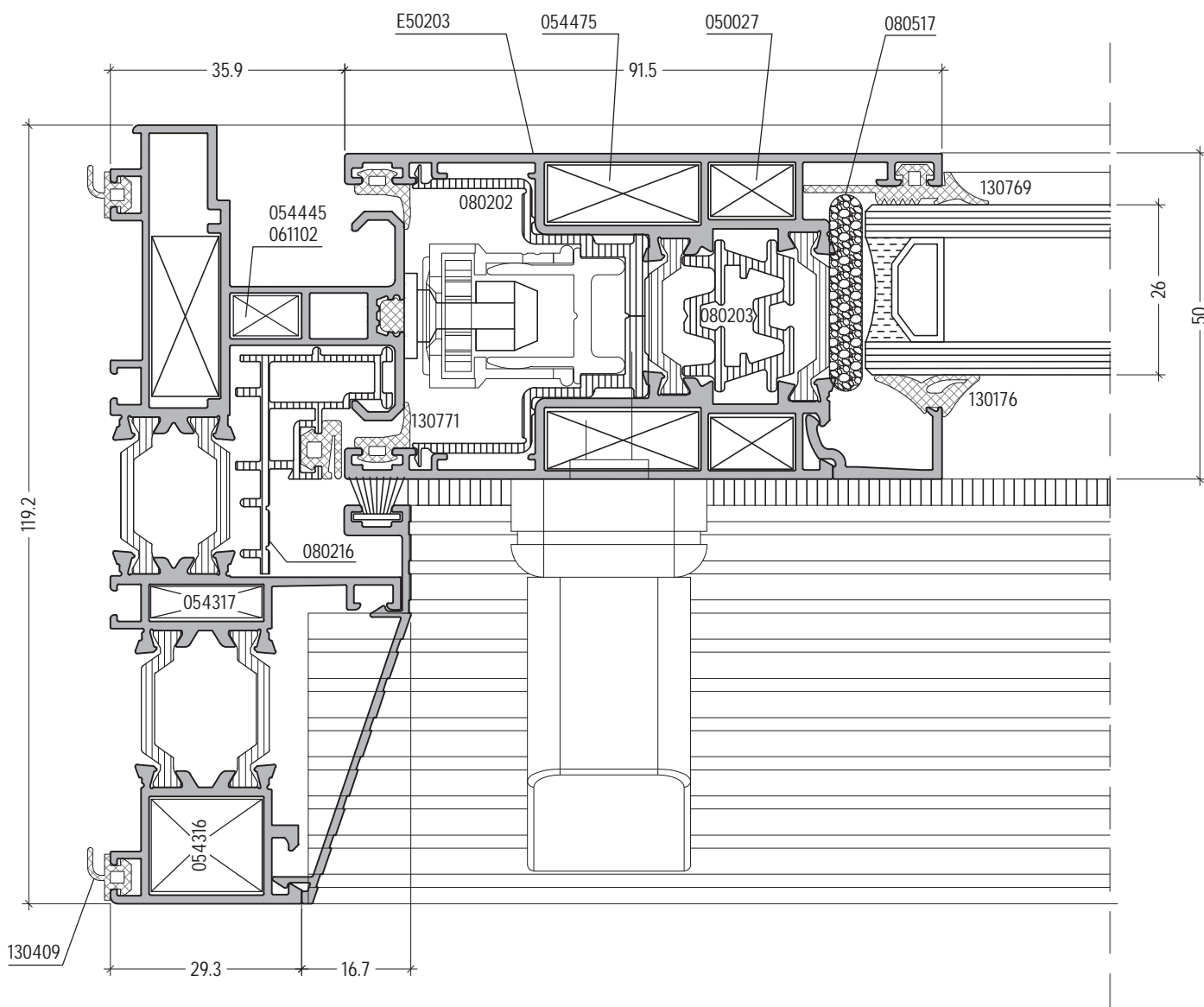
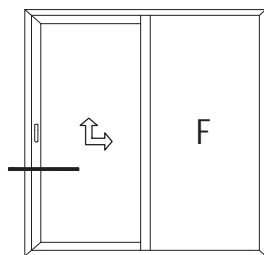
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



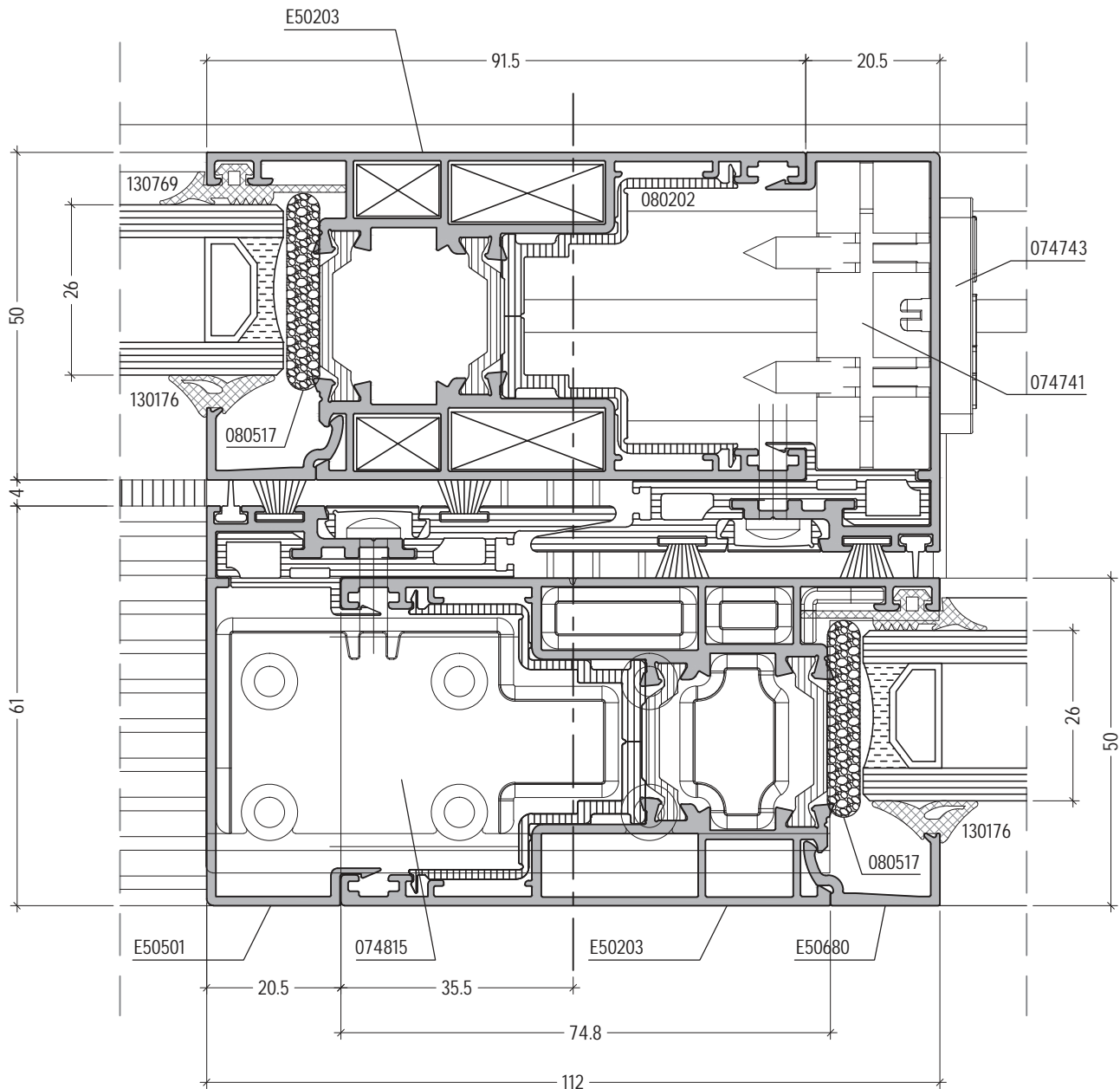
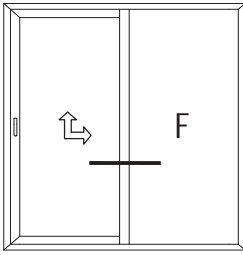
scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.

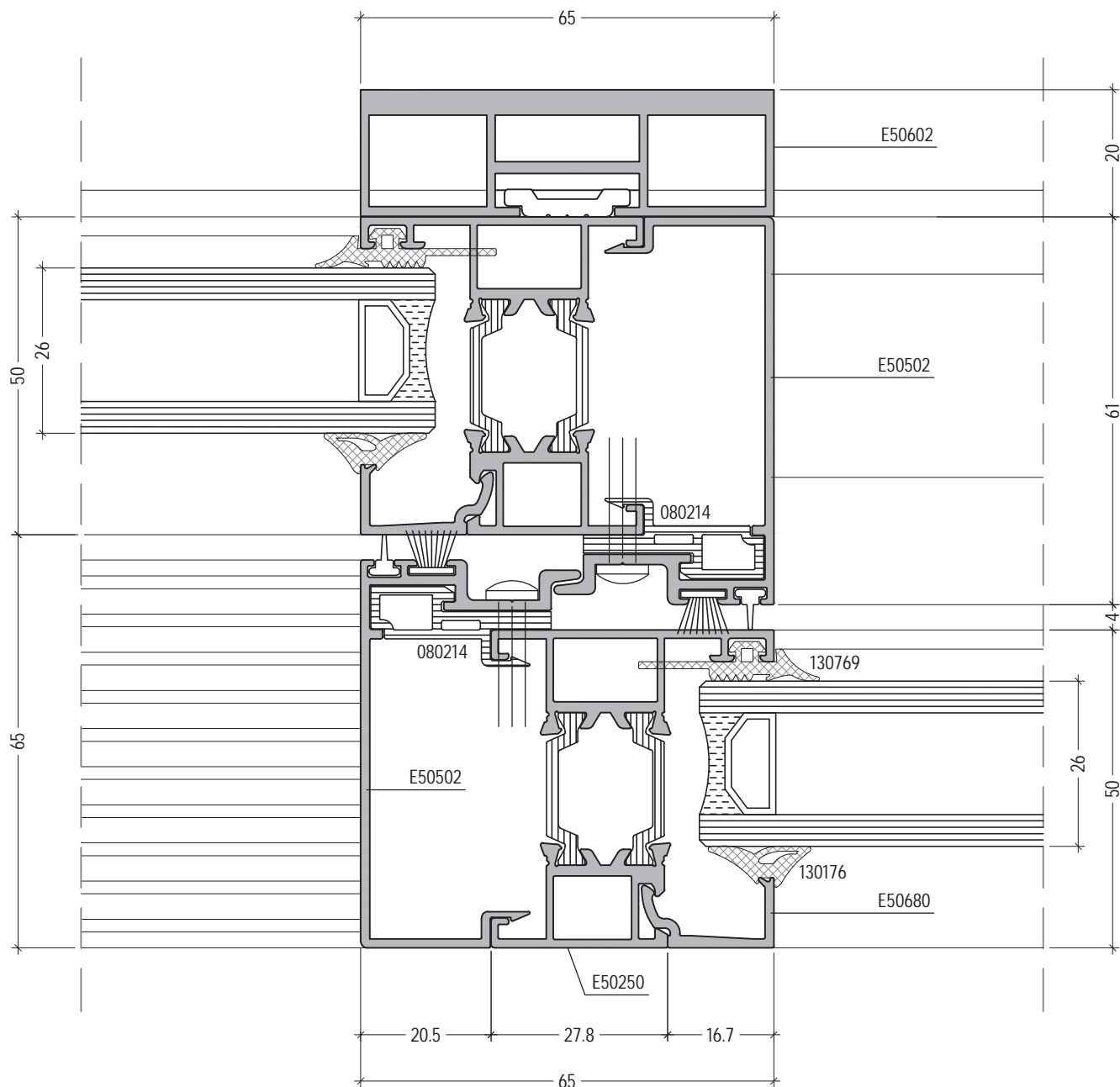
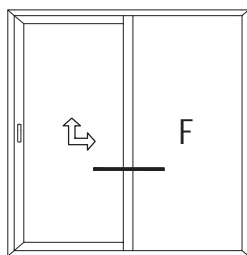


scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



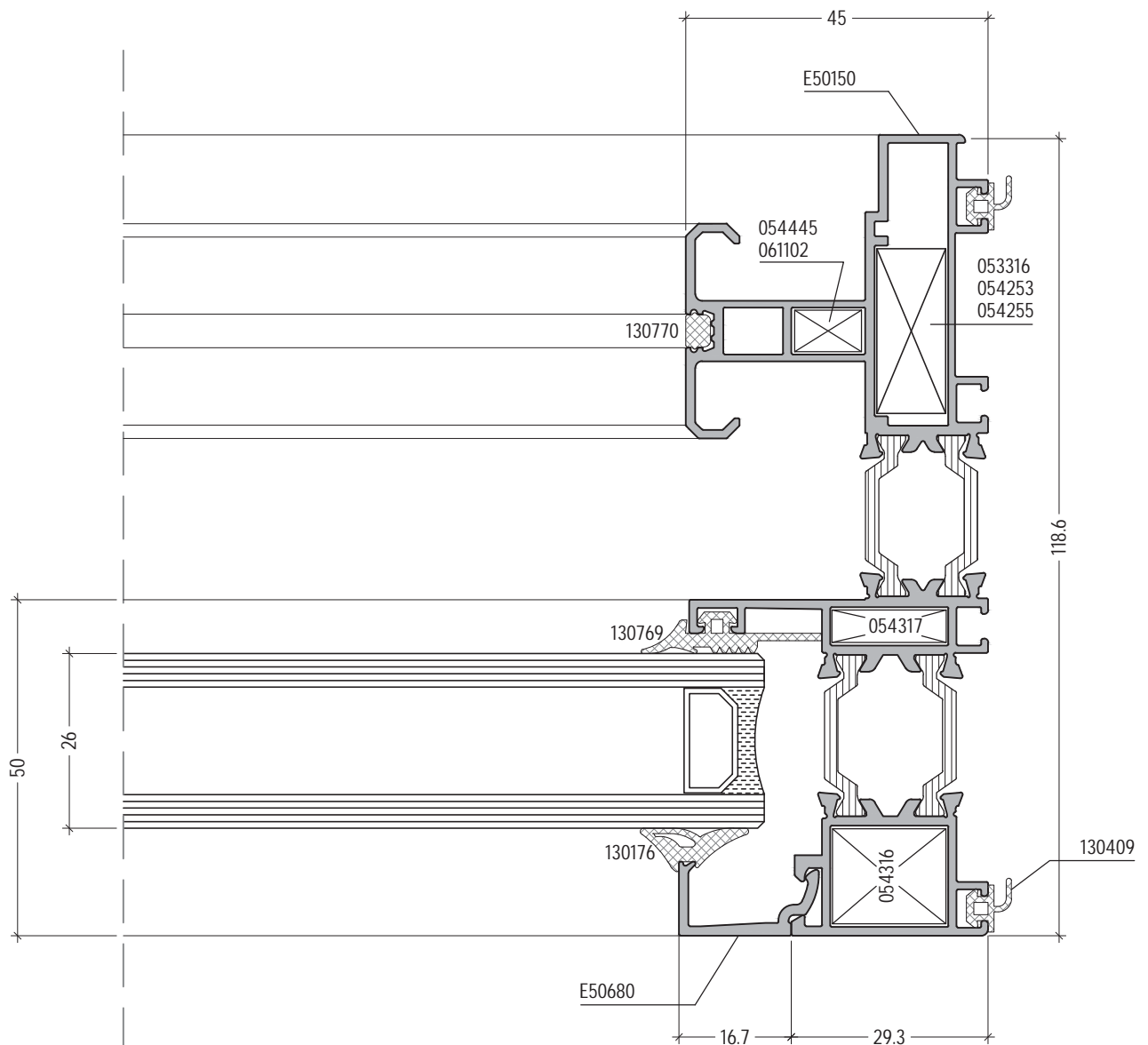
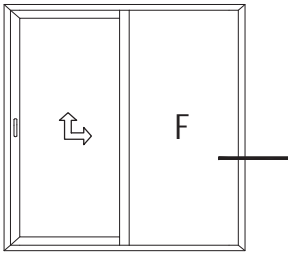
Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

scale : 1:1



Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

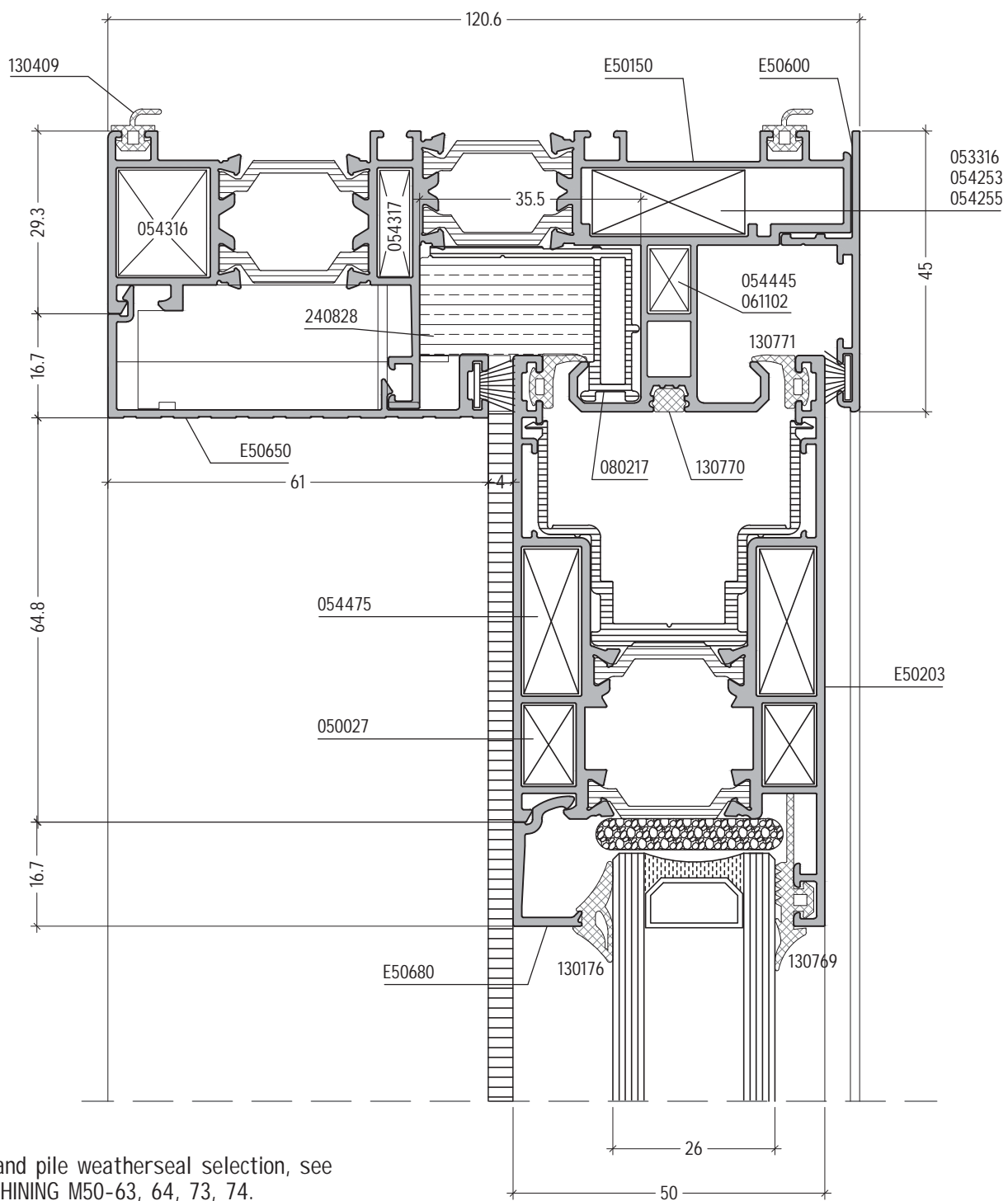
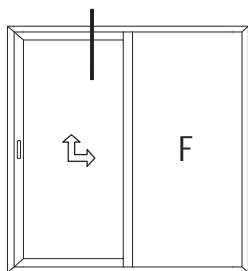
scale : 1:1



Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

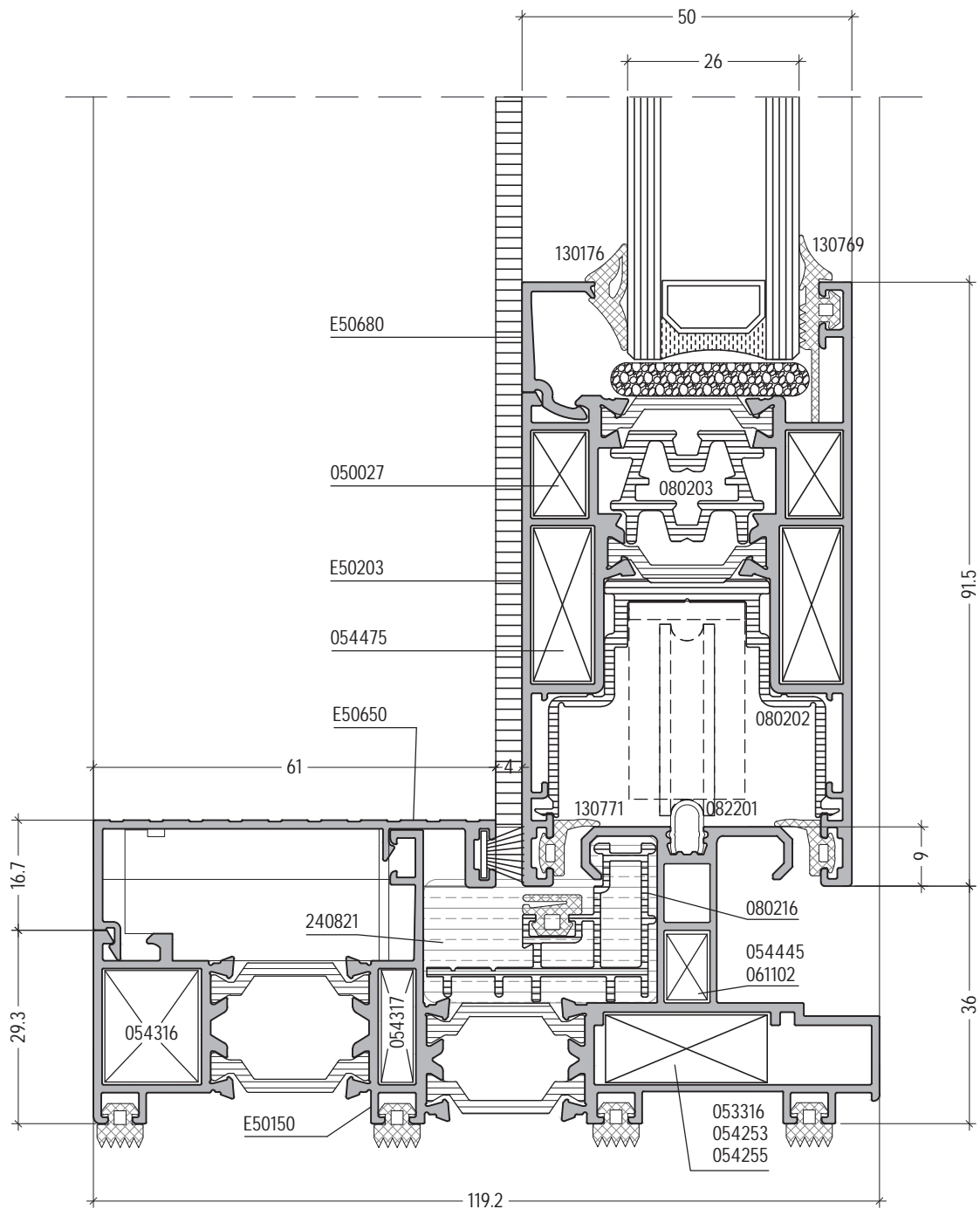
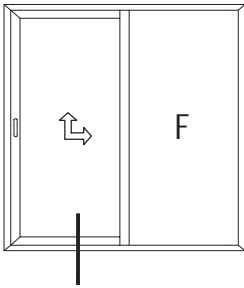
scale : 1:1



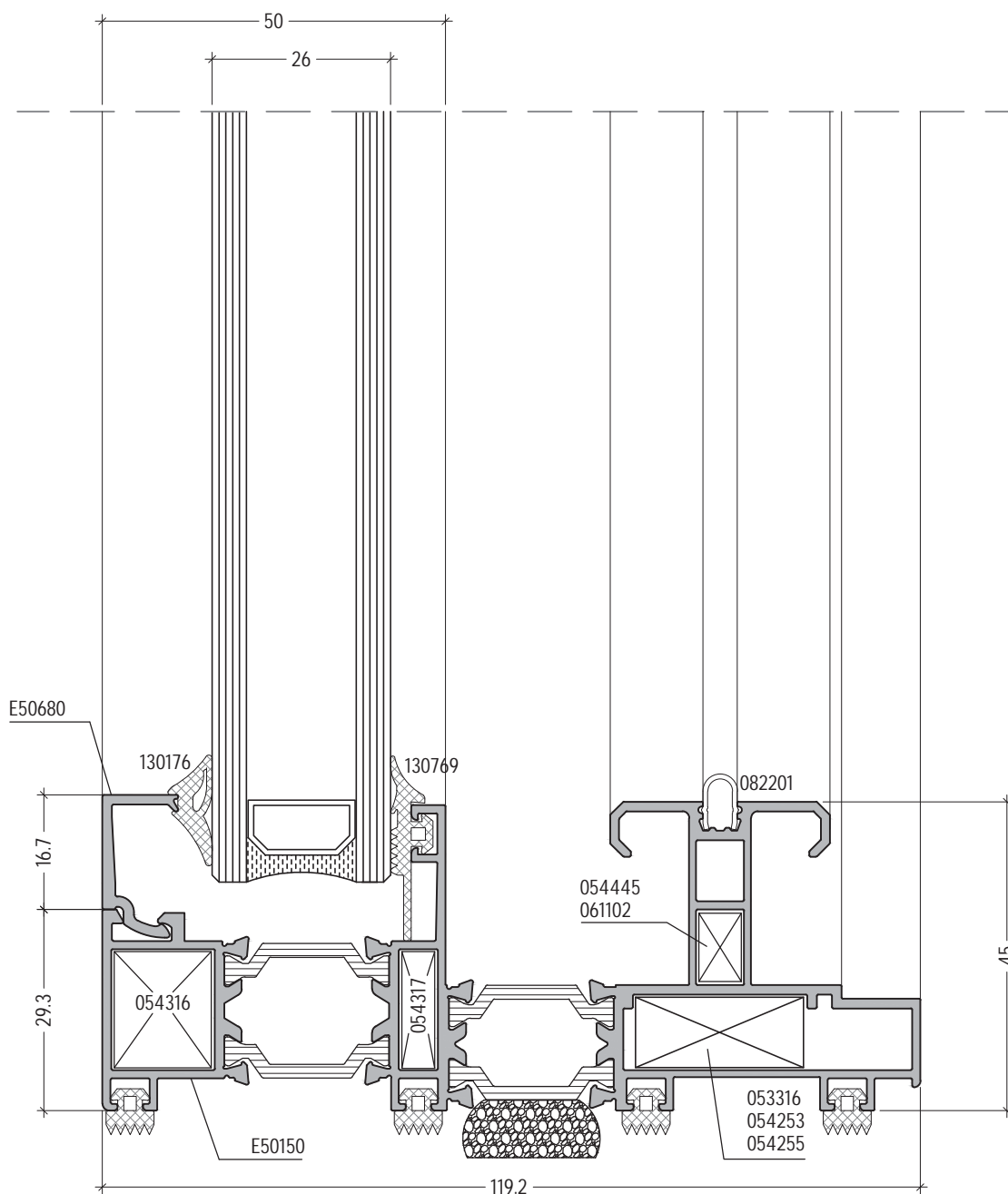
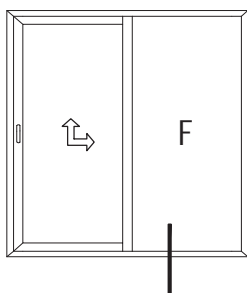


Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

scale : 1:1

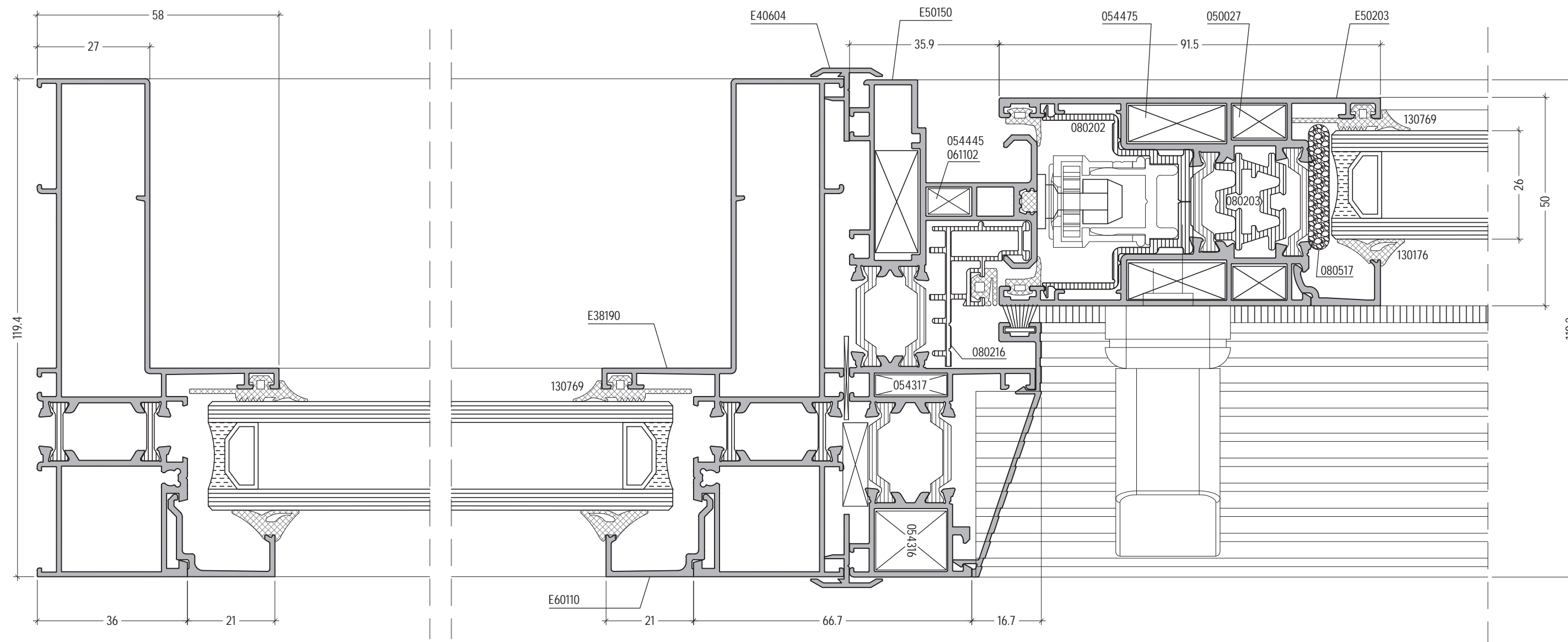
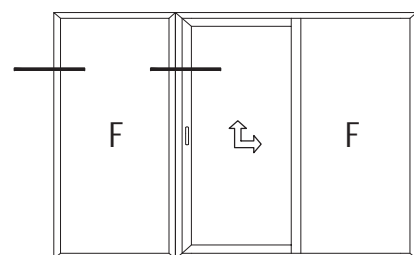


scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.



scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.

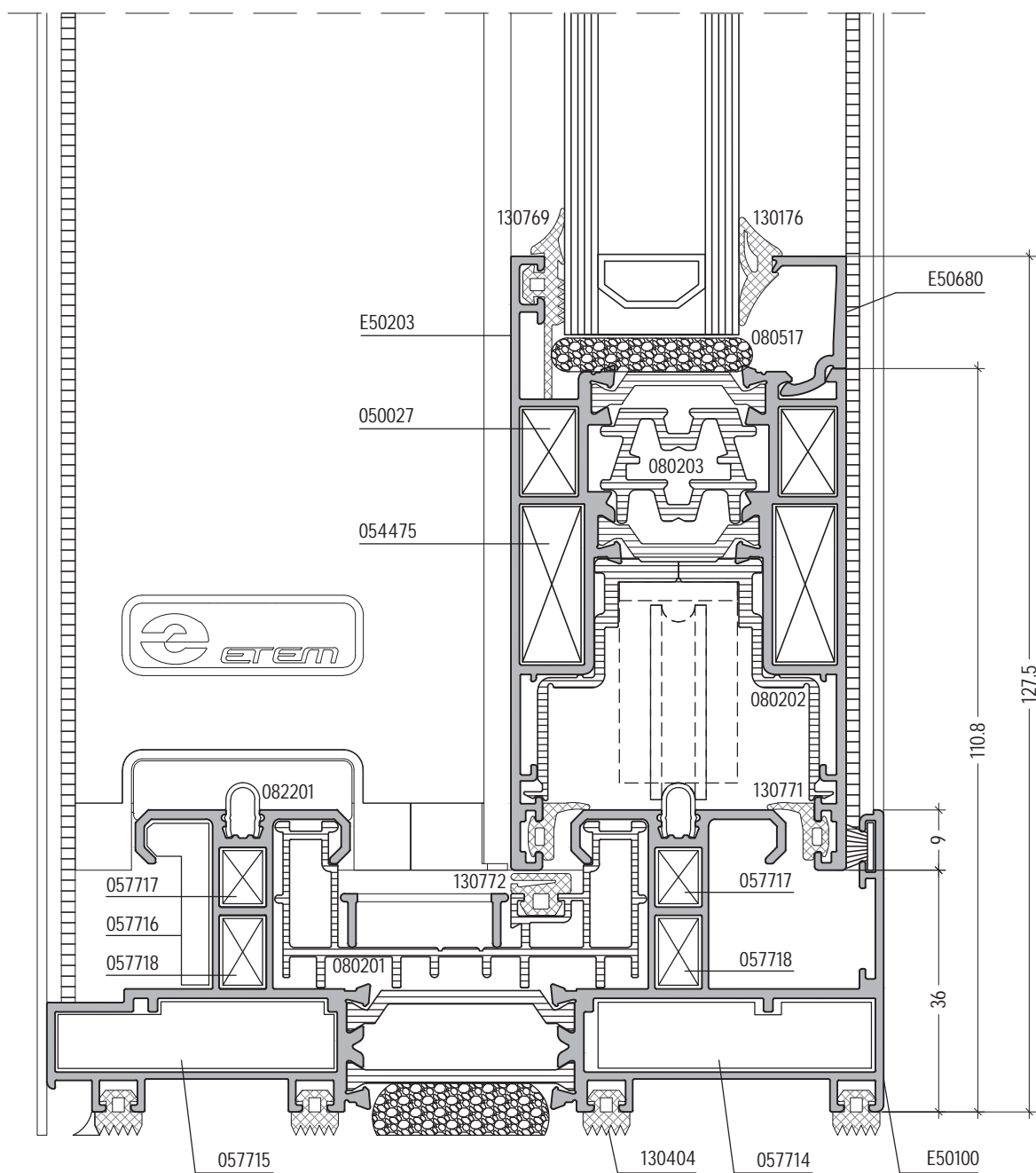
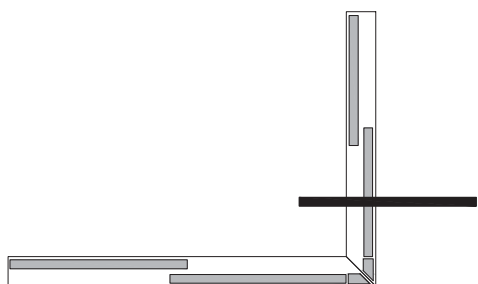




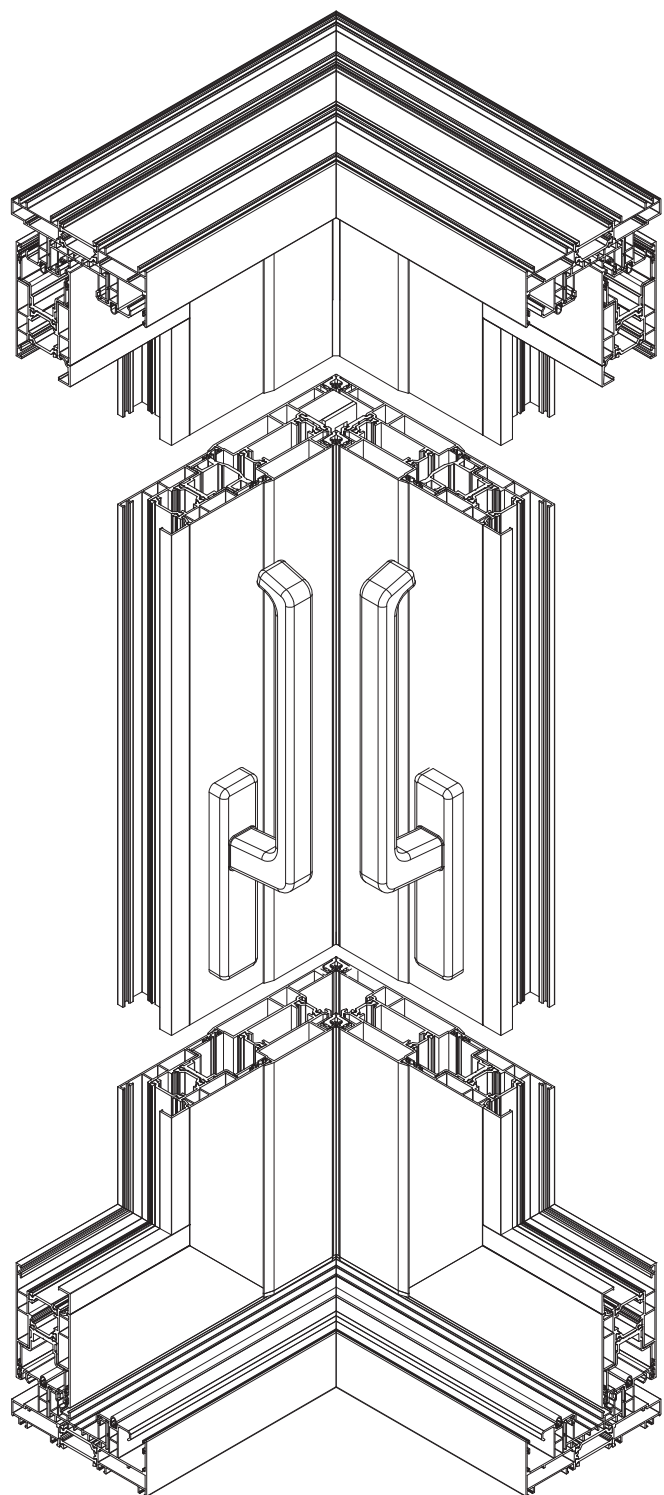
Note:  
For gasket and pile weatherseal selection, see  
chapter MACHINING M50-63, 64, 73, 74.

scale : 1:1

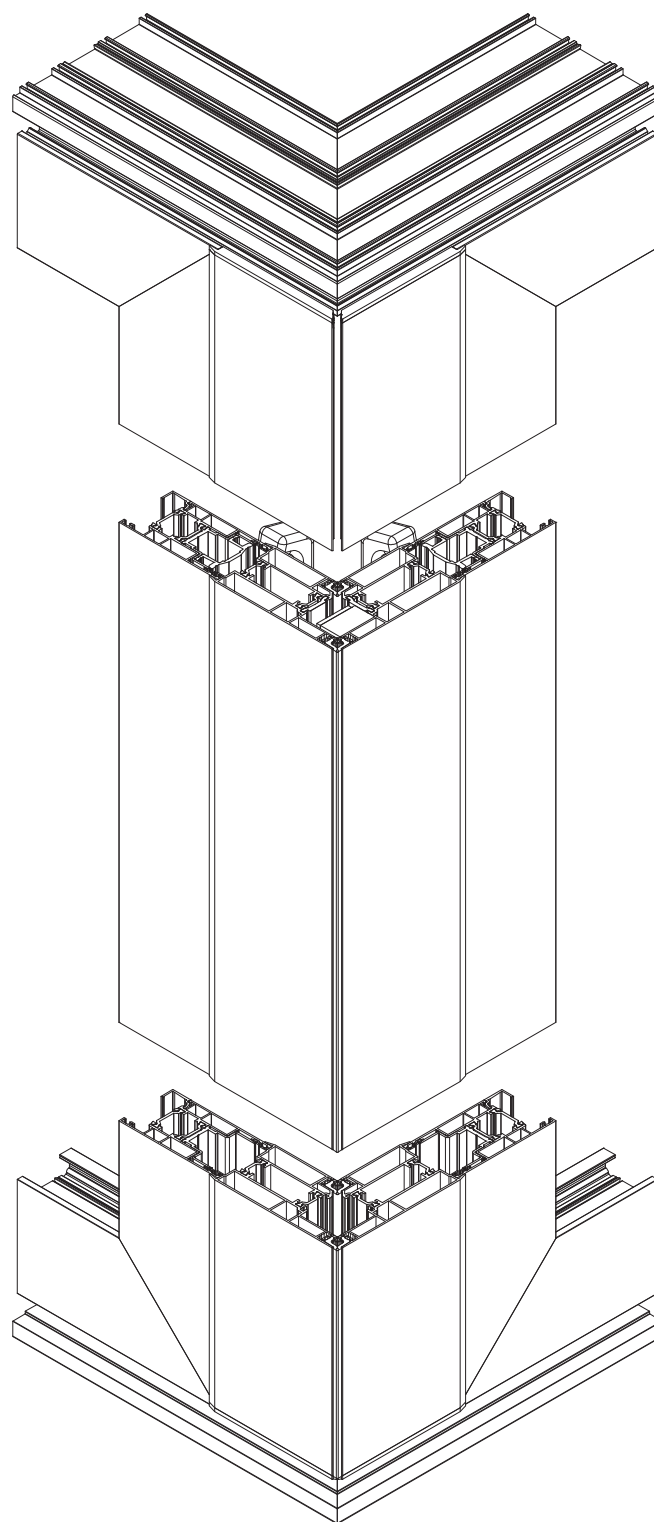




scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63, 64, 73, 74.

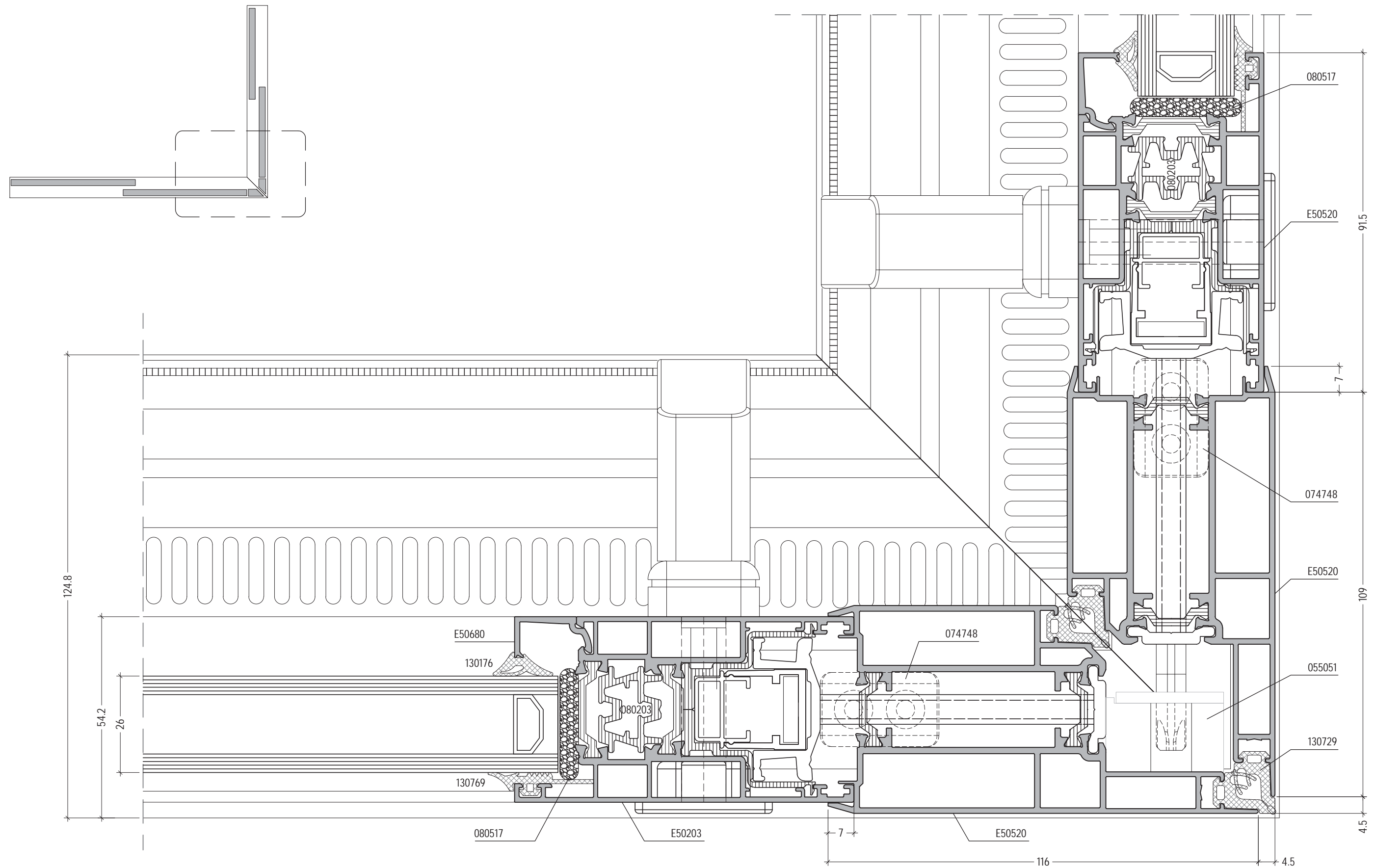


Corner internal view



Corner external view






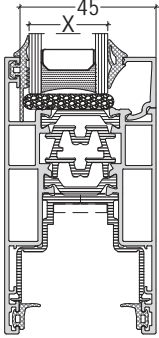
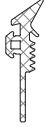






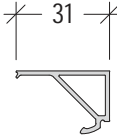


scale : 1:1 Note: For gasket and pile weatherseal selection, see chapter MACHINING M50-63 AND M50-64.



# GLAZING OPTIONS



GLAZING OPTIONS						
external gaskets	INTERNAL GASKETS				GLAZING BEADS	
 3 mm 130411	 5 - 6 mm 130176		 7 - 8 mm 130177			
	 3 mm 130759	5 mm 130205 	6 mm 130206 	7 mm 130207 		
130411 130759	34	33	32	31	E50683	 3
130411 130759	30	29	28	27	E50687	 7
130411 130759	26	25	24	23	E50680 (E50682 anod.)	 11
130411 130759	6	-	-	-	E50681	 31

Note:  
Tolerance in dimension chain  $\pm 0.5$  mm

T19-01



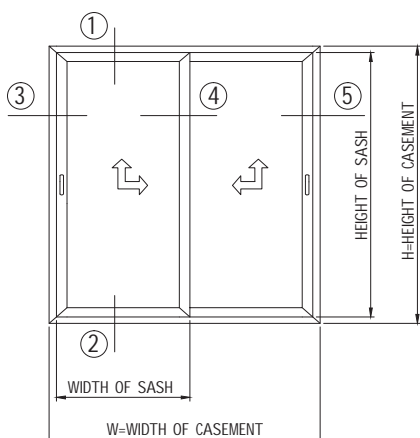
# CUTTING LISTS



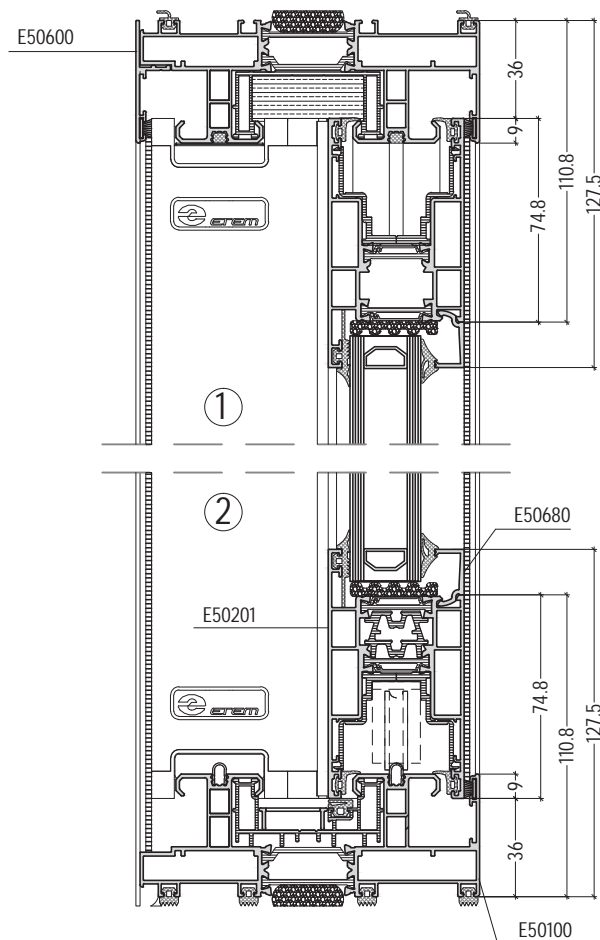


## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM WITH CLASSIC INTERLOCK

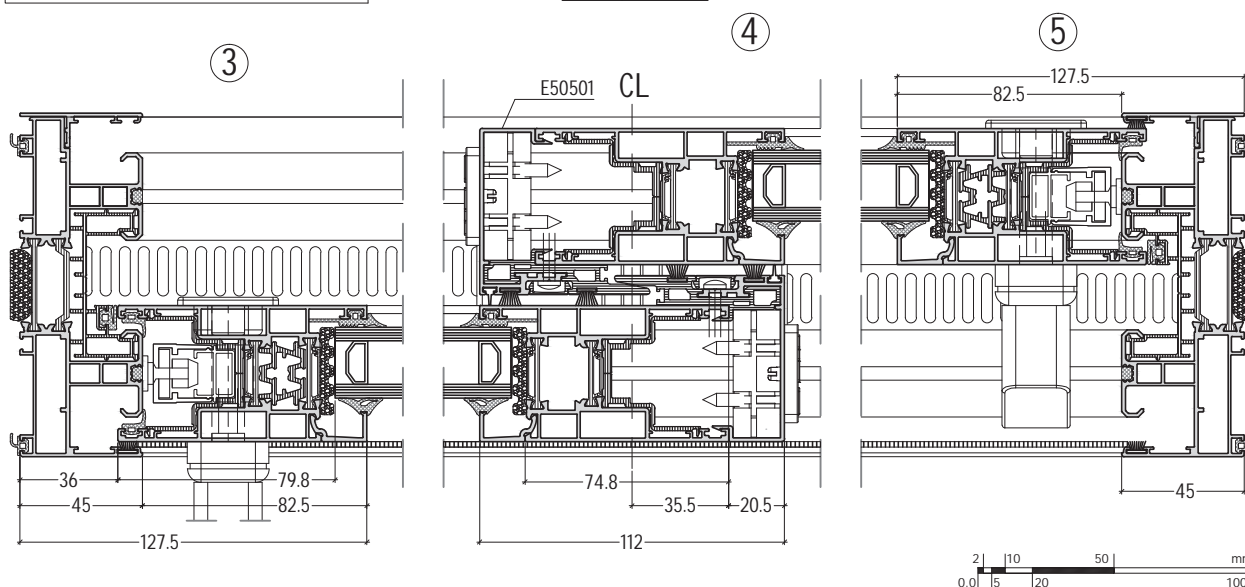
T50-1



CUTTING LENGTHS FOR CLASSIC INTERLOCK	
WIDTH OF RAIL E 50100	= W
HEIGHT OF RAIL E 50100	= H
WIDTH OF SASH	= $\frac{W - 2}{2}$
HEIGHT OF SASH	= H - 72
HEIGHT OF SUPL. E 50501	= H - 92
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT CLASSIC INTERLOCK	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



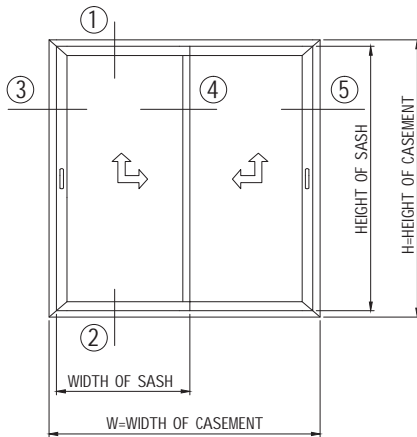
### CLASSIC INTERLOCK



No scale

## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM WITH ALTERNATIVE NARROW INTERLOCK

T50-1\_1



### CUTTING LENGTHS FOR ALTERNATIVE NARROW INTERLOCK

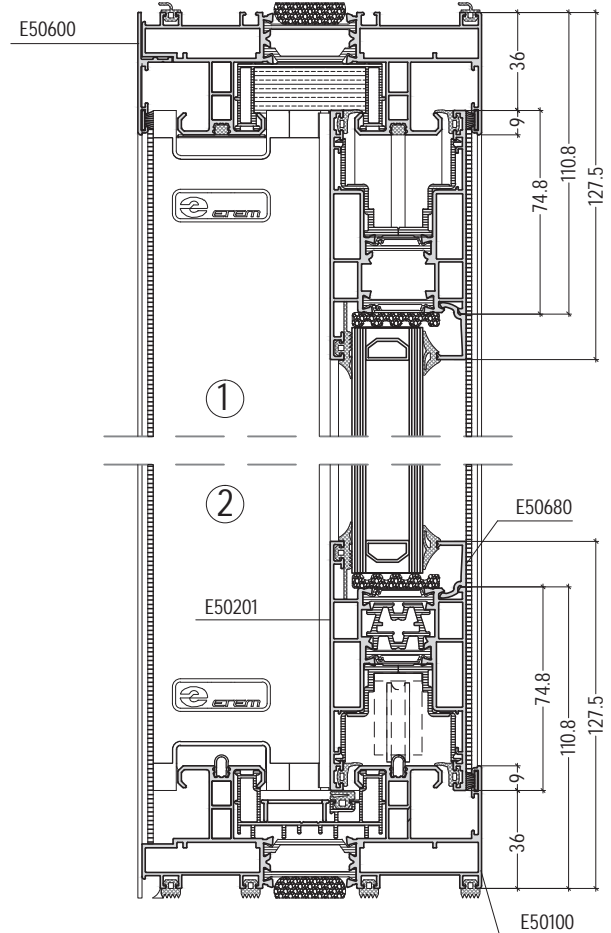
WIDTH OF RAIL E 50100 = W  
 HEIGHT OF RAIL E 50100 = H

WIDTH OF SASH =  $\frac{W-48}{2}$   
 HEIGHT OF E 50250 = H - 222  
 HEIGHT OF SUPL. E 50502 = H - 72  
 HEIGHT OF E 50602 = H - 103

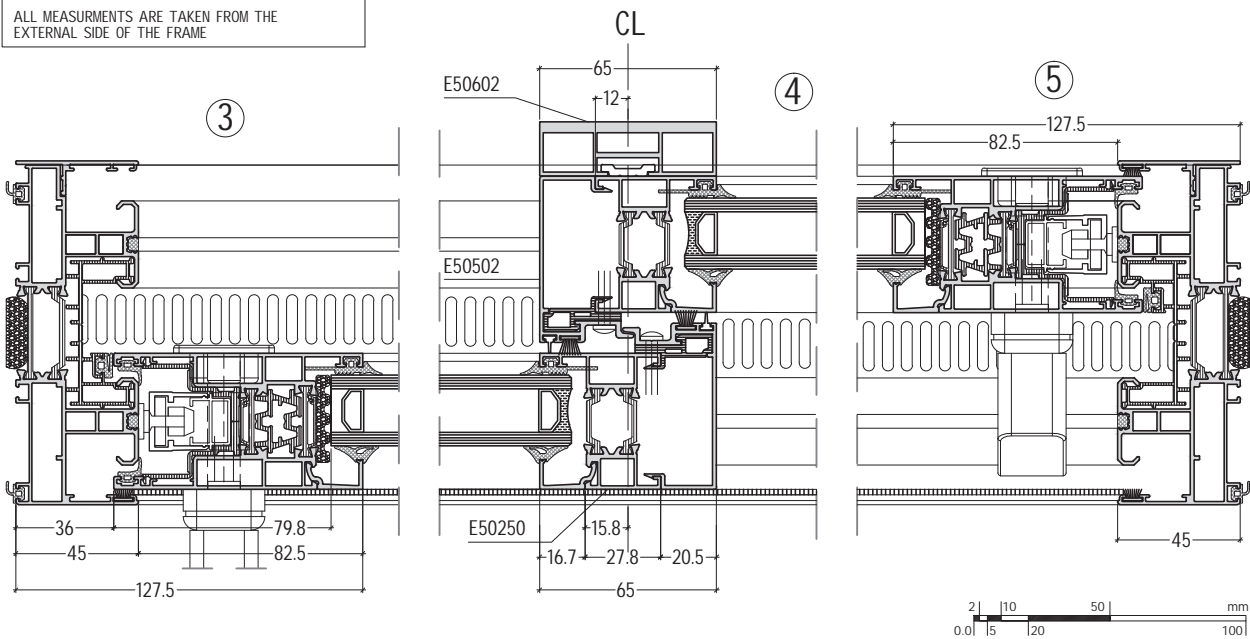
### CALCULATION OF CUTTING LENGTH FOR GLASS UNIT ALTERNATIVE NARROW INTERLOCK

width glass sash =  $\frac{W}{2} - 136.5$   
 height glass sash = HEIGHT OF SASH - 160

DIMENSION IN MILLIMETERS  
 ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME



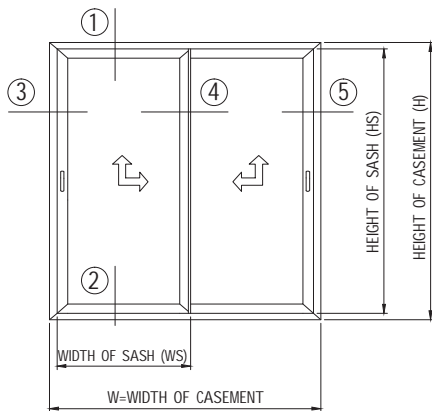
### ALTERNATIVE NARROW INTERLOCK



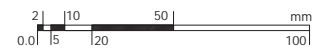
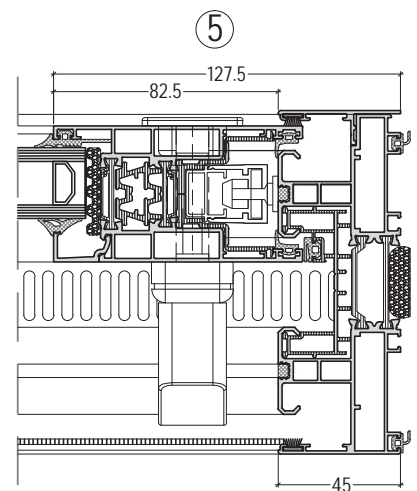
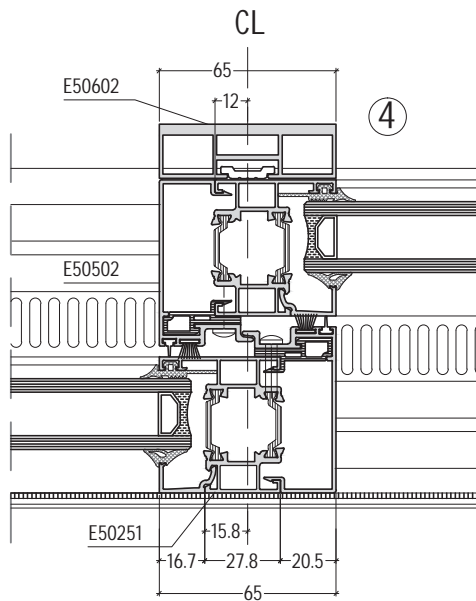
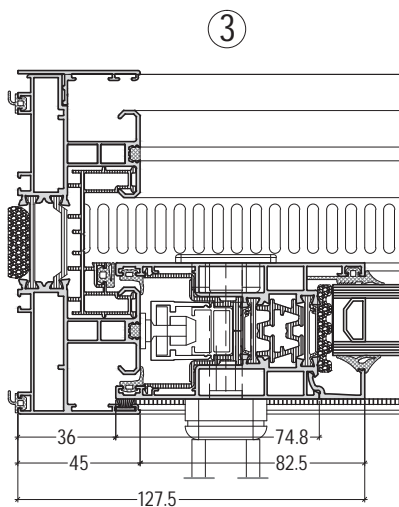
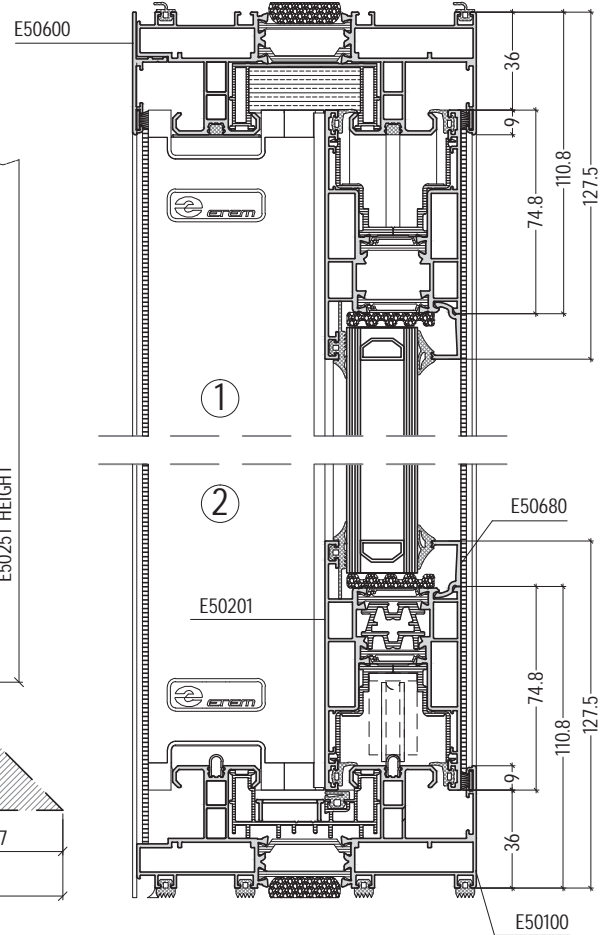
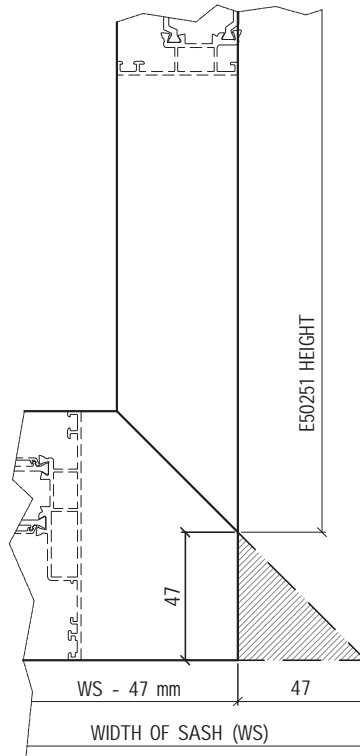
no scale

## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM WITH NARROW SASH E50251

T50-1.2



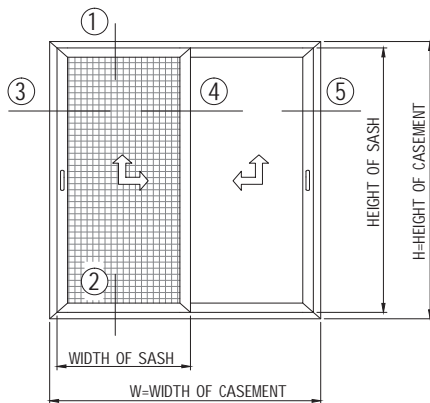
CUTTING LENGTHS	
WIDTH OF RAIL E-50100	= W
HEIGHT OF FRAME E-50100	= H
WIDTH OF SASH (WS)	= $\frac{W + 46}{2}$
FINAL WIDTH OF SASH	= WS - 47
HEIGHT OF E50251	= H - 166
HEIGHT OF SUPPL. E50502	= H - 72
HEIGHT OF E50602	= H - 103
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT NARROW SASH	
width glass sash	= $\frac{W}{2} - 136.5$
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



no scale

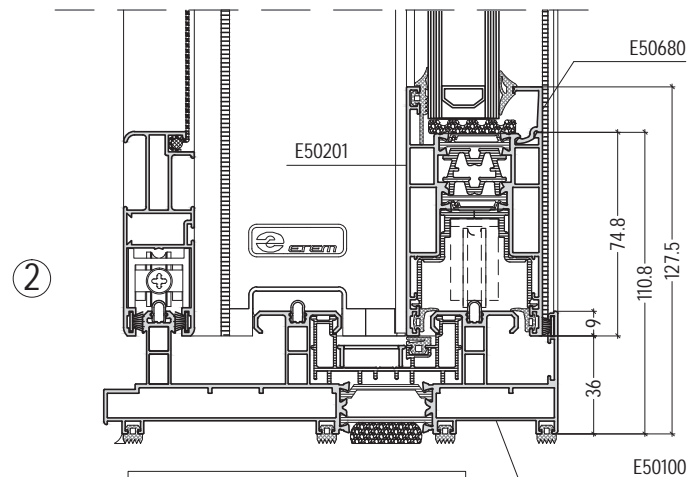
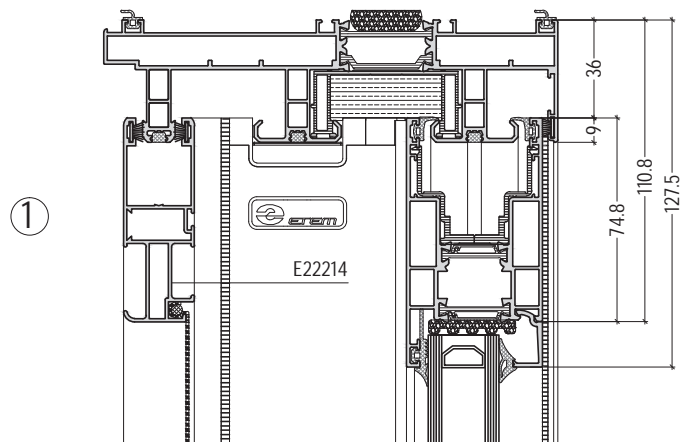
## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM

T50-2

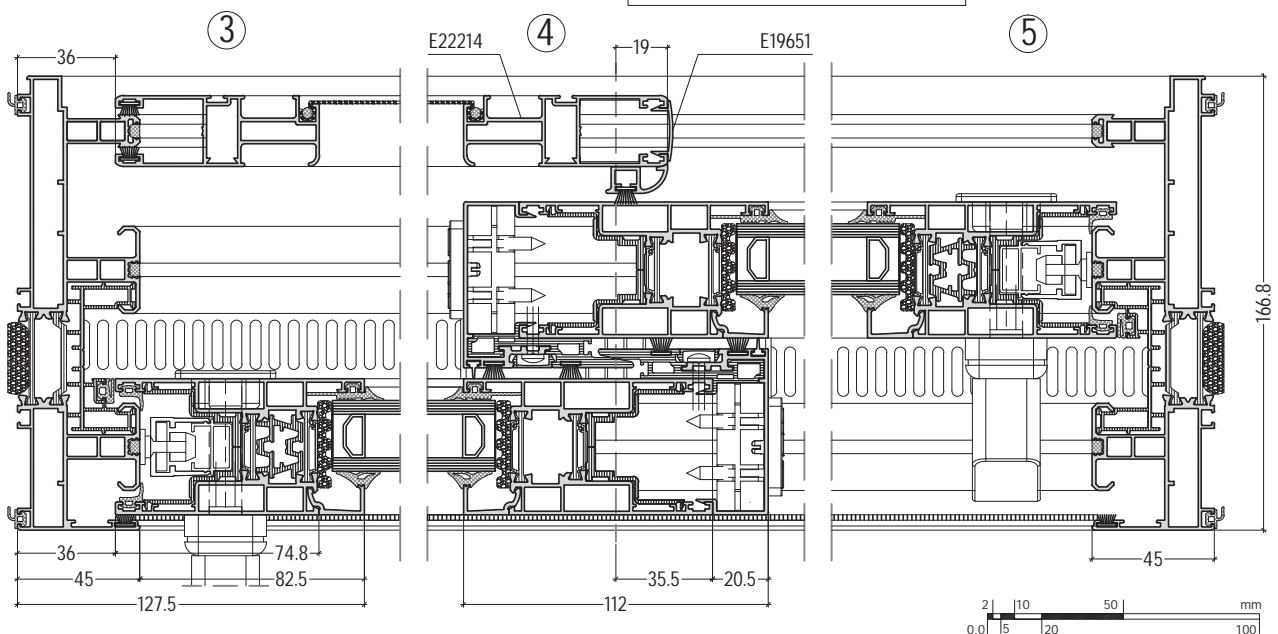


CUTTING LENGTHS	
WIDTH OF RAIL E 50100	= W
HEIGHT OF FRAME E 50100	= H
WIDTH OF SASH	$= \frac{W - 2}{2}$
HEIGHT OF SASH	= H - 72
HEIGHT OF SUPPL. E 50501	= H - 92
WIDTH OF INSECT SCREEN	$= \left(\frac{W}{2}\right) - 17$
HEIGHT OF INSECT SCREEN	= H - 72

DIMENSION IN MILLIMETERS  
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME



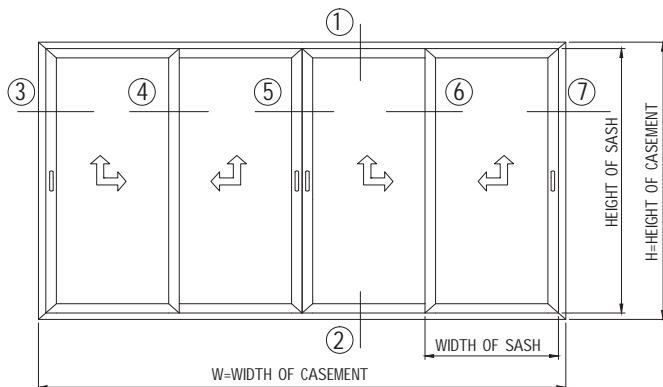
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT  
width glass sash = WIDTH OF SASH - 160  
height glass sash = HEIGHT OF SASH - 160



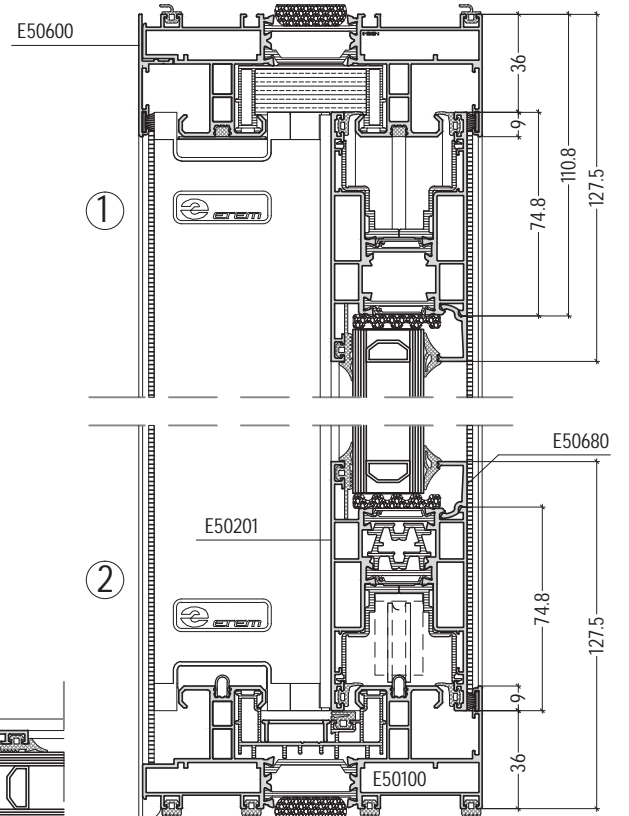
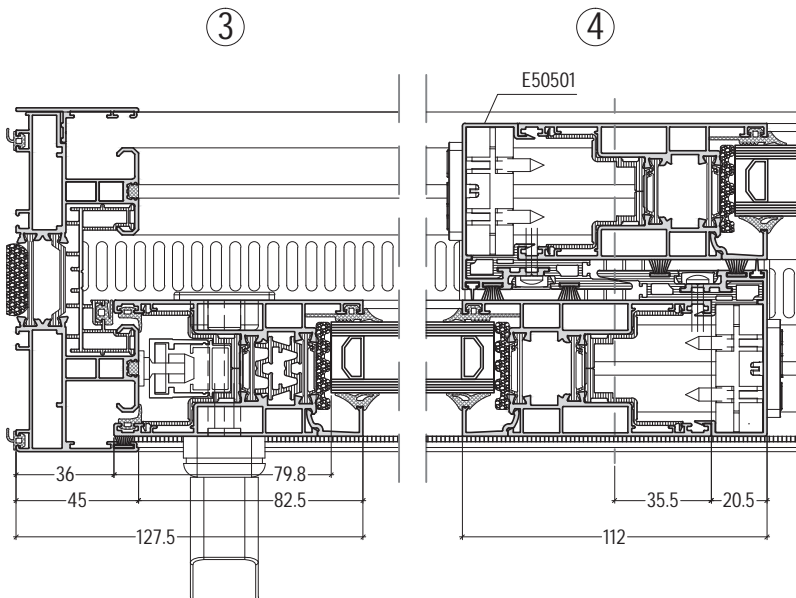
no scale

## FOUR LEAF WITH LIFT-SLIDE MECHANISM

T50-3

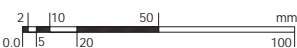
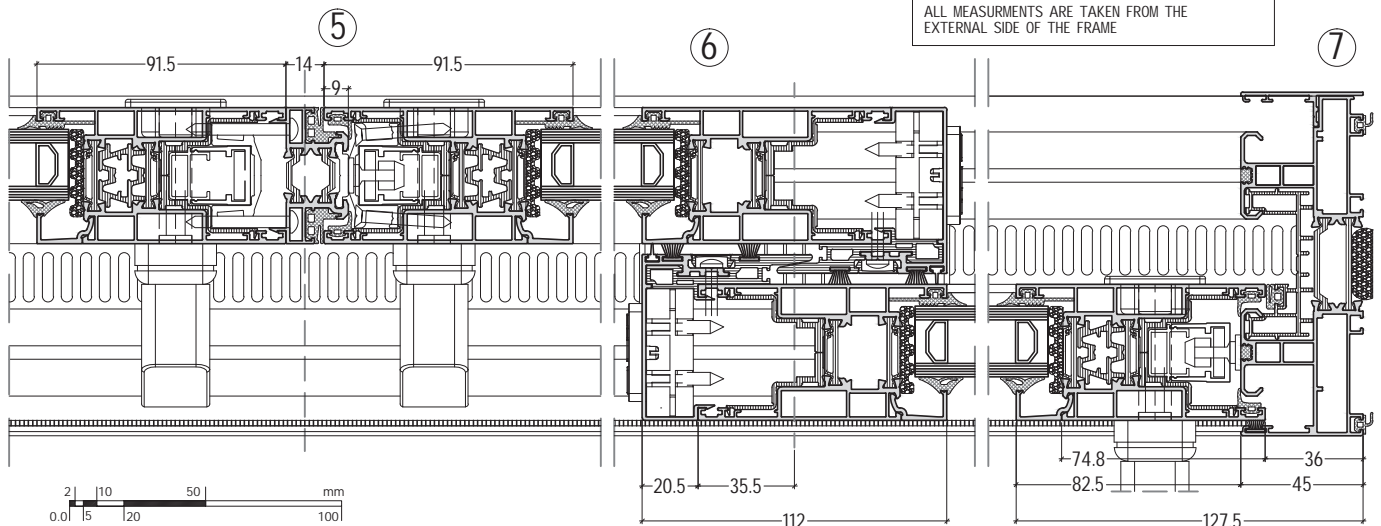


CALCULATION OF CUTTING LENGTH FOR GLASS UNIT  
 width glass sash = WIDTH OF SASH - 160  
 height glass sash = HEIGHT OF SASH - 160



CUTTING LENGTHS	
WIDTH OF RAIL E 50100	= W
HEIGHT OF FRAME E 50100	= H
WIDTH OF SASH	= $\frac{W + 56}{4}$
HEIGHT OF SASH	= H - 72
HEIGHT OF SUPL. E 50501	= H - 92
HEIGHT OF ADJOIN. E 50500	= H - 126

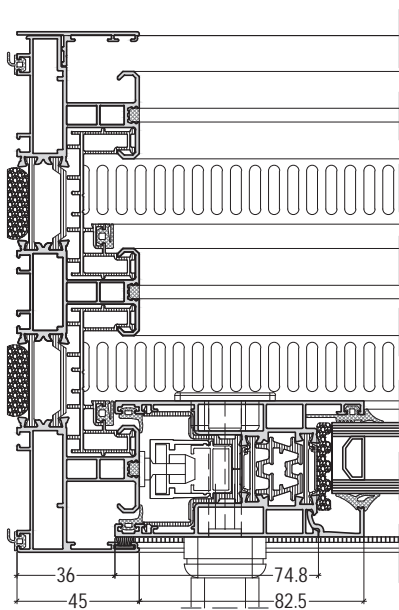
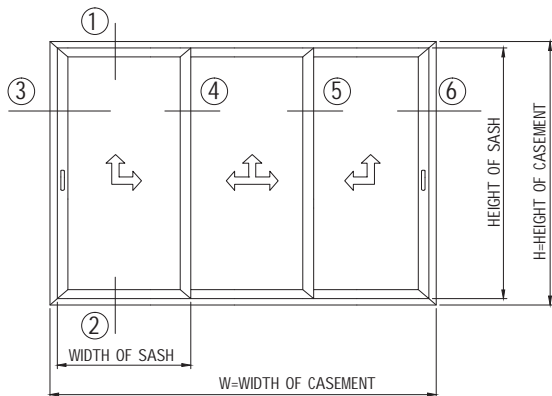
DIMENSION IN MILLIMETERS  
 ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME



no scale

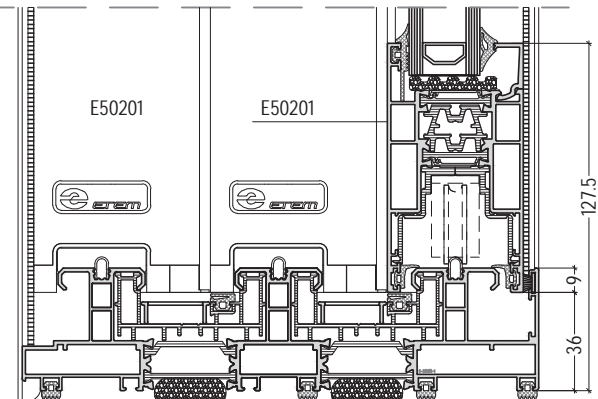
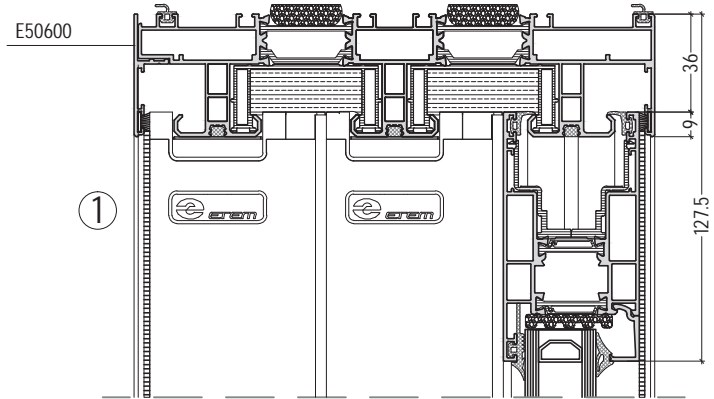
## THREE LEAF WITH LIFT-SLIDE MECHANISM

T50-4

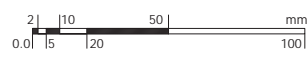
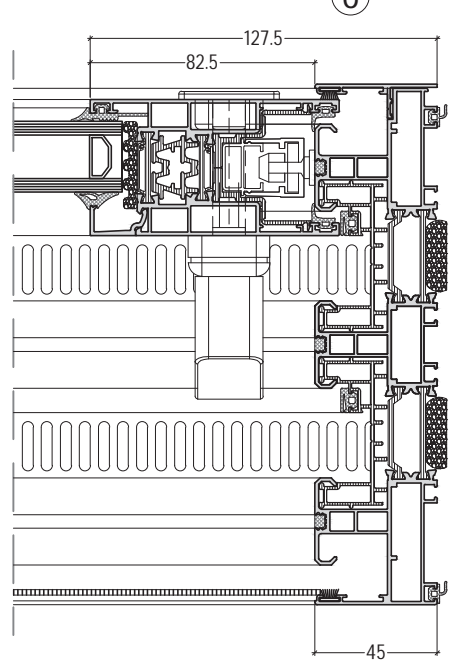
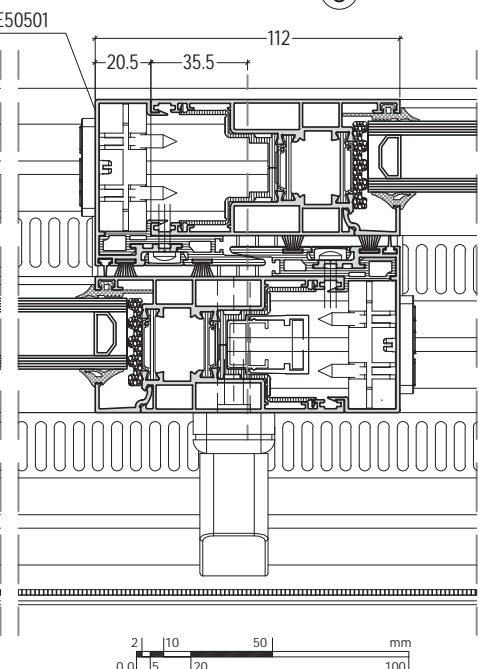
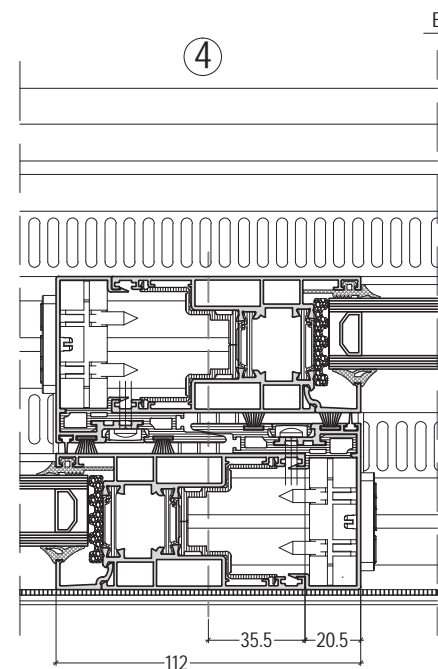


CUTTING LENGTHS	
WIDTH OF RAIL E 50100	= W
HEIGHT OF FRAME E 50100	= H
WIDTH OF SASH	= $\frac{W + 70}{3}$
HEIGHT OF SASH	= H - 72
HEIGHT OF SUPL. E 50501	= H - 92

DIMENSION IN MM  
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME



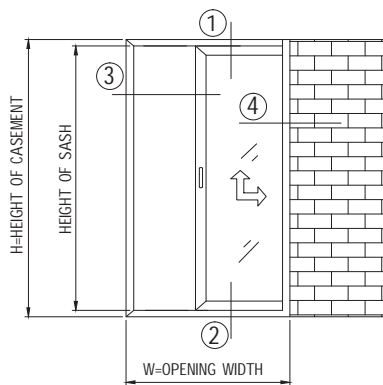
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT  
width glass sash = WIDTH OF SASH - 160  
height glass sash = HEIGHT OF SASH - 160



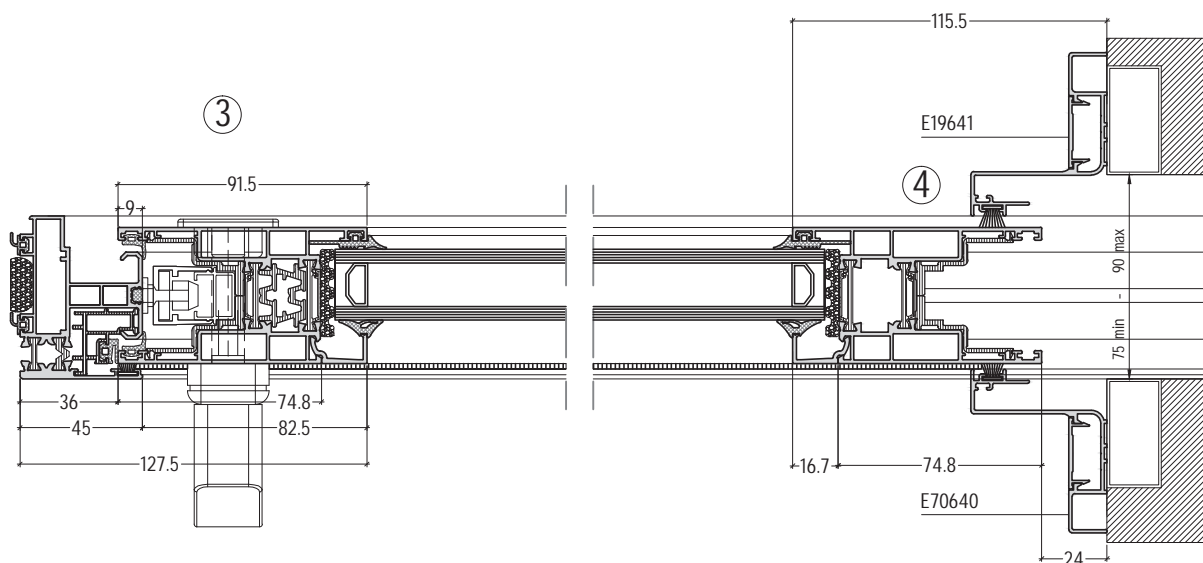
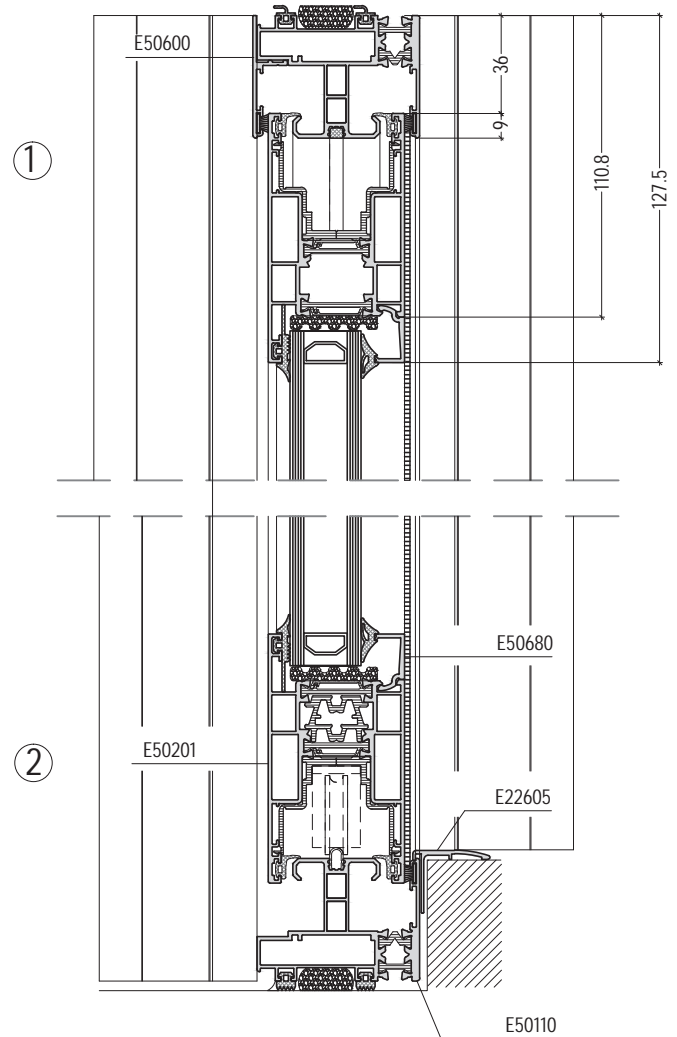
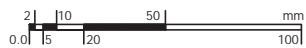
no scale

## SINGLE LEAF WITH LIFT-SLIDE MECHANISM

T50-5



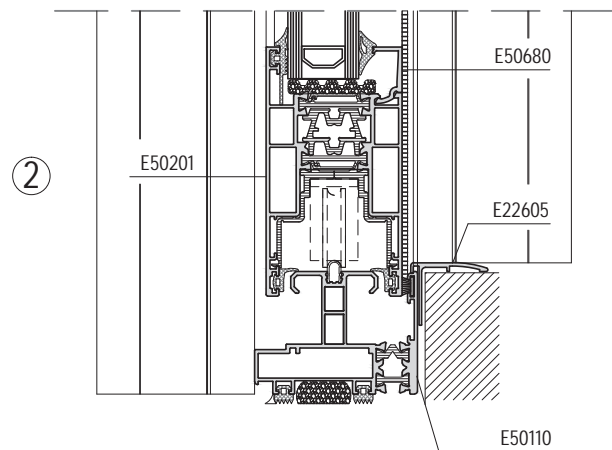
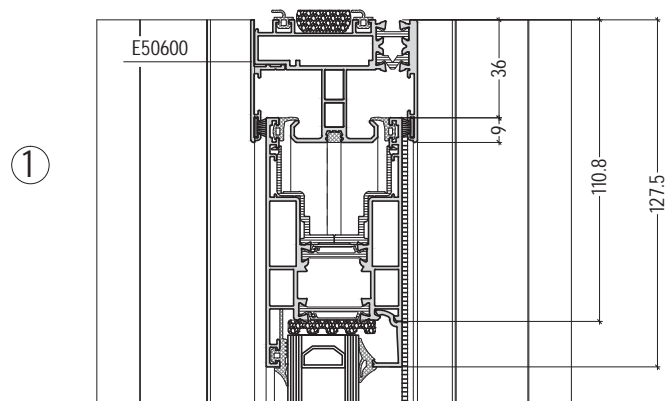
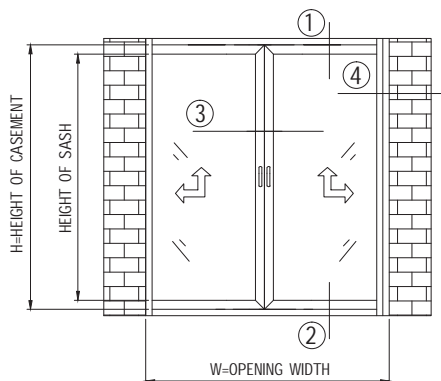
CUTTING LENGTHS	
WIDTH OF RAIL E 50110	= $2 \times W - 170$
HEIGHT OF FRAME E 50110	= H
WIDTH OF SASH	= $W - 60$
HEIGHT OF SASH	= $H - 72$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash = WIDTH OF SASH - 160	
height glass sash = HEIGHT OF SASH - 160	
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



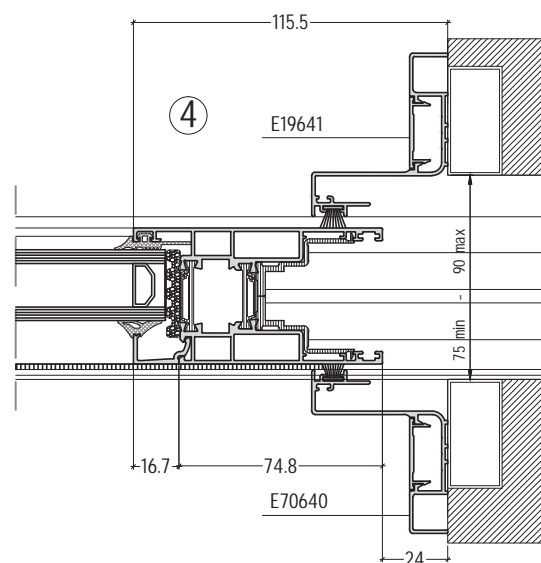
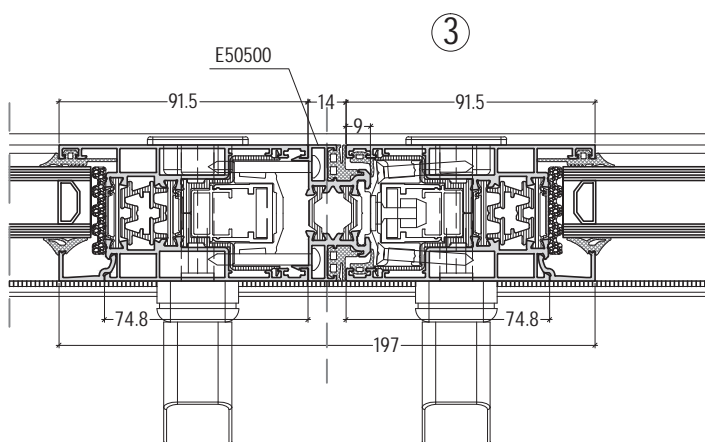
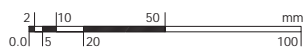
no scale

## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM

T50-6



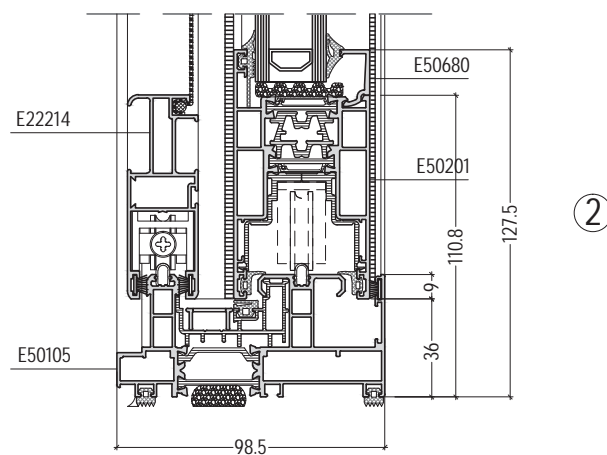
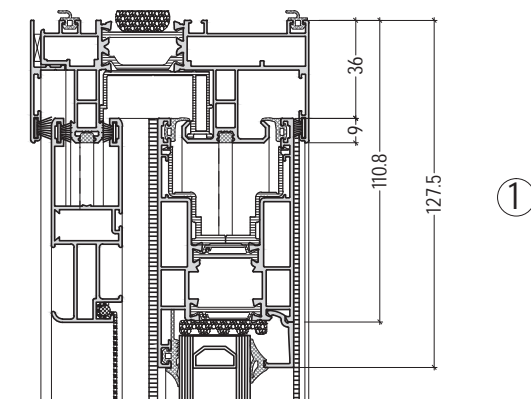
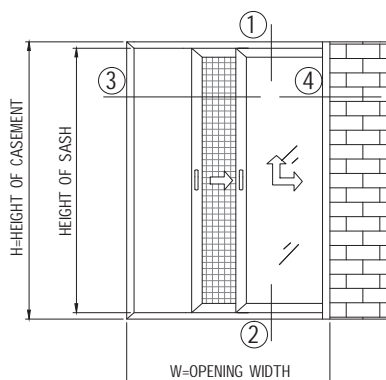
CUTTING LENGTHS	
WIDTH OF RAIL E 50110	= $2xW - 280$
HEIGHT OF FRAME E 50110	= $H$
WIDTH OF SASH	= $\frac{W - 62}{2}$
HEIGHT OF SASH	= $H - 72$
HEIGHT OF ADJOIN. E 50500	= $H - 126$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



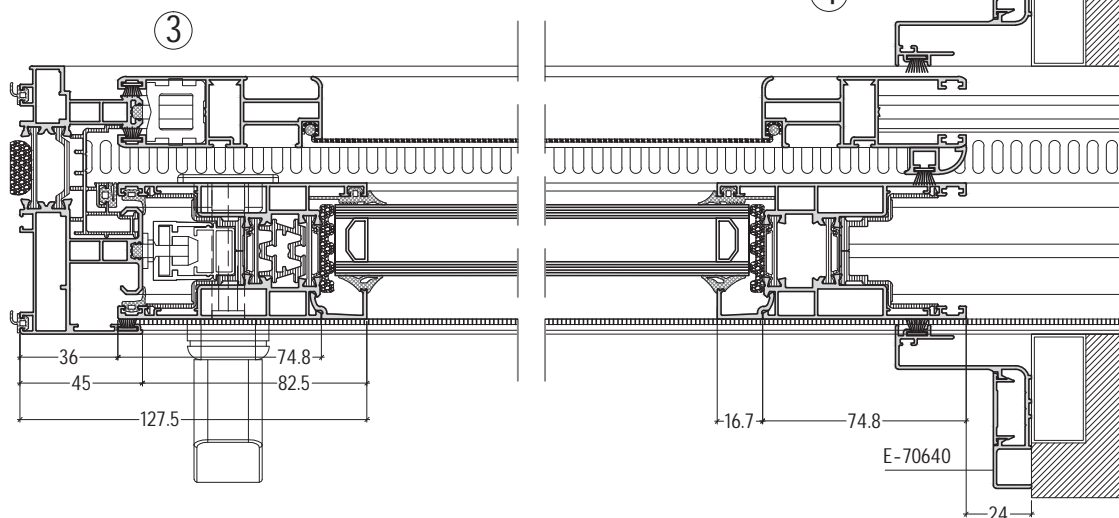
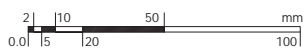


## SINGLE LEAF WITH LIFT-SLIDE MECHANISM

T50-7

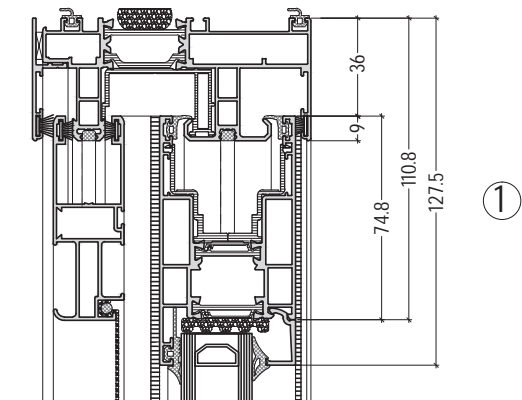
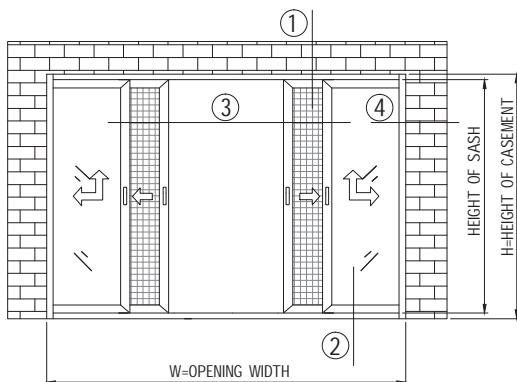


CUTTING LENGTHS	
WIDTH OF RAIL E 50105	= $2xW - 170$
HEIGHT OF FRAME E 50105	= H
WIDTH OF SASH	= $W - 60$
HEIGHT OF SASH	= $H - 72$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	

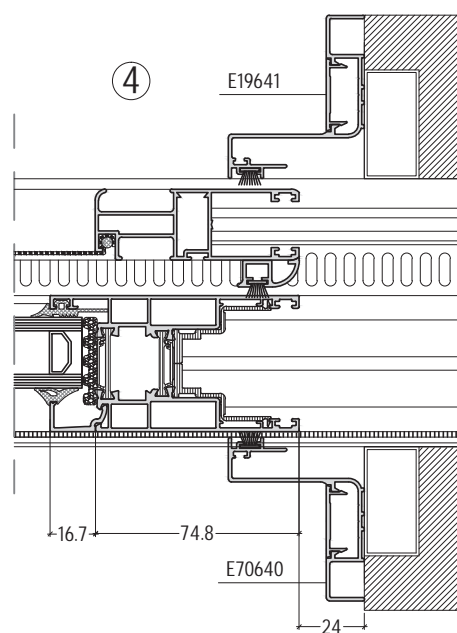
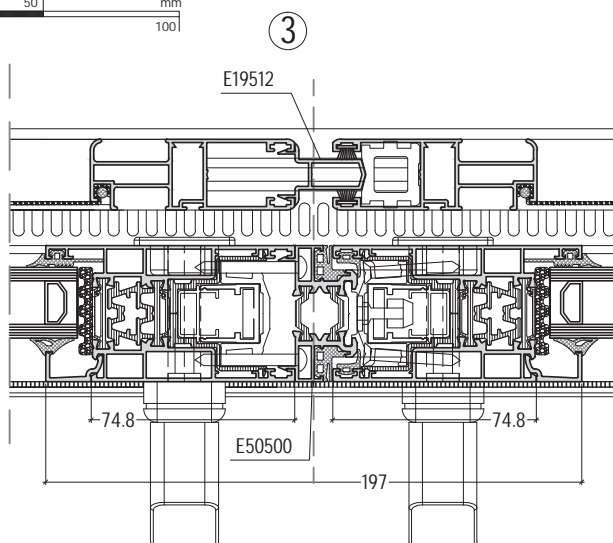
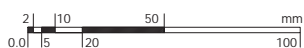
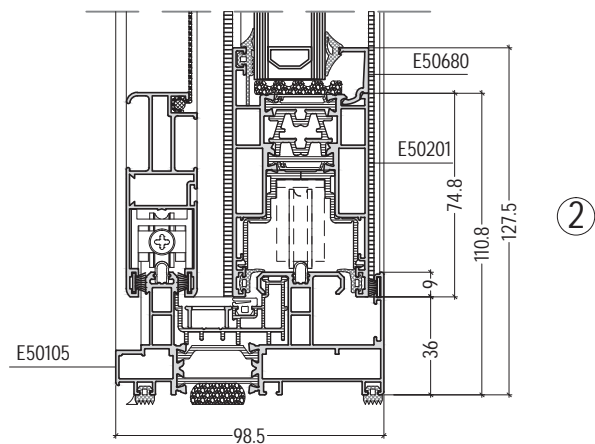


## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM

T50-8



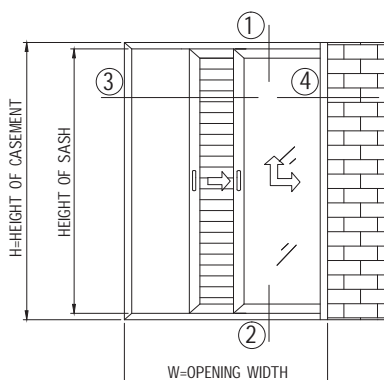
CUTTING LENGTHS	
WIDTH OF RAIL E 50105	= $2xW - 280$
HEIGHT OF FRAME E 50105	= H
WIDTH OF SASH	= $\frac{W - 62}{2}$
HEIGHT OF SASH	= $H - 72$
HEIGHT OF ADJOIN. E 50500	= $H - 126$
HEIGHT OF ADJOIN. E 19512	
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



no scale

## SINGLE LEAF WITH LIFT-SLIDE MECHANISM

T50-9



### CUTTING LENGTHS

WIDTH OF RAIL E 50105 =  $2 \times W - 170$

HEIGHT OF FRAME E 50105 = H

WIDTH OF SASH =  $W - 60$

HEIGHT OF SASH =  $H - 72$

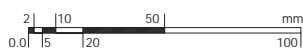
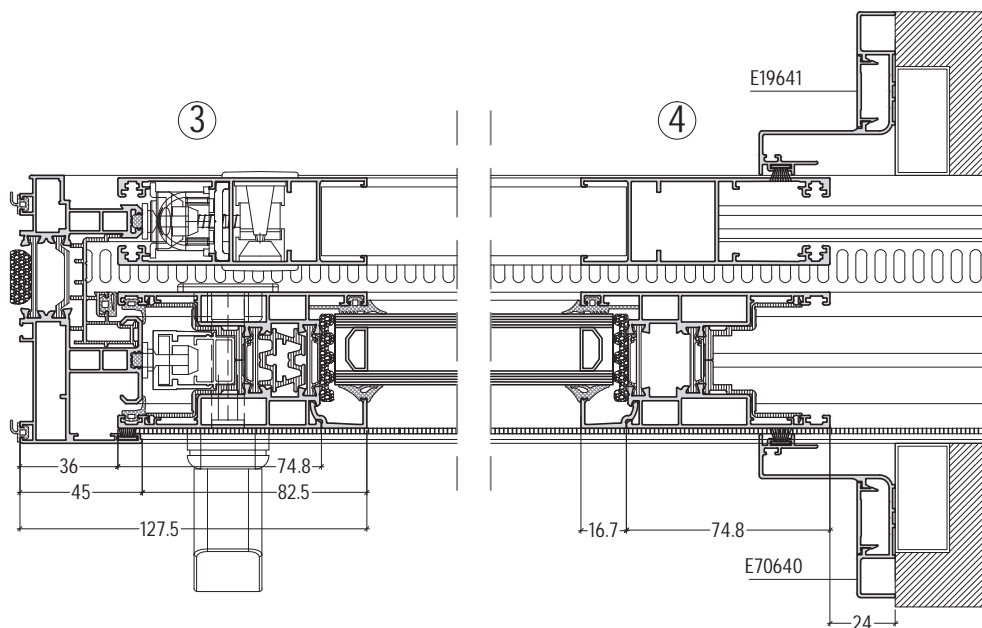
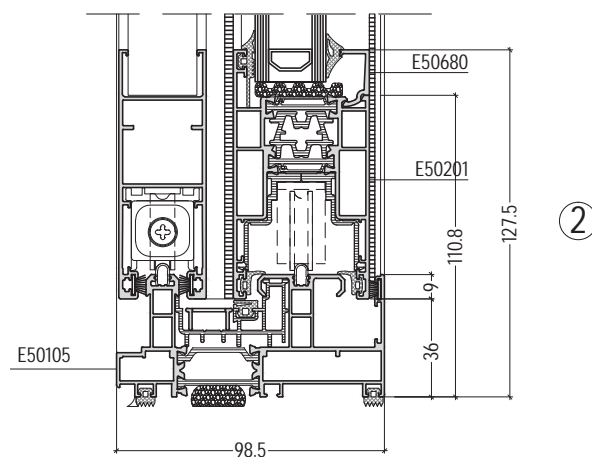
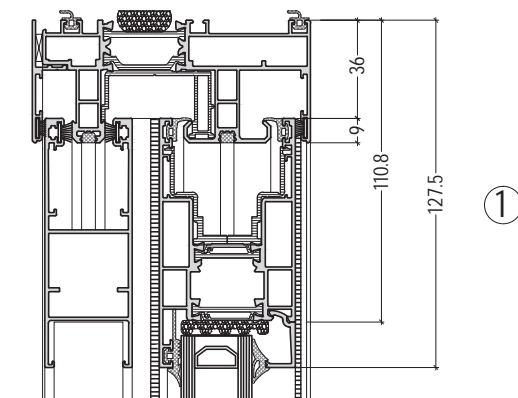
### CALCULATION OF CUTTING LENGTH FOR GLASS UNIT

$\text{width\_glass\_sash} = \text{WIDTH OF SASH} - 160$

$\text{height\_glass\_sash} = \text{HEIGHT OF SASH} - 160$

DIMENSION IN MILLIMETERS

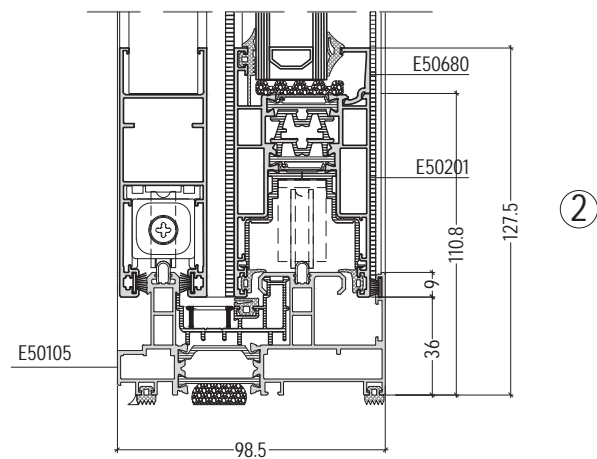
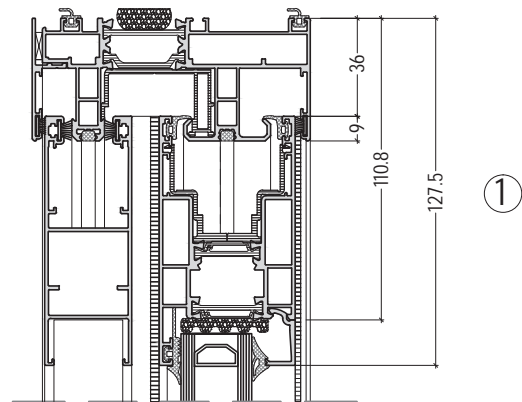
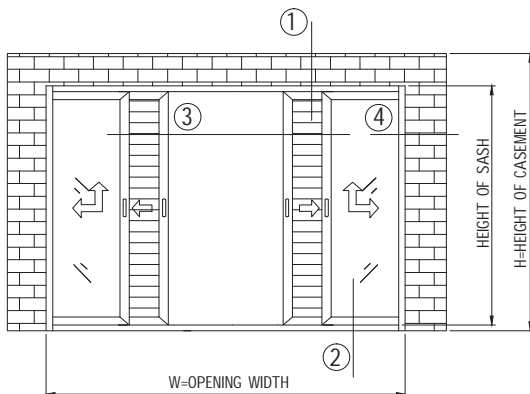
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME



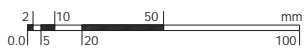
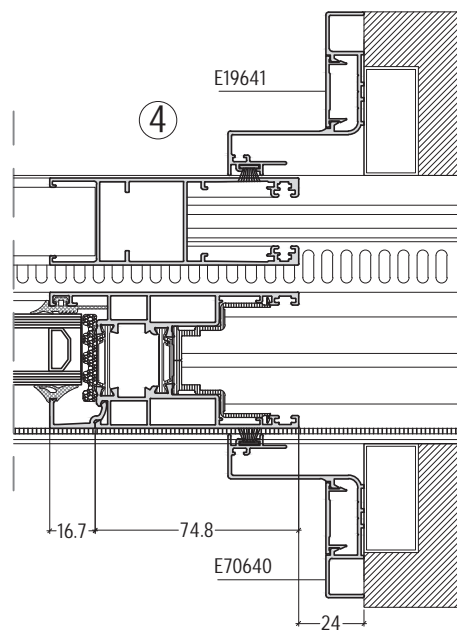
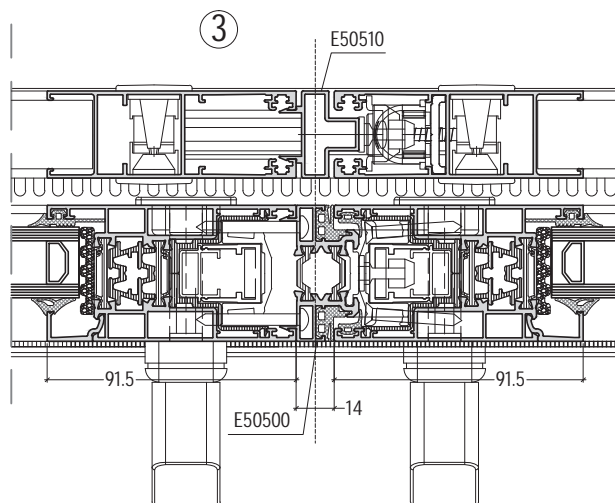
no scale

## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM

T50-10

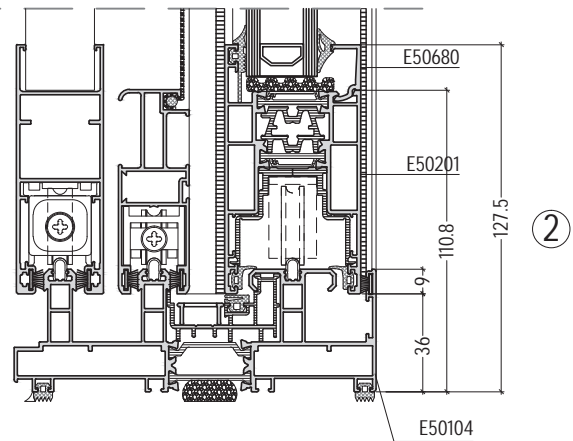
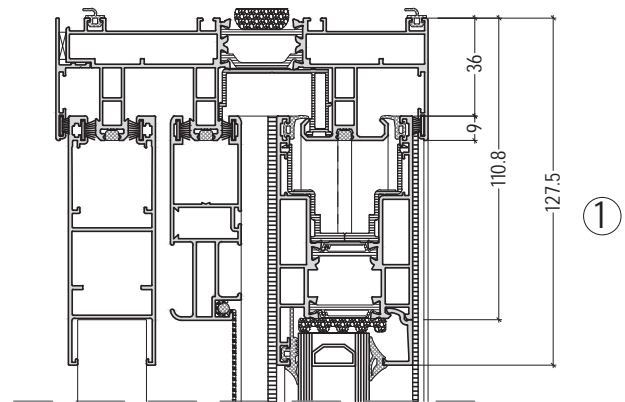
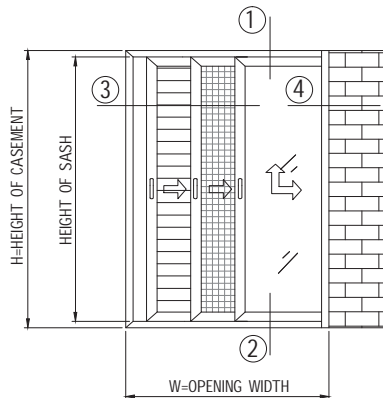


CUTTING LENGTHS	
WIDTH OF RAIL E 50105	= $2 \times W - 280$
HEIGHT OF FRAME E 50105	= H
WIDTH OF SASH	= $\frac{W - 62}{2}$
HEIGHT OF SASH	= H - 72
HEIGHT OF ADJOIN. E 50500	= H - 126
HEIGHT OF ADJOIN. E 50510	= H - 126
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	

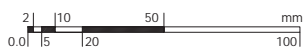
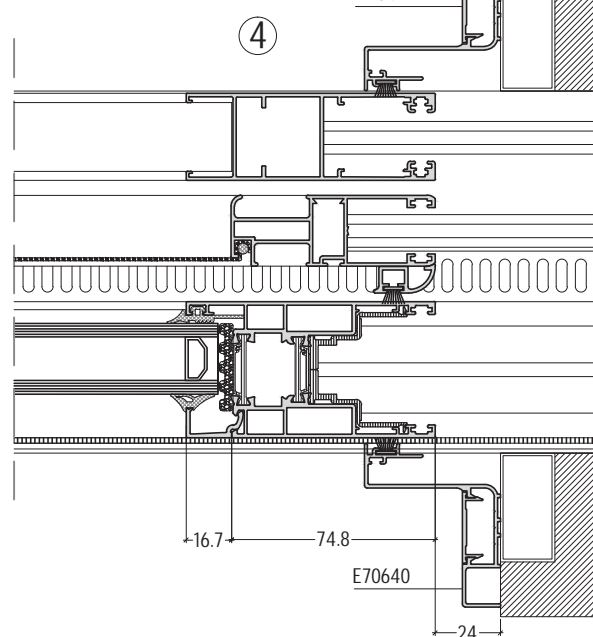
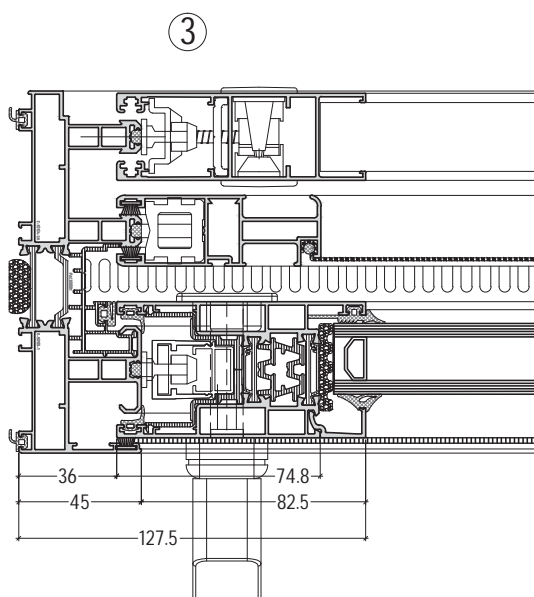


## SINGLE LEAF WITH LIFT-SLIDE MECHANISM

T50-11

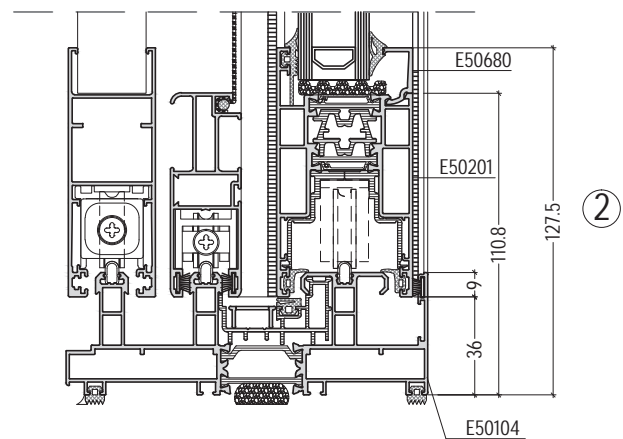
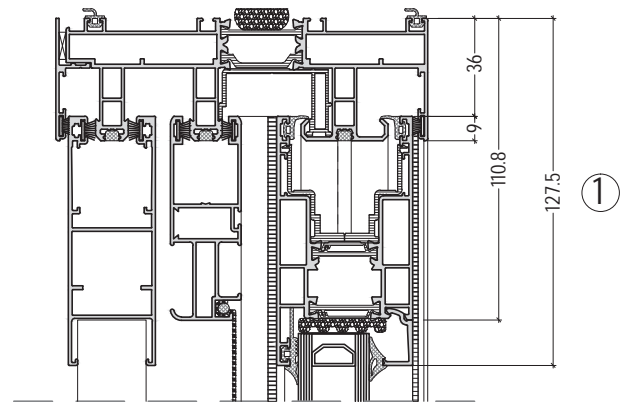
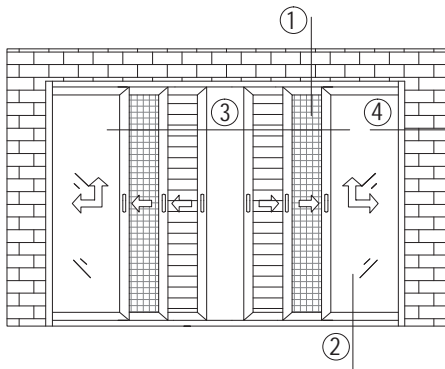


CUTTING LENGTHS	
WIDTH OF RAIL E 50104	= $2 \times W - 170$
HEIGHT OF FRAME E 50104	= H
WIDTH OF SASH	= $W - 60$
HEIGHT OF SASH	= $H - 72$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT width glass sash = WIDTH OF SASH - 160 height glass sash = HEIGHT OF SASH - 160	
DIMENSION IN MILLIMETERS ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	

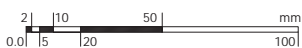
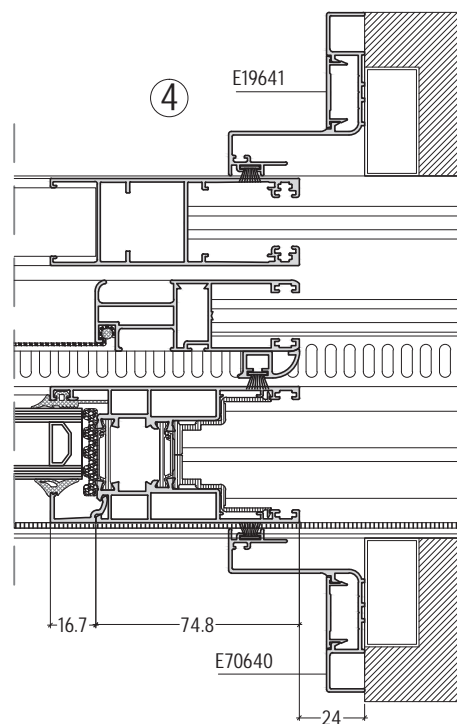
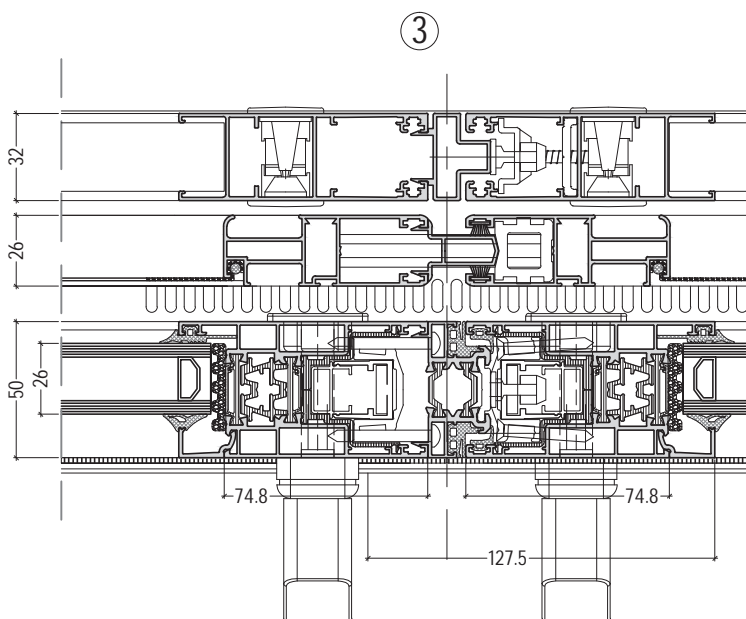


## DOUBLE LEAF WITH LIFT-SLIDE MECHANISM

T50-12

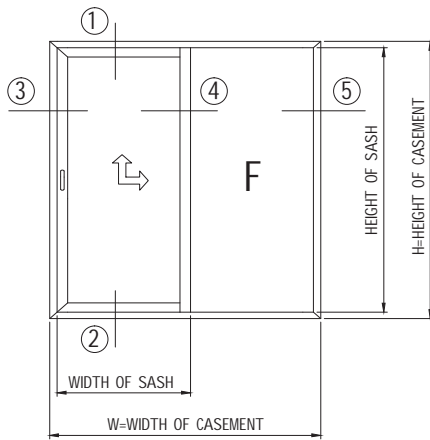


CUTTING LENGTHS	
WIDTH OF RAIL E 50104	= $2xW - 280$
HEIGHT OF FRAME E 50104	= H
WIDTH OF SASH	= $\frac{W - 62}{2}$
HEIGHT OF SASH	= H - 72
HEIGHT OF ADJOIN. E 50500 HEIGHT OF ADJOIN. E 19512 HEIGHT OF ADJOIN. E 50510	= H - 126
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	= WIDTH OF SASH - 160
height glass sash	= HEIGHT OF SASH - 160
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



## HOTEL TYPE LIFT & SLIDE MECHANISM - FIXED (CLASSIC INTERLOCK)

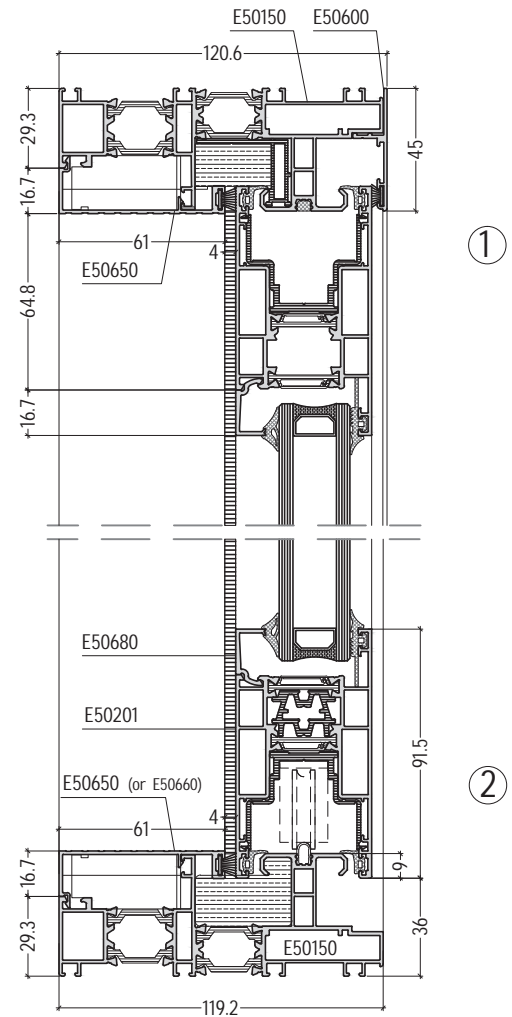
T50-13



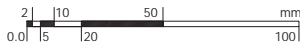
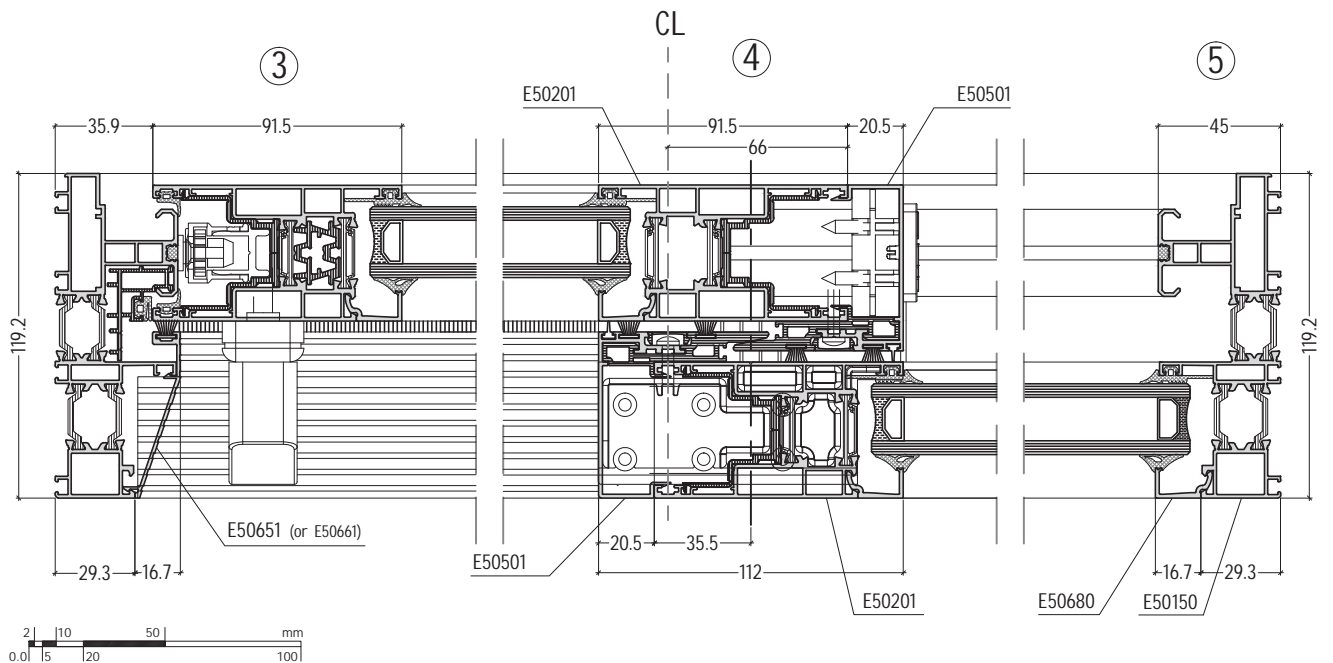
CUTTING LENGTHS	
WIDTH OF SASH E50201	$= \frac{W}{2} + 30$
HEIGHT OF SASH E50201	$= H - 72$
HEIGHT OF SASH E50201 (AS MULLION FOR FIXED)	$= H - 92$
HEIGHT OF SUPPL. E50501 (FOR SLIDING & FIXED)	$= H - 92$

DIMENSION IN MILLIMETERS  
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME

CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \text{WIDTH OF SASH} - 160$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
width glass FIX	$= \frac{W}{2} - 108$
height glass FIX	$= H - 67$



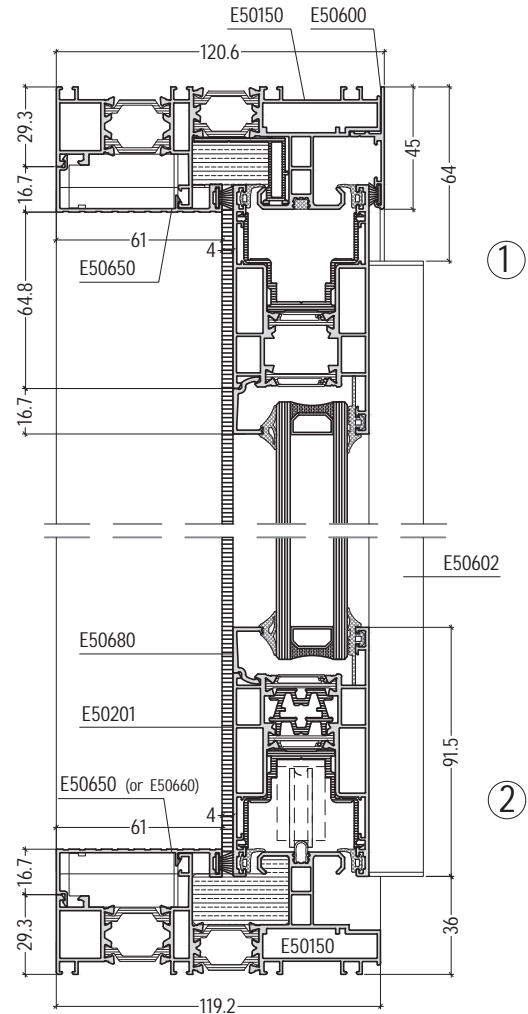
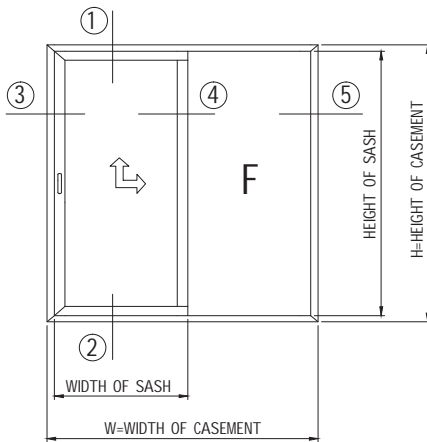
### CLASSIC INTERLOCK



HOTEL TYPE

T50-14

LIFT & SLIDE MECHANISM - FIXED (ALTERNATIVE NARROW INTERLOCK)

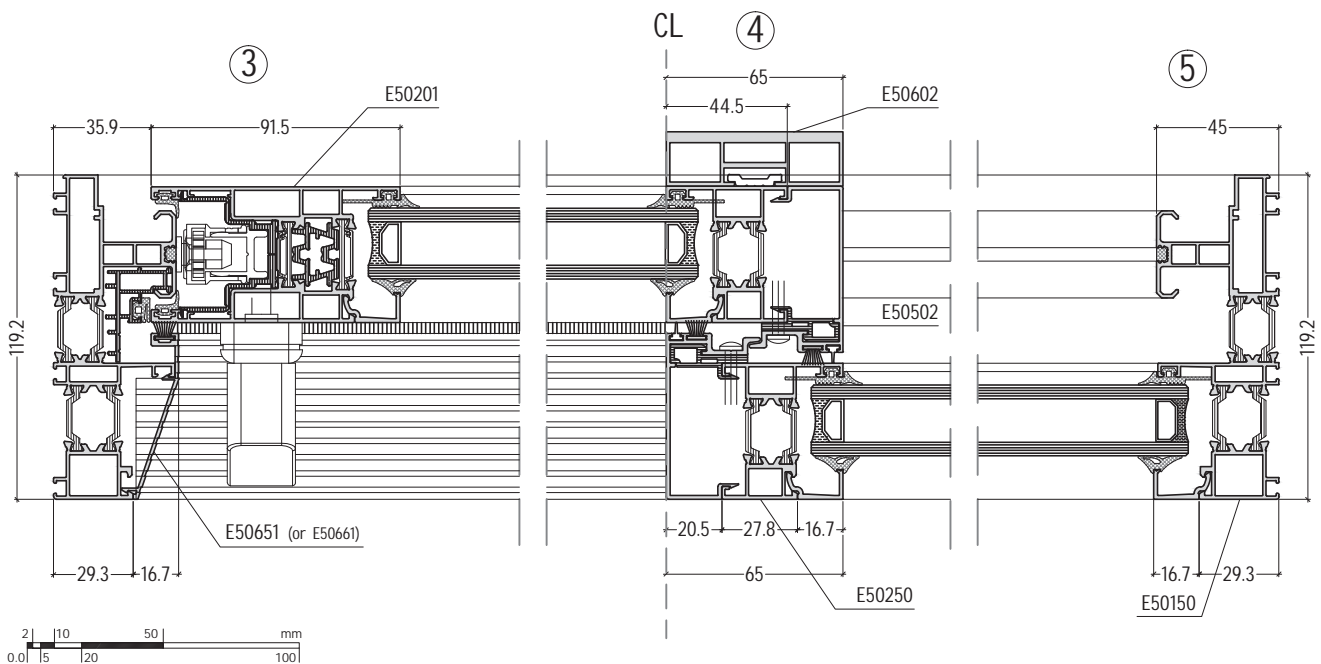


CUTTING LENGTHS	
WIDTH OF SASH E 50201/2/3	$= \frac{W}{2} + 9$
HEIGHT OF SASH E 50201/2/3	$= H - 72$
HEIGHT OF SASH E 50250 (FOR SASH PART)	$= H - 222$
HEIGHT OF SASH E 50250 (AS MULLION)	$= H - 92$
HEIGHT OF SUPL. E 50502 (FOR SLIDING & FIXED)	$= H - 92$
HEIGHT OF E 50602	$= H - 103$

DIMENSION IN MILLIMETERS  
ALL MESUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME

CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \frac{W}{2} - 104$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
width glass FIX	$= \frac{W}{2} - 86.5$
height glass FIX	$= H - 67$

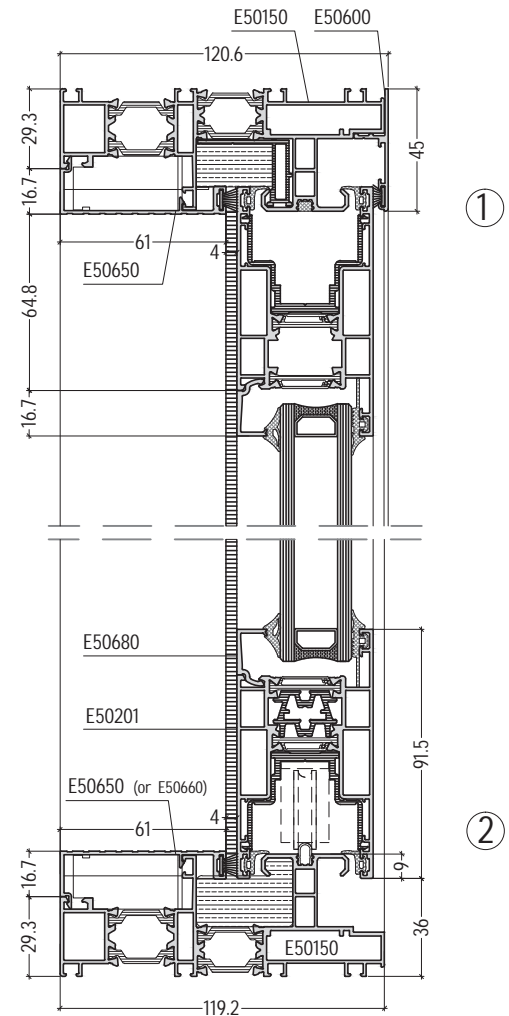
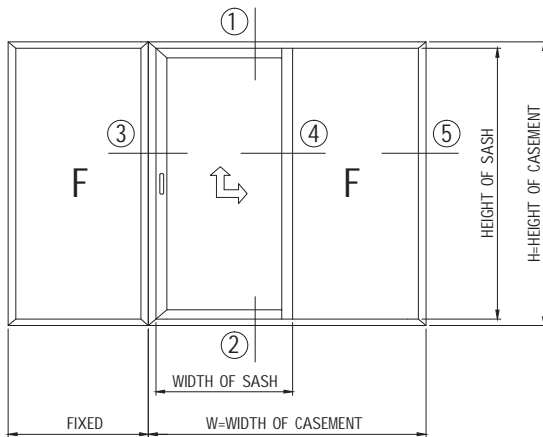
ALTERNATIVE NARROW INTERLOCK





HOTEL TYPE  
FIXED - LIFT & SLIDE MECHANISM - FIXED

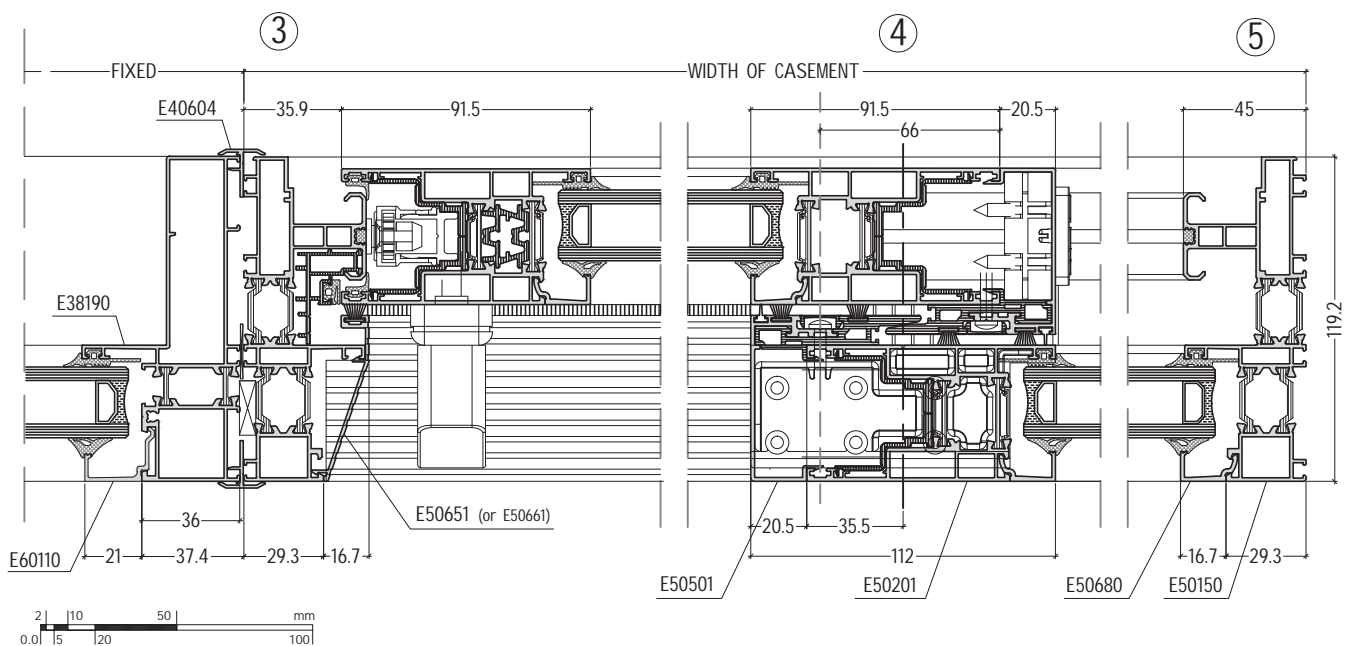
T50-15



CUTTING LENGTHS	
WIDTH OF SASH E 50201	$= \frac{W}{2} + 30$
HEIGHT OF SASH E 50201	$= H - 72$
HEIGHT OF SASH E 50201 (AS MULLION)	$= H - 92$
HEIGHT OF SUPL. E 50501 (FOR SLIDING & FIXED)	$= H - 92$

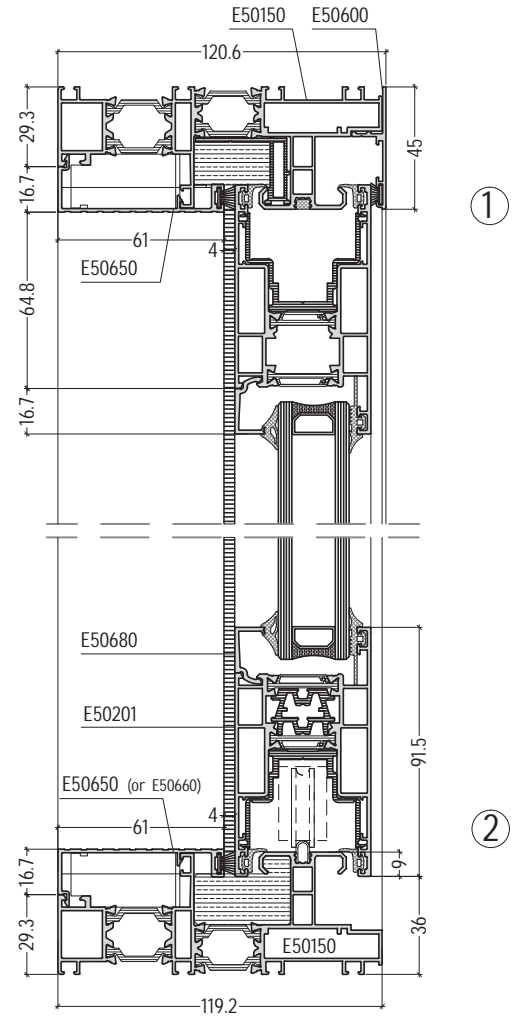
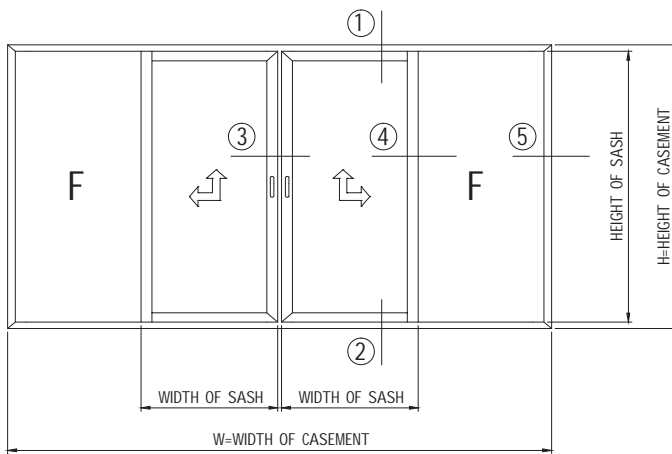
DIMENSION IN MILLIMETERS  
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME

CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \text{WIDTH OF SASH} - 160$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
width glass FIX	$= \frac{W}{2} - 108$
height glass FIX	$= H - 67$
width glass FIXED	$= \text{FIXED} - 83$
height glass FIXED	$= \text{FIXED} - 82$



HOTEL TYPE  
FIXED - FACING DOUBLE VENT LIFT & SLIDE - FIXED

T50-16



### CUTTING LENGTHS

WIDTH OF SASH E 50201 =  $\frac{W}{4} + 44$

HEIGHT OF SASH E 50201 =  $H - 72$

HEIGHT OF SASH E 50201  
(AS MULLION) =  $H - 92$

HEIGHT OF SUPL. E 50501  
(FOR SLIDING & FIXED) =  $H - 92$

HEIGHT OF ADJOIN. E 50500 =  $H - 126$

DIMENSION IN MILLIMETERS

ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME

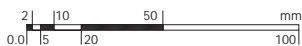
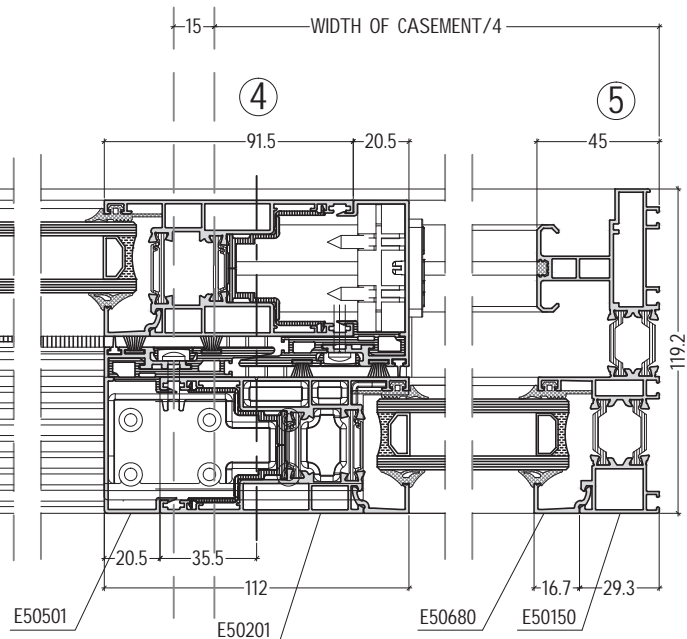
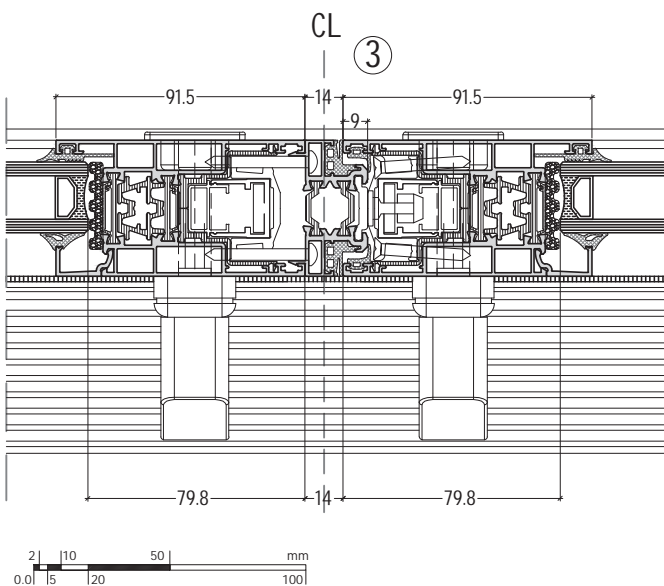
### CALCULATION OF CUTTING LENGTH FOR GLASS UNIT

width glass sash = WIDTH OF SASH - 160

height glass sash = HEIGHT OF SASH - 160

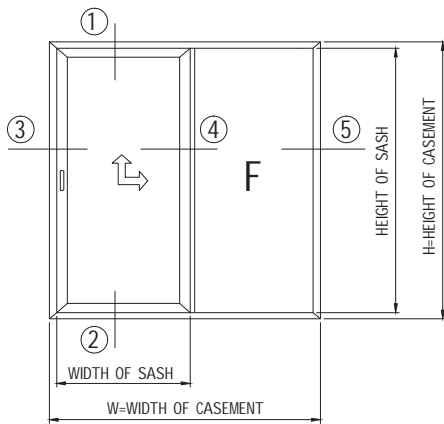
width glass FIX =  $\frac{W}{4} - 93$

height glass FIX =  $H - 67$

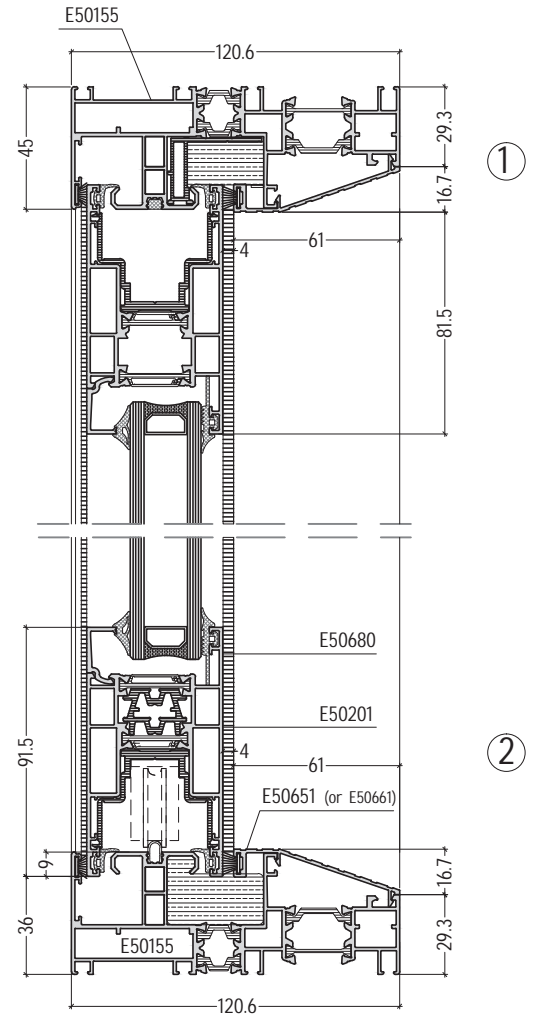


## HOTEL TYPE LIFT & SLIDE MECHANISM - FIXED

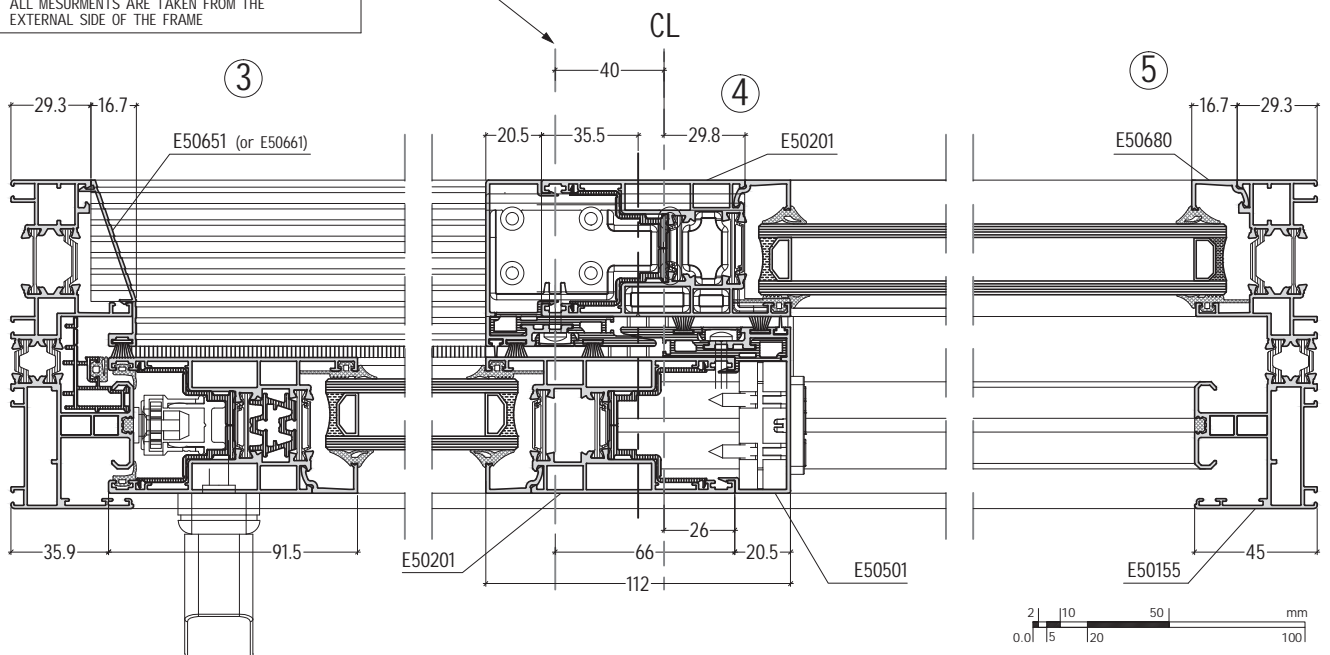
T50-17



CUTTING LENGTHS	
WIDTH OF SASH E50201	$= \frac{W}{2} - 10$
HEIGHT OF SASH E50201	$= H - 72$
HEIGHT OF SASH E50201 (AS MULLION FOR FIXED)	$= H - 92$
HEIGHT OF SUPPL. E50501 (FOR SLIDING & FIXED)	$= H - 92$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \text{WIDTH OF SASH} - 160$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
width glass FIX	$= \frac{W}{2} - 68$
height glass FIX	$= H - 67$
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	

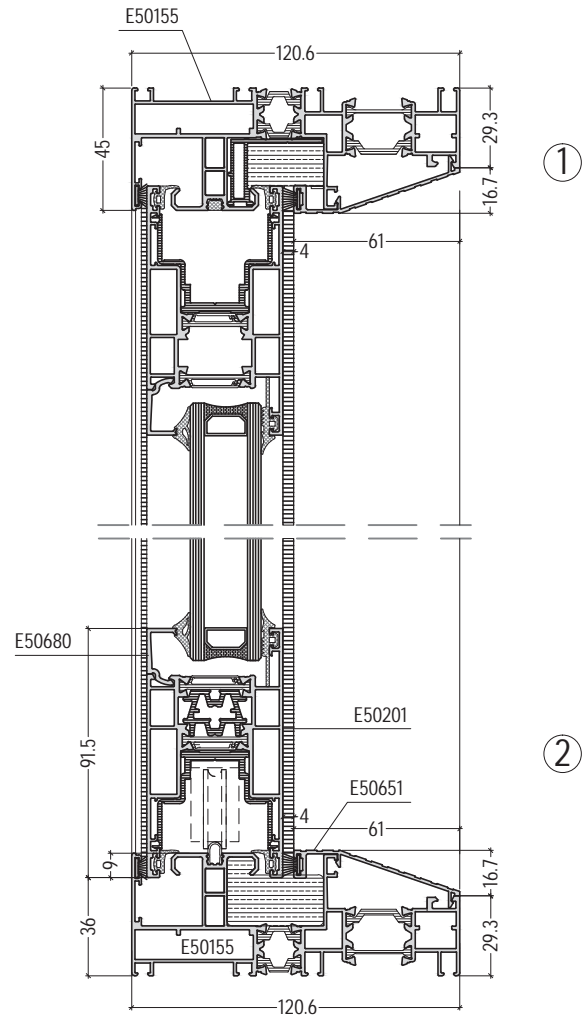
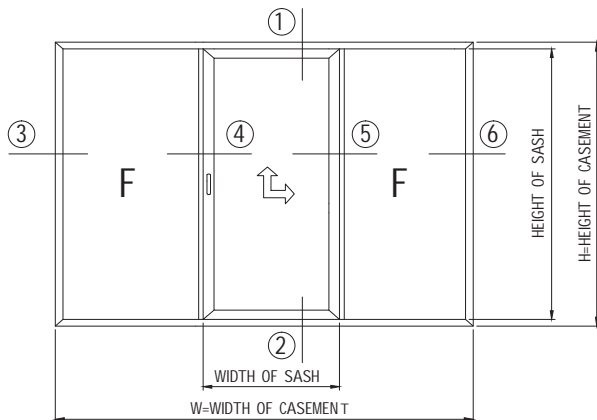


IMPORTANT:  
the notch of the PVC connector (074815),  
40mm from the middle of frame towards opening part



HOTEL TYPE  
FIXED - LIFT & SLIDE MECHANISM - FIXED

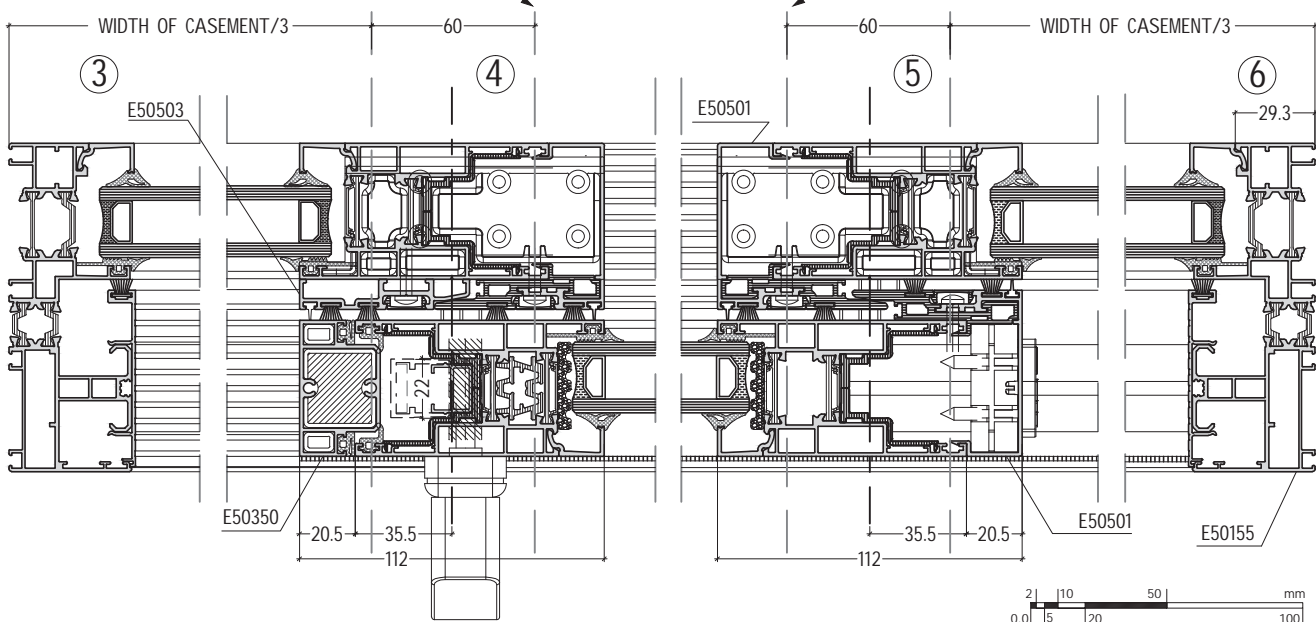
T50-18



CUTTING LENGTHS	
WIDTH OF SASH E50201	$= \frac{W}{3} + 12$
HEIGHT OF SASH E50201	$= H - 72$
HEIGHT OF SASH E50201 (AS MULLION FOR FIXED)	$= H - 92$
HEIGHT OF SUPPL. E50501 (FOR SLIDING & FIXED)	$= H - 92$
HEIGHT OF 'T' E50350	$= H - 92$
HEIGHT OF INV. E50503	$= H - 72$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \text{WIDTH OF SASH} - 160$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
width glass FIX	$= \frac{W}{3} - 48$
height glass FIX	$= H - 67$

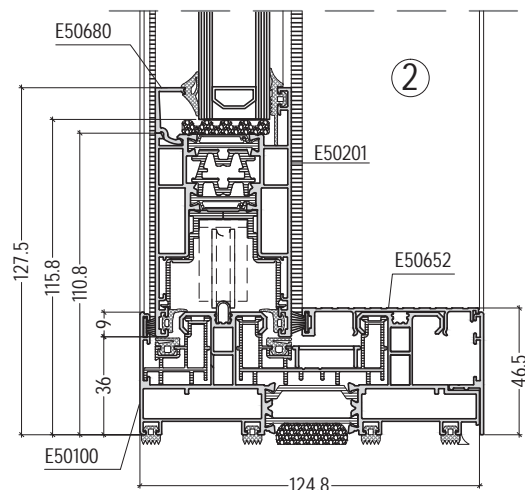
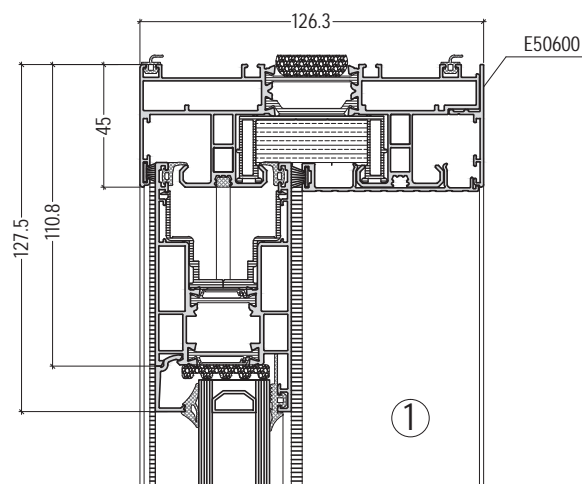
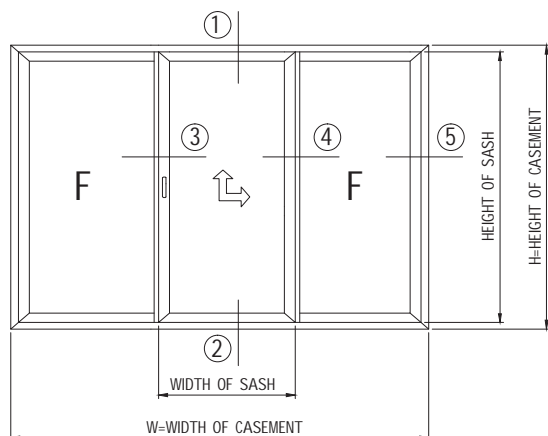
IMPORTANT:  
the notch of the PVC connector (074815),  
60mm from W/3 (towards frame center)

IMPORTANT:  
the notch of the PVC connector (074815),  
60mm from W/3 (towards frame center)

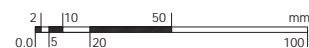
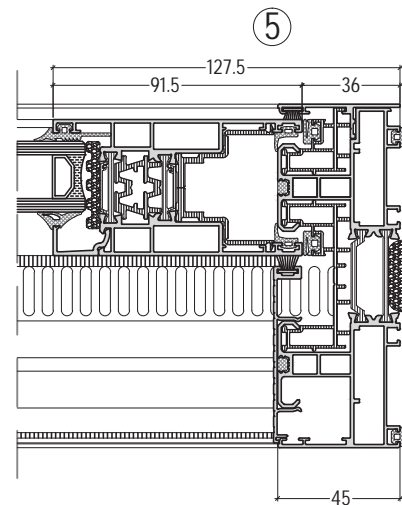
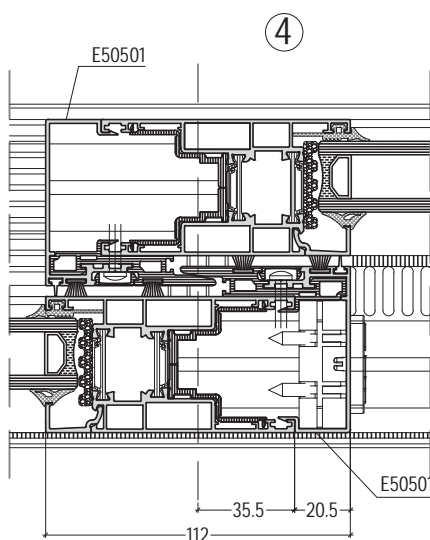
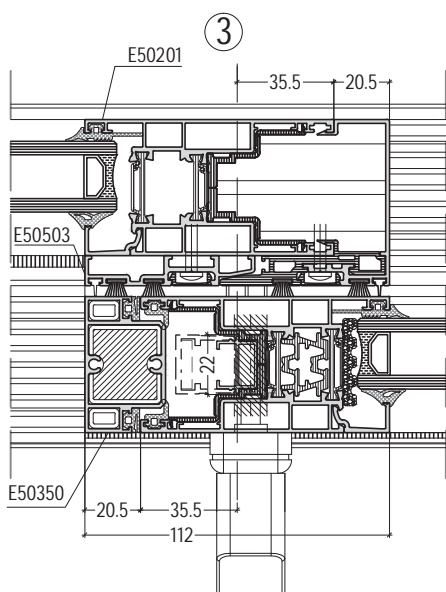


HOTEL TYPE  
FIXED - LIFT & SLIDE MECHANISM - FIXED

T50-19

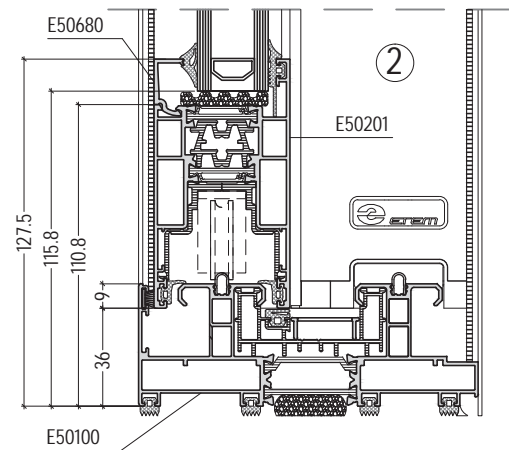
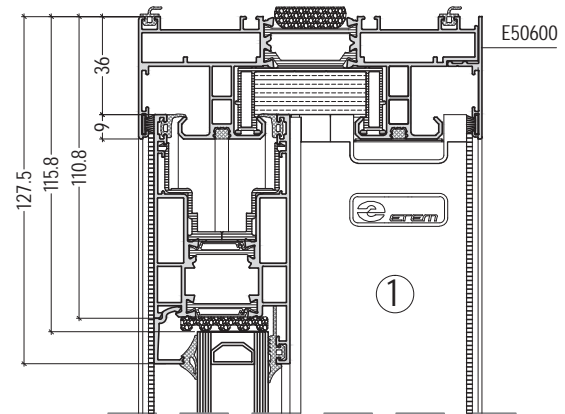
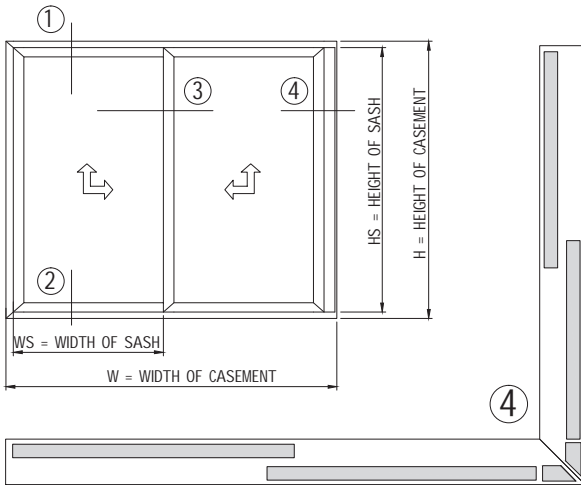


CUTTING LENGTHS	
WIDTH OF SASH E50201	$= \frac{W + 70}{3}$
HEIGHT OF SASH E50201	$= H - 72$
HEIGHT OF SUPL. E50501 (FOR SLIDING & FIXED)	$= H - 92$
HEIGHT OF 'T' E50350	$= H - 92$
HEIGHT OF INV. E50503	$= H - 72$
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash	$= \text{WIDTH OF SASH} - 160$
height glass sash	$= \text{HEIGHT OF SASH} - 160$
DIMENSION IN MILLIMETERS	
ALL MESURMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	

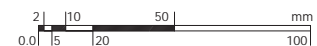
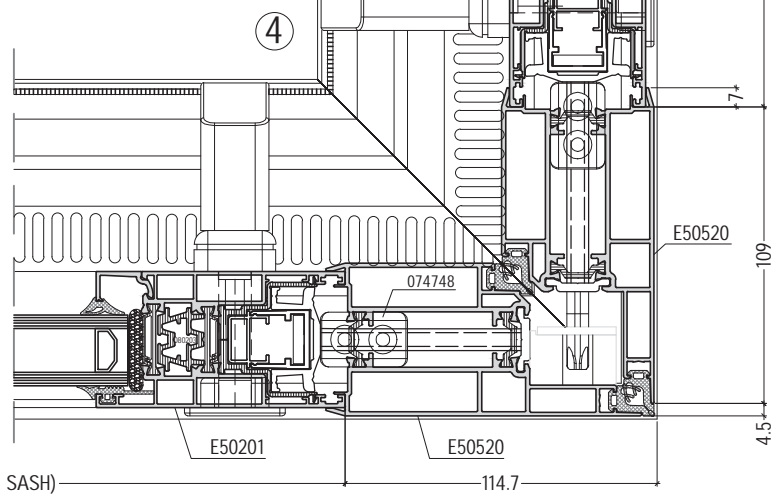
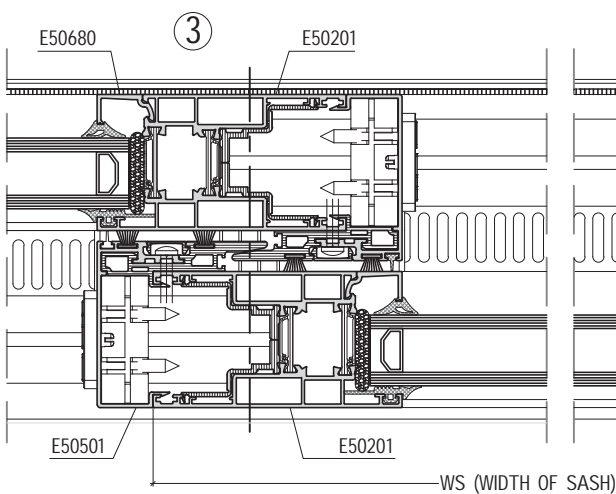


## DOUBLE VENT LIFT & SLIDE WITH 90° CORNER PROFILE

T50-20



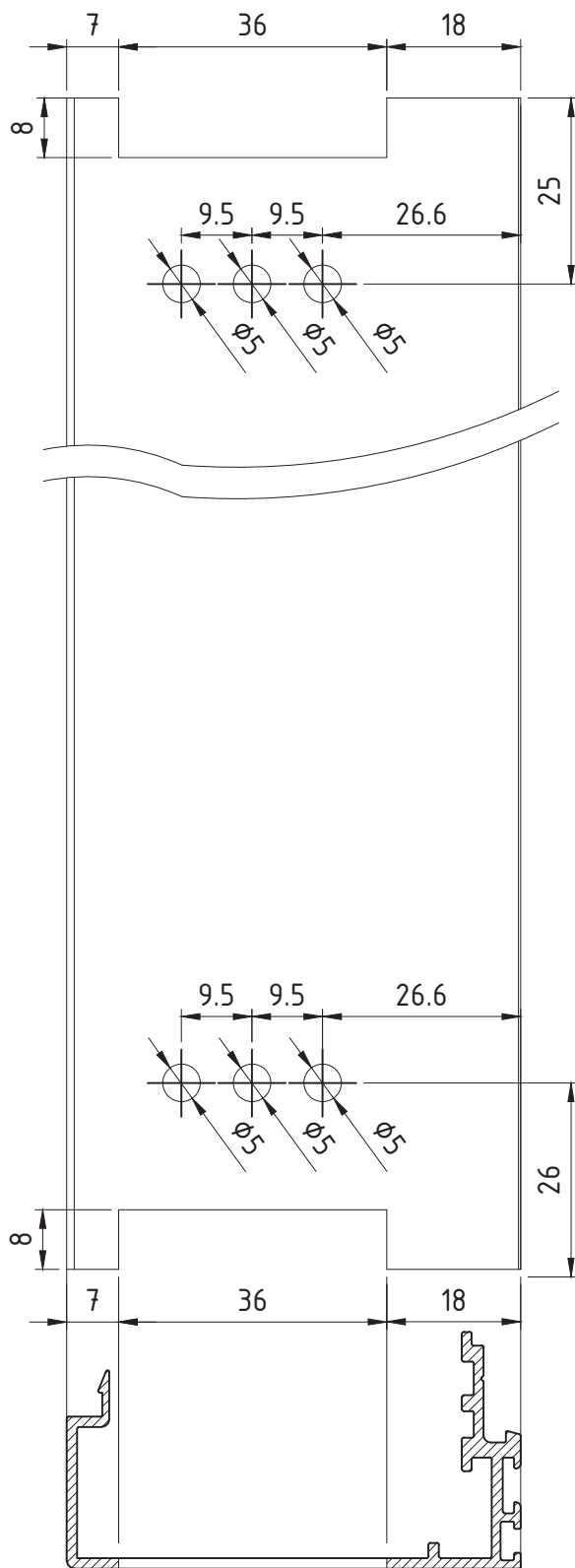
CUTTING LENGTHS	
WIDTH OF RAIL E 50100	= W
HEIGHT OF FRAME E 50100	= H
WS (WIDTH OF SASH)	= $\frac{W - 80}{2}$
HS (HEIGHT OF SASH)	= H - 72
HEIGHT OF SUPL. E 50501	= H - 92
HEIGHT OF E 50520	= H - 78
CALCULATION OF CUTTING LENGTH FOR GLASS UNIT	
width glass sash = WIDTH OF SASH - 160	
height glass sash = HEIGHT OF SASH - 160	
DIMENSION IN MILLIMETERS	
ALL MEASUREMENTS ARE TAKEN FROM THE EXTERNAL SIDE OF THE FRAME	



**MACHINING**

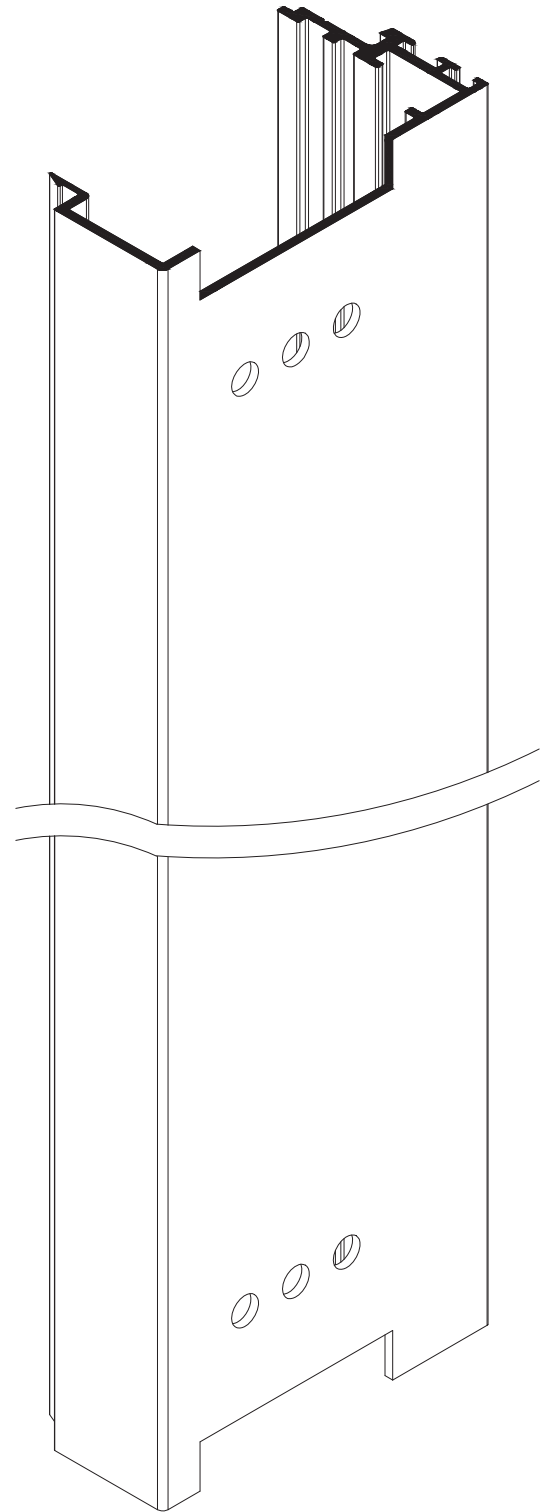






E50501

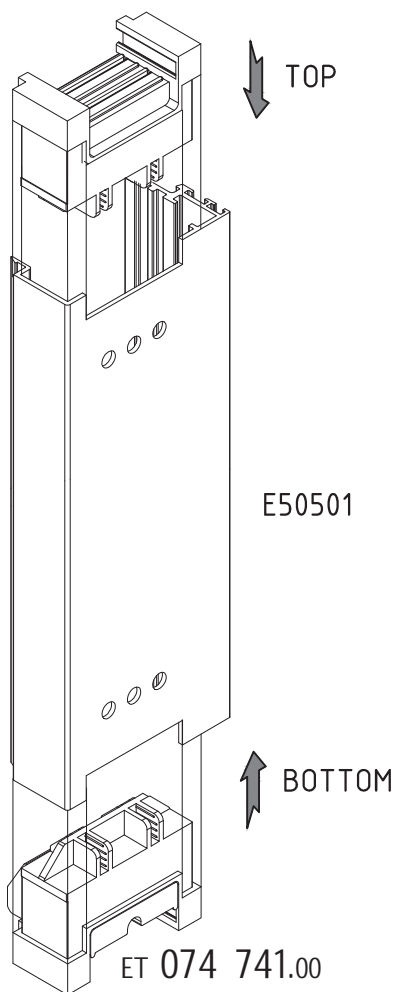
Note:  
The machining is done on E50 punching machine



## FIXING ACCESSORIES ON INTERLOCK PROFILE E50501

M50-02

ET 074742.00

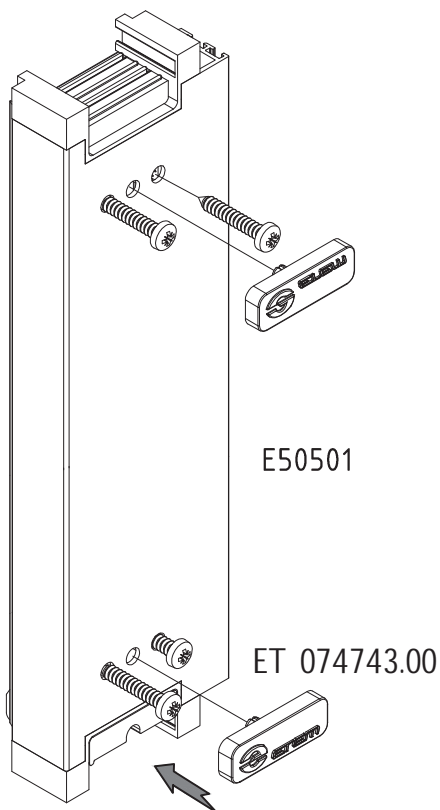


TOP

E50501

BOTTOM

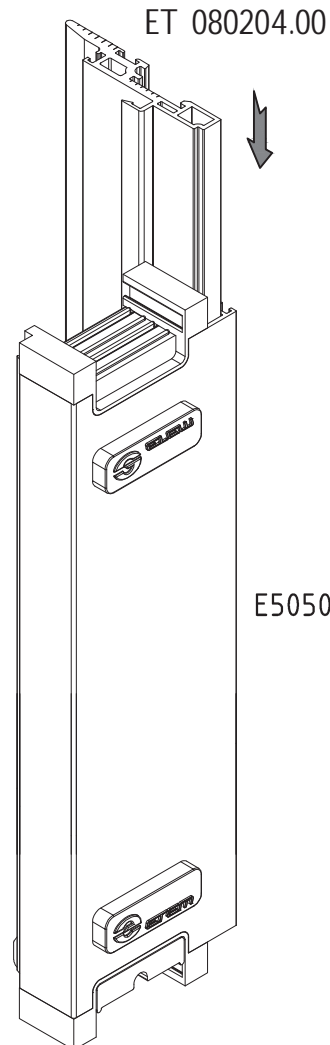
ET 074 741.00



E50501

ET 074743.00

BOTH PLUGS ARE FIXED ONTO THE INTERLOCK PROFILE USING SHEET METAL SCREWS 4.2x25mm DIN 7981. COVER THE HEADS OF THE SCREWS BY FIXING PLUG ET.074742.00

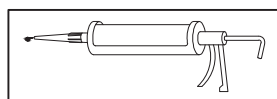


ET 080204.00

E50501

PLUG ET.074741.00 IS FIXED ONTO THE BOTTOM SIDE OF INTERLOCK PROFILE E-50501, WHILST PLUG ET.074742.00 IS FIXED ONTO THE TOP SIDE

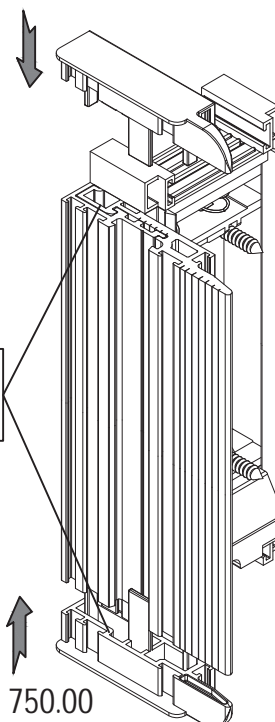
**ATTENTION:** FOR SLIDING, WITHOUT LIFT, ONLY PLUG ET.074742.00 IS USED (TOP & BOTTOM SIDE).



ET138001.00

FIX ON BOTH SIDES OF PLASTIC SPACER ET.080204.00 PLASTIC PLUG ET.074750.00. ALWAYS APPLY SILICON IN ADVANCE AT THE SURFACE WHERE THE PLUG IS TO BE FIXED

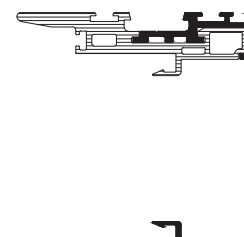
ET 074 750.00



E50501

INSERT PLASTIC SPACER ET.080204.00 INTO THE INTERLOCK PROFILE E-50501, AS PRESENTED IN THE DRAWING

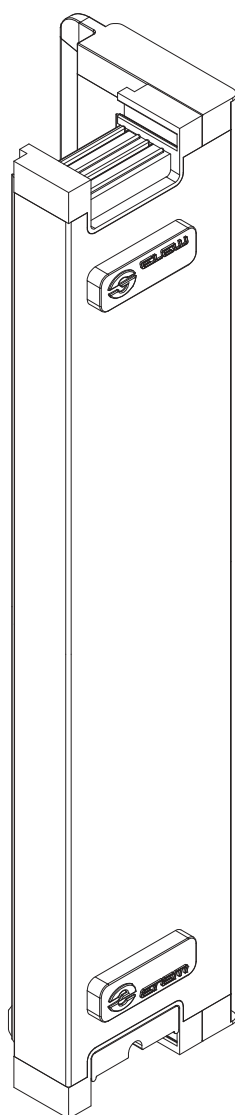
ET 080204.00



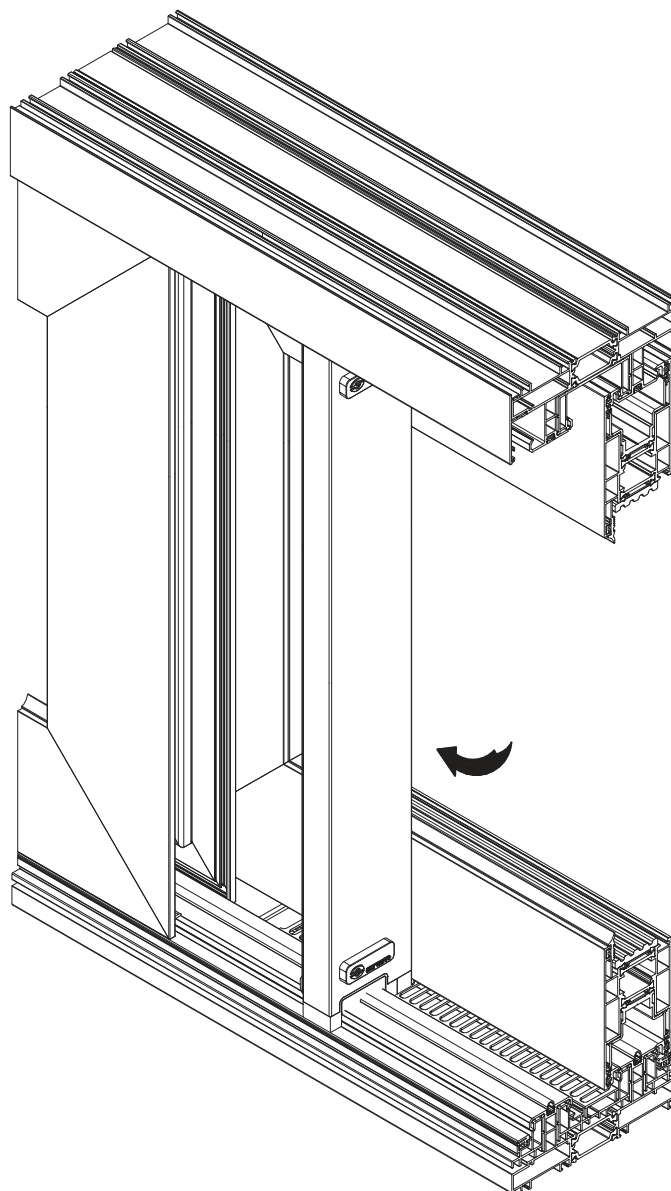
E50501

FIXING INTERLOCK PROFILE E50501 ONTO THE SASH FRAME

M50-03

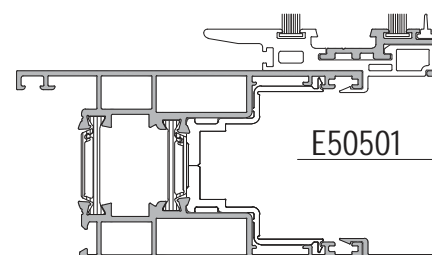


E50501



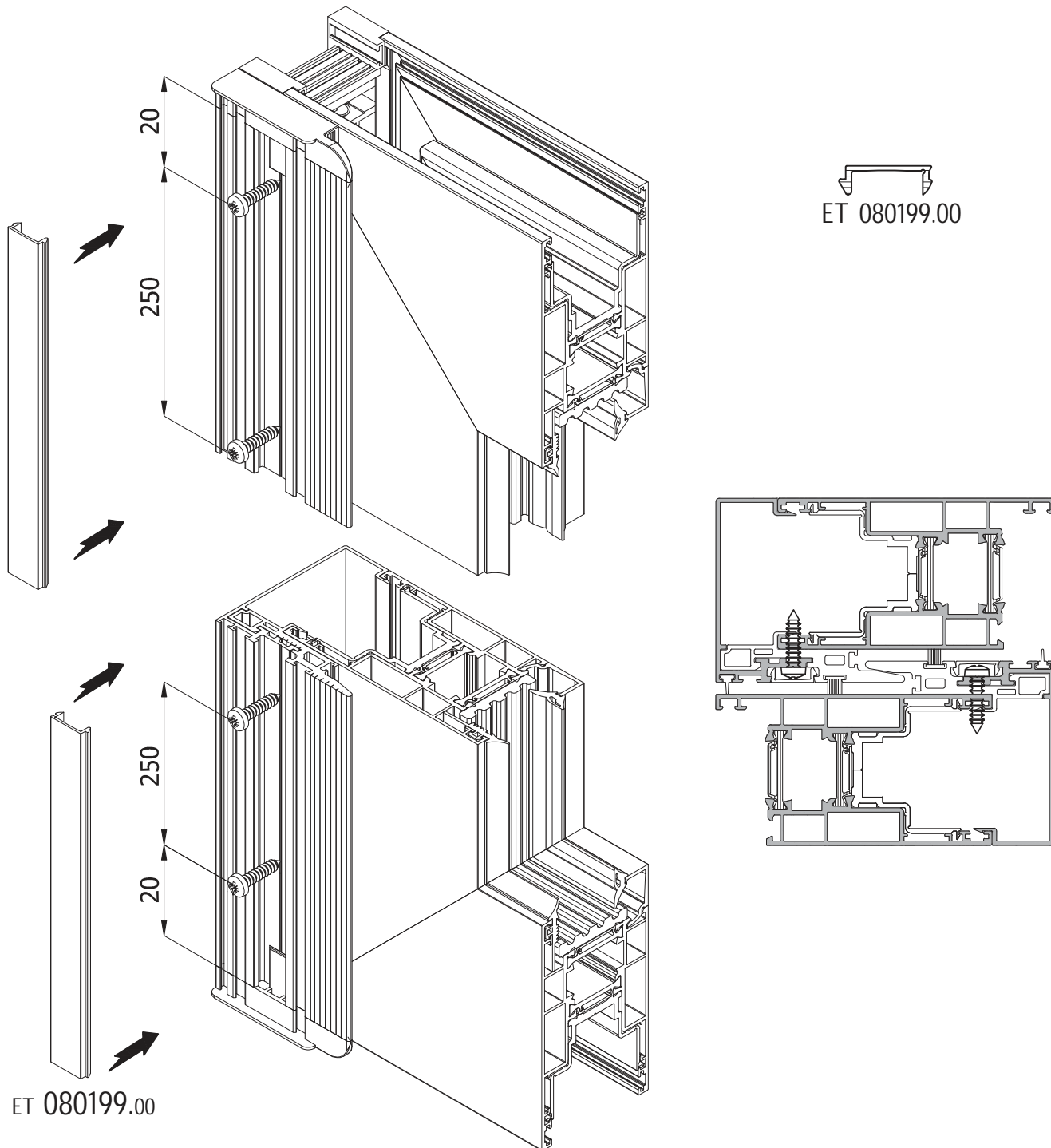
FIRST PLACE THE SASH FRAME ONTO THE RAIL AND THEN FIX THE INTERLOCK, AS PRESENTED IN THE DRAWINGS. ALWAYS CHECK THAT GASKET AND PILE WEATHERSEALS ARE FIXED AT THE INTERLOCK, PRIOR FIXING IT ONTO THE SASH FRAME

ATTENTION: THE INTERLOCK CAN BE FIXED ONTO THE SASH FRAME ONLY ONCE THE SASH FRAME IS PLACED ONTO THE RAIL PLASTIC SPACER



FASTENING INTERLOCK PROFILE E50501 ONTO THE SASH FRAME

M50-04

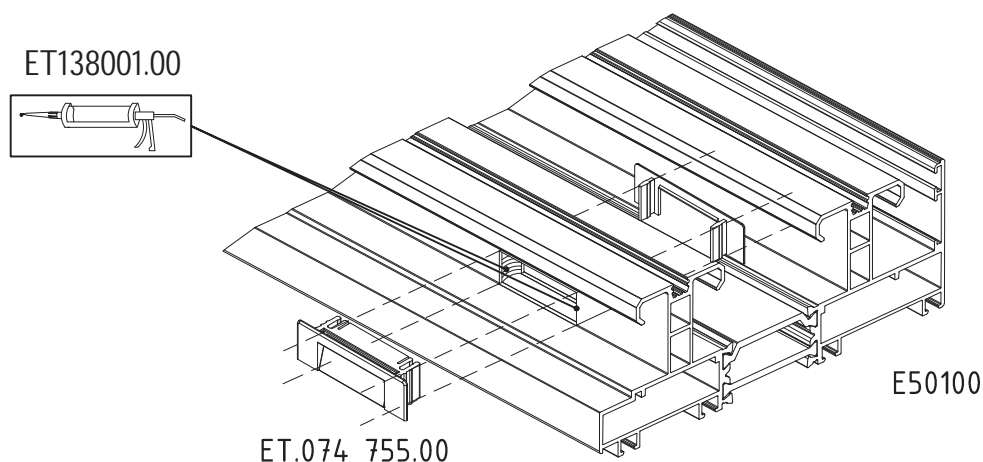


INTERLOCK IS FIXED ONTO THE SASH FRAME USING SHEET METAL SCREWS 4.2x19mm DIN 7981. THE FIRST SCREW IS FIXED AT A DISTANCE OF 20mm, MEASURED FOR THE ENDS OF PROFILE E50501, AND THE CENTER TO CENTER DISTANCE BETWEEN THE NEXT SCREWS MUST BE APPROXIMATELY 250mm. THE HEADS OF THE SCREWS ARE COVERED BY PLASTIC PROFILE ET.080199.00

ATTENTION: REMOVE THE HANDLES (IN CASE ARE FIXED ONTO THE SASH FRAME), SO THAT TO BE ABLE TO FIX THE INTERLOCK

## MACHINING ON RAIL FOR DRAIN HOLES

M50-05

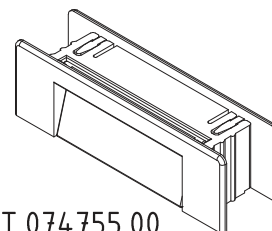


ALWAYS APPLY ADHESIVE ET.138004.00 INTO THE TRACK OF THE RAIL WHERE THE STAINLESS STEEL RAIL ET.082201.00 IS TO BE FIXED

THE DRAIN HOLE ON THE RAIL IS PUNCHED USING THE PUNCHING MACHINE OF THE SYSTEM. APPLY SILICONE ET.138001.00 AT BOTH SIDES OF THE DRAIN HOLE AND THEN FIX DRAIN CAP ET.074 755.00 INTO THE DRAIN HOLE, AS PRESENTED IN THE DRAWING. FITTING INSTRUCTIONS OF PLASTIC PLUG ET.074 755.00 ARE PRESENTED IN PAGE M50-31

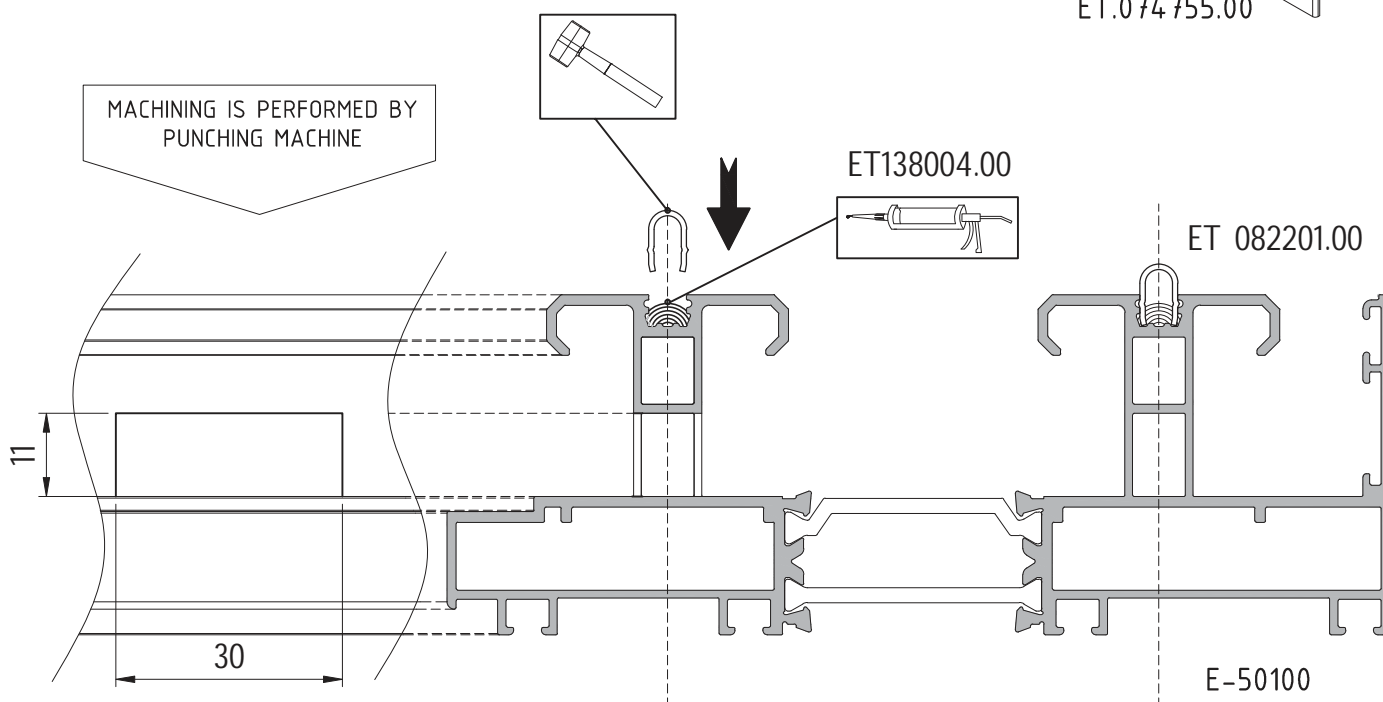


ET 082201.00



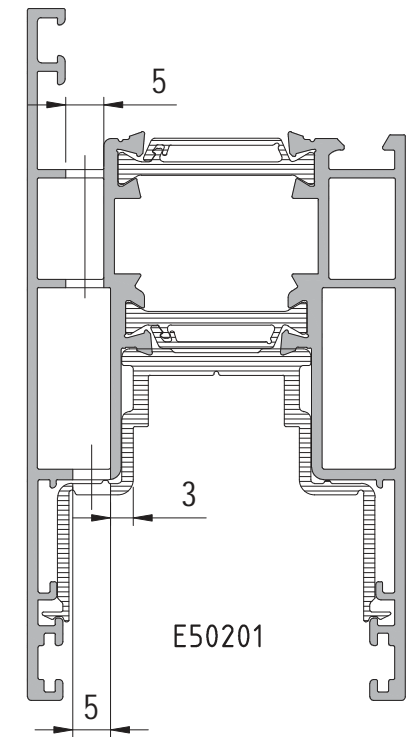
ET.074 755.00

MACHINING IS PERFORMED BY PUNCHING MACHINE

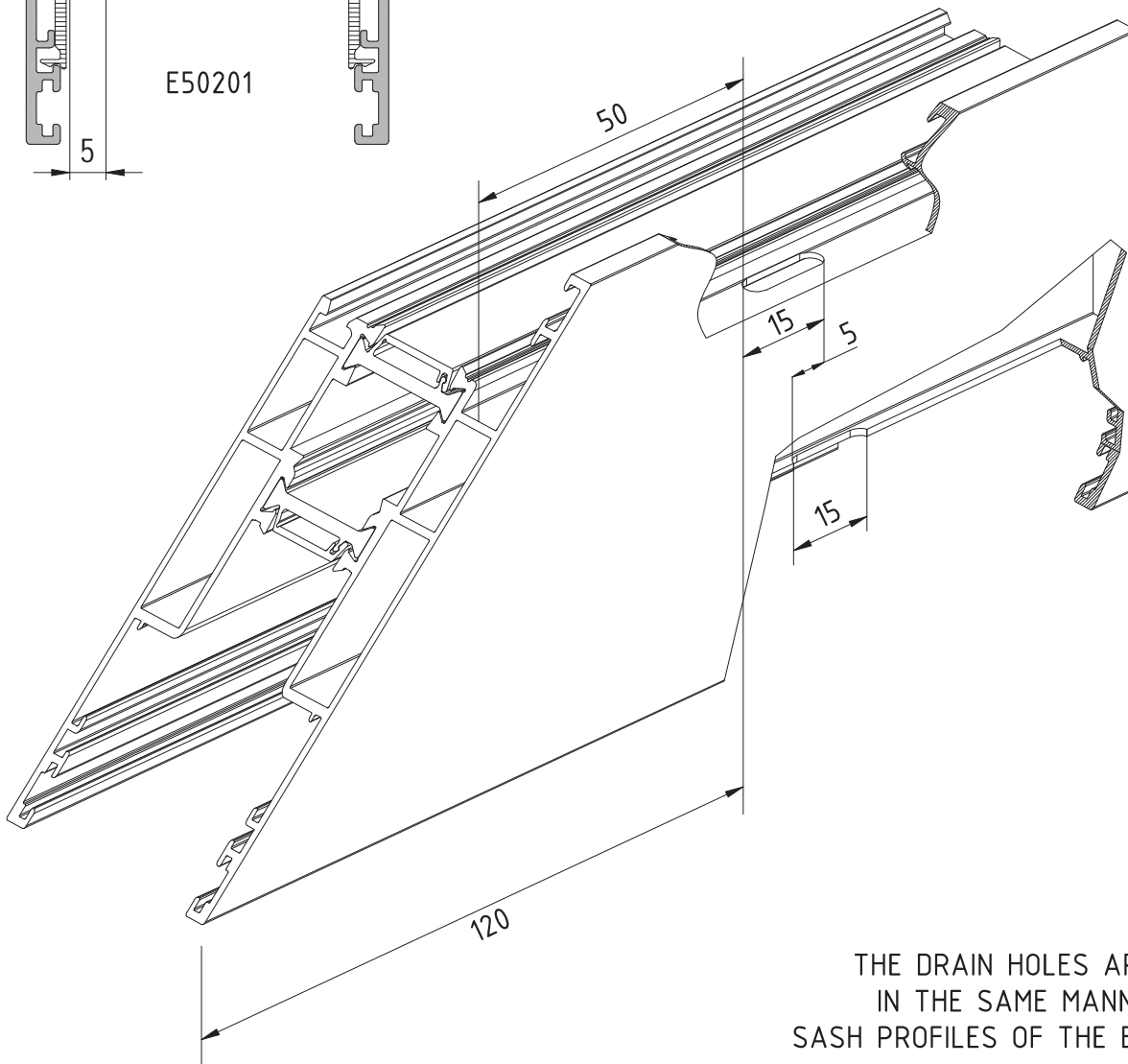


MACHINING ON SASH FOR DRAIN HOLES

M50-06



THE DRAIN HOLES ARE OPENED AT THE PUNCHING MACHINE ET162263.00



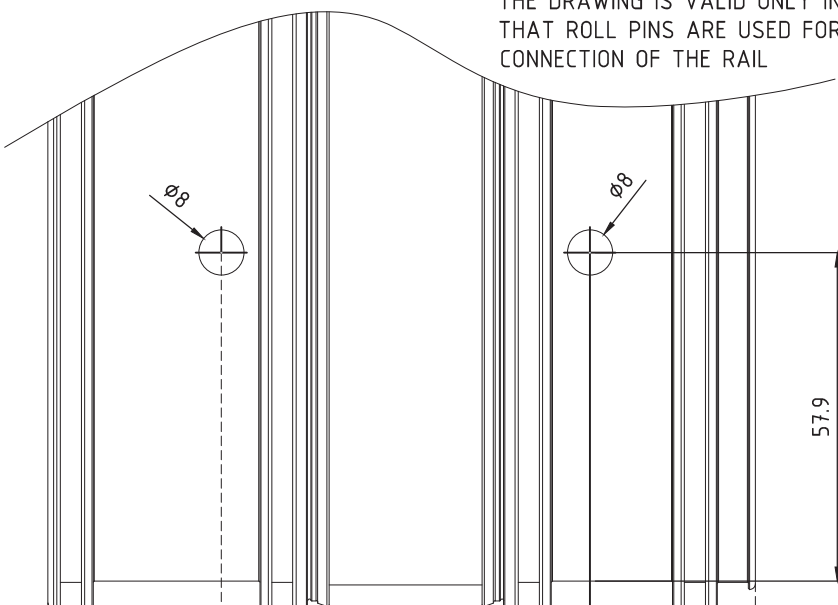
THE DRAIN HOLES ARE OPENED IN THE SAME MANNER IN ALL SASH PROFILES OF THE E50 SERIES

## MACHINING ON RAIL FOR FIXING EXTRUDED AL. JOINT CORNER BRACKETS

M50-07

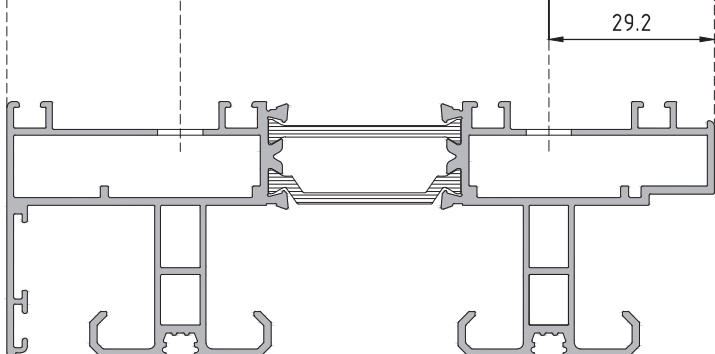
THE DRAWING IS VALID ONLY IN CASE THAT ROLL PINS ARE USED FOR THE CONNECTION OF THE RAIL

MACHINING IS PERFORMED BY PUNCHING MACHINE



ALWAYS APPLY ADHESIVE ET.138004.00 INTO THE POINTS OF RAIL, WHERE JOINT CORNER BRACKET ET.054253.00 IS TO BE FIXED

\* ATTENTION: EXTRUDED AL. JOINT CORNER BRACKET ET.054255.00 IS USED ONLY FOR CRIMPING MACHINE



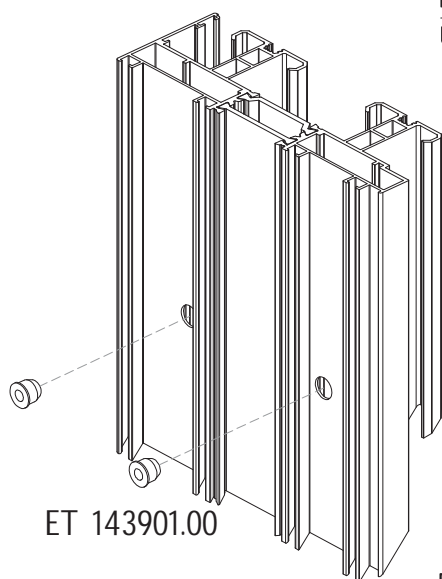
ALWAYS APPLY SEALANT AT THE JOINTS OF THE SASH FRAME



ET 143901.00

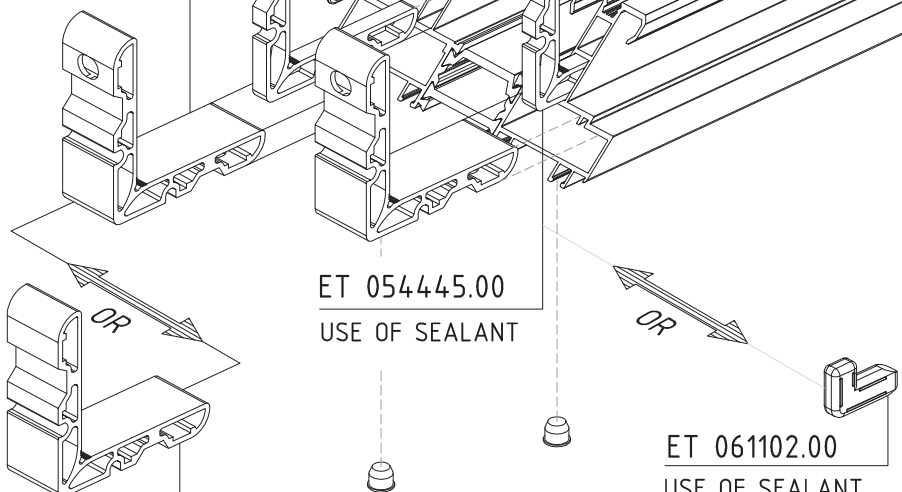
ET 057705.00

ET 054253.00  
USE OF SEALANT



ET 143901.00

ET 054255.00\*

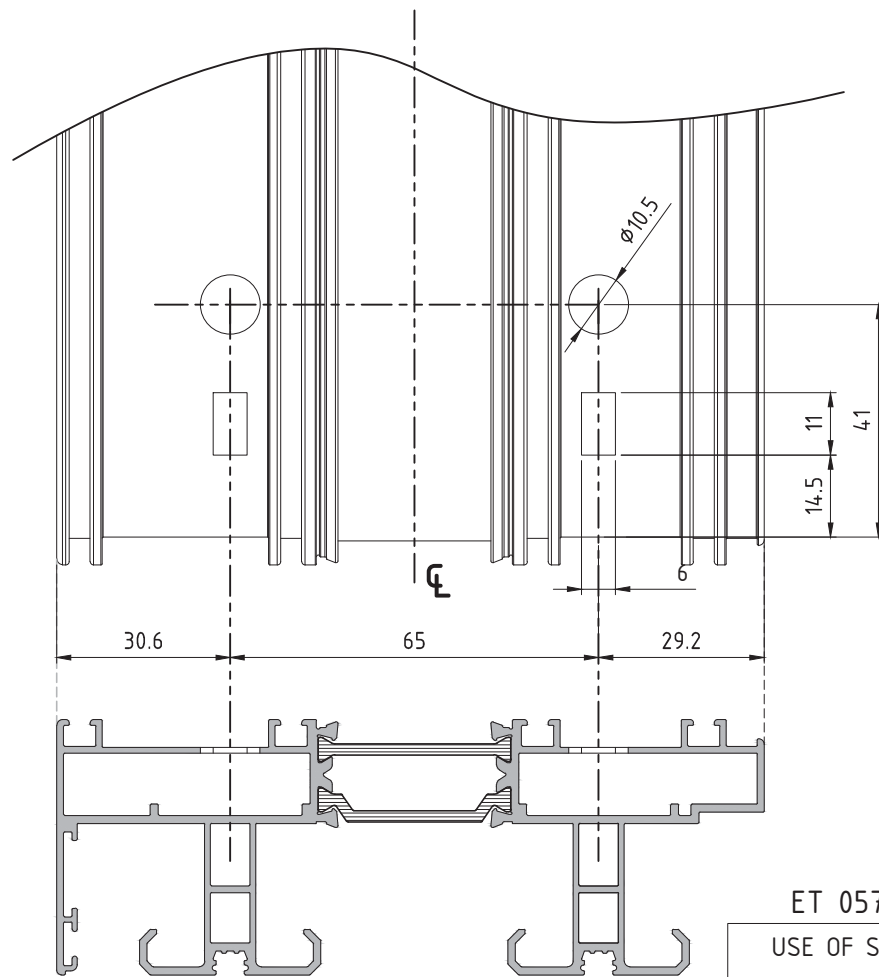


ET 054445.00  
USE OF SEALANT

ET 061102.00  
USE OF SEALANT

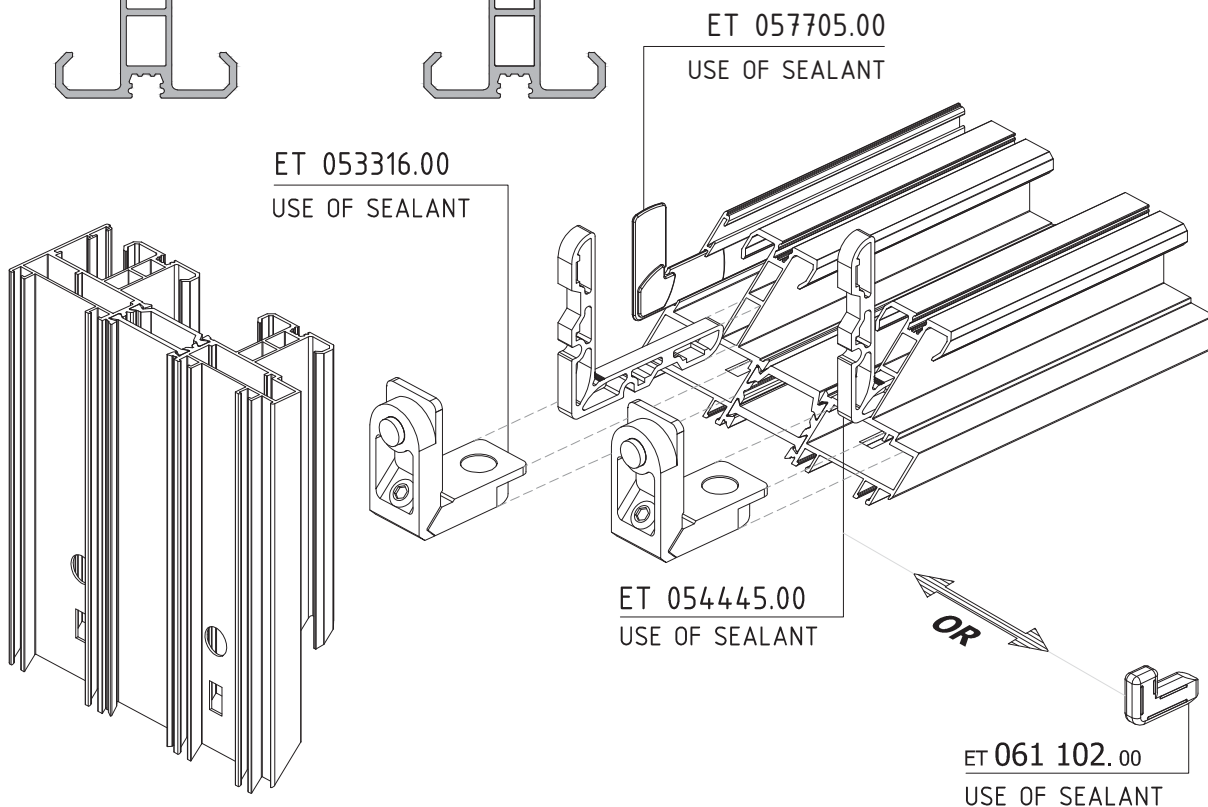
MACHINING ON RAIL FOR FIXING WITH DIE CAST JOINT CORNER BRACKETS

M50-08



MACHINING IS PERFORMED BY PUNCHING MACHINE

ALWAYS APPLY SEALANT AT THE JOINTS OF THE FRAME COMPONENTS

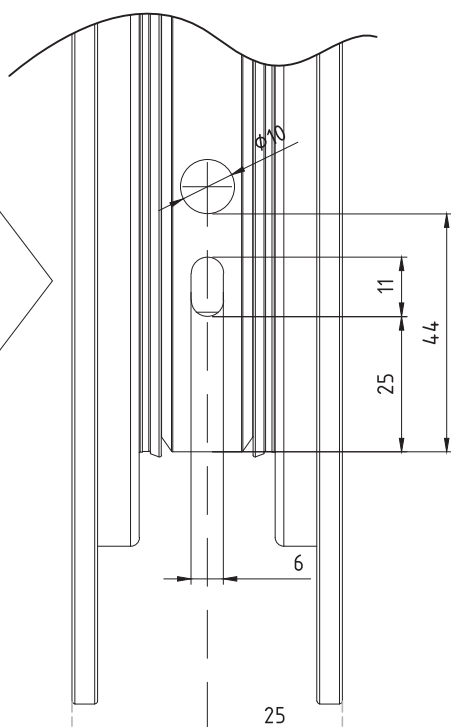




MACHINING ON E50202 FOR FIXING WITH DIE CAST JOINT CORNER BRACKET

M50-09

MACHINING IS PERFORMED BY THE PUNCHING MACHINE

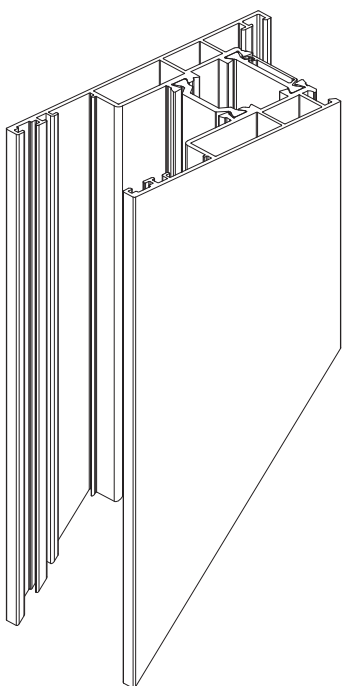


ATTENTION: JOINT CORNER BRACKET ET.053331.00 IS ALWAYS FIXED TO THE SASH ALONG WITH JOINT CORNER BRACKETS ET.054475.00 & ET.054476.00. ALWAYS APPLY ADHESIVE ET.138004.00

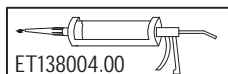
ATTENTION: PLASTIC DRAIN ET.080802.00 IS REMOVED, TEMPORARILY, FROM ALL PROFILES THAT FORM THE SASH FRAME, UNTIL ALL MACHINING IS PERFORMED ON ALL PARTS. THE PLASTIC DRAIN IS THEN PUT BACK IN PLACE

E50202

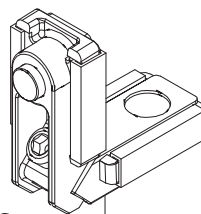
ET 057705.00  
USE OF SEALANT



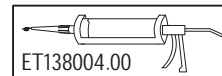
ET 054475.00

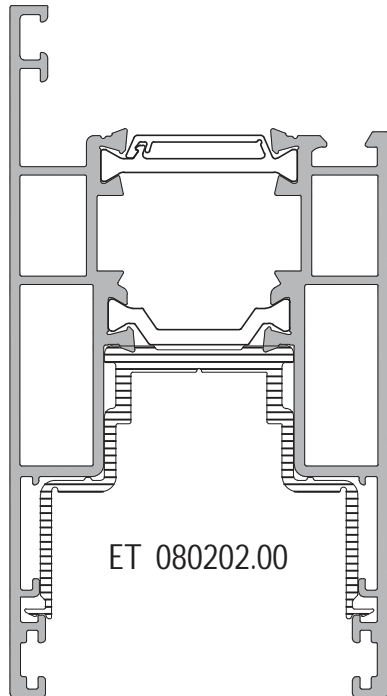


ET 053331.00



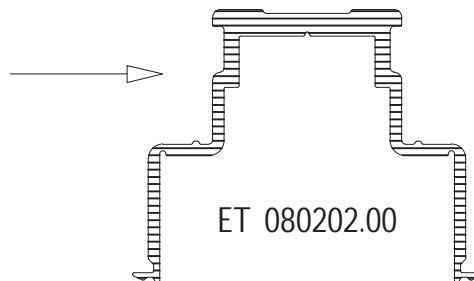
ET 054476.00



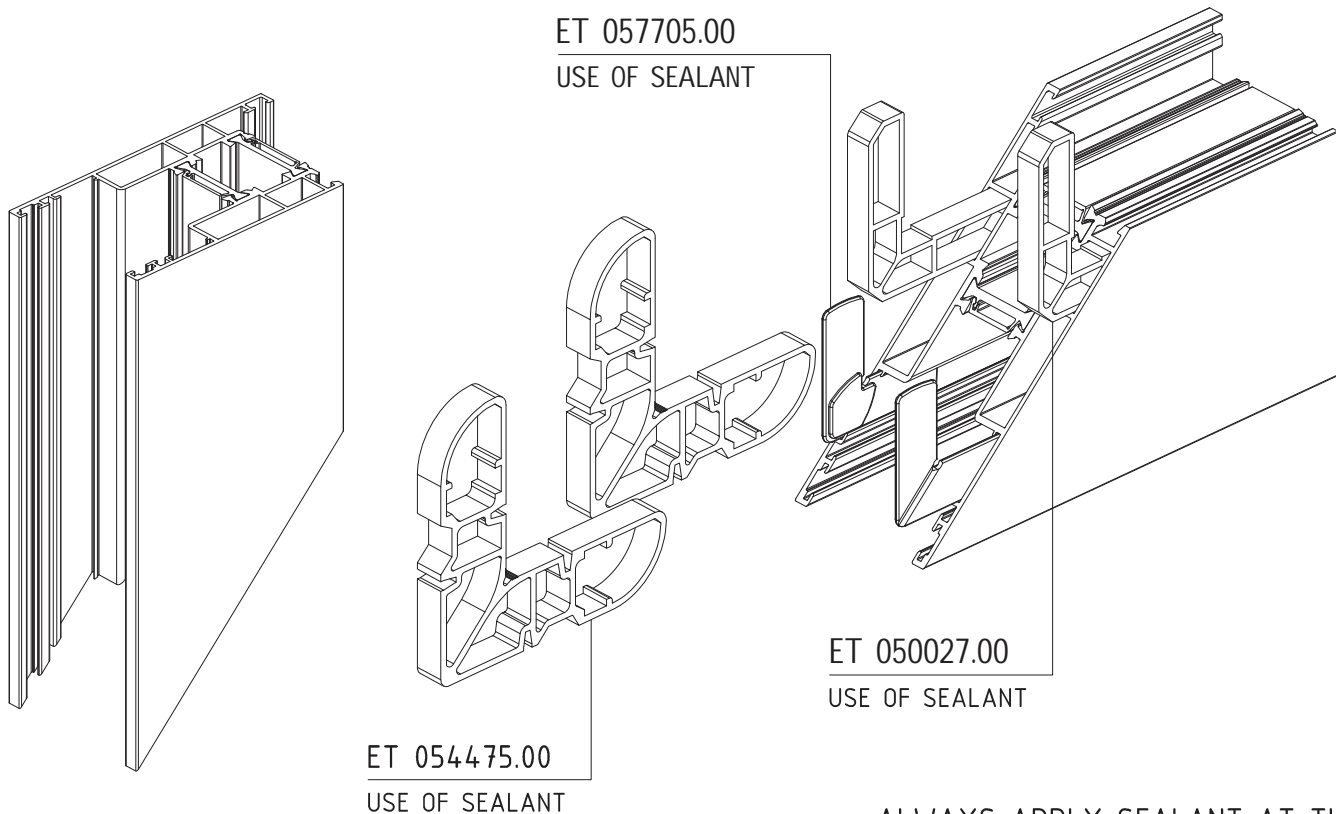


ET 080202.00

ATTENTION: PLASTIC DRAIN ET.080802.00 IS REMOVED, TEMPORARILY, FROM ALL PROFILES THAT FORM THE SASH FRAME, SO THAT ALL MEMBERS ARE JOINED BY THE CRIMPING MACHINE. THE PLASTIC DRAIN IS THEN PUT BACK IN PLACE



ET 080202.00



ET 057705.00  
USE OF SEALANT

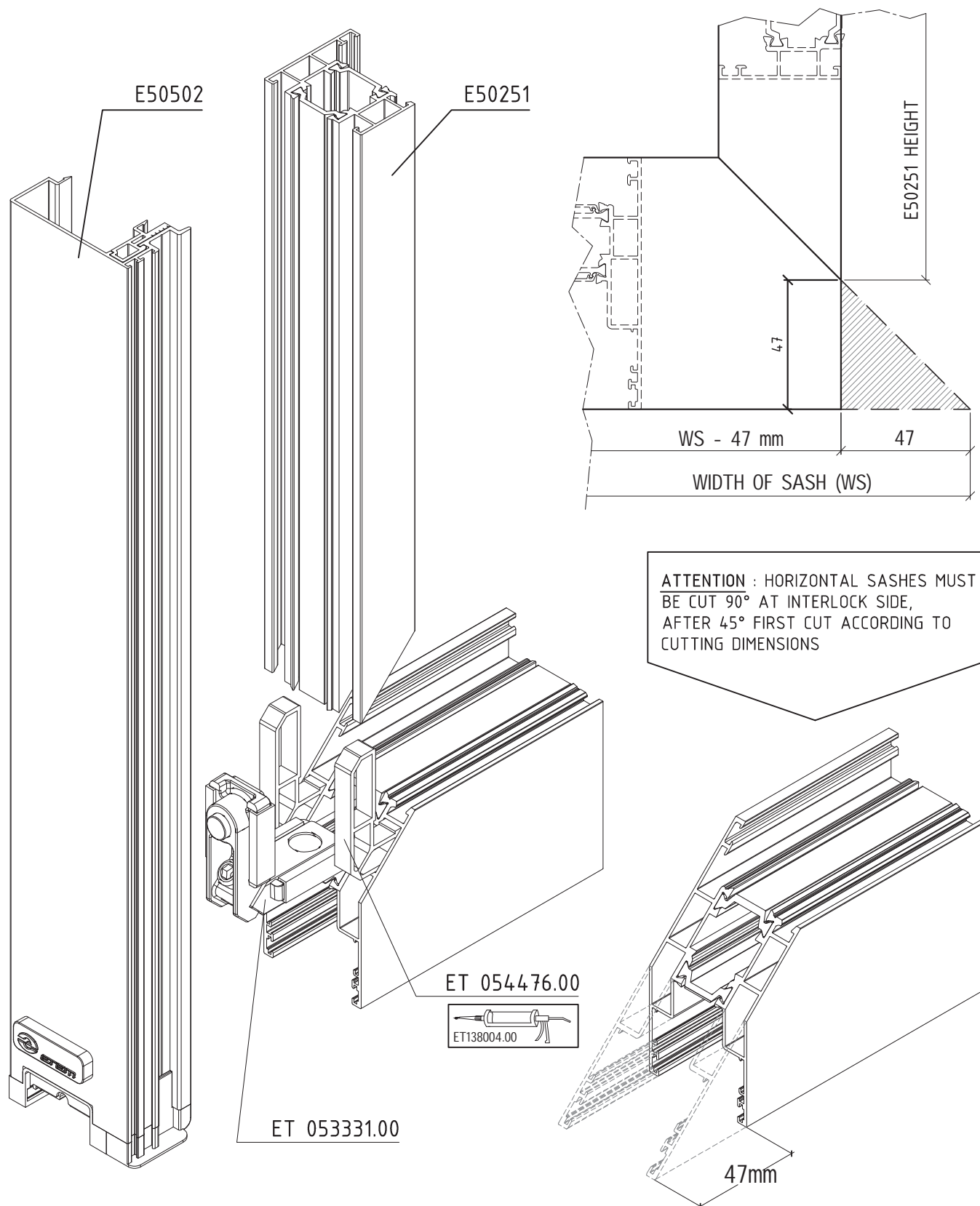
ET 054475.00  
USE OF SEALANT

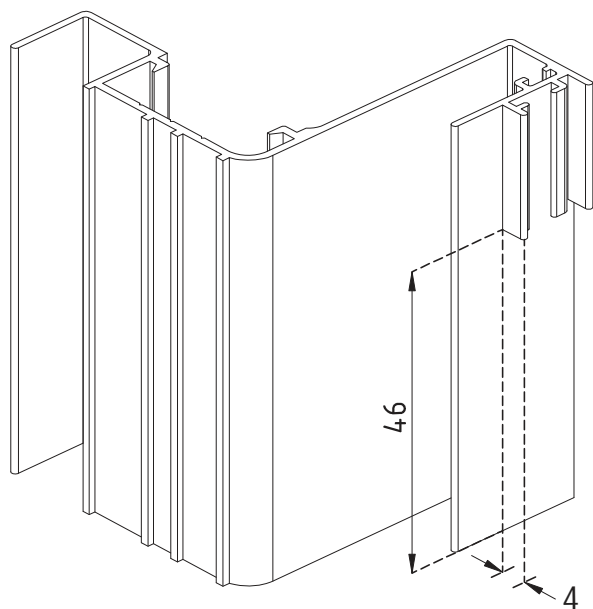
ET 050027.00  
USE OF SEALANT

ALWAYS APPLY SEALANT AT THE JOINTS OF THE SASH FRAME

MACHINING ON HORIZONTAL SASHES TO CONNECT WITH E50251

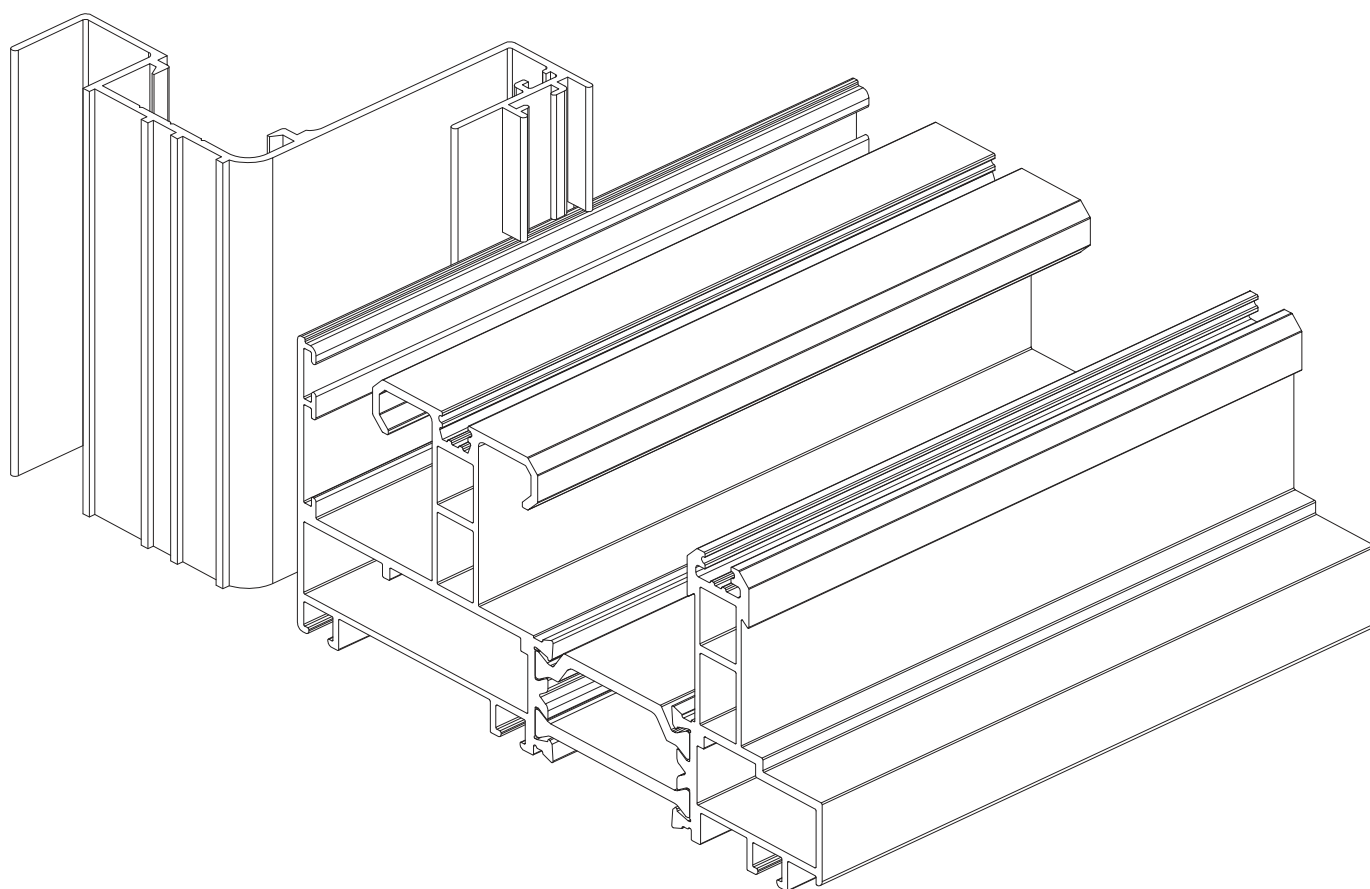
M50-10\_1

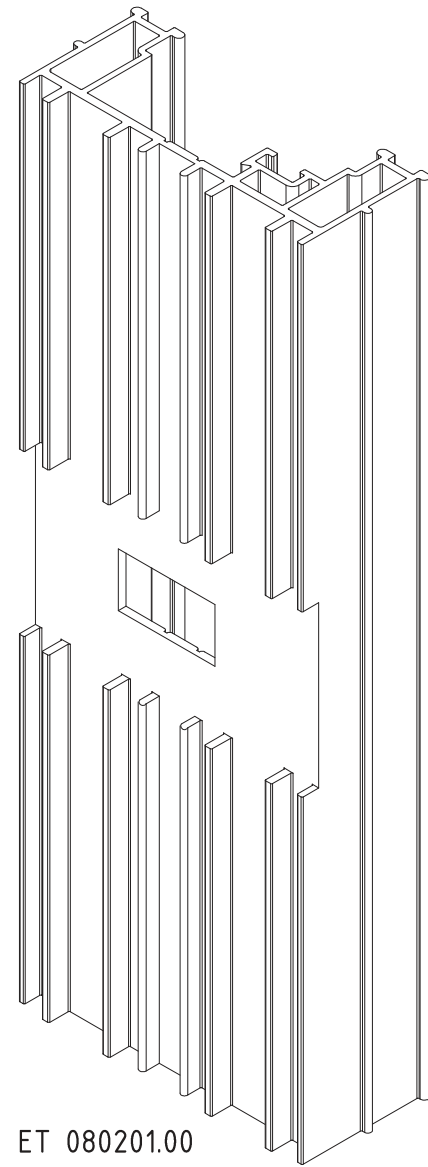
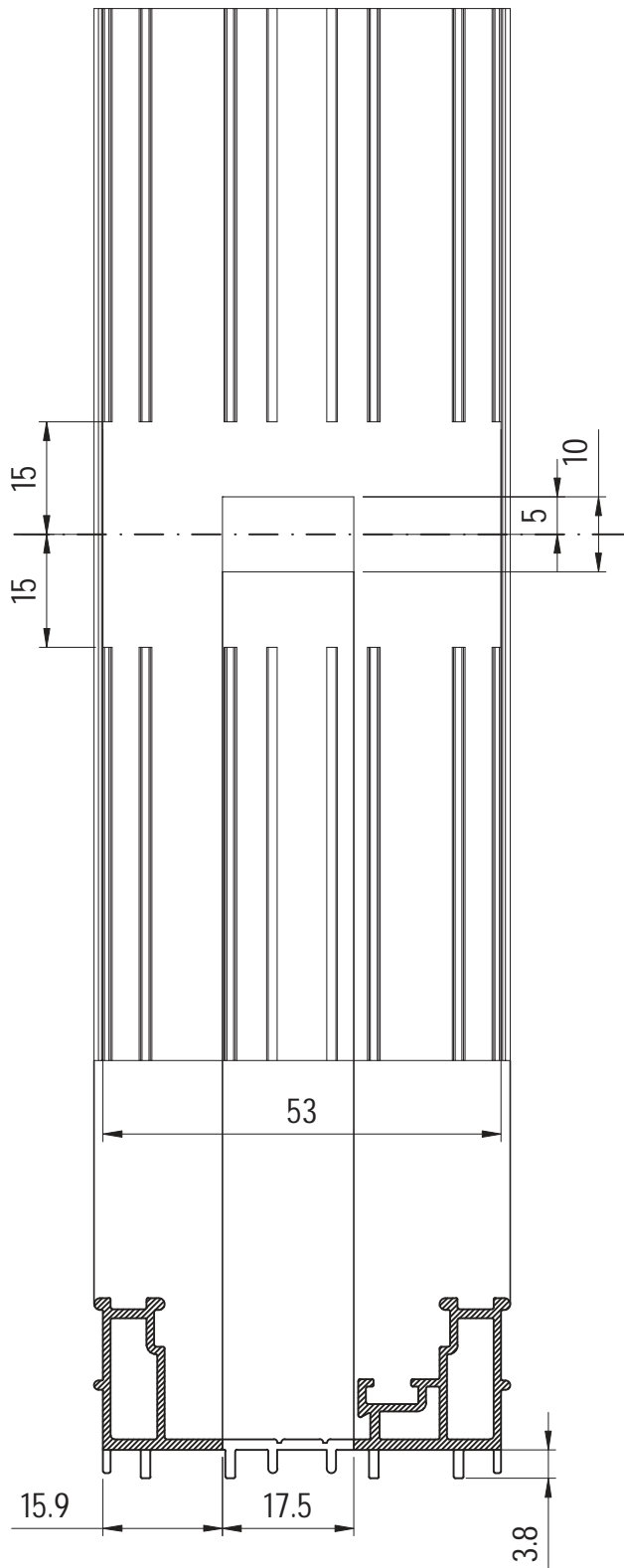




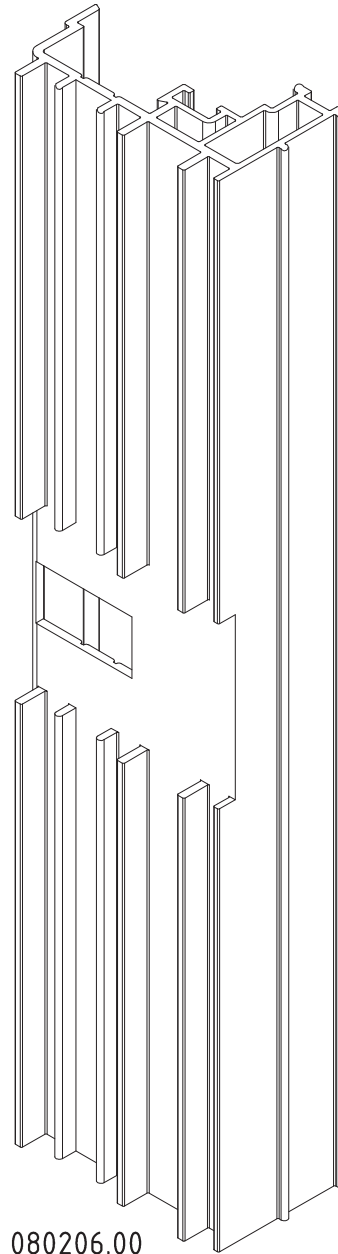
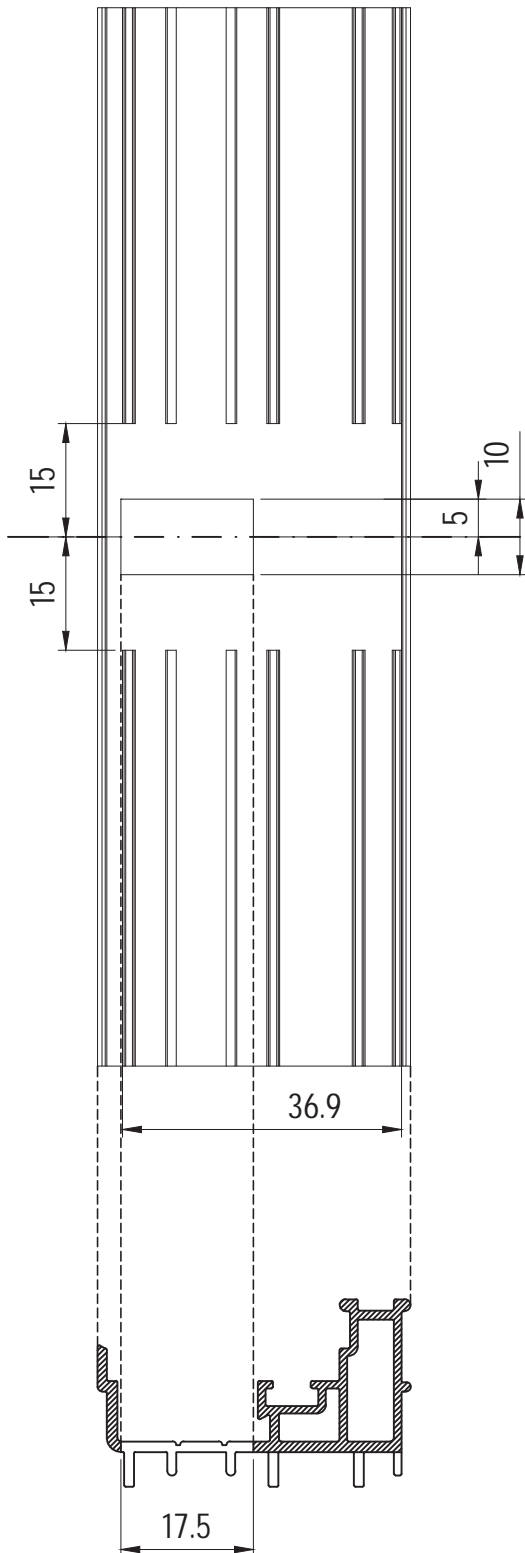
E70640

SEALING PROFILES E19640 & E70640  
ARE MACHINED AS PRESENTED IN THE  
DRAWING





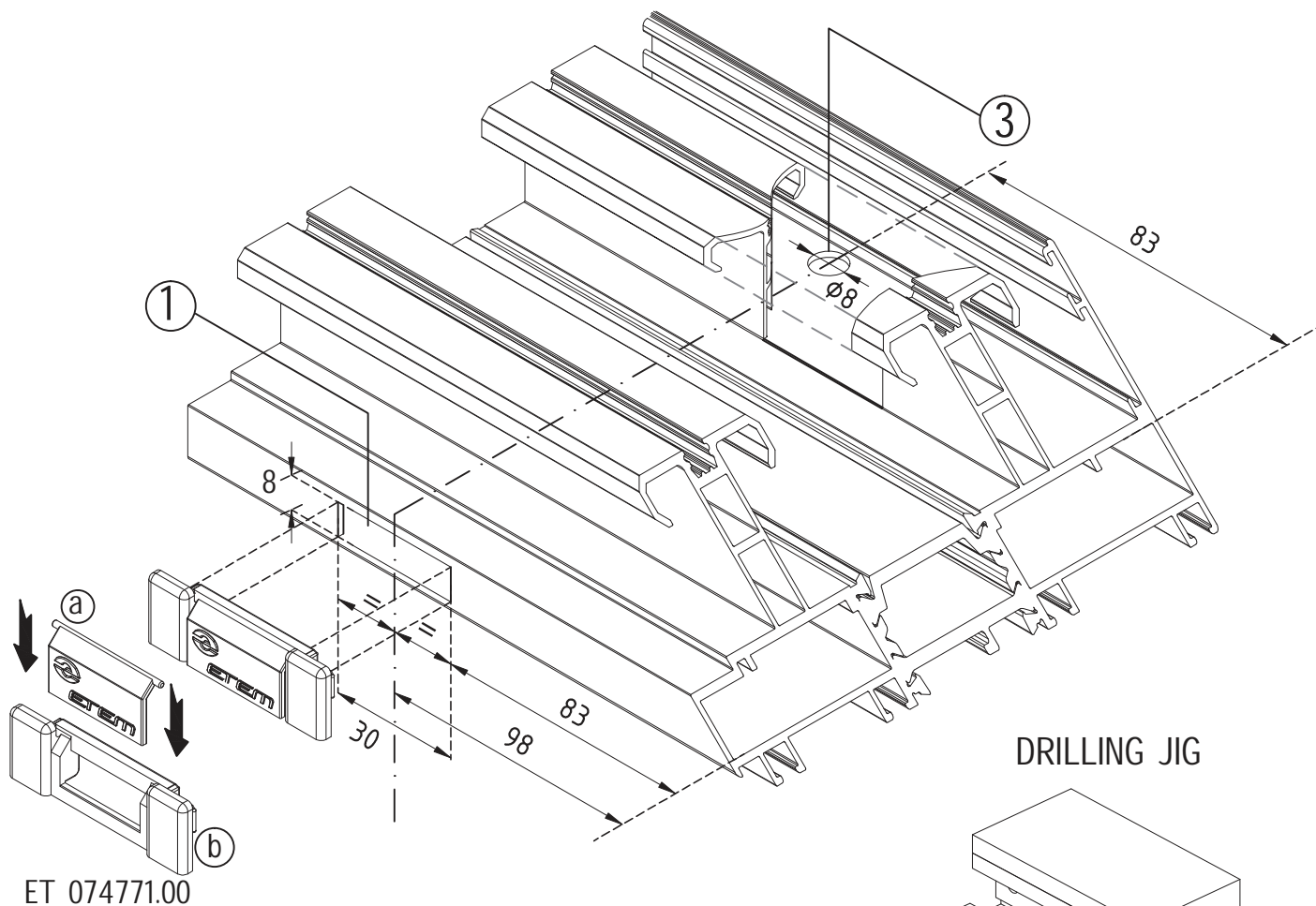
THE DRAIN HOLE MACHINING ON PLASTIC PROFILE ET.080201.00 MUST BE COAXIAL WITH THE RESPECTIVE OPENED ONTO THE RAIL



THE DRAIN HOLE MACHINING ON PLASTIC PROFILE ET.080206.00  
MUST BE COAXIAL WITH THE RESPECTIVE OPENED ONTO THE RAIL

## MACHINING ON RAIL DRAIN HOLE AT THE INNER SIDE

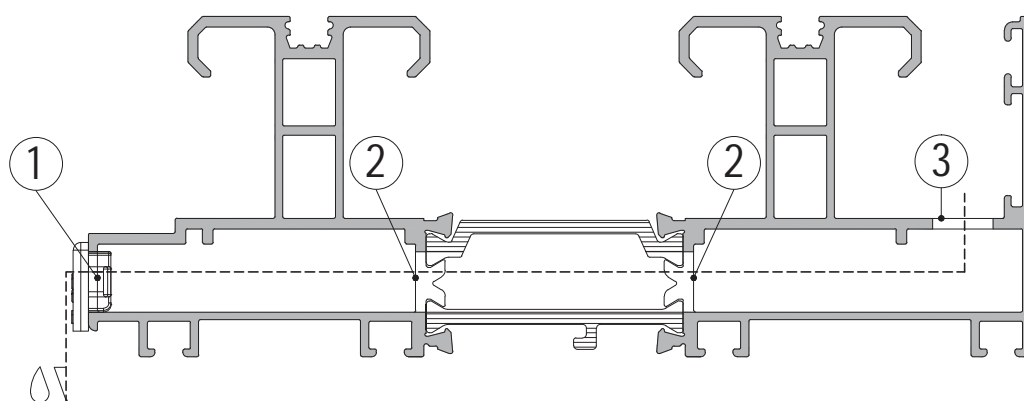
M50-14



ET 074771.00

DRILLING JIG

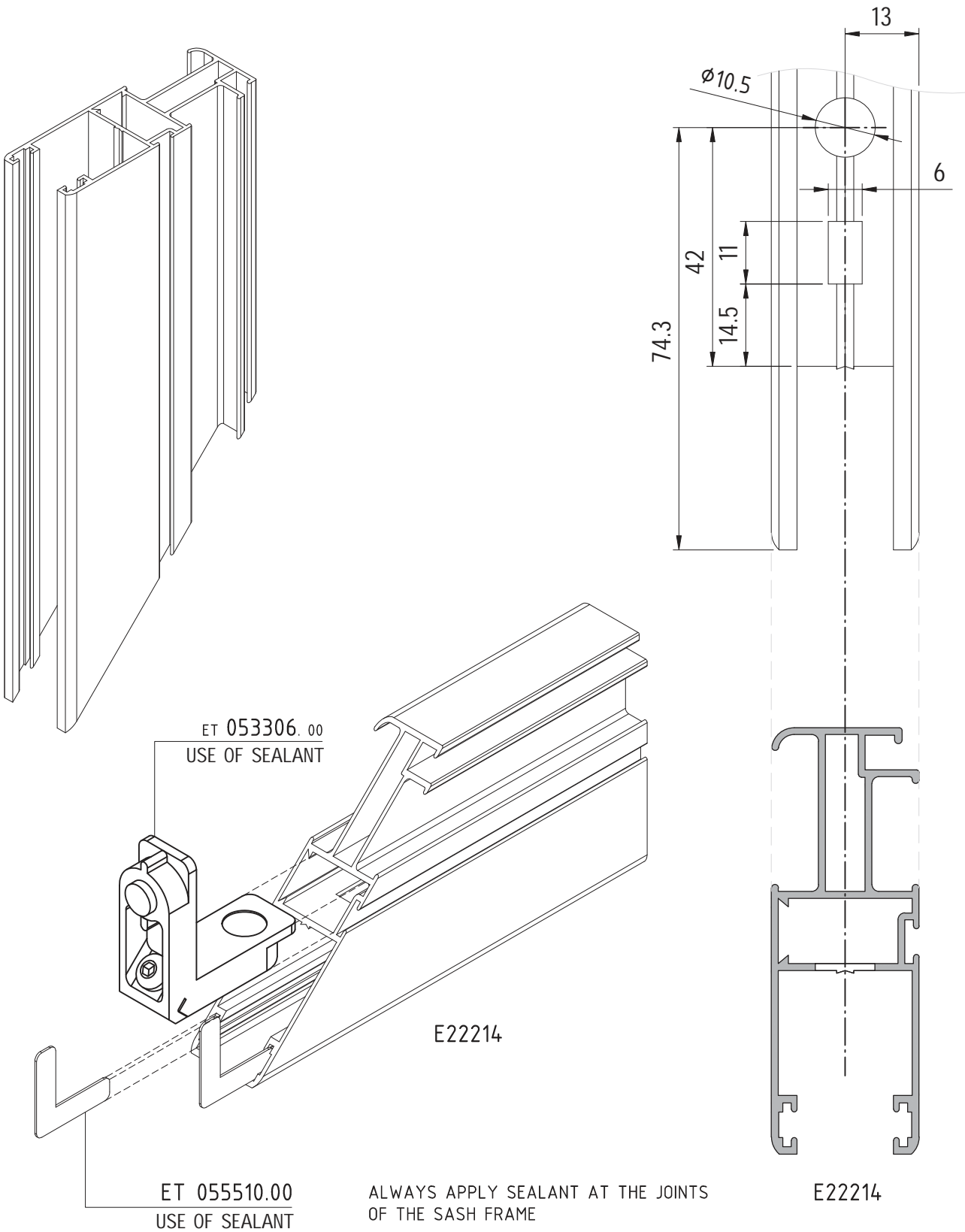
ATTENTION: THE MACHINING PRESENTED BELOW IS APPLIED TO THE RAIL ONLY IN REGIONS WHERE THE WIND SPEED IS EQUAL OR GREATER THAN 9 BEAUFORT



THE DRAIN HOLE IN THE RAIL AT THE SIDE OF THE INNER SASH IS DONE SO THAT TO DRAIN ANY DROPLETS IN CASE OF IN WATER INTRUSION. HOLE No 1 IS PUNCHED USING THE PRESS, WHILST HOLES No2 ARE DRILLED USING THE JIG (THAT COMES THE PUNCHING MACHINE). HOLE No3 IS DRILLED, USING A COLUMN DRILL. PLASTIC PLUG ET.074755.00 IS FIXED AT THE EXTERNAL SIDE OF HOLE No1. THE PLUG IS COMPOSED OF BASE a AND FIN b AND IS FIXED AS PRESENTED IN THE DRAWING

MACHINING ON E22214 FOR FIXING WITH DIE CAST JOINT CORNER BRACKET

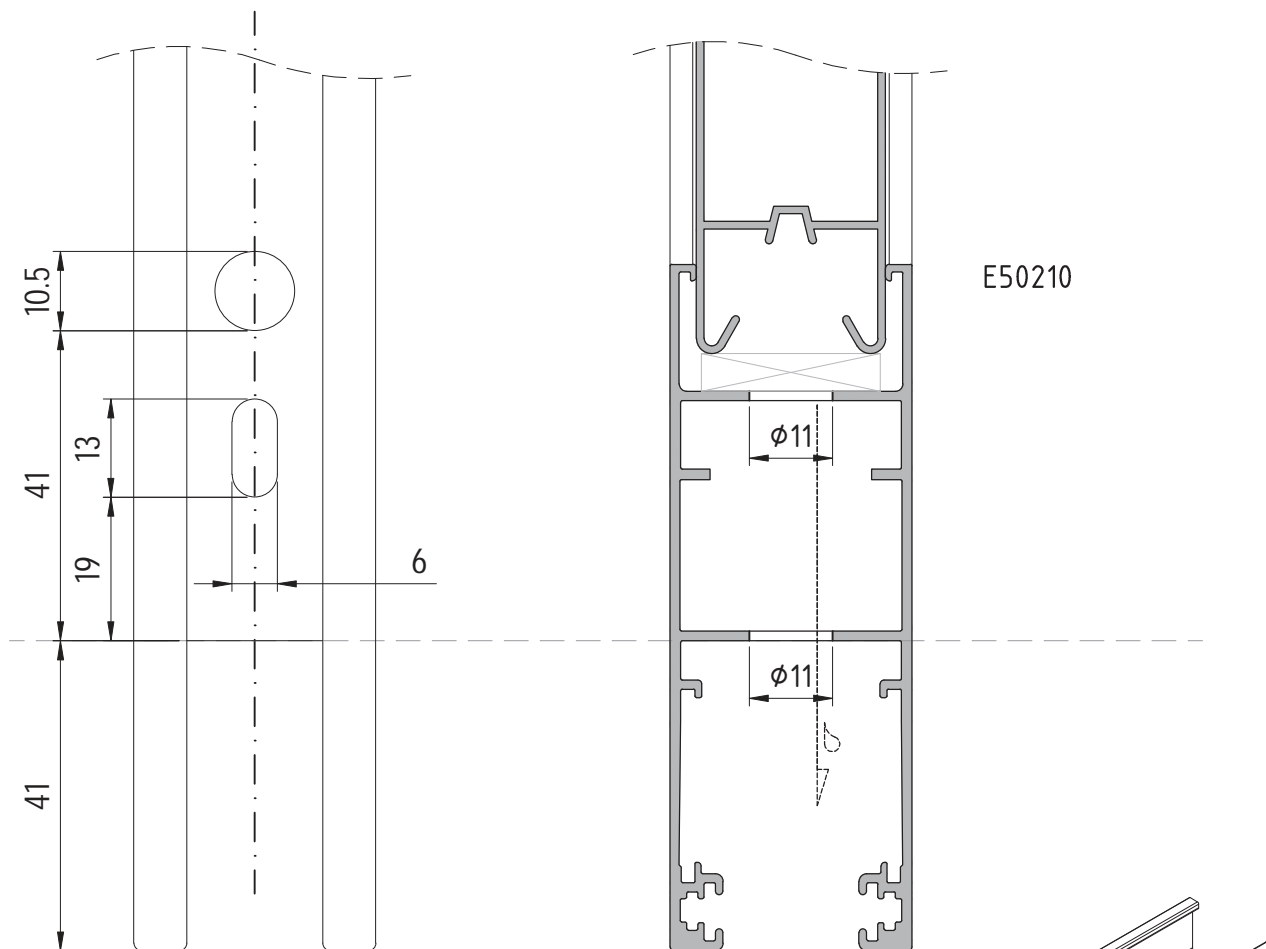
M50-15



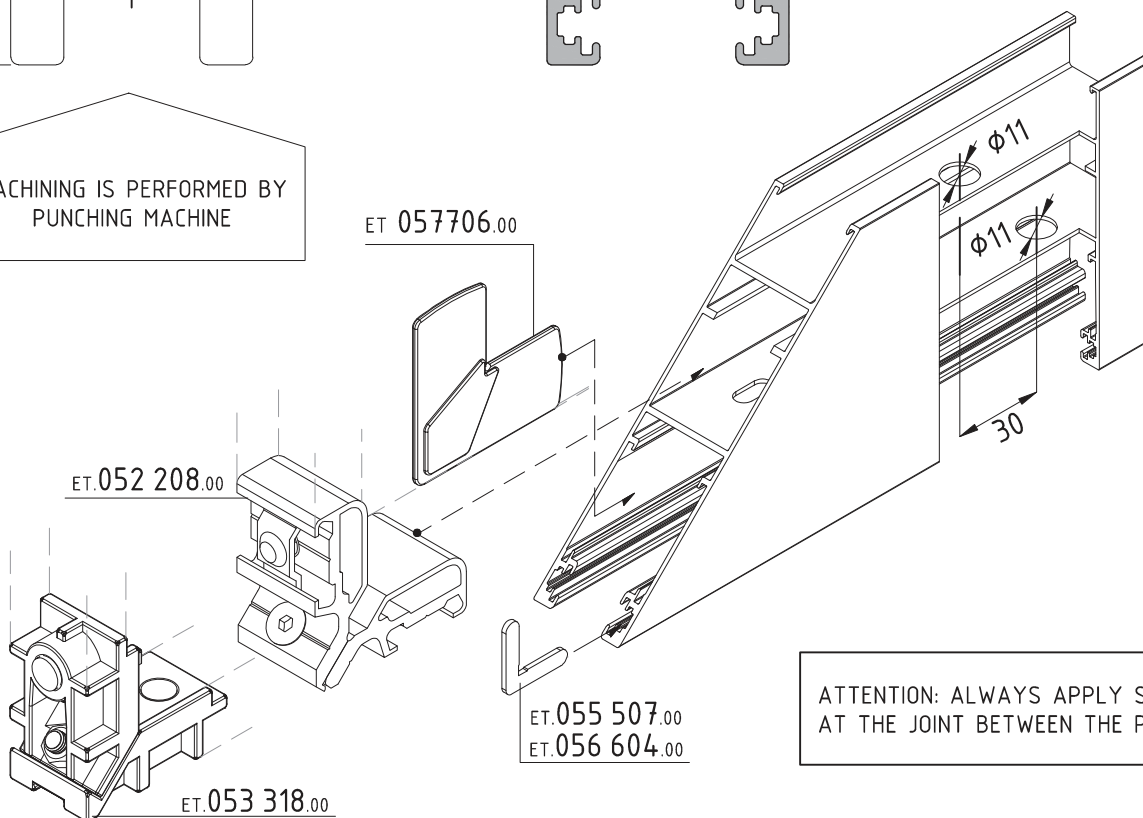


MACHINING REQUIRED ON SASH E50210 FOR JOINT CORNERS & DRAIN HOLES

M50-16



MACHINING IS PERFORMED BY PUNCHING MACHINE



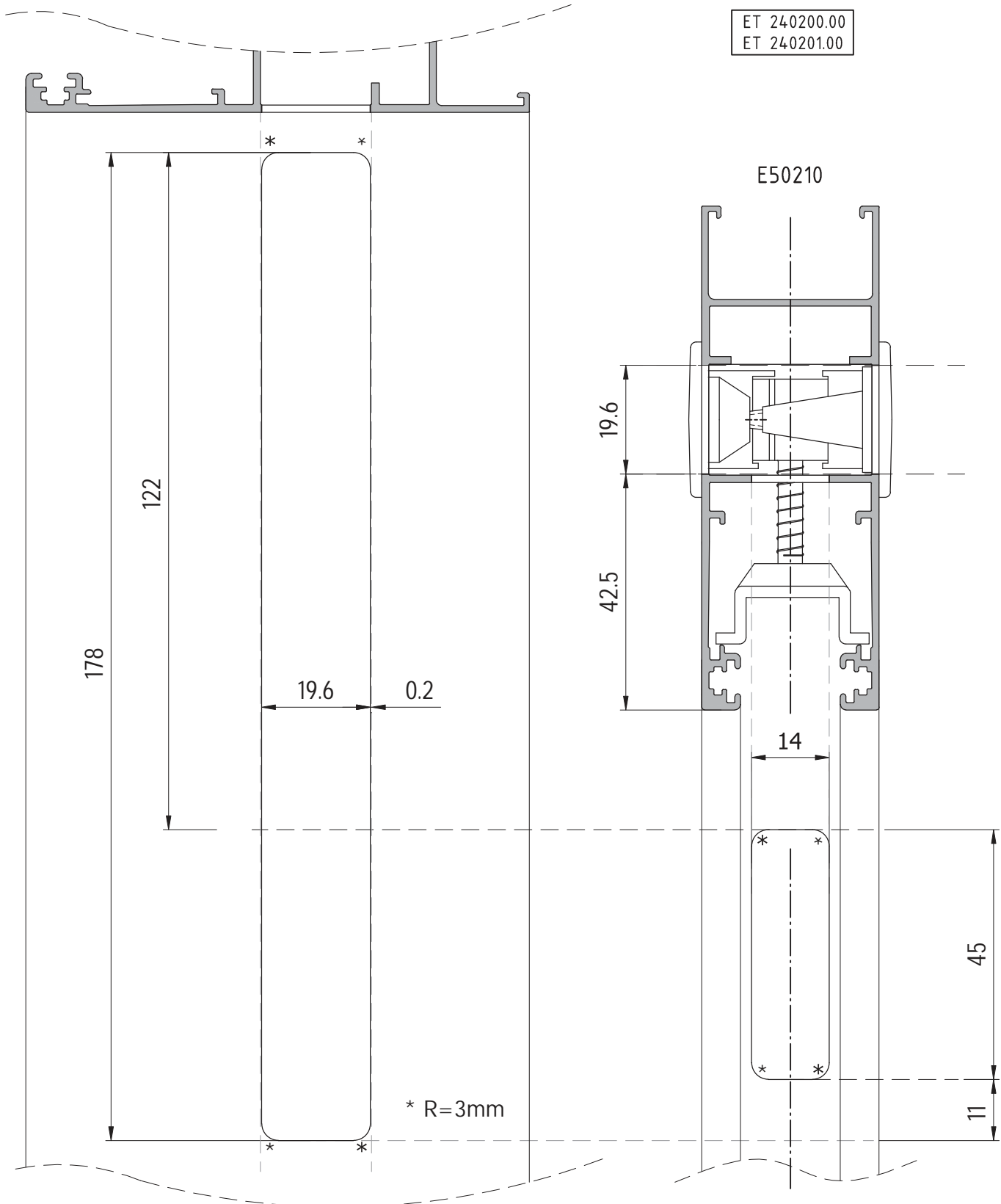
ATTENTION: ALWAYS APPLY SEALANT AT THE JOINT BETWEEN THE PROFILES

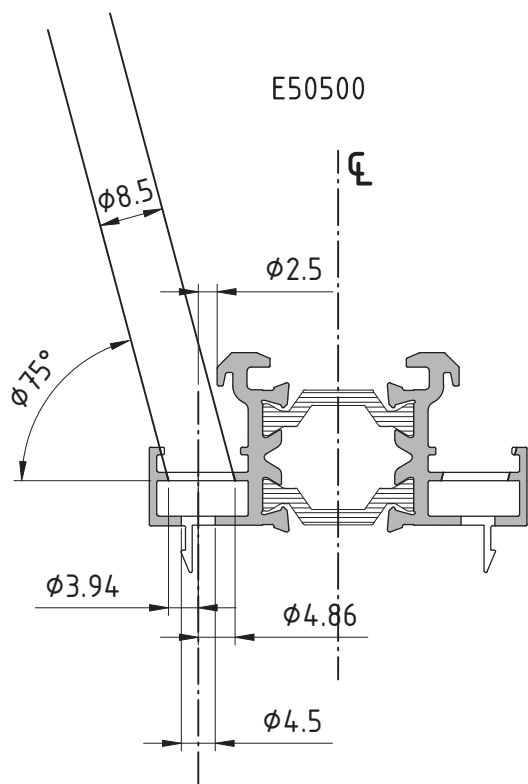
MACHINING REQUIRED ON E50210 FOR LOCK APPLICATION

M50-17

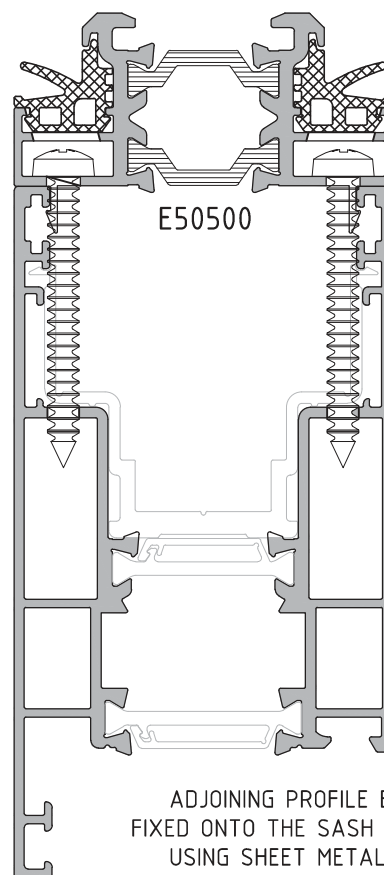
KIT FOR LOCK

ET 24.0200.00  
ET 24.0201.00

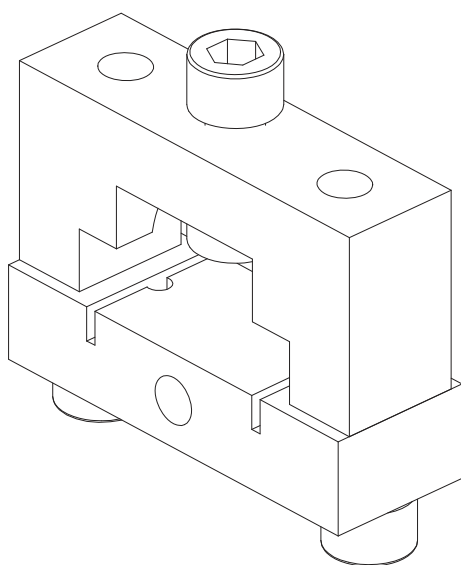




MACHINING ON PROFILE E50500 IS PERFORMED USING THE JIG (PLEASE SEE PAGE M50-30)



ADJOINING PROFILE E50500 IS FIXED ONTO THE SASH PROFILES USING SHEET METAL SCREWS 4.2x38mm DIN 7981

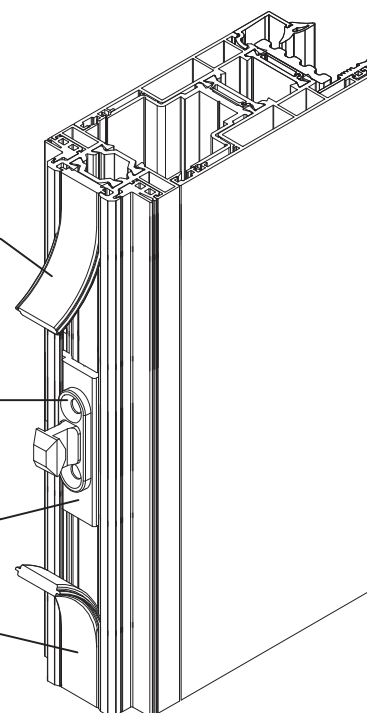


ET 130774.00  
BETWEEN STRIKERS

ET 275220.00 or  
ET 275221.00

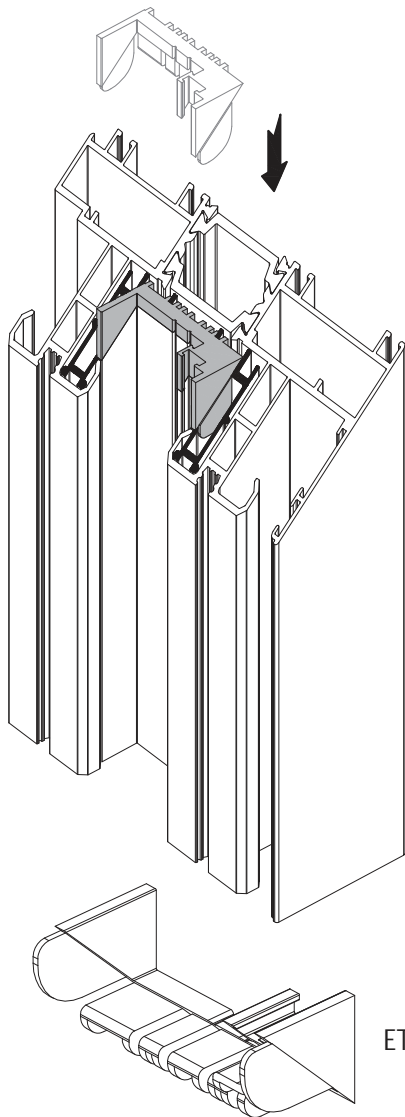
E 2309  
Piece of rod 6.0cm

ET 130774.00  
BETWEEN STRIKERS

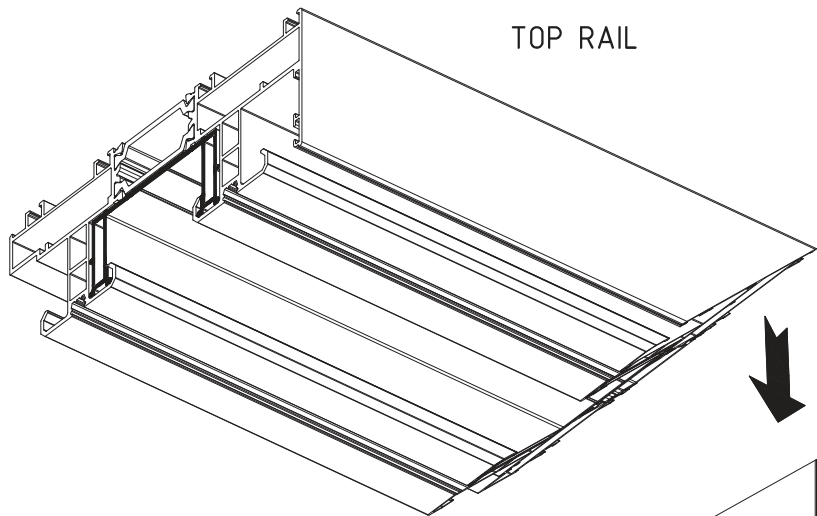


INSTRUCTIONS FOR FITTING ET 074744.00

M50-19



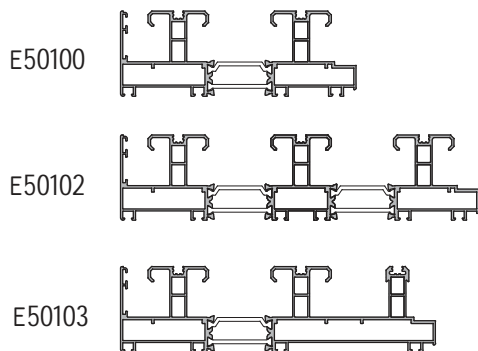
PLASTIC PLUG ET.074744.00 IS FIXED ONTO THE TOP SIDE OF THE SIDE RAIL, AS PRESENTED IN THE DRAWINGS. THEN FIX THE THE TOP RAIL WITH THE SIDE RAIL.



TOP RAIL

ET 074744.00

PLASTIC PLUG ET.074744.00 IS FIXED ONTO THE FOLLOWING RAILS:

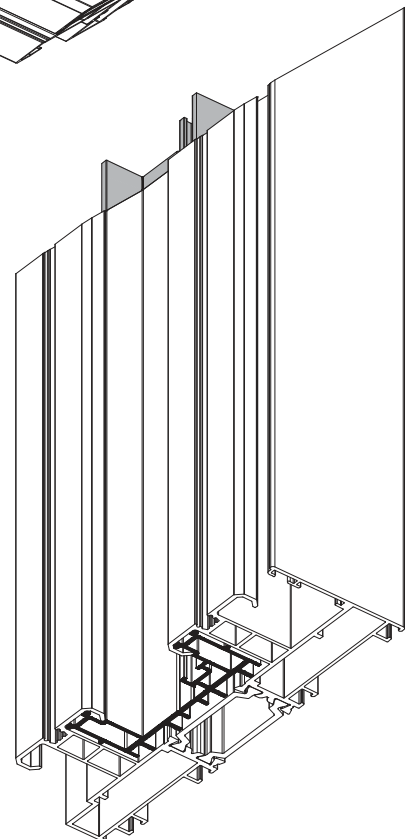


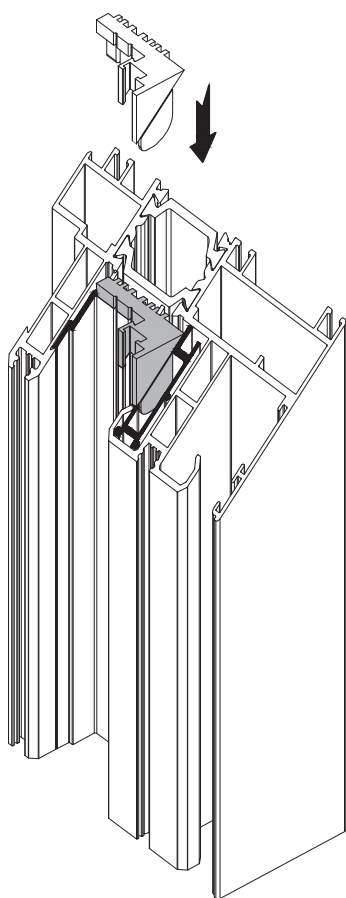
E50100

E50102

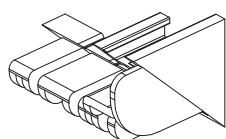
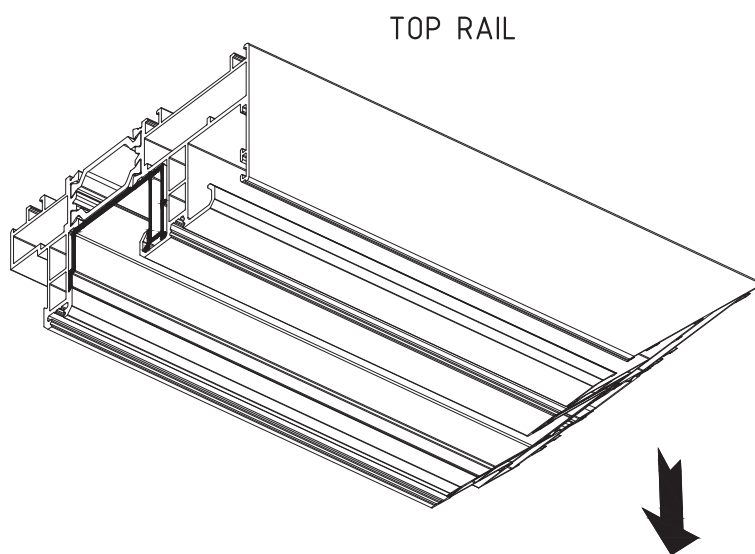
E50103

SIDE RAIL





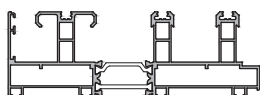
PLASTIC PLUG ET.074745.00 IS FIXED ONTO THE TOP SIDE OF THE SIDE RAIL, AS PRESENTED IN THE DRAWINGS. THEN FIX THE TOP RAIL WITH THE SIDE RAIL.



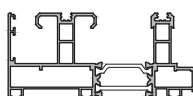
ET 074745.00

PLASTIC PLUG ET.074745.00 IS FIXED ONTO THE FOLLOWING RAILS:

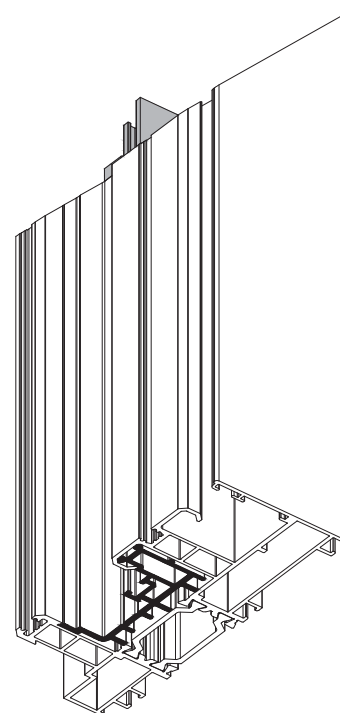
E50104



E50105

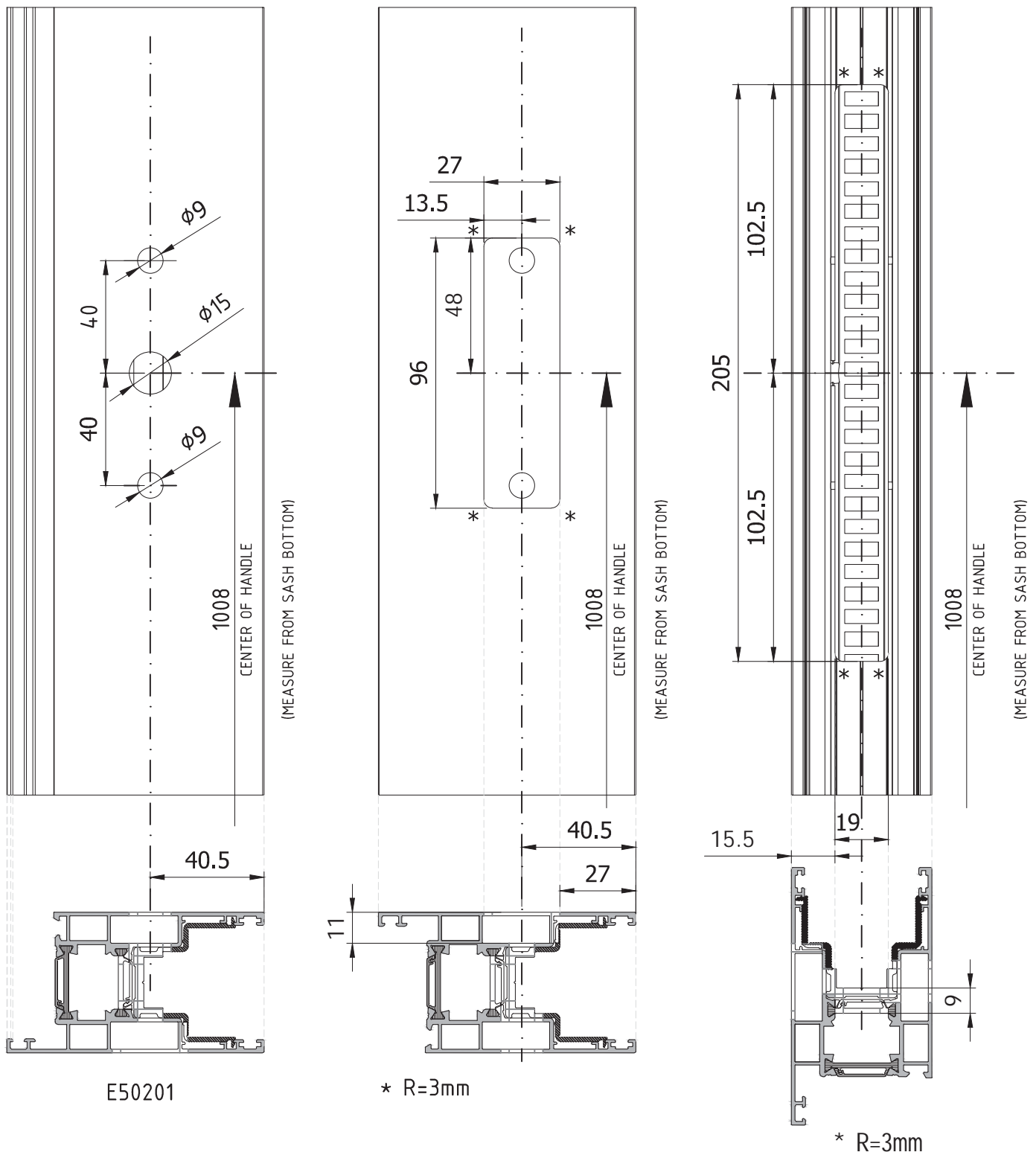


SIDE RAIL



## MACHINING REQUIRED FIXING HANDLE & HARDWARE ON BALCONY DOOR SASH FOR GU HARDWARE

M50-21



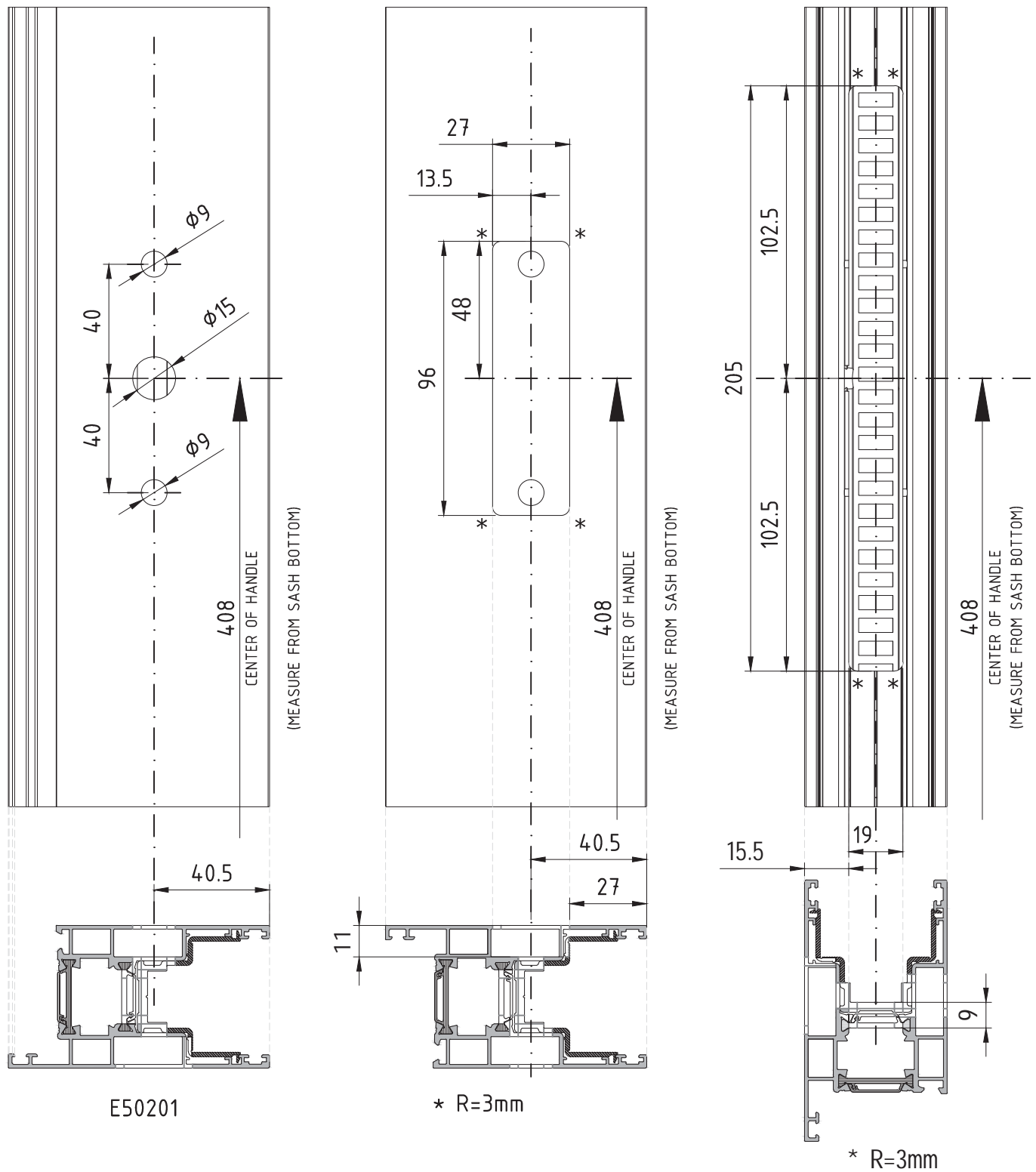
ATTENTION: ALL THE ABOVE ARE VALID FOR 150KG LIFT & SLIDE HARDWARE

ATTENTION: THE CENTRE OF THE HARDWARE IS VALID ONLY FOR DOORS

ATTENTION: THESE INSTRUCTIONS ARE ALSO VALID FOR E50202 AND E50203

## MACHINING REQUIRED FIXING HANDLE & HARDWARE ON WINDOW SASH FOR GU HARDWARE

M50-22



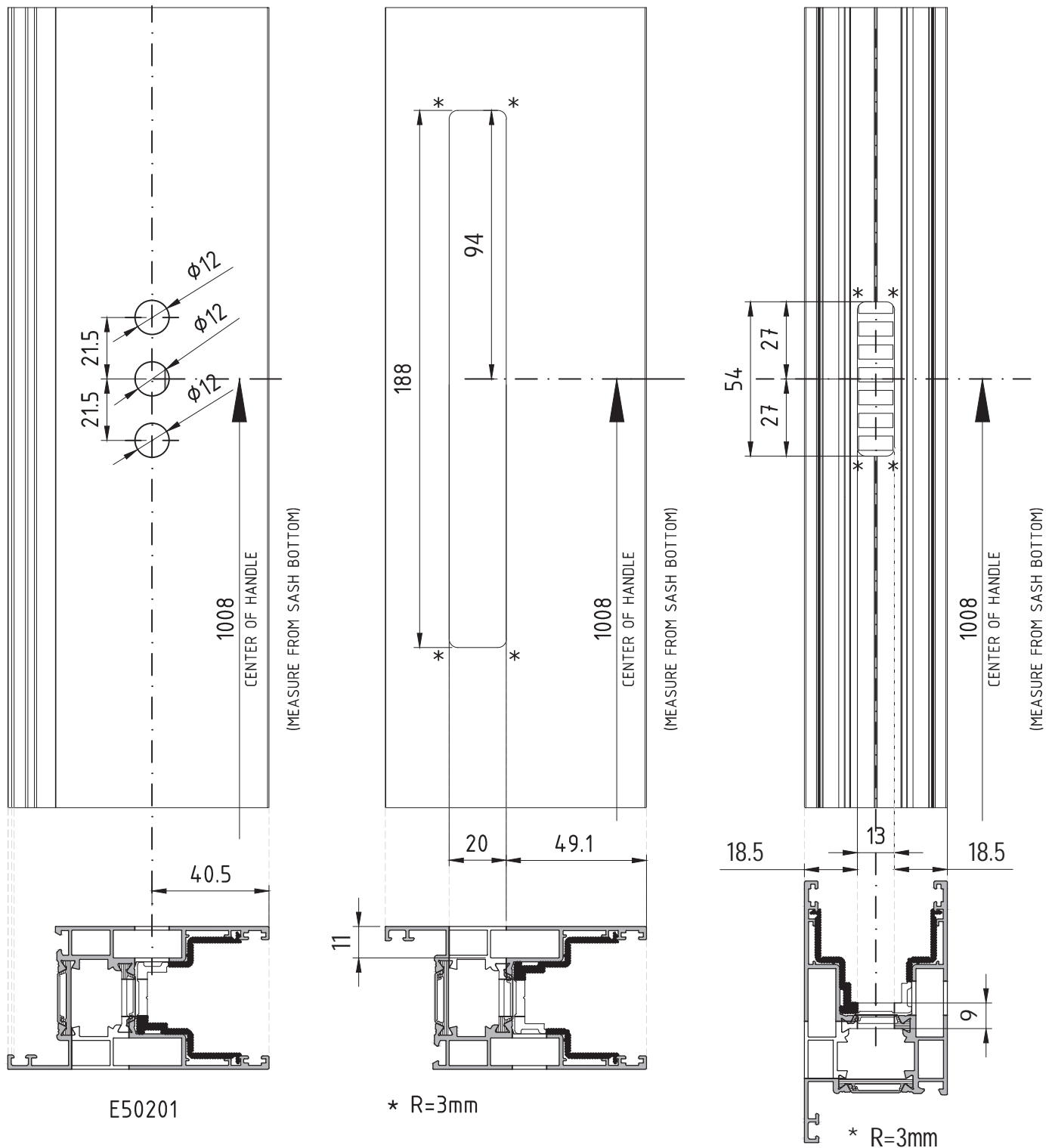
ATTENTION: ALL THE ABOVE ARE VALID FOR 150KG LIFT & SLIDE HARDWARE

ATTENTION: THE CENTRE OF THE HARDWARE IS VALID ONLY FOR WINDOWS

ATTENTION: THESE INSTRUCTIONS ARE ALSO VALID FOR E50202 AND E50203

MACHINING REQUIRED FIXING HANDLE & HARDWARE ON BALCONY DOOR SASH (WITHOUT LIFT)

M50-23



ATTENTION: ALL THE ABOVE ARE VALID FOR FRAMES WITHOUT LIFT & SLIDE HARDWARE

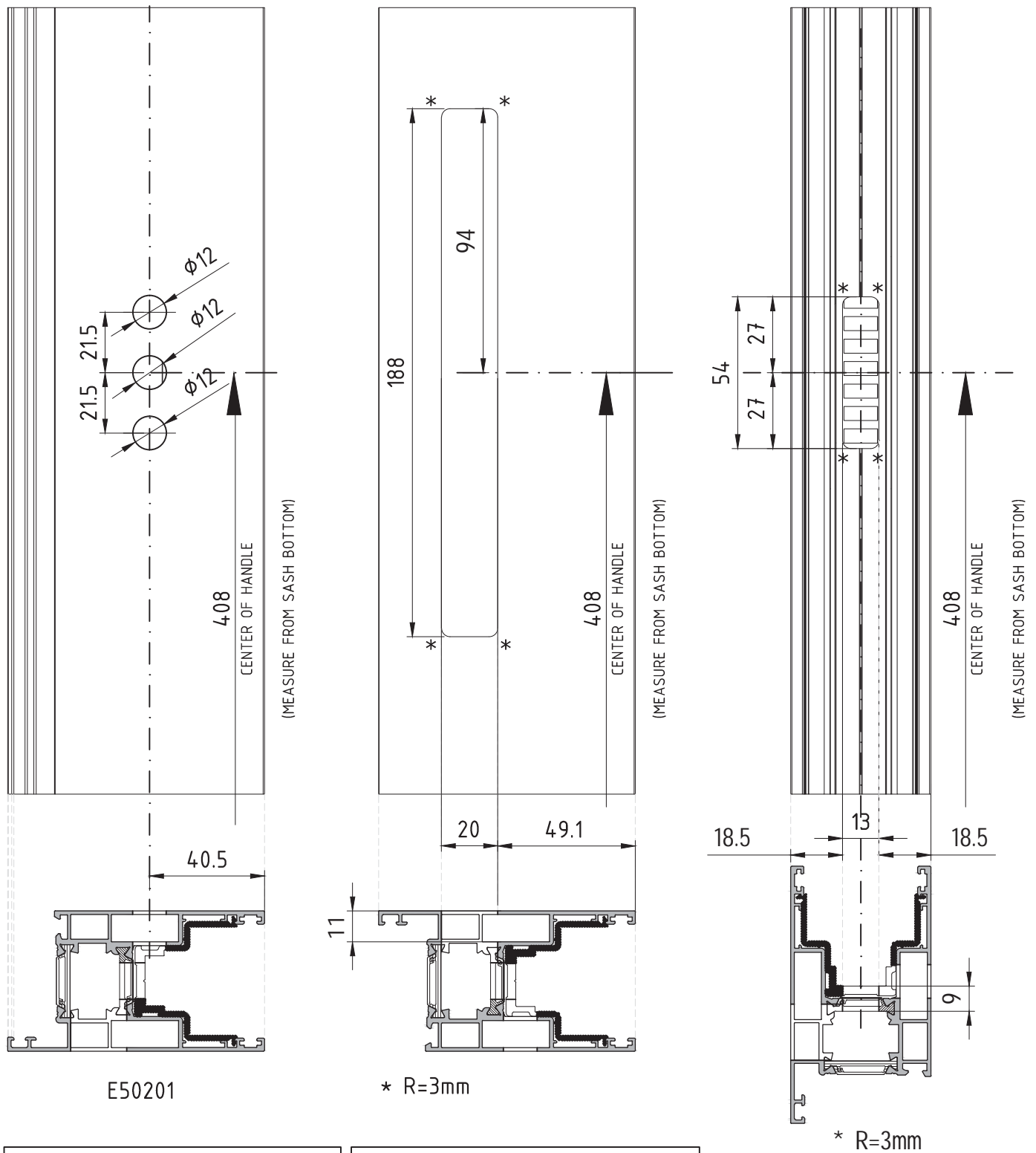
ATTENTION: THE CENTRE OF THE HARDWARE IS VALID ONLY FOR DOORS

ATTENTION: THESE INSTRUCTIONS ARE ALSO VALID FOR E50202 AND E50203



MACHINING REQUIRED FIXING HANDLE & HARDWARE ON WINDOW SASH (WITHOUT LIFT)

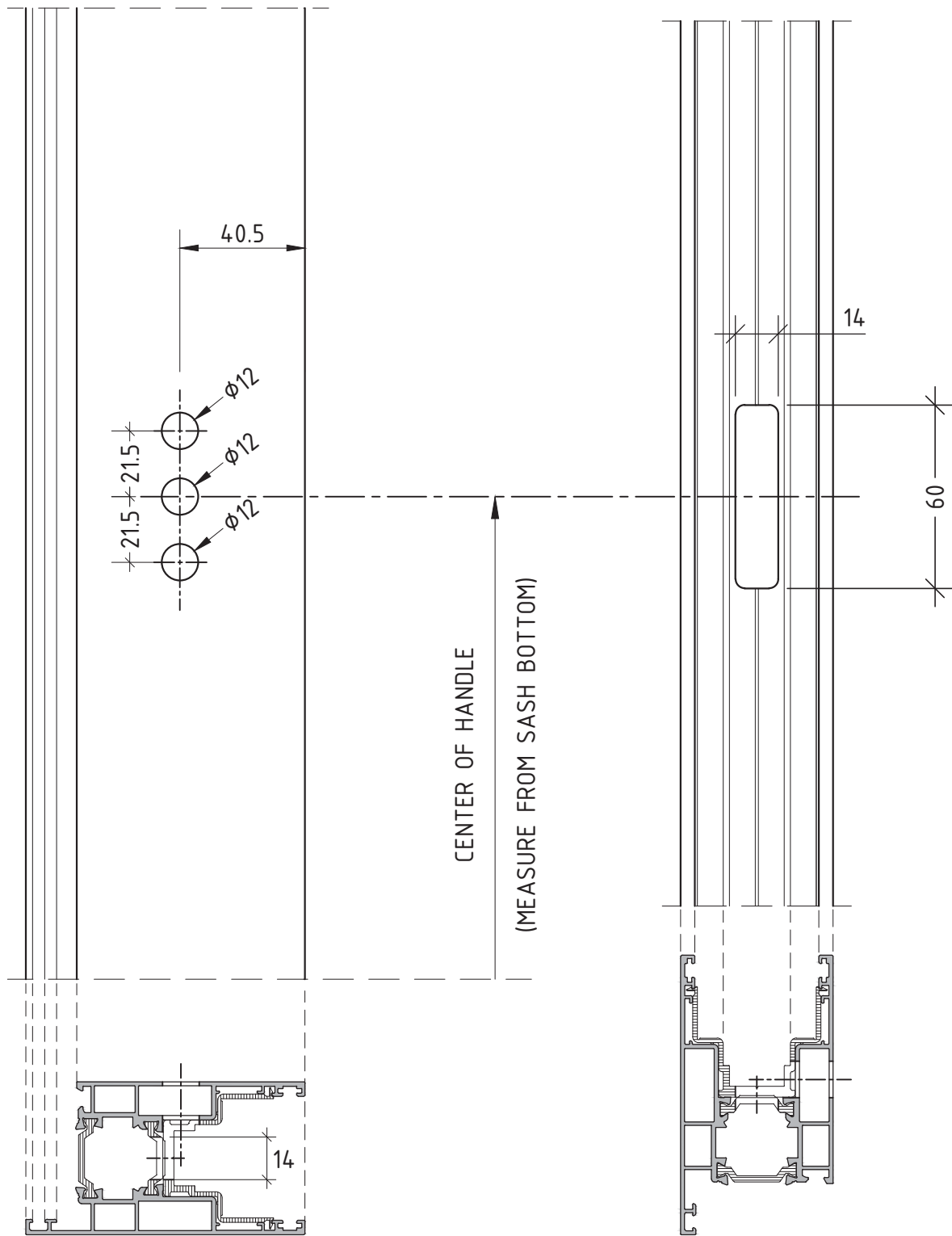
M50-24



ATTENTION: ALL THE ABOVE ARE VALID FOR FRAMES WITHOUT LIFT & SLIDE HARDWARE

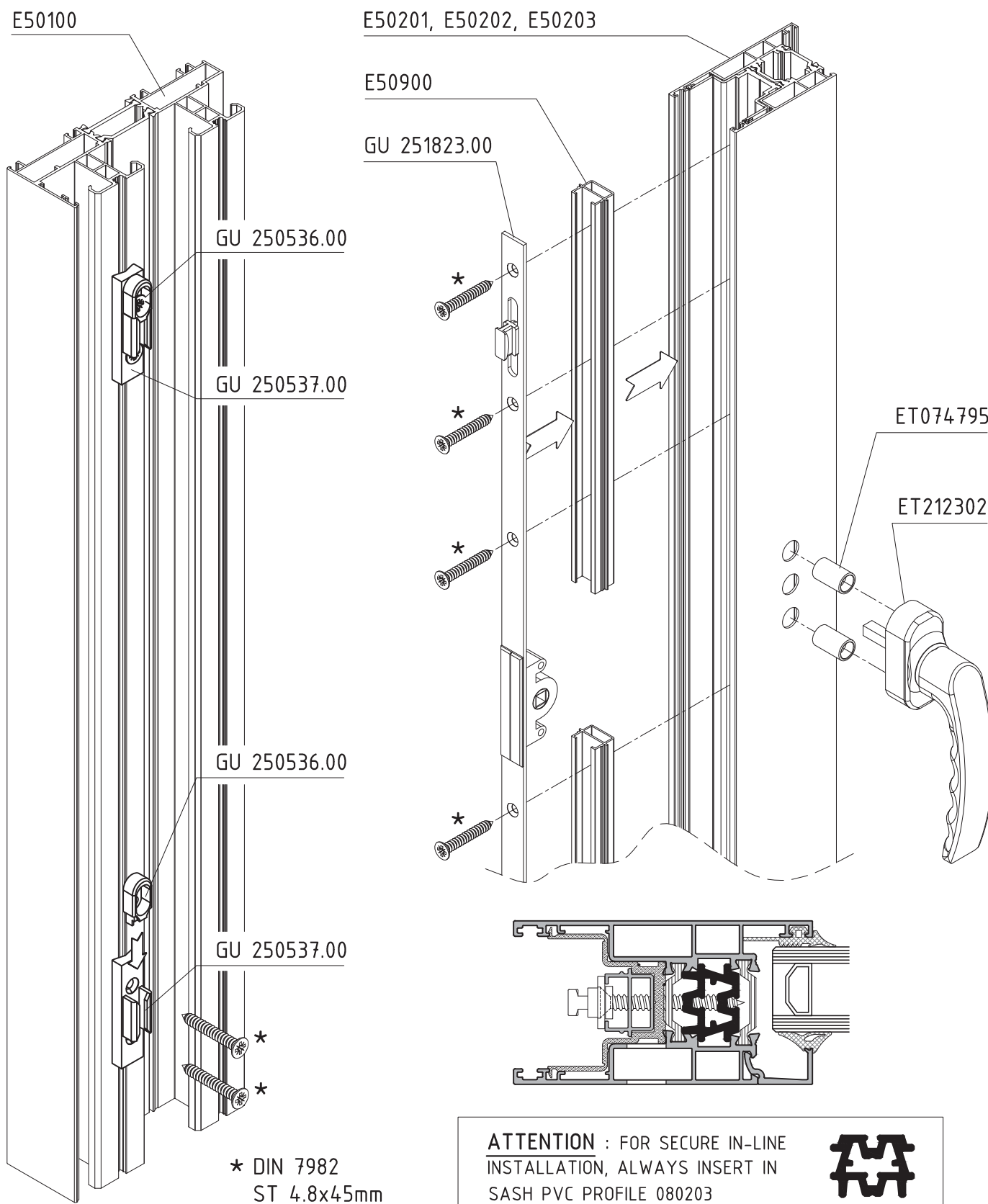
ATTENTION: THE CENTRE OF THE HARDWARE IS VALID ONLY FOR WINDOWS

ATTENTION: THESE INSTRUCTIONS ARE ALSO VALID FOR E50202



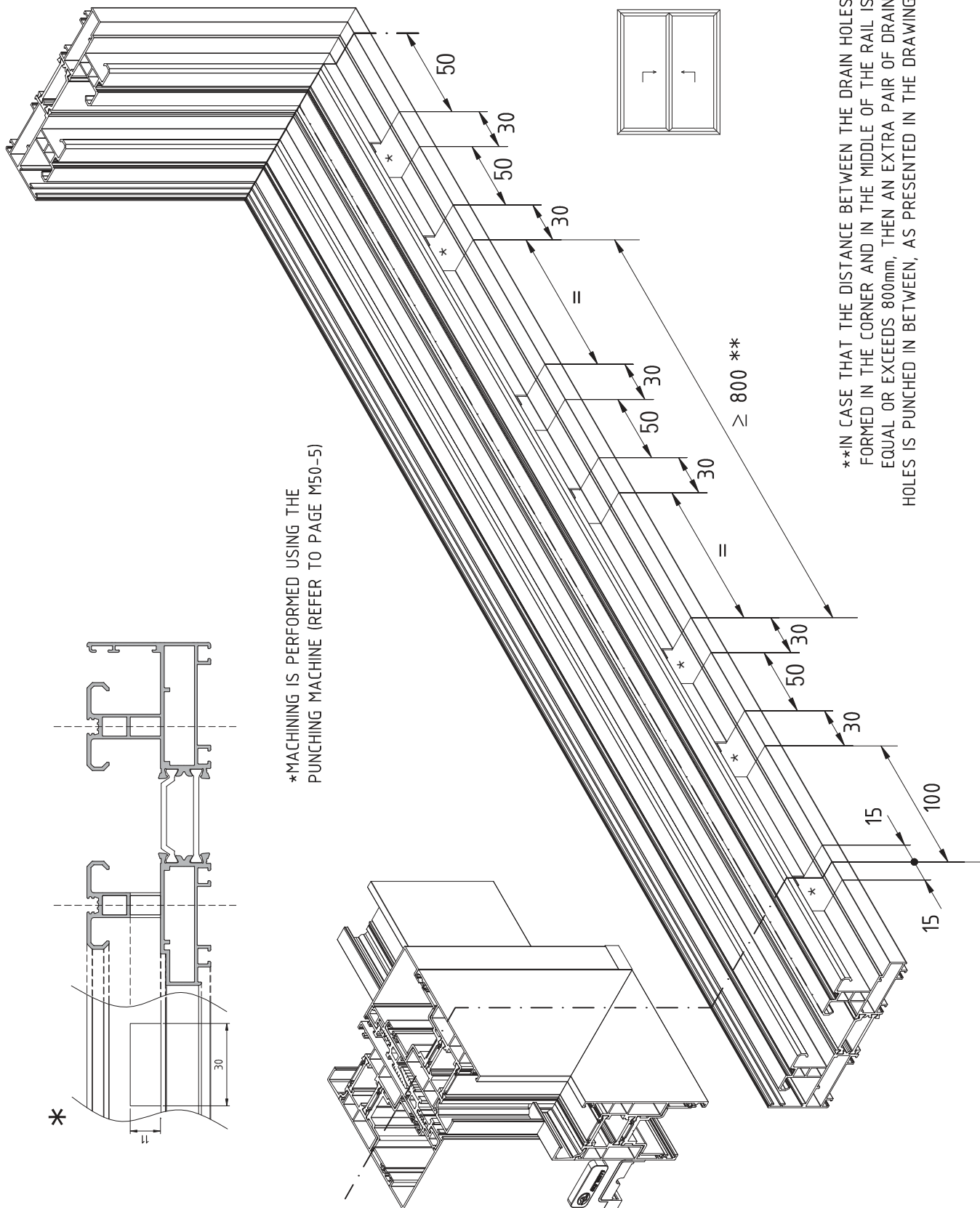
E50201, E50202, E50203

E50201, E50202, E50203



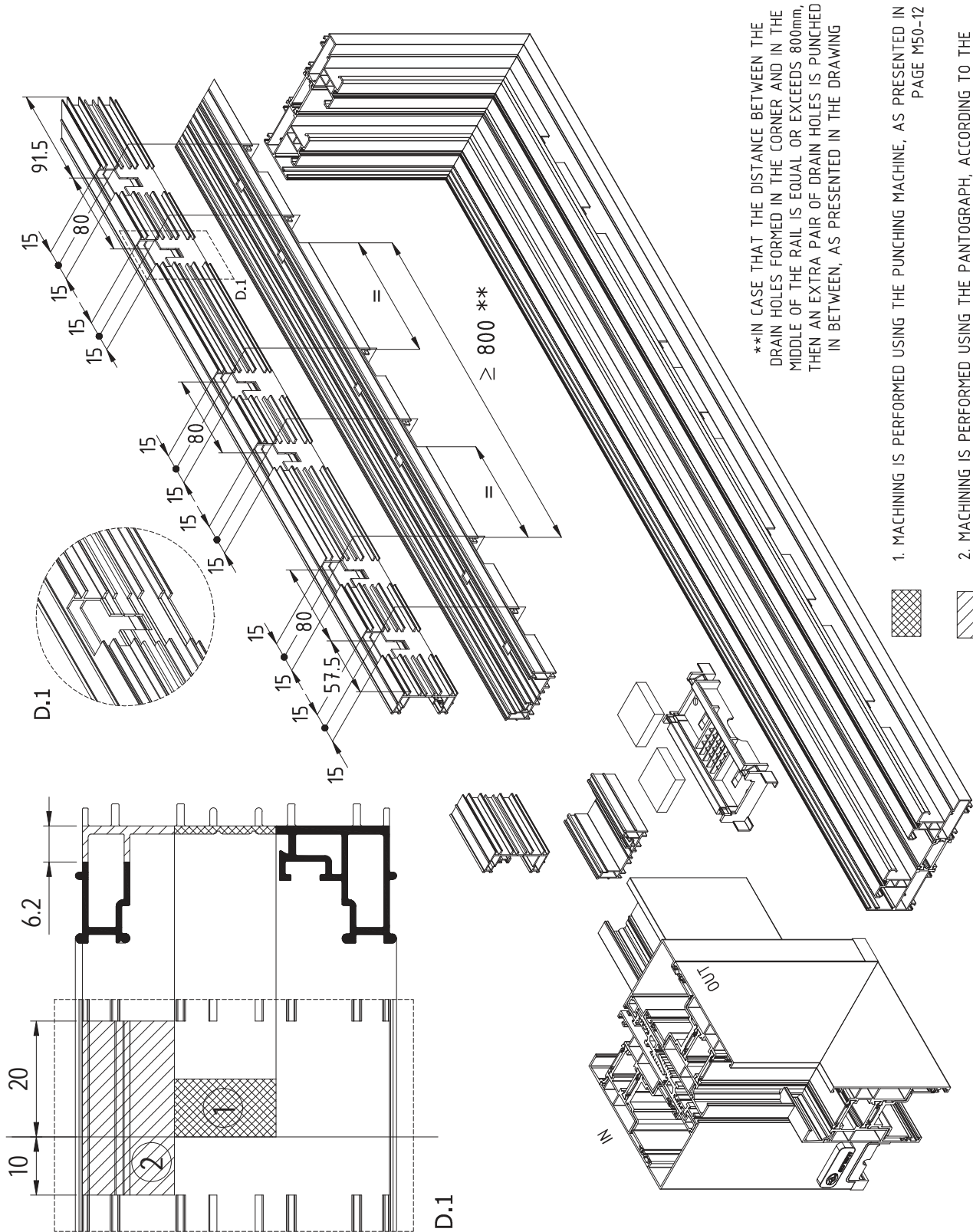
MACHINING ON E-50100 FOR DRAINAGE

M50-25



MACHINING ON PLASTIC PROFILE ET 080201 FOR DRAINAGE

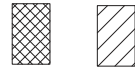
M50-26



\*\*IN CASE THAT THE DISTANCE BETWEEN THE DRAIN HOLES FORMED IN THE CORNER AND IN THE MIDDLE OF THE RAIL IS EQUAL OR EXCEEDS 800mm, THEN AN EXTRA PAIR OF DRAIN HOLES IS PUNCHED IN BETWEEN, AS PRESENTED IN THE DRAWING

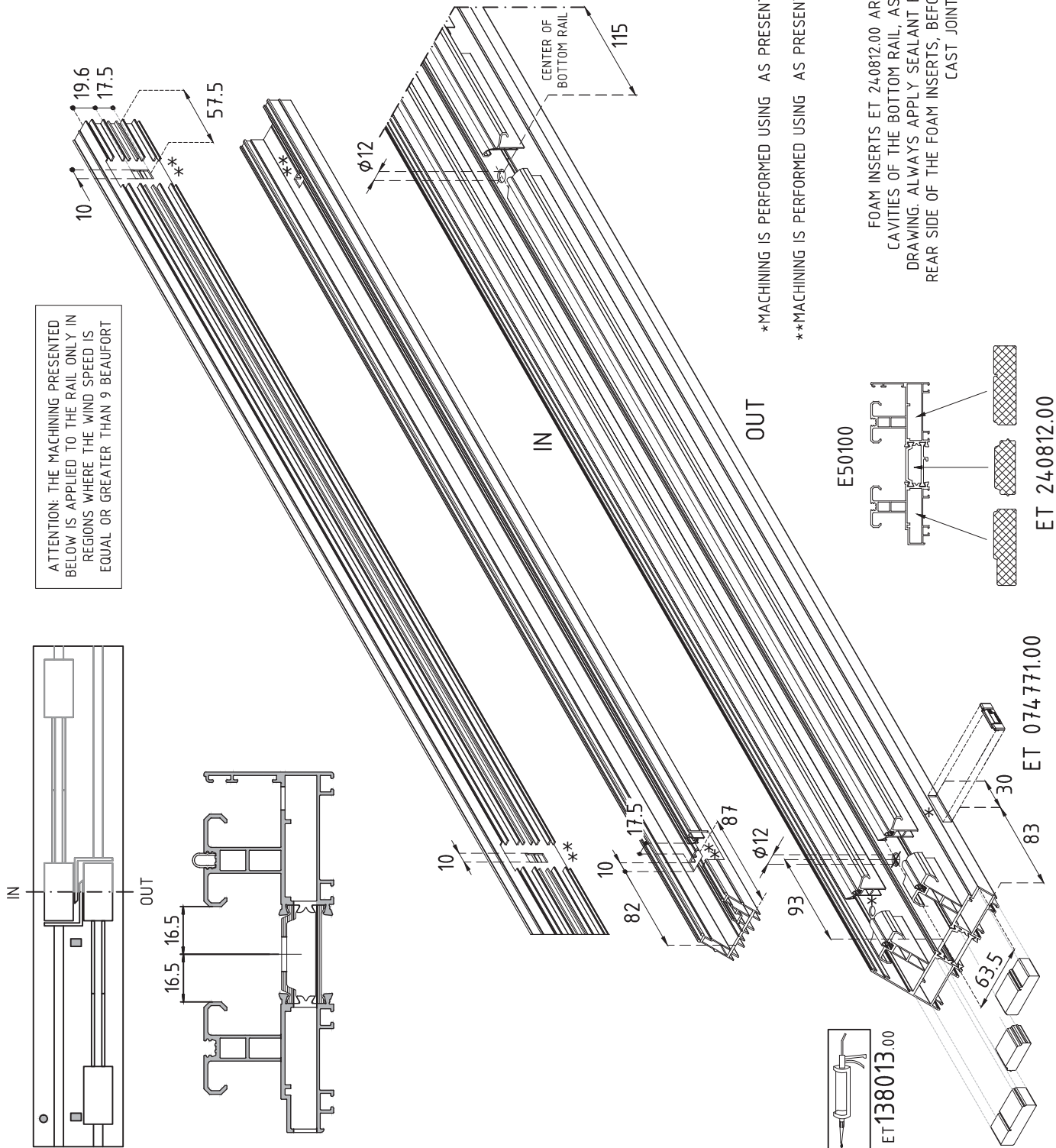
1. MACHINING IS PERFORMED USING THE PUNCHING MACHINE, AS PRESENTED IN PAGE M50-12

2. MACHINING IS PERFORMED USING THE PANTOGRAPH, ACCORDING TO THE DRAWING ABOVE



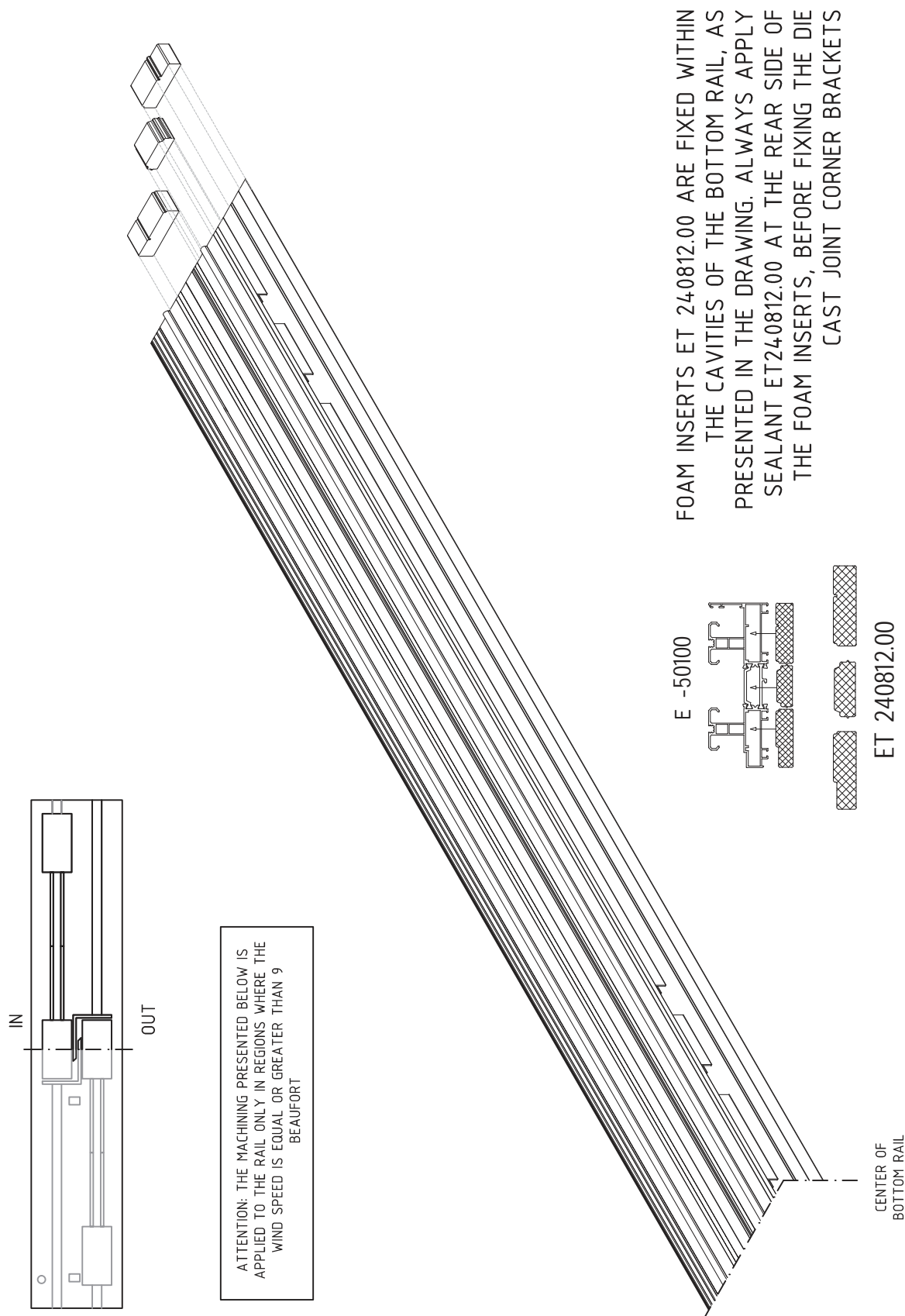
## MACHINING ON E-50100 FOR DRAINAGE

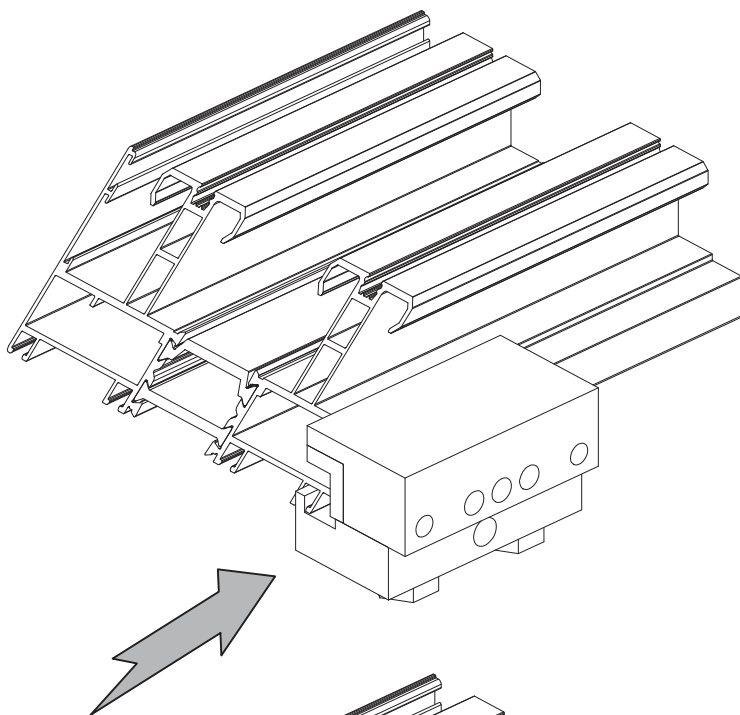
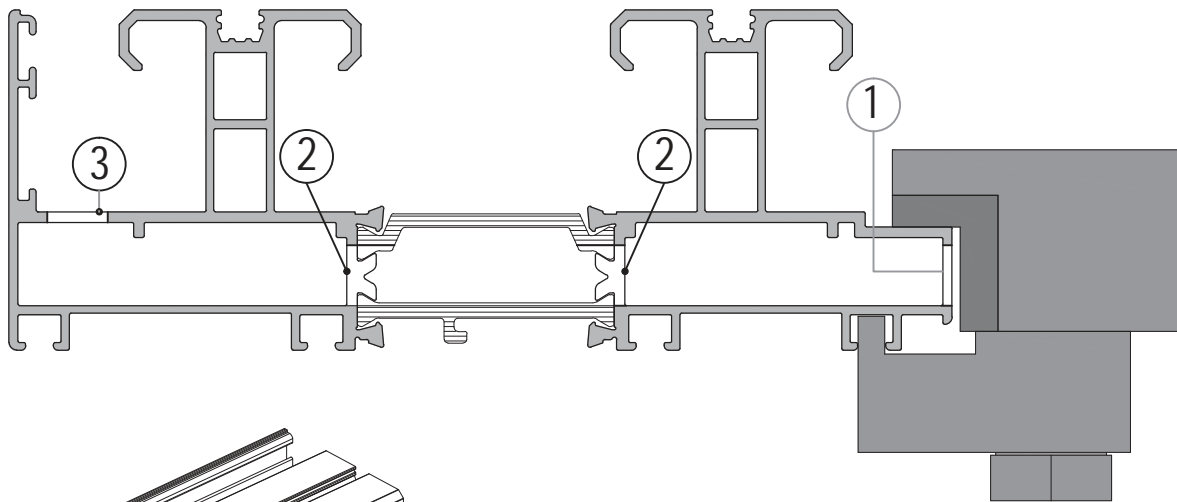
M50-27



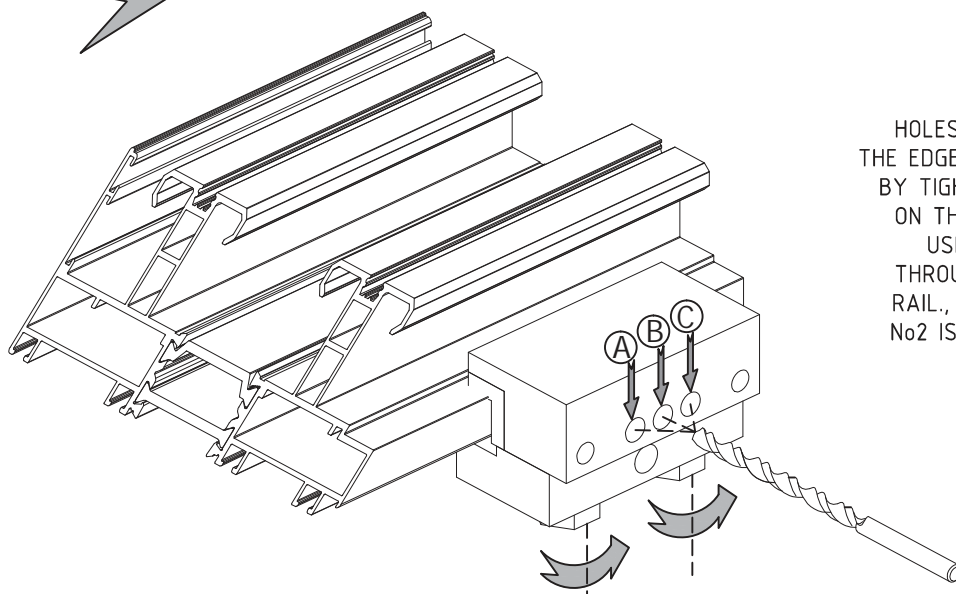
## MACHINING ON E-50100 FOR DRAINAGE

M50-28





DRAIN HOLES No2, PRESENTED IN PAGE M50-14, ARE DRILLED USING THE JIG, THAT COMES WITH THE PUNCHING MACHINE. THE JIG IS ALIGNED WITH THE DRAIN HOLE No1, THAT HAS ALREADY BEEN PUNCHED USING THE PUNCHING MACHINE. JIG IS FIXED ONTO THE BOTTOM RAIL, AS PRESENTED IN THE DRAWINGS

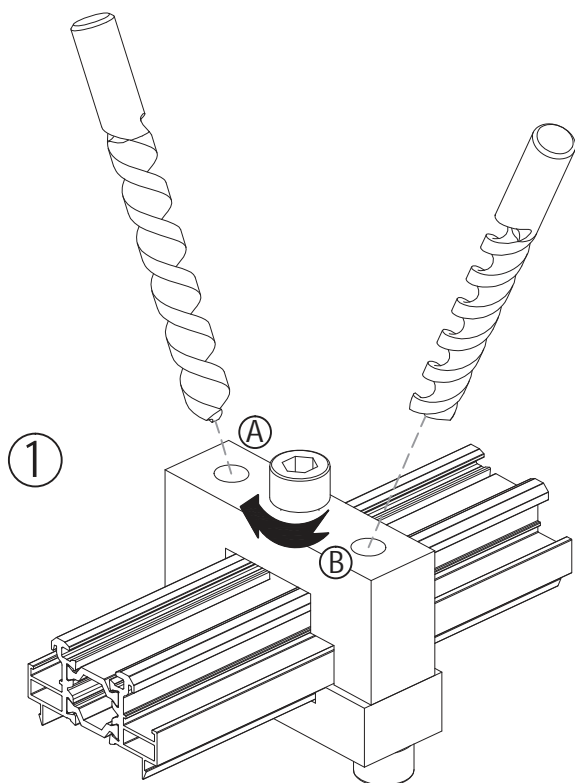


HOLES A & C OF THE JIG ARE ALIGNED WITH THE EDGES OF HOLE No1. THE JIG IS STABILIZED BY TIGHTENING THE SCREWS THAT ARE FIXED ON THE BOTTOM SIDE . HOLE No2 IS DRILLED USING A  $\phi 7\text{mm}$  DRILL BIT, THAT MUST GO THROUGH IN BOTH CAVITIES OF THE BOTTOM RAIL., AS PRESENTED IN THE DRAWING. HOLE No2 IS PERFORMED GRADUALLY, BY DRILLING THREE HOLES IN ROW (A, B & C)

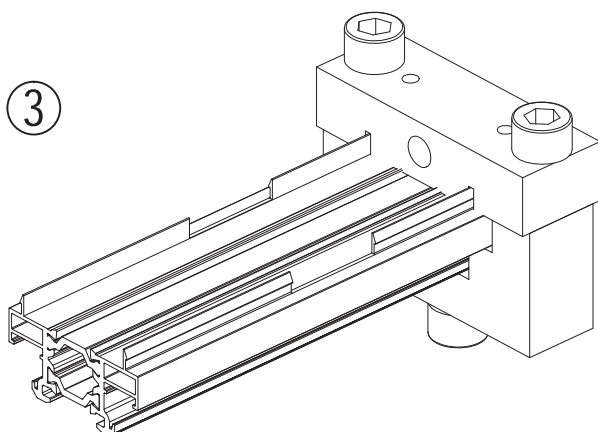


MACHINING BY JIG ON E50500

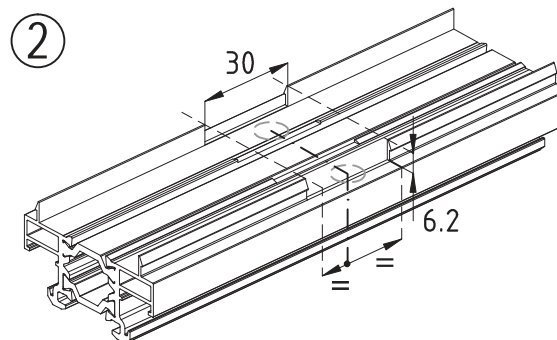
M50-30



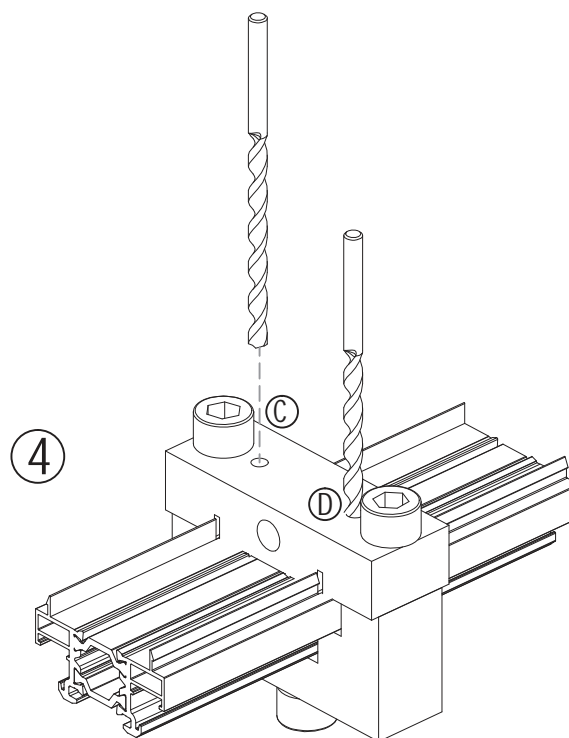
ADJOINING PROFILE IS INSERTED INTO THE JIG, AS PRESENTED IN THE DRAWING AND FIXED TO THE DESIRED POSITION, BY TIGHTENING THE SCREW. DRILL FIXING HOLES A & B, USING A  $\phi 8.5\text{mm}$  DRILL BIT. DRILL ONLY THE UPPER SIDE OF THE PROFILE



FIX JIG ONTO THE ADJOINING PROFILE, AS DESCRIBED IN STEP 1, TAKING CARE THAT THE CENTER OF THE JIG IS COAXIAL WITH THE CENTER OF THE PUNCHING, PERFORMED PREVIOUSLY



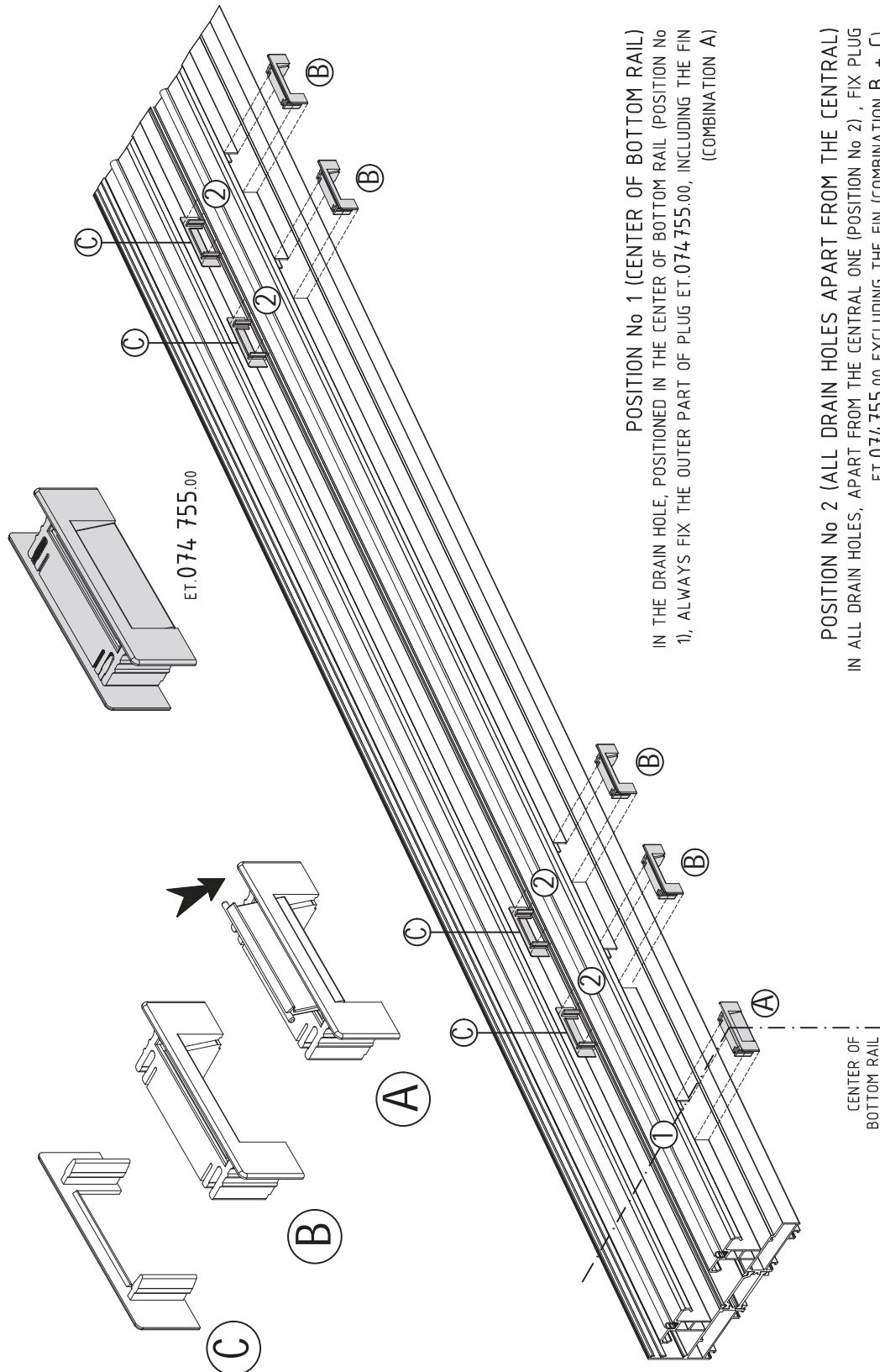
REMOVE THE JIG AND PERFORM THE MACHINING PRESENTED IN THE DRAWING, USING THE PUNCHING MACHINE (THE MACHINING IS PERFORMED WHERE THE DRAIN HOLES ON THE RAIL ARE PUNCHED). ATTENTION: THE CENTER OF PUNCHING MUST BE COAXIAL WITH THE CENTER OF THE HOLES DRILLED PREVIOUSLY



DRILL FIXING HOLES C & D, USING A  $\phi 4.5\text{mm}$  DRILL BIT

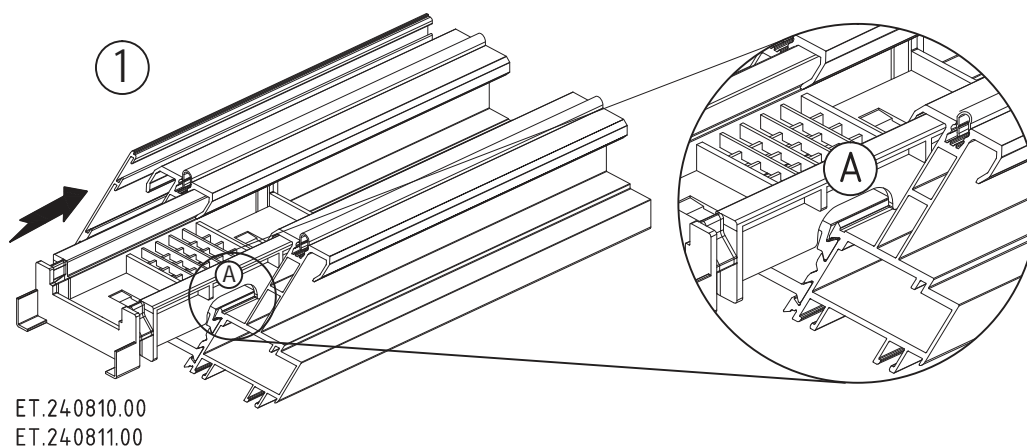
## INSTRUCTIONS FOR FITTING PLUG ET.074.755.00

M50-31

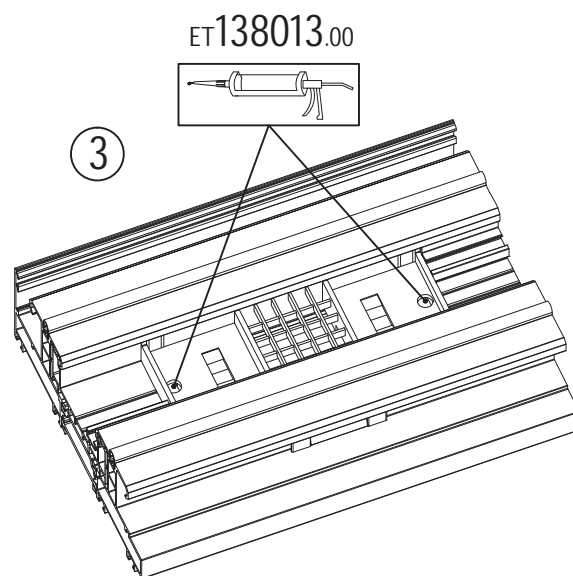
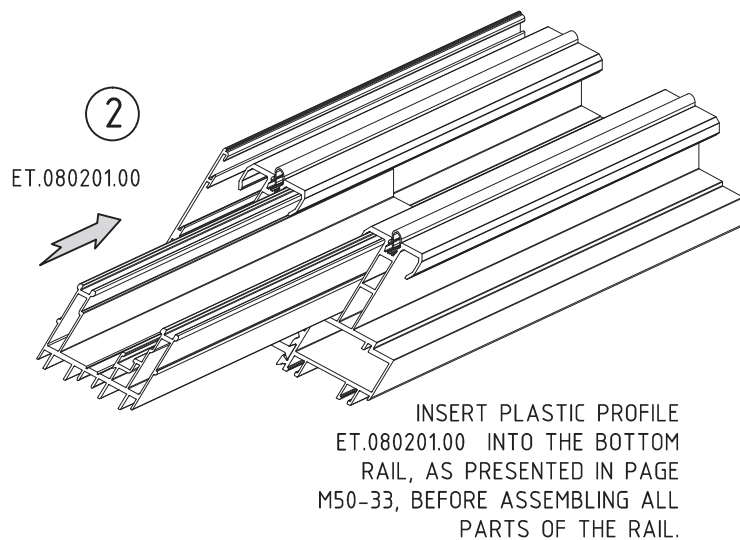


## INSTRUCTIONS FOR FITTING SEALING BLOCK ET.240810.00 & ET.240811.00

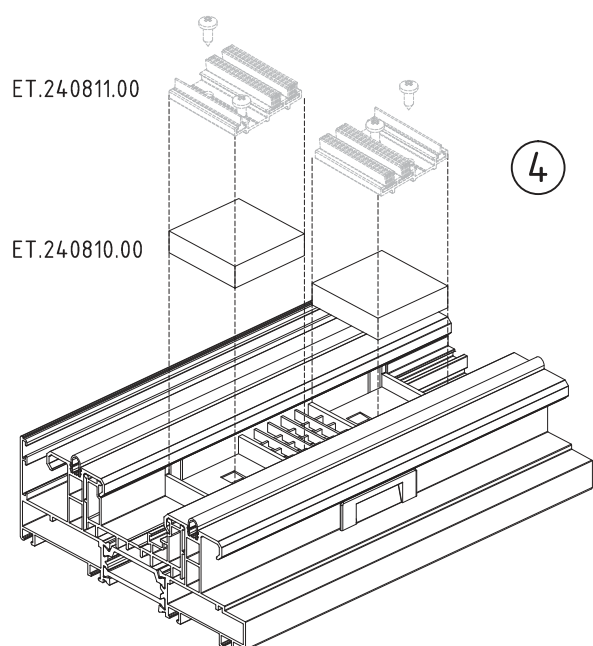
M50-32



SEALING BLOCK ET.240810.00 & ET.240811.00 IS INSERTED INTO THE BOTTOM RAIL BEFORE ASSEMBLING ALL PARTS OF THE RAIL. ALWAYS ENSURE THAT THE OPENING FORMED ON THE SEALING BLOCK IS POSITIONED AT THE SIDE OF THE CENTRAL DRAIN HOLE FORMED ON THE RAIL



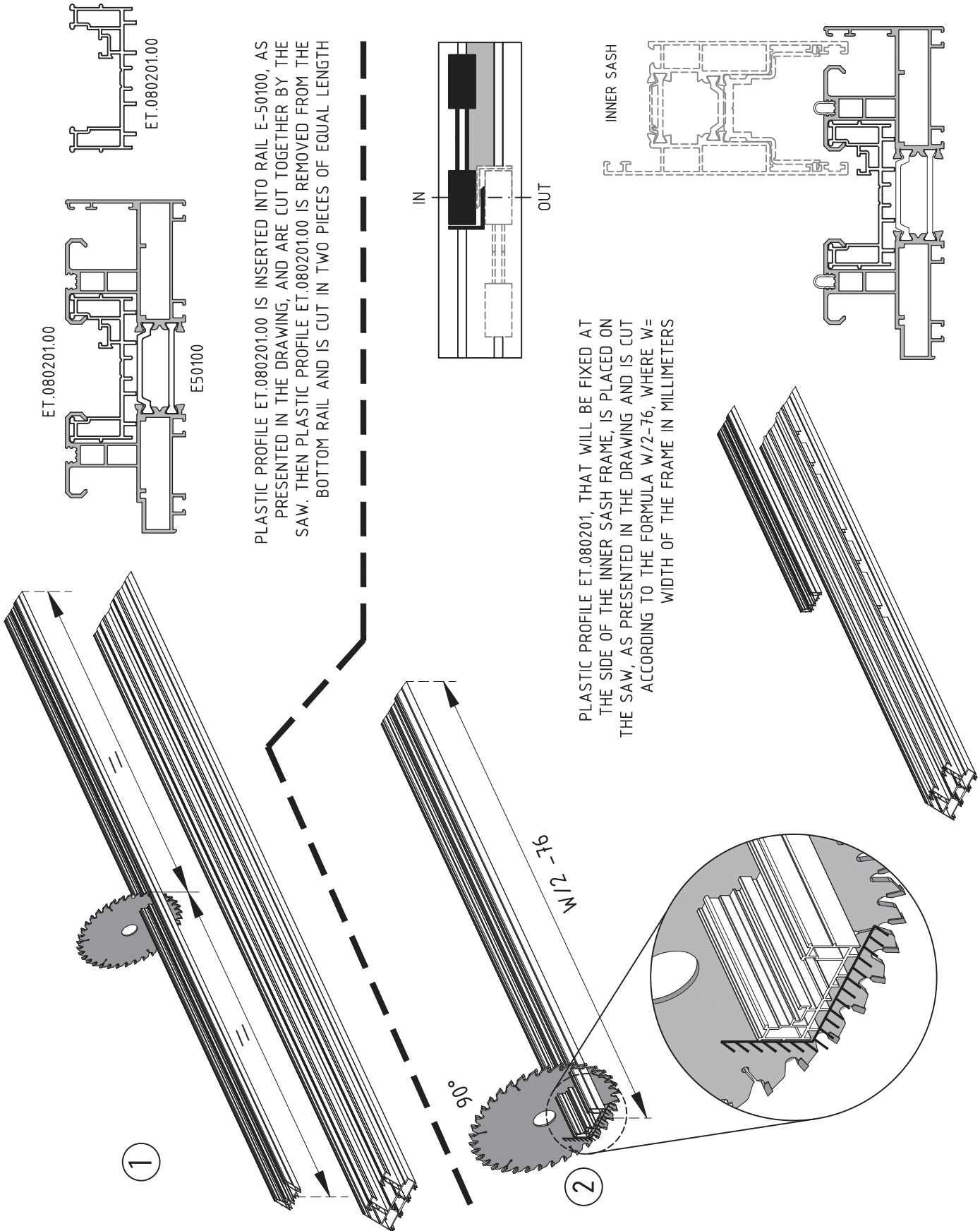
ALWAYS APPLY SEALANT ET.138013.00 INTO THE HOLES OF SEALING BLOCK ET.240810 & ET.240811.00, AS PRESENTED IN THE DRAWING



FIX INTO THE CAVITIES OF THE SEALING BLOCK THE FOAM ACCESSORIES (ET.240810.00 IN CASE OF USE OF LIFT & SLIDE HARDWARE) OR THE ALUMINUM PROFILE WITH THE PILE WEATHERSEAL AND GASKET (ET.240811.00 FOR SASH FRAMES WITH SIMPLE ROLLERS)

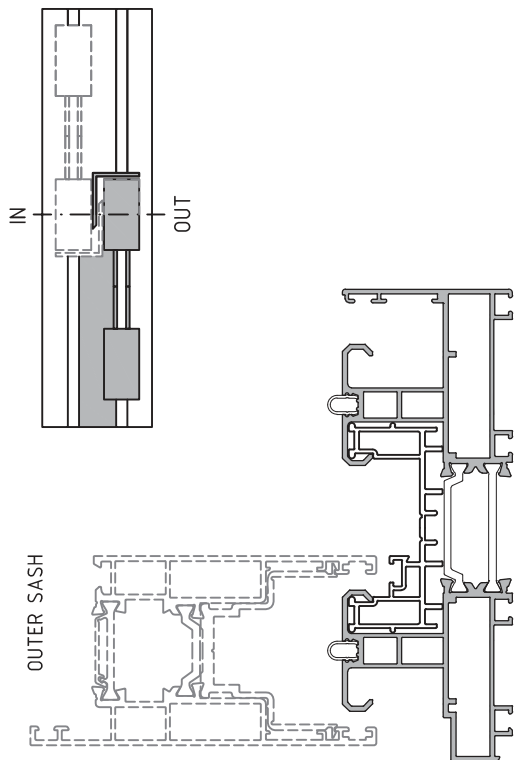
CUTTING ET.080201 FOR FIXING ON BOTTOM RAIL (1)

M50-33

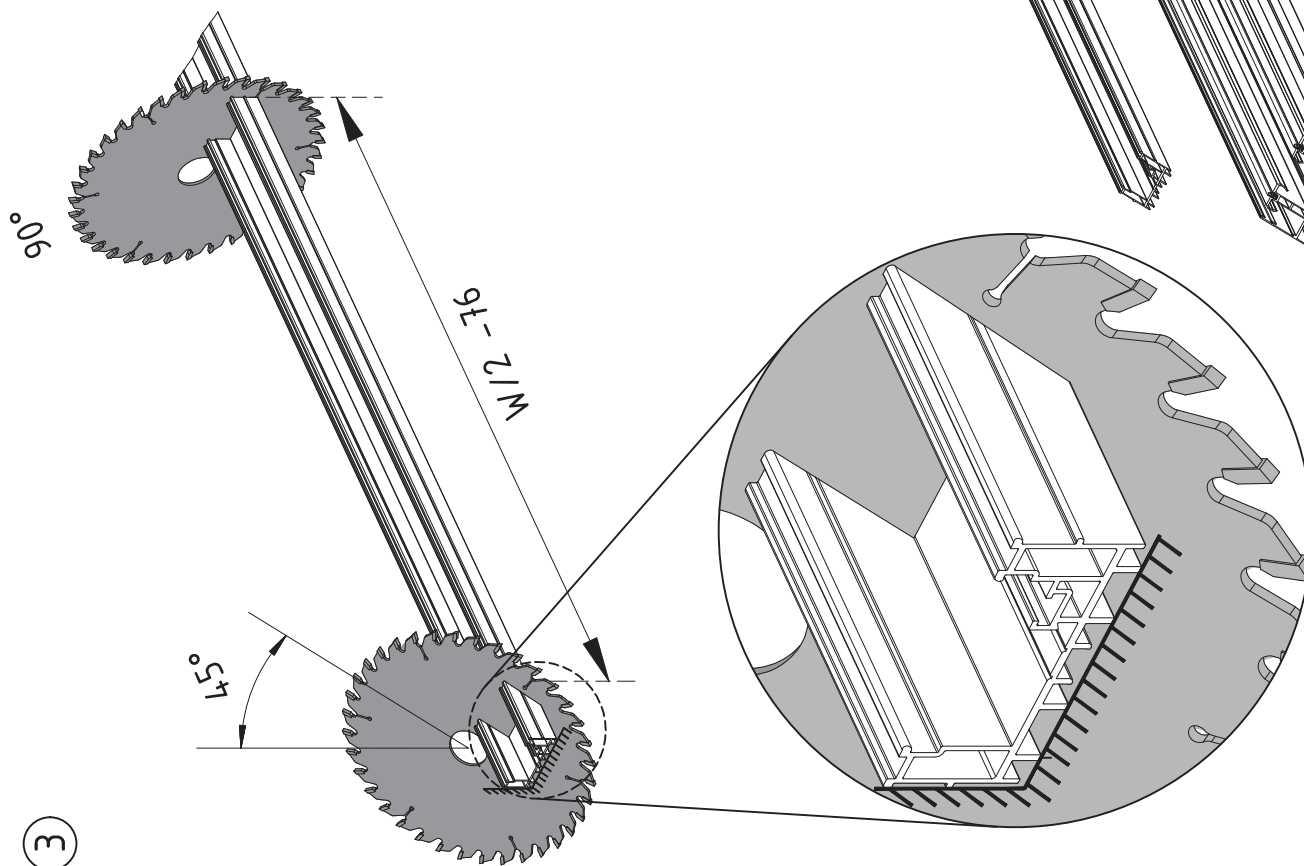
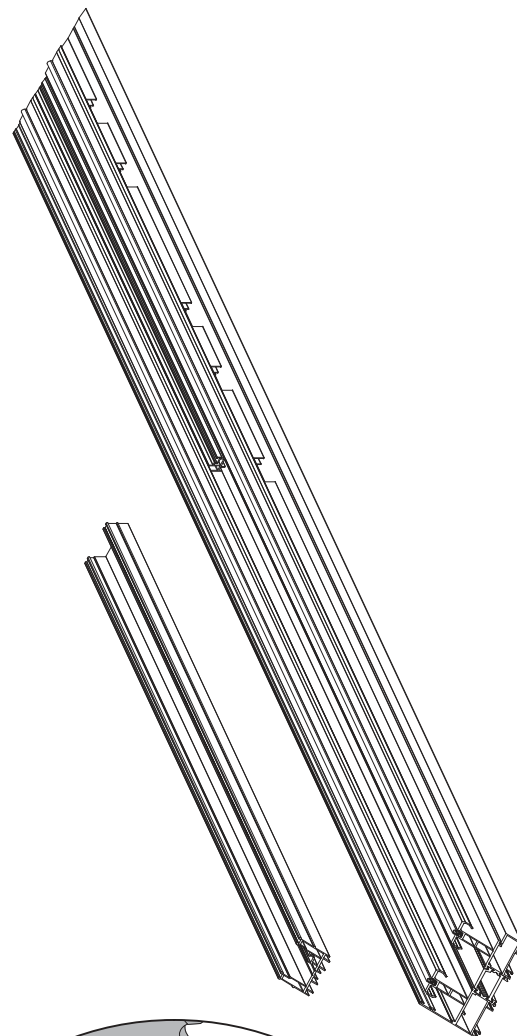


## CUTTING ET.080201 FOR FIXING ON BOTTOM RAIL (2)

M50-34



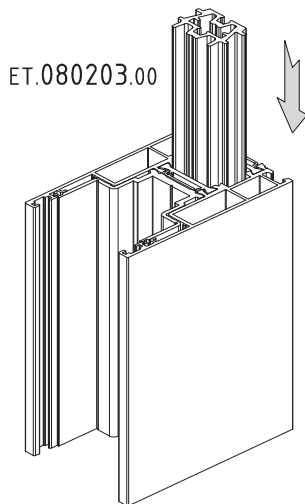
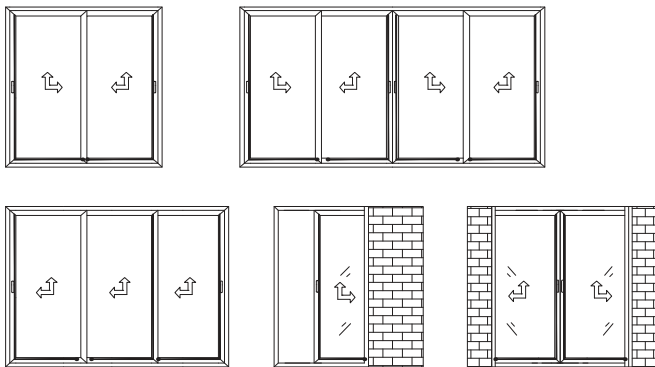
PLASTIC PROFILE ET.080201, THAT WILL BE FIXED AT THE SIDE OF THE OUTER SASH FRAME, IS PLACED ON THE SAW, AS PRESENTED IN THE DRAWING AND IS CUT ACCORDING TO THE FORMULA  $W/2-76$ , WHERE W= WIDTH OF THE FRAME IN MILLIMETERS



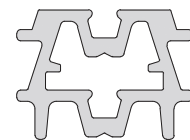
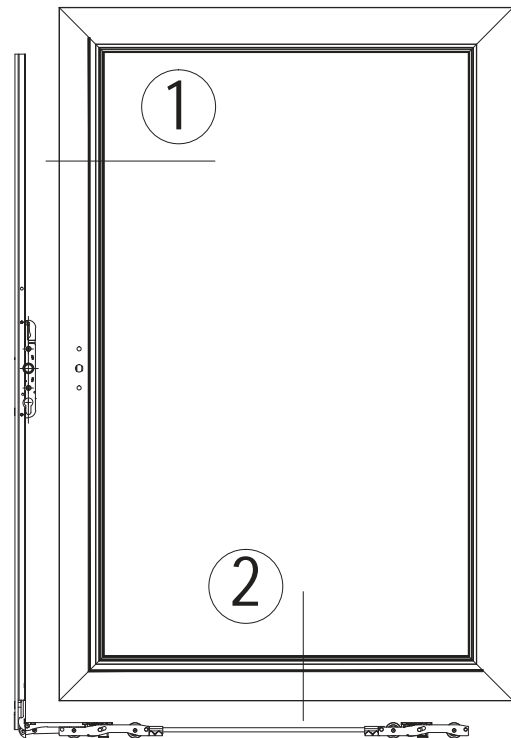
3

## APPLICATION OF ET.080203 FOR FIXING L&S HARDWARE

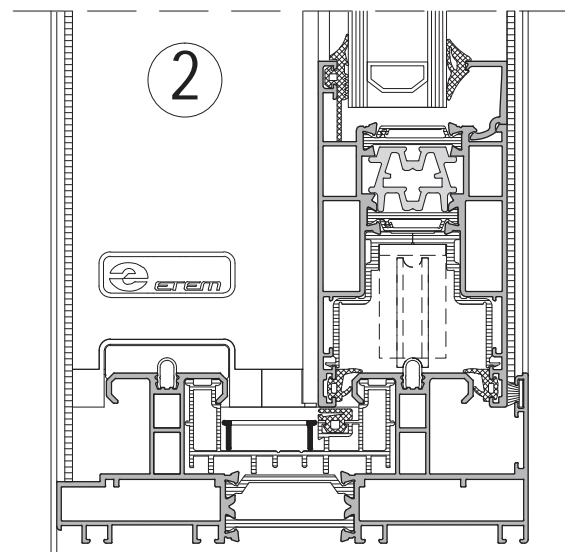
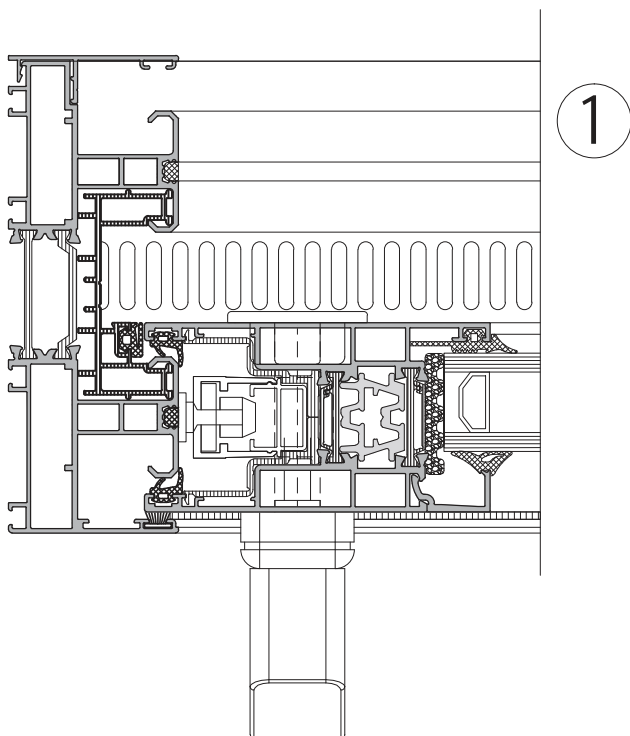
M50-35

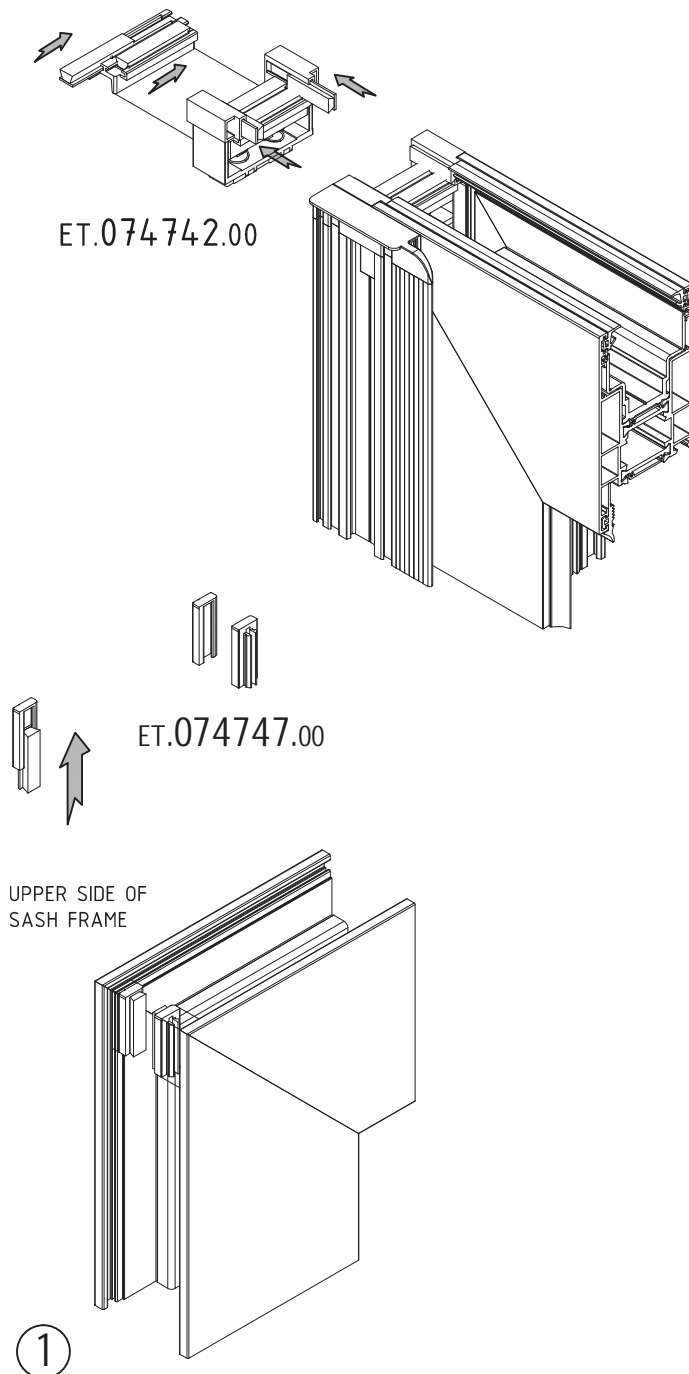


PLASTIC PROFILE ET.080203.00, IS PLACED ONLY ON THE SIDE OF THE SASH FRAME, WHERE THE GEAR OF THE L&S HARDWARE IS TO BE FIXED, AS WELL AS, ON THE BOTTOM SIDE OF THE SASH FRAME, WHERE THE ROLLERS ARE FIXED. THE PLASTIC PROFILE IS INSERTED IN THE SASH FRAME AND ARE CUT TOGETHER BY THE SAW



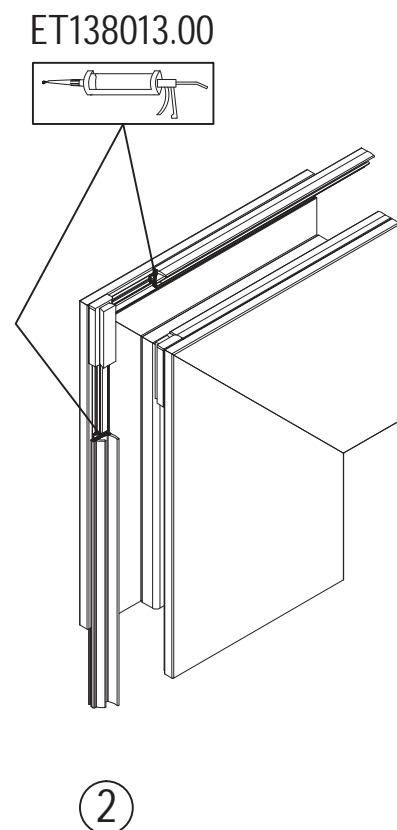
ET.080203.00





ARTICLES ET.074747.00, ARE FIXED AT THE UPPER INTERNAL AND EXTERNAL SIDE OF THE SASH FRAME. ALWAYS PLACE IN TO THE GROOVE THE PILE WEATHERSEAL, BEFORE FIXING IT ONTO THE SASH FRAME, AS PRESENTED IN THE DRAWINGS

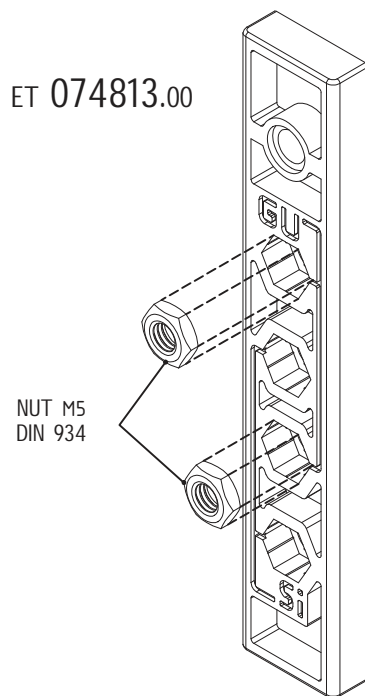
ALWAYS PLACE IN ADVANCE THE SEALING BRUSHES INTO THE GROOVES OF PLASTIC PLUG ET.080203.00, AS PRESENTED IN THE DRAWINGS, BEFORE FIXING IT ONTO THE INTERLOCK PROFILE



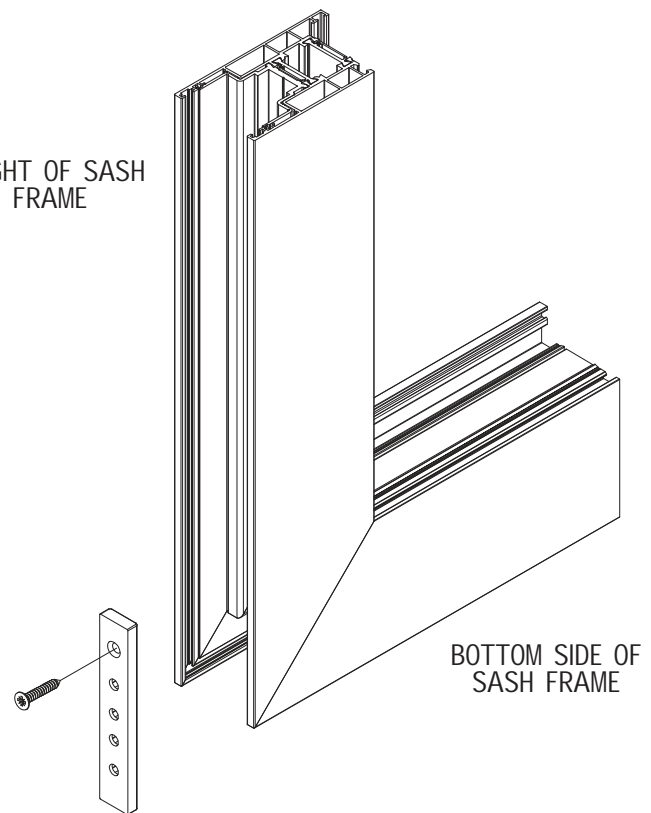
ALWAYS APPLY SEALANT ET.138013.00, AT THE SIDE OF GASKET ET.130771, THAT WILL COME INTO CONTACT WITH ET.130771.00, AS PRESENTED IN THE DRAWING

## INSTRUCTIONS FOR FIXING ET.074813 ONTO THE SASH FRAME

M50-37



HEIGHT OF SASH  
FRAME



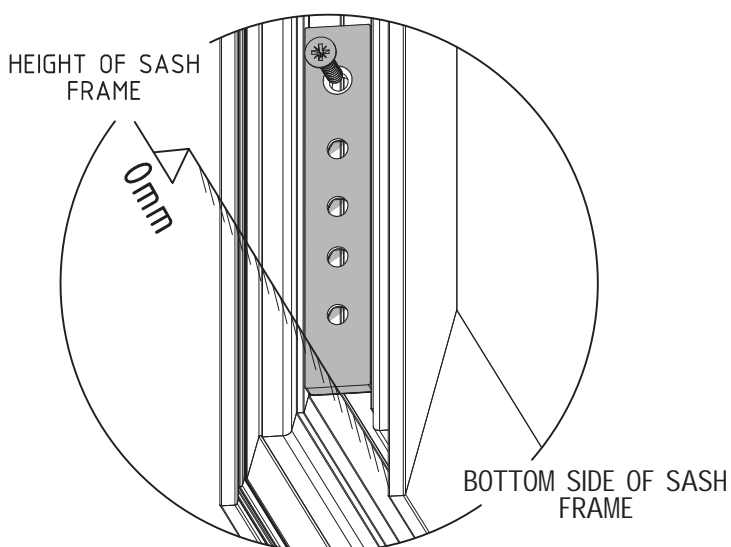
IN ORDER TO FIX THE GEAR OF G.U. L&S  
HARDWARE ONTO THE SASH FRAME, FIX 2  
M5 NUTS (DIN 934) ONTO ARTICLE  
ET.074813.00, ACCORDING TO THE  
DRAWING

ARTICLE ET.074813.00 IS FIXED ON THE BOTTOM SIDE OF  
THE HEIGHT OF THE SASH FRAME, AT THE SIDE WHERE  
THE GEAR OF THE HARDWARE IS TO BE FIXED.

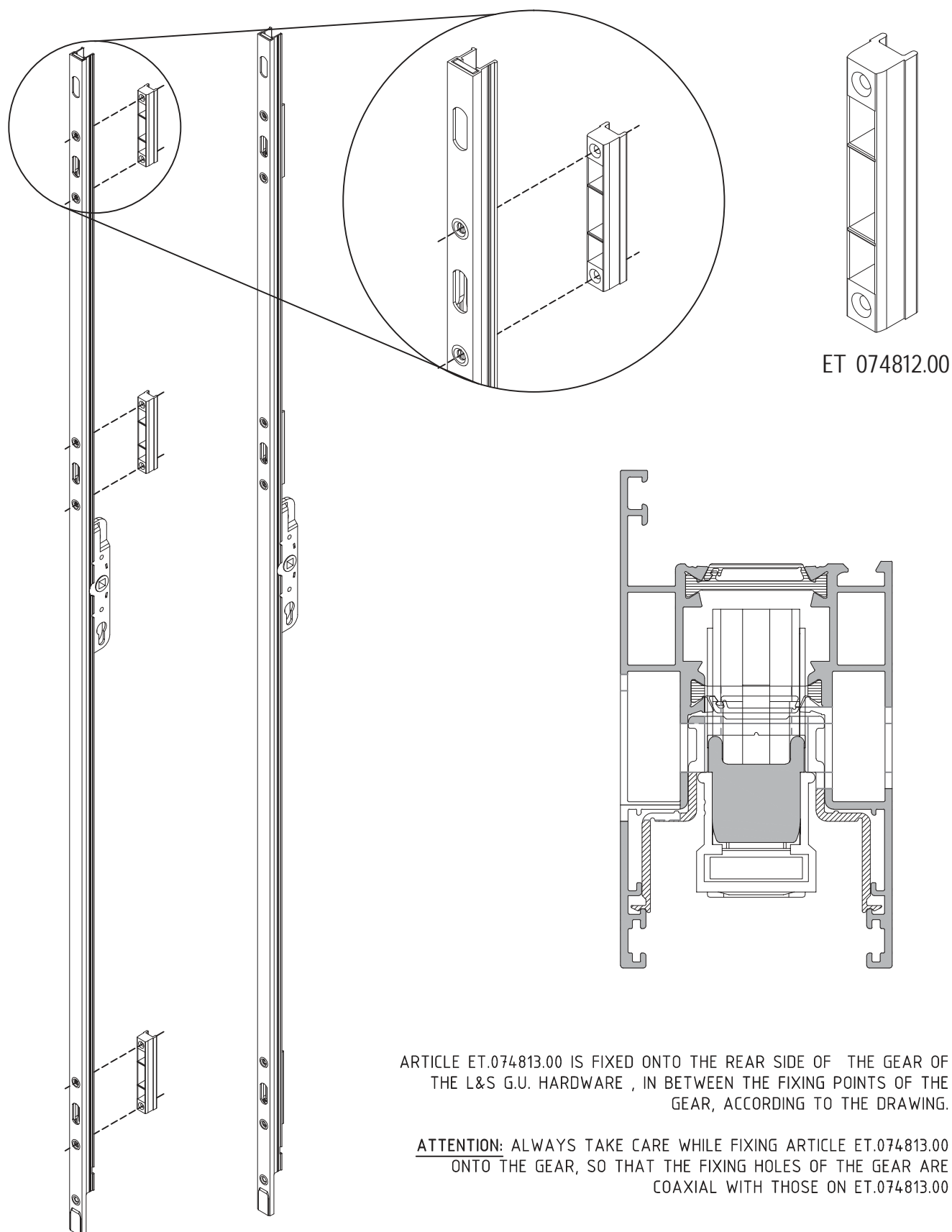
ATTENTION: THE FIXING HOLE OF ET.074813.00 MUST BE  
ORIENTED TO THE UPPER SIDE OF THE HEIGHT OF THE  
SASH FRAME. THE SIDE OF ET.074813.00, WHERE THE NUTS  
ARE ENCASED, WILL BE IN CONTACT WITH THE PLASTIC  
DRAIN PROFILE, FIXED ONTO THE SASH FRAME

THE BOTTOM SIDE OF ET.074813.00 MUST BE ALIGNED  
WITH THE BOTTOM SIDE OF THE PLASTIC PROFILE FIXED  
ONTO THE BOTTOM SIDE OF THE SASH FRAME, AS  
PRESENTED IN THE DRAWING.

ET.074813.00 IS FIXED ONTO THE SASH FRAME USING  
ONE (1) SHEET METAL SCREW 4.8x30mm DIN 7982

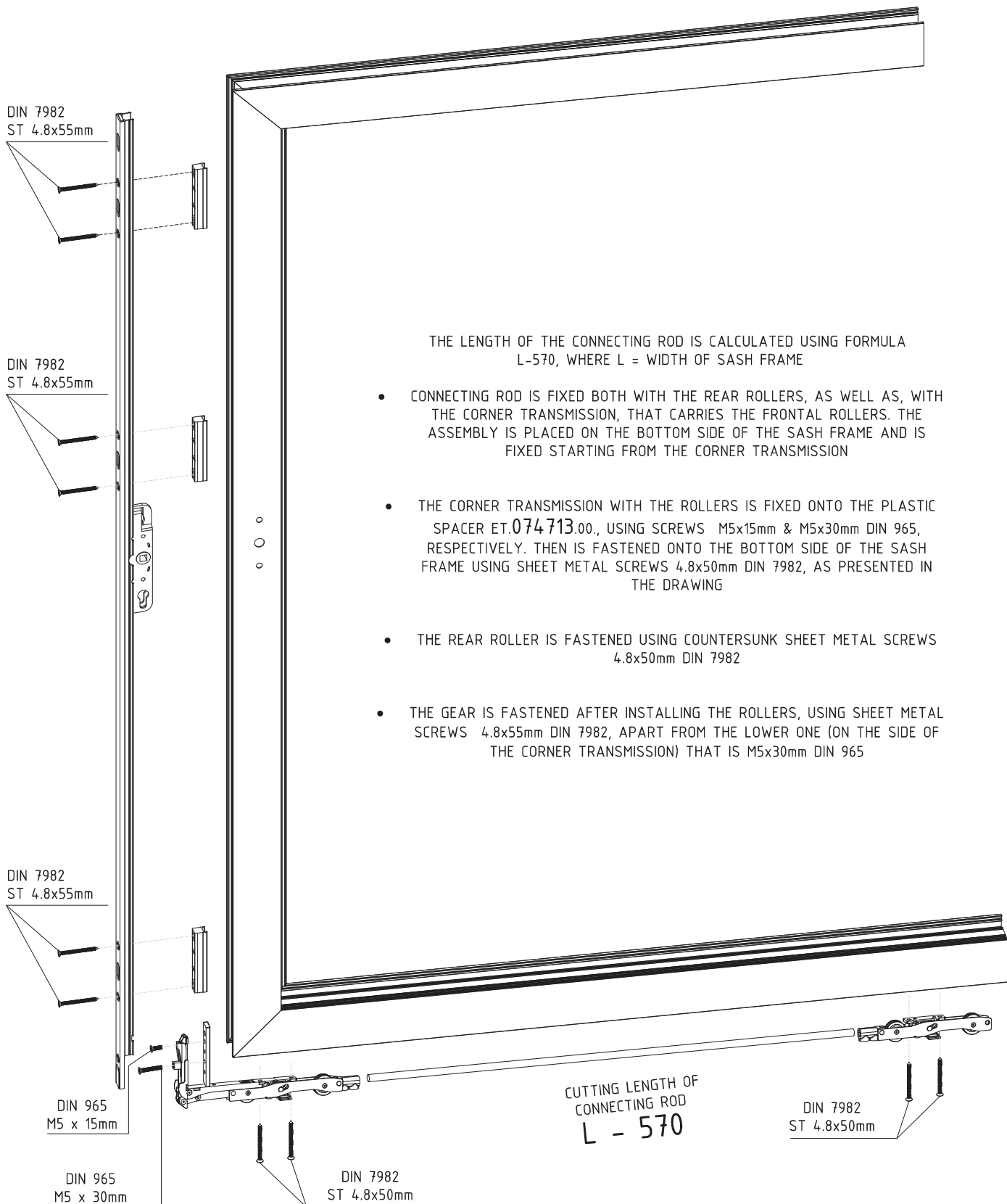






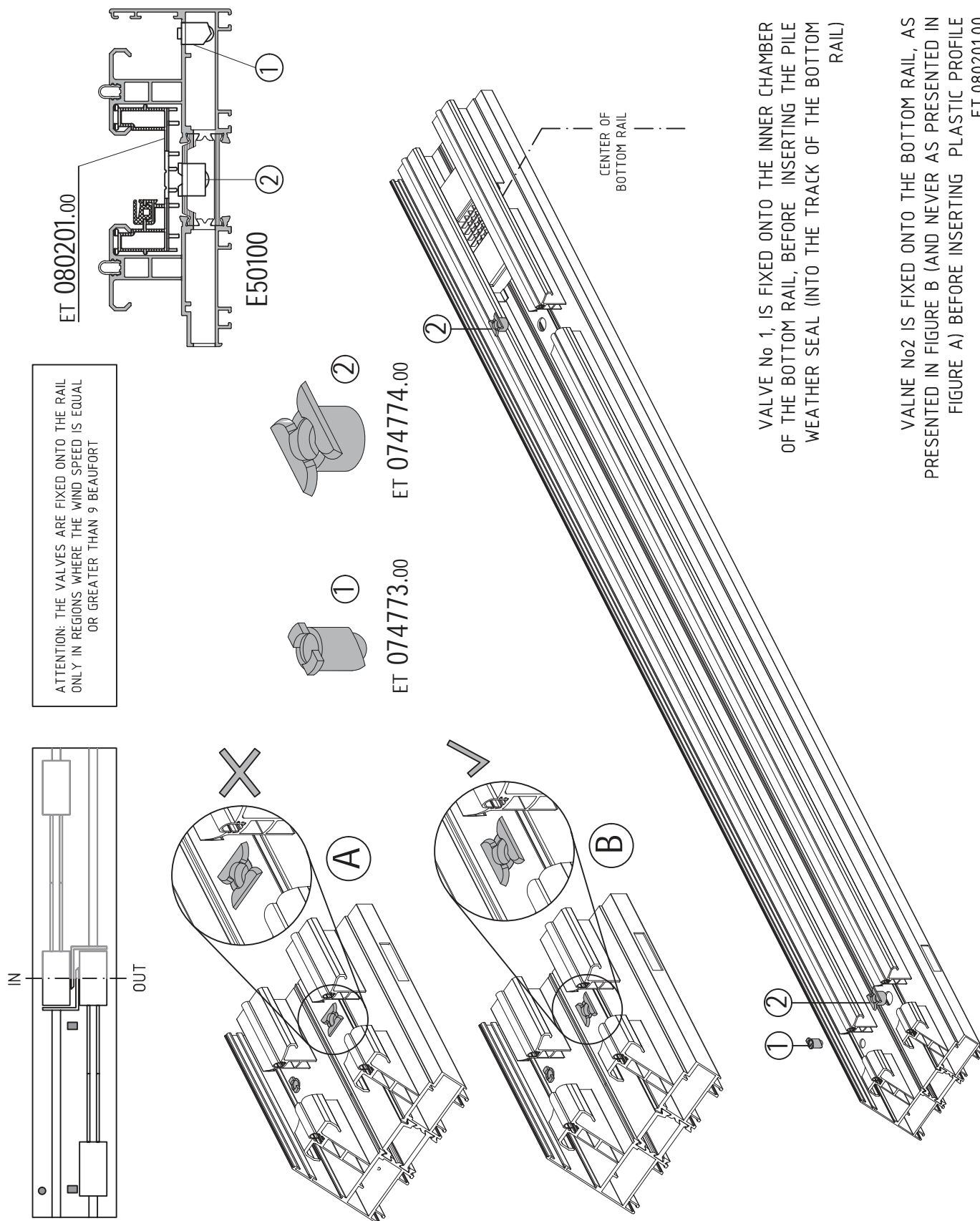
ARTICLE ET.074813.00 IS FIXED ONTO THE REAR SIDE OF THE GEAR OF THE L&S G.U. HARDWARE, IN BETWEEN THE FIXING POINTS OF THE GEAR, ACCORDING TO THE DRAWING.

**ATTENTION:** ALWAYS TAKE CARE WHILE FIXING ARTICLE ET.074813.00 ONTO THE GEAR, SO THAT THE FIXING HOLES OF THE GEAR ARE COAXIAL WITH THOSE ON ET.074813.00



## FIXING VALVES ONTO THE BOTTOM RAIL E50100

M50-40



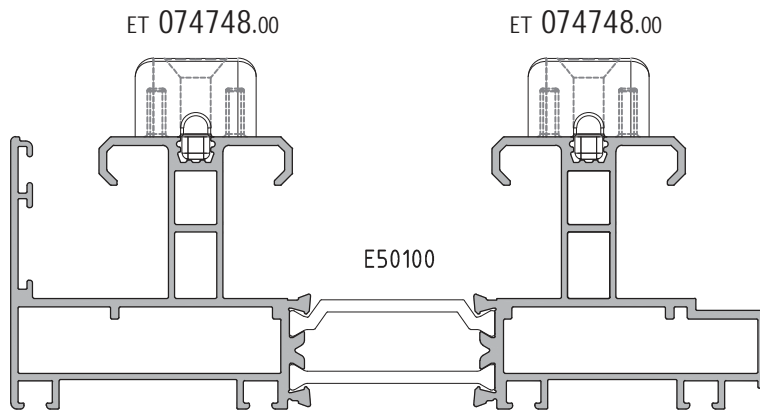
ATTENTION: THE VALVES ARE FIXED ONTO THE RAIL ONLY IN REGIONS WHERE THE WIND SPEED IS EQUAL OR GREATER THAN 9 BEAUFORT

VALVE No 1, IS FIXED ONTO THE INNER CHAMBER OF THE BOTTOM RAIL, BEFORE INSERTING THE PILE WEATHER SEAL (INTO THE TRACK OF THE BOTTOM RAIL)

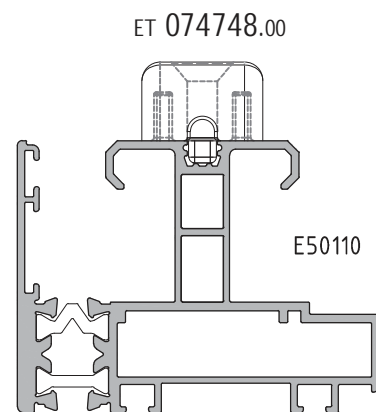
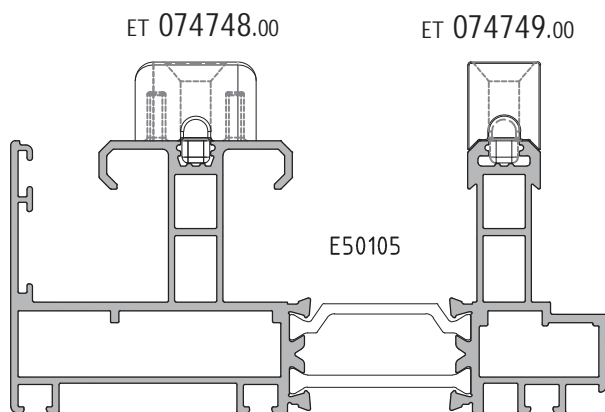
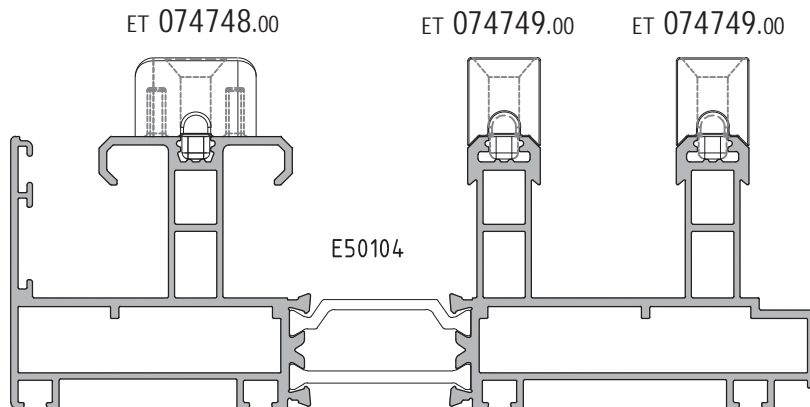
VALVE No2 IS FIXED ONTO THE BOTTOM RAIL, AS PRESENTED IN FIGURE B (AND NEVER AS PRESENTED IN FIGURE A) BEFORE INSERTING PLASTIC PROFILE ET.080201.00

## GUIDELINES FOR THE SELECTION OF STOP PER RAIL

M50-41

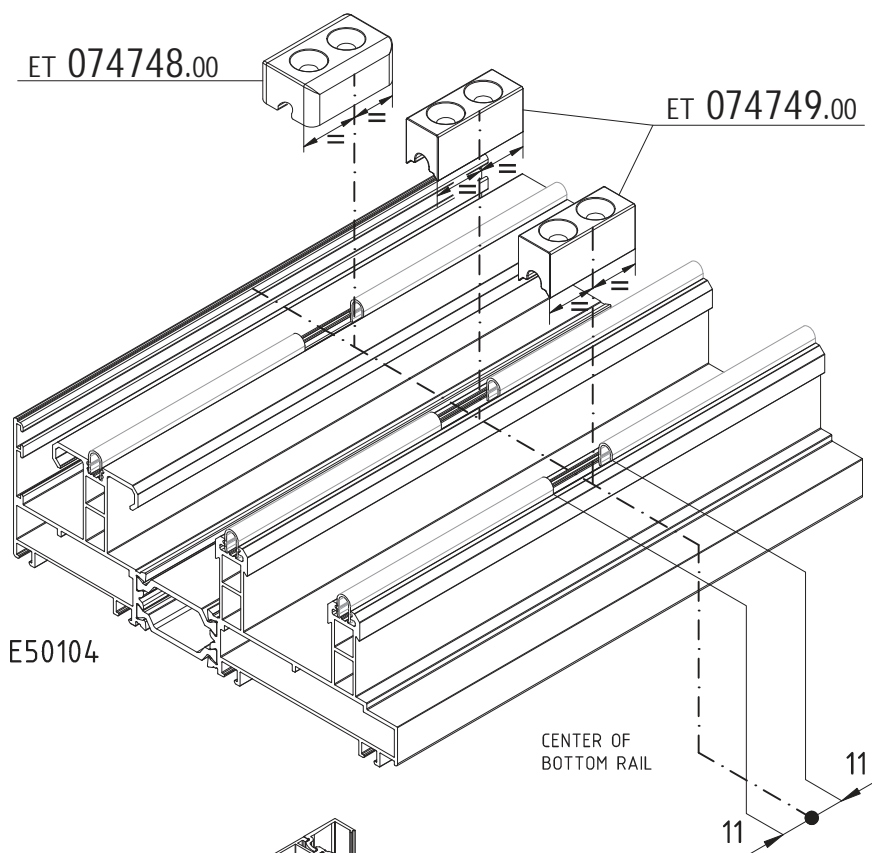


STOP ET.074748.00, IS ALWAYS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE GLAZING IS TO BE PLACED, WHILST STOP ET.074749.00 IS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE INSECT SCREEN AND/OR THE SHUTTER IS TO BE PLACED. ET.074748.00 & ET.074749.00 ARE FIXED AT TOP AND BOTTOM RAIL.



## FIXING STOP ON RAIL (BOTTOM SIDE)

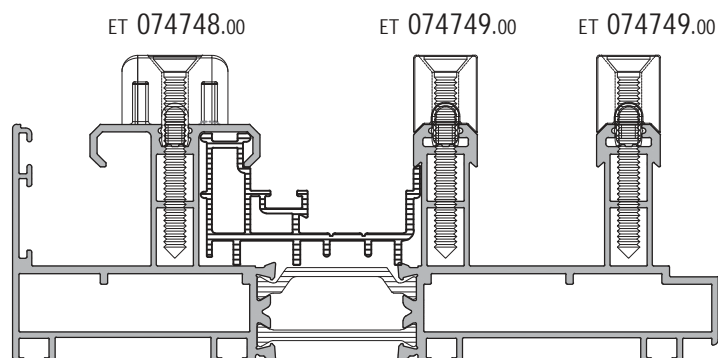
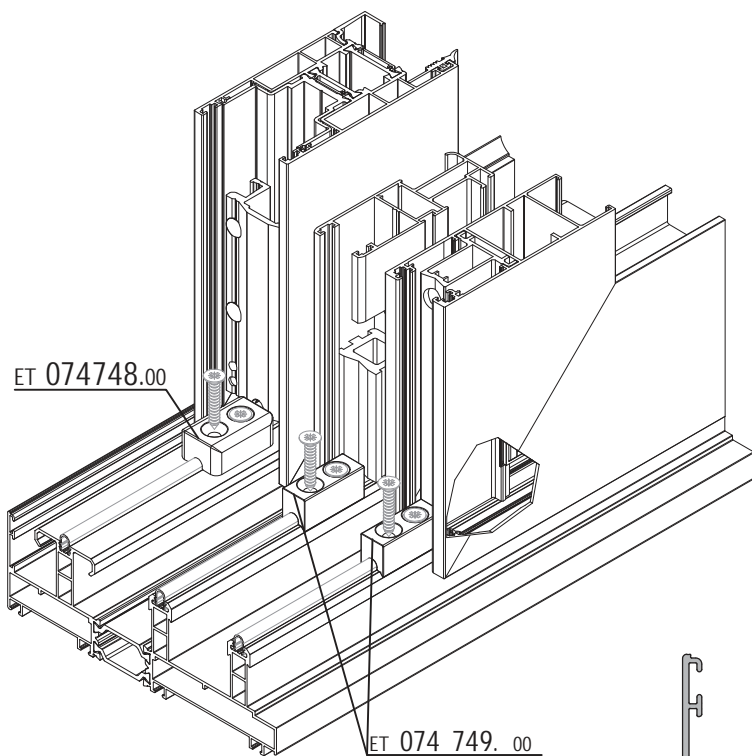
M50-42



STOP ET.074748.00, IS ALWAYS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE GLAZING IS TO PLACED, WHILST STOP ET.074749.00 IS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE INSECT SCREEN AND/OR THE SHUTTER IS TO BE PLACED.

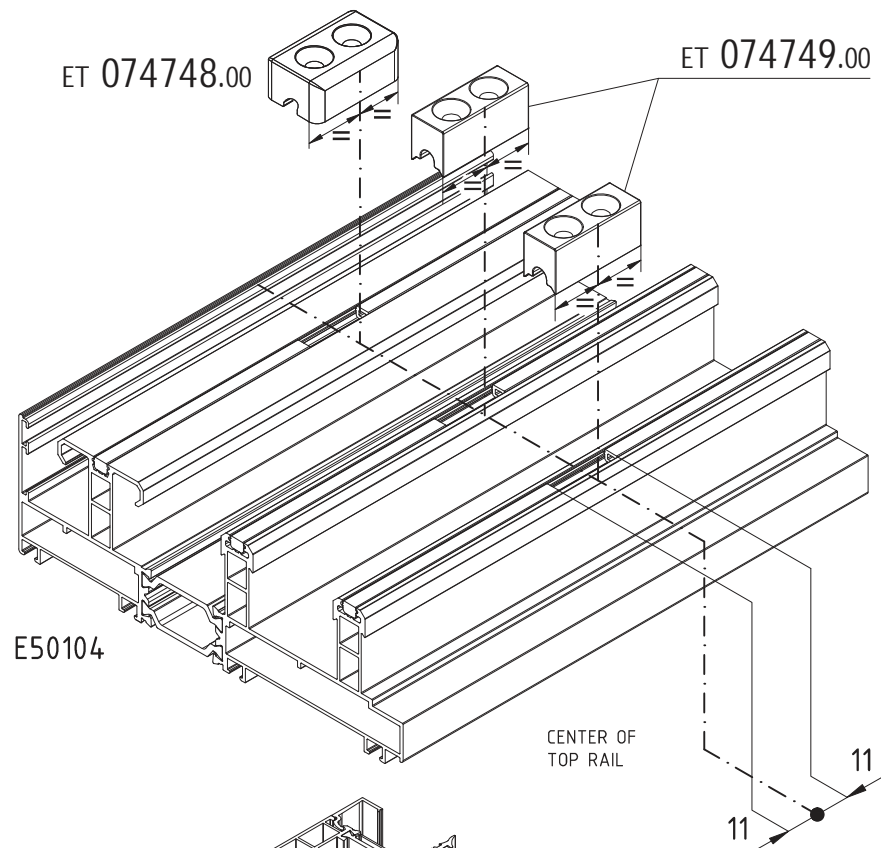
ET.074748.00 & ET.074749.00 ARE FIXED AT TOP AND BOTTOM RAIL. THE CUTTING LENGTH OF EACH INOX RAIL ET.082201.00, THAT IS TO BE FIXED ONTO THE BOTTOM RAIL (AT BOTTOM SIDES OF THE STOP) IS CALCULATED BY THE FOLLOWING FORMULA:

$(L-22)/2$ , WHERE L=LENGTH OF THE RAIL ET.074748.00 & ET.074749.00 ARE FIXED ONTO THE RAIL USING COUNTERSUNK SHEET METAL SCREWS 4.2x38mm DIN 7982



## FIXING STOP ON RAIL (TOP SIDE)

M50-43

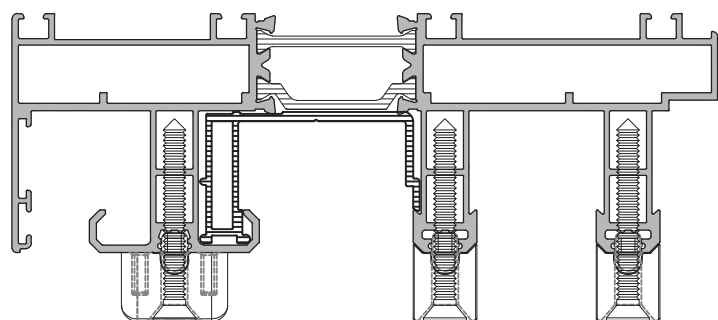
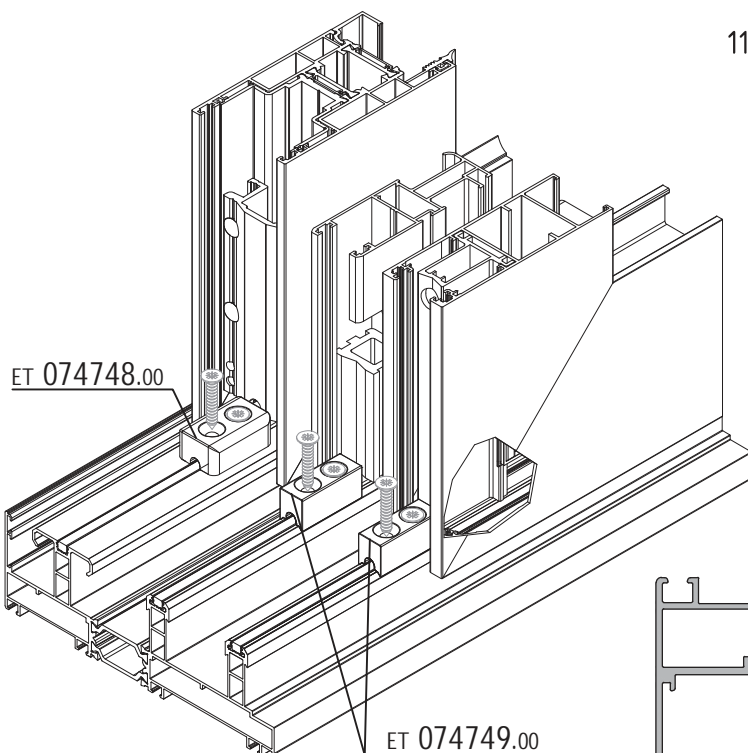


ET 130 770.00

STOP ET.074748.00, IS ALWAYS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE GLAZING IS TO PLACED, WHILST STOP ET.074749.00 IS FIXED AT THE TRACK OF THE RAIL, WHERE THE SASH WITH THE INSECT SCREEN AND/OR THE SHUTTER IS TO BE PLACED.

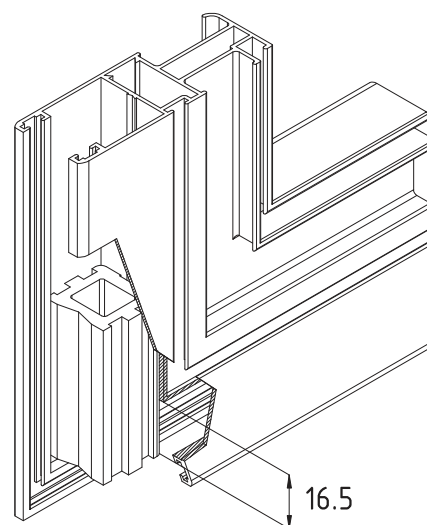
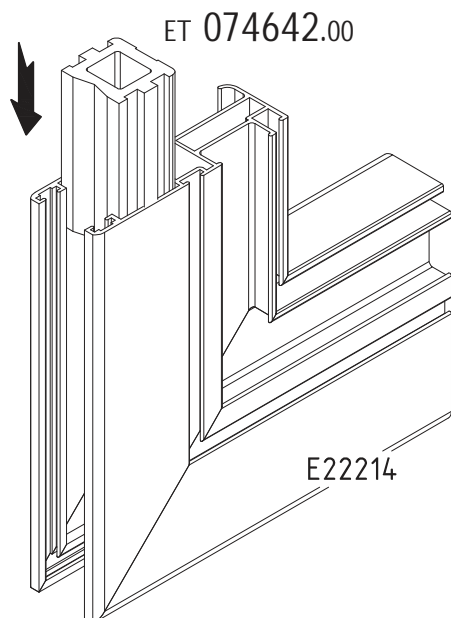
ET.074748.00 & ET.074749.00 ARE FIXED AT TOP AND BOTTOM RAIL.

THE CUTTING LENGTH OF EACH GASKET ET.130770.00, THAT IS TO BE FIXED ONTO THE BOTTOM RAIL (AT BOTTOM SIDES OF THE STOP) IS CALCULATED BY THE FOLLOWING FORMULA:  $(L-22)/2$ , WHERE L=LENGTH OF THE RAIL ET.074748.00 & ET.074749.00 ARE FIXED ONTO THE RAIL USING COUNTERSUNK SHEET METAL SCREWS 4.2x38mm DIN 7982



## FIXING EPDM STOP ON INSECT SCREEN E22214

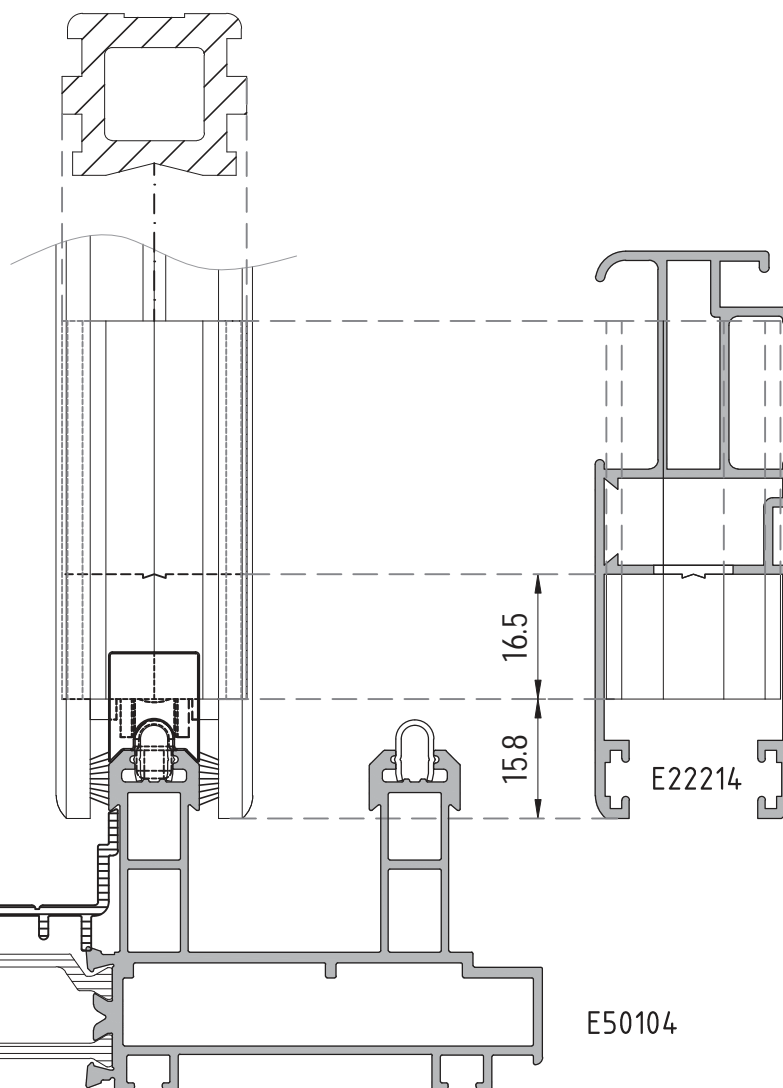
M50-44



ET.074642.00, IS INSERTED INTO THE VERTICAL PART OF SASH E22214, BEFORE ASSEMBLING THE SASH FRAME.

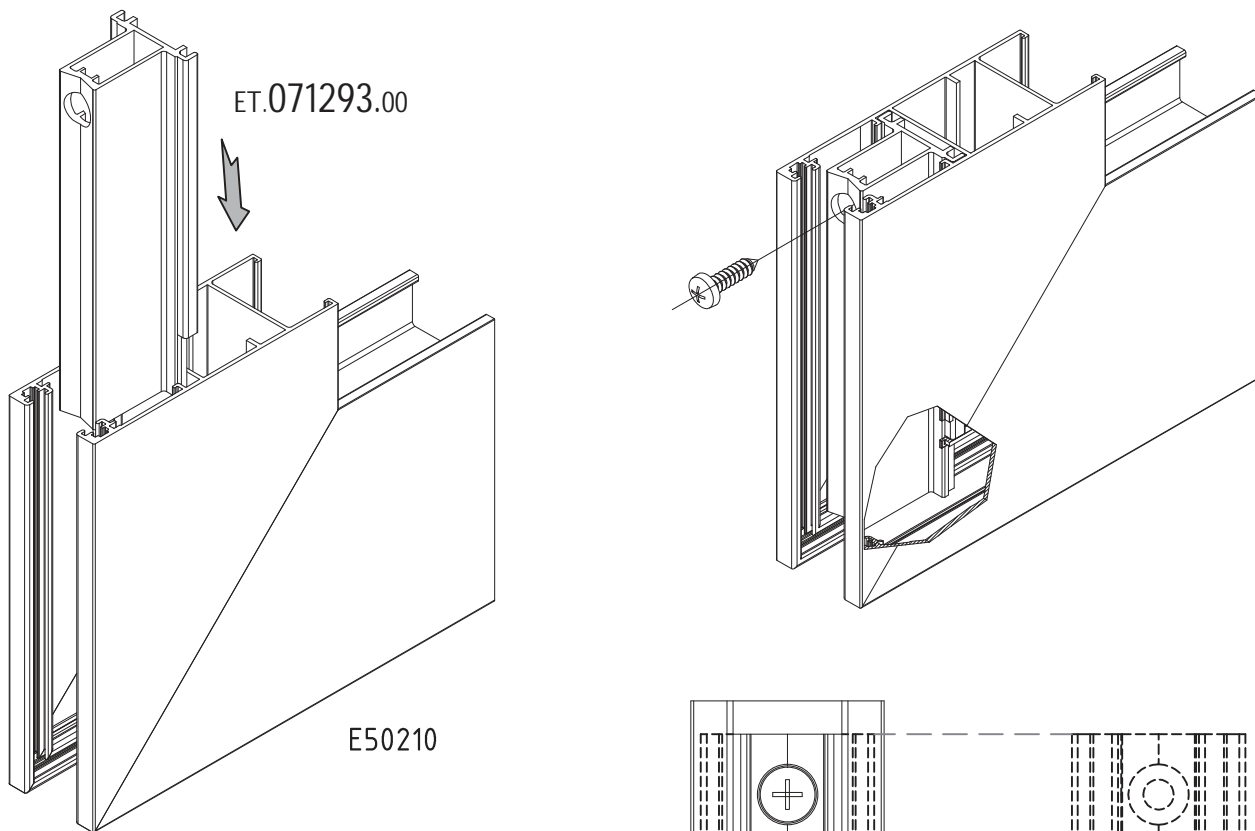
USE TWO PIECES OF ET.074642.00 (ONE FOR THE TOP SIDE AND ONE FOR THE BOTTOM SIDE).

ONCE THE SASH FRAME IS PLACED ONTO THE TRACK OF THE FRAME, ET.074642.00 IS MOVED TO ITS FINAL POSITION, AS PRESENTED IN THE DRAWINGS



FIXING STOP ON E50210

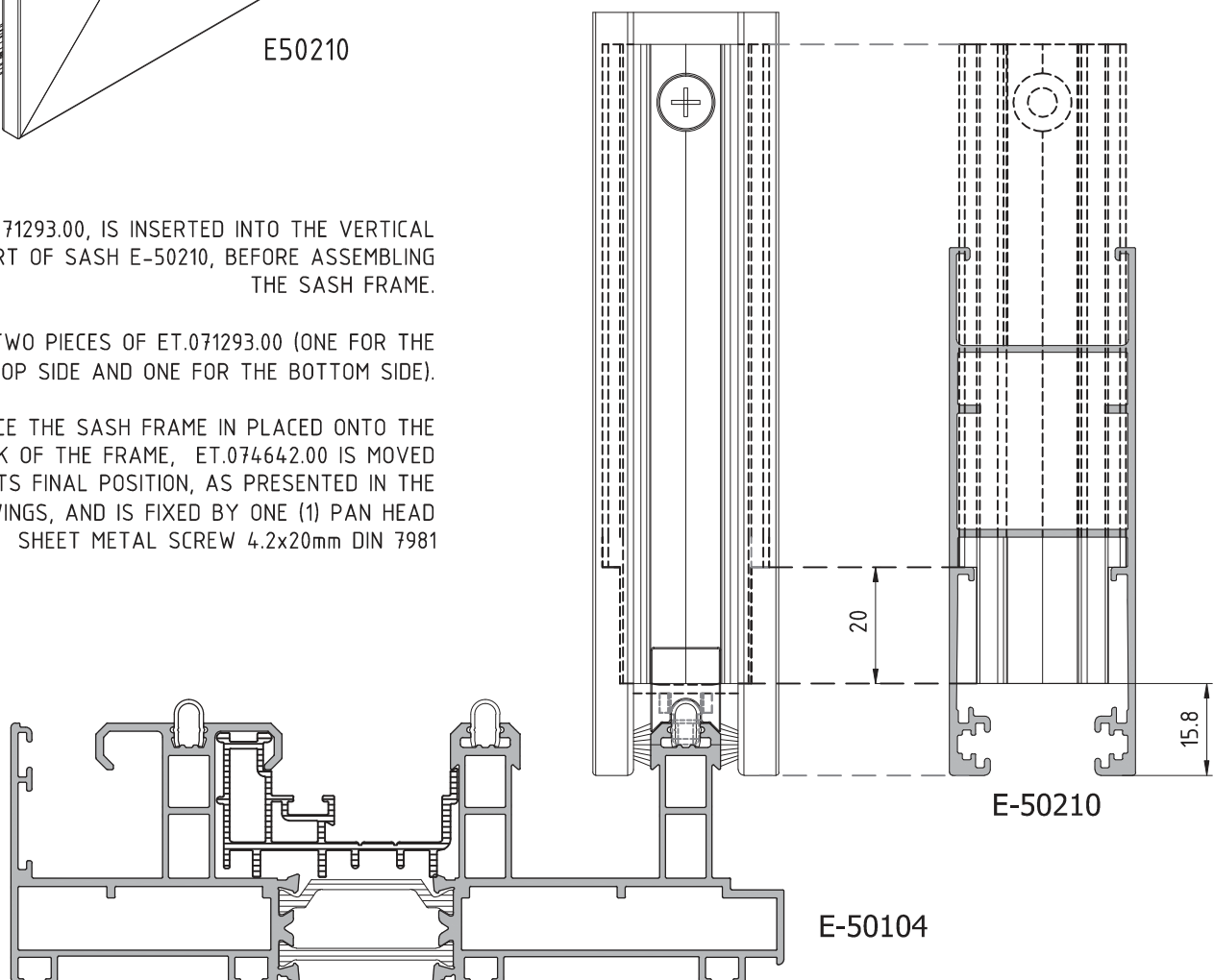
M50-45



ET.071293.00, IS INSERTED INTO THE VERTICAL PART OF SASH E-50210, BEFORE ASSEMBLING THE SASH FRAME.

USE TWO PIECES OF ET.071293.00 (ONE FOR THE TOP SIDE AND ONE FOR THE BOTTOM SIDE).

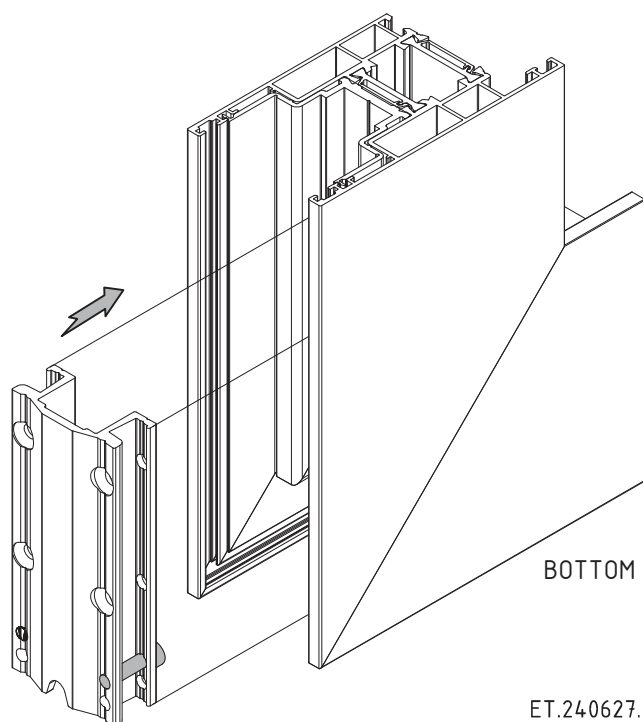
ONCE THE SASH FRAME IS PLACED ONTO THE TRACK OF THE FRAME, ET.074642.00 IS MOVED TO ITS FINAL POSITION, AS PRESENTED IN THE DRAWINGS, AND IS FIXED BY ONE (1) PAN HEAD SHEET METAL SCREW 4.2x20mm DIN 7981



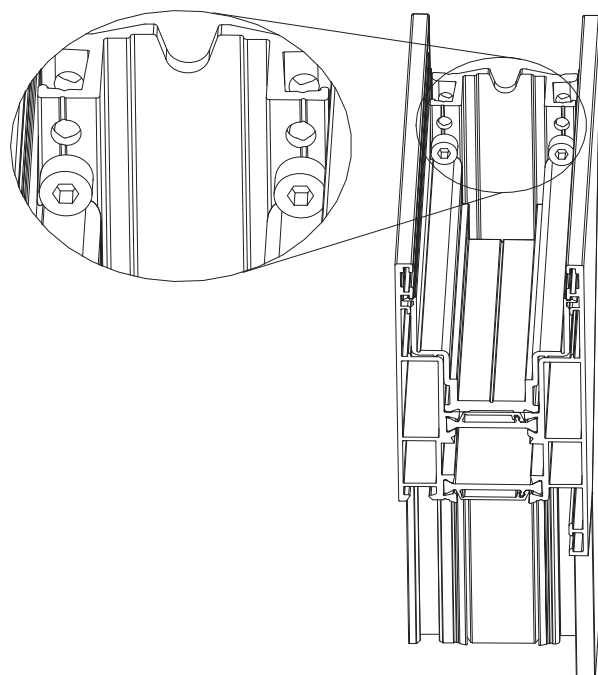


## FIXING STOP ON E50201 & E50202 (BOTTOM SIDE)

M50-46



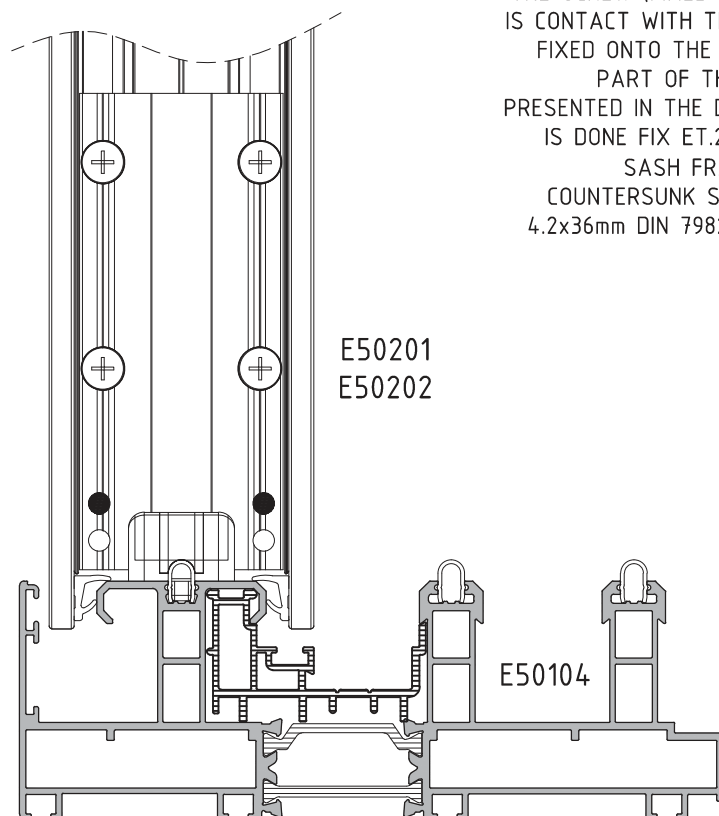
BOTTOM SIDE



ET 240 627.00

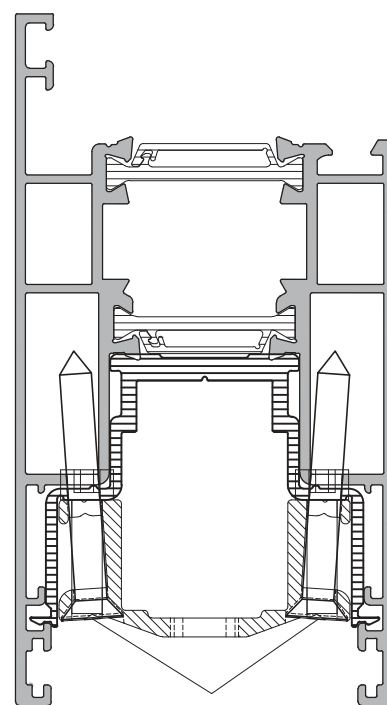
ET.240627.00, IS ALWAYS PLACED AT THE LOWER SIDE OF THE SASH FRAME E-50201 & E-50202, AFTER PLACING THE SASH FRAME ONTO THE RAIL.

ALWAYS TAKE CARE THAT THE HEAD OF THE SCREW (FIXED ONTO ET.240627.00), IS CONTACT WITH THE PLASTIC PROFILE FIXED ONTO THE LOWER HORIZONTAL PART OF THE SASH FRAME, AS PRESENTED IN THE DRAWING. ONCE THIS IS DONE FIX ET.240627.00 ONTO THE SASH FRAME USING FOUR (4) COUNTERSUNK SHEET METAL SCREW 4.2x36mm DIN 7982, AS PRESENTED IN THE DRAWING



E50201  
E50202

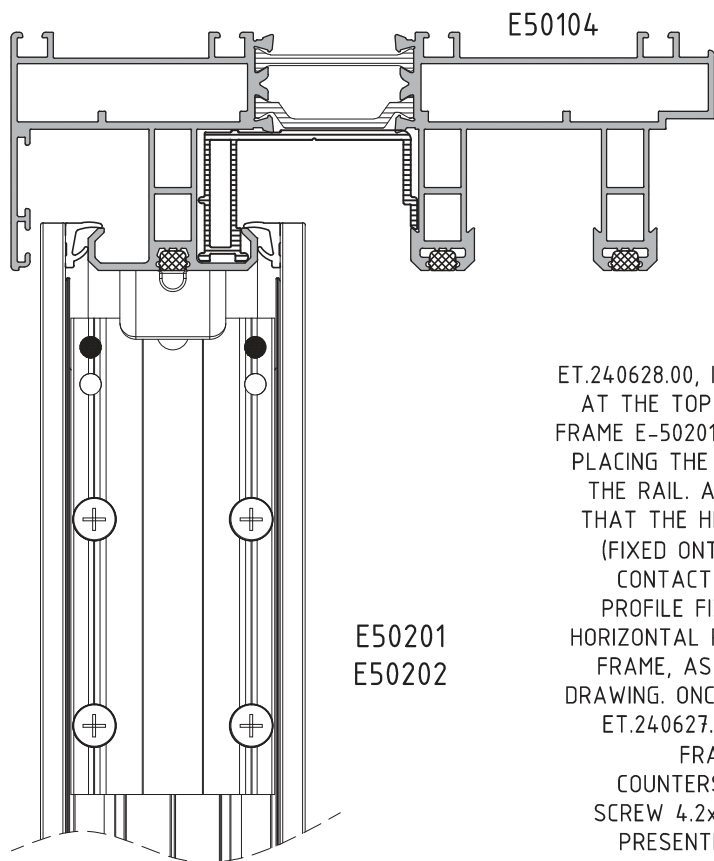
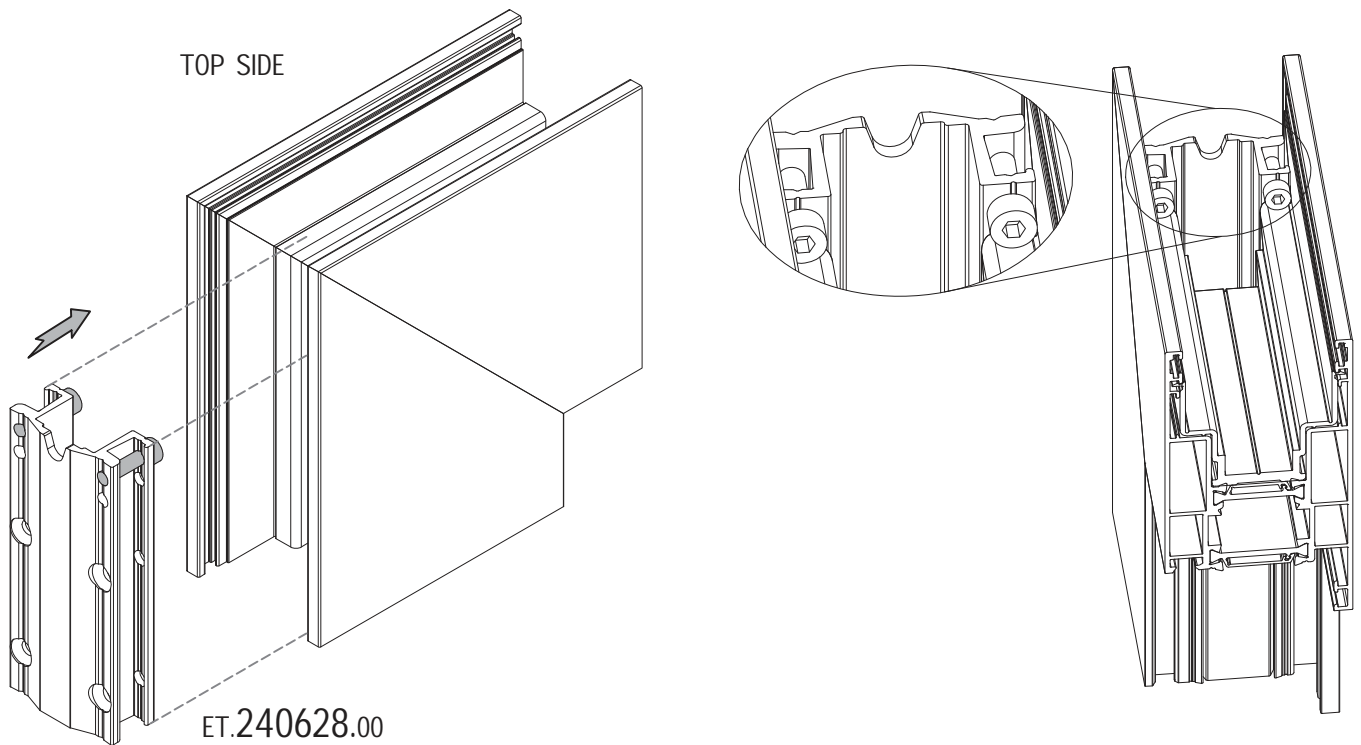
E50104



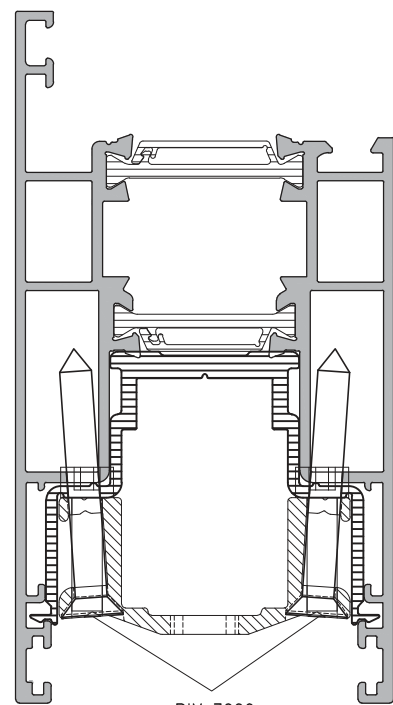
DIN 7982  
ST 4.2x36mm

## FIXING STOP ON E50201 & E50202 (TOP SIDE)

M50-47

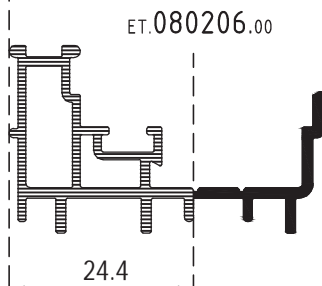
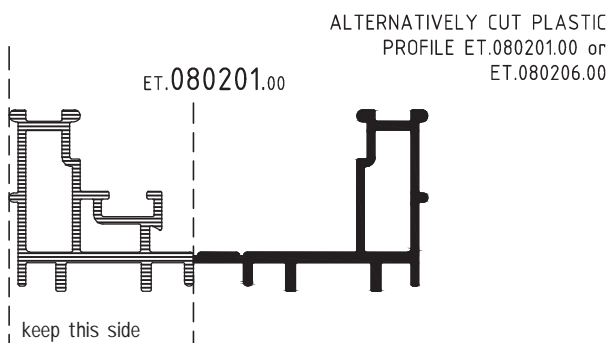
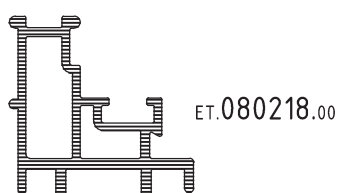
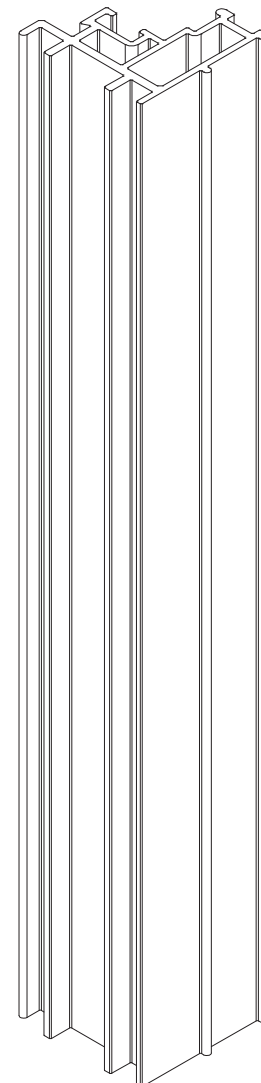
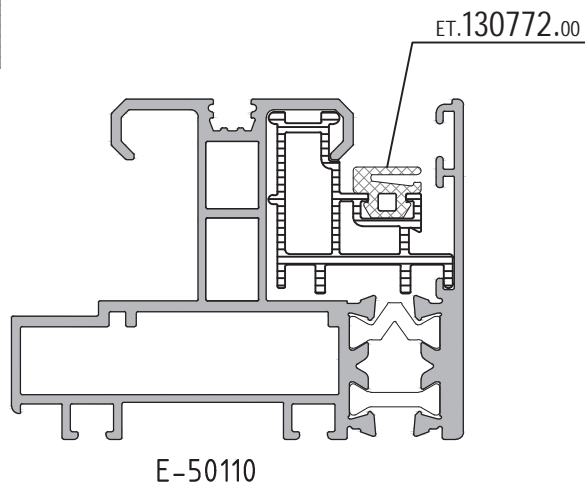
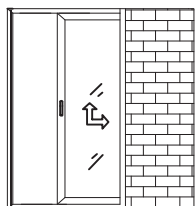


ET.240628.00, IS ALWAYS PLACED AT THE TOP SIDE OF THE SASH FRAME E-50201 & E-50202, AFTER PLACING THE SASH FRAME ONTO THE RAIL. ALWAYS TAKE CARE THAT THE HEAD OF THE SCREW (FIXED ONTO ET.240627.00), IS IN CONTACT WITH THE PLASTIC PROFILE FIXED ONTO THE TOP HORIZONTAL PART OF THE SASH FRAME, AS PRESENTED IN THE DRAWING. ONCE THIS IS DONE FIX ET.240627.00 ONTO THE SASH FRAME USING FOUR (4) COUNTERSUNK SHEET METAL SCREW 4.2x36mm DIN 7982, AS PRESENTED IN THE DRAWING



USE OF PVC PROFILE ET.080218.00 & GASKET ET.130772.00 FOR RAIL E50110

M50-48

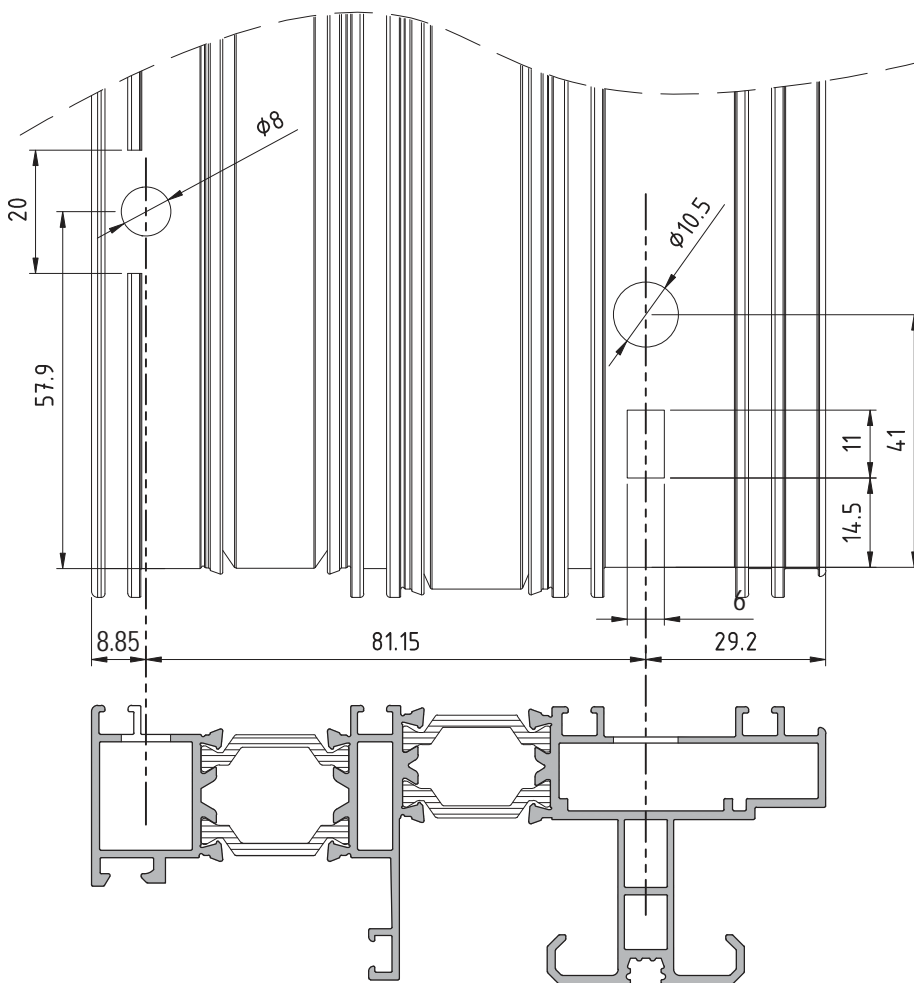


THE PVC PROFILE IS FIXED ONLY AT THE VERTICAL MEMBER OF THE FRAME MADE OF E-50110.

ALWAYS FIX AT THE TRACK OF THE PLASTIC PROFILE, GASKET ET.130772.00

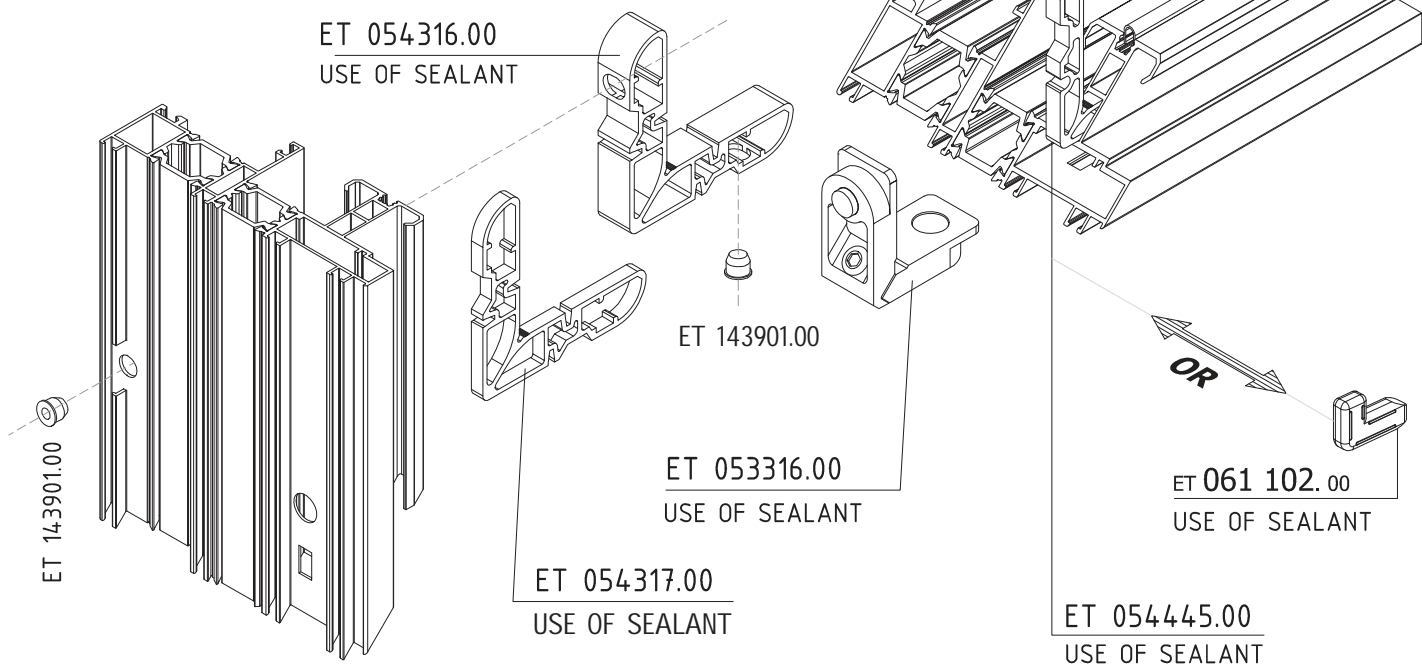
MACHINING ON RAIL E-50150 FOR FIXING WITH DIE CAST JOINT CORNER BRACKETS

M50-49



MACHINING IS PERFORMED BY PUNCHING MACHINE

ALWAYS APPLY SEALANT AT THE JOINTS OF THE FRAME COMPONENTS

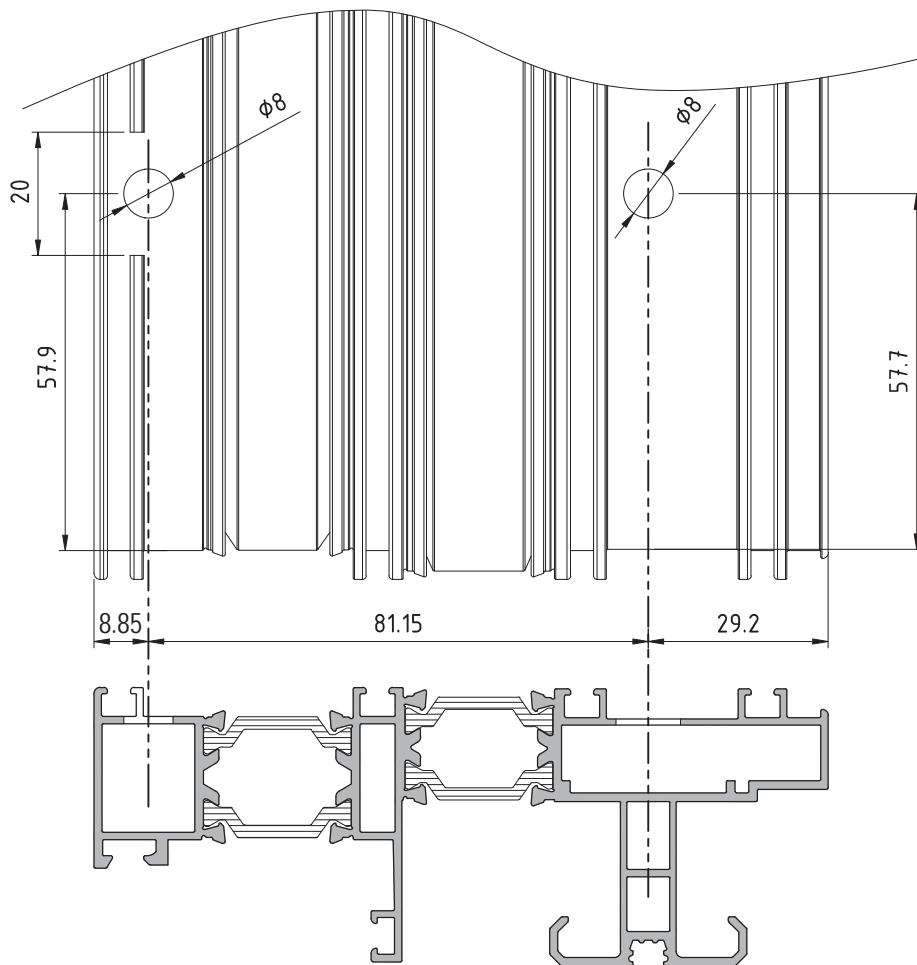


# sliding system with thermal break

E50

MACHINING ON RAIL E-50150 FOR FIXING WITH EXTRUDED ALUMINUM JOINT CORNER BRACKETS

M50-50



MACHINING IS PERFORMED BY PUNCHING MACHINE

ALWAYS APPLY SEALANT AT THE JOINTS OF THE FRAME COMPONENTS

\* ATTENTION: EXTRUDED AL. JOINT CORNER BRACKET ET.054255.00 IS USED ONLY FOR CRIMPING MACHINE

IF CRIMPING MACHINE IS USED THEN NO MACHINING NEEDED AT THE FRAME PROFILES

ET 054317.00  
USE OF GLUE

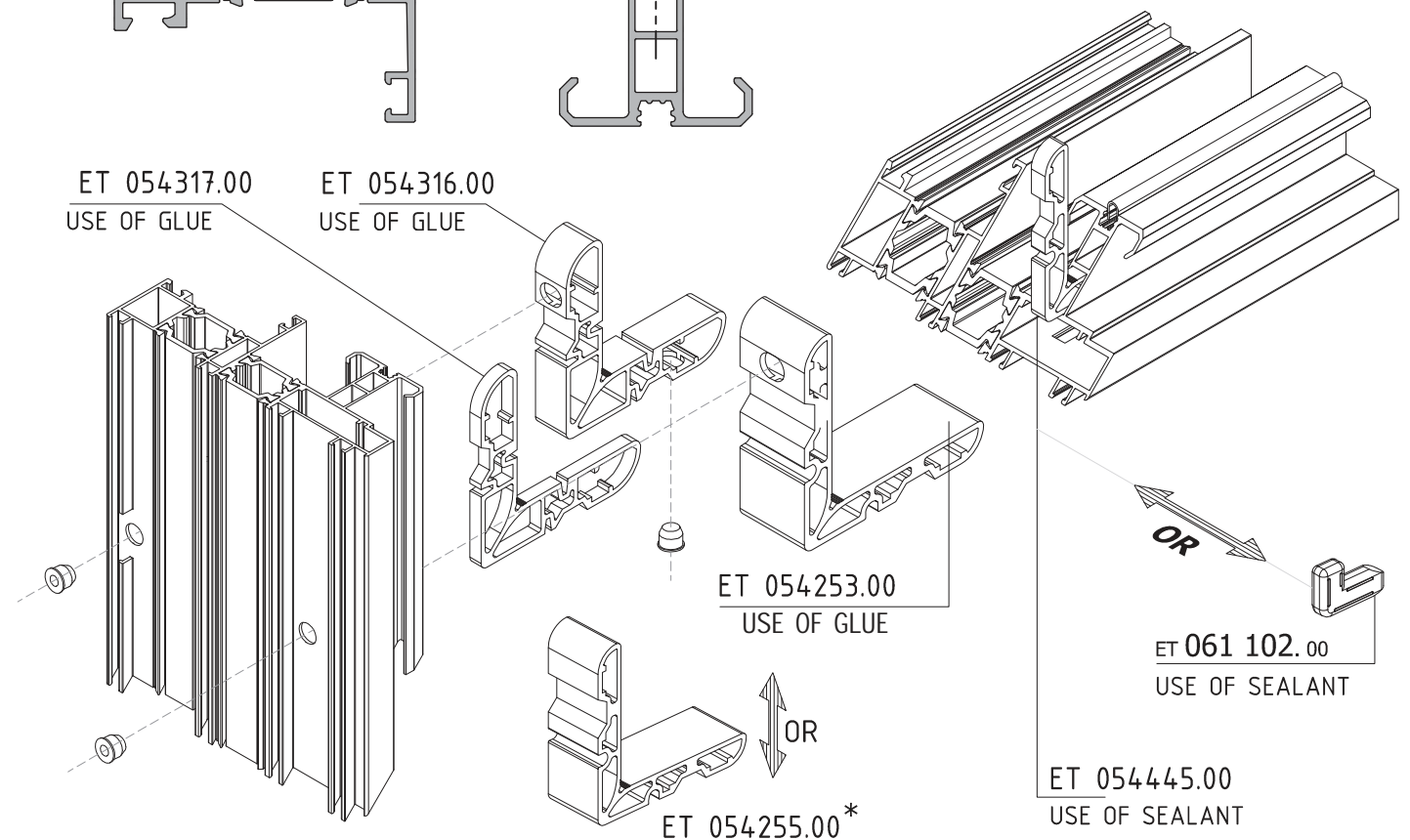
ET 054316.00  
USE OF GLUE

ET 054253.00  
USE OF GLUE

ET 054255.00\*

ET 061 102.00  
USE OF SEALANT

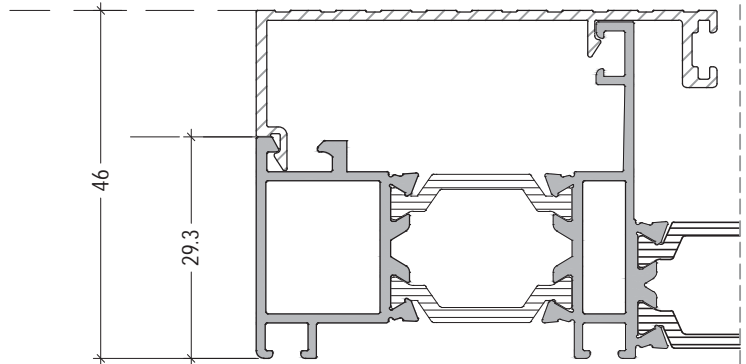
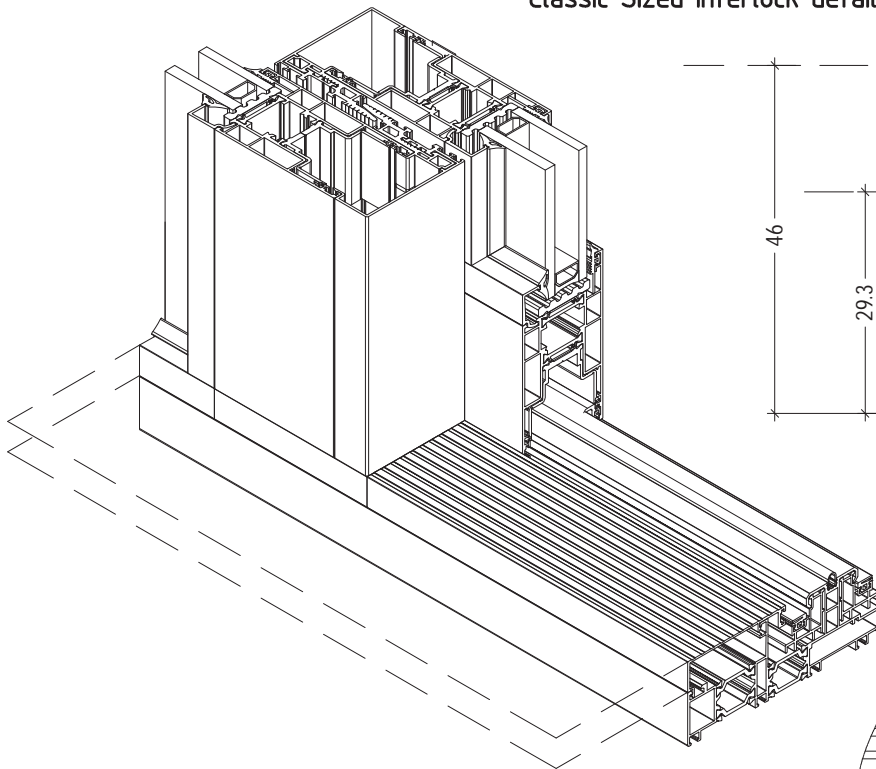
ET 054445.00  
USE OF SEALANT



Two Possible floor approaches for the Monorail position for Balcony Door.

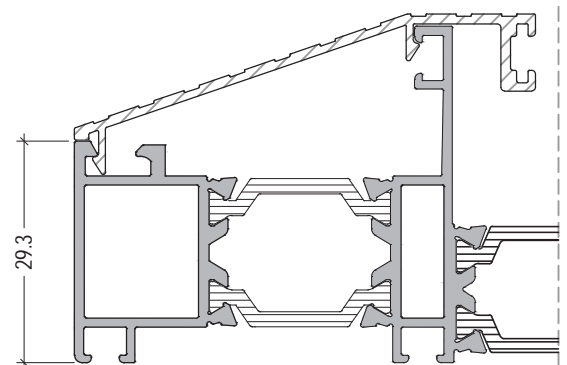
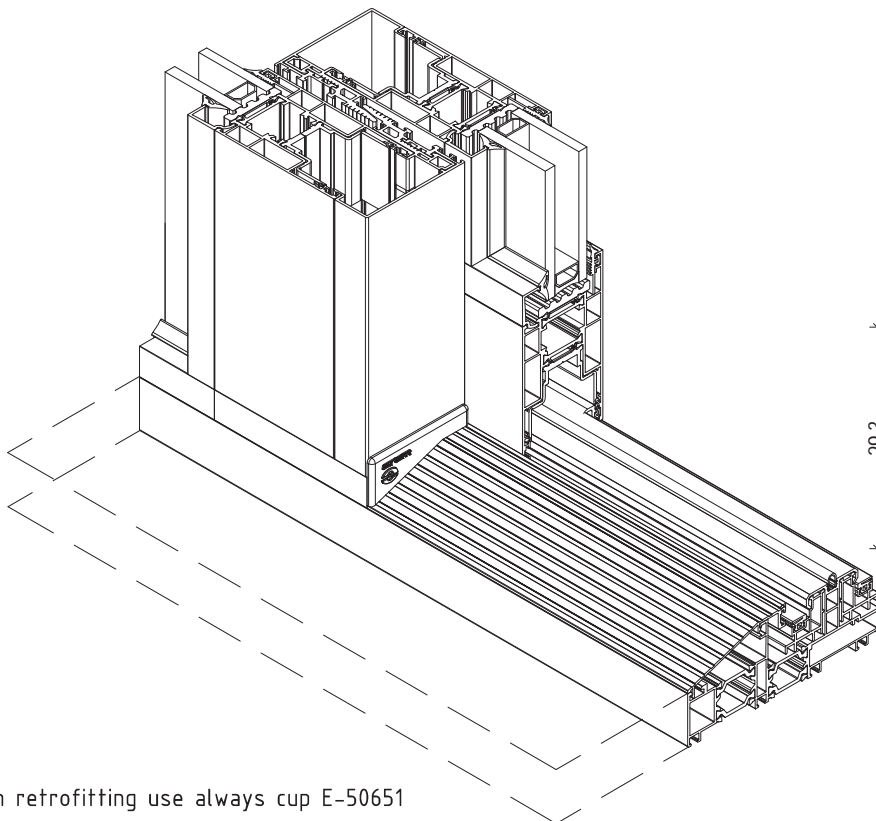
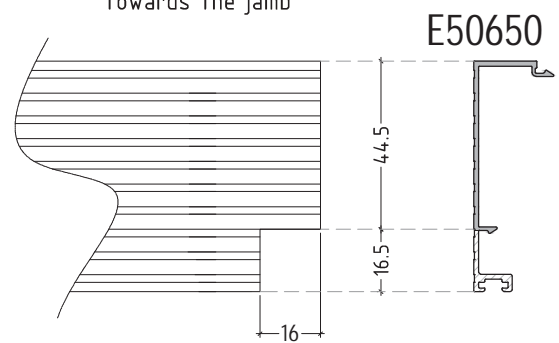
M50-51

Classic Sized Interlock detail.



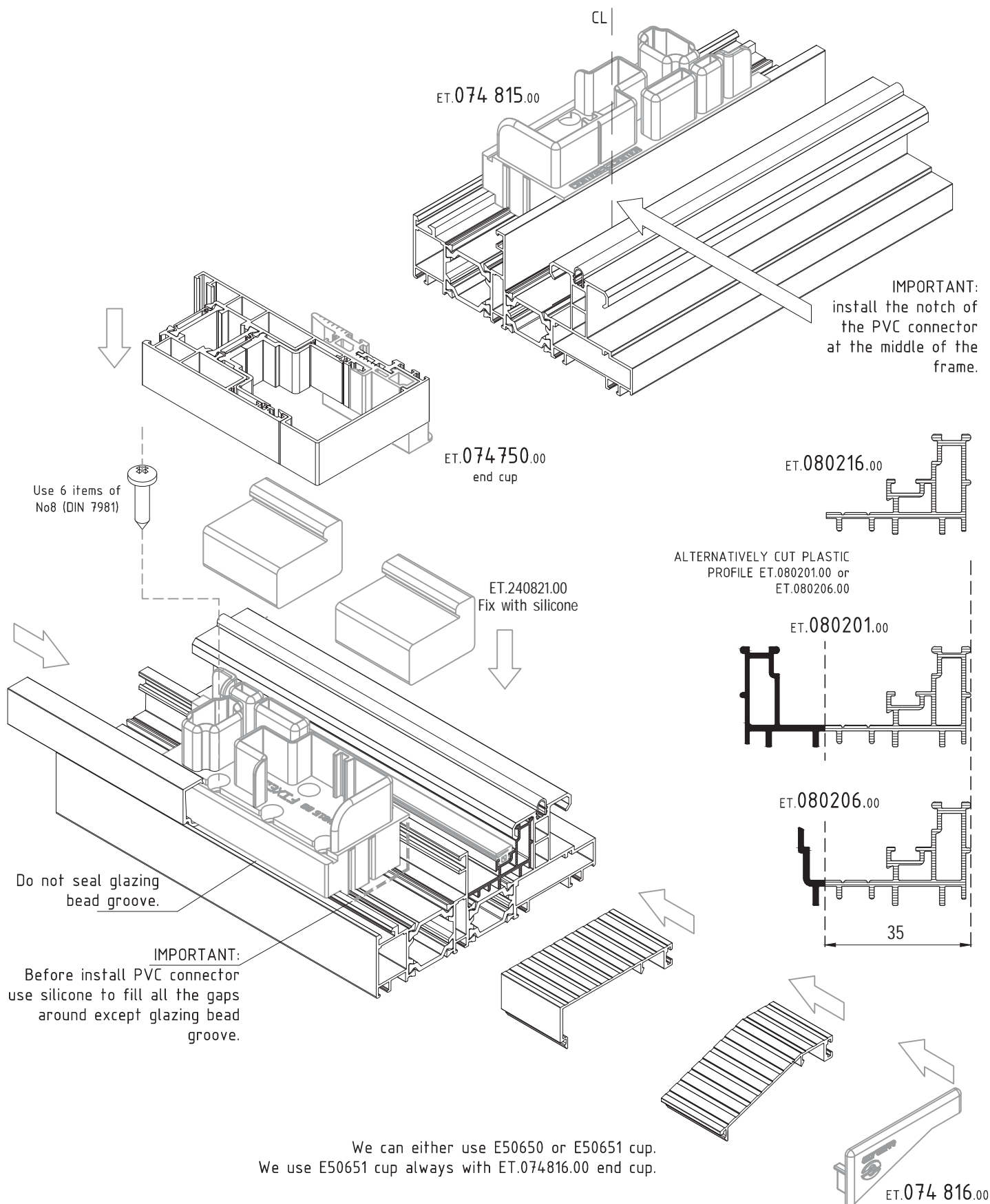
Two possible internal floor levels using cup E50650

Machining on E50650. Machining is required only at the side that is towards the jamb



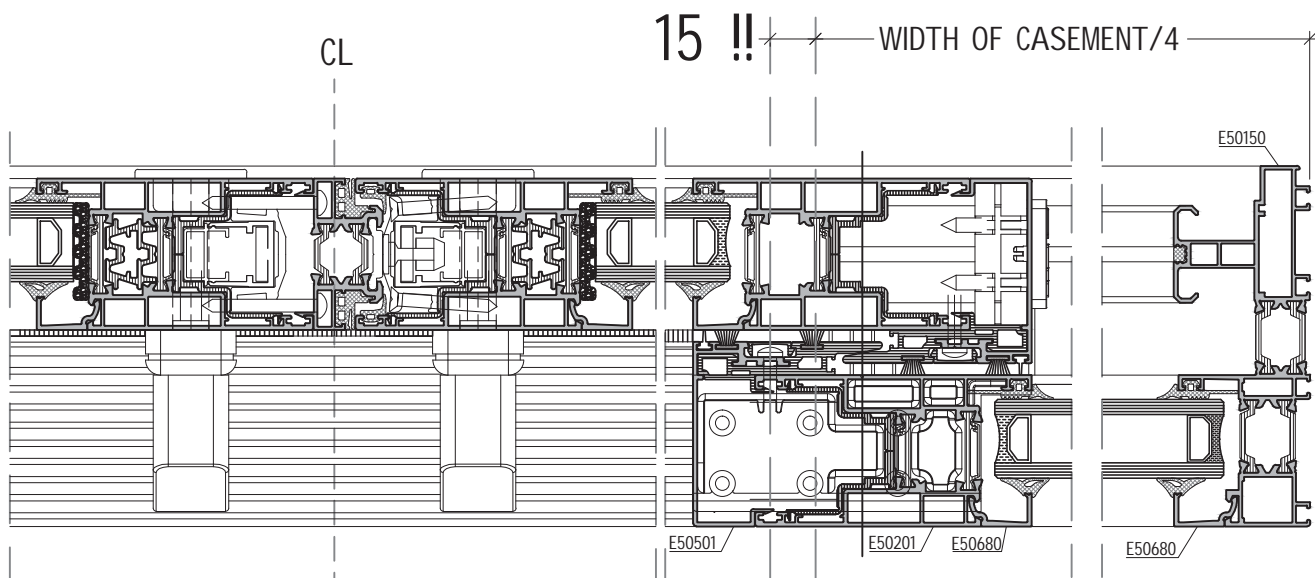
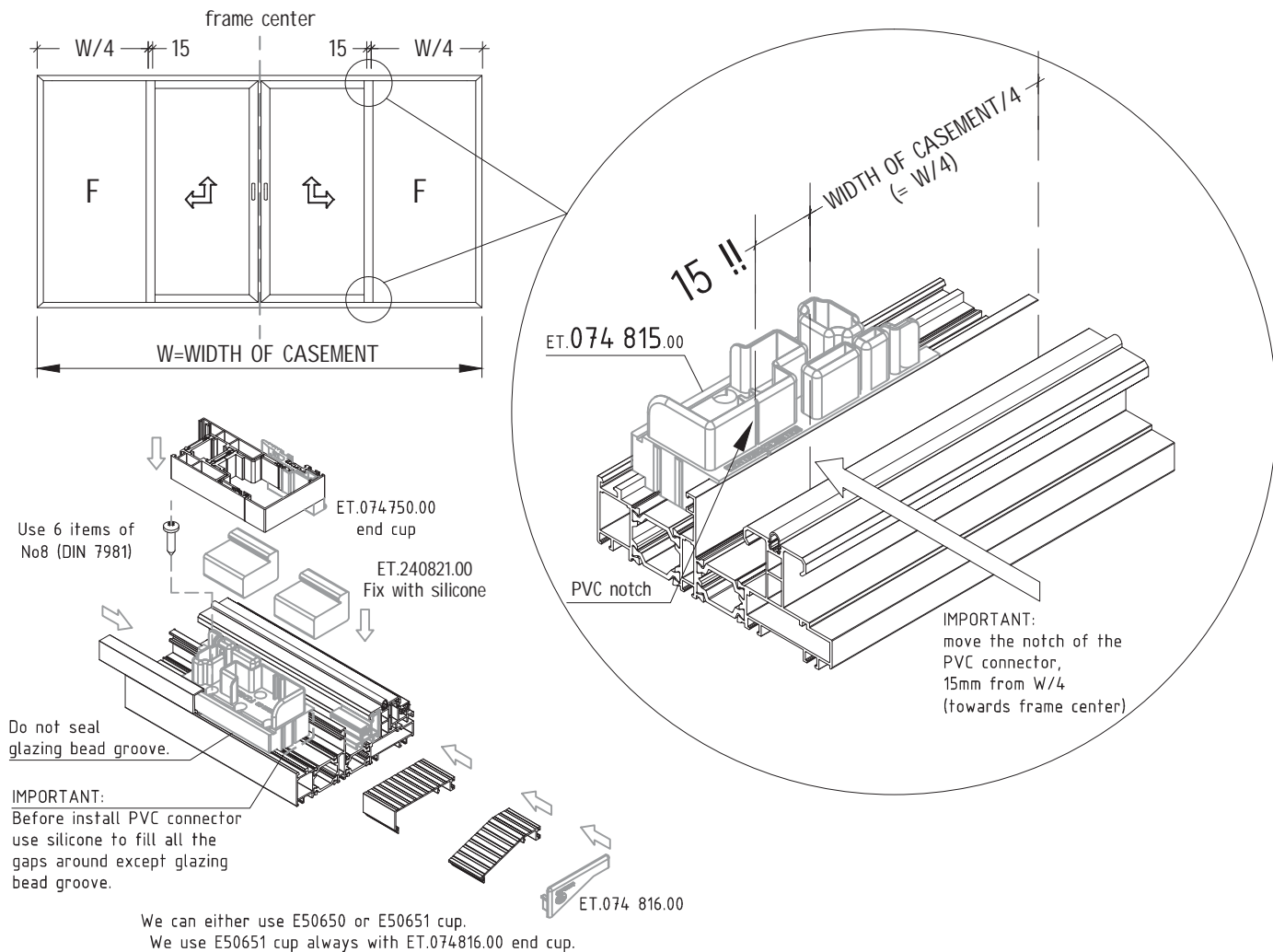
Two possible internal floor levels using cup E50651

In retrofitting use always cup E-50651

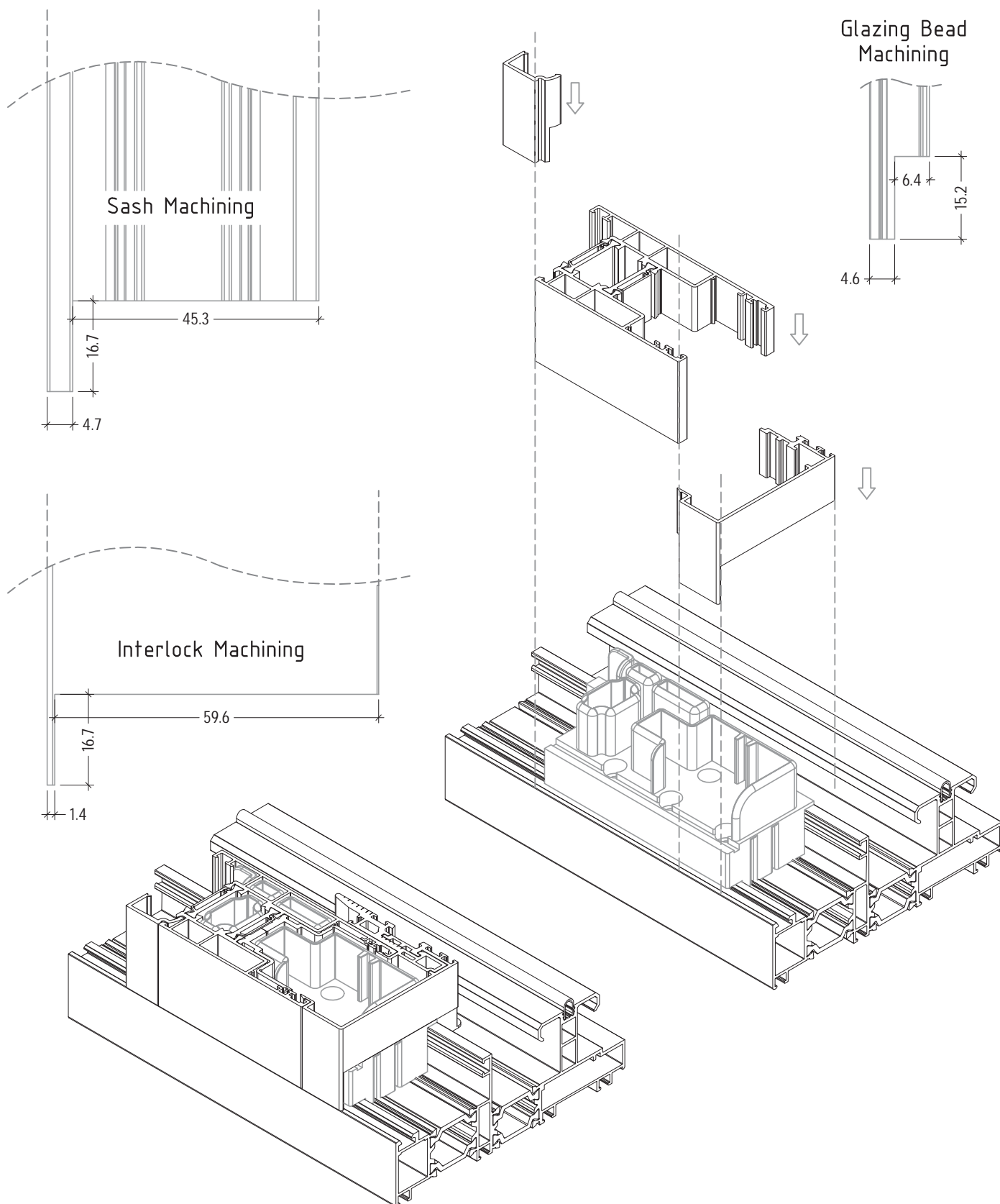


## INSTRUCTIONS FOR FITTING ET 074815.00 HOTEL TYPE FIXED - FACING DOUBLE VENT LIFT & SLIDE - FIXED

M50-52\_1

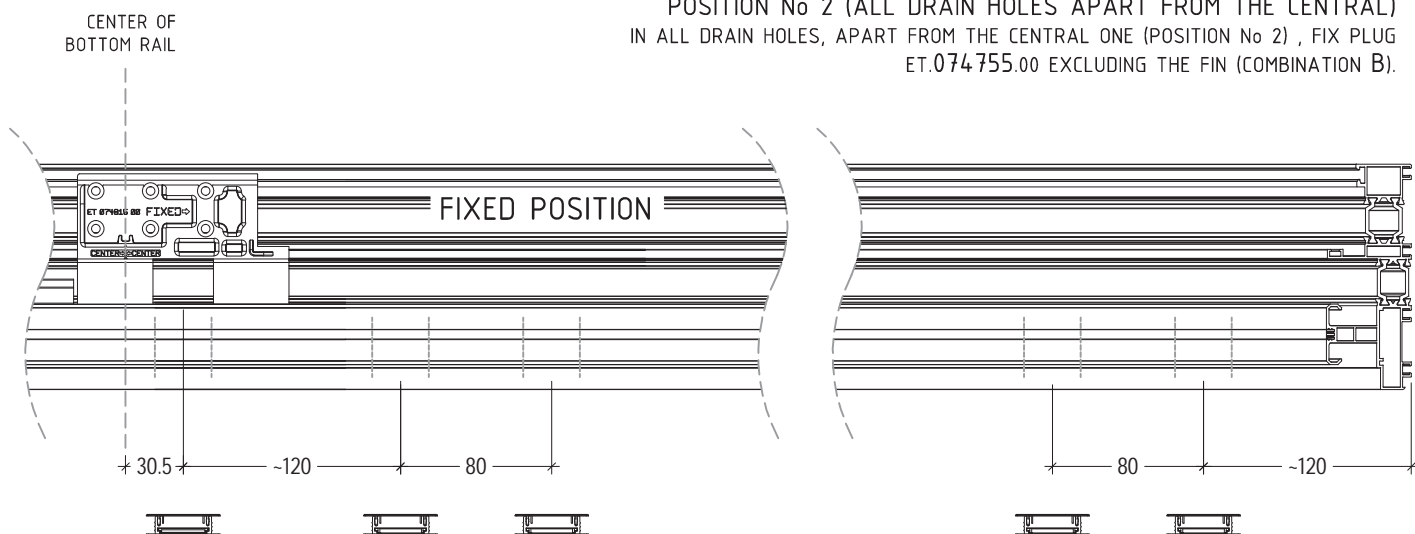
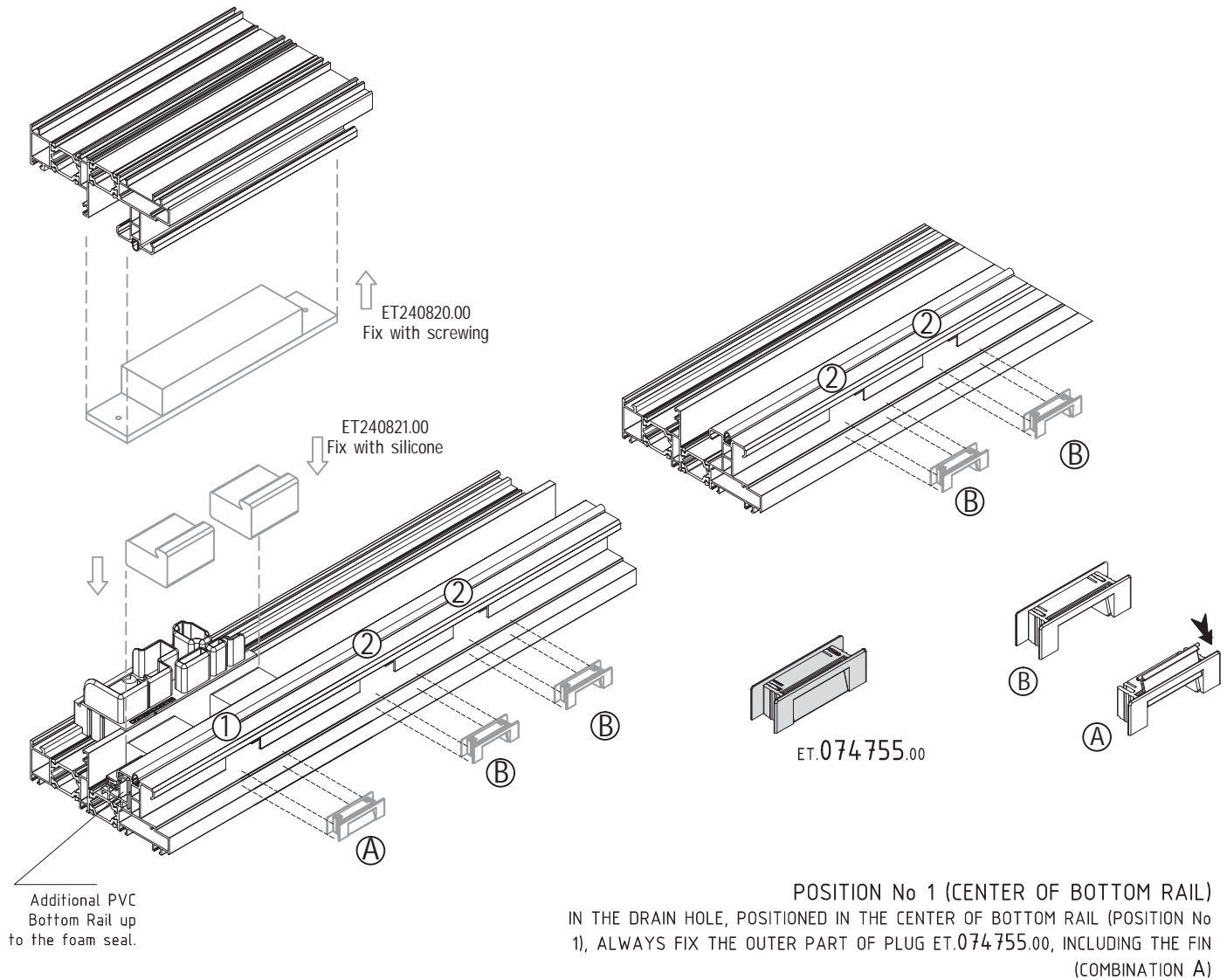






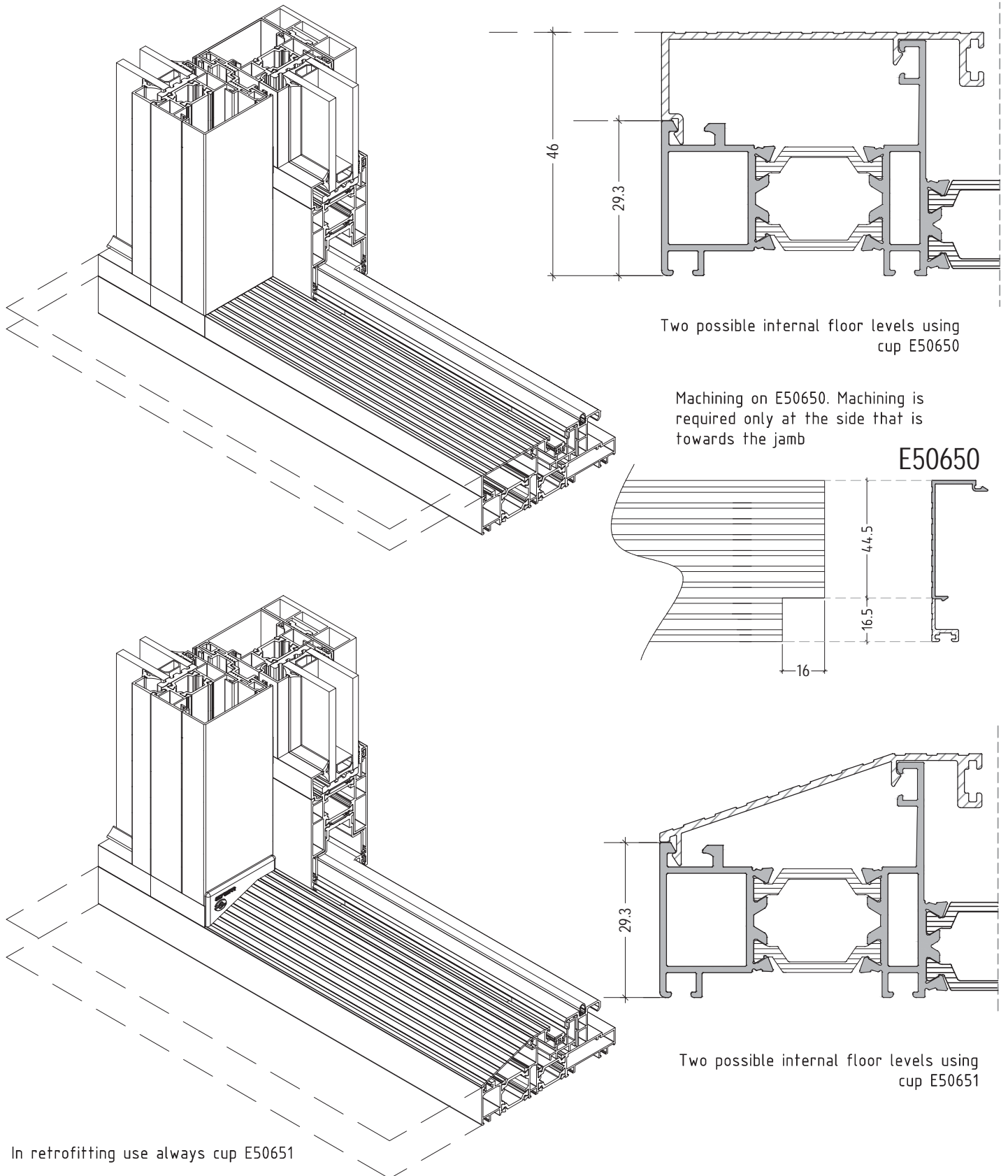
## INSTRUCTIONS FOR WATER DRAINAGE. Classic Sized Interlock detail.

M50-53



Two Possible floor approaches for the Monorail position for Balcony Door.  
Narrow Sized Interlock detail.

M50-54



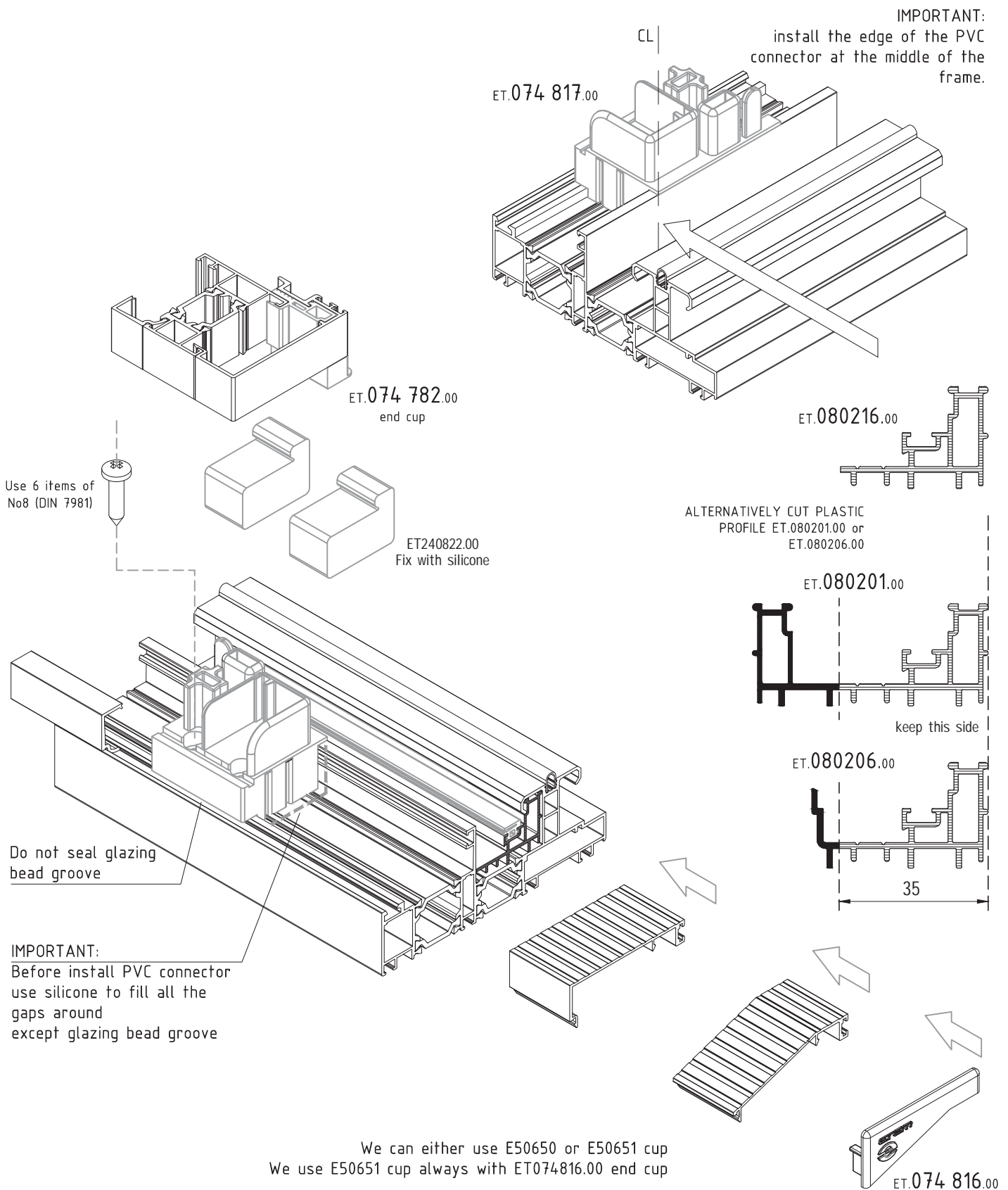
Two possible internal floor levels using cup E50650

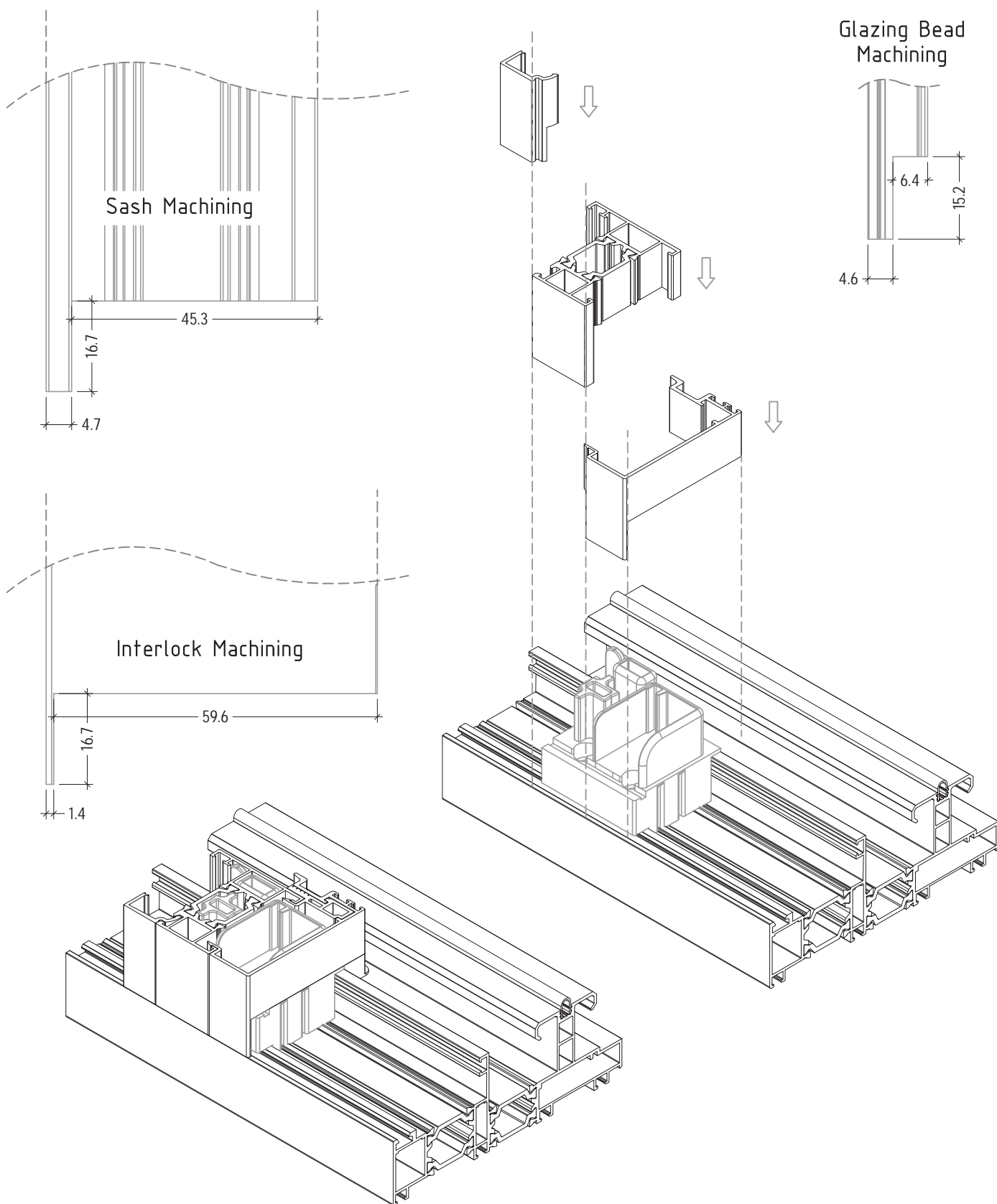
Machining on E50650. Machining is required only at the side that is towards the jamb

E50650

Two possible internal floor levels using cup E50651

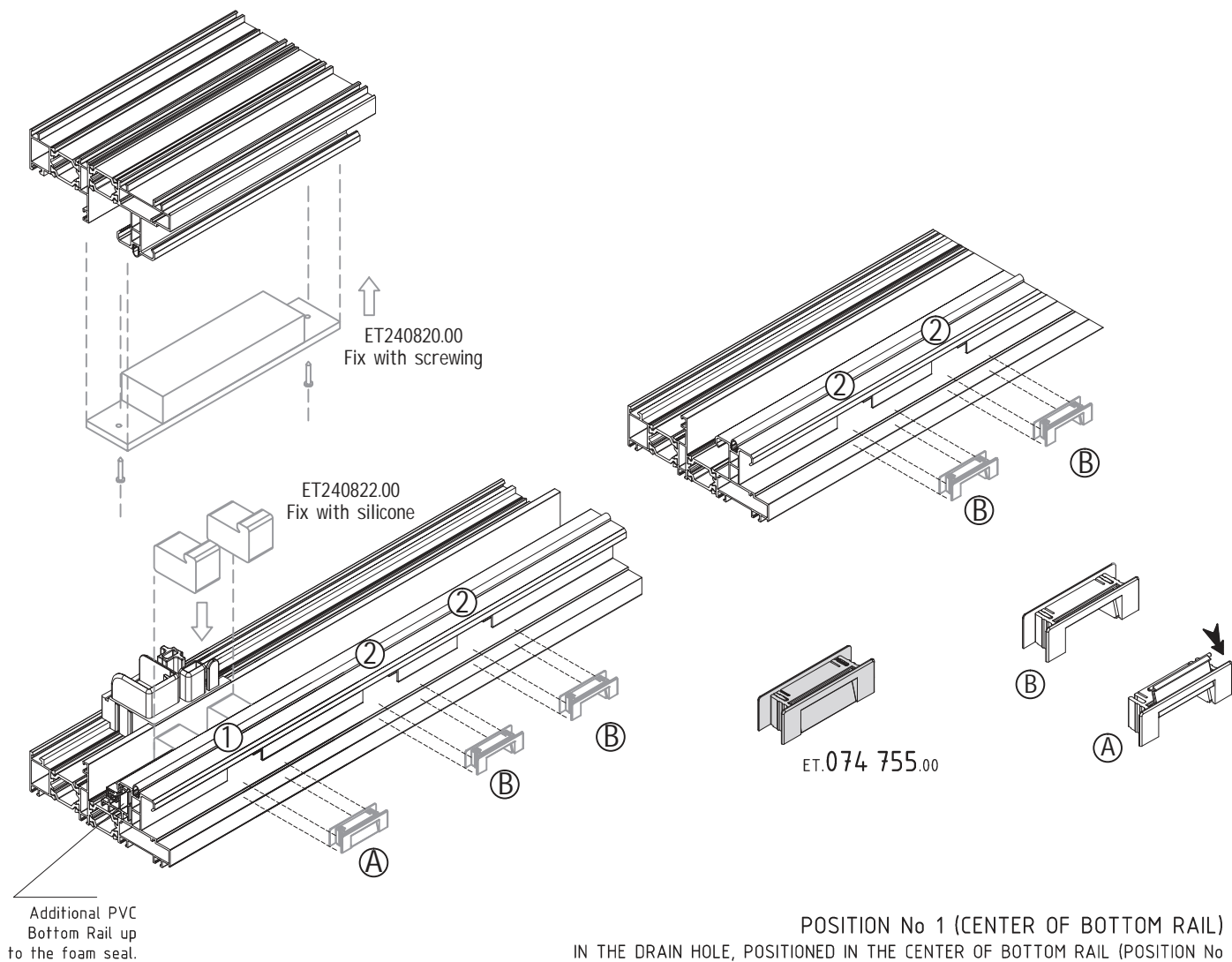
In retrofitting use always cup E50651





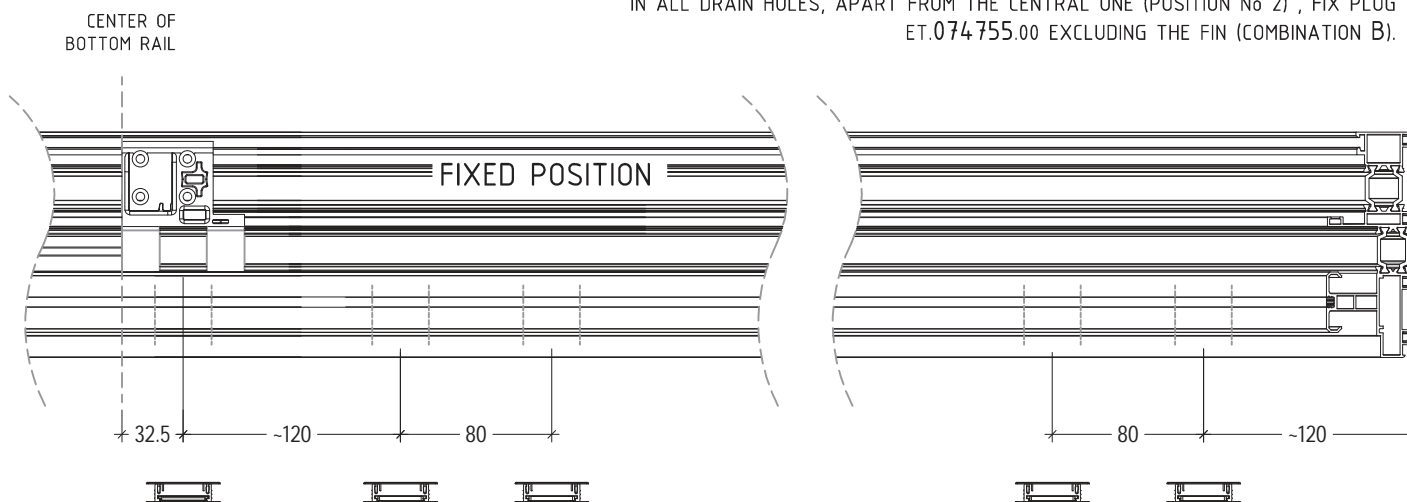
## INSTRUCTIONS FOR WATER DRAINAGE. Narrow Sized Interlock detail.

M50-56



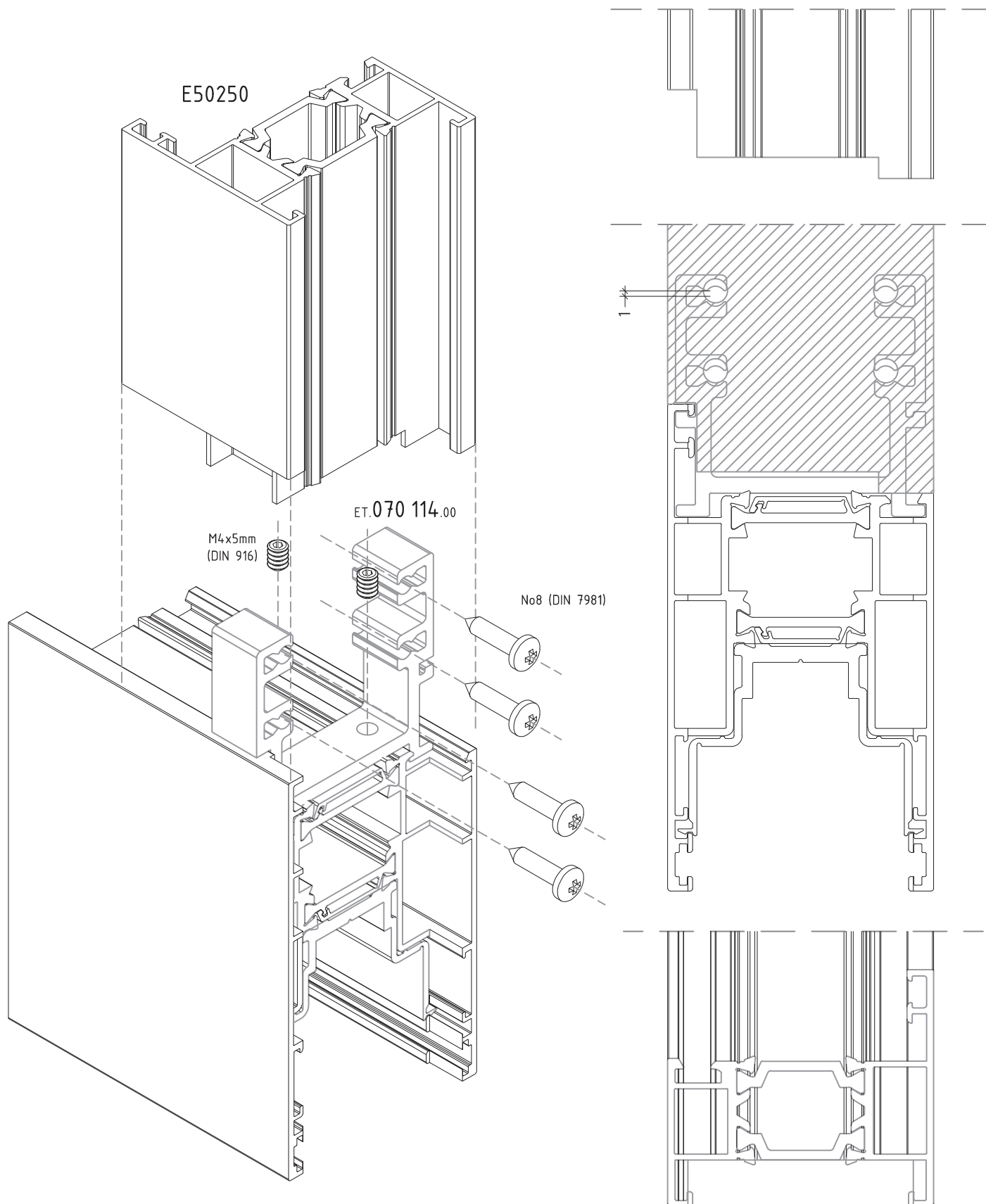
**POSITION No 1 (CENTER OF BOTTOM RAIL)**  
IN THE DRAIN HOLE, POSITIONED IN THE CENTER OF BOTTOM RAIL (POSITION No 1), ALWAYS FIX THE OUTER PART OF PLUG ET.074 755.00, INCLUDING THE FIN (COMBINATION A)

**POSITION No 2 (ALL DRAIN HOLES APART FROM THE CENTRAL)**  
IN ALL DRAIN HOLES, APART FROM THE CENTRAL ONE (POSITION No 2), FIX PLUG ET.074 755.00 EXCLUDING THE FIN (COMBINATION B).



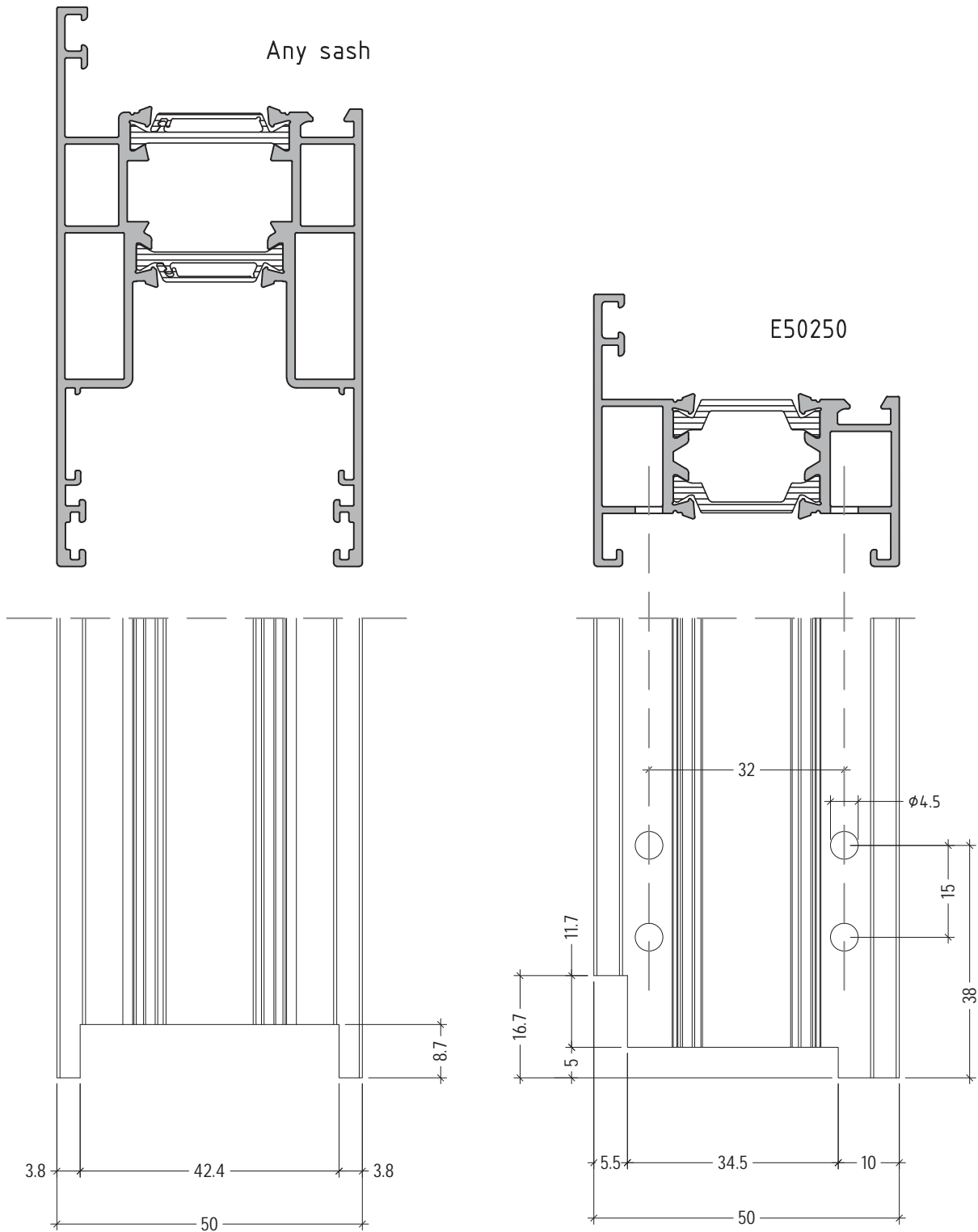
INSTRUCTIONS for E50250 connection. Narrow Sized Interlock detail.

M50-57



Machining for E50250 connection. Narrow Sized Interlock detail.

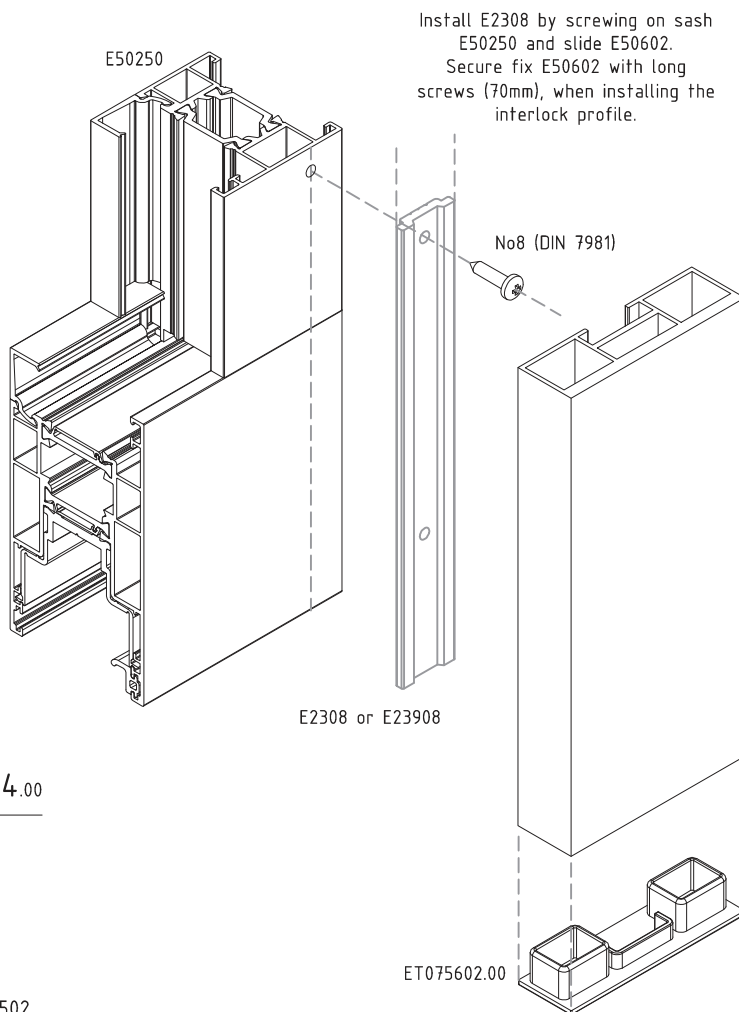
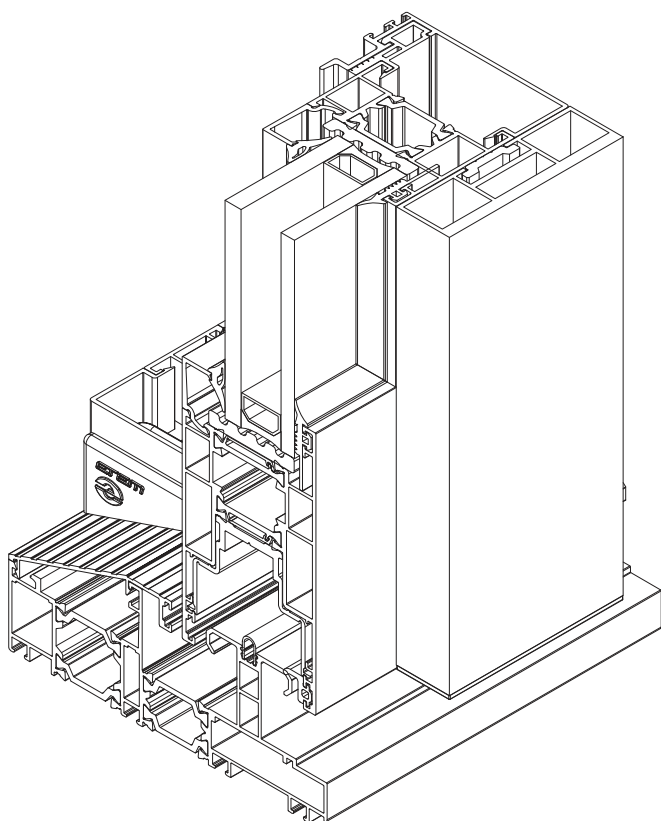
M50-58





Instructions for fitting E50602 interlock reinforcing profile.

M50-59



Install E2308 by screwing on sash E50250 and slide E50602. Secure fix E50602 with long screws (70mm), when installing the interlock profile.

No8 (DIN 7981)

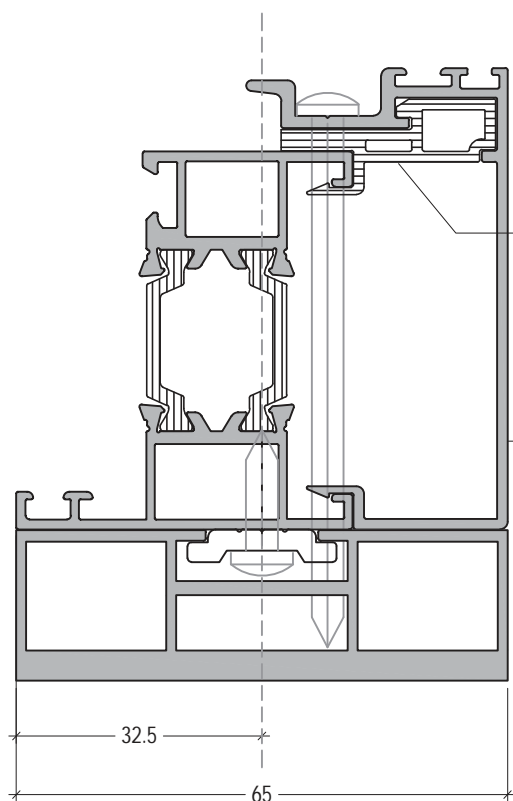
E2308 or E23908

ET.080 214.00

E50502

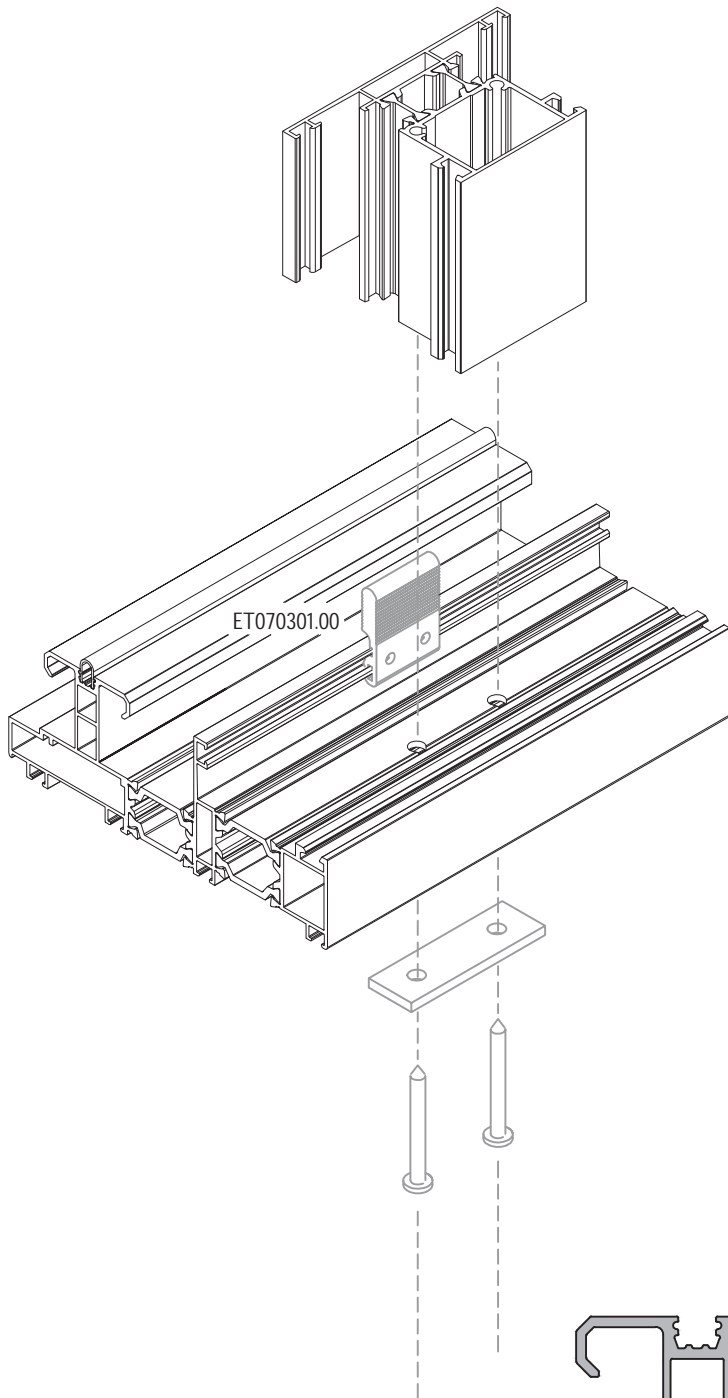
ET075602.00

Secure end cups installation by using glue

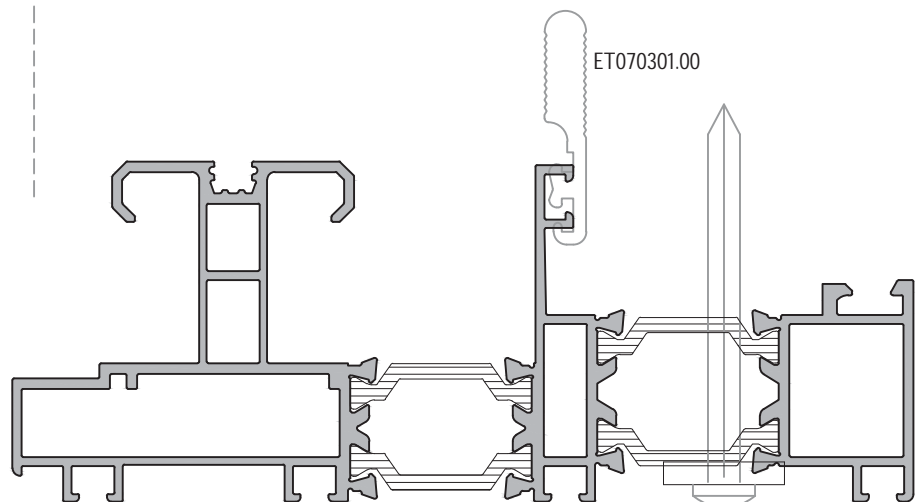
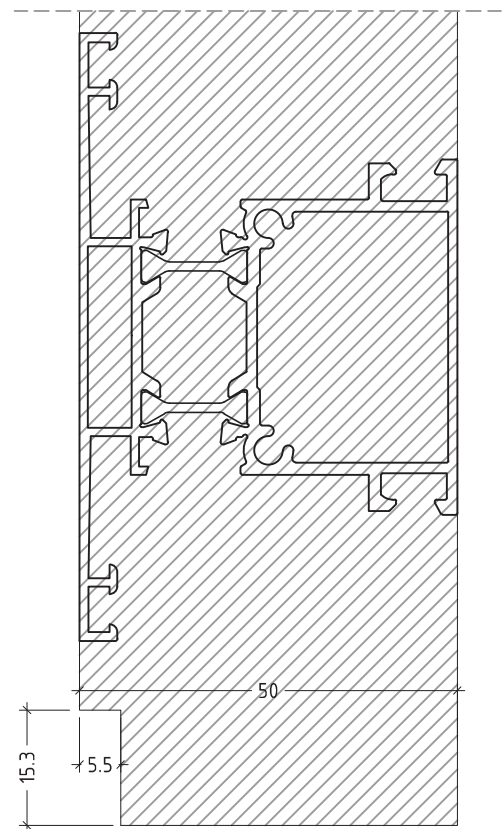


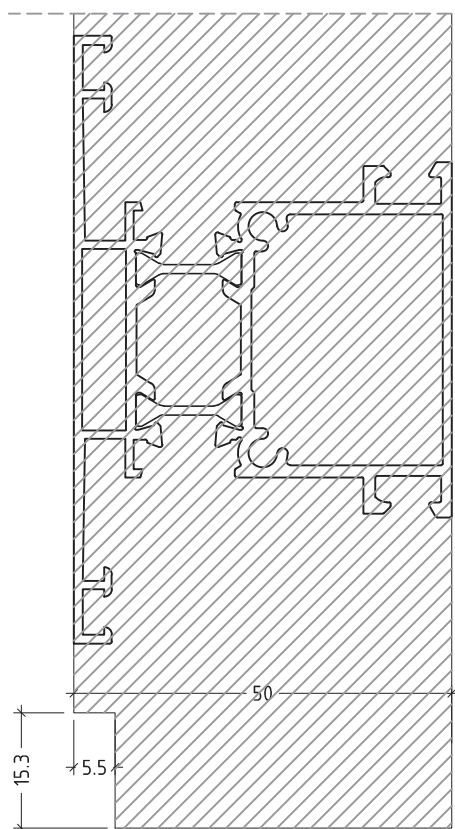
INSTRUCTIONS FOR FITTING E50301 on frame E50150

M50-60

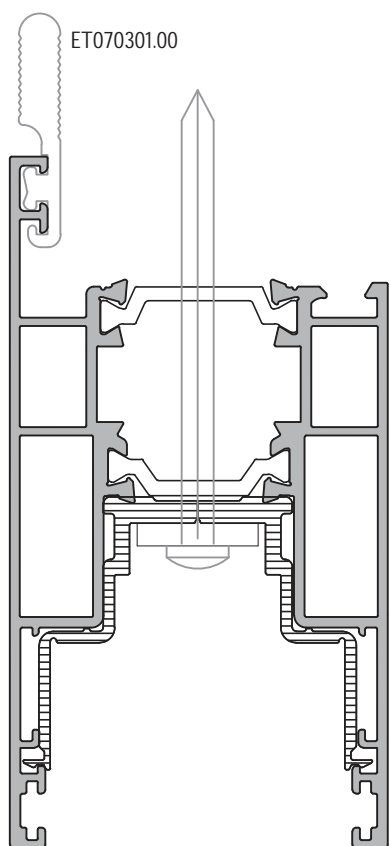
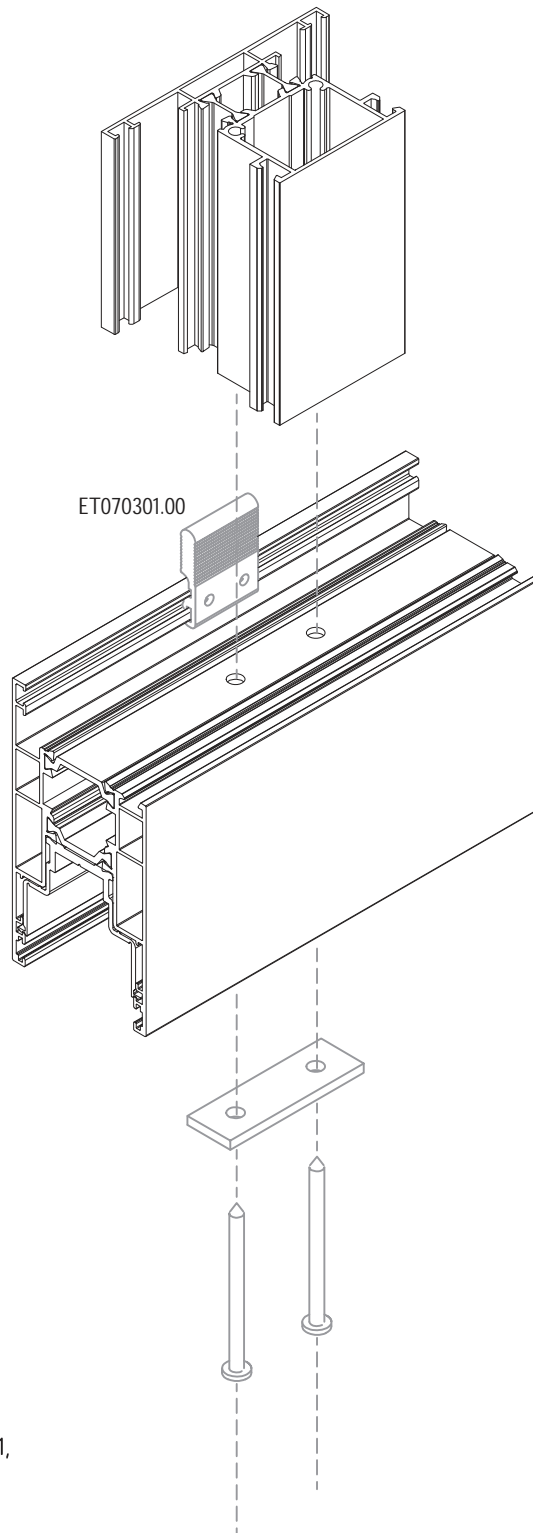


E50301

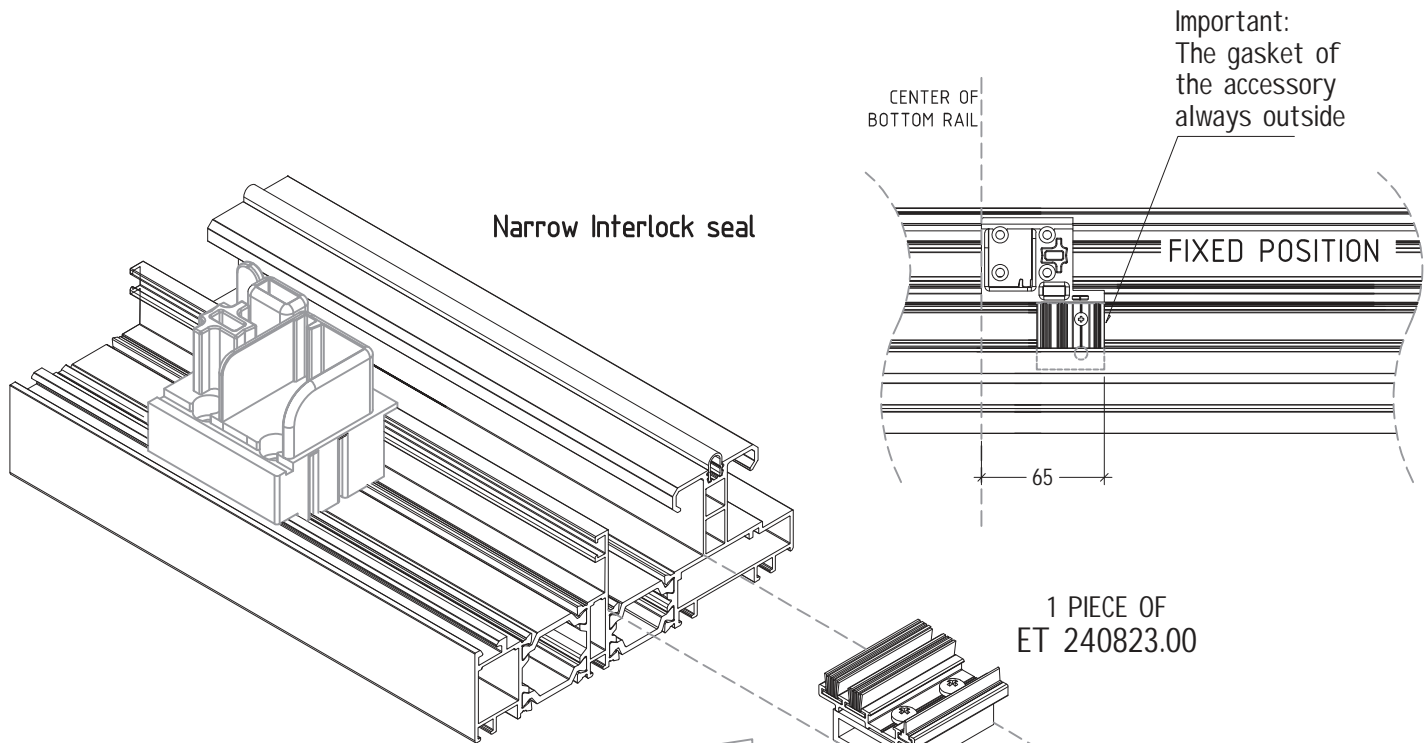




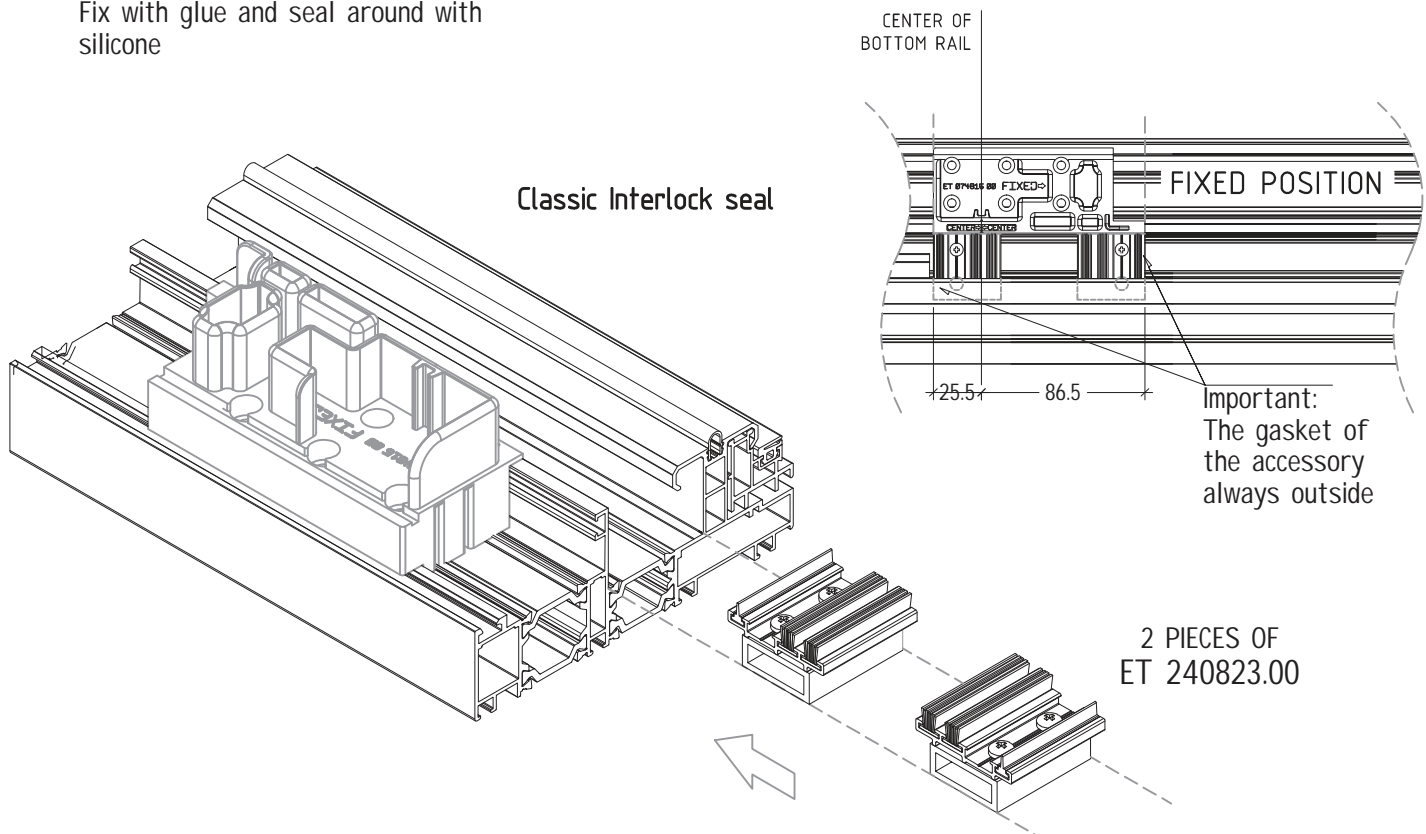
E50301



**IMPORTANT:**  
When need "T" profile E50301,  
always use sash E50203.

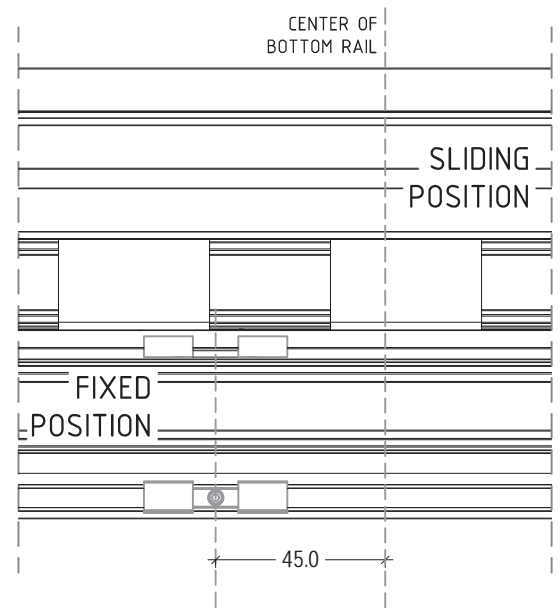
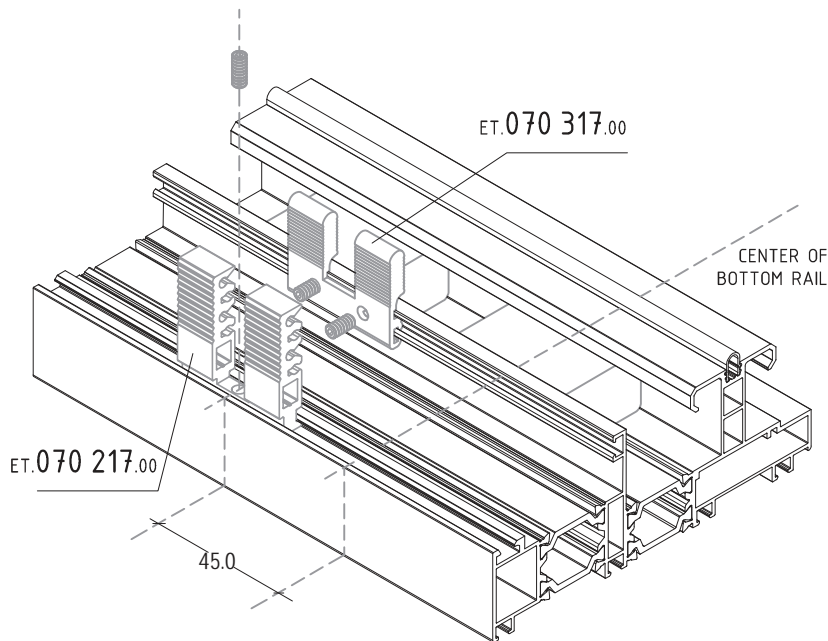


Important:  
You need to slide the accessories in the E-50150 profile before close the frame.  
Fix with glue and seal around with silicone

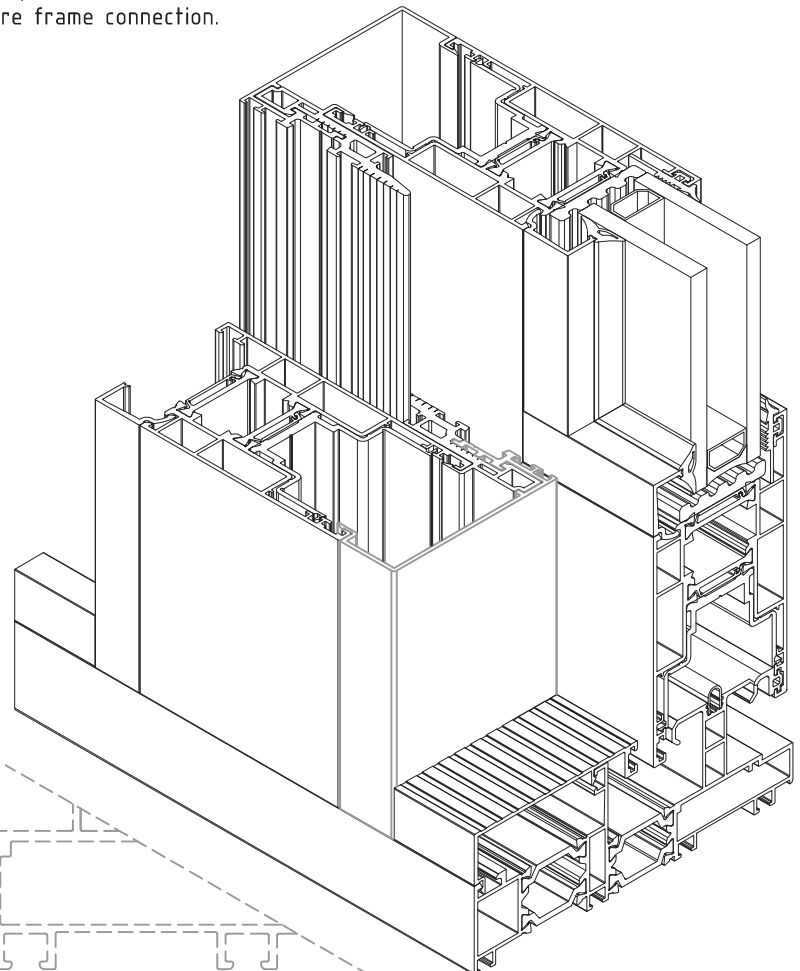
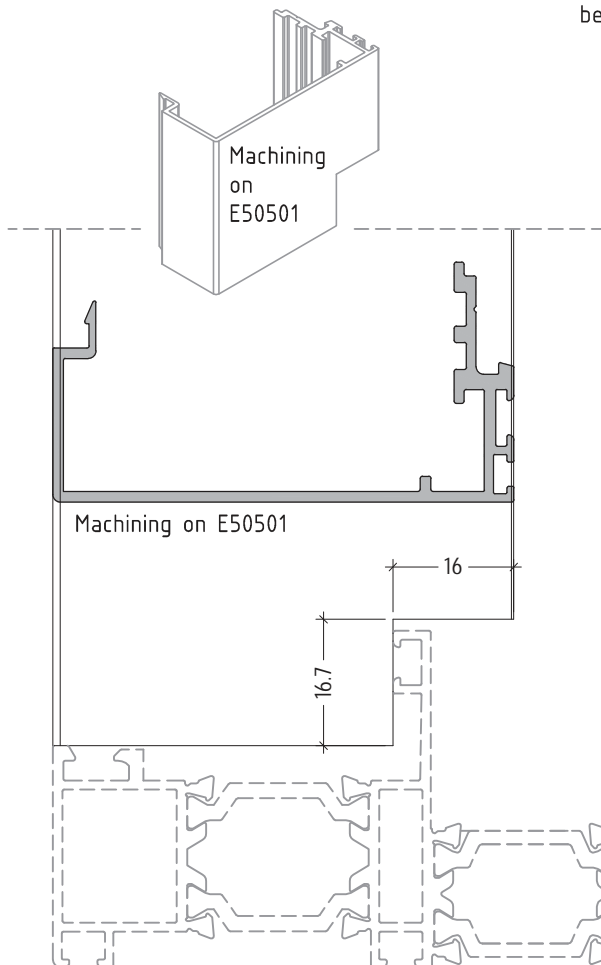


## INSTRUCTIONS Monorail - Alternative Connection through Aluminum brackets

M50-65

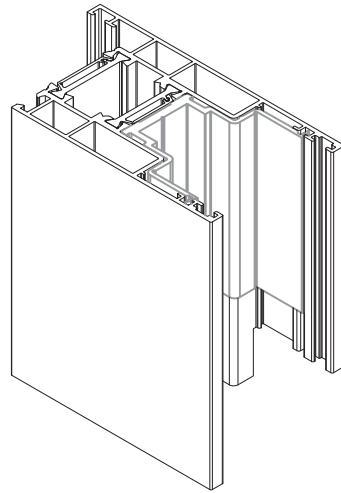
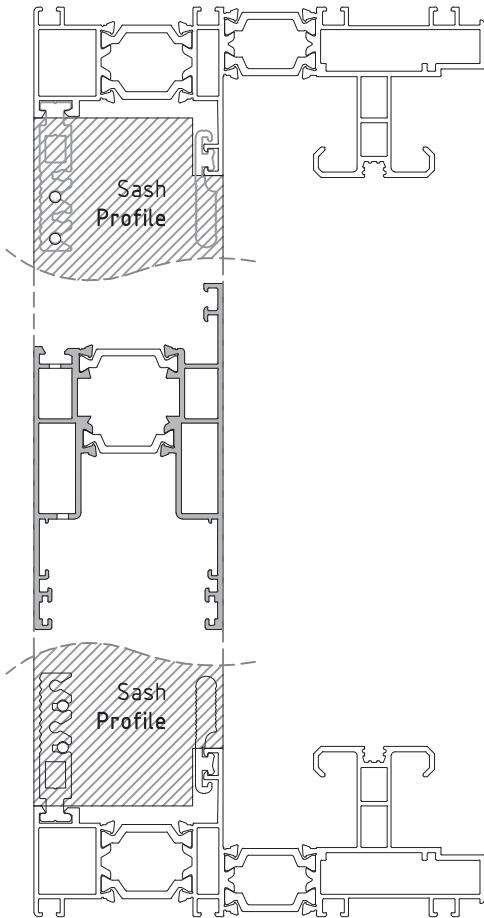


Slide Both **ET 070217.00** and **ET 070317.00** in the grooves of top and bottom rails before frame connection.

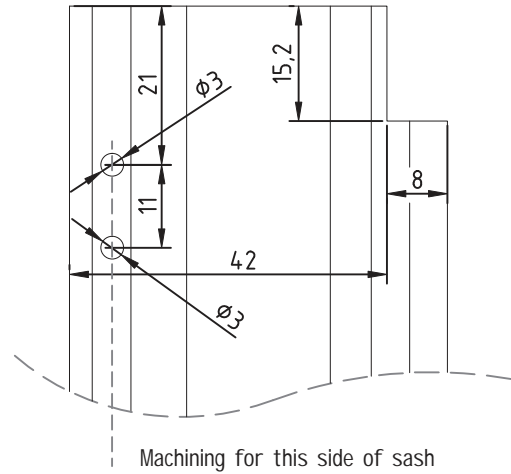
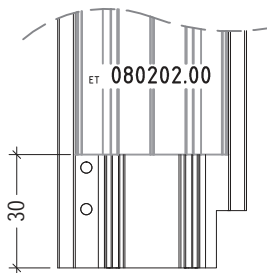


## INSTRUCTIONS Monorail - Alternative Connection through Aluminum brackets

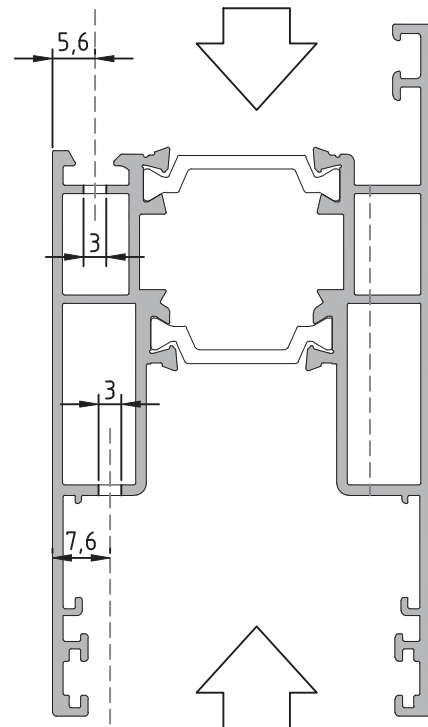
M50-66



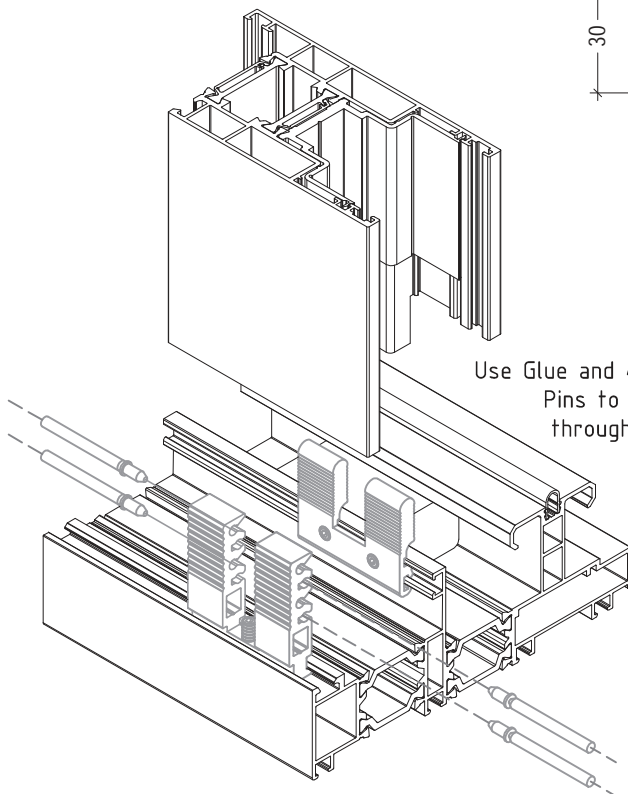
Reduce length of both sides of  
ET 080202.00 PVC Profile.



Machining for this side of sash

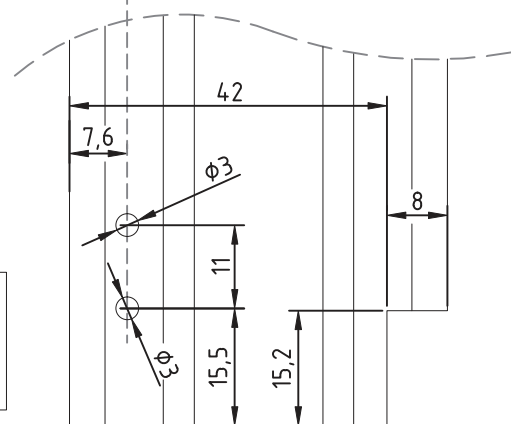


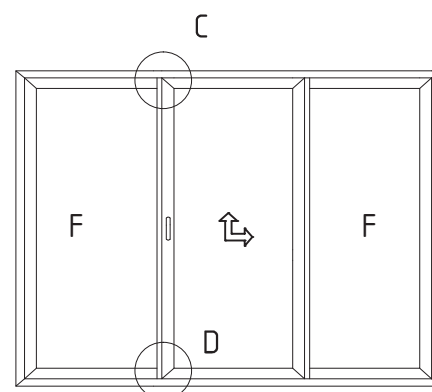
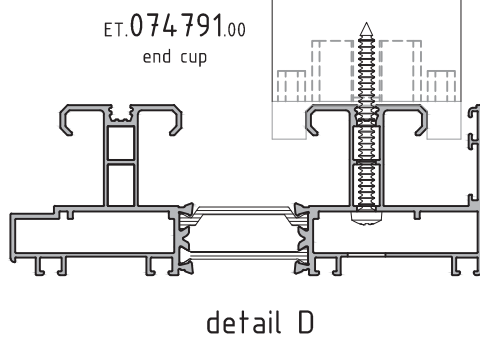
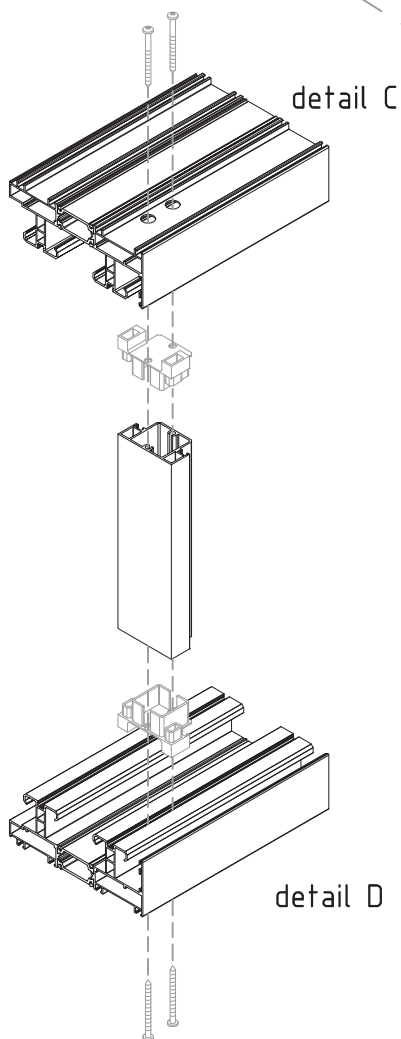
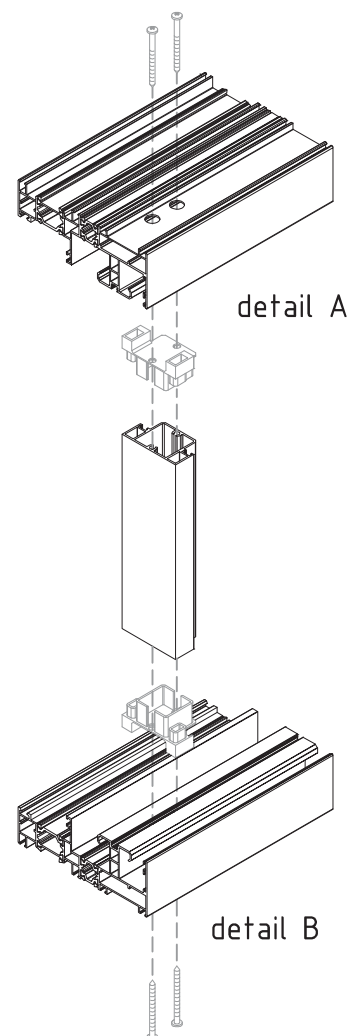
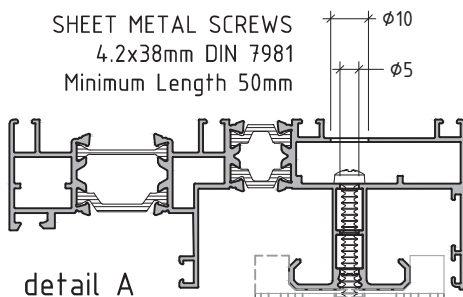
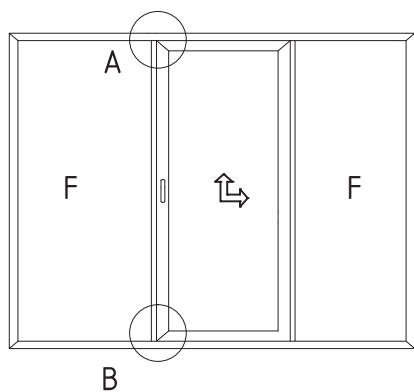
Machining for this side of sash



Use Glue and 4 x ET 143900.00 Roll  
Pins to connect Sash/Mullion  
through ET 070217.00 Bracket

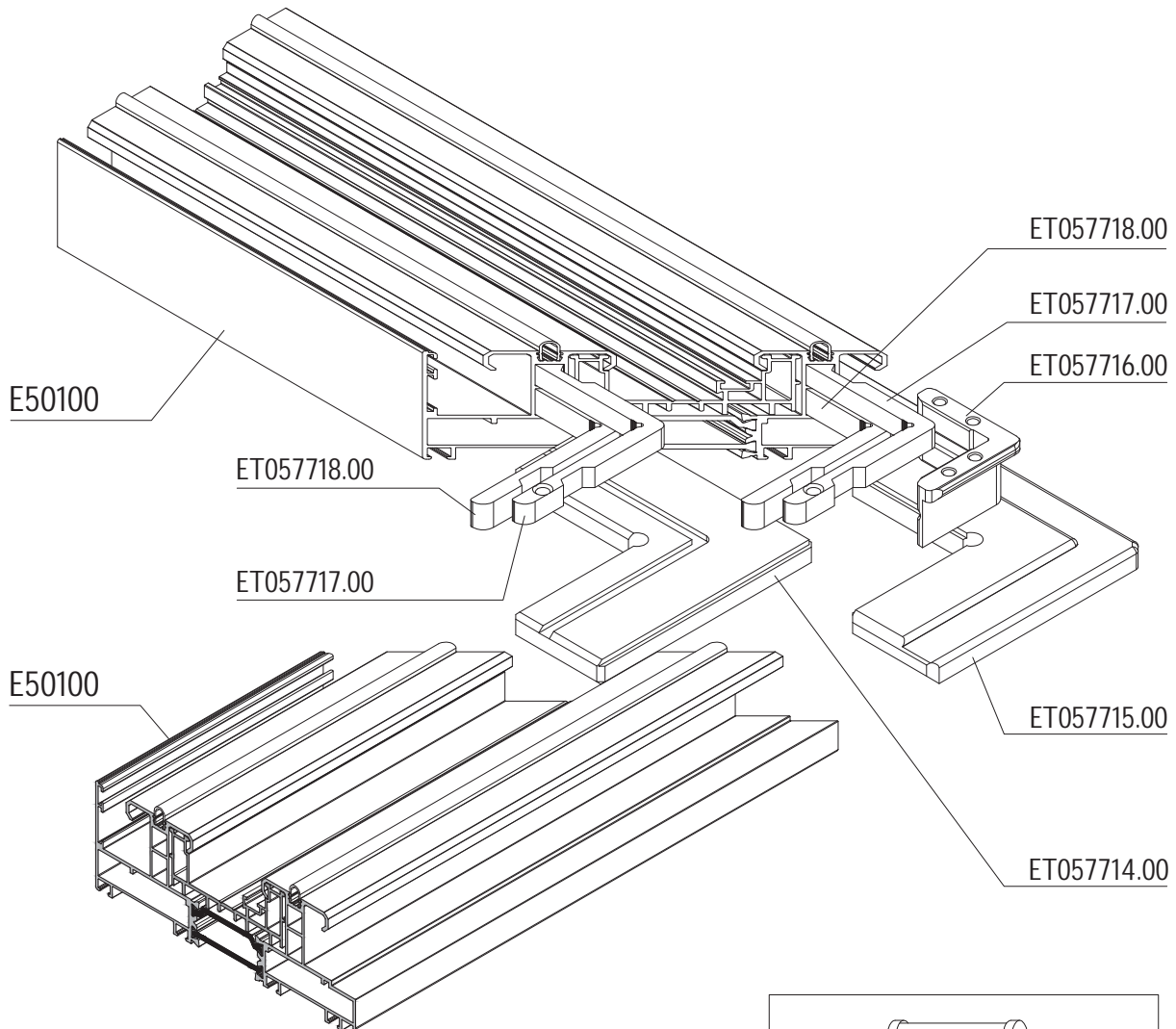
**CAUTION !**  
Assembly sash/mullion  
profile before frame  
connection



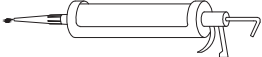


FRAME E50100 ALIGNMENT & ASSEMBLY  
(FOR 90° CORNER)

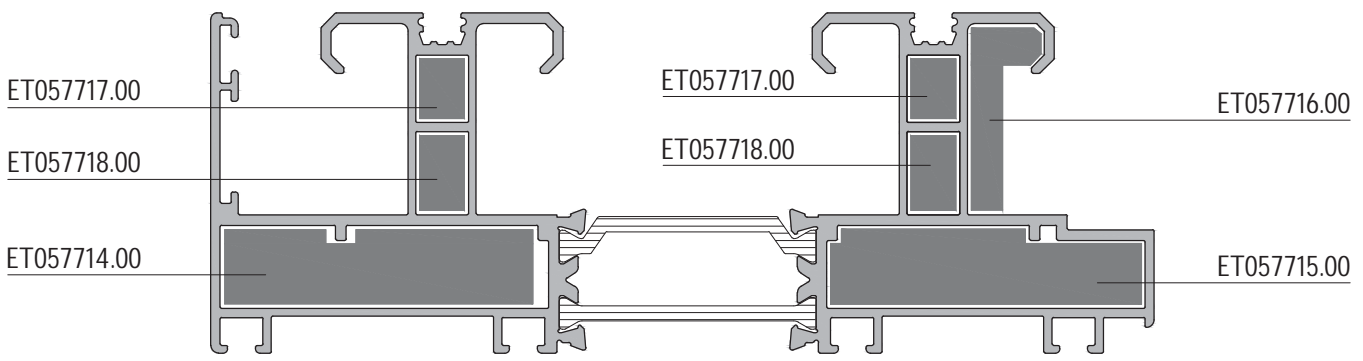
M50-68



ATTENTION: ALWAYS APPLY SEALANT AT THE JOINT BETWEEN THE PROFILES



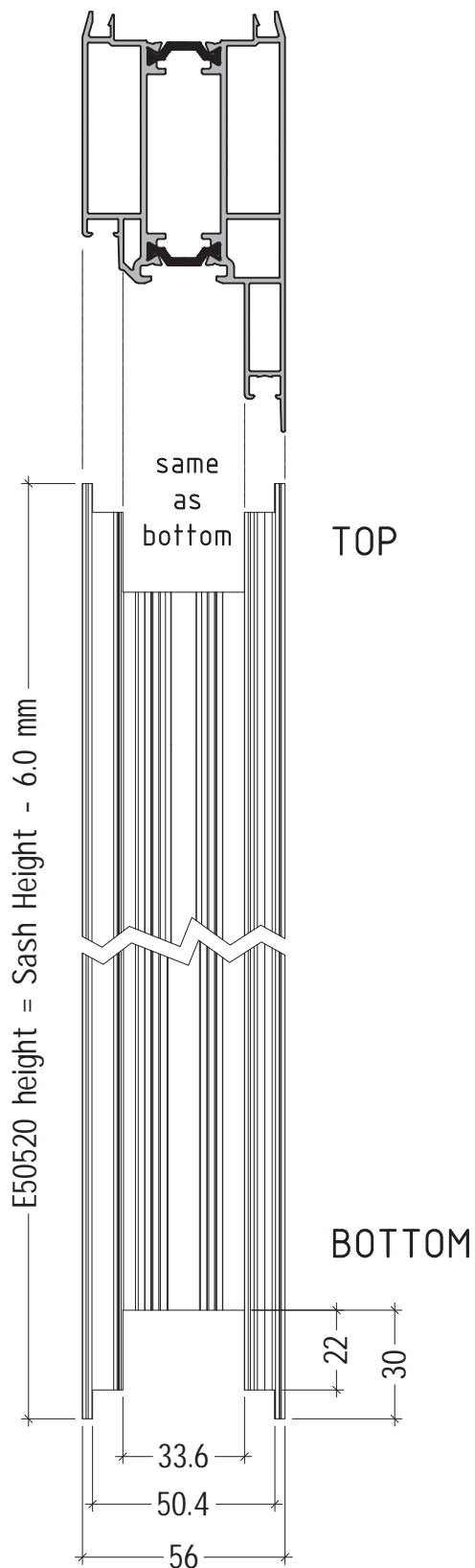
USE ADHESIVE ET 138004.00  
FOR LONG LASTING JOINING



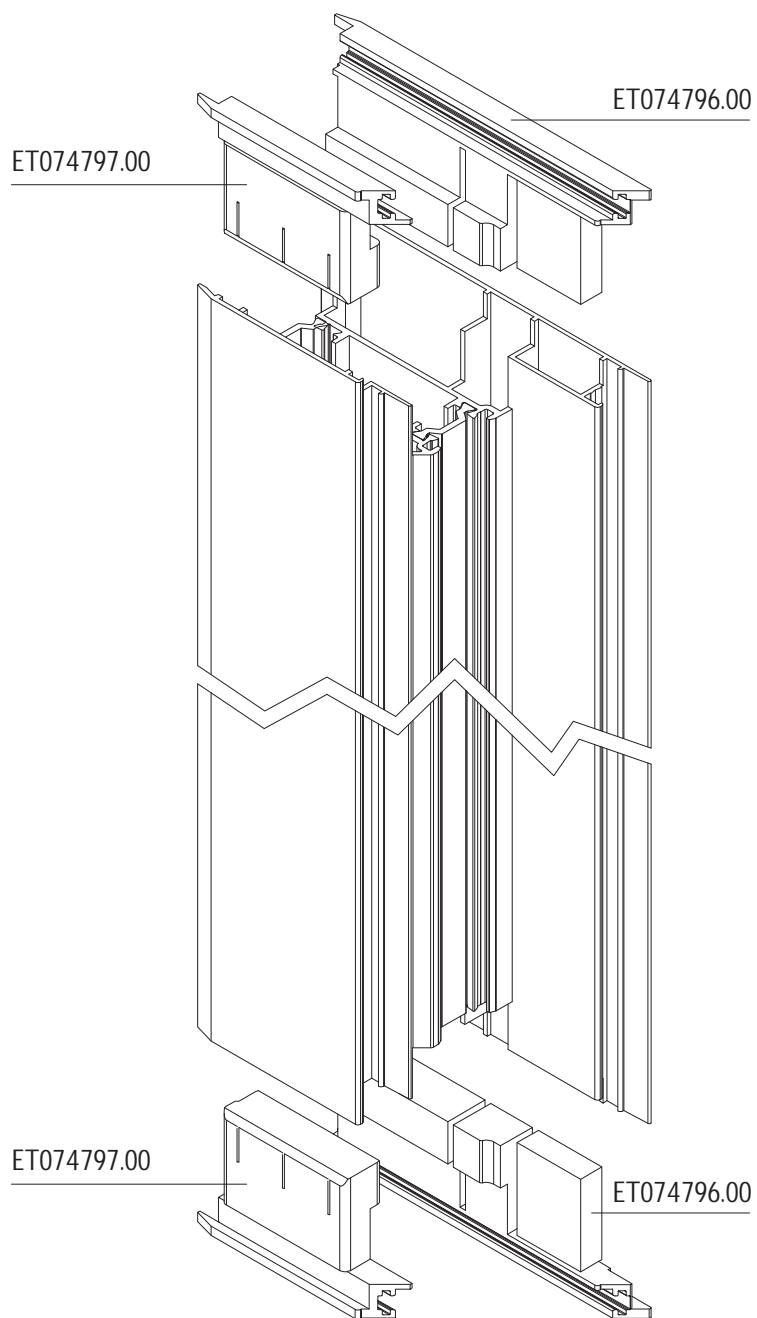


MACHINING OF SASH E50520 FOR PLASTIC PLUGS INSTALLATION  
(FOR 90° CORNER)

M50-69

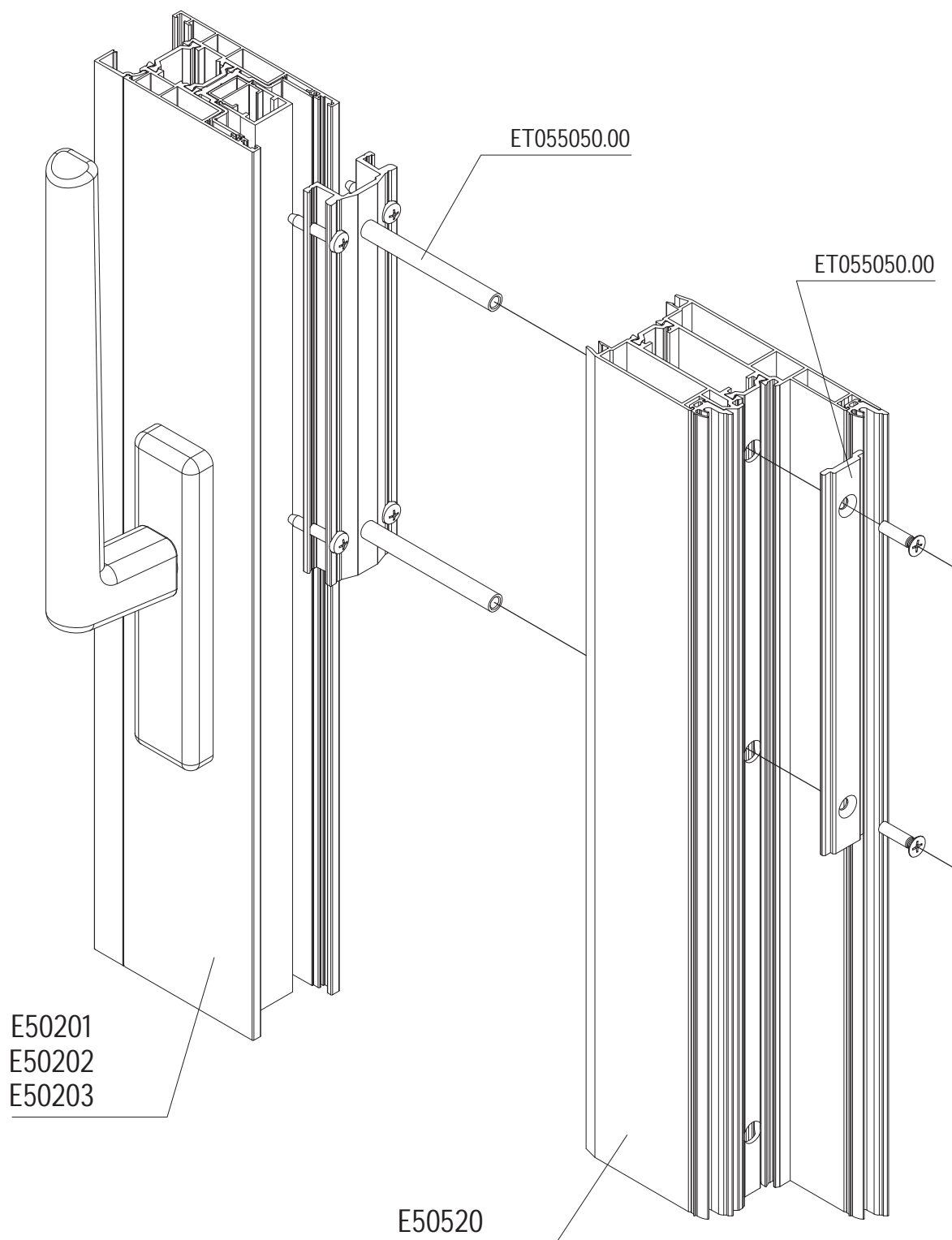


**ATTENTION**  
MACHINING FOR TOP AND BOTTOM END  
OF E50520 IS THE SAME



INSTALLATION OF E50250 ANCHOR ET.055050.00  
(FOR 90° CORNER)

M50-70



INSTALLATION OF E50250 ANCHOR WITH LATCH ET.055051.00  
(FOR 90° CORNER)

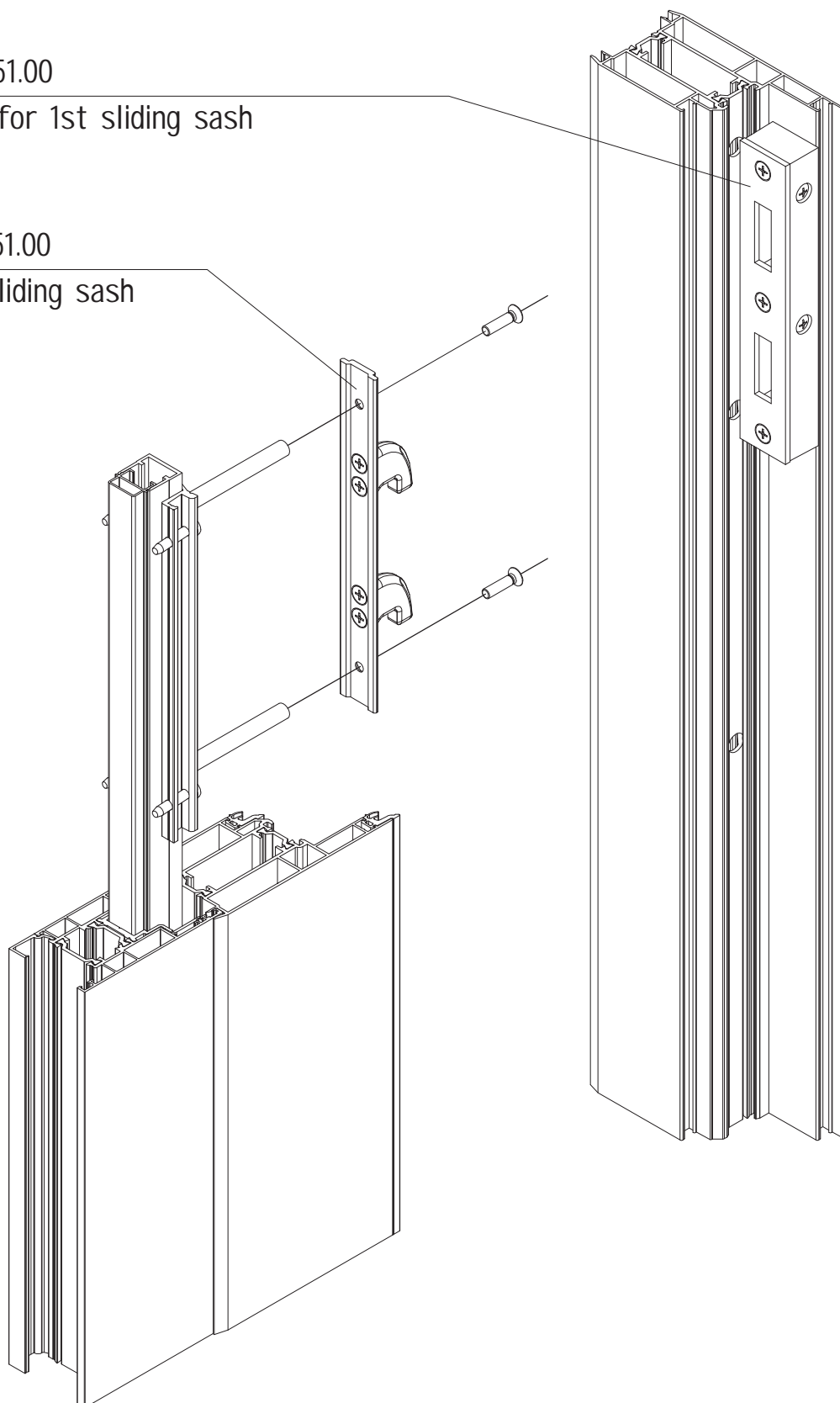
M50-71

Part of ET055051.00

Locking striker for 1st sliding sash

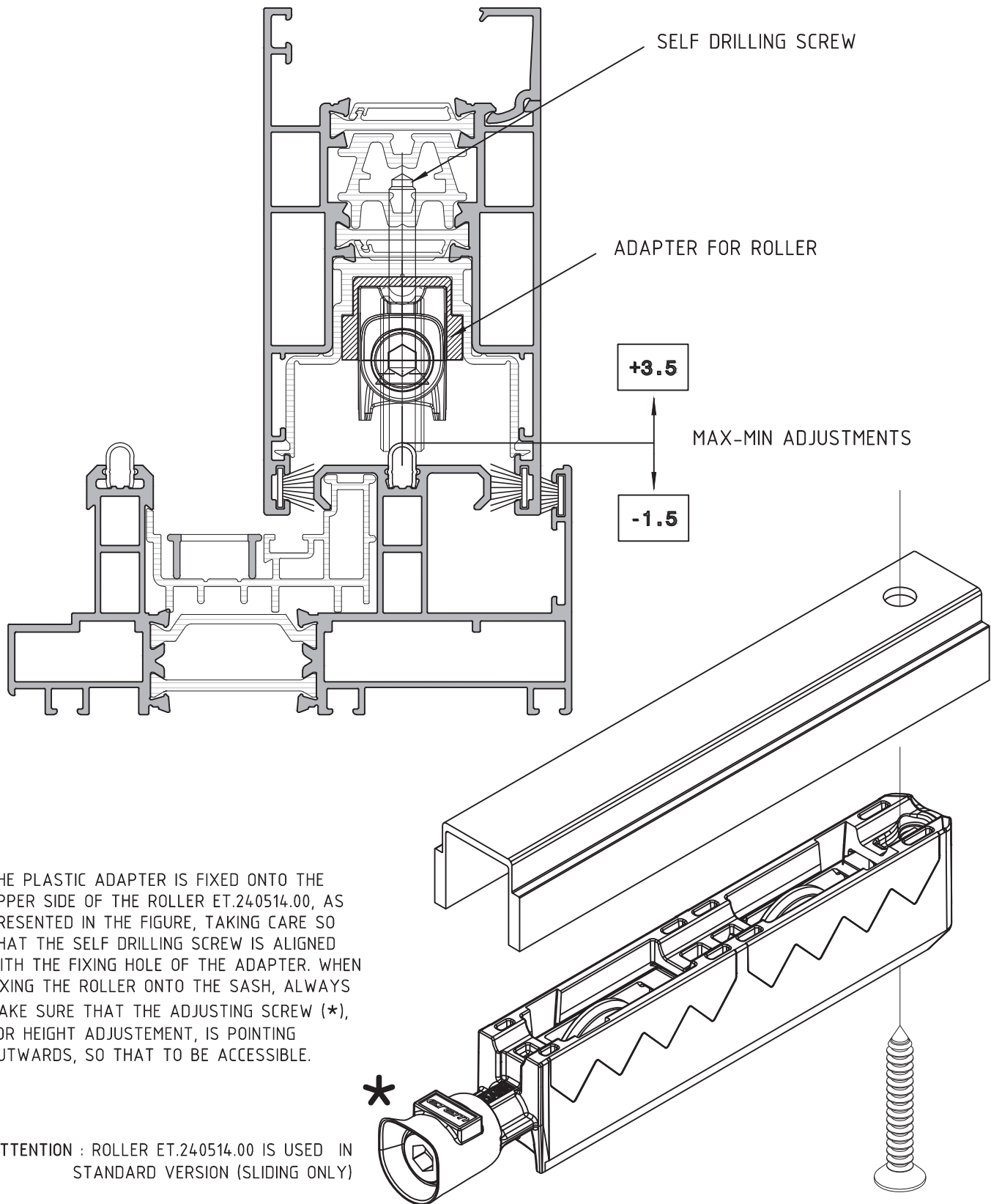
Part of ET055051.00

Latch for 2nd sliding sash



GUIDELINES FOR FIXING ROLLER ET.240514.00

M50-72



THE PLASTIC ADAPTER IS FIXED ONTO THE UPPER SIDE OF THE ROLLER ET.240514.00, AS PRESENTED IN THE FIGURE, TAKING CARE SO THAT THE SELF DRILLING SCREW IS ALIGNED WITH THE FIXING HOLE OF THE ADAPTER. WHEN FIXING THE ROLLER ONTO THE SASH, ALWAYS MAKE SURE THAT THE ADJUSTING SCREW (\*), FOR HEIGHT ADJUSTEMENT, IS POINTING OUTWARDS, SO THAT TO BE ACCESSIBLE.

ATTENTION : ROLLER ET.240514.00 IS USED IN STANDARD VERSION (SLIDING ONLY)

## SELECTION OF GASKET FOR E50 WITH LIFT & SLIDE HARDWARE

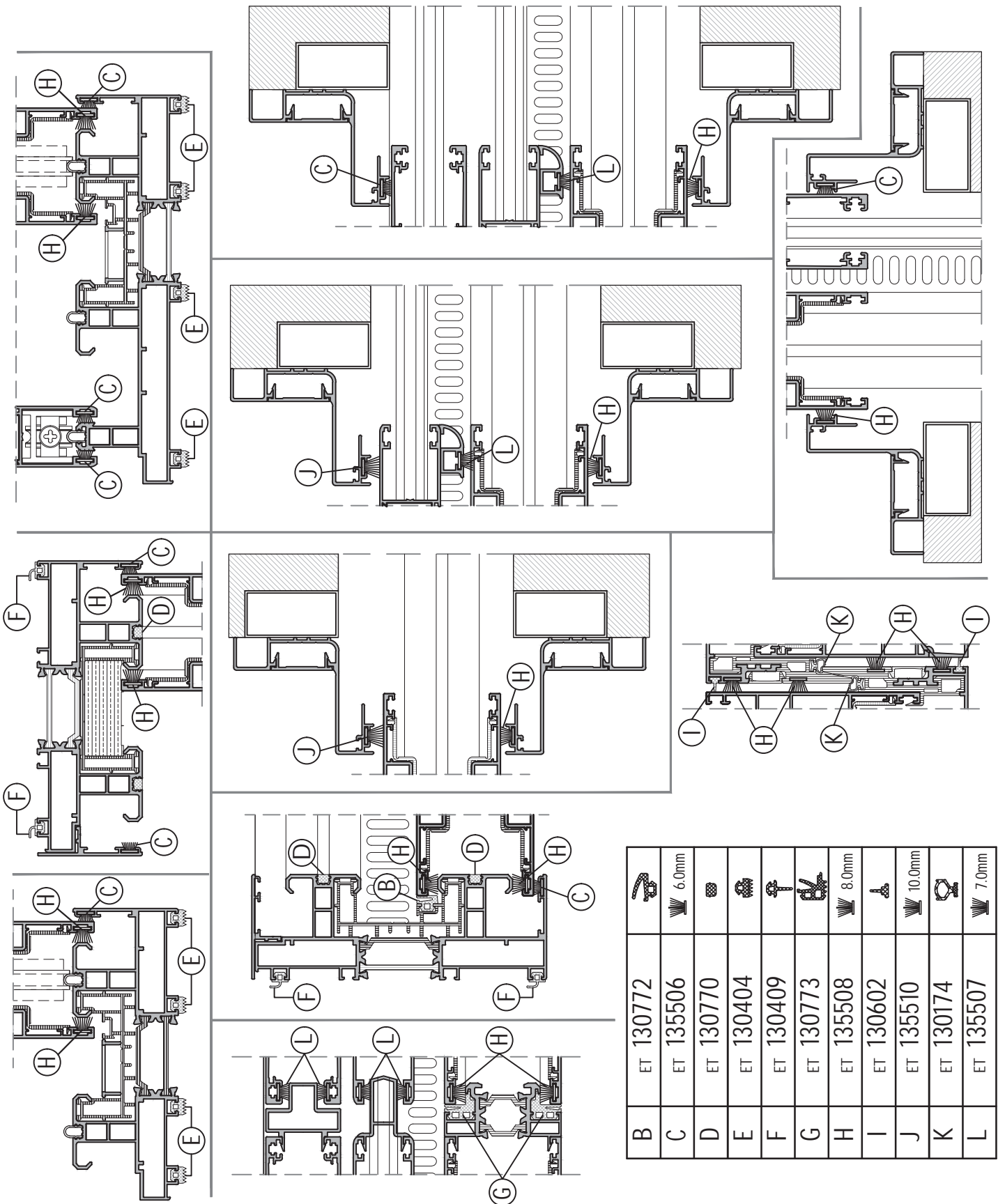
M50-73












The diagrams illustrate various configurations of the E50 sliding system with thermal break, showing different gasket options (A-L) and hardware (F, G, H, I, J, K, L) for lift and slide mechanisms. The diagrams are arranged in a grid, showing different views and details of the door profile and its interaction with the track.

A	ET 130771	
B	ET 130772	
C	ET 135506	
D	ET 130770	
E	ET 130404	
F	ET 130409	
G	ET 130773	
H	ET 135508	
I	ET 130602	
J	ET 135510	
K	ET 130174	
L	ET 135507	

SELECTION OF GASKET FOR E50 - STANDARD VERSION

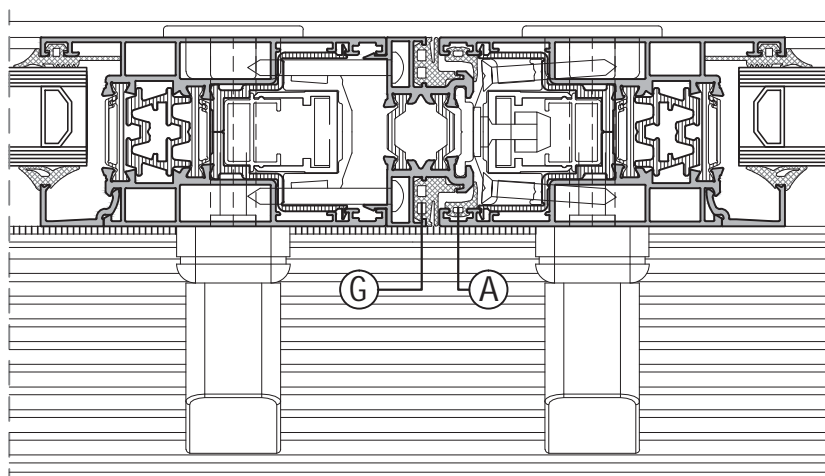
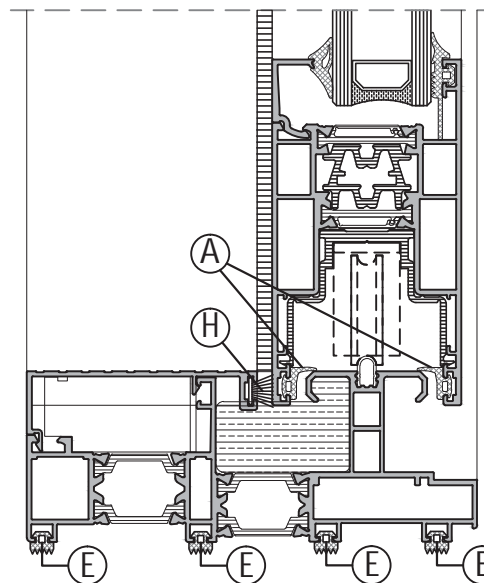
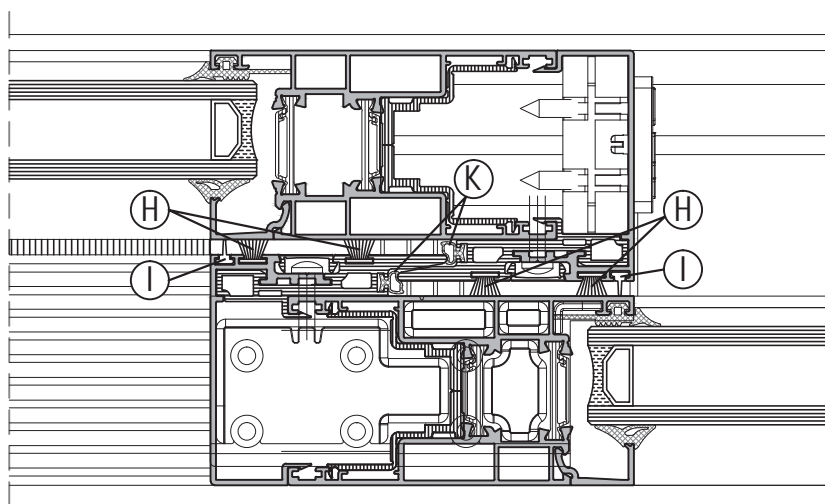
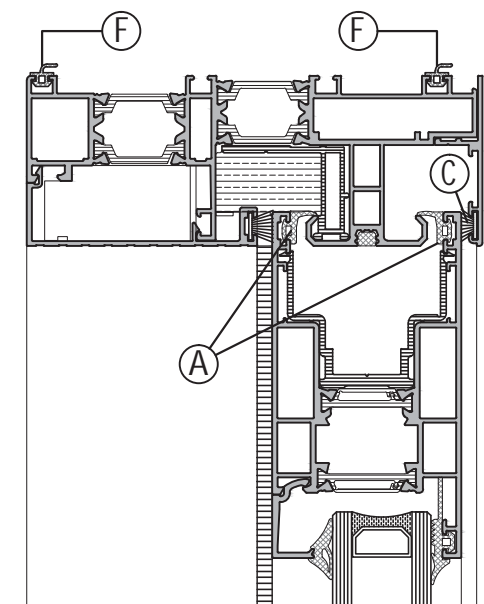
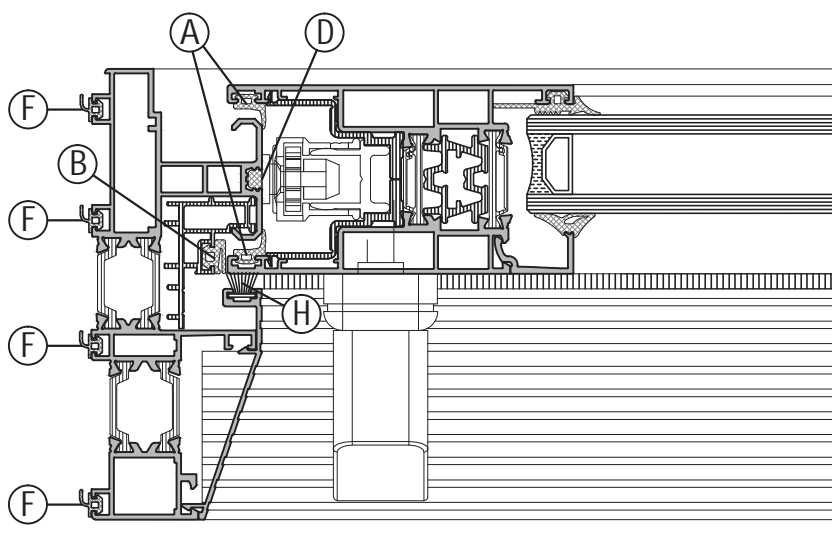
M50-74



B	ET 130772		6,0mm
C	ET 135506		
D	ET 130770		
E	ET 130404		
F	ET 130409		
G	ET 130773		
H	ET 135508		8,0mm
I	ET 130602		
J	ET 135510		10,0mm
K	ET 130174		
L	ET 135507		7,0mm

## SELECTION OF GASKET FOR E50H WITH LIFT & SLIDE HARDWARE

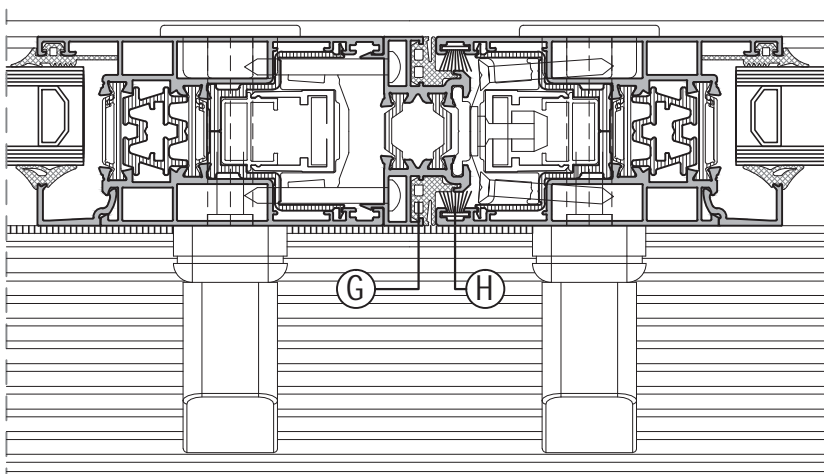
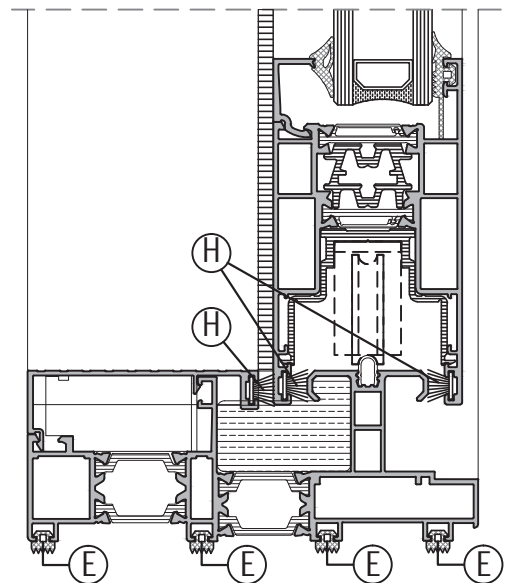
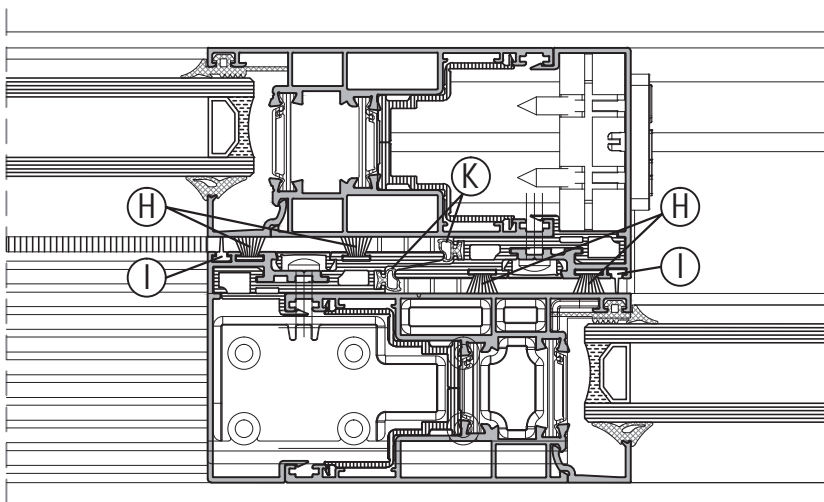
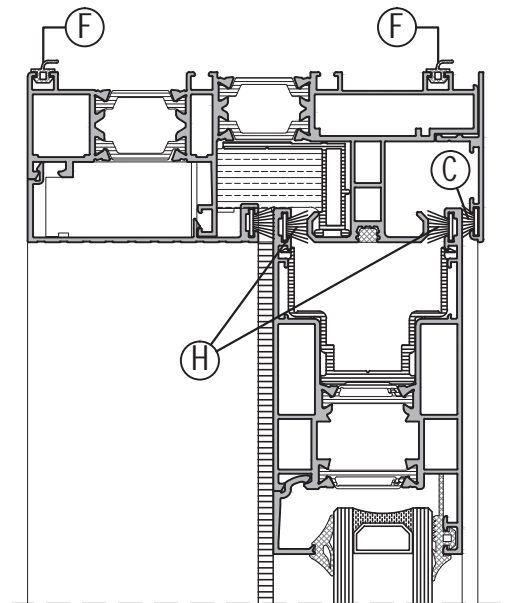
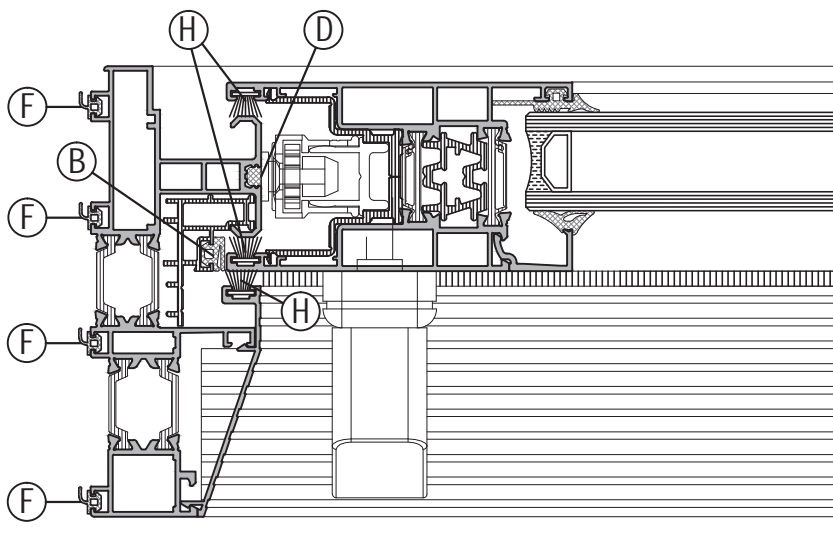
M50-63












A	ET 130771	
B	ET 130772	
C	ET 135506	6.0mm
D	ET 130770	
E	ET 130404	
F	ET 130409	
G	ET 130773	
H	ET 135508	8.0mm
I	ET 130602	
K	ET 130174	

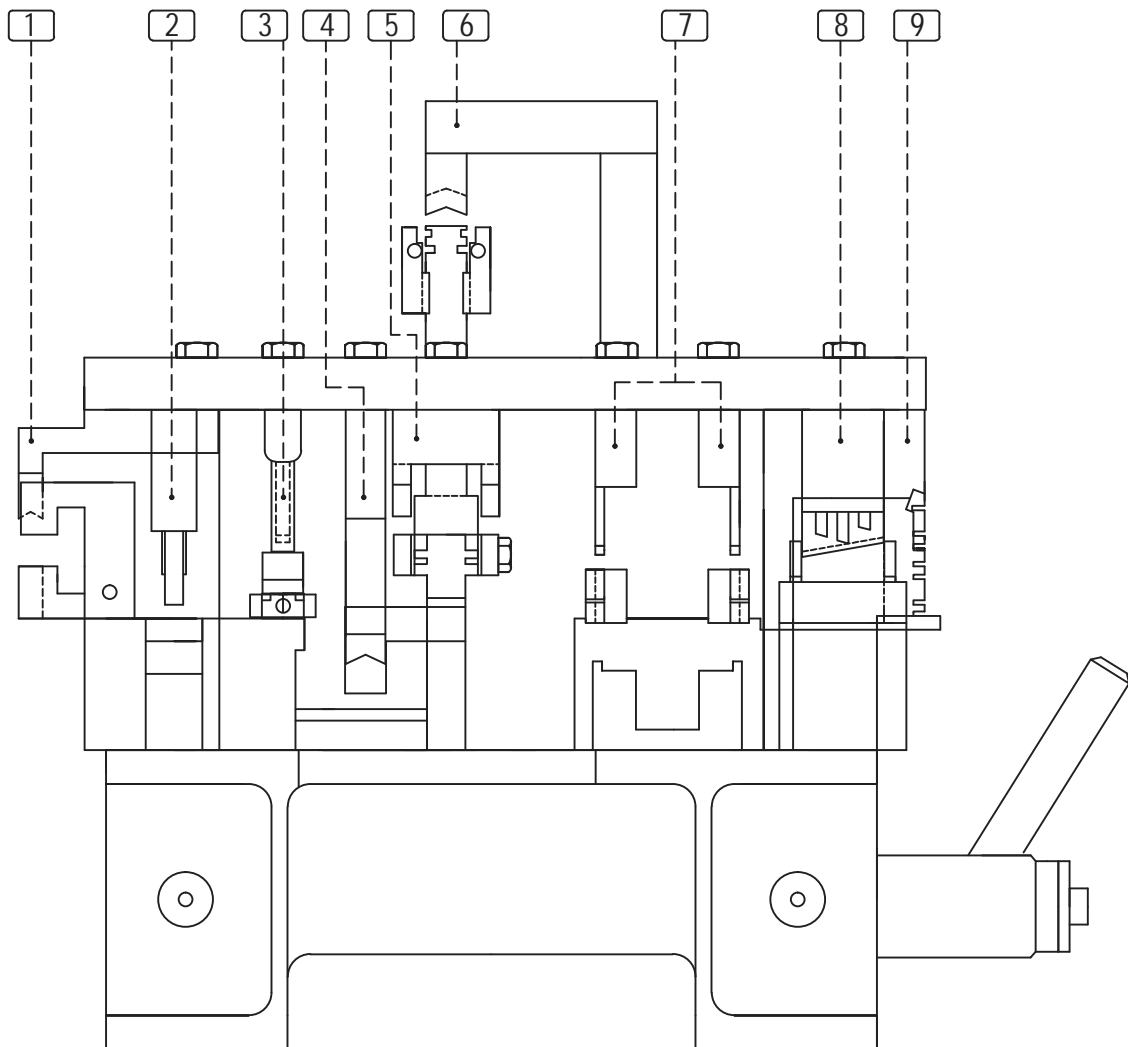
## SELECTION OF GASKET FOR E50H WITH SLIDING HARDWARE

M50-64



B	ET 130772	
C	ET 135506	 6.0mm
D	ET 130770	
E	ET 130404	
F	ET 130409	
G	ET 130773	
H	ET 135508	 8.0mm
I	ET 130602	
K	ET 130174	





1 Machining for rail upper water drainage  
(Machining M50-31)

2 Machining for rails corner joint  
(Machining M50-07 & M50-08)

3 Machining for corner joint brackets for E50202,  
E50203, E22214, E50210  
(Machining M50-09, M50-15, M50-16)

4 Machining for drain holes on pvc profiles  
ET080201.00 & ET080206.00  
(Machining M50-12, M50-13)

5 Machining for front side rail water drainage  
(Machining M50-29)

6 Machining of profile E70640  
(Machining M50-11)

7 Machining for sashes E50201, E50202 & E50203  
water drain holes (Machining M50-06)

8 Machining on interlock profile E50501  
(Machining M50-01)

9 Additional machining for pvc profiles  
ET080201.00 & ET080206.00  
(Machining M50-12, M50-13)



# ACCESSORIES

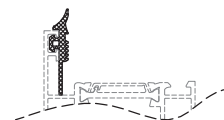


# sliding system with thermal break

E50

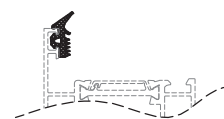
code/description	package/pcs	colour
ET 130769.00		●

Elongated glazing epdm gasket 3.0 mm



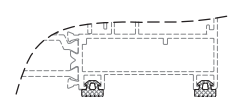
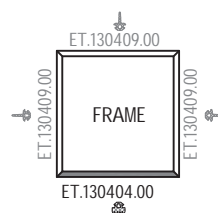
ET 130411.00		●
--------------	--	---

EPDM glazing gasket press-in 3.0 mm



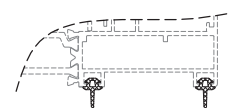
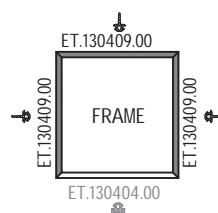
ET 130404.00		●
--------------	--	---

Wall-joining EPDM external gasket for straight fixed frame



ET 130409.00		●
--------------	--	---

Wall-joining EPDM external gasket for straight fixed frame



# sliding system with thermal break

E50

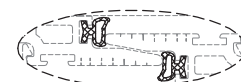
code/description	package/pcs	colour
ET 130602.00		●

EPDM gasket for E50 interlock



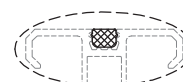
ET 130174.00		●
--------------	--	---

Interior seal EPDM gasket TOP LINE



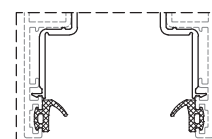
ET 130770.00		●
--------------	--	---

EPDM gasket for rail groove covering



ET 130771.00		●
--------------	--	---

EPDM seal gasket for sash frame E50

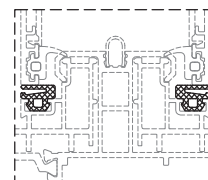


# sliding system with thermal break

E50

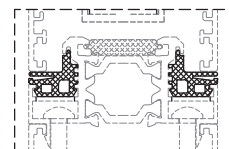
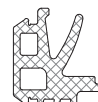
code/description	package/pcs	colour
ET 130772.00		●

EPDM seal gasket  
for rail E50



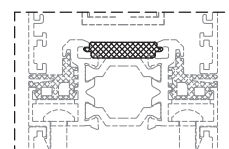
ET 130773.00		●
--------------	--	---

EPDM seal gasket for  
adjoining profile E50



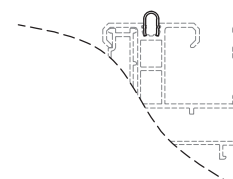
ET 130774.00		●
--------------	--	---

Central EPDM seal gasket  
for adjoining profile E50



ET 082201.00		
--------------	--	--

Stainless steel rail -U-  
shape for E50, E70, E3000

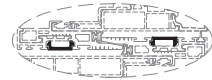


# sliding system with thermal break

E50

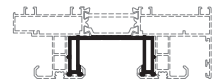
code/description	package/pcs	colour
ET 080199.00		●

PVC cover cap for euro channel (black)



ET 080200.00		●
--------------	--	---

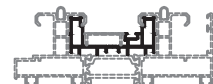
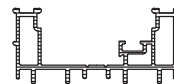
PVC profile for upper rail E50



E50100  
E50102  
E50103

ET 080201.00		●
--------------	--	---

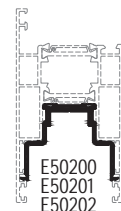
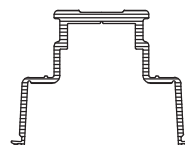
PVC profile for bottom & jamb rail E50



E50100  
E50102  
E50103

ET 080202.00		●
--------------	--	---

Plastic profile (PVC) for E50 sash



E50200  
E50201  
E50202

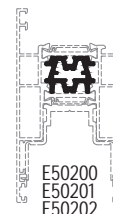


# sliding system with thermal break

E50

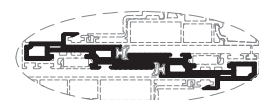
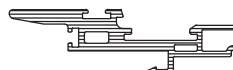
code/description	package/pcs	colour
ET 080203.00		●

Plastic profile (PVC) for fixing L&S hardware for E50



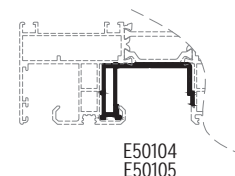
ET 080204.00		●
--------------	--	---

Plastic spacer for interlock for E50201 & E50202



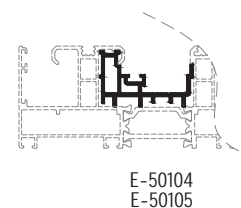
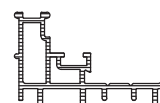
ET 080205.00		●
--------------	--	---

Plastic profile (PVC) for pocket sliding E50 (upper rail)



ET 080206.00		●
--------------	--	---

Plastic profile (PVC) for pocket sliding E50 (bottom & jamb rail)



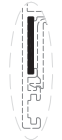
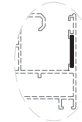
# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 056607.00		inox
ET 055508.00		galv.steel
ET 057705.00		polyamid 6.6



polyamid 6.6

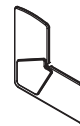


E50100  
E50102  
E50103  
E50104  
E50105  
E50110  
E50155

E50200  
E50201  
E50202

Alignment square for  
E19, E22, E50, E52

ET 057706.00		polyamid 6.6
--------------	--	--------------



E50210

Alignment square for  
E19, E22, E50, E52

ET 055507.00		galv.steel
ET 056604.00		inox



E50210

Alignment square for  
E19, E22, E50, E52  
E1000, E40, E45

ET 055510.00		galv.steel
ET 055511.00		inox



E22214

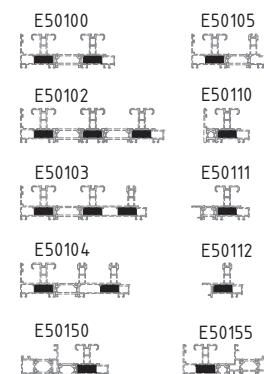
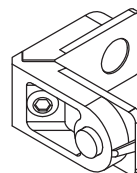
Alignment square for sash  
E22214, E 19215

# sliding system with thermal break

E50

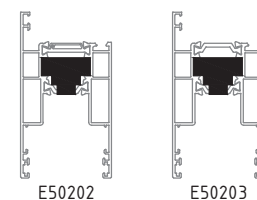
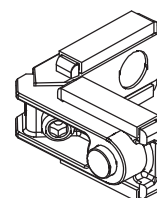
code/description	package/pcs	colour
ET 053316.00		silver

Die cast aluminium corner joint bracket for E40, E45 & E50



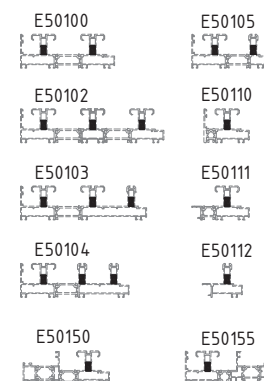
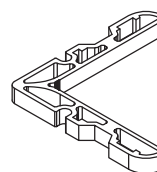
ET 053331.00		silver
--------------	--	--------

Die cast aluminium corner joint bracket for E50 sash



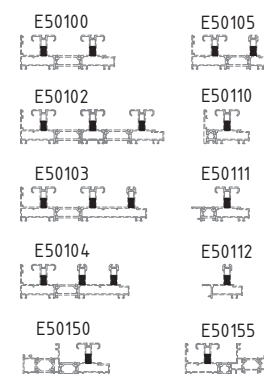
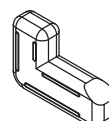
ET 054445.00		MF
--------------	--	----

Extruded aluminium corner joint (6.6 mm width)



ET 061102.00		●
--------------	--	---

Corner joint bracket for E19, E22, E50 & E52

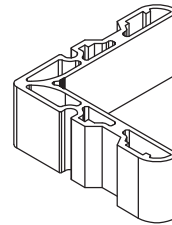


# sliding system with thermal break

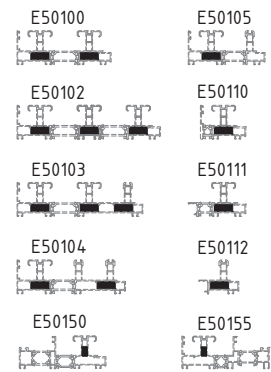
E50

code/description	package/pcs	colour
ET 054255.00		MF

Extruded aluminium joint corner (24.7 mm) for E40, E45, E50, without hole

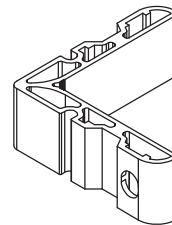


ATTENTION  
ALWAYS USE ADHESIVE  
ET138004.00

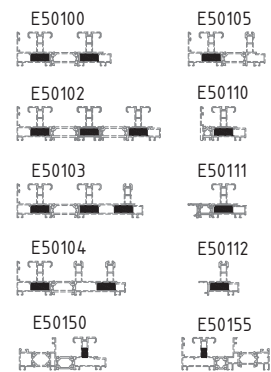


ET 054253.00		MF
--------------	--	----

Extruded aluminium joint corner (24.7 mm) for E40, E45, E50 with hole

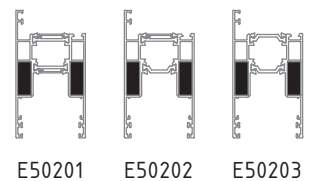
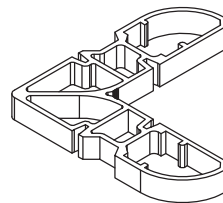


ATTENTION  
ALWAYS USE ADHESIVE  
ET138004.00



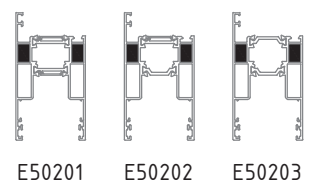
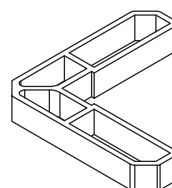
ET 054475.00		MF
--------------	--	----

Extruded aluminium joint corner (9.1 mm) for E50



ET 050027.00		MF
--------------	--	----

Extruded aluminium shimming corner (8,2 mm) for E50

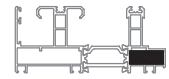
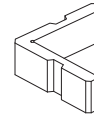


# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 054479.00		MF

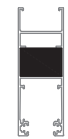
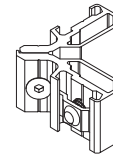
Extruded aluminium joint  
corner bracket  
(19.3 mm) for E50



E50105

ET 052208.00		MF
--------------	--	----

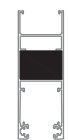
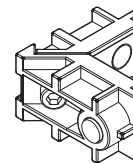
Extruded aluminium joint  
corner for E19, E22



E-50210

ET 053318.00		silver
--------------	--	--------

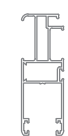
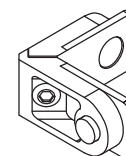
Die cast aluminium corner  
joint bracket for E19



E50210

ET 053306.00		silver
--------------	--	--------

Die cast aluminium corner  
joint bracket for E19, E22

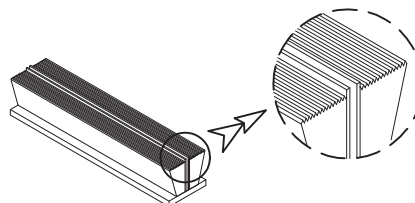


E22214

# sliding system with thermal break

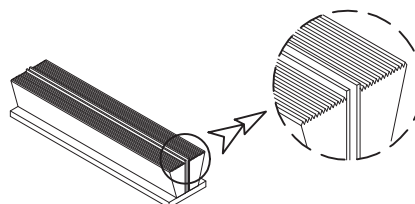
E50

code/description	package/pcs	colour
ET 135506.01		●
ET 135506.02		●
ET 135506.04		○



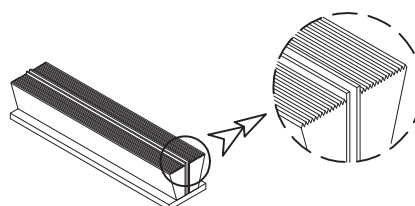
Pile weatherseal  
FP 6 mm

ET 135508.01		●
ET 135508.02		●
ET 135508.04		○



Pile weatherseal  
FP 8 mm

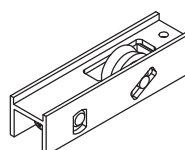
ET 135510.01		●
ET 135510.02		●
ET 135510.04		○



Pile weatherseal  
FP 10 mm

ET 240427.00		silver
--------------	--	--------

Single roller for insect screen  
for E70 ("U" rail)



E22214

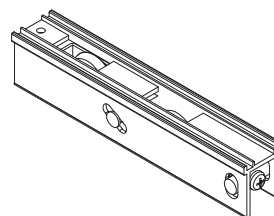
ATTENTION  
suitable for "U" rail

# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 240426.00		silver

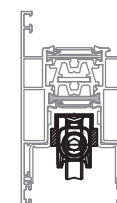
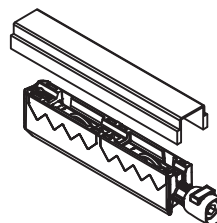
Double roller for E50 shutter (for "U" rail)



E52210

ET 240514.00		●
--------------	--	---

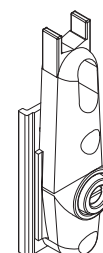
Double roller for E50 sashes



E50201  
E50202, E50203

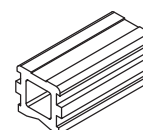
ET 074636.00		●
--------------	--	---

Plastic stopper for E50 sashes



ET 074642.00		●
--------------	--	---

Epdm stopper for insect screen for E1200, E19, E22

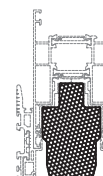


# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 080612.00		
ET 950501.00		

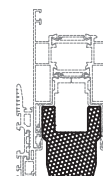
Additional insulator (XPS)  
62x38.4 mm for sash



E50201, E50202, E50203

ET 080622.00		
ET 950501.99		

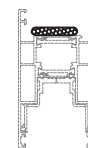
Additional insulator (XPS)  
46.2x38.4 mm for triple sash



E50201, E50202, E50203

ET 080517.00		
--------------	--	--

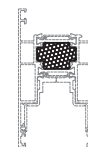
Foam insert (PEX) 30x5 mm  
for E50 glazing



E50201, E50202, E50203

ET 080621.00		
ET 950201.00		

Additional insulator (XPS)  
24x16 mm for sash inner tube



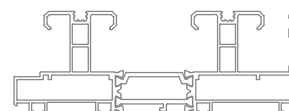
E50201, E50202, E50203



code/description	package/pcs	colour
ET 240812.00		



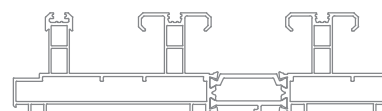
Set of foam inserts for cavities of E50100



ET 240813.00		
--------------	--	--



Set of foam inserts for cavities of E50102



ET 240814.00		
--------------	--	--

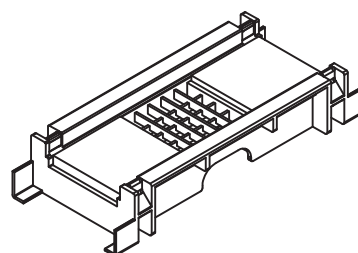


Set of foam inserts for cavities of E50103



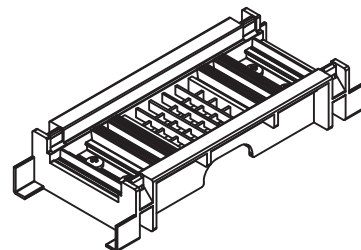
ET 240810.00		
--------------	--	--

Central sealing block for bottom rail for E50 lift & slide



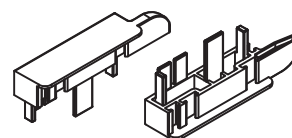
code/description	package/pcs	colour
ET 240811.00		

Central sealing block for bottom rail for E50 without lift & slide



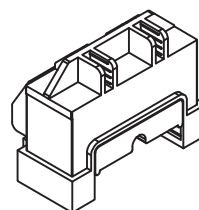
ET 074750.00		
--------------	--	--

Pair of plastic plugs for interlock



ET 074741.00		
--------------	--	--

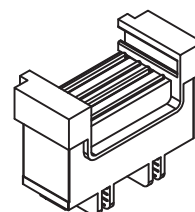
Plastic plug with foam insert for interlock bottom (ONLY lift & slide)



ET 074742.00		
--------------	--	--

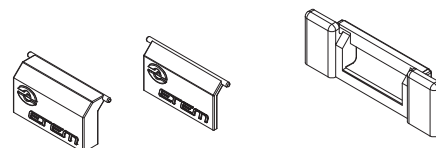
Plastic plug for upper side of interlock (for lift & slide)

For sliding, without lift, it is used for upper & bottom



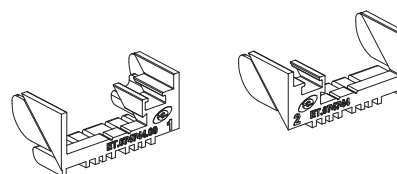
code/description	package/pcs	colour
ET 074771.00		

Plastic cap with flap for drain of rail E50



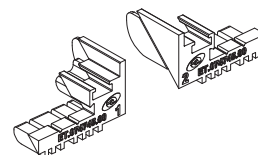
ET 074744.00		
--------------	--	--

Pair of plastic plugs for thermal drain (080200 & 080201)



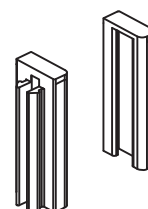
ET 074745.00		
--------------	--	--

Pair of plastic plugs for thermal drain of pocket sliding (080205 & 080206)



ET 074747.00		
--------------	--	--

Pair of plastic plugs (stabilizer) for E50 sash



# sliding system with thermal break

E50

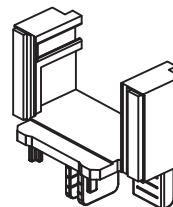
code/description

package/pcs

colour

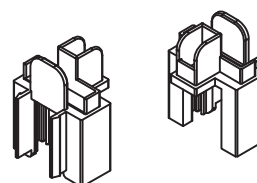
ET 074746.00

Plastic plugs for adjoining  
profile E50500



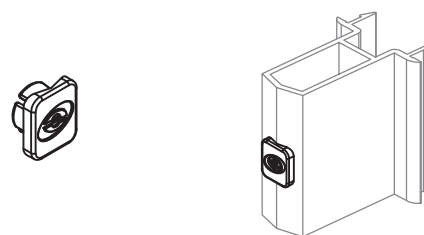
ET 074764.00

Pair of plastic plugs for  
adjoining profile E50510



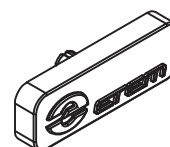
ET 074671.00

Plastic plug for fixing hole  
on adjoining profile E19, E22



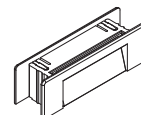
ET 074743.00

Plastic plug for fixing hole  
covering



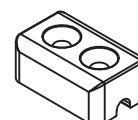
code/description	package/pcs	colour
ET 074755.00		

Plastic cap with flap for drain



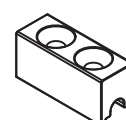
ET 074748.00		
--------------	--	--

Central stopper for glazed sash frame



ET 074749.00		
--------------	--	--

Central stopper for shutter and insect screen



ET 240627.00		MF
--------------	--	----

Stopper for sash frame bottom side



# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 240628.00		MF

Stopper for top side  
for sash frame



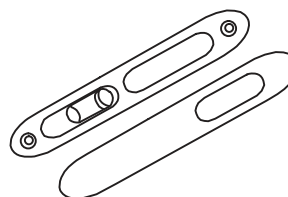
ET 071293.00		MF
--------------	--	----

Stopper for sash E50210



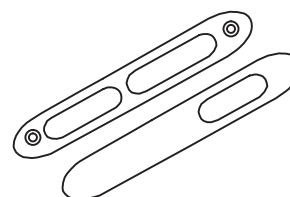
ET 240106.01		○
ET 240106.02		●

ETEM sliding door lock  
for E19, E22



ET 240107.01		○
ET 240107.02		●

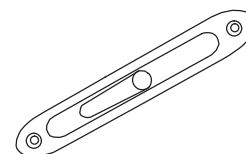
ETEM sliding door handle  
for E19, E22



# sliding system with thermal break

E50

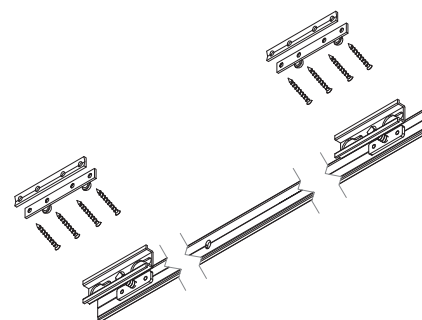
code/description	package/pcs	colour
ET 240122.01		●
ET 240122.02		brown
ET 240122.11		silver



Single sided lock for sliding shutters

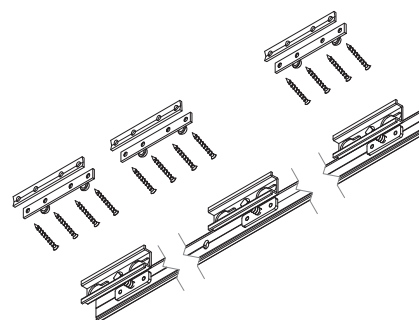
ET 240200.00		
--------------	--	--

Connecting rod with kit 650 mm for sliding window, sash E50210



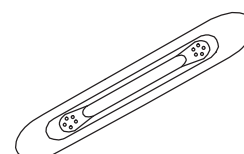
ET 240201.00		
--------------	--	--

Connecting rod with kit 1400 mm for sliding door, sash E50210



ET 240123.00		raw
ET 240123.01		●

Single sided handle for sliding shutter

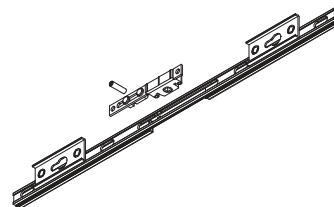


# sliding system with thermal break

E50

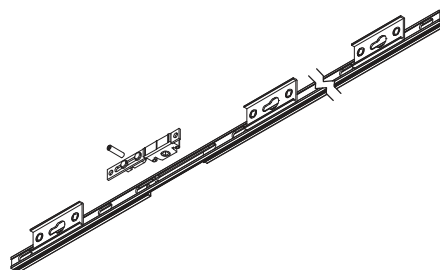
code/description	package/pcs	colour
ET 240198.00		

Connecting rod with kit  
650 mm for E50 sliding window



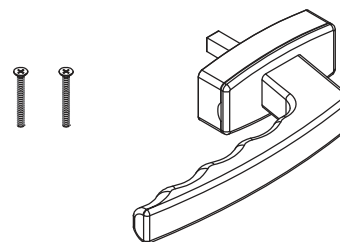
ET 240199.00		
--------------	--	--

Connecting rod with kit  
650 mm for E50 sliding door



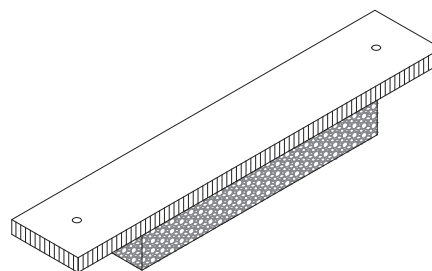
ET 271101.01		●
ET 271101.11		silver

HOPPE Secustik handle  
with screws



ET 240818.00		
--------------	--	--

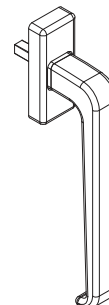
Foam part (41 mm) for sealing  
sash - interlock  
on top of E50





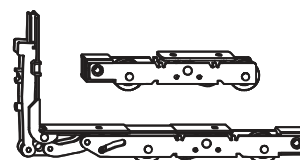
code/description	package/pcs	colour
ET 271104.01		○
ET 271101.02		●
ET 271101.11		silver

ETEM HS150 handle



ET 275211.00		
--------------	--	--

ETEM HS 150 set of rollers



ET 275231.00		silver
--------------	--	--------

ETEM HS150 gear mechanism  
for height 2090-2390 mm



ET 275232.00		silver
--------------	--	--------

ETEM HS150 gear mechanism  
for height 1190-1790 mm



# sliding system with thermal break

E50

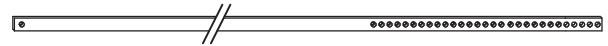
code/description	package/pcs	colour
ET 275239.00		silver

Connecting rod for sash  
width 650 - 1500 mm



ET 275241.00		silver
--------------	--	--------

Connecting rod for sash  
width 1500 - 1900 mm



ET 275250.00		silver
--------------	--	--------

Connecting rod for sash  
width 2000 - 2500 mm



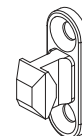
ET 275248.00		silver
--------------	--	--------

Set of pins for ETEM HS150



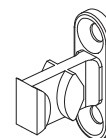
code/description	package/pcs	colour
ET 275220.00		

Upper striker for ETEM HS150



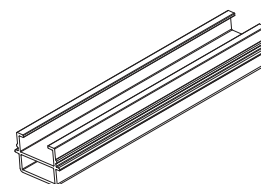
ET 275221.00		
--------------	--	--

ETEM HS150 striker for microventilation



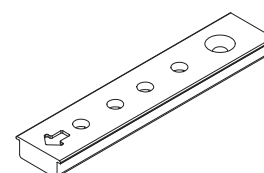
ET 071430.00		
--------------	--	--

Metal spacer for ETEM HS150 gear



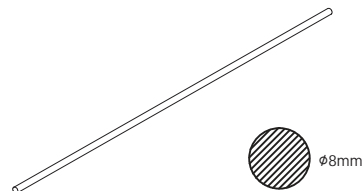
ET 074813.00		
--------------	--	--

Plastic corner spacer for ETEM HS150 gear



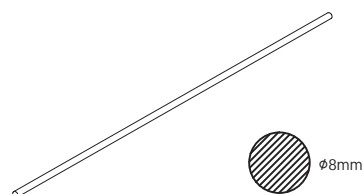
code/description	package/pcs	colour
GU 201055.00	1	MF

Connecting rod 8 mm  
(for Sash W. 700 - 1600 mm)



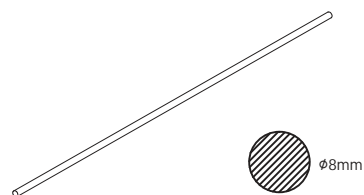
GU 201058.00	1	MF
--------------	---	----

Connecting rod 8 mm  
(for Sash W. 1601 - 1850 mm)



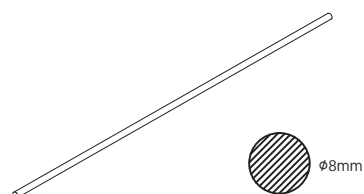
GU 201059.00	1	MF
--------------	---	----

Connecting rod 8 mm  
(for Sash W. 1851 - 2350 mm)



GU 201056.00	1	MF
--------------	---	----

Connecting rod 8 mm  
(for Sash W. 2351 - 3300 mm)



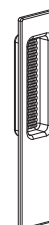
code/description	package/pcs	colour
ET 143500.00		

Screw M6x60 mm - DIN 965



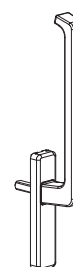
GU 250107.01		●
GU 250107.03		brown
GU 250107.11		silver

Flush pull for GU934



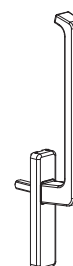
GU 250100.01		●
GU 250100.03		brown
GU 250100.11		silver

Internal handle without cylinder bore with base plate



GU 250102.01		●
GU 250102.03		brown
GU 250102.11		silver

Internal handle without cylinder bore for GU934/937

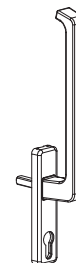


# sliding system with thermal break

E50

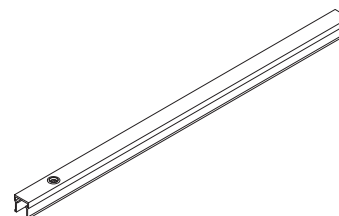
code/description	package/pcs	colour
GU 250005.01		●
GU 250005.03		brown
GU 250005.11		silver

Single handle with cylinder bore  
for GU934/937



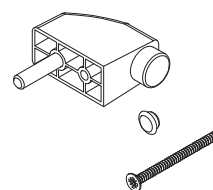
GU 250111.01		●
GU 250111.03		brown

Extension cover rail without  
lock for gear GU934/937



GU 250114.01		●
GU 250114.02		●
GU 250114.11		silver

Sash stopper for GU934/937



GU 250124.01		●
GU 250124.03		brown
GU 250124.11		silver

Removable handle for GU934



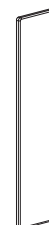
code/description	package/pcs	colour
GU 250125.01		●
GU 250125.03		brown
GU 250125.11		silver

Removable handle rosette  
without cylinder bore



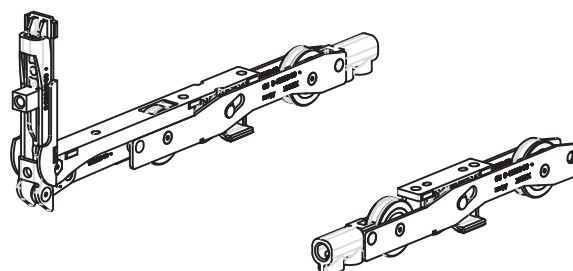
GU 250129.00		
--------------	--	--

External rosette for GU934



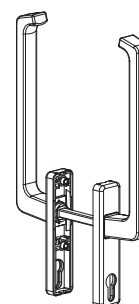
GU 250153.00		
--------------	--	--

Roller set for GU934/937



GU 250140.01		●
GU 250140.03		brown
GU 250140.11		silver

Double handle (internal & external)  
with cylinder bore for GU934/937

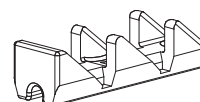


# sliding system with thermal break

E50

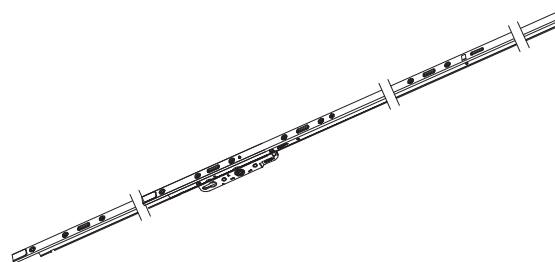
code/description	package/pcs	colour
GU 250119.00		

Horizontal ventilation striker  
for E50 frame



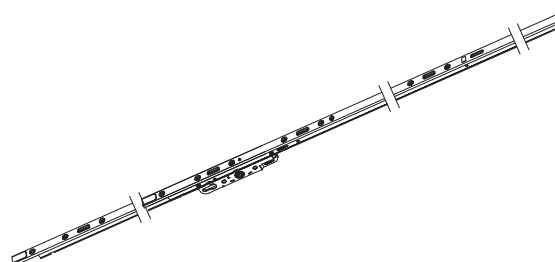
GU 250130.03		brown
GU 250130.11		silver

Gear GU937 830-1250  
Dorn 27.5



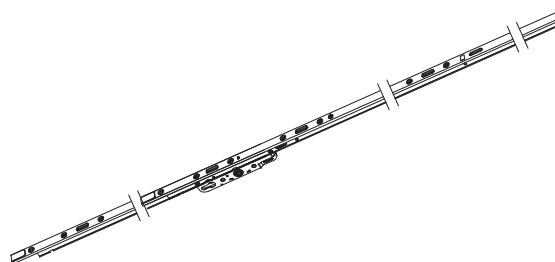
GU 250131.03		brown
GU 250131.11		silver

Gear GU937 1200-1830  
Dorn 27.5



GU 250132.03		brown
GU 250132.11		silver

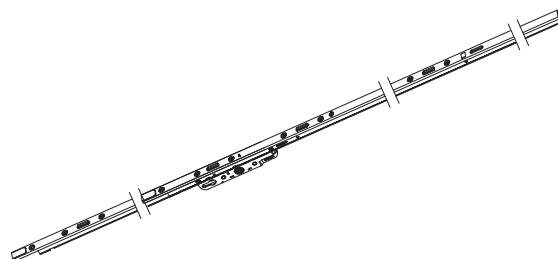
Gear GU937 1830-2330  
Dorn 27.5





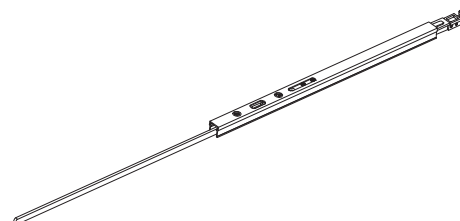
code/description	package/pcs	colour
GU 250133.03		brown
GU 250133.11		silver

Gear GU937 2080-2730  
Dorn 27.5



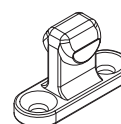
GU 250696.03		brown
GU 250696.11		silver

Gear extension with  
locking point



GU 250142.00		
--------------	--	--

Striker GU934 for frame



GU 250900.00		
--------------	--	--

Elastic stopper for interlock  
for GU934

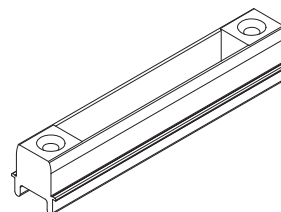


# sliding system with thermal break

E50

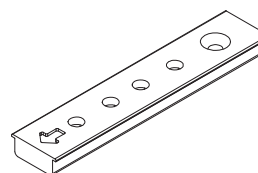
code/description	package/pcs	colour
ET 074812.00		

Plastic spacer for  
ETEM HS150 gear



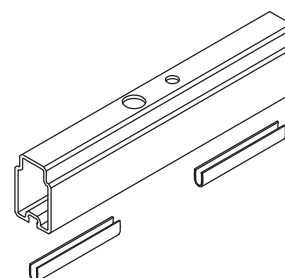
ET 074813.00		
--------------	--	--

Plastic spacer for 1st roller  
& ETEM HS150 gear



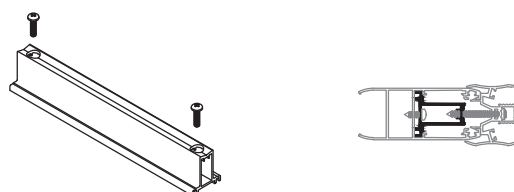
ET 240424.00		
--------------	--	--

Spacer for E50 fixed frame



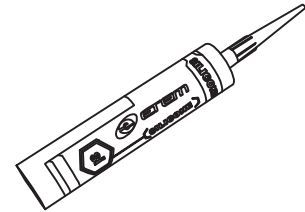
ET 074675.00		
--------------	--	--

Spacer for E19, E22  
fixed sash



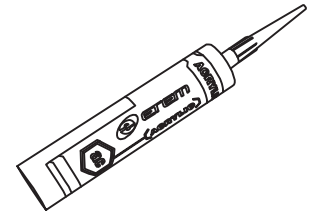
code/description	package/pcs	colour
ET 138001.00		transparent
ET 138001.01		white
ET 138001.02		black
ET 138001.03		brown
ET 138001.04		grey

Silicone for general use 280 ml



ET 138000.01		●
--------------	--	---

Acrylic putty 280 ml



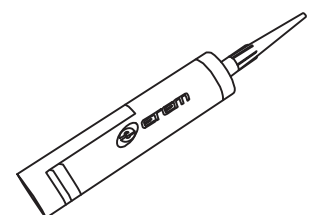
ET 138004.00		
--------------	--	--

Crimping machine adhesive with rapid vulcanisation 290 ml



ET 138005.00		
--------------	--	--

High performance sealant 310 ml

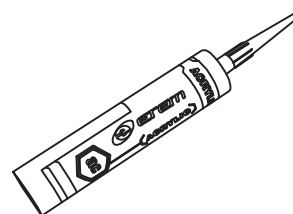


# sliding system with thermal break

E50

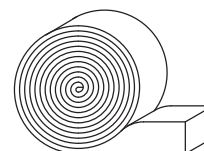
code/description	package/pcs	colour
ET 138013.00		●

Boutyl for gluing gaskets



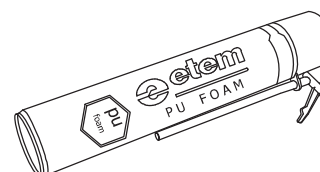
ET 133002.00		
--------------	--	--

Self adhesive, self expand tape  
SUPERSEAL 80 for watertightness  
and sound insulation (4/20x20)



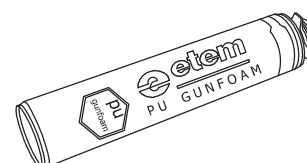
ET 136651.00		
--------------	--	--

P.U. Foam 750 ml



ET 136652.00		
--------------	--	--

P.U. Foam 750 ml  
for foamgun



# sliding system with thermal break

E50

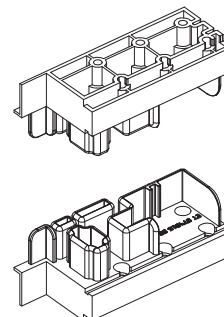
code/description

package/pcs

colour

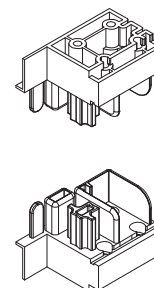
ET 074815.00

Pair of plastic connector  
for E50H - standard  
version



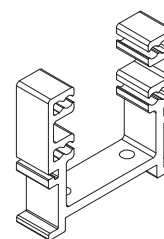
ET 074817.00

Pair of plastic connector  
for E50H - narrow  
interlock



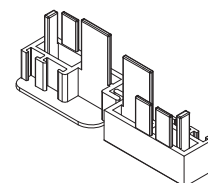
ET 070114.00

'T' bracket for E50250



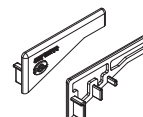
ET 074782.00

Pair of plastic plugs for  
ET080214



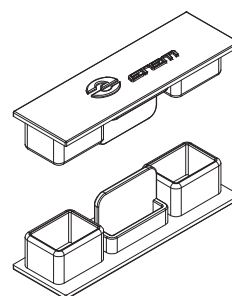
code/description	package/pcs	colour
ET 074816.00		

Cover cap for E50651



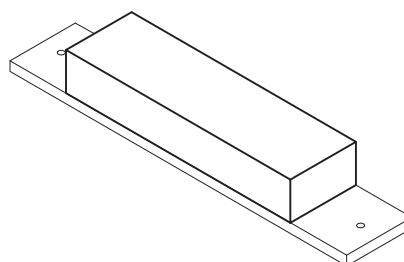
ET 075602.00		
--------------	--	--

Cover cap for E50602



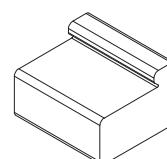
ET 240820.00		
--------------	--	--

Sealing block (35 mm) for sealing sash-interlock at the top side of E50H



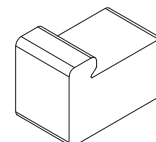
ET 240821.00		
--------------	--	--

Sealing block for sealing sash-interlock at the bottom side of E50H (lift & slide)



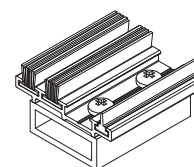
code/description	package/pcs	colour
ET 240822.00		

Sealing block for sealing sash-interlock at the bottom side of E50H-narrow interlock



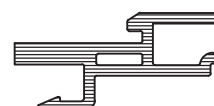
ET 240823.00		
--------------	--	--

Sealing block for sealing sash-interlock at the bottom side of E50H (for standard rollers-no L/S)



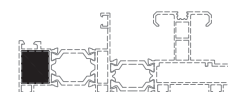
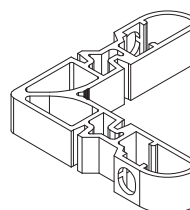
ET 080214.00		
--------------	--	--

Plastic spacer for interlock for E50250



ET 054316.00		MF
--------------	--	----

Extruded aluminium corner joint (14.5 mm width) for E50H frame



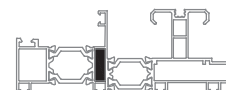
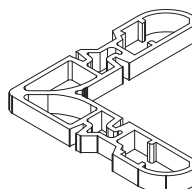
E50150

# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 054317.00		MF

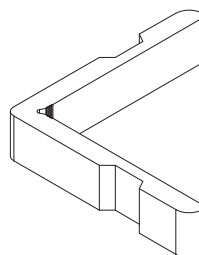
Extruded aluminium corner joint (5.0 mm width) for E50H frame



E50150

ET 054678.00		MF
--------------	--	----

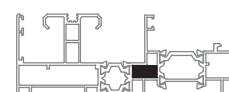
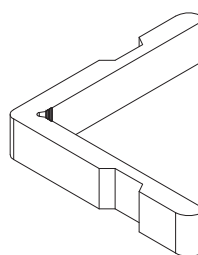
Extruded aluminium joint corner bracket (14.5 mm width) for E50H frame



E50155

ET 054679.00		MF
--------------	--	----

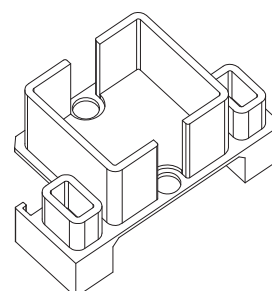
Extruded aluminium joint corner bracket (13.1 mm width) for E50H frame



E50155

ET 074791.00		
--------------	--	--

PVC end cup for E50350 (E50 Hotel)



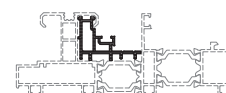
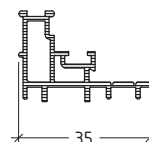


# sliding system with thermal break

E50

code/description	package/pcs	colour
ET 080216.00		●

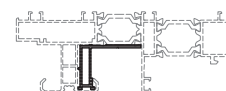
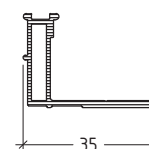
PVC profile for bottom & jamb rail E50H (alternatively, cut ET.080201.00 or ET.080206.00 - see chapter Machining M50-52)



E50150  
E50155

ET 080217.00		●
--------------	--	---

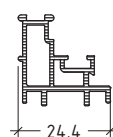
PVC profile for upper rail E50H (alternatively, cut ET.080200.00 or ET.080205.00)



E50150  
E50155

ET 080218.00		●
--------------	--	---

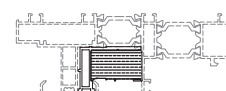
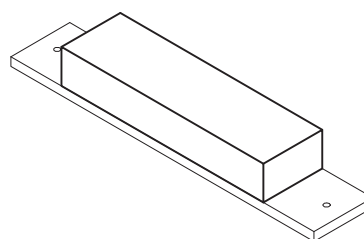
PVC profile for jamb single rail (alternatively, cut ET.080201.00 or ET.080206.00)



E50110

ET 240828.00		
--------------	--	--

Sealing block (28 mm) for sealing sash-interlock at the top side of E50H



E50150  
E50155

code/description	package/pcs	colour
ET 143901.00		

Roll pin  $\varnothing 4.8\text{mm} \times 6.5\text{mm}$



ET 074773.00		
--------------	--	--

Water drainage valve  
 $\varnothing 8.0\text{ mm}$



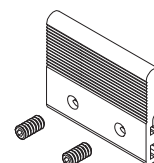
ET 074774.00		
--------------	--	--

Water drainage valve  
 $\varnothing 12.0\text{ mm}$



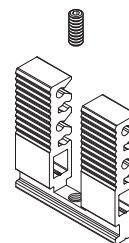
ET 070301.00		MF
--------------	--	----

T-bracket for E50301  
(external side)  
(23.5 mm width)



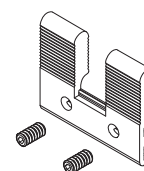
code/description	package/pcs	colour
ET 070217.00		MF

T-bracket for E50 hotel  
(internal side)  
(38 mm width)



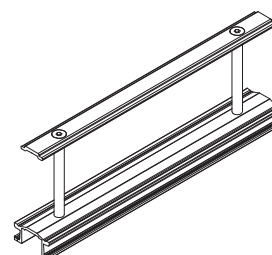
ET 070317.00		MF
--------------	--	----

T-bracket for E50 hotel  
(external side)  
(38 mm width)



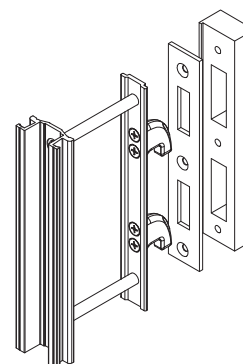
ET 055050.00		MF
--------------	--	----

Anchor for E50520  
(For 90° corner)



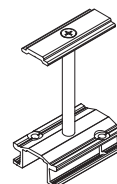
ET 055051.00		MF
--------------	--	----

Anchor for E50520  
with latch  
(For 90° corner)



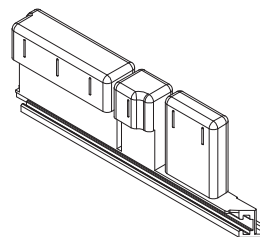
code/description	package/pcs	colour
ET 055052.00		

Small anchor for E50520  
(For 90° corner)



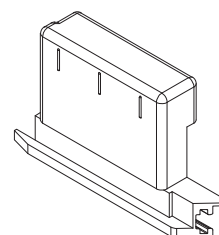
ET 074796.00		●
--------------	--	---

External end cup for E50520 (pair)  
(For 90° corner)



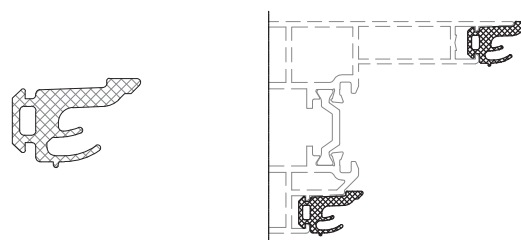
ET 074797.00		●
--------------	--	---

Internal end cup for E50520 (pair)  
(For 90° corner)



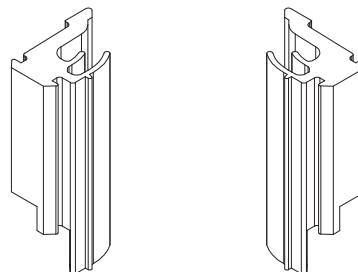
ET 130729.00		●
--------------	--	---

EPDM seal gasket for E50520  
(For 90° corner)



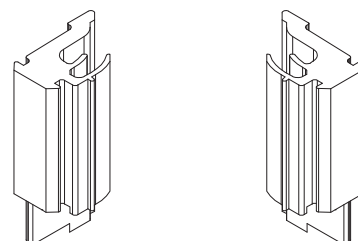
code/description	package/pcs	colour
ET 061729.00		●

EPDM internal end gasket  
for ET 130729 (pair)  
(For 90° corner)



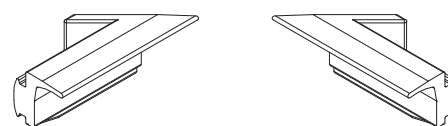
ET 062729.00		●
--------------	--	---

EPDM external end gasket  
for ET 130729 (pair)  
(For 90° corner)



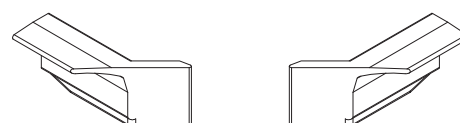
ET 061771.00		●
--------------	--	---

EPDM internal corner gasket  
for ET 130771 (pair)  
(For 90° corner)



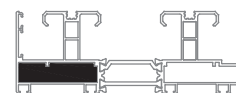
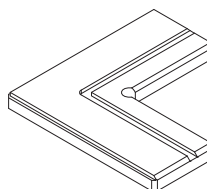
ET 062771.00		●
--------------	--	---

EPDM external corner gasket  
for ET 130771 (pair)  
(For 90° corner)



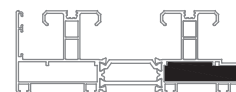
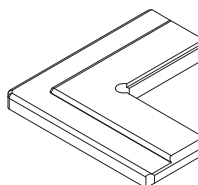
code/description	package/pcs	colour
ET 057714.00		●

Internal alignment corner  
for frame E50100  
(For 90° corner)



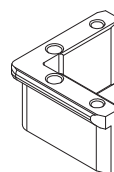
ET 057715.00		●
--------------	--	---

External alignment corner  
for frame E50100  
(For 90° corner)



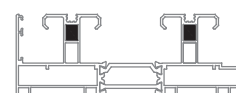
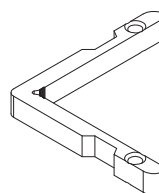
ET 057716.00		●
--------------	--	---

External alignment corner  
for frame E50100  
(For 90° corner)



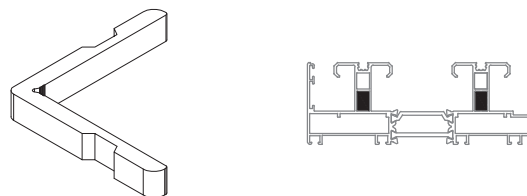
ET 057717.00		MF
--------------	--	----

Top rail alignment corner  
for frame E50100  
(For 90° corner)



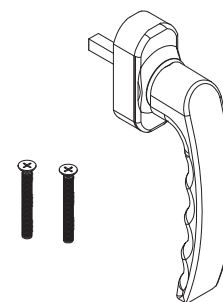
code/description	package/pcs	colour
ET 057718.00		MF

Top rail alignment corner  
for frame E50100  
(For 90° corner)



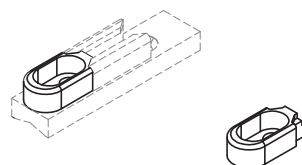
ET 212302.01		●
ET 212302.02		●
ET 212302.11		inox

ETEM handle for In-Line



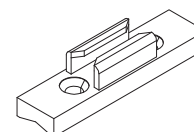
GU 250536.00		silver
--------------	--	--------

"Anti-Lift" plate for in-line  
striker



GU 250537.00		silver
--------------	--	--------

In-Line striker

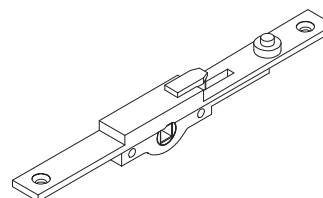


# sliding system with thermal break

E50

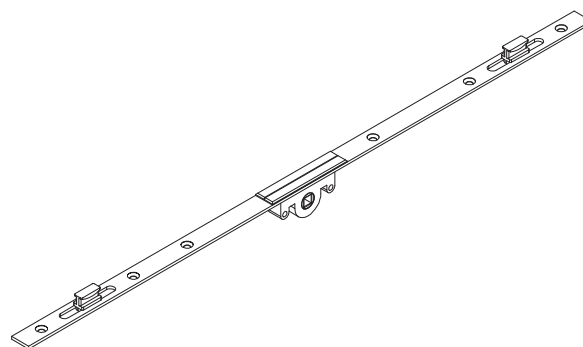
code/description	package/pcs	colour
GU 252418.00		silver

Single locking point in-line lock



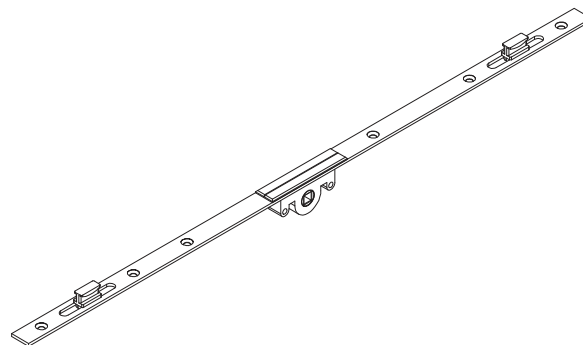
GU 251823.00		silver
--------------	--	--------

Double locking point in-line lock (600 mm)



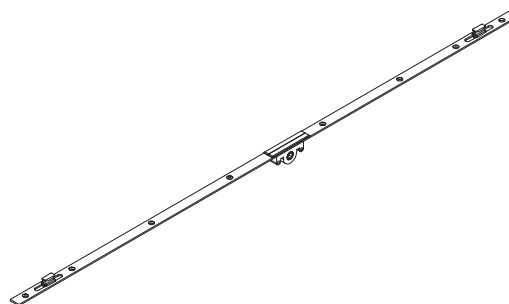
GU 252510.00		silver
--------------	--	--------

Double locking point in-line lock (1000 mm)



GU 252419.00		silver
--------------	--	--------

Double locking point in-line lock (1600 mm)



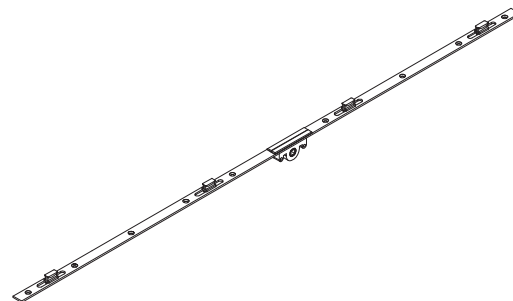


# sliding system with thermal break

E50

code/description	package/pcs	colour
GU 252420.00		silver

Four locking point in-line  
lock (1600 mm)



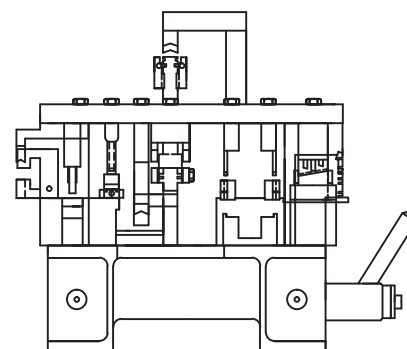
ET 074795.00		
--------------	--	--

Plastic spacer for In-Line  
handle



ET 162263.00		
--------------	--	--

Punching machine  
for E50 profiles





# 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 assessment (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

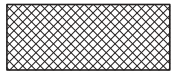
- EN 12020 (1÷2) - ALUMINIUM AND ALUMINIUM ALLOYS - EXTRUDED PRECISION PROFILES IN ALLOYS EN AW-6060 AND EN AW-6063
- EN 755 (1÷9)- ALUMINIUM AND ALUMINIUM ALLOYS - EXTRUDED ROD/BAR, TUBE AND PROFILES
- EN 573 (1÷3) - ALUMINIUM AND ALUMINIUM ALLOYS - CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS
- 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

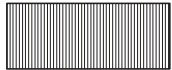
Hatches for different materials



EPDM



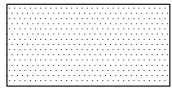
butyl seal



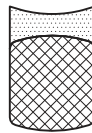
PVC



membrane



gypsum board



silicone seal

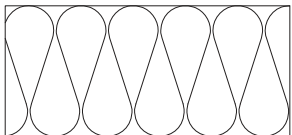
backer rod



silicone seal



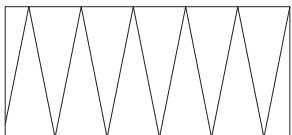
PVC spacer



Insulation soft



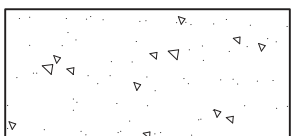
etalbond



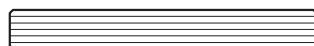
Insulation hard



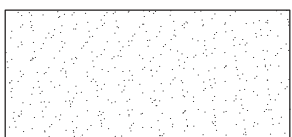
sheet aluminium



concrete wall



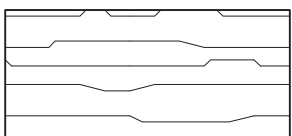
glass



plaster



aluminium profile



wood



steel



# LIABILITY

The stated data and calculating methods are provided by ETEM as a guideline only. The information given in this catalogue does not substitute of all applicable regulations – Eurocodes, harmonized European standards, national or regional building codes.

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.

ETEM is not liable for any calculations and conclusions made on the basis of the stated information. All calculations and specifications must be estimated, endorsed and guaranteed by architect, engineer, professional or legal entity authorized by law for such activities.

# COPYRIGHT

Copyright© II Edition 2017 ETEM

The design, structure and content of this catalogue are subject of copyright and the exclusive rights belong to ETEM. Modifying, copying, publishing, selling or licensing any part or the whole content of this catalogue are strongly prohibited without the permission of ETEM.

Any unauthorized use of content may violate copyright or other laws.

## DISCLAIMER

ETEM is not responsible for any typographical errors, technical inaccuracies and following changes of the content of this catalogue.

Before starting manufacturing process, it is highly recommended to contact ETEM R&D department in order to provide you with updated information.









[WWW.ETEM.COM](http://WWW.ETEM.COM)

