

S 3000

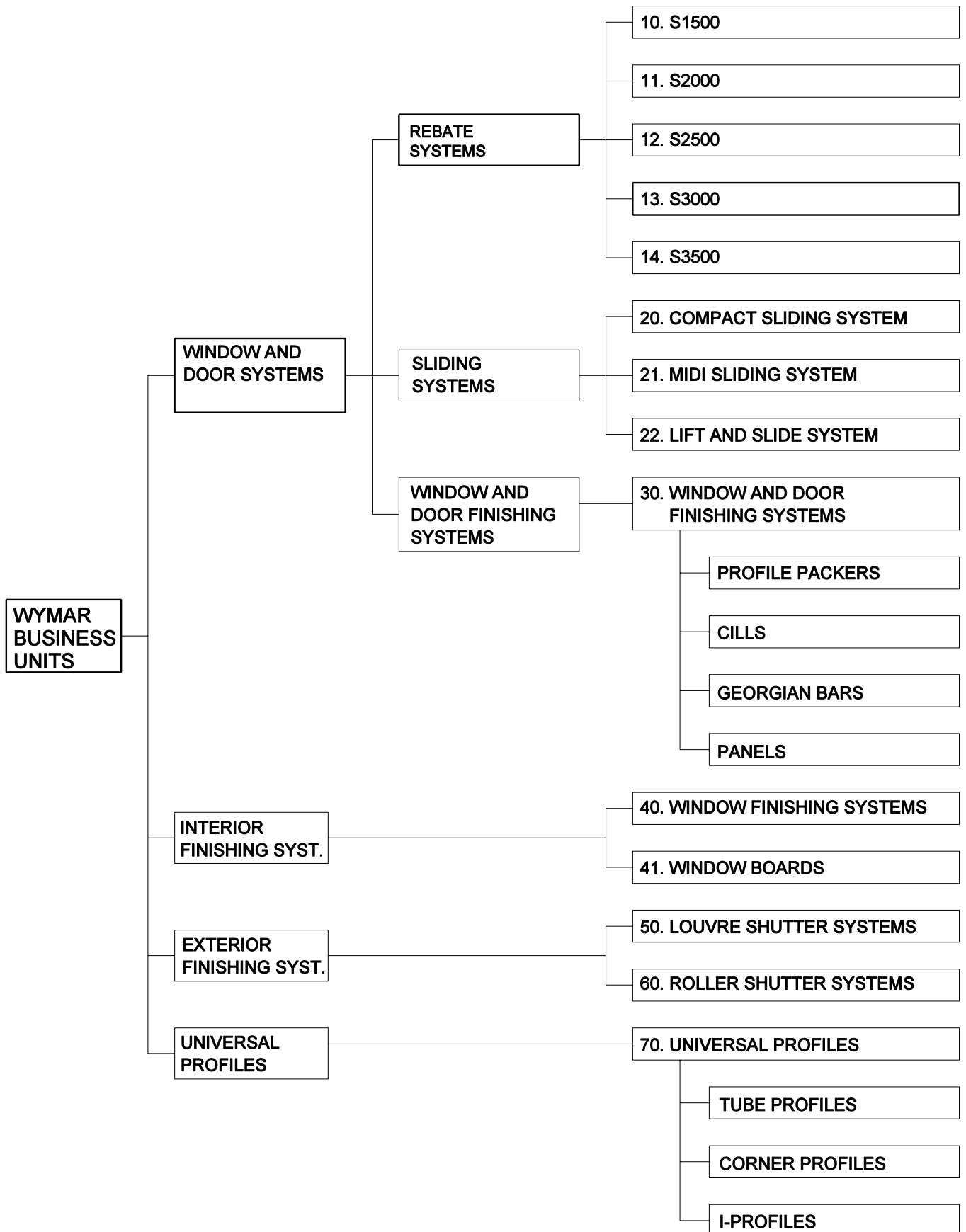
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3. COMPLIMENTARY PROFILES
4. DRAWINGS
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6. TOOLS AND MACHINERY



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












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# 1. GENERAL INFORMATION

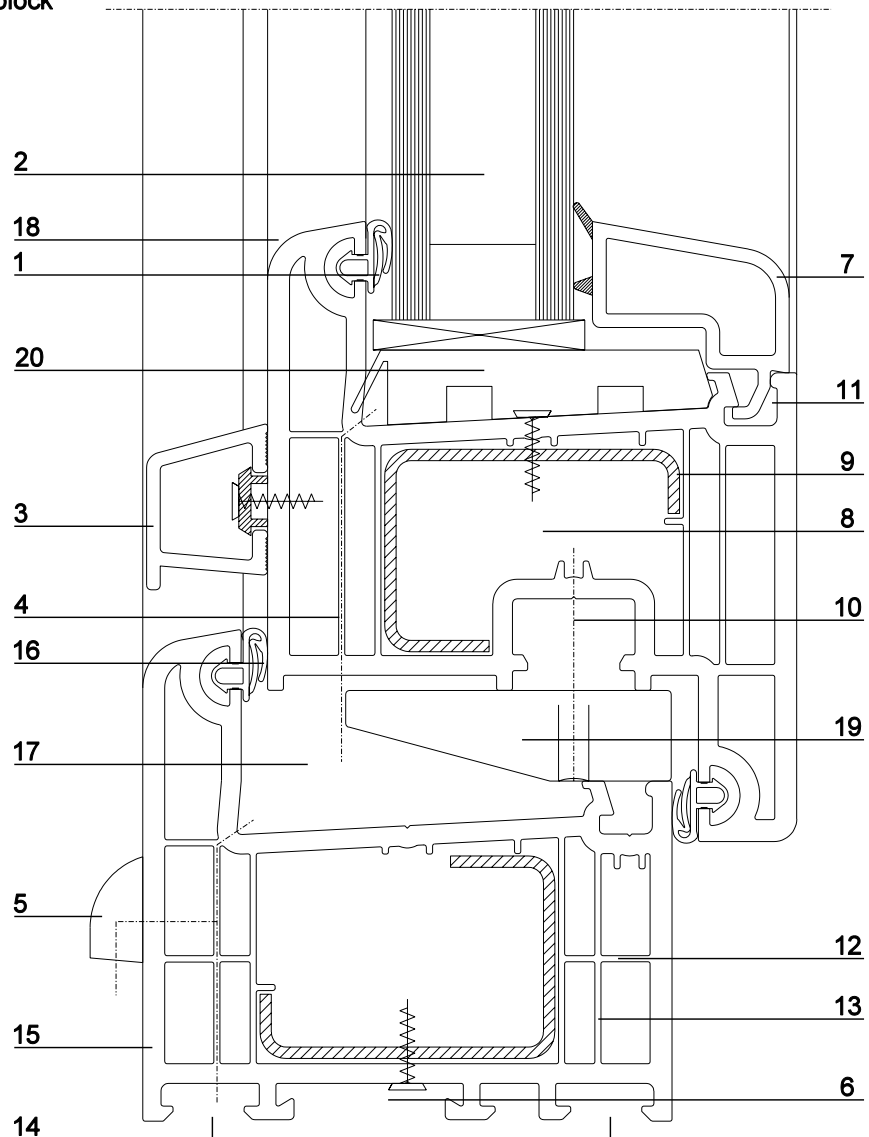
# 1. GENERAL INFORMATION

## 1.1. SYMBOLS

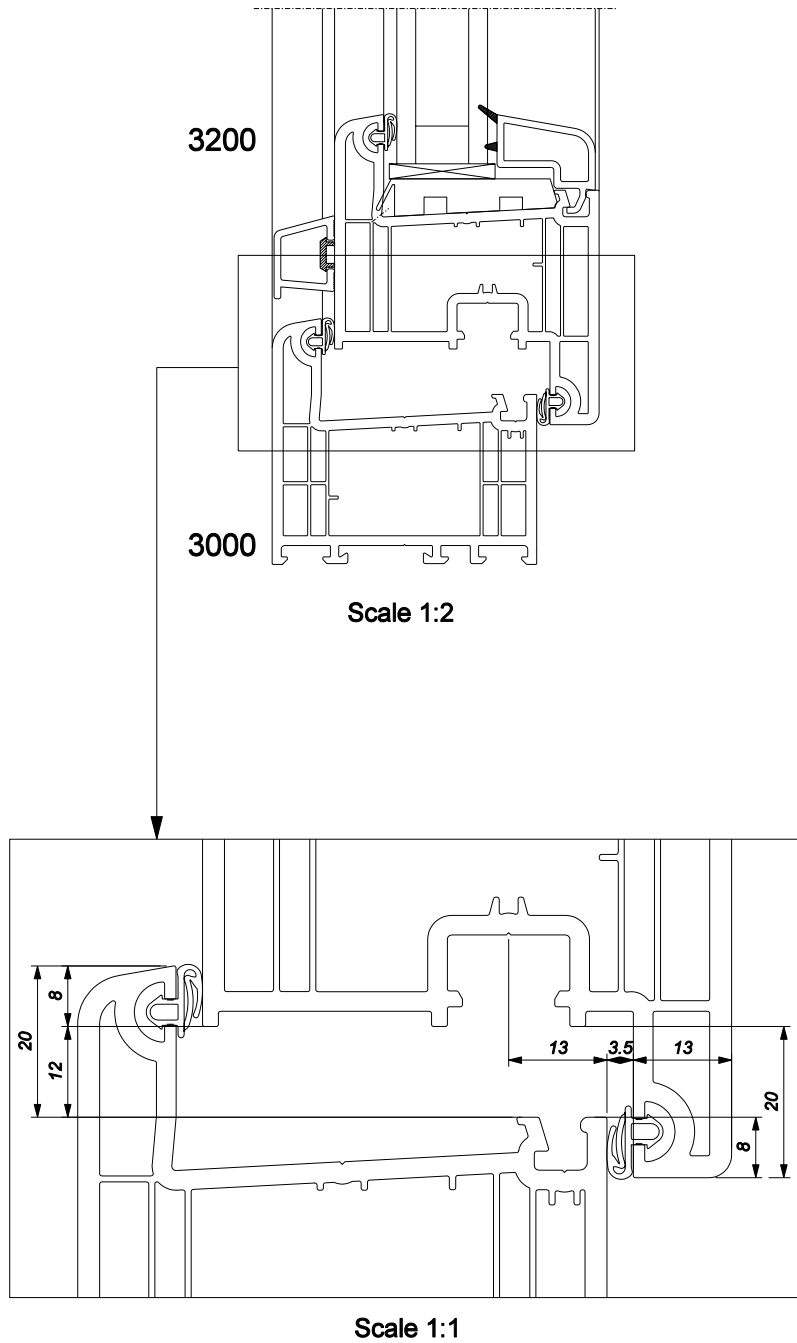
	Profile number
	Profile description
	Moment of inertia in direction of the X-axis in cm <sup>4</sup>
	Moment of inertia in direction of the Y-axis in cm <sup>4</sup>
	Corresponding reinforcement
	Corresponding profile
	Complimentary endcap
	Mechanical connector
	Weldable insert
	Length of the profile in metres or the quantity
	Packaging: not foiled
	Packaging: foiled
	Packaging: container
	Foiled

## 1.2. DESCRIPTION OF THE SYSTEM

1. Weldable on line inserted TPE-gasket with double function
2. Glazing from 16 to 45 mm
3. Drip rail
4. Drainage openings
5. Drainage hole covering
6. Groove for fixing lugs
7. Glazing beads with coextruded gasket
8. Chambers for reinforcements and clearance for hardware system
9. Galvanised steel reinforcement
10. Hardware groove on 13mm
11. Groove for installation of glazing beads and hardware locking points
12. Inner wall for reinforcement of the fixing of the hardware locking points
13. 5-chamber window system for improved thermal and acoustic insulation
14. Groove for the connection of different junction and widening profiles
15. Optimized wall thicknesses
16. Profile covering of 8mm
17. Inclined rebate for improved drainage
18. Rounded corners
19. Support piece for sash
20. Glass supporting block



### 1.3. DIMENSIONS OF HARDWARE CLEARANCE



## 1.4. TECHNICAL SPECIFICATIONS

### 1.4.1. MATERIAL

The frames are fabricated from profiles extruded in rigid PVC. The PVC-profiles are fabricated from a CaZn (unleaded) stabilized compound.

The materials possess the following properties;

#### Main Properties

- Mass Volume	ISO 1183	1420 kg/m <sup>3</sup>	+/- 20 kg/m <sup>3</sup>
- Vicat softening point	ISO 306	80 °C	+/- 2°C
- Ash content @ 850°C	ISO 1270	6,6 %	+/- 0,46 %
- Induction time of DHC	ISO 182/B	41 min.	+/- 6,2 min.
- Surface strength		80 shore D	
- Colorspecifications: L		92,9	+/- 0,50
a		-0,25	+/- 0,50
b		1,60	+/- 0,50

#### Mechanical properties

- Resilience in traction @ 23 °C (+/- 2°C) & 50 % relative humidity	ISO 8256 (type 5)	> 600 kJ/m <sup>2</sup>
- Modulus of elasticity @ 23 °C & 2.0 mm/min. deformation	ISO 178	> 2500 N/mm <sup>2</sup> of MPa
- Resistance to shock Charpy @ 23°C (+/- 2 °C)	ISO 179 (1eA)	> 10 kJ/m <sup>2</sup>
- Resistance to shock when cold 1 kg. from 1,5m height @ -10 °C	Eutgb-directive	<= 1 rupture by 10 samples

#### Thermomechanical properties

- Co-efficient of thermal conductivity	ASTM C 177	0.17 W/mK
- co-efficient of linear expansion - 40 °C tot + 10°C + 10 °C tot + 40 °C	ASTM D 696	6.0 x 10 <sup>-5</sup> C <sup>-1</sup> 7.7 x 10 <sup>-5</sup> C <sup>-1</sup>
- Uf-value	ISO10077-2	1,35 - 1,65W/m <sup>2</sup> K

#### Measurements of stability

- Shrinkage after 1hr @ 100 °C	Eutgb-directive	<=2 %
- Thermal behaviour after 30 mins. and 150°C	Eutgb-directive	no bubbles, tears or flakes

#### Durability

- Artificial ageing @ 8000 mJ/m <sup>2</sup> exposure to sun	ISO 105/A02	>=3/4 of the grey-scalereferences
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## 1.4.2. PROFILES

### 1.4.2.1 Composition

The main profiles have an external wall thickness that are classified in class A or class B according to EN 12608. They are mainly forseen with 5 chambers, as the depended degree of the thermic and acoustic insulation or stability of the element. These chambers also permit the evacuation of water / condensation, the decompression / ventilation of the profile and the introduction of the reinforcement. The other chambers are insulation chambers and function also as an extra wall for the fixation of hinges. The main profiles are either coloured throughout their mass, e.g. white (+/- RAL 9016) or off-white (+/- RAL 9001), or glued with a printed foil on the external side(s) of the profile. In case the profiles have 2 sides with wood imitation, they are coloured brown or caramel throughout their mass. Besides that the profiles can also be coated by the color-line regulations on the inside and-or the outside of the profile.

The glazing beads clip into the main profiles and are co-extruded with a seal in matching colour.

Sills and auxiliary profiles may be screwed, clipped or glued to the main profiles.

### 1.4.2.2 Dimension

The design of the profiles retain the concept of maximum light transmission without compromising the mechanical strength. The main profiles must have a minimum width of 70 mm (measured perpendicular on the glazing). The glazing rebate of the main profiles has a minimum height of 20 mm to ensure good glass coverage and is an integral part of the profile. To achieve an elegant and aesthetically pleasing form, the upstand of the main profiles have a width of 13 mm, a 10° slope and a suitable rounding which makes the profiles looks slimmer and nicer.

### 1.4.2.3 Gaskets

In the S3000 the glazing- and weatherproofing are achieved by using a TPE-gasket, which is on-line inserted into the gasket groove after the extrusion process of the main profiles. This gasket can be welded at the same temperature as the profile and is dual purpose, functioning as a weather seal, and as a glazing gasket. This TPE-gasket can be manually reinstalled. Only original gaskets prescribed by the system supplier can be used and are guaranteed.

## 1.4.3. THERMIC ACHIEVEMENTS

The calculations of the following composition are:

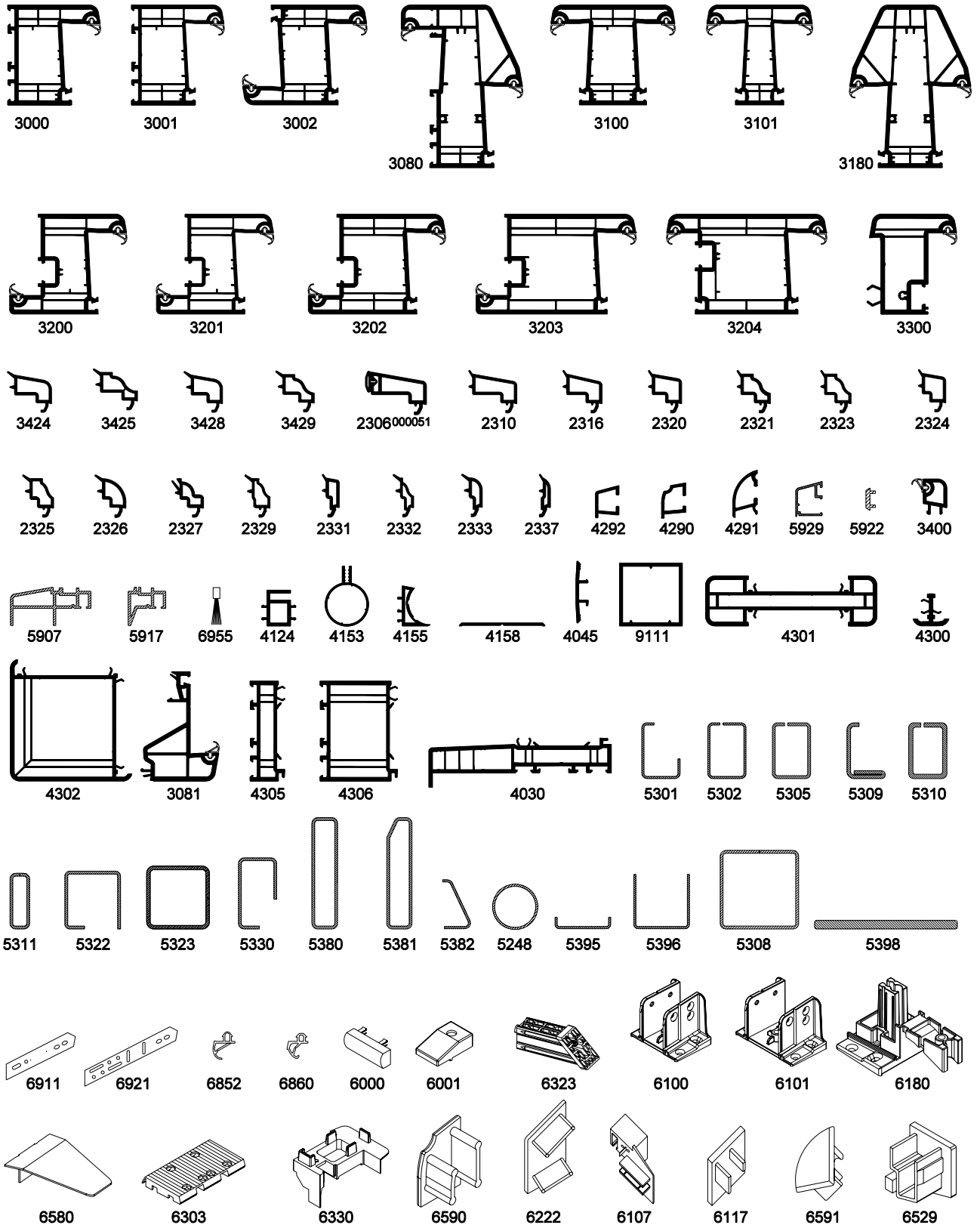
- Profiles 3000 - 3200 - 3424 according to prEN 10077-2;  $U_f = 1.35 \text{ W/(m}^2\cdot\text{K)}$
- Profiles 3000 (5301) - 3200 (5301) - 3424 according to prEN 10077-2;  $U_f = 1.65 \text{ W/(m}^2\cdot\text{K)}$
- Profiles 3001 (5301) - 3201 (5301) - 3424 according to prEN 10077-2;  $U_f = 1.62 \text{ W/(m}^2\cdot\text{K)}$
- Profiles 3080 (5380) - 3200 (5301) - 3424 according to prEN 10077-2;  $U_f = 1.58 \text{ W/(m}^2\cdot\text{K)}$



## 2. PROFILES AND ACCESSORIES

## 2. PROFILES AND ACCESSORIES

### 2.1. PROFILE OVERVIEW








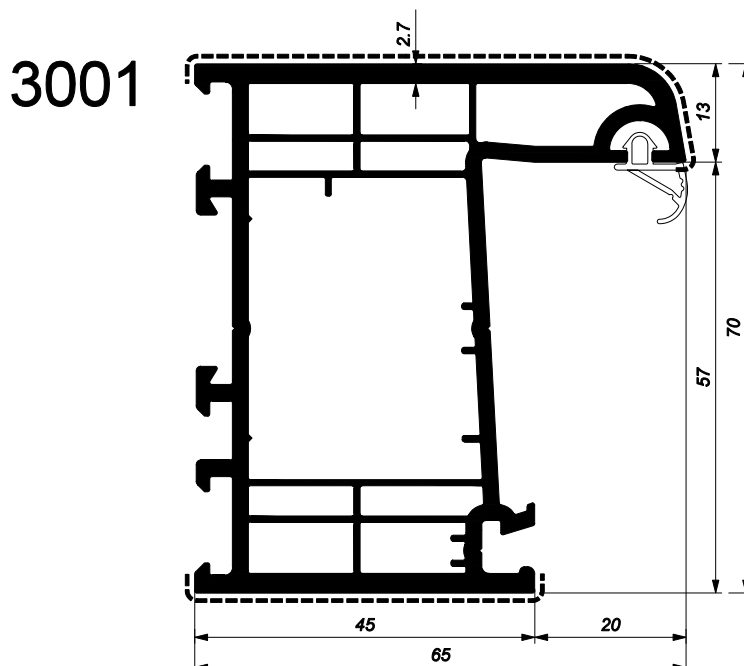
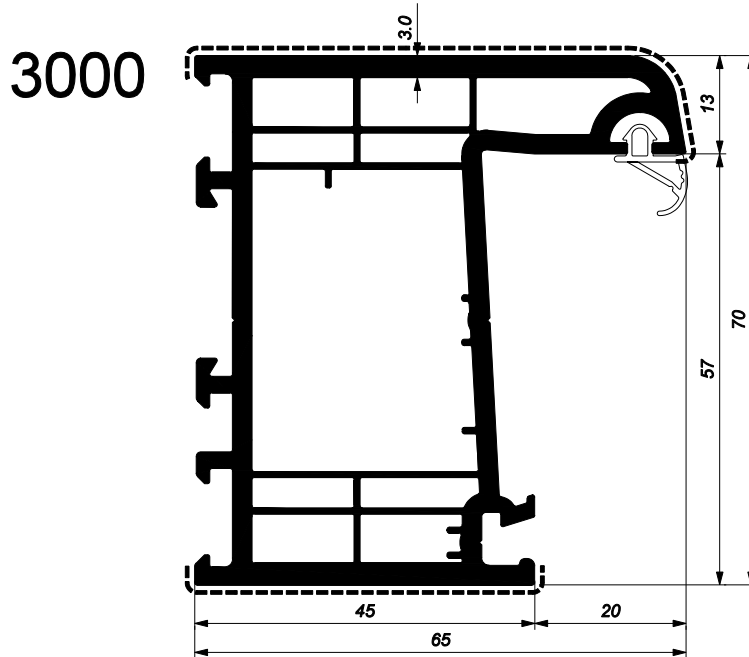
## 2.2. LIST OF PROFILES






2306000051.....	p. 13.2.12.	4305.....	p. 13.2.18.
2310.....	p. 13.2.12.	4306.....	p. 13.2.18.
2316.....	p. 13.2.12.	5248.....	p. 13.2.22.
2320.....	p. 13.2.13.	5301.....	p. 13.2.20.
2321.....	p. 13.2.13.	5302.....	p. 13.2.20.
2323.....	p. 13.2.13.	5305.....	p. 13.2.20.
2324.....	p. 13.2.13.	5308.....	p. 13.2.22.
2325.....	p. 13.2.13.	5309.....	p. 13.2.20.
2326.....	p. 13.2.13.	5310.....	p. 13.2.20.
2327.....	p. 13.2.13.	5311.....	p. 13.2.20.
2329.....	p. 13.2.14.	5322.....	p. 13.2.21.
2331.....	p. 13.2.14.	5323.....	p. 13.2.21.
2332.....	p. 13.2.14.	5330.....	p. 13.2.21.
2333.....	p. 13.2.14.	5380.....	p. 13.2.21.
2337.....	p. 13.2.14.	5381.....	p. 13.2.21.
3000.....	p. 13.2.3.	5382.....	p. 13.2.21.
3001.....	p. 13.2.3.	5395.....	p. 13.2.22.
3002.....	p. 13.2.4.	5396.....	p. 13.2.22.
3080.....	p. 13.2.4.	5398.....	p. 13.2.22.
3081.....	p. 13.2.11.	5907.....	p. 13.2.15.
3100.....	p. 13.2.5.	5917.....	p. 13.2.15.
3101.....	p. 13.2.5.	5922.....	p. 13.2.15.
3180.....	p. 13.2.6.	5929.....	p. 13.2.15.
3200.....	p. 13.2.7.	6000.....	p. 13.2.23.
3201.....	p. 13.2.7.	6001.....	p. 13.2.23.
3202.....	p. 13.2.8.	6100.....	p. 13.2.23.
3203.....	p. 13.2.9.	6101.....	p. 13.2.23.
3204.....	p. 13.2.9.	6107.....	p. 13.2.24.
3300.....	p. 13.2.10.	6117.....	p. 13.2.24.
3400.....	p. 13.2.11.	6180.....	p. 13.2.23.
3424.....	p. 13.2.12.	6222.....	p. 13.2.24.
3425.....	p. 13.2.12.	6303.....	p. 13.2.24.
3428.....	p. 13.2.13.	6323.....	p. 13.2.22.
3429.....	p. 13.2.13.	6330.....	p. 13.2.24.
4045.....	p. 13.2.16.	6529.....	p. 13.2.24.
4124.....	p. 13.2.16.	6580.....	p. 13.2.23.
4153.....	p. 13.2.16.	6590.....	p. 13.2.24.
4155.....	p. 13.2.16.	6591.....	p. 13.2.24.
4158.....	p. 13.2.16.	6852.....	p. 13.2.23.
4030.....	p. 13.2.19.	6858.....	p. 13.2.15.
4290.....	p. 13.2.15.	6860.....	p. 13.2.23.
4291.....	p. 13.2.15.	6911.....	p. 13.2.23.
4292.....	p. 13.2.15.	6921.....	p. 13.2.23.
4300.....	p. 13.2.17.	6955.....	p. 13.2.15.
4301.....	p. 13.2.17.	9111.....	p. 13.2.16.
4302.....	p. 13.2.17.		

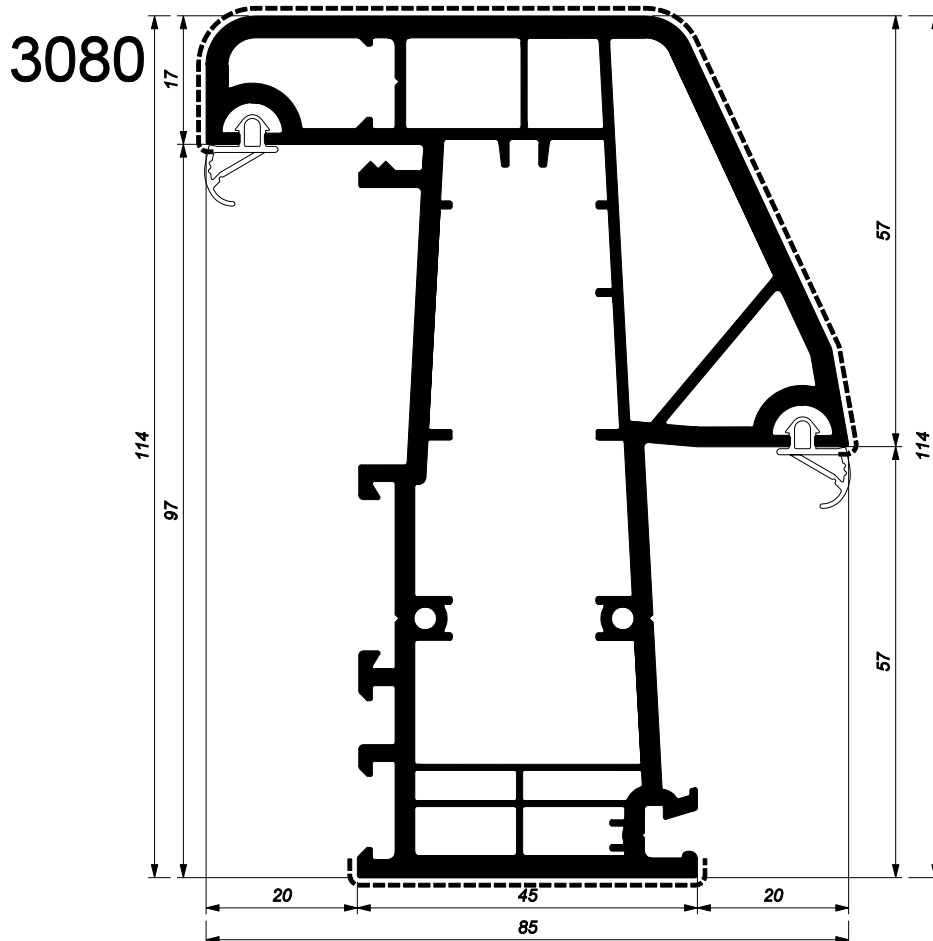
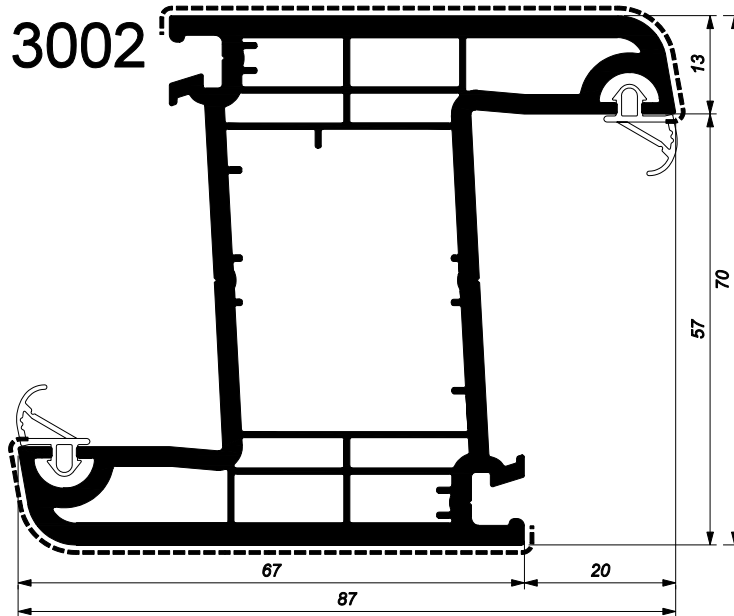
## 2.3. PROFILE INFORMATION







SCALE 1/1

123	abc	Ix	Iy					
3000	Outer frame 3.0 65mm	59.4 cm <sup>4</sup>	29.8 cm <sup>4</sup>	5301-5302-5305 5309-5310	6 m	24m	12 m	648m
3001	Outer frame 2.7 65mm	54.4 cm <sup>4</sup>	27.1 cm <sup>4</sup>	5301-5302-5305 5309-5310	6 m	24m	—	648m

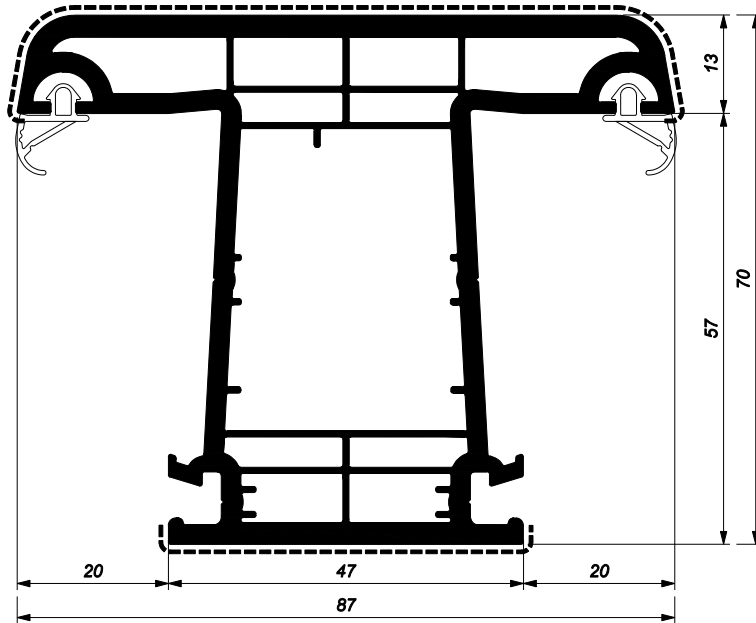


123	abc	ix	ly					
3002	Z-profile	72.9 cm <sup>4</sup>	47.8 cm <sup>4</sup>	5301-5302-5305 5309-5310	6 m	12 m	12 m	486 m
3080	Block outer frame (the Netherlands)	209.5 cm <sup>4</sup>	63.4 cm <sup>4</sup>	5380-5381-5382	6 m	12 m	12 m	270 m

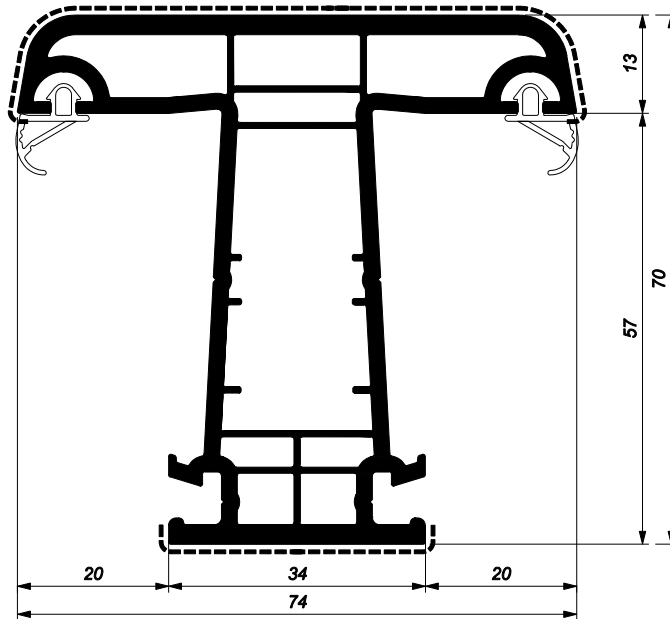


123	abc	Ix	Iy						
3100	T-profile 87mm	68.9 cm <sup>4</sup>	47.8 cm <sup>4</sup>	5302-5305-5310	6100	6 m	24 m	12 m	486 m
3101	T-profile 74mm	52.3 cm <sup>4</sup>	24.3 cm <sup>4</sup>	5311	6101	6 m	24 m	—	648 m

3100



3101



123

abc

**I<sub>x</sub>**

**I<sub>y</sub>**



**3180**

T-profile 85mm (The Netherlands)

185.8 cm<sup>4</sup>

66.9 cm<sup>4</sup>

5380-5381-5382

6180

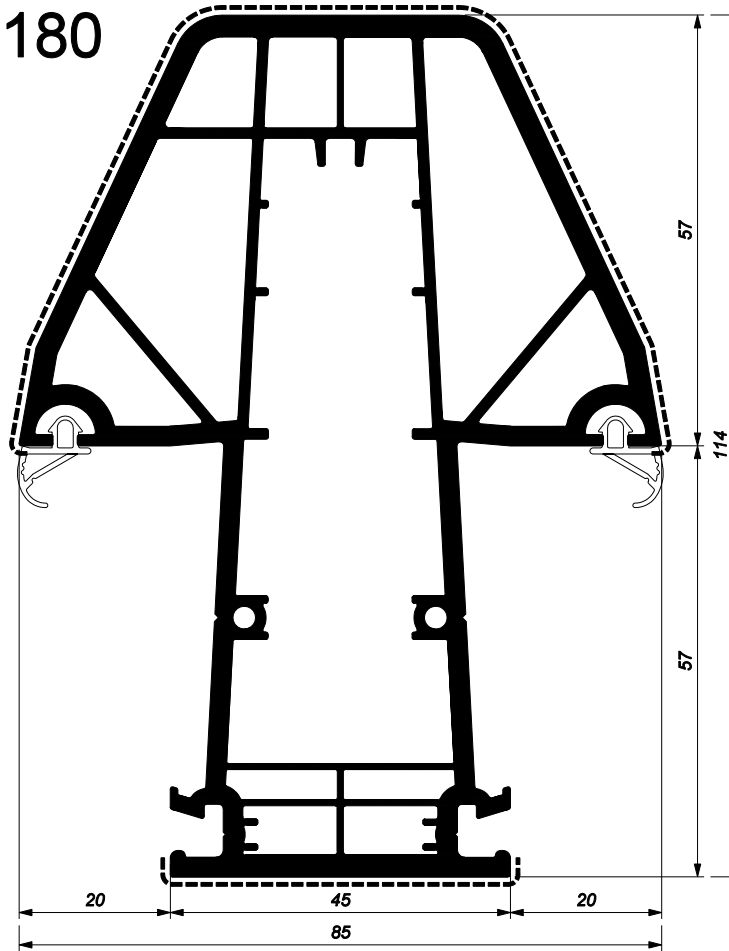
6 m






12 m

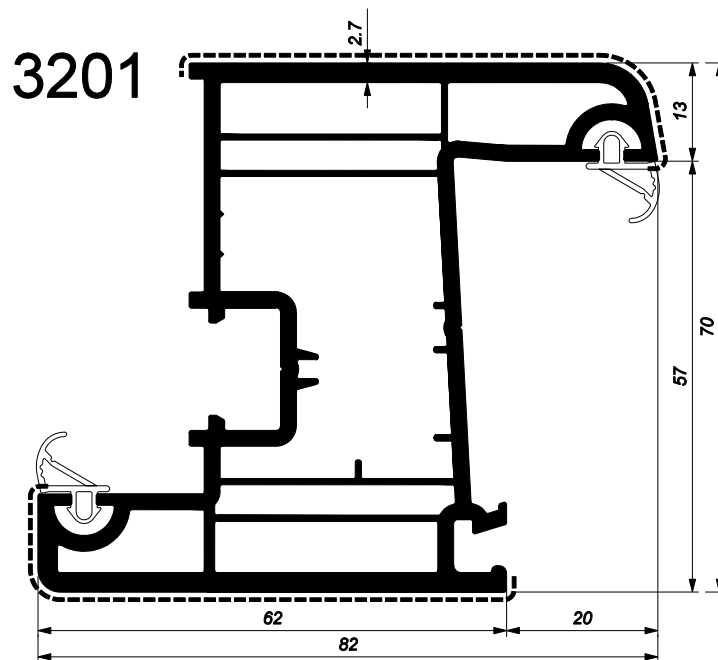
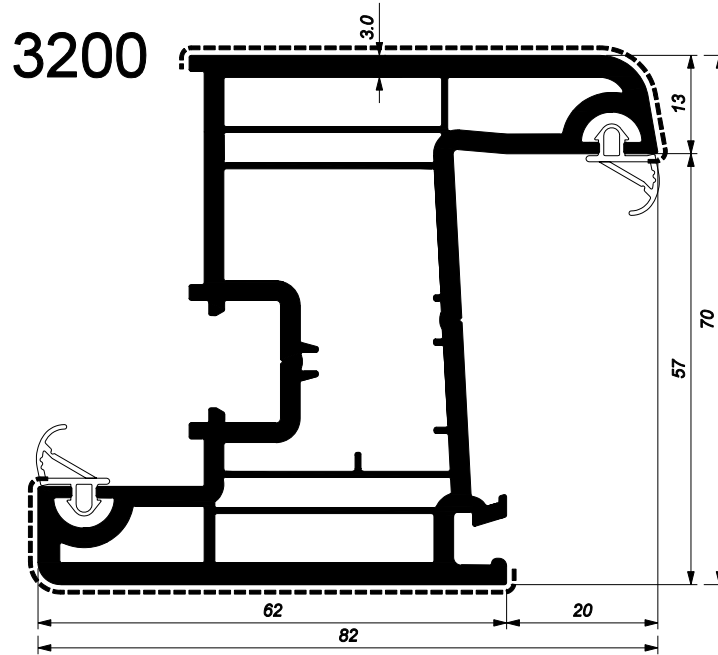
12 m

240 m

**3180**



123	abc	Ix	Iy					
3200	Sash profile 3.0 82mm	68.0 cm <sup>4</sup>	42.2 cm <sup>4</sup>	5301-5309	6 m	24 m	12 m	540 m
3201	Sash profile 2.7 82mm	61.4 cm <sup>4</sup>	38.0 cm <sup>4</sup>	5301-5309	6 m	24 m	—	540 m





123

abc

**lx**

**ly**



**3202**

Balcony sash profile 96mm

80.7 cm<sup>4</sup>

72.7 cm<sup>4</sup>

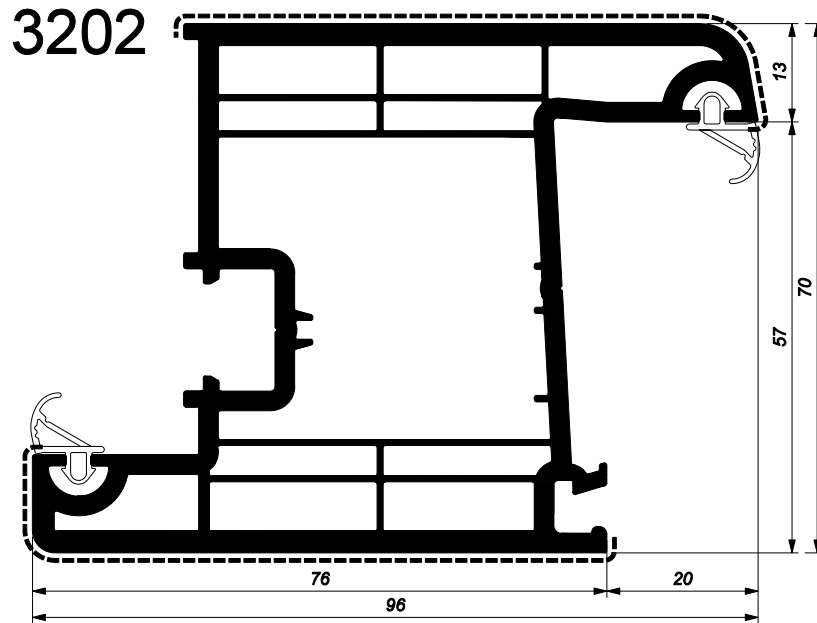
5322







6 m

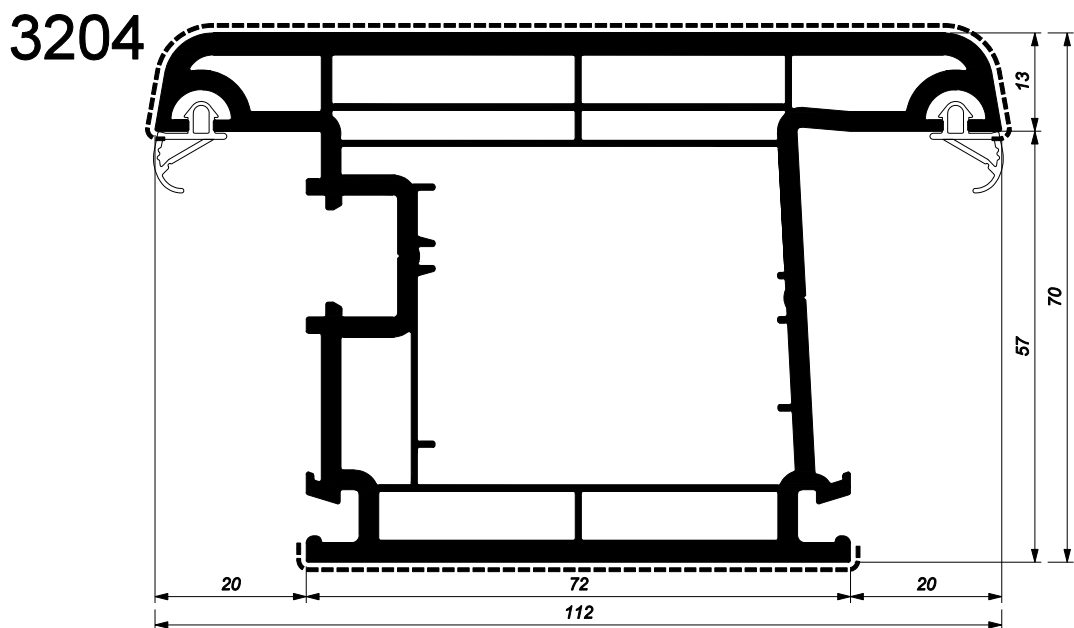
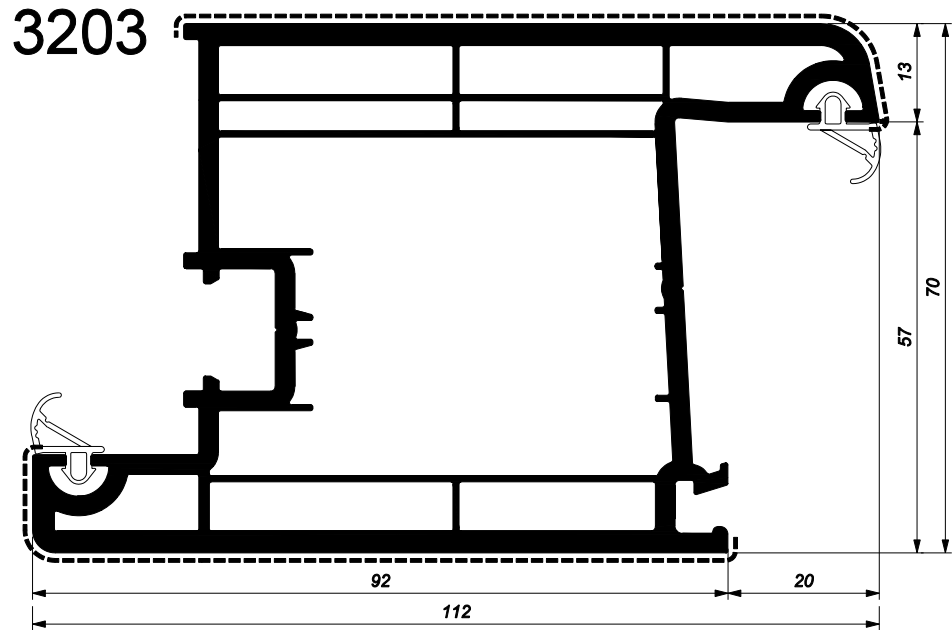
12 m

—

432 m



123	abc	ix	ly						
3203	Door sash profile 112mm (int.)	91.8 cm <sup>4</sup>	120.1 cm <sup>4</sup>	5323	6323	6.4 m	12.8 m	12.8 m	403.2 m
3204	Door sash profile 112mm (ext.)	87.4 cm <sup>4</sup>	118.1 cm <sup>4</sup>	5323	6323	6.4 m	12.8 m	12.8 m	403.2 m



123

abc

**I<sub>x</sub>**

**I<sub>y</sub>**



**3300**

False mullion 61mm

49.2 cm<sup>4</sup>

22.0 cm<sup>4</sup>

5330

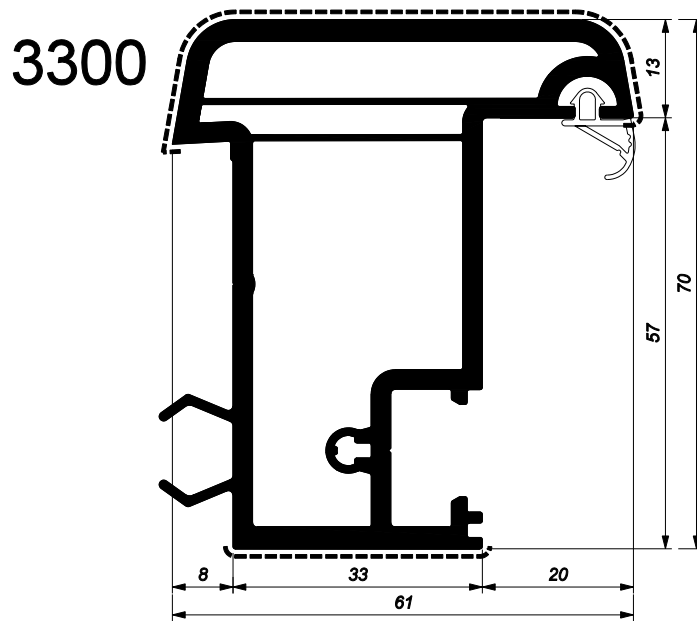
6330






6 m

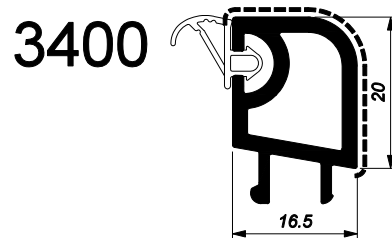
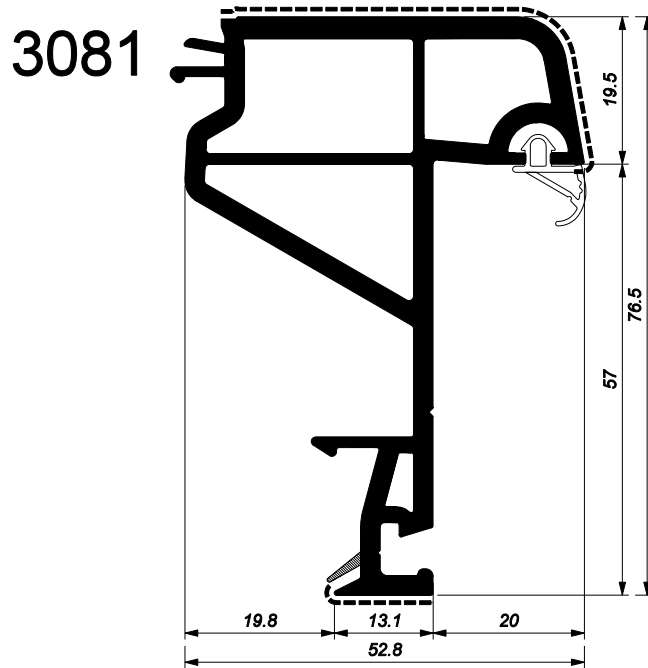
24 m






12 m

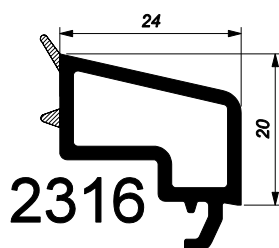
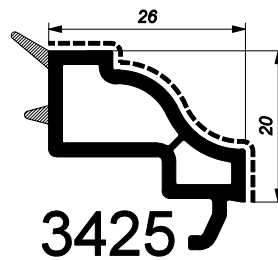
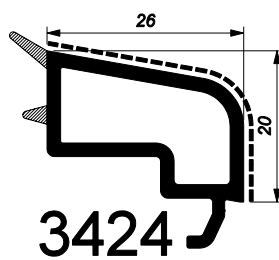
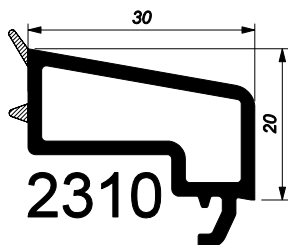
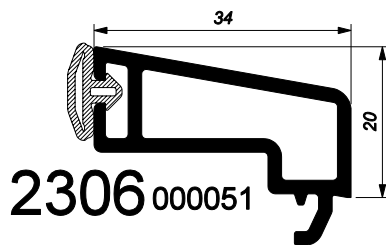
702 m








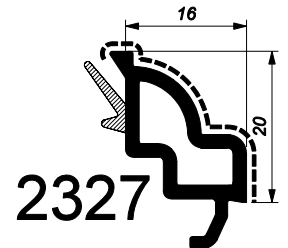
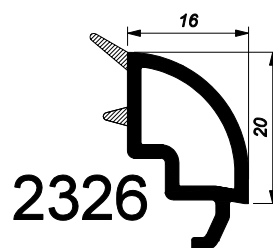
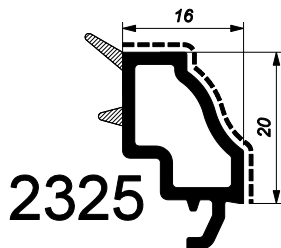
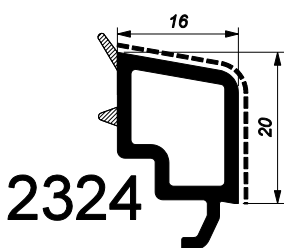
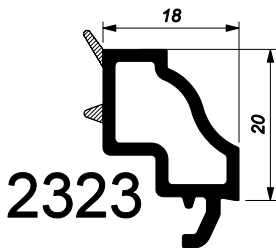
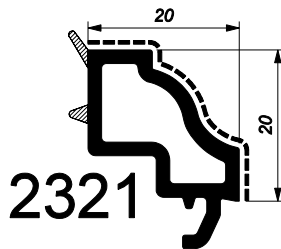
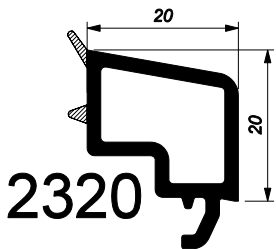
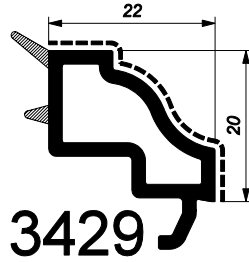
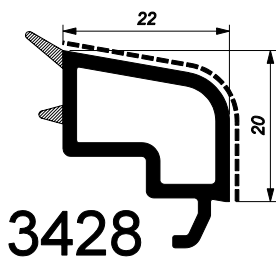
123	abc	ix	ly					
3081	Adaptor profile (the Netherlands)	37.0 cm <sup>4</sup>	12.5 cm <sup>4</sup>	—	6 m	12 m	12 m	864 m
3400	Cover profile	—	—	—	6 m	120 m	60 m	6000 m








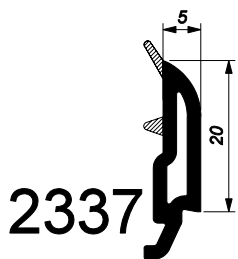
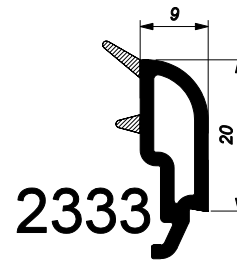
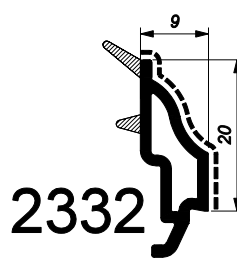
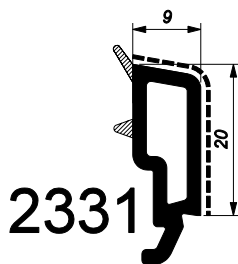
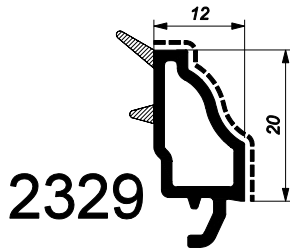
123	abc	lx	ly					
2306	000051 Glazing bead 16mm European style	--	--	--	6 m	60 m	60 m	4320 m
2310	Glazing bead 20mm European style	--	--	--	6 m	120 m	--	4320 m
3424	Glazing bead 24mm European style	--	--	--	6 m	120 m	120 m	6288 m
3425	Glazing bead 24mm Renaissance style	--	--	--	6 m	120 m	120 m	5616 m
2316	Glazing bead 26mm European style	--	--	--	6 m	120 m	--	4080 m



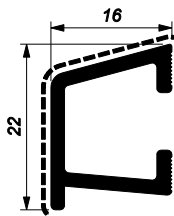
123	abc	lx	ly					
3428	Glazing bead 28mm European style	—	—	—	6 m	120 m	120 m	4800 m
3429	Glazing bead 28mm Renaissance style	—	—	—	6 m	120 m	120 m	6000 m
2320	Glazing bead 30mm European style	—	—	—	6 m	120 m	—	5760 m
2321	Glazing bead 30mm Renaissance style	—	—	—	6 m	120 m	120 m	6000 m
2323	Glazing bead 32mm Renaissance style	—	—	—	6 m	120 m	—	6000 m
2324	Glazing bead 34mm European style	—	—	—	6 m	120 m	120 m	6000 m
2325	Glazing bead 34mm Renaissance style	—	—	—	6 m	120 m	120 m	6288 m
2326	Glazing bead 34mm Softline style	—	—	—	6m	120 m	120 m	6288 m
2327	Glazing bead 34mm Renaissance style	—	—	—	6m	120 m	120 m	6000 m



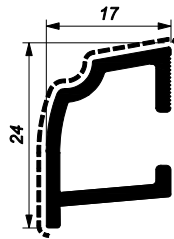
123	abc	lx	ly					
2329	Glazing bead 38mm Renaissance style	—	—	—	6 m	120 m	120 m	6000 m
2331	Glazing bead 41mm European style	—	—	—	6 m	120 m	120 m	6000 m
2332	Glazing bead 41mm Renaissance style	—	—	—	6 m	120 m	—	11400 m
2333	Glazing bead 41mm Softline style	—	—	—	6 m	120 m	—	—
2337	Glazing bead 45mm Softline style	—	—	—	6 m	120 m	—	—



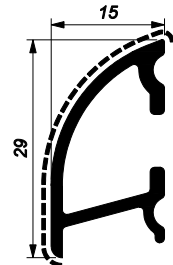
123	abc	lx	ly					
4292	Drip bar - European style	—	—	6222	6 m	120 m	120 m	11280 m
4290	Drip bar - Renaissance style	—	—	6590	6 m	120 m	60 m	9000 m
4291	Drip bar - Softline style	—	—	6591	6 m	120 m	60 m	—
5929	Drip bar - Aluminium	—	—	6529	6 m	—	120 m	—
5922	Aluminium clip for drip bars	—	—	—	3 m	—	—	—
5907	Drip bar - Aluminium	—	—	6107	6 m	—	—	—
5917	Drip bar - Aluminium	—	—	6117	6 m	6 m	—	—
6858	Brush for aluminium drip bar	—	—	—	3 m	—	—	—



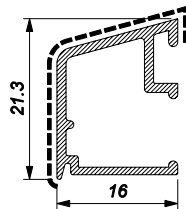
4292



4290



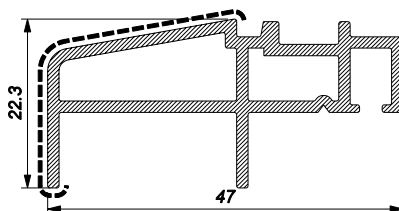
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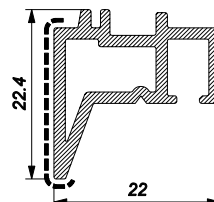
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5922



5907








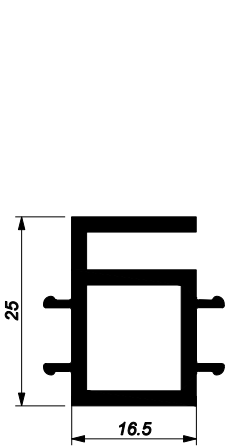
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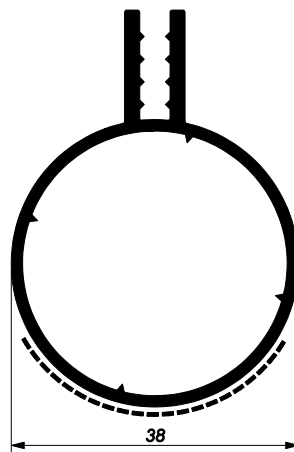
6858



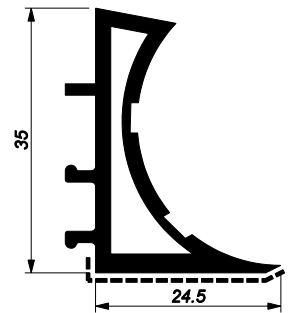
123	abc	lx	ly					
4124	Extension profile	—	—	—	6 m	60 m	—	—
4153	Round bay pole	—	—	5248	6 m	60 m	60 m	—
4155	Extension profile	—	—	—	6 m	60 m	60 m	—
4158	Extension profile	—	—	—	6 m	120 m	60 m	—
4045	Extension profile	—	—	—	6 m	60 m	—	4860 m
9111	Tube profile 55/55	26.3 cm <sup>4</sup>	26.0 cm <sup>4</sup>	5238	6 m	24 m	—	—



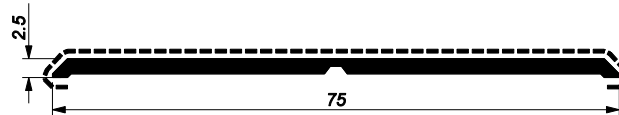
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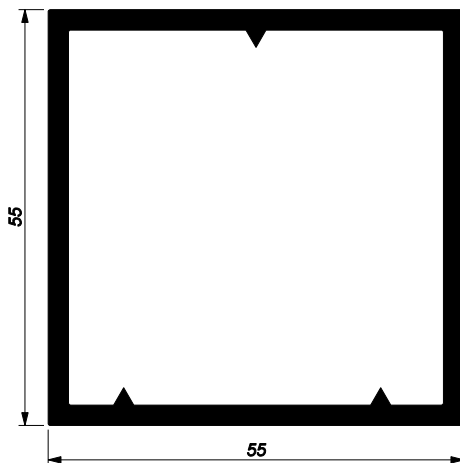
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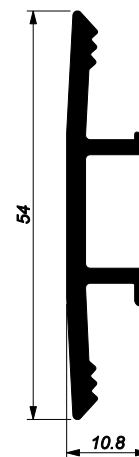
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4158

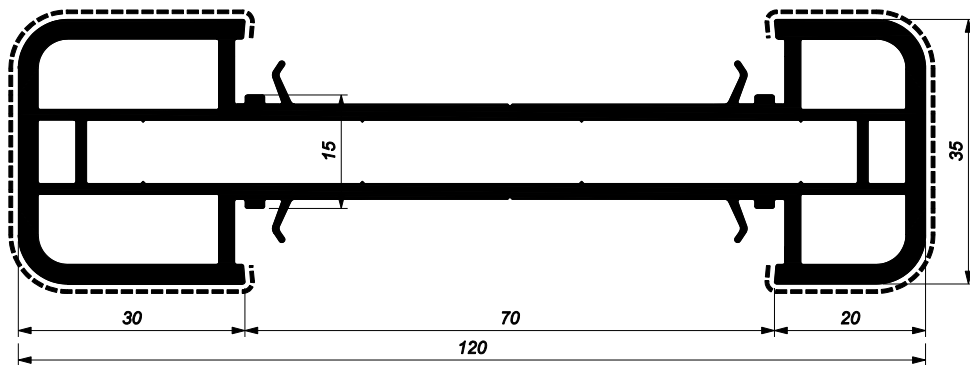


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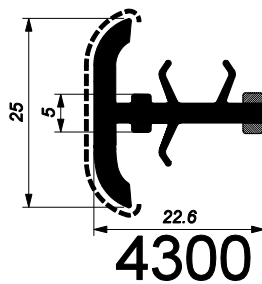


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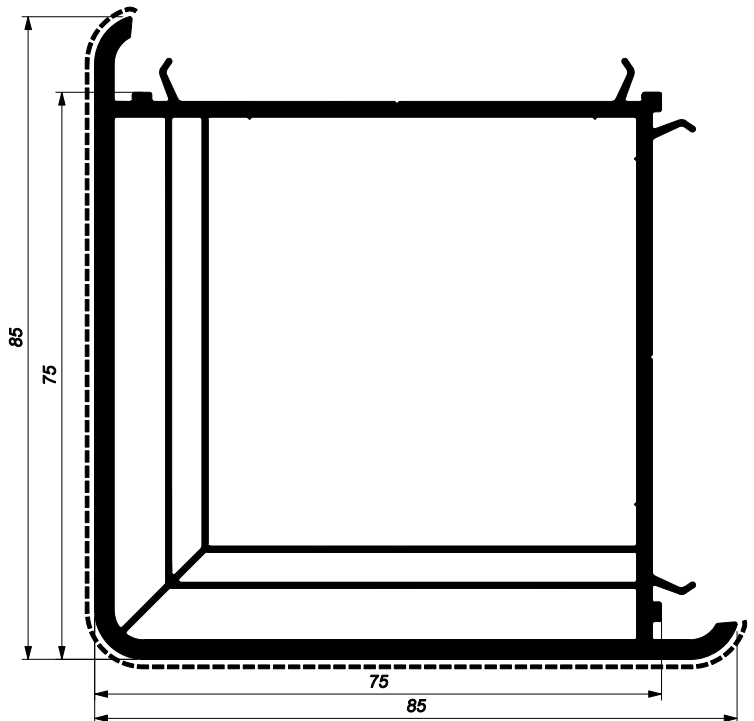
123	abc	lx	ly					
4300	Connection profile 5mm	—	—	—	6 m	60 m	60 m	6000 m
4301	Connection profile 15mm	165.7 cm <sup>4</sup>	9.6 cm <sup>4</sup>	5398	4.5 m	9 m	9 m	450 m
4302	Square corner post	80.5 cm <sup>4</sup>	80.5 cm <sup>4</sup>	5308	6 m	24 m	6 m	384 m







4301

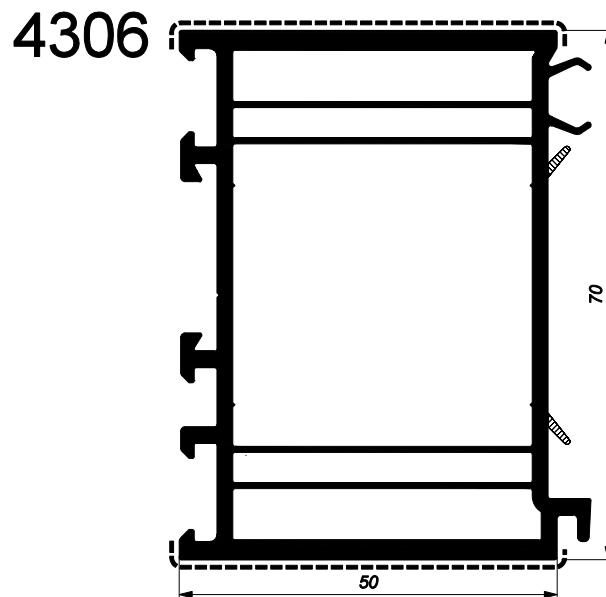
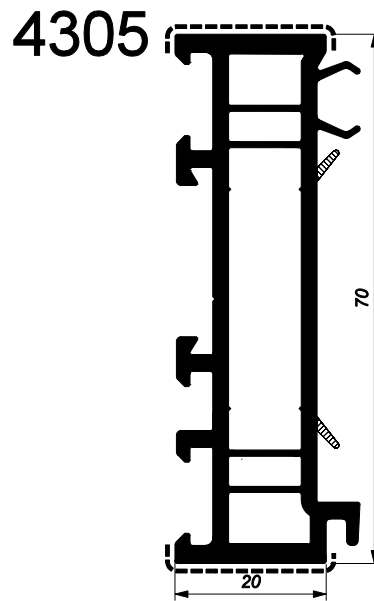


4300



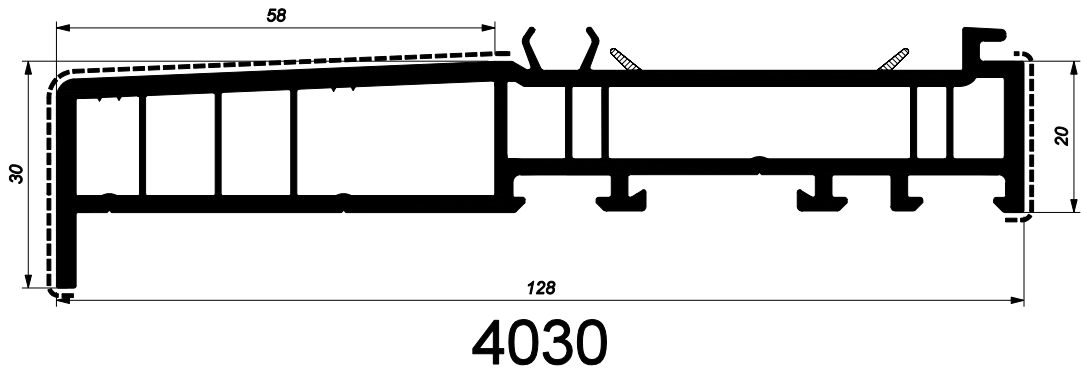
4302






123	abc	lx	ly					
4305	Widening profile 20mm	27.1 cm <sup>4</sup>	2.2 cm <sup>4</sup>	5395	6 m	24 m	60 m	1584 m
4306	Widening profile 50mm	49.9 cm <sup>4</sup>	24.6 cm <sup>4</sup>	5396	6 m	60 m	60 m	420 m

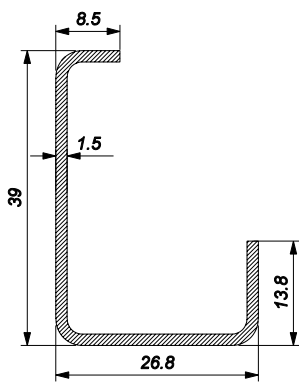


123 abc  
4030 Cill

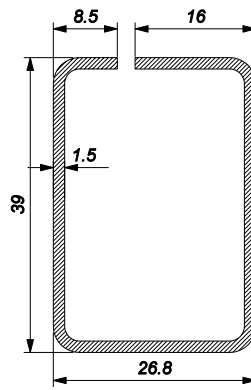
<b>I<sub>x</sub></b>	<b>I<sub>y</sub></b>					
141.5 cm <sup>4</sup>	4.9 cm <sup>4</sup>	—	6 m	30 m	12 m	780 m



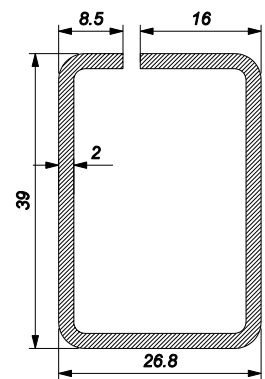
123	abc	ix	ly					
5301	Reinforcement for 3000-3001-3200-3201	2.1 cm <sup>4</sup>	1.2 cm <sup>4</sup>	3000-3001 3200-3201	6 m	600 m	—	—
5302	Reinforcement for 3000-3001-3002-3100	3.6 cm <sup>4</sup>	2.1 cm <sup>4</sup>	3000-3001 3002-3100	6 m	600 m	—	—
5305	Reinforcement for 3000-3001-3002-3100	4.6 cm <sup>4</sup>	2.6 cm <sup>4</sup>	3000-3001 3002-3100	6 m	600 m	—	—
5309	Reinforcement for 3000-3001-3002-3200-3201	3.4 cm <sup>4</sup>	1.5 cm <sup>4</sup>	3000-3001-3002 3200-3201	6 m	600 m	—	—
5310	Reinforcement for 3000-3001-3002-3100	6.5 cm <sup>4</sup>	3.6 cm <sup>4</sup>	3000-3001 3002-3100	6 m	600 m	—	—
5311	Reinforcement for 3101	2.9 cm <sup>4</sup>	0.5 cm <sup>4</sup>	3101	6 m	600 m	—	—



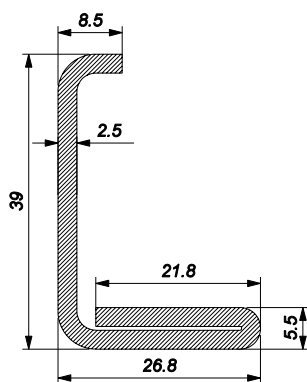
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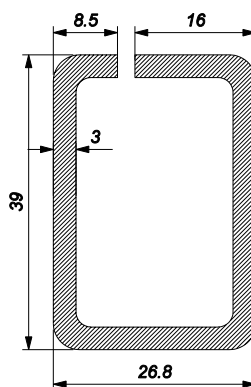
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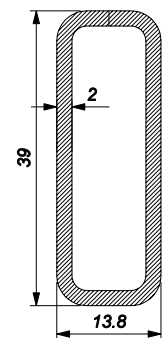
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5309

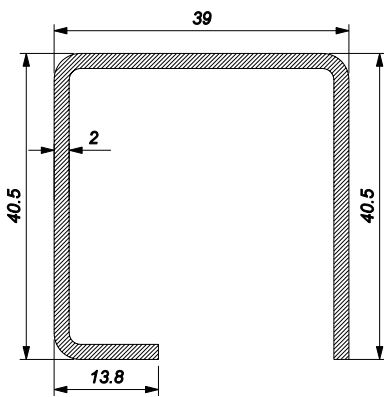


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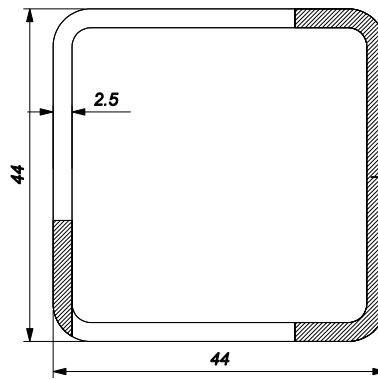


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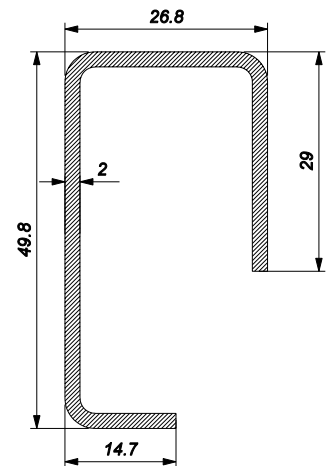
123	abc	lx	ly					
5322	Reinforcement for 3202	5.1 cm <sup>4</sup>	5.1 cm <sup>4</sup>	3202	6 m	600 m	—	—
5323	Reinforcement for 3203-3204	11.2 cm <sup>4</sup>	11.2 cm <sup>4</sup>	3203-3204	6 m	600 m	—	—
5330	Reinforcement for 3300	6.2 cm <sup>4</sup>	2.4 cm <sup>4</sup>	3300	6 m	600 m	—	—
5380	Reinforcement for 3080-3180	22.3 cm <sup>4</sup>	2.0 cm <sup>4</sup>	3080-3180	6 m	600 m	—	—
5381	Reinforcement for 3080-3180	20.9 cm <sup>4</sup>	1.8 cm <sup>4</sup>	3080-3180	6 m	600 m	—	—
5382	Reinforcement for 3080-3180	1.6 cm <sup>4</sup>	0.3 cm <sup>4</sup>	3080-3180	6 m	600 m	—	—



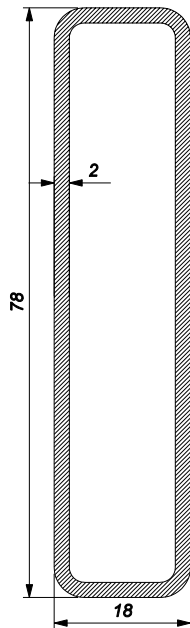
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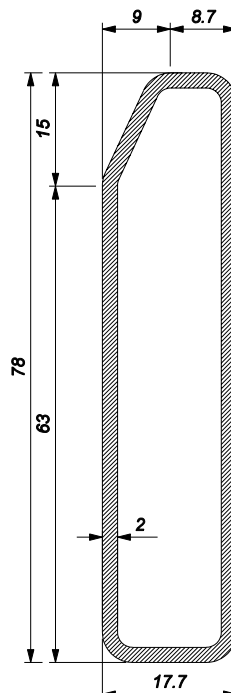
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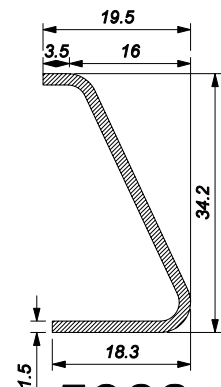
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5380

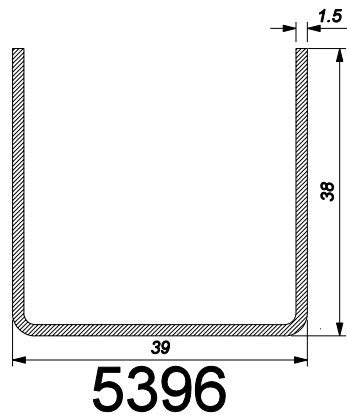
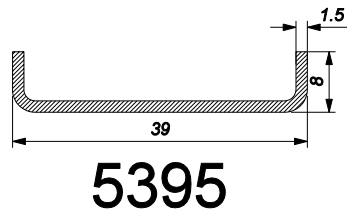
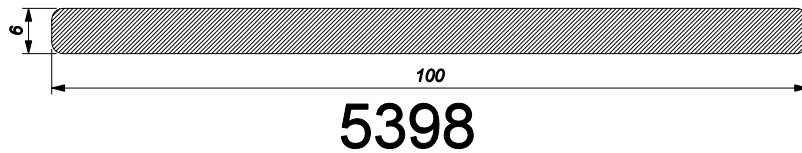
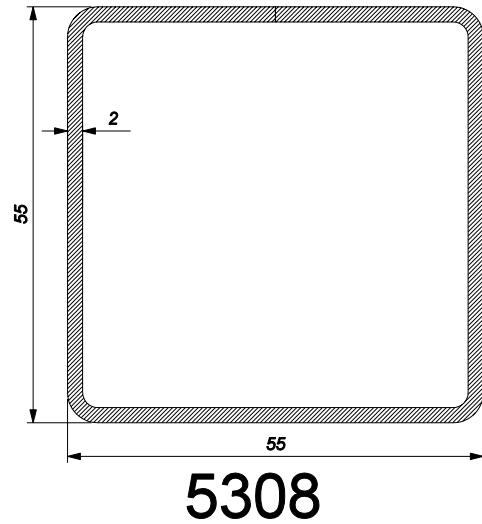
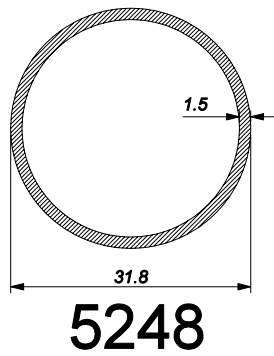


5381

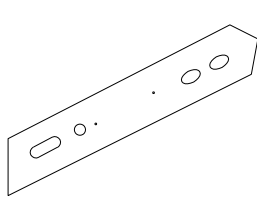


5382

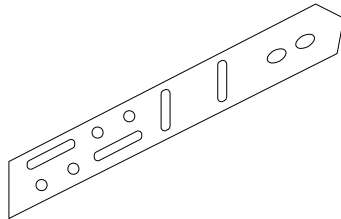
123	abc	lx	ly					
5248	Reinforcement for 4153	1.6 cm <sup>4</sup>	1.6 cm <sup>4</sup>	4153	6 m	—	—	—
5308	Reinforcement for 4302	19.1 cm <sup>4</sup>	19.1 cm <sup>4</sup>	4302	6 m	216 m	—	—
5398	Reinforcement for 4301	49.4 cm <sup>4</sup>	0.2 cm <sup>4</sup>	4301	6 m	240 m	—	—
5395	Reinforcement for 4305	1.3 cm <sup>4</sup>	0.03 cm <sup>4</sup>	4305	6 m	1152 m	—	—
5396	Reinforcement for 4306	4.5 cm <sup>4</sup>	2.5 cm <sup>4</sup>	4306	6 m	552 m	—	—



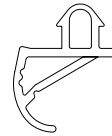
123	abc	lx	ly					
6911	Fixing lug 140 mm	—	—	—	250 pieces	—	—	—
6921	Fixing lug 170 mm	—	—	—	200 pieces	—	—	—
6852	TPE gasket	—	—	—	700 m/roller	—	—	—
6860	EPDM gasket	—	—	—	200 m/roller	—	—	—
6000	Drain hole cover	—	—	—	100 pieces	—	—	—
6001	Ride-up block for side hung vents	—	—	—	100 pieces	—	—	—
6323	Weldable corner piece S3000	—	—	3203-3204	piece	—	—	—
6580	Silicone strip for 6180	—	—	6180	piece	—	—	—
6100	Mechanical connection for 3100	—	—	3100	50 piece	—	—	—
6101	Mechanical connection for 3101	—	—	3101	50 piece	—	—	—
6180	Mechanical connection for 3180	—	—	3180	piece	—	—	—



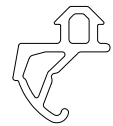
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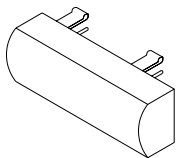
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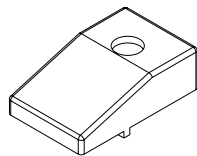
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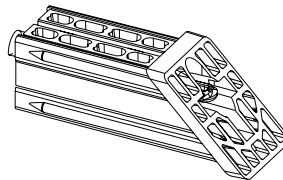
6860



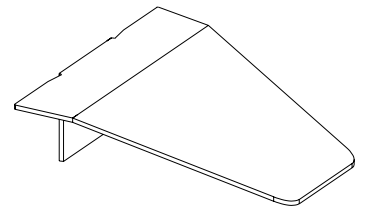
6000



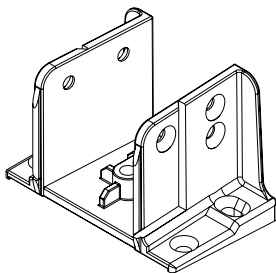
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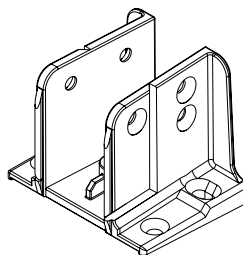
6323



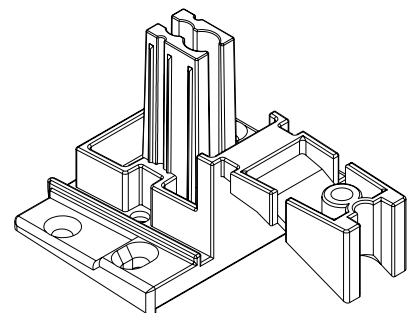
6580



6100








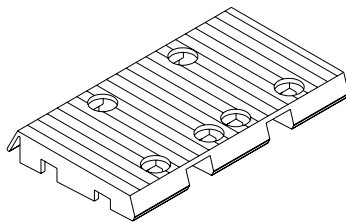
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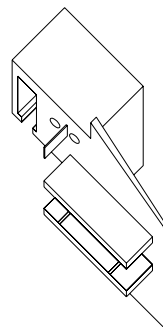
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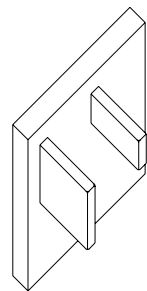
123	abc	lx	ly					
6303	Glass block S3000	—	—	—	piece	—	—	—
6107	End cap for 5907	—	—	5907	100 paire	—	—	—
6117	End cap for 5917	—	—	5917	100 paire	—	—	—
6330	End cap for 3300	—	—	3300	25 paire	—	—	—
6222	End cap for 4292	—	—	4292	100 paire	—	—	—
6590	End cap for 4290	—	—	4290	100 paire	—	—	—
6591	End cap for 4291	—	—	4291	250 paire	—	—	—
6529	End cap for 5929	—	—	5929	100 paire	—	—	—



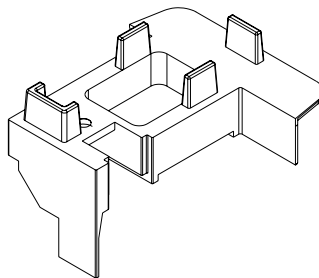
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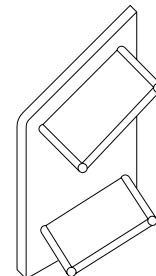
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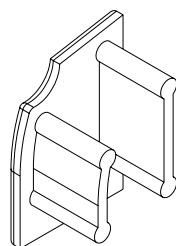
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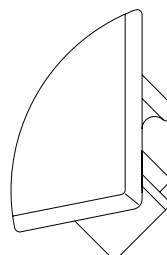
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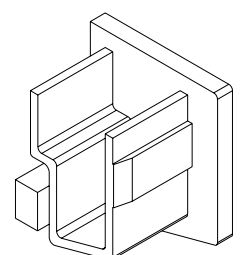
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6590



6591



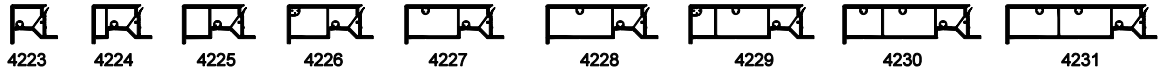
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### 3. COMPLIMENTARY PROFILES

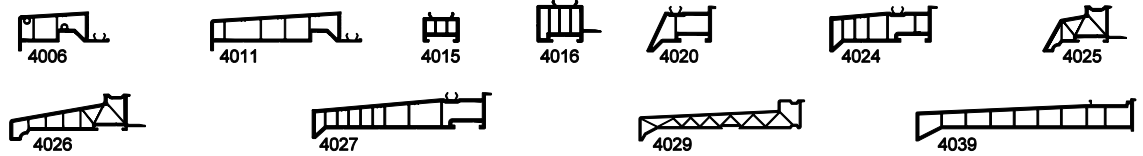
### 3. COMPLIMENTARY PROFILES

#### 3.1. WINDOW AND DOOR FINISHING SYSTEMS

##### PROFILE PACKERS



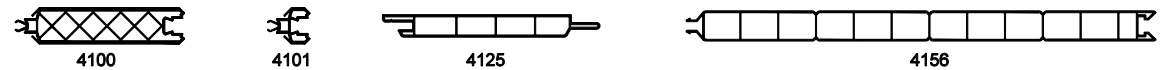
##### CILLS



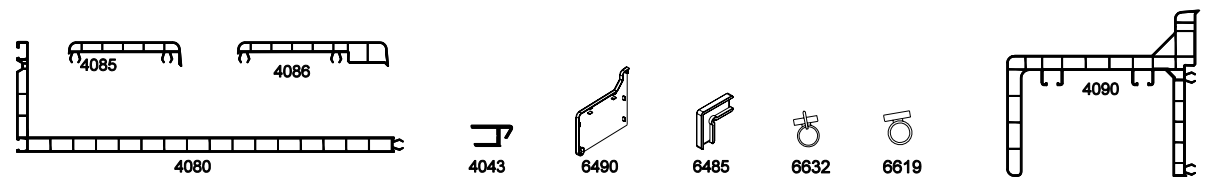
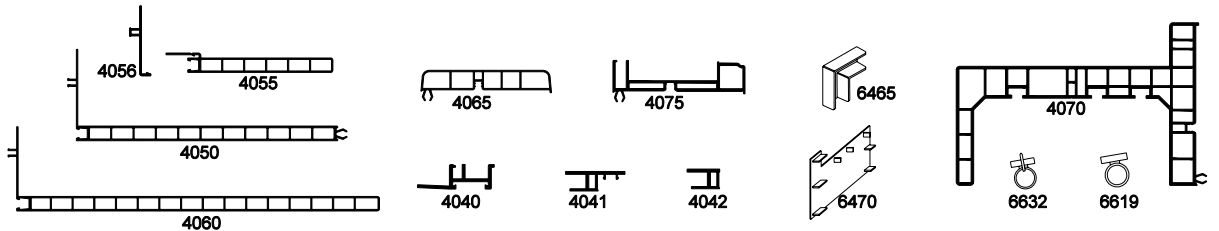
##### GEORGIAN BARS



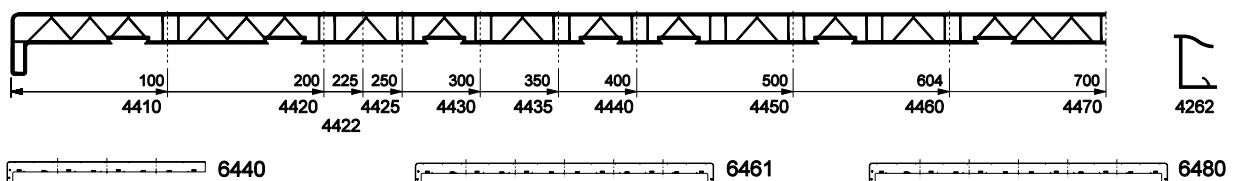
##### PANELS



#### 3.2. WINDOW FINISHING SYSTEMS



#### 3.3. WINDOW BOARDS



### 3.4 ROLLER SHUTTER SYSTEM



4720



4721



4724



6857-6854



6720



6721

### 3.5. UNIVERSAL PROFILES

#### TUBE PROFILES



9071



9072



9073



9136



9136...82

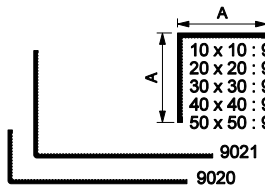


9136...83



9136...84

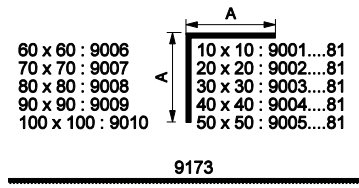
#### CORNER PROFILES



10 x 10 : 9001  
20 x 20 : 9002  
30 x 30 : 9003  
40 x 40 : 9004  
50 x 50 : 9005

9021

9020



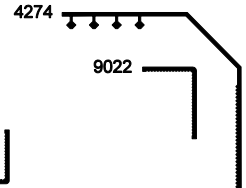
10 x 10 : 9001...81  
20 x 20 : 9002...81  
30 x 30 : 9003...81  
40 x 40 : 9004...81  
50 x 50 : 9005...81

9173

60 x 60 : 9006...81  
70 x 70 : 9007...81  
80 x 80 : 9008...81  
90 x 90 : 9009...81  
100 x 100 : 9010...81

9023

9024



9022

4274

#### I-PROFILES



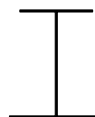
9052



9053



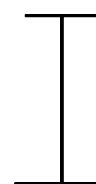
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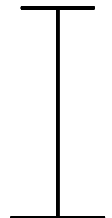
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9056



9058



9060

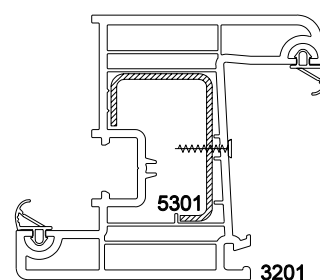
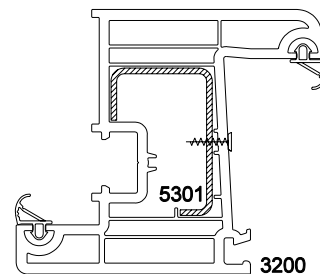
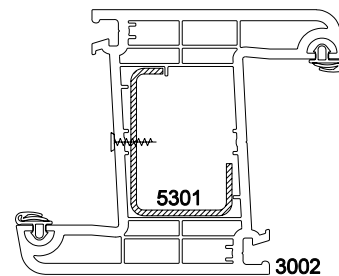
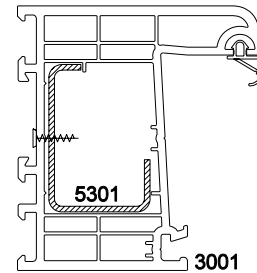
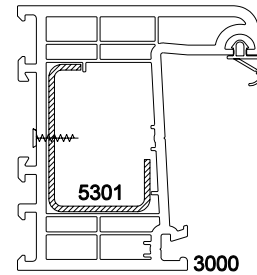
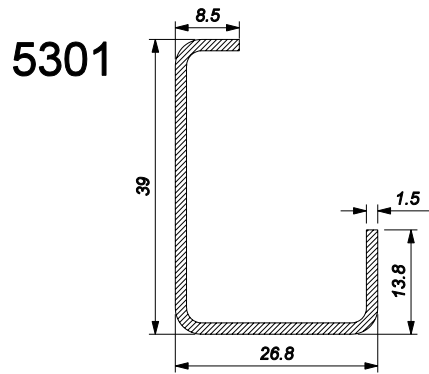
## 4. DRAWINGS

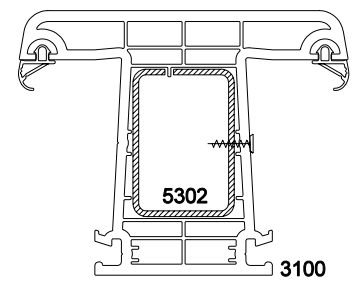
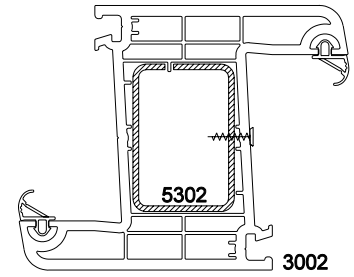
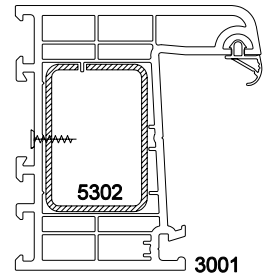
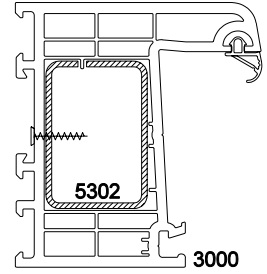
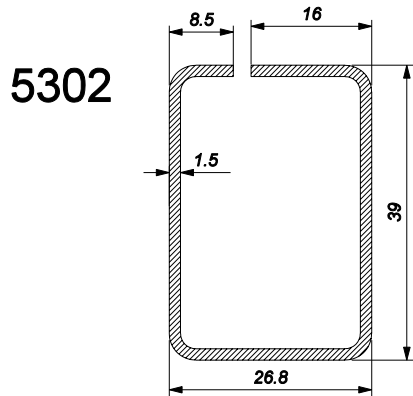
## 4. DRAWINGS

### 4.1 COMBINATION DRAWINGS

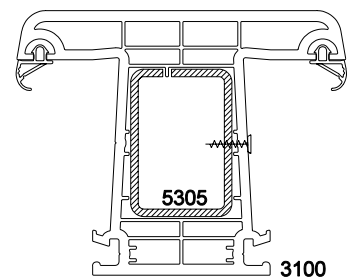
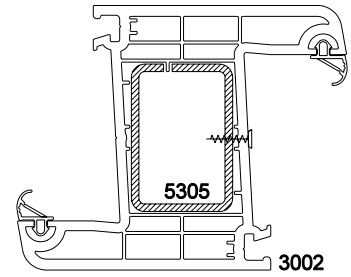
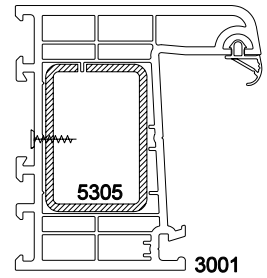
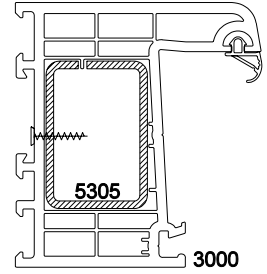
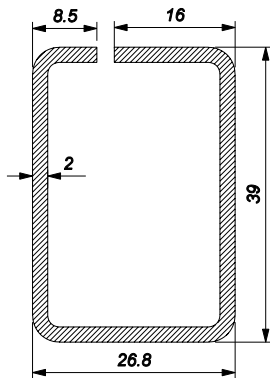
#### 4.1.1. REINFORCEMENTS

SCALE 1/1 - SCALE 1/2



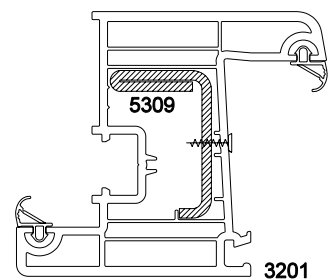
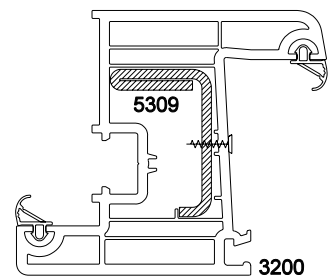
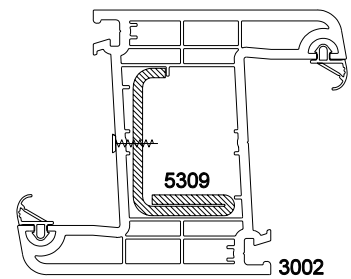
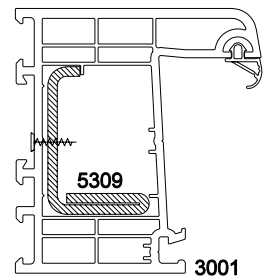
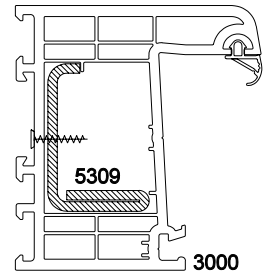
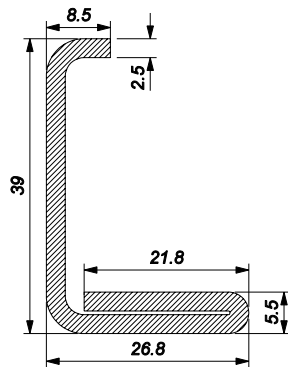


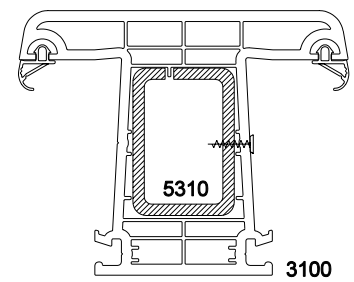
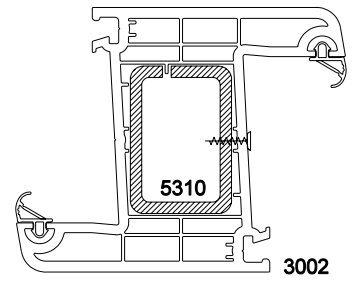
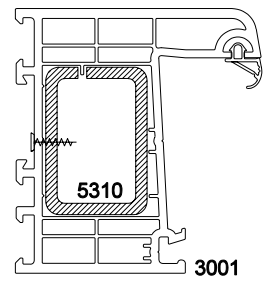
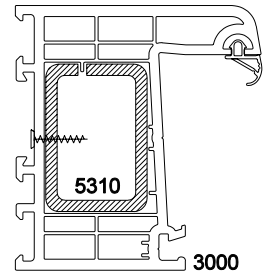
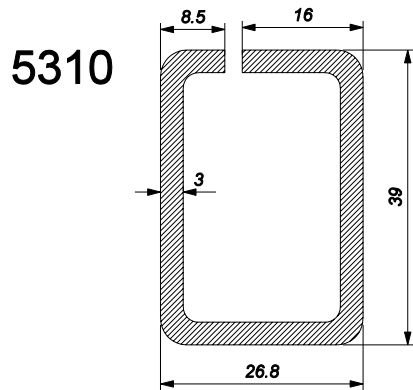
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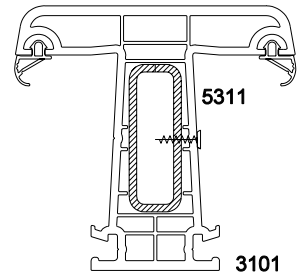
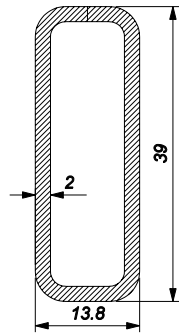


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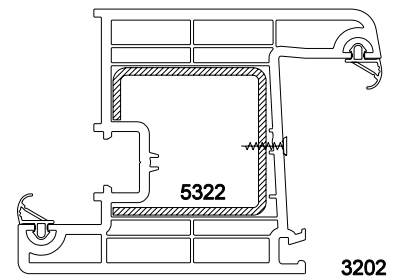
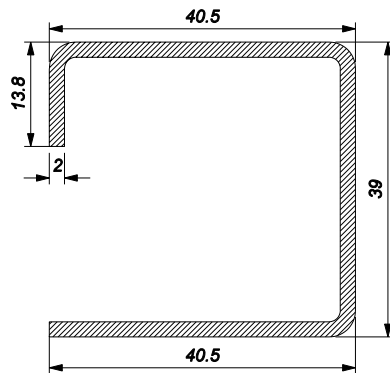




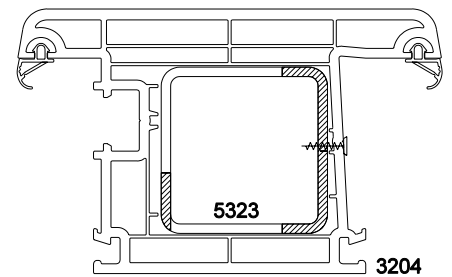
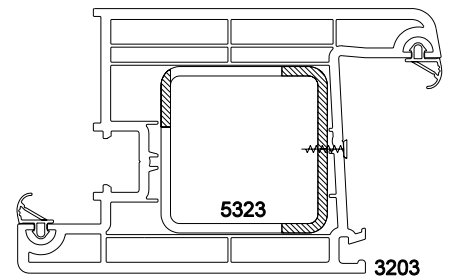
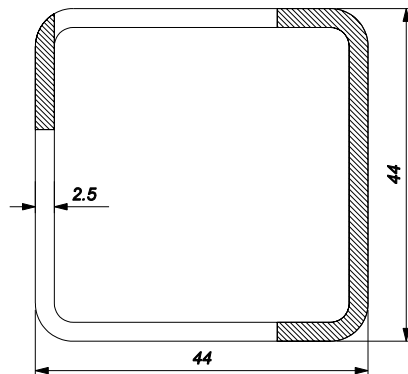
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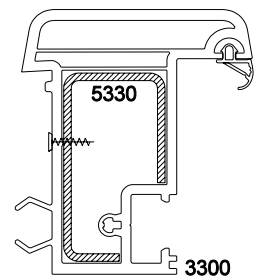
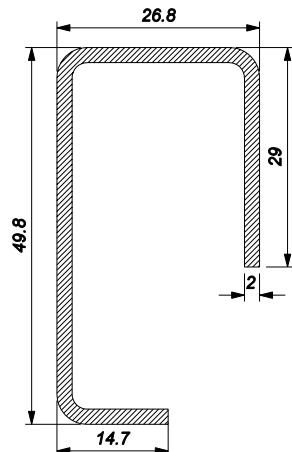
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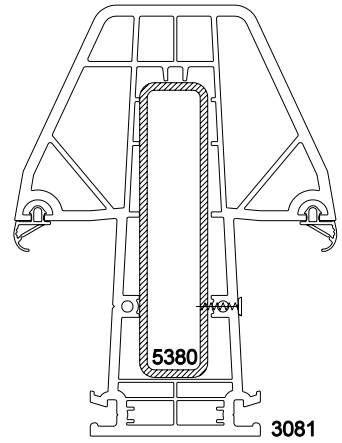
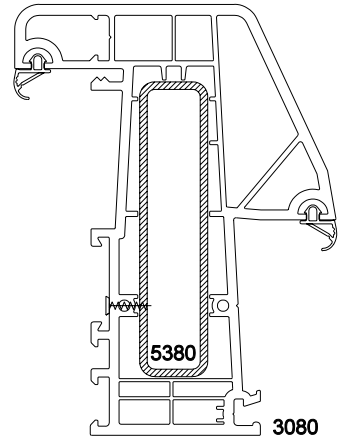
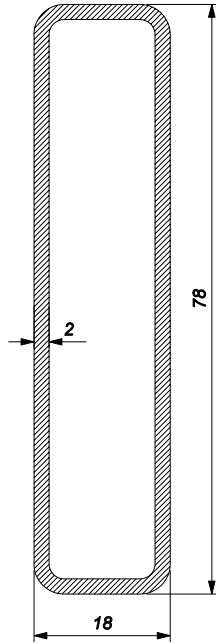
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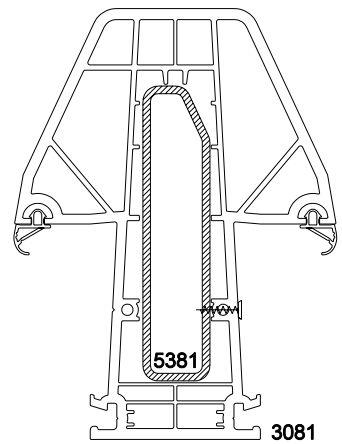
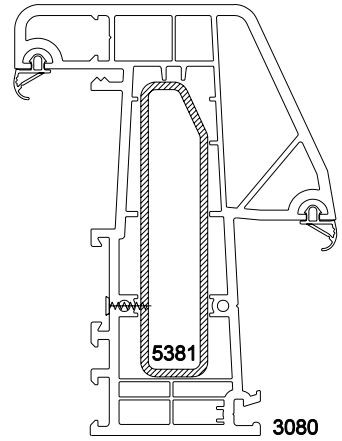
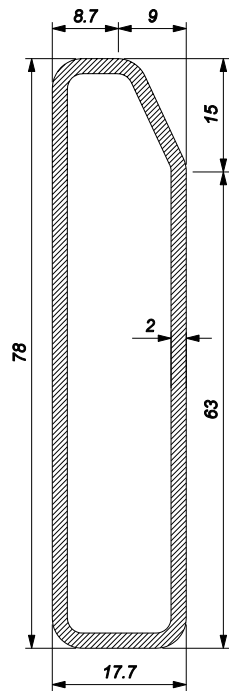
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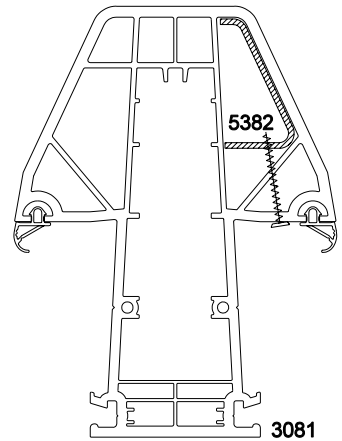
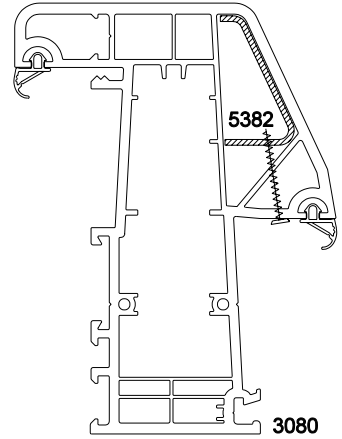
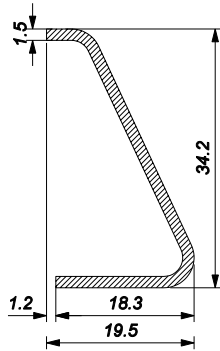
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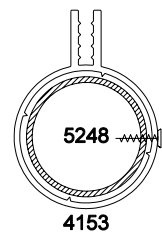
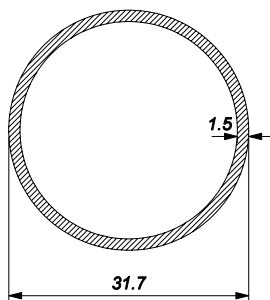
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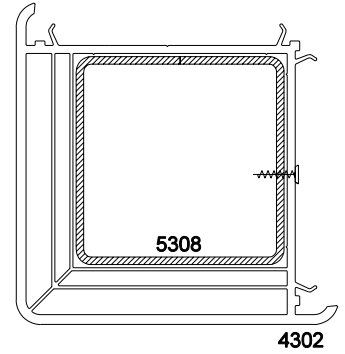
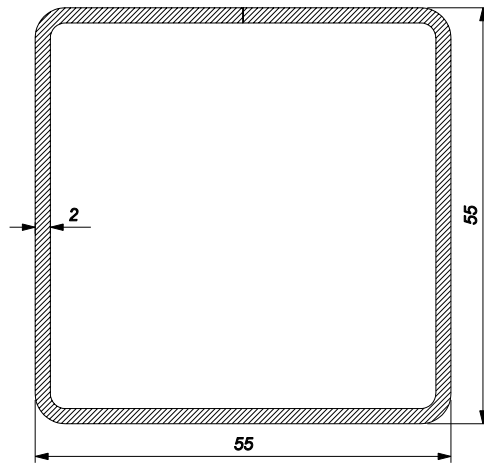
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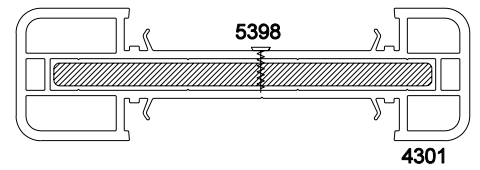
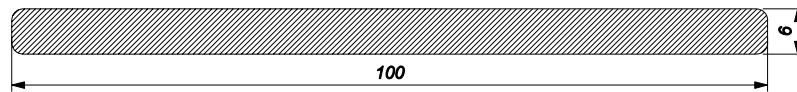
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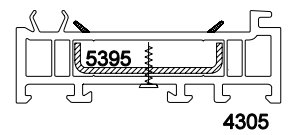
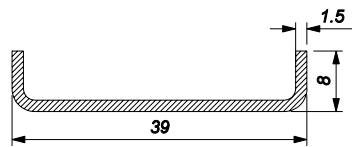
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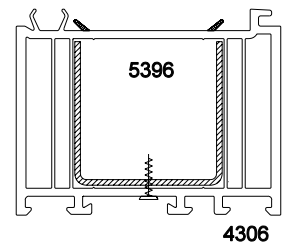
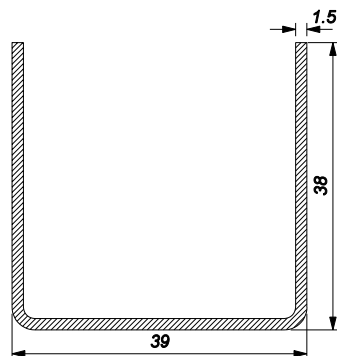
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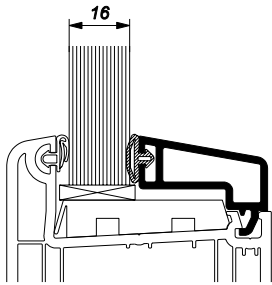


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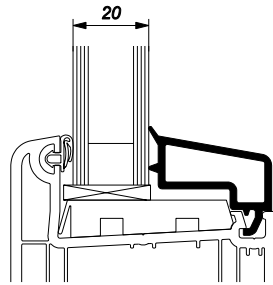


4.1.2. GLAZING BEADS

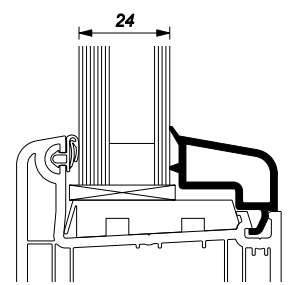
SCALE 1/2



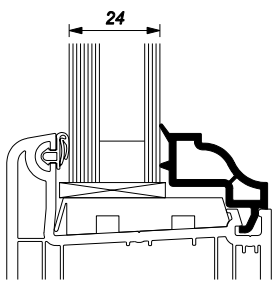
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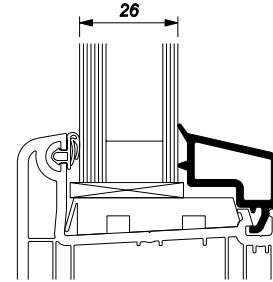
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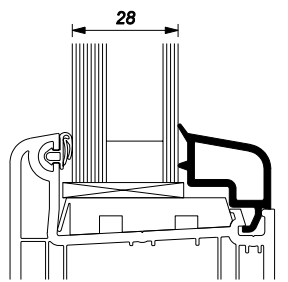
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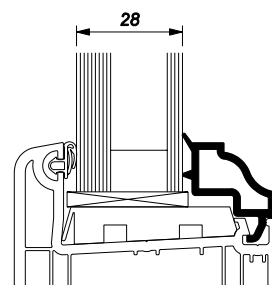
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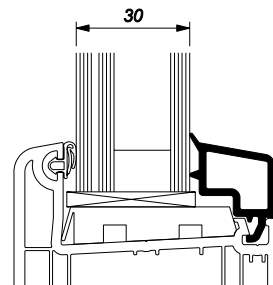
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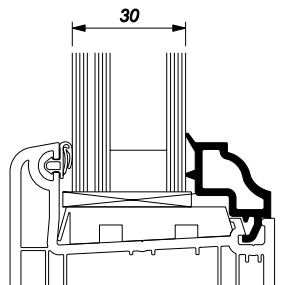
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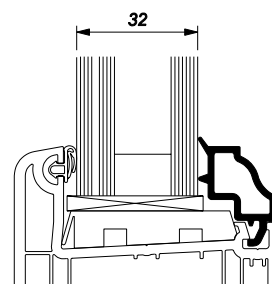
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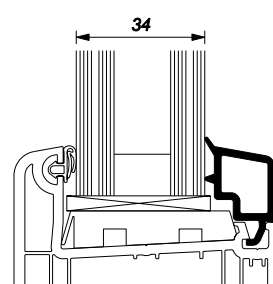
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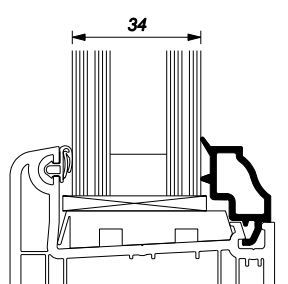
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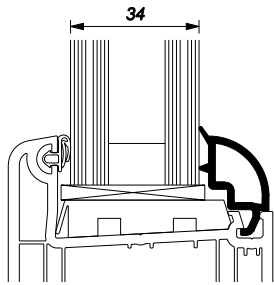
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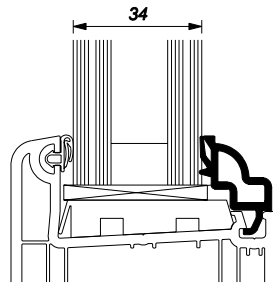
2324



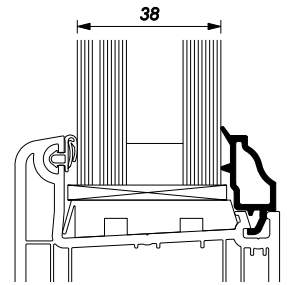
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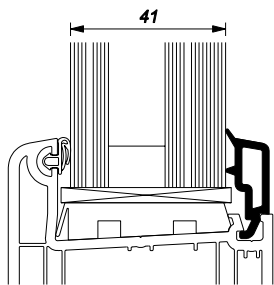
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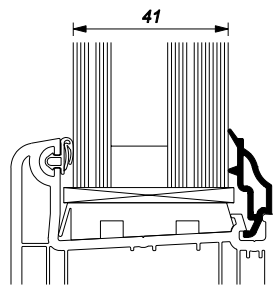
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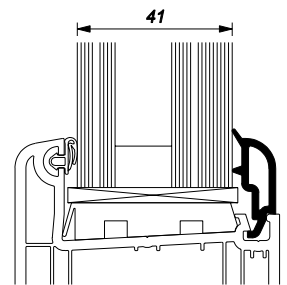
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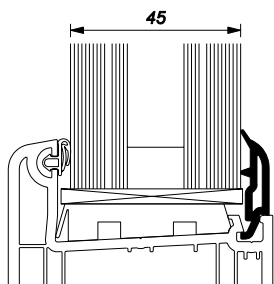
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2332



2333



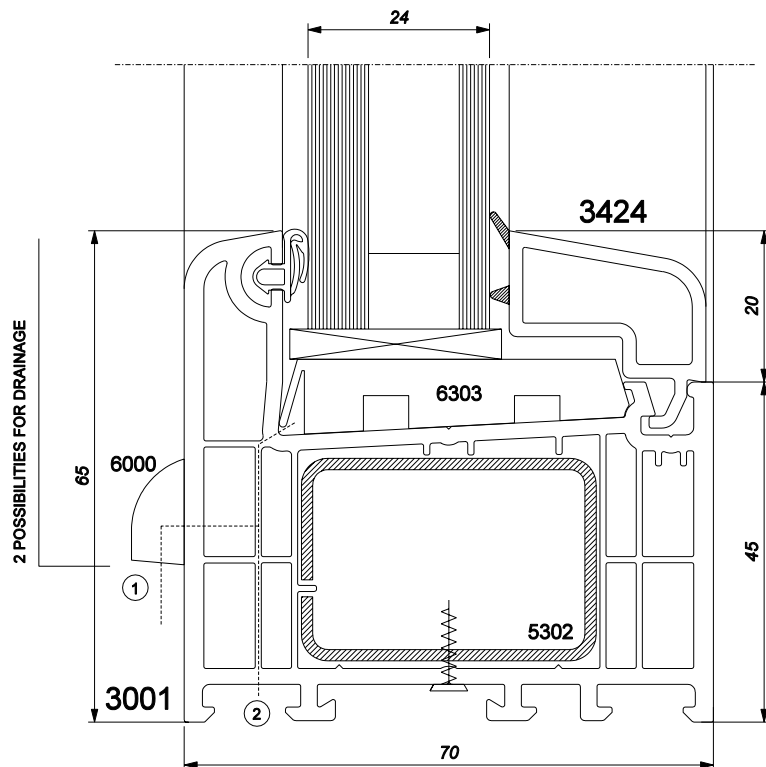
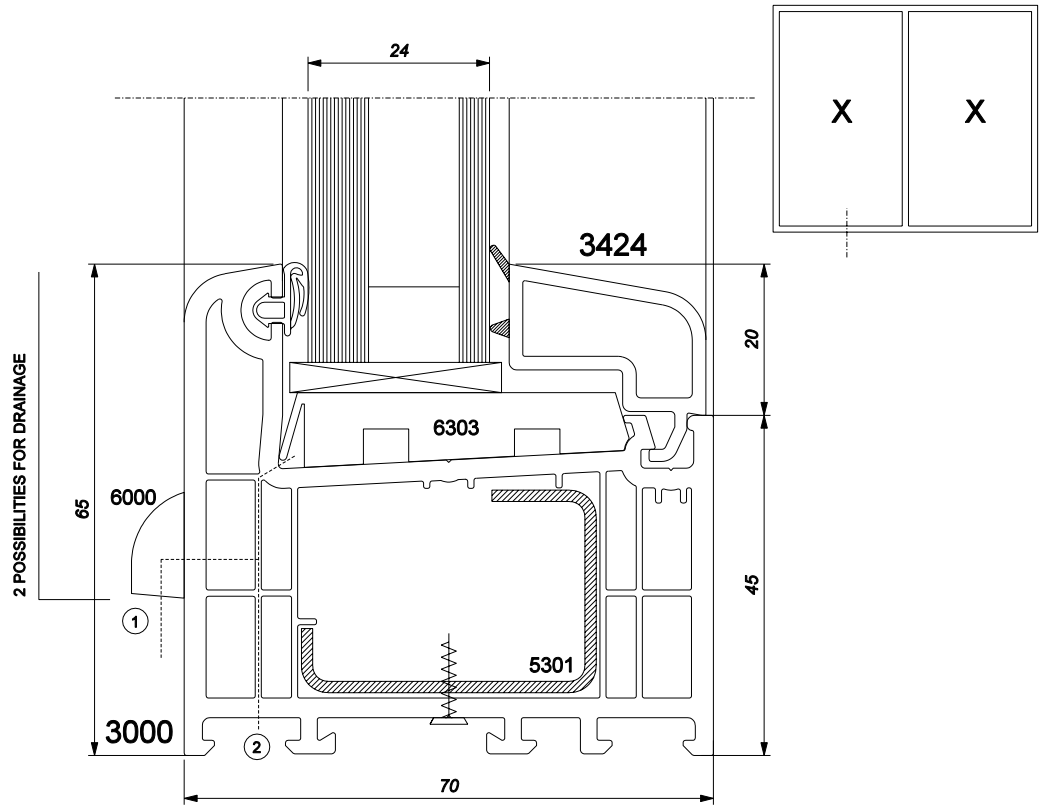
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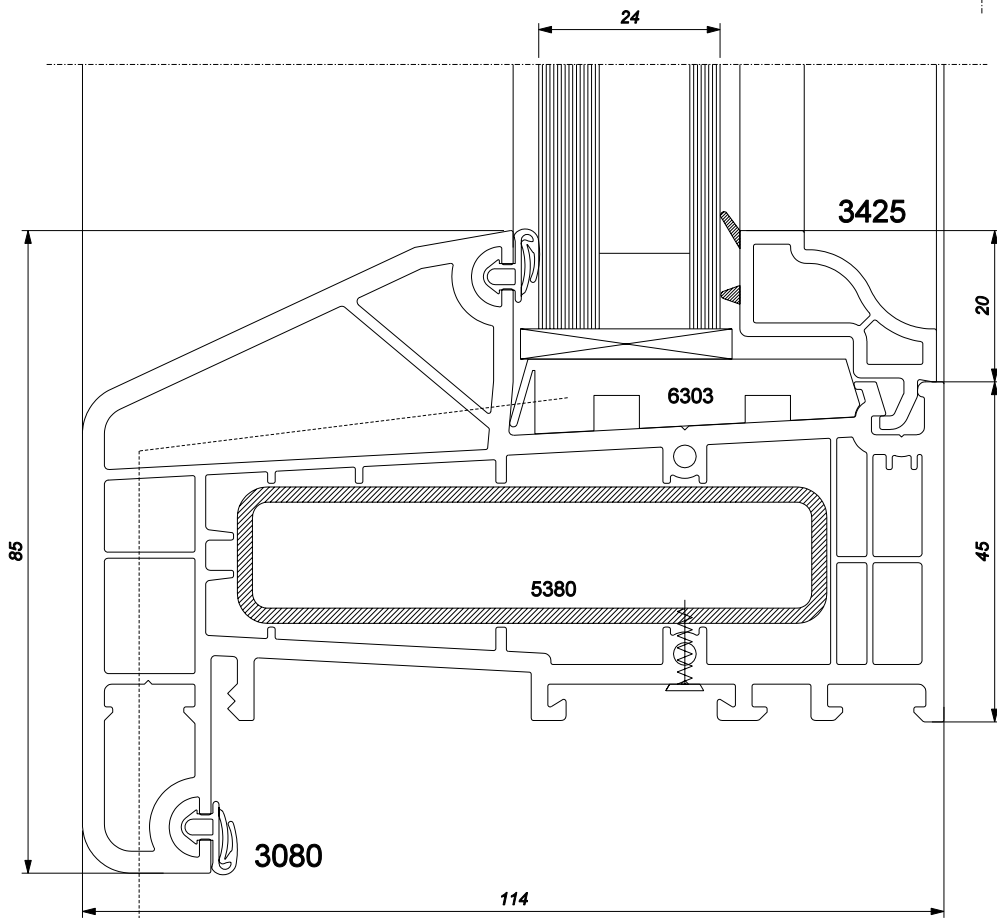
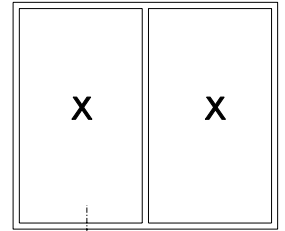


## 4.2. SECTION DRAWINGS

### 4.2.1. VERTICAL SECTION FRAME PROFILE

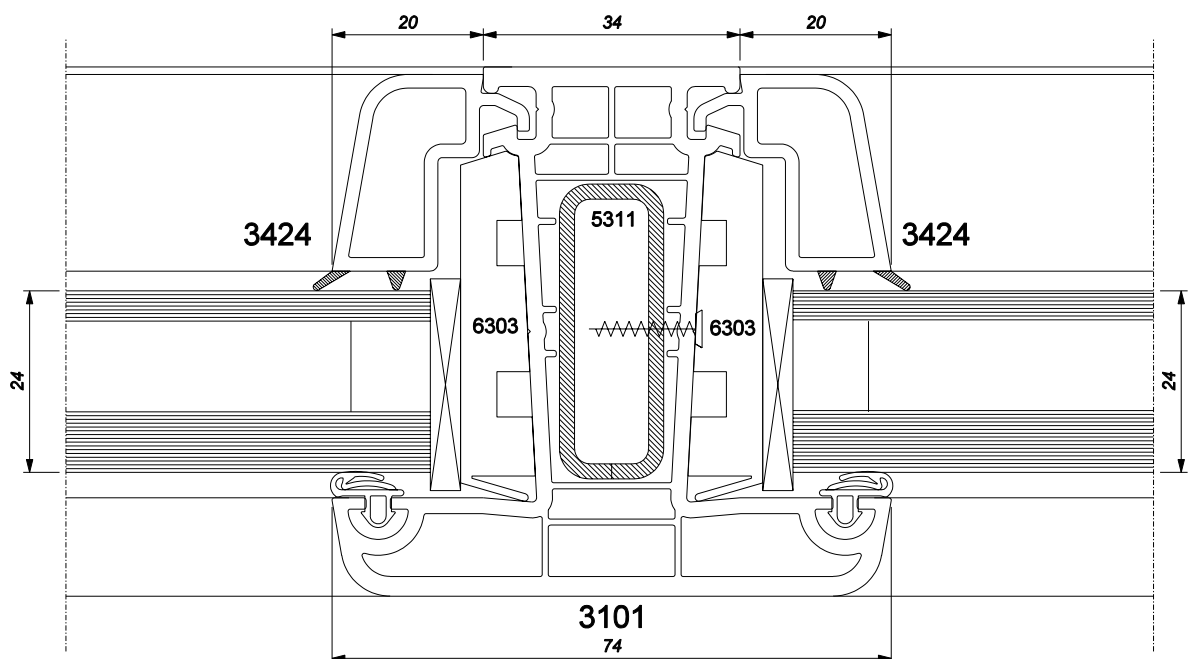
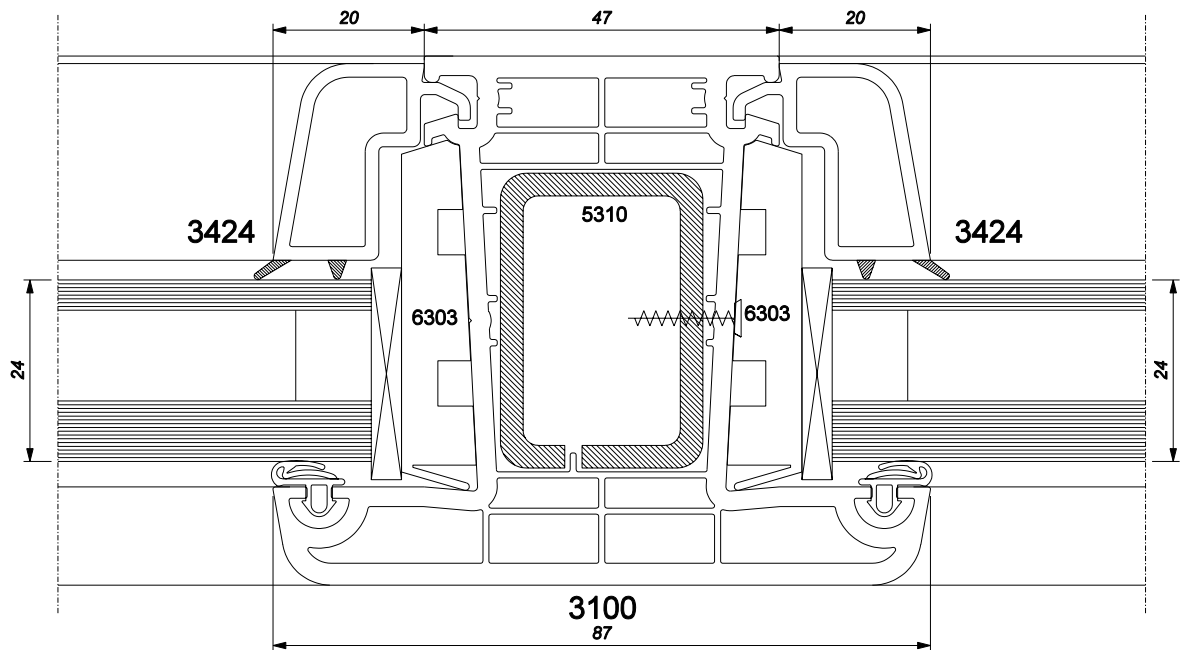
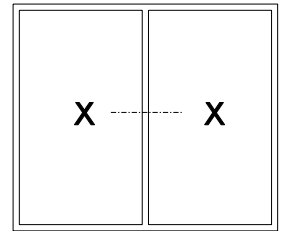
SCALE 1/1

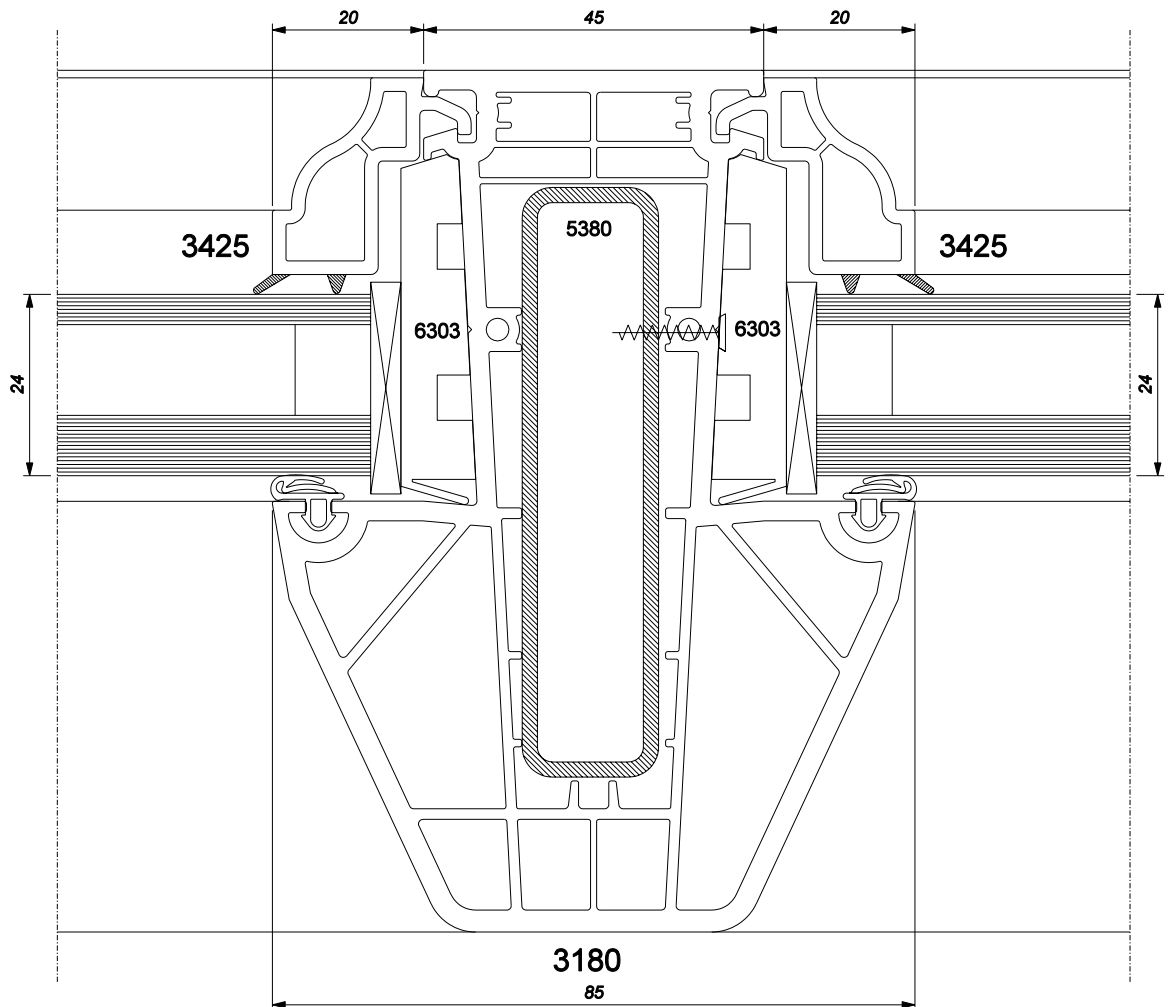
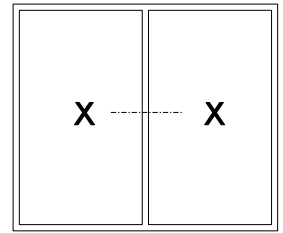




4.2.2. HORIZONTAL SECTION TRANSOMS

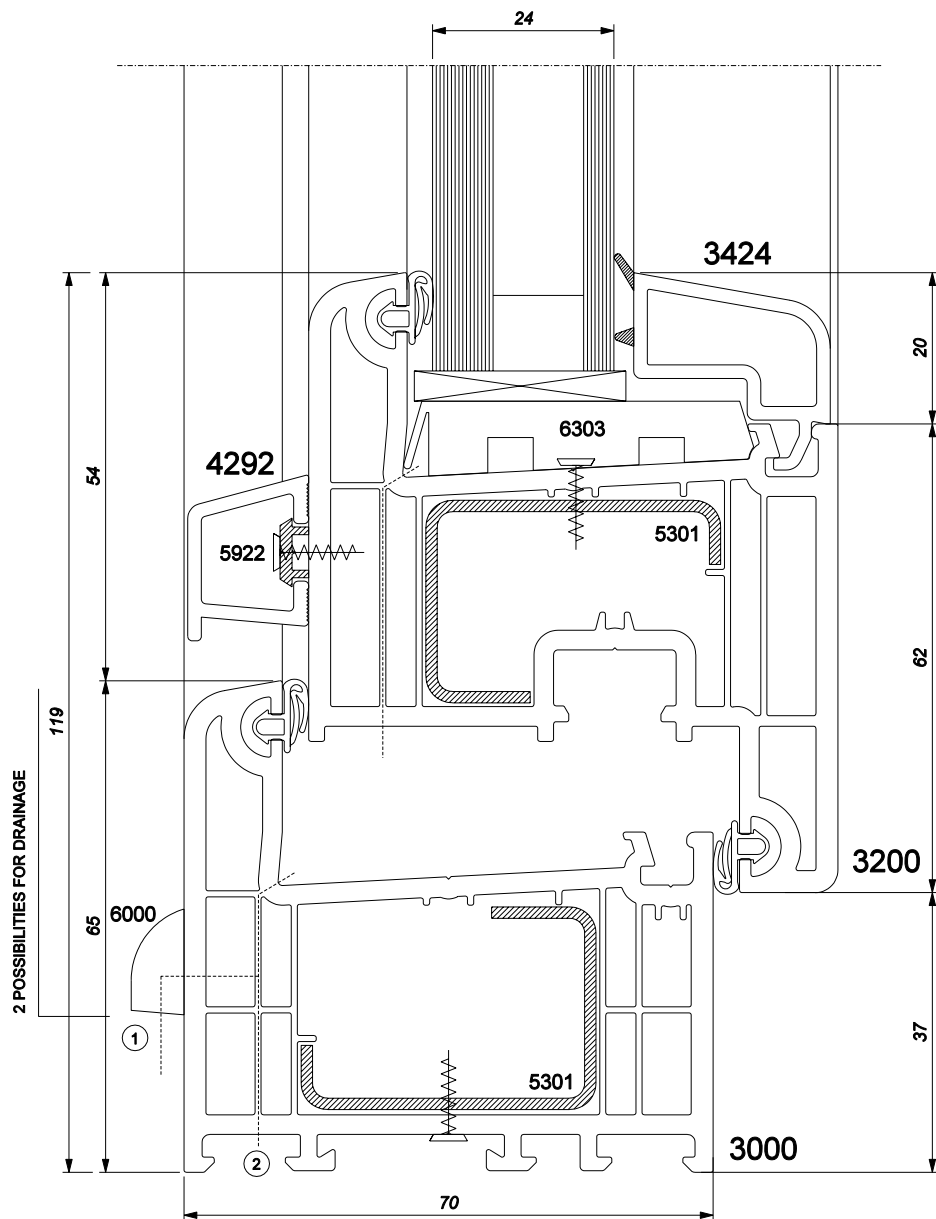
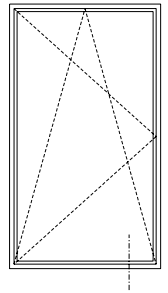
SCALE 1/1

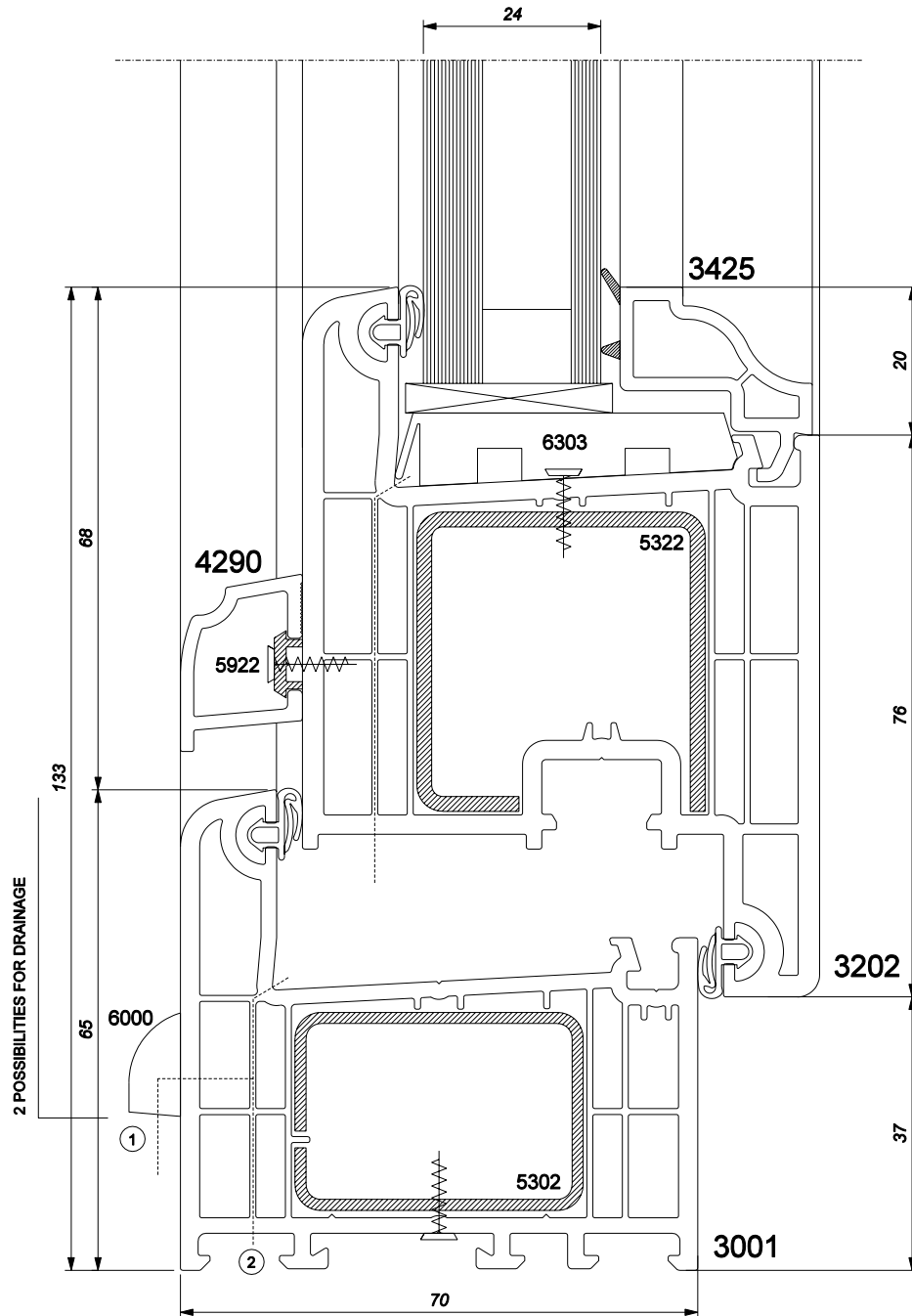
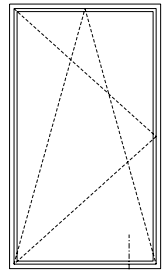


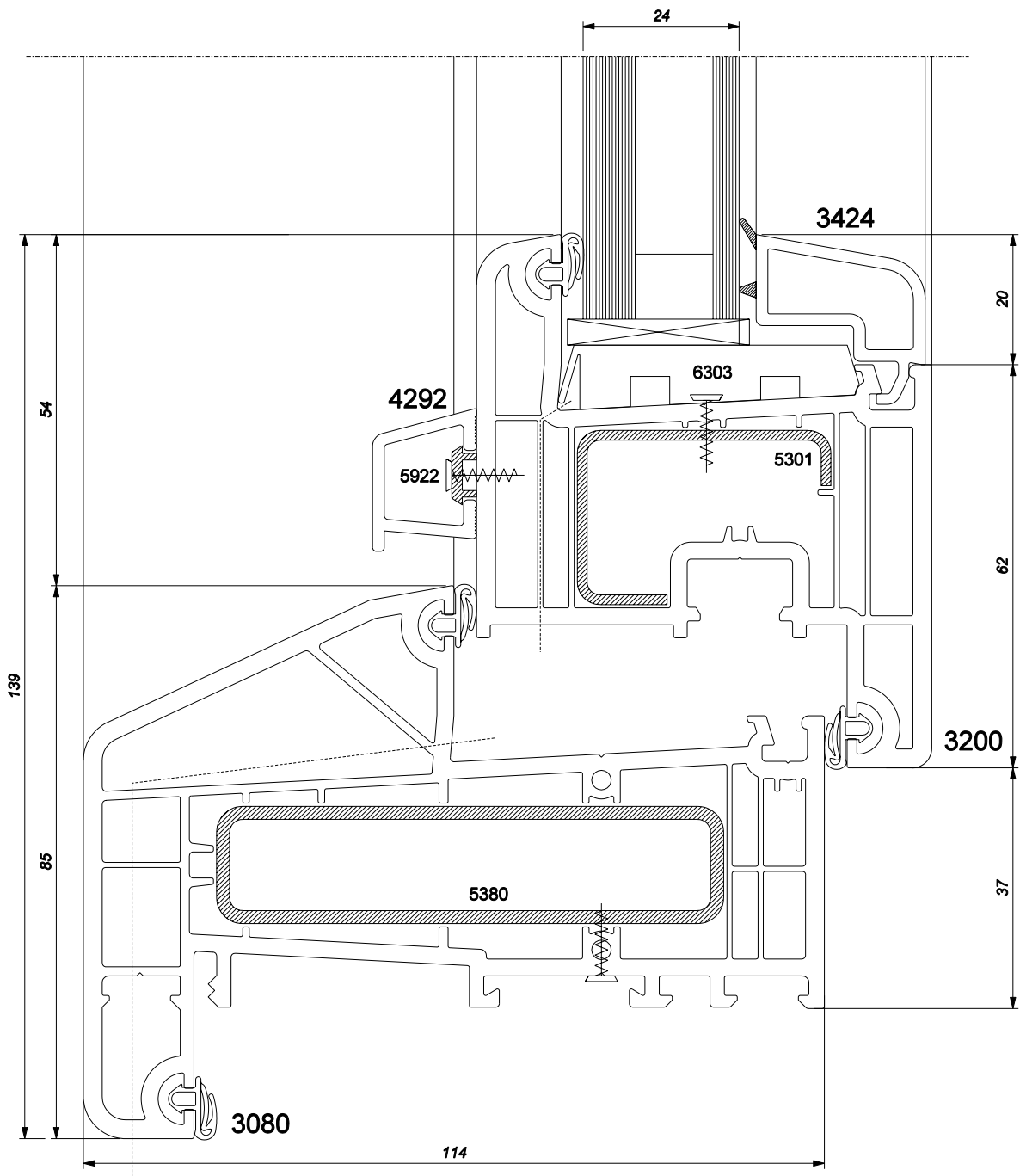
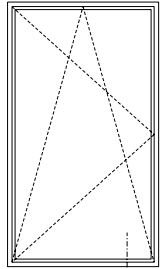


4.2.3. VERTICAL SECTION FRAME AND SASH PROFILE

SCALE 1/1

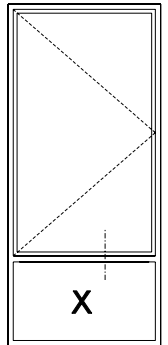
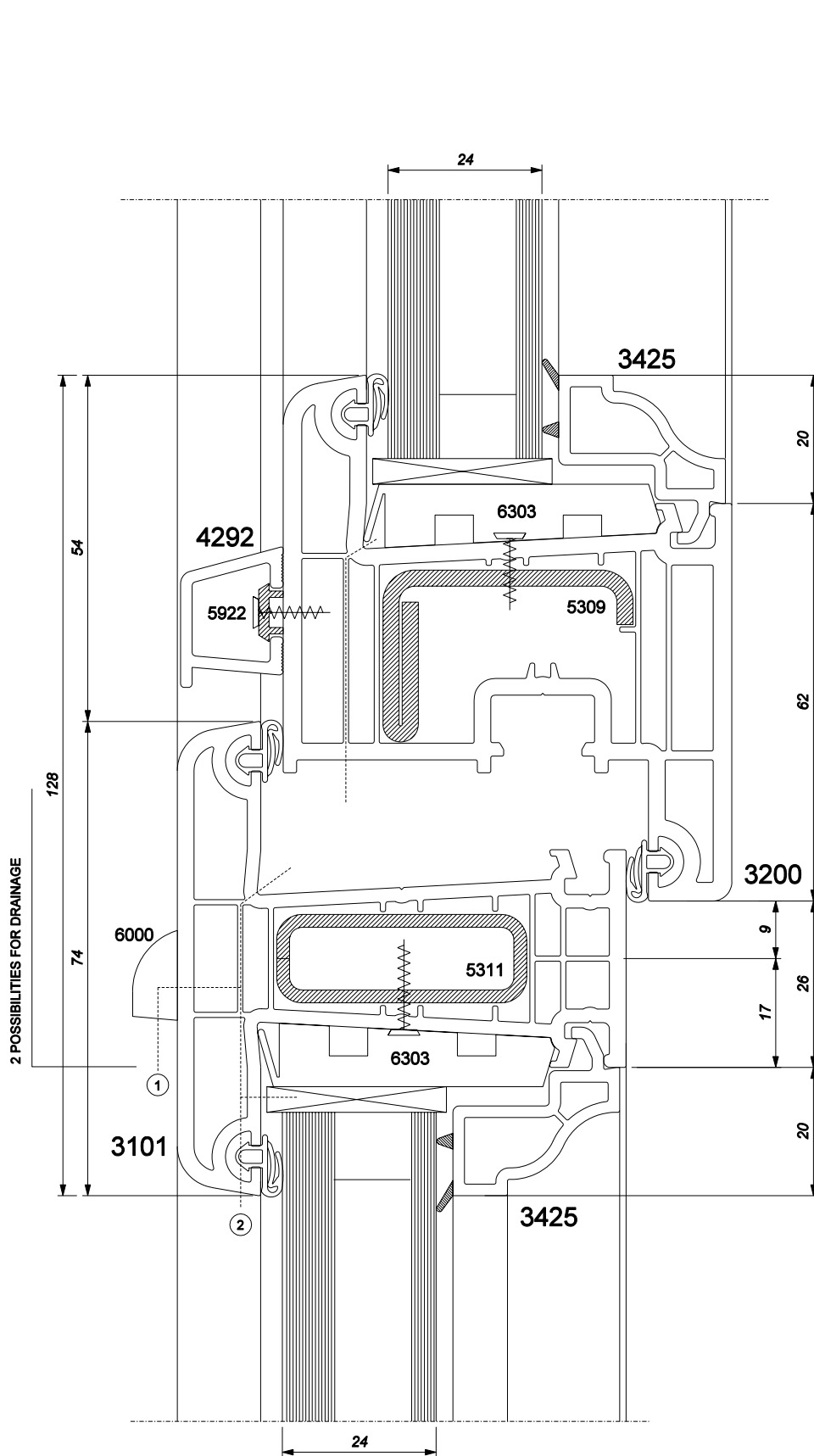




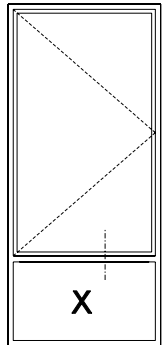
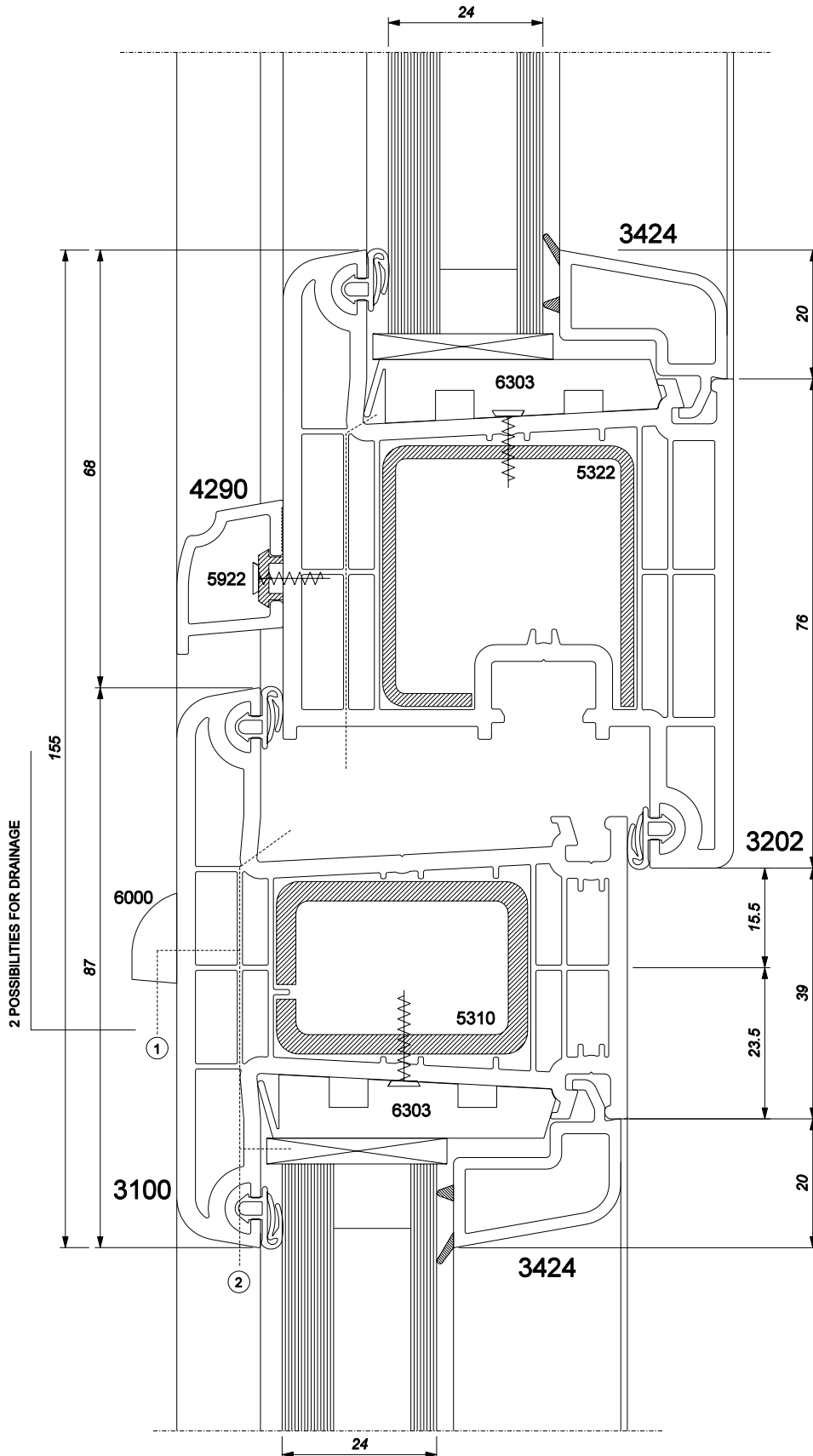


4.2.4. VERTICAL SECTION T-PROFILE AND SASH PROFILE

SCALE 1/1

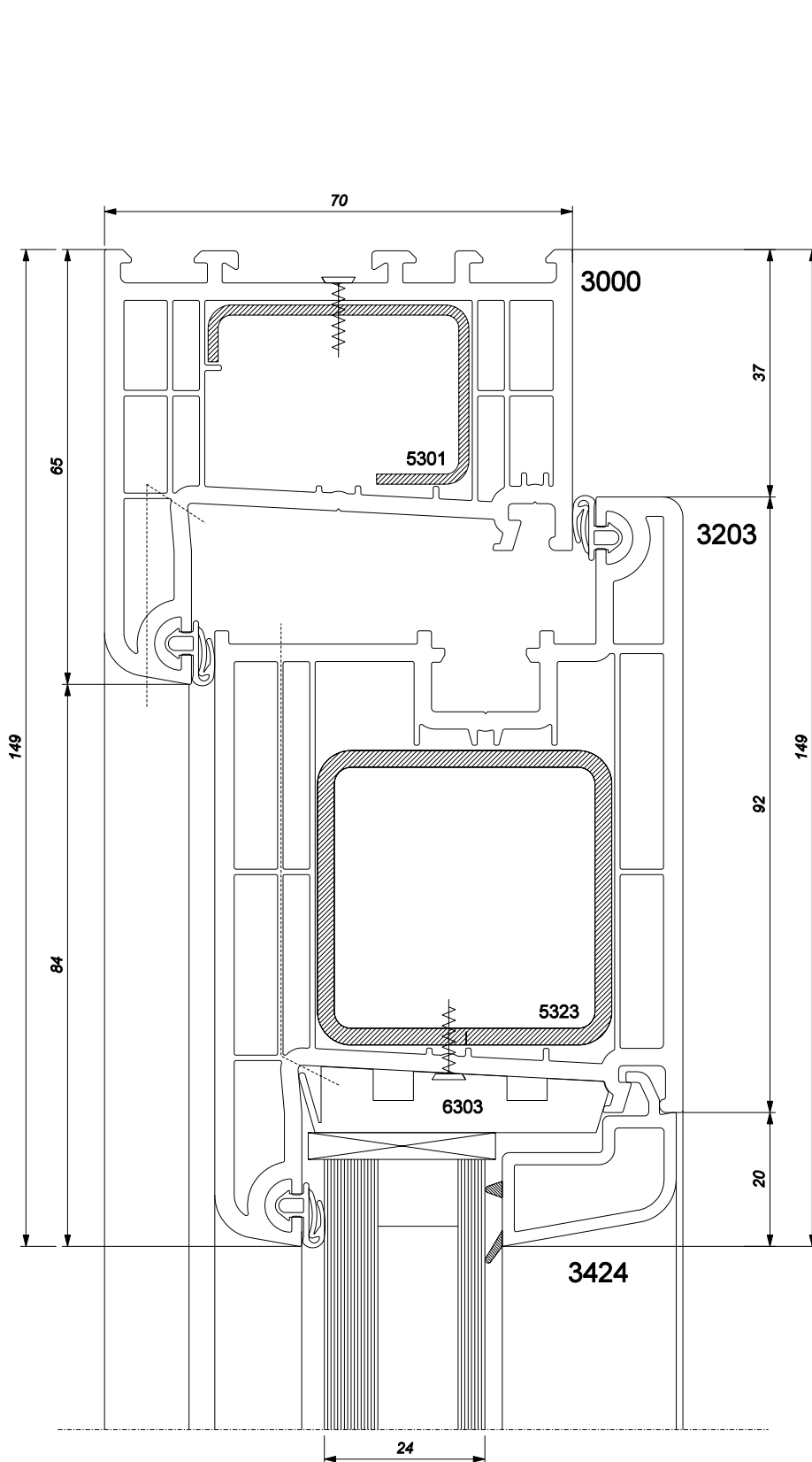






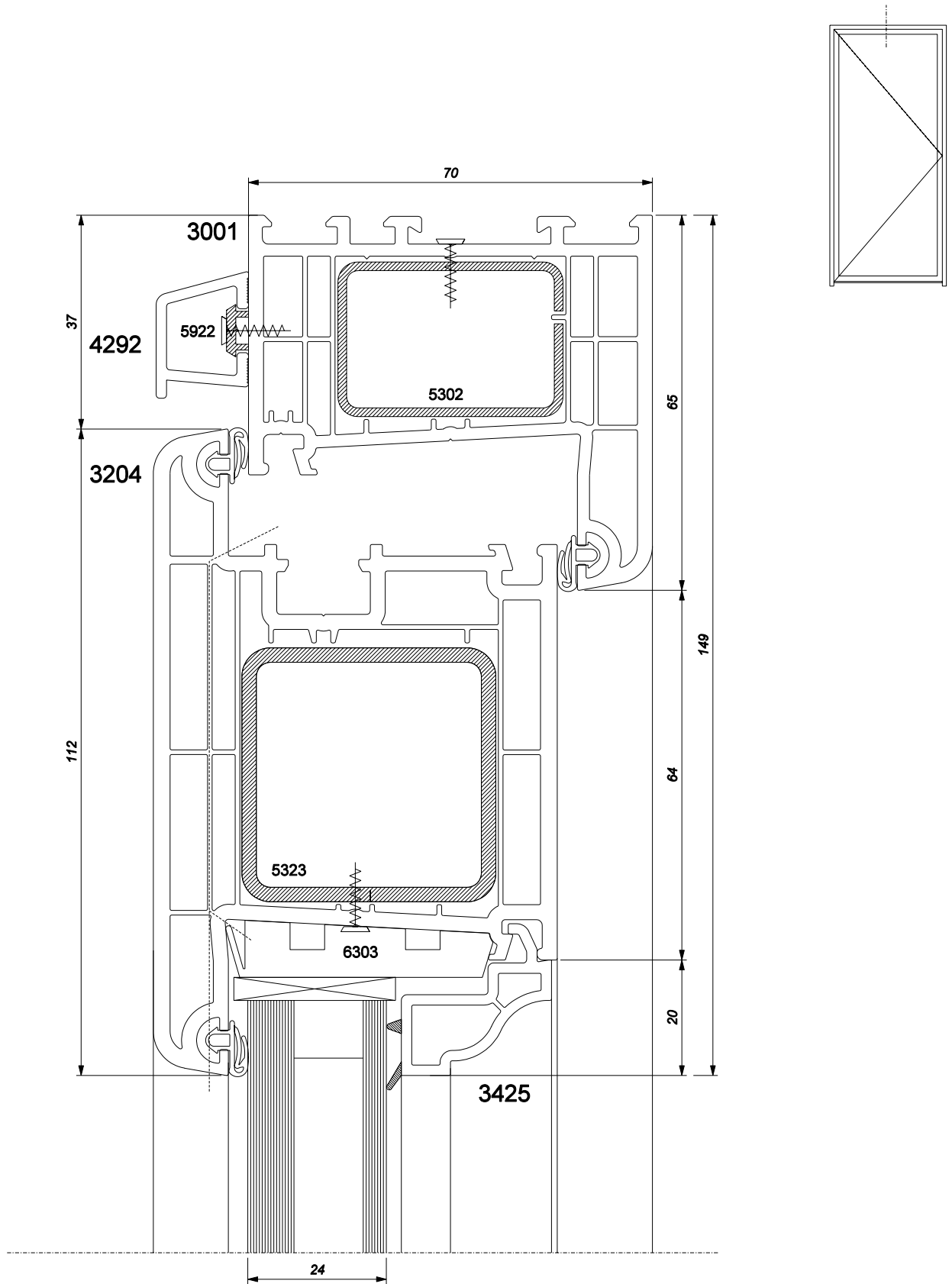
4.2.5. VERTICAL SECTION INWARD OPENING DOOR

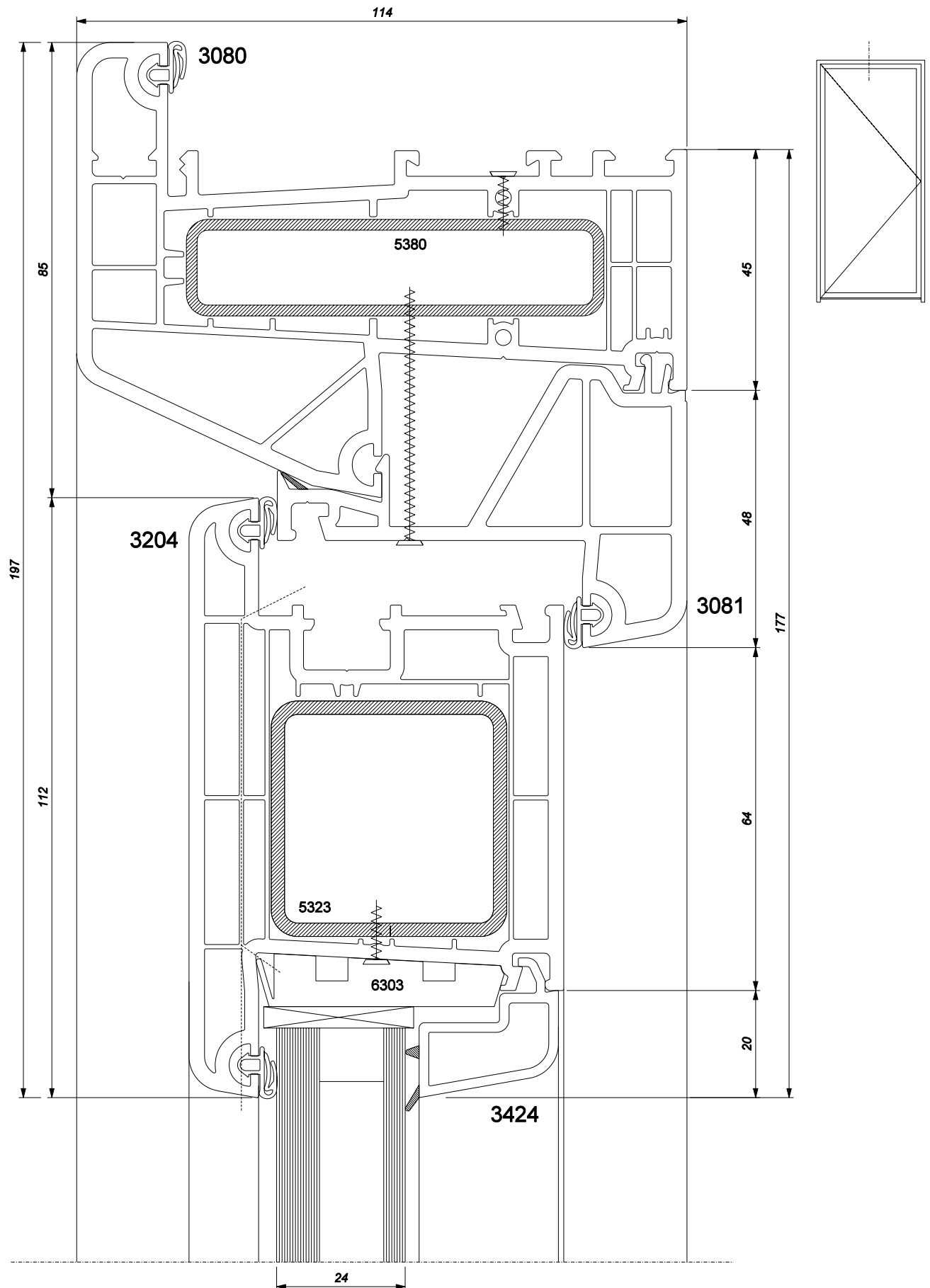
SCALE 1/1



4.2.6. VERTICAL SECTION OUTWARD OPENING DOOR

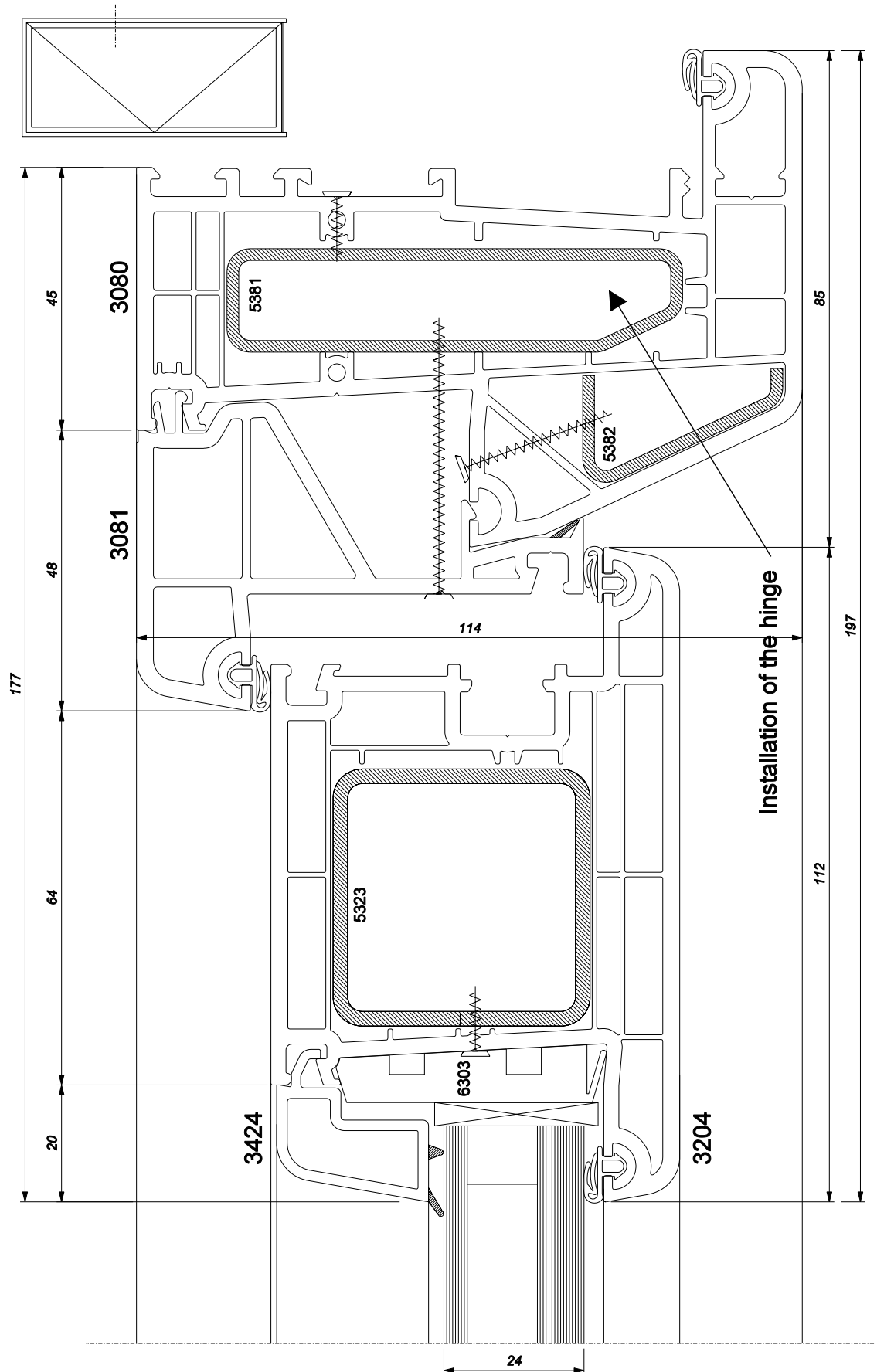
SCALE 1/1





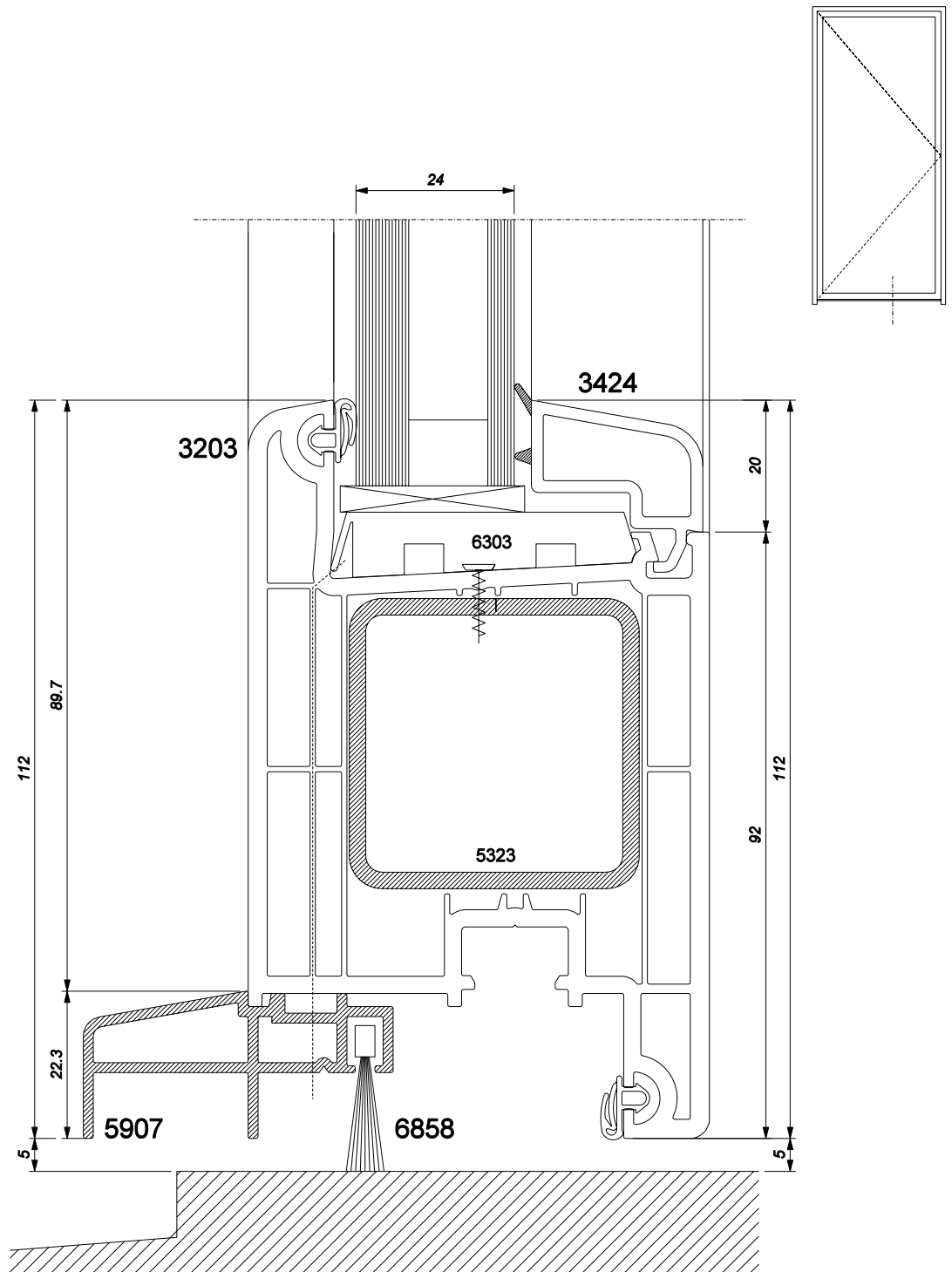
4.2.7. HORIZONTAL SECTION OUTWARD OPENING DOOR

SCALE 1/1



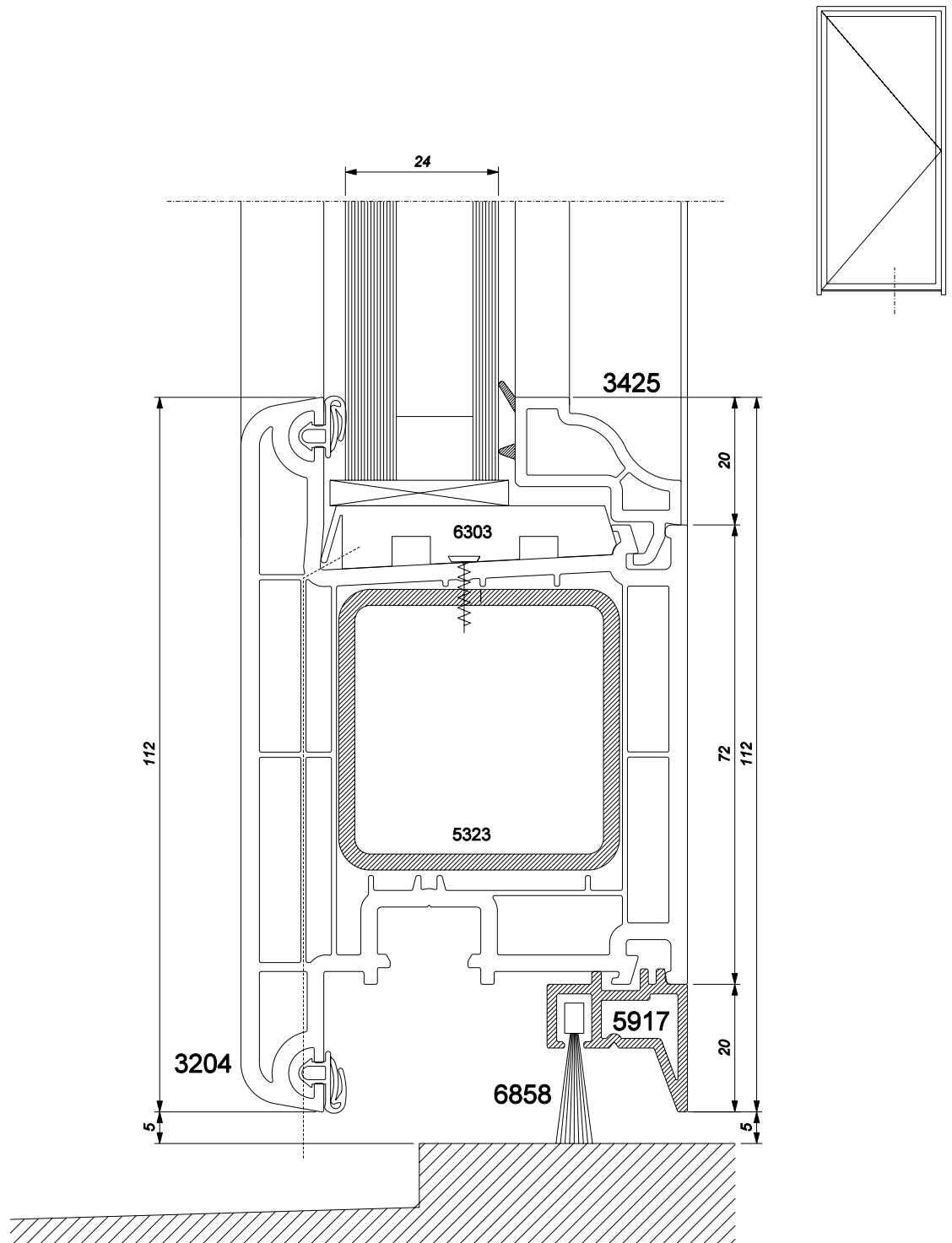
4.2.8. VERTICAL SECTION INWARD OPENING DOOR

SCALE 1/1



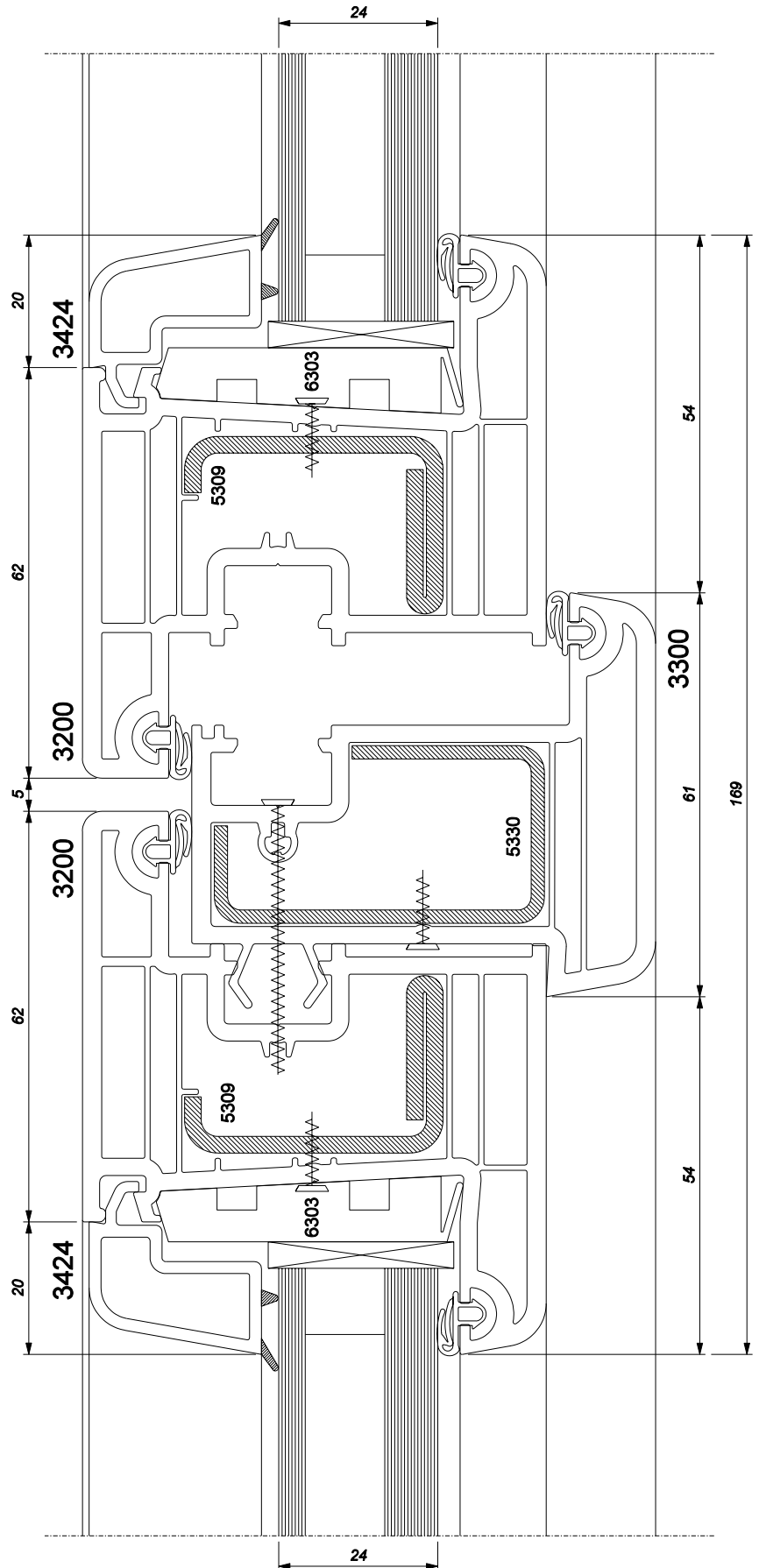
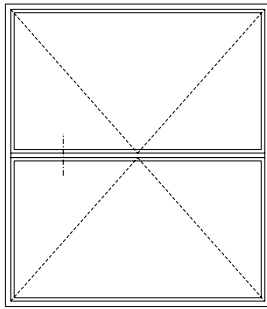
4.2.9. VERTICAL SECTION OUTWARD OPENING DOOR

SCALE 1/1

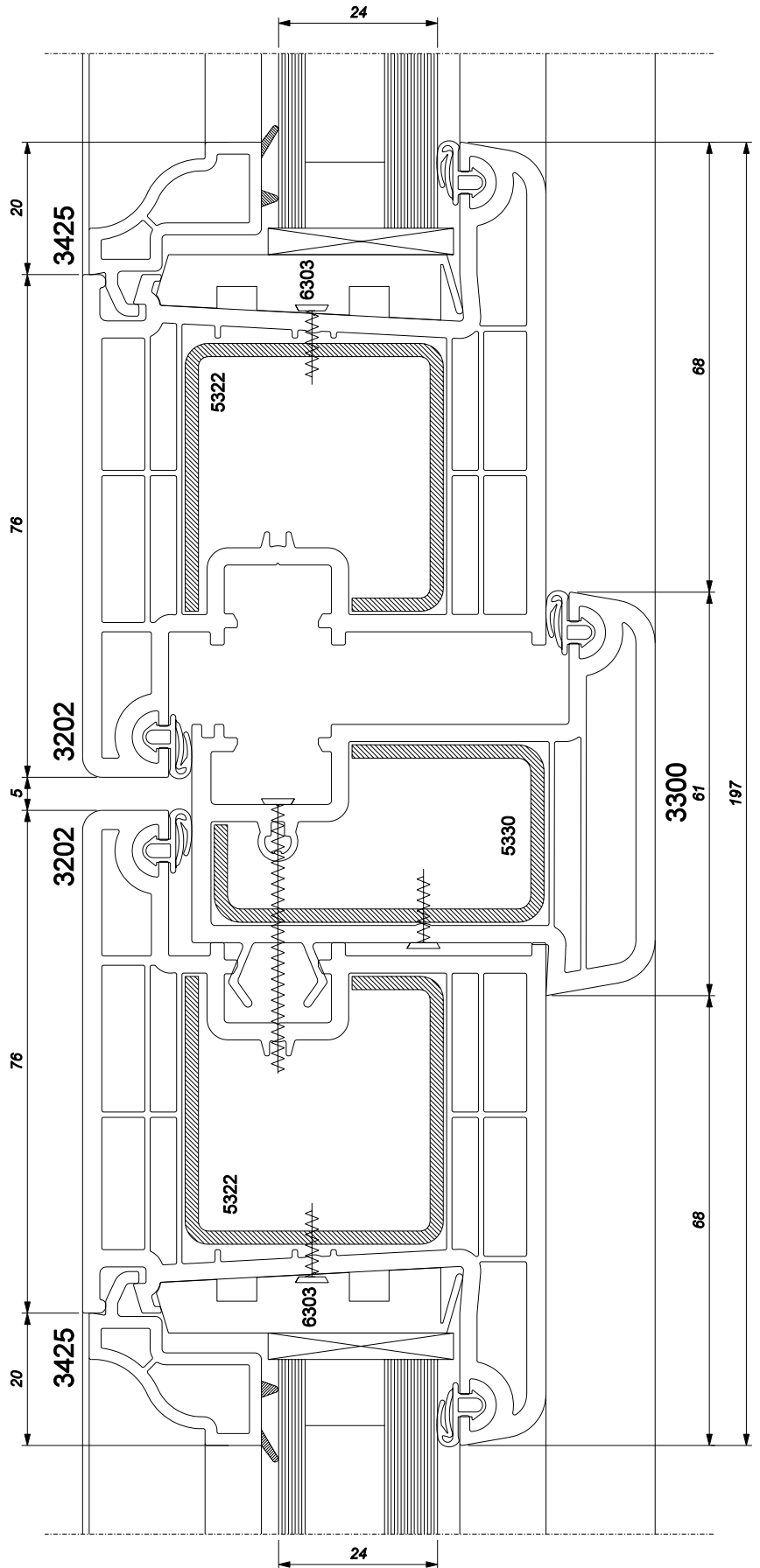
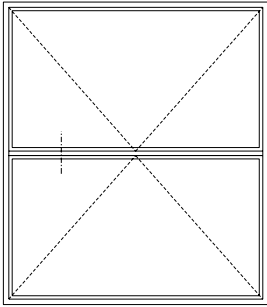


4.2.10. HORIZONTAL SECTION DOUBLE OPENING WINDOW

SCALE 1/1

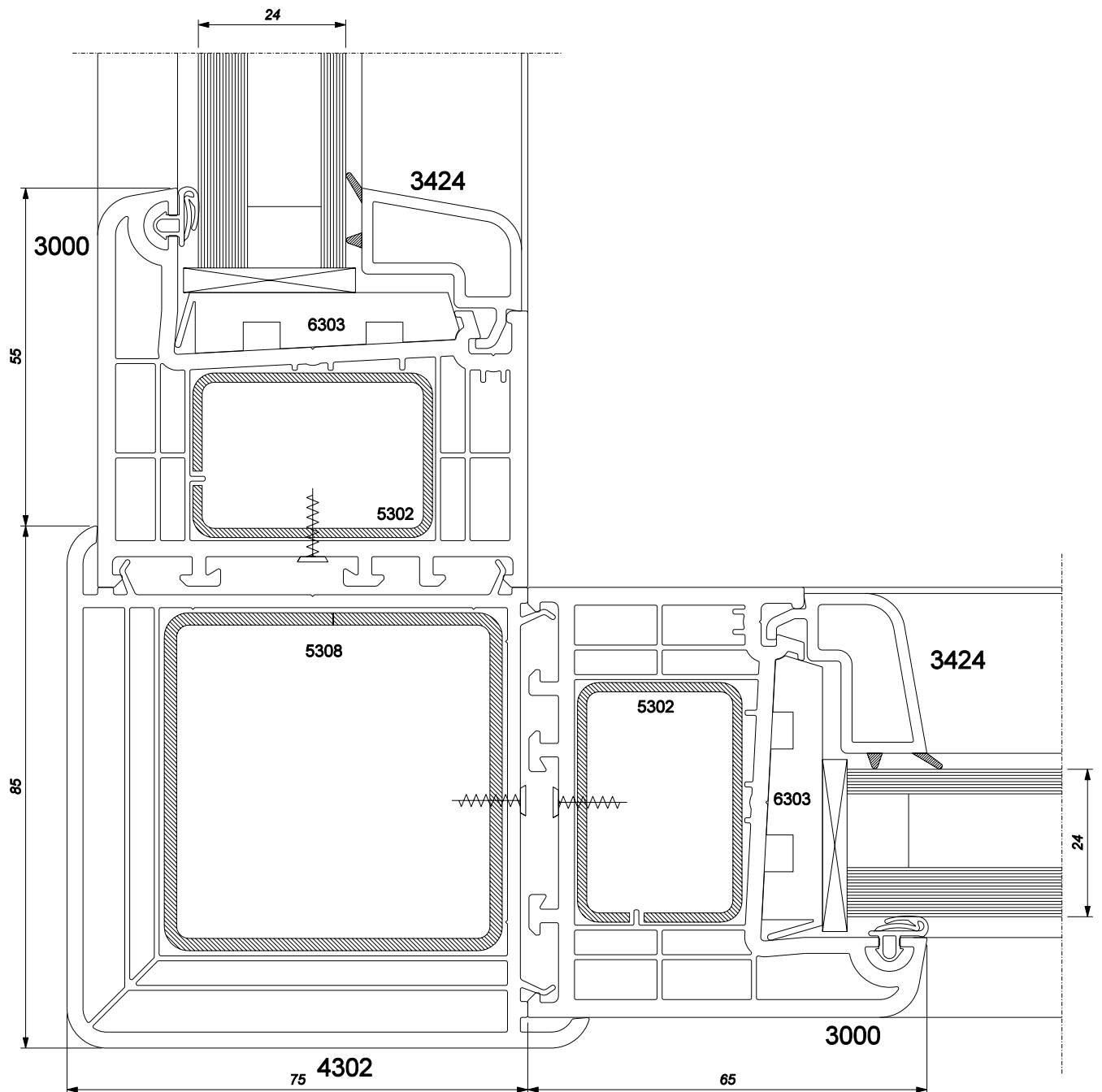
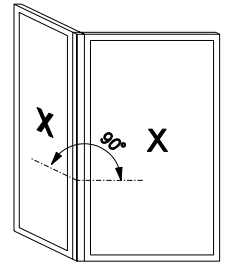


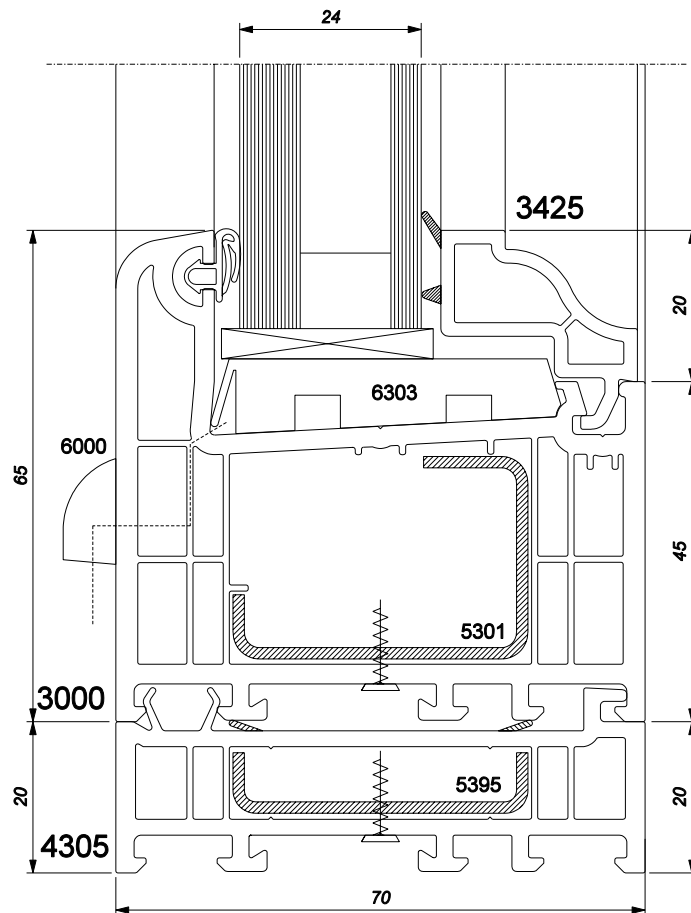
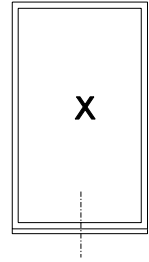


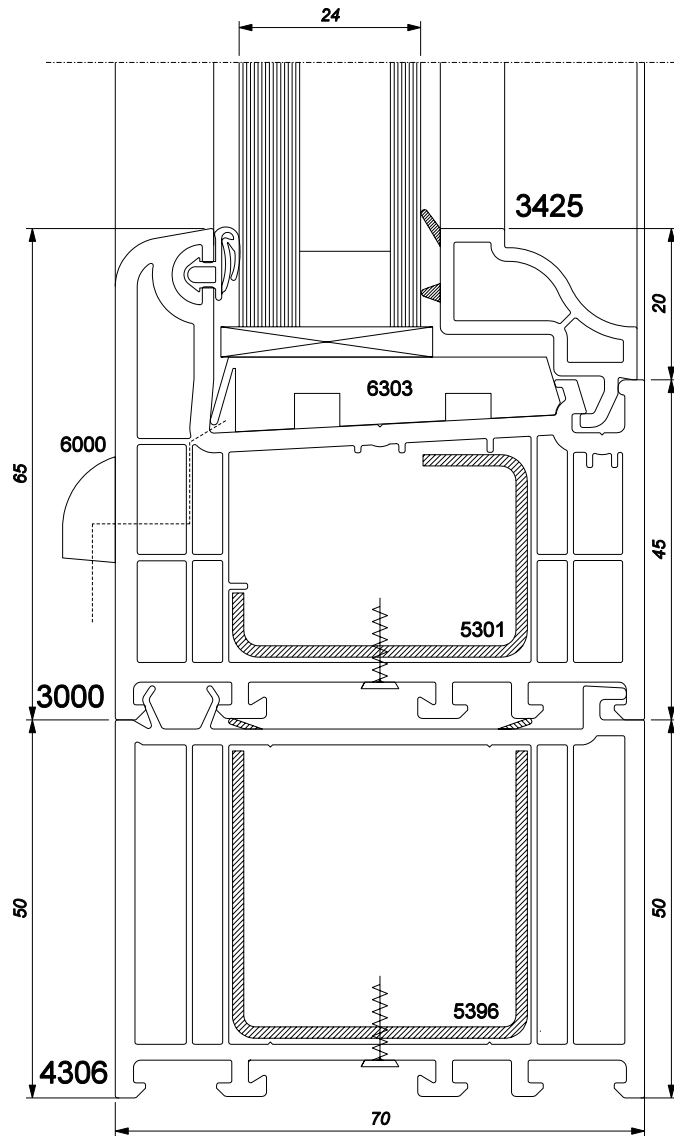
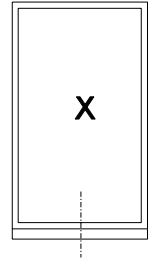


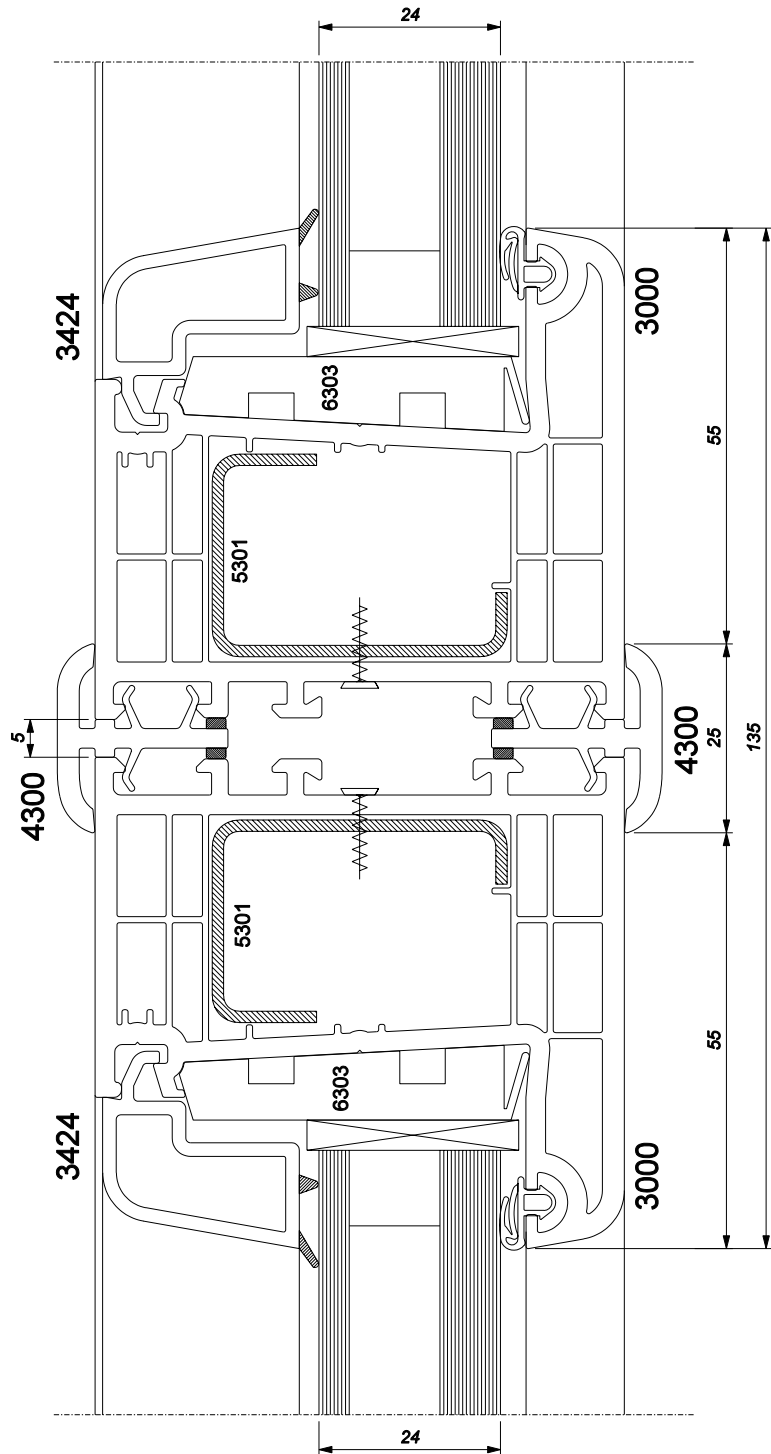
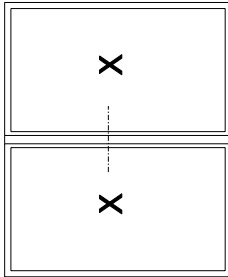
4.2.11. JUNCTION SYSTEMS

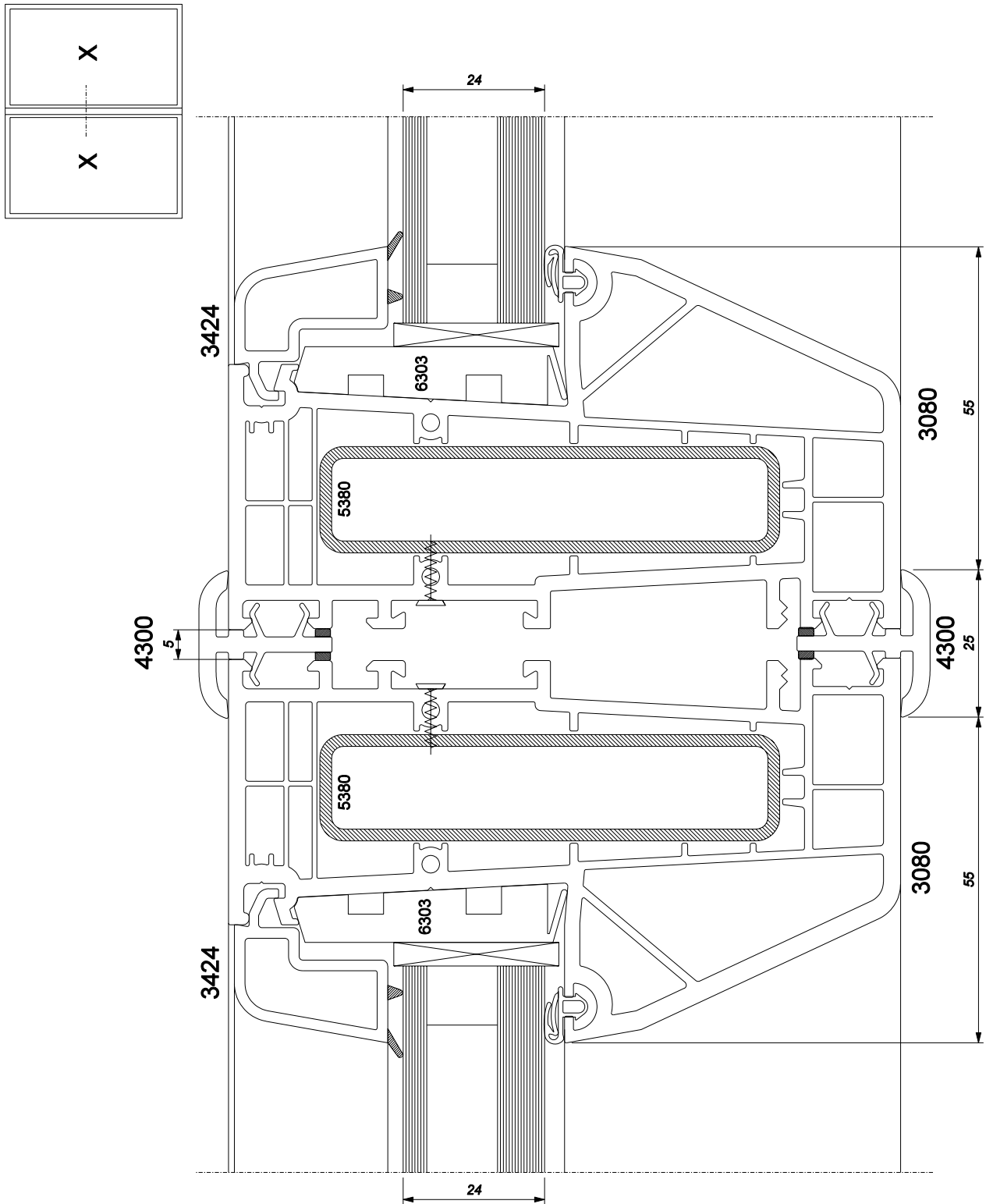
SCALE 1/1

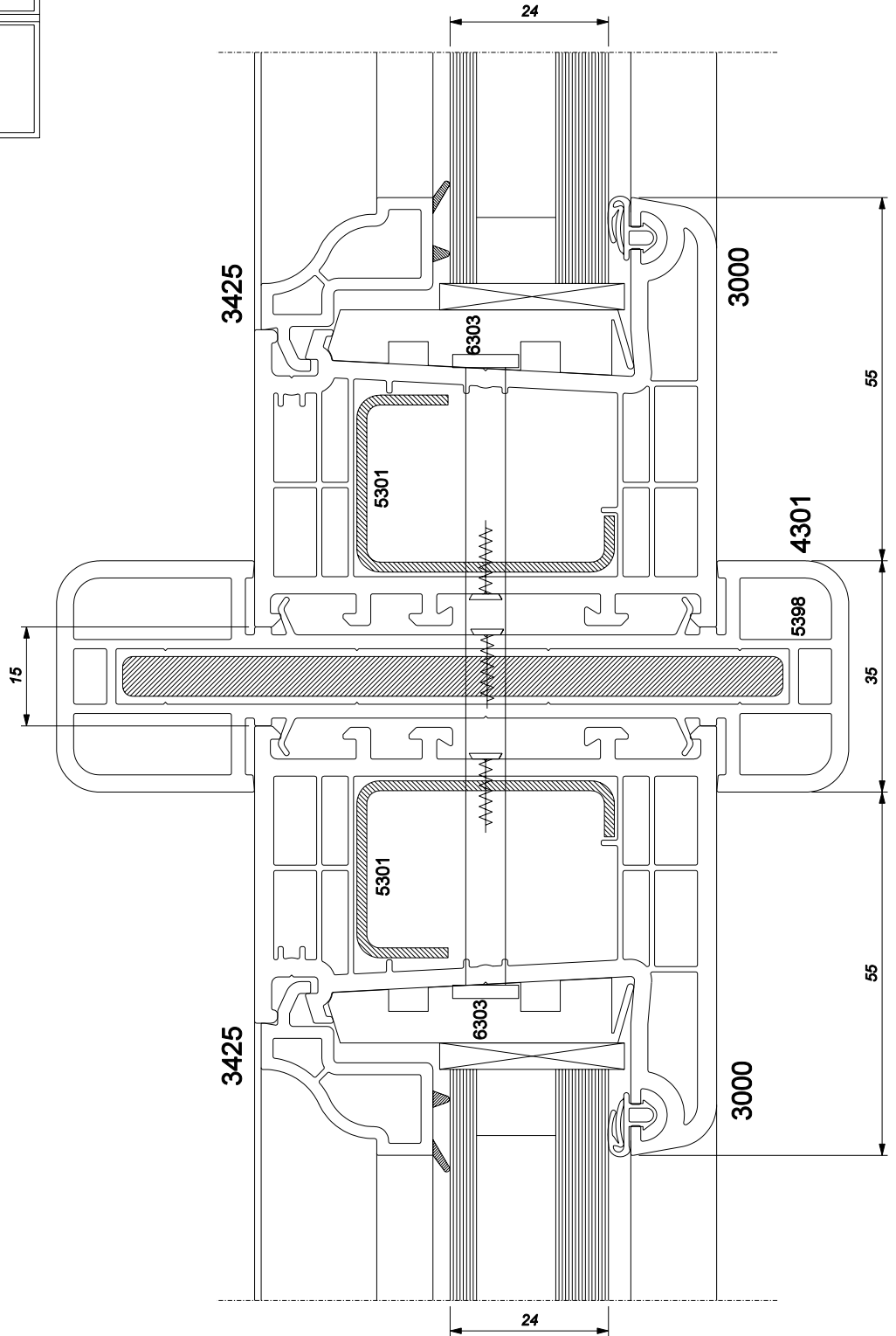
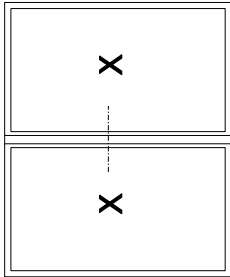


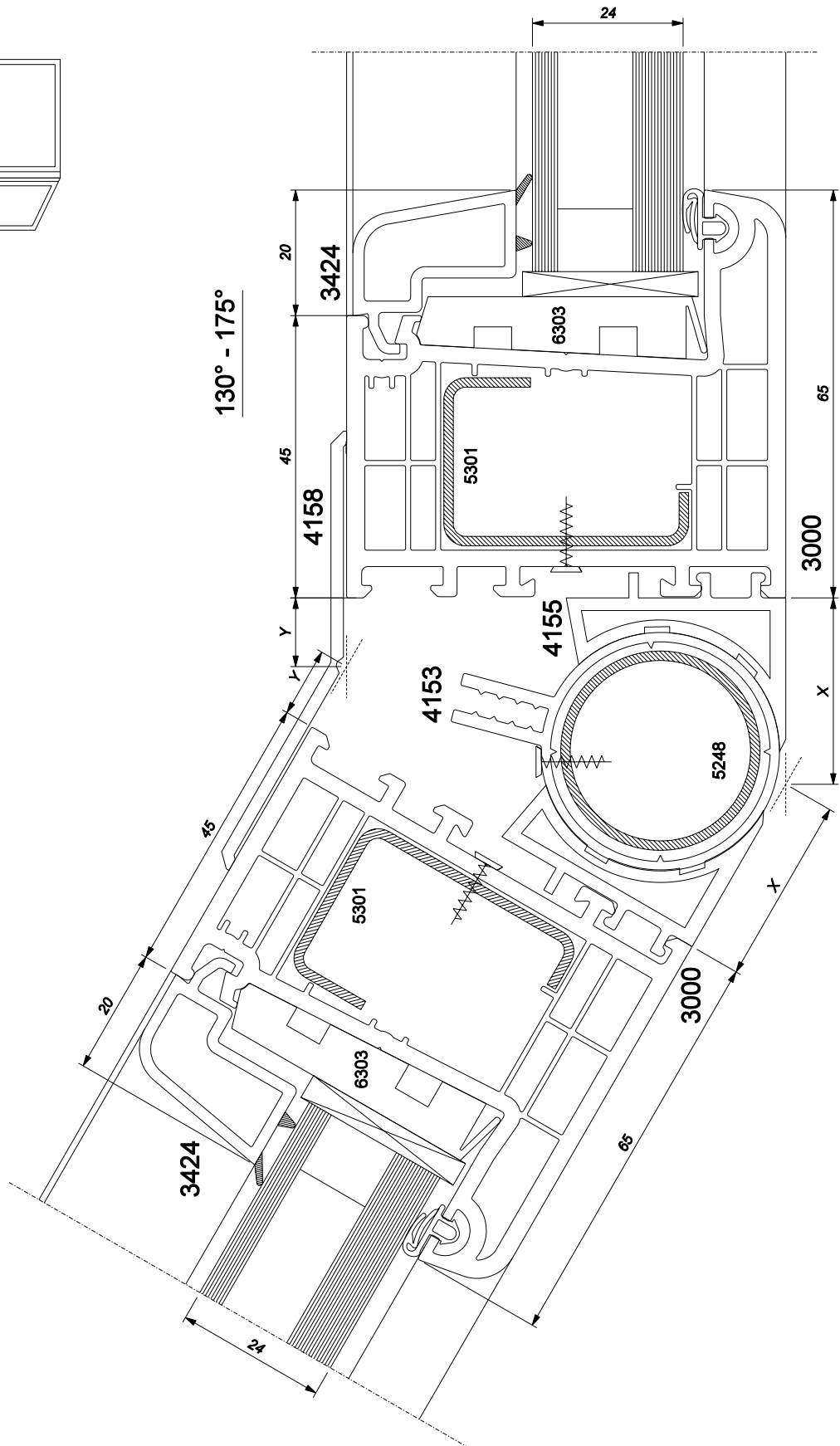
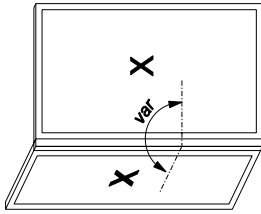






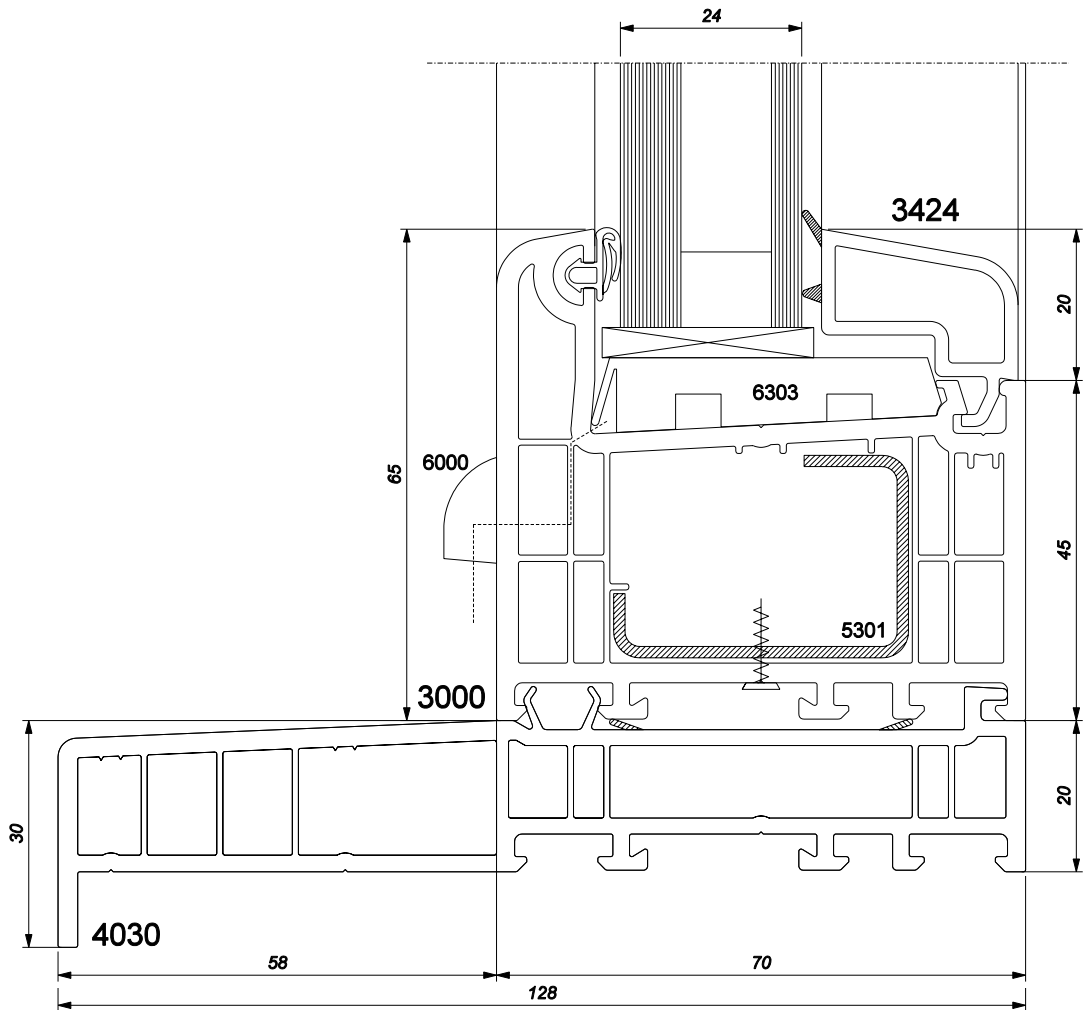
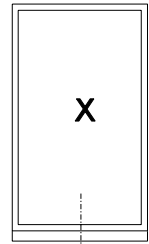






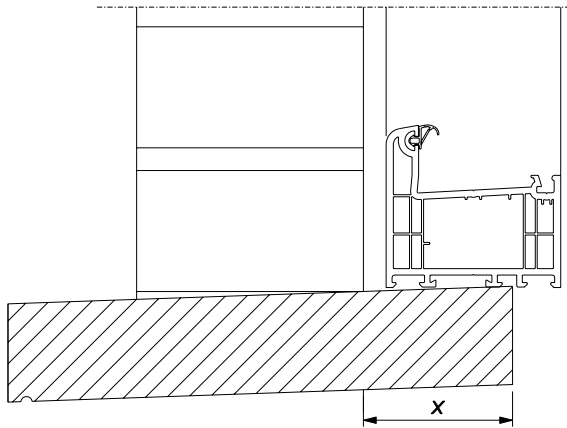


ANGLE	X = DEDUCTIONVALUE (cm)	Y = DEDUCTIONVALUE (cm)
130	3.37	0.11
135	3.27	0.37
140	3.17	0.62
145	3.07	0.86
150	2.97	1.09
155	2.87	1.32
160	2.78	1.54
165	2.68	1.76
170	2.58	1.97
175	2.44	2.14



## 4.3. INSTALLATION DRAWINGS

### 4.3.1. PLACEMENT OF BLUE STONE



#### WINDOWS

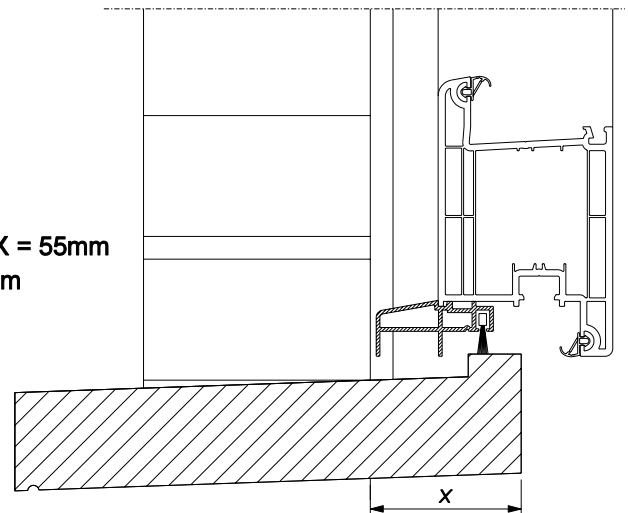
Without roller shutter (drawing) : X = 60mm

With reveal liner 4720 : X = 115mm

#### SINGLE DOOR - OPEN IN

Without roller shutter (drawing) : X = 55mm

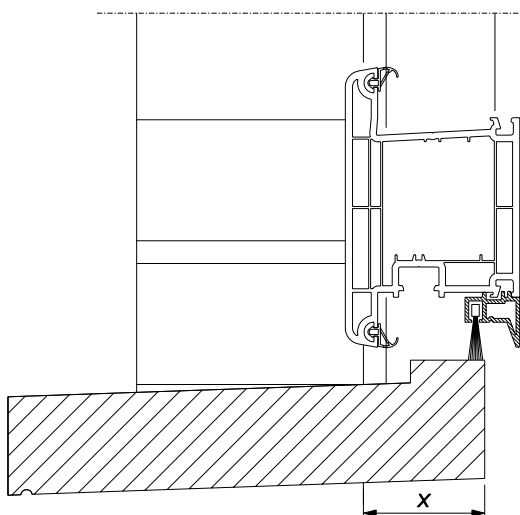
With reveal liner 4720 : X = 115mm



#### SINGLE DOOR - OPEN OUT

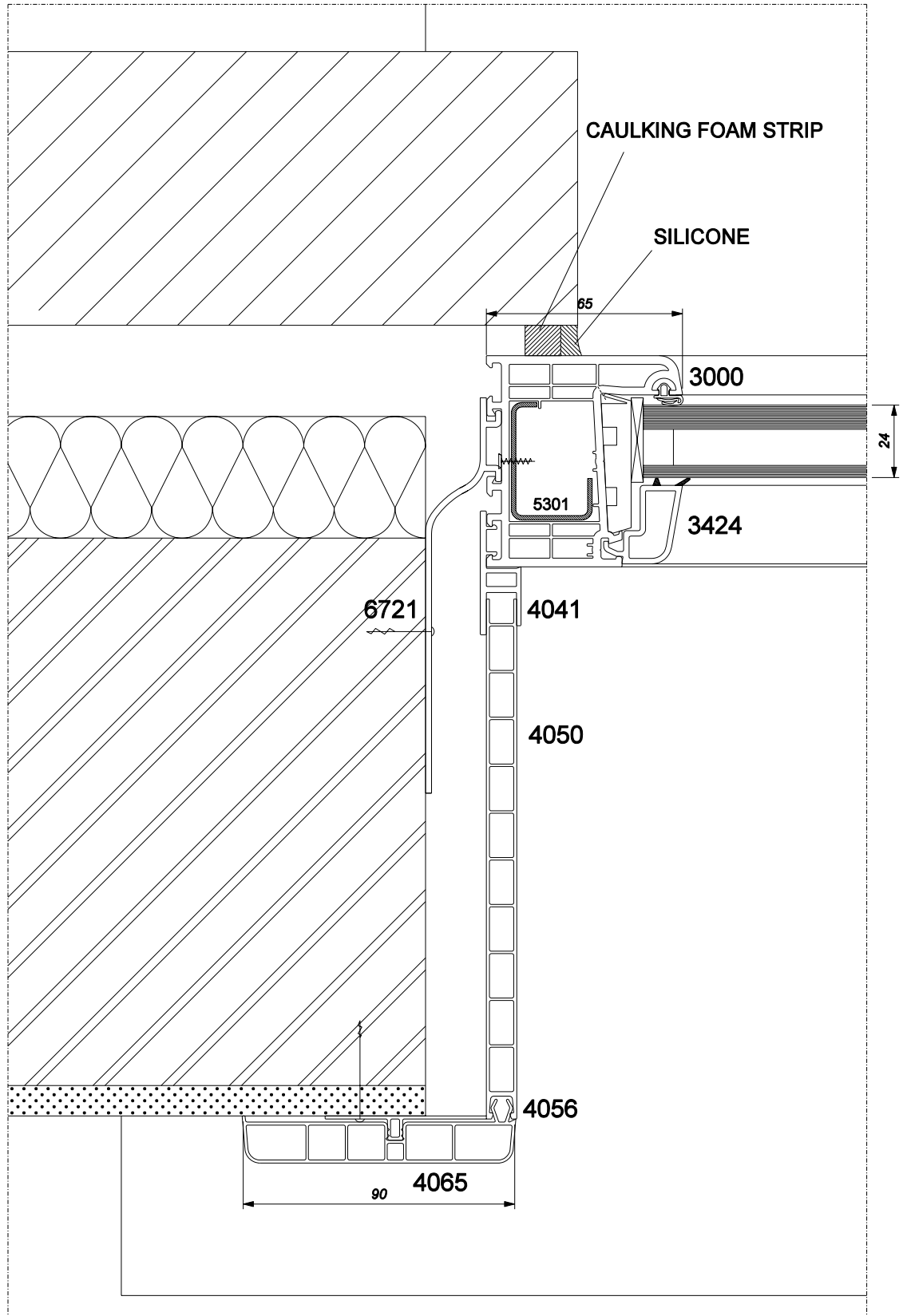
Without roller shutter (drawing) : X = 45mm

With reveal liner 4720 : X = 105mm



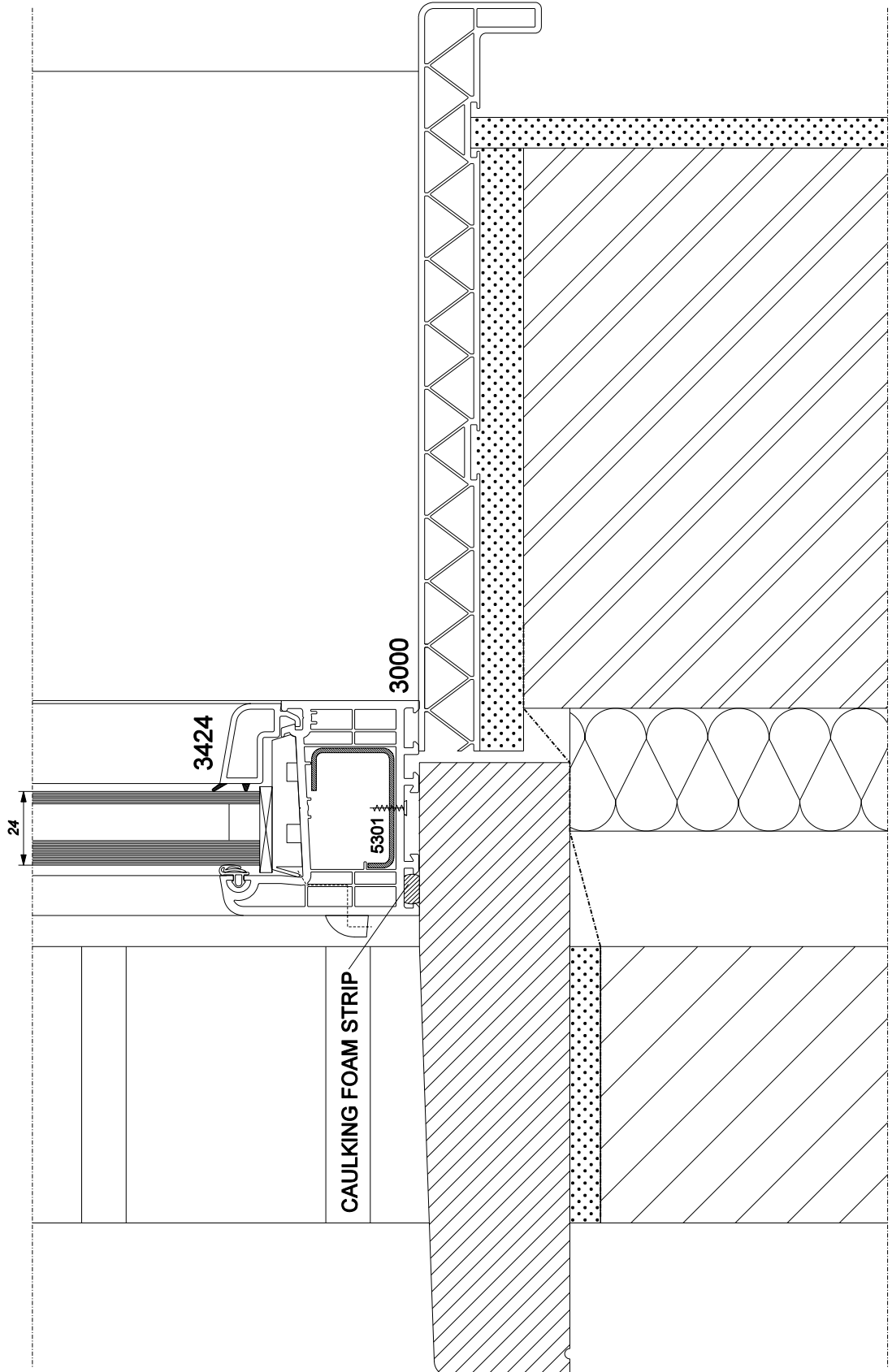
4.3.2. HORIZONTAL WALL SECTION

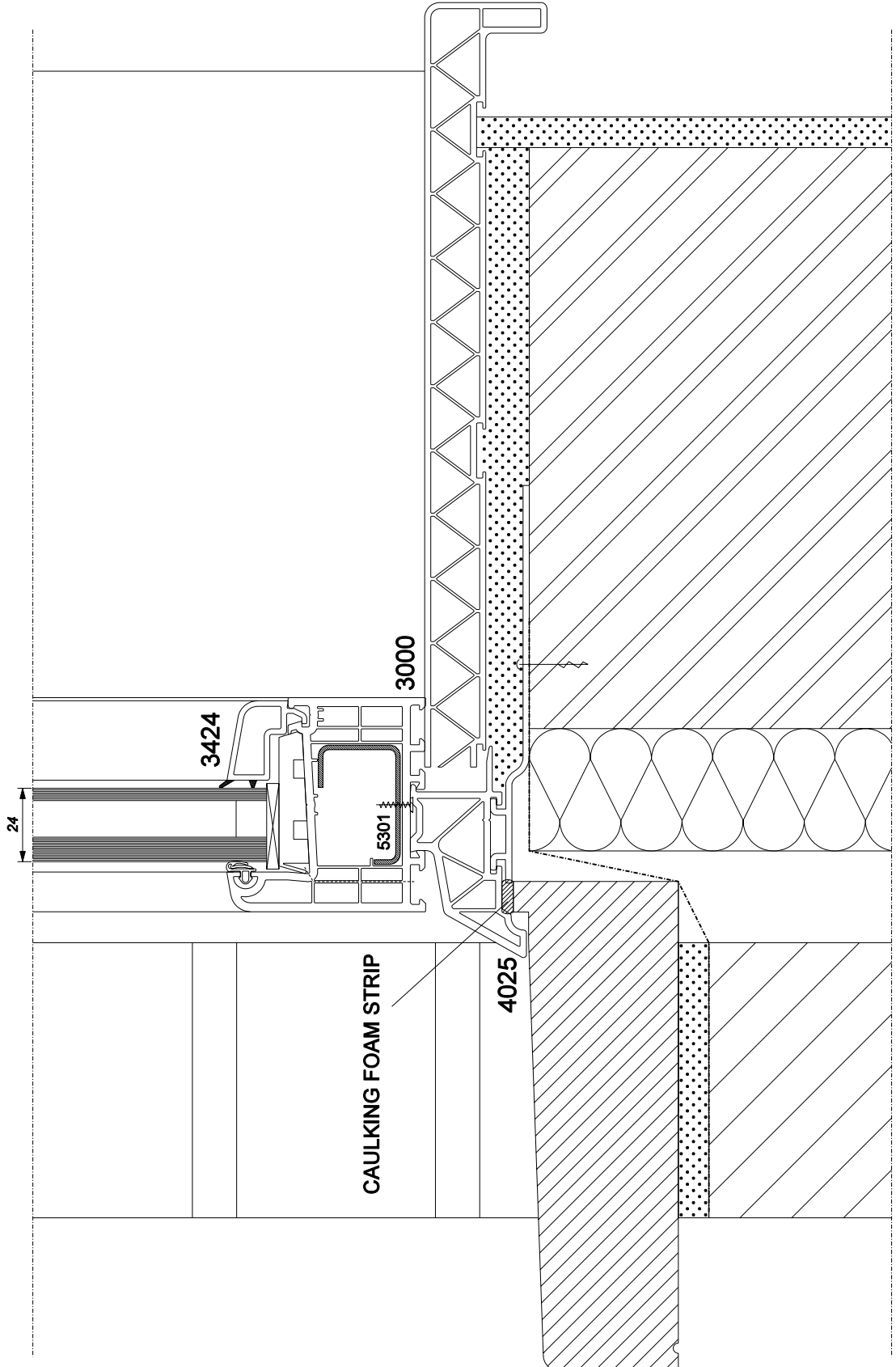
SCALE 1/2

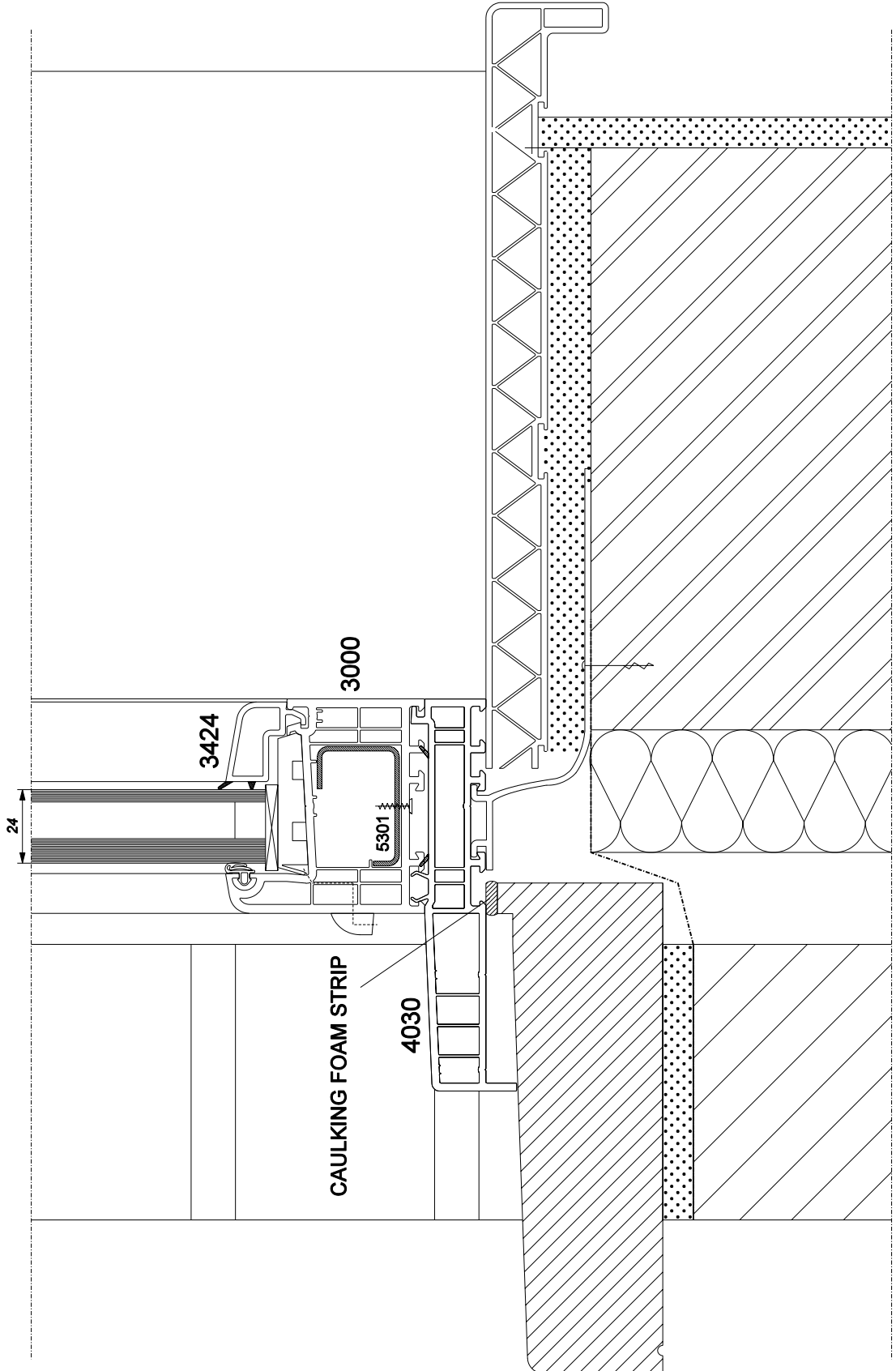


4.3.3. VERTICAL WALL SECTION

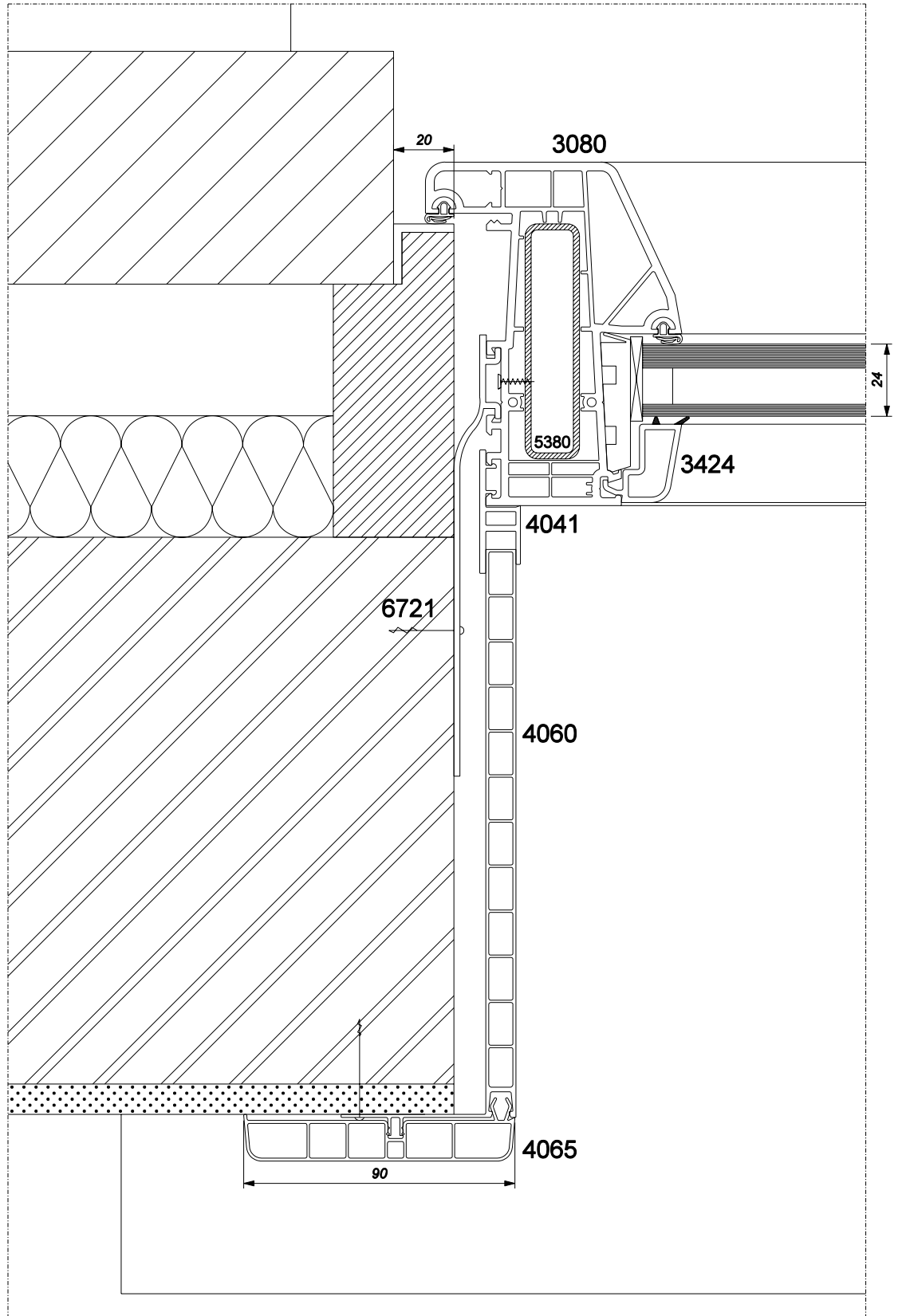
SCALE 1/2







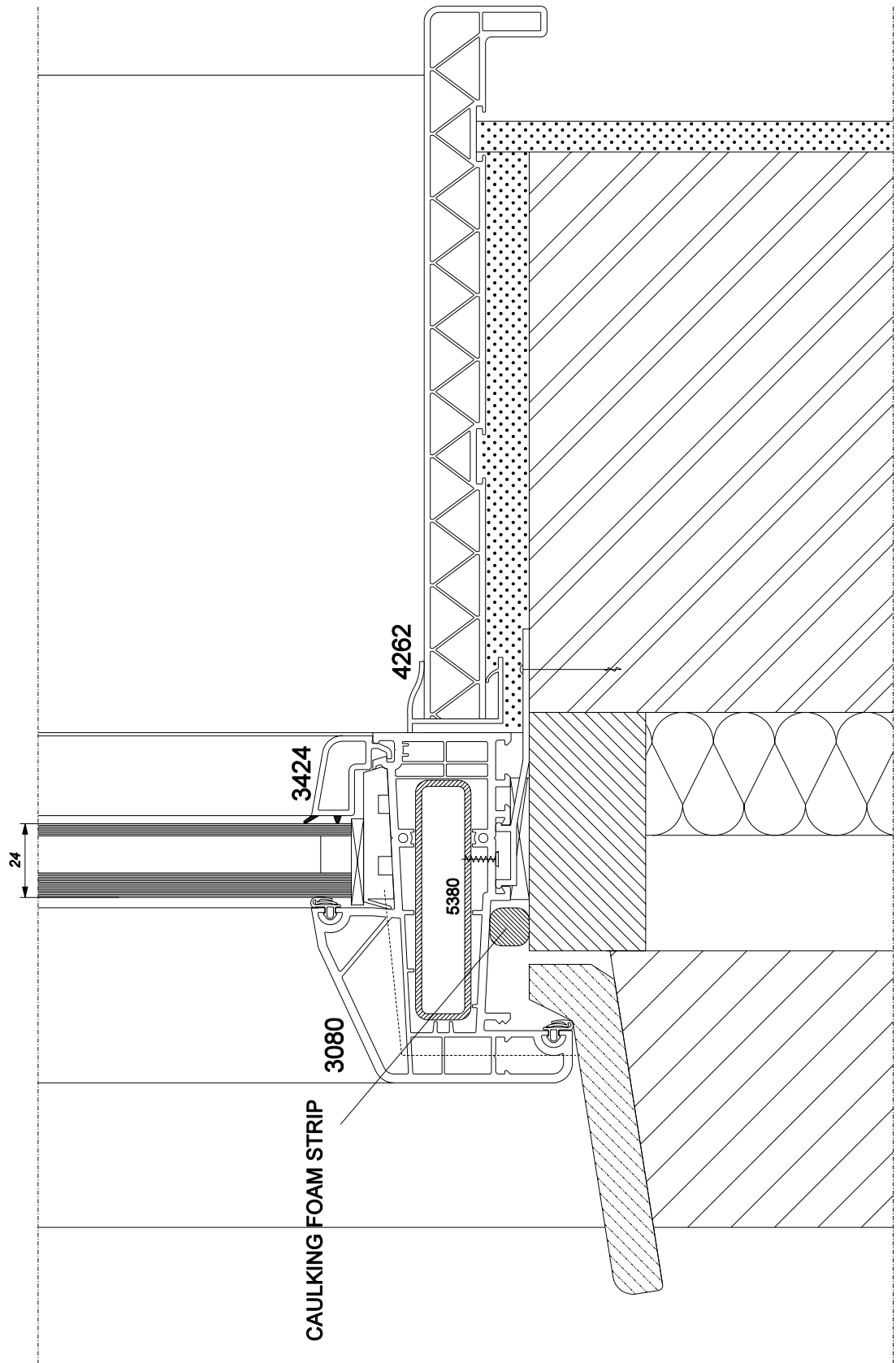
4.3.4. HORIZONTAL WALL SECTION WITH DUTCH MONOBLOC PROFILE SCALE 1/2





4.3.5. VERTICAL WALL SECTION WITH DUTCH MONOBLOC PROFILE

SCALE 1/2



## 5. DIRECTIVES OF FABRICATION

## 5. DIRECTIVES OF FABRICATION

### 5.1. STORAGE OF THE PROFILES

Most profiles are delivered in lengths of 6m. They are delivered in either steel or wooden stillages or cardboard cartons.

Profiles are best stored horizontally, and supported in such a way that the profile may not suffer permanent deformation. For rigid profiles support arms should be spaced at 1m intervals and protected so as not to damage or mark the profile. Smaller more flexible profiles i.e. glazing beads, should be given more regular support, either a continuous shelf or arms as previously described but at 0.5m intervals. The surface on which the profiles are stocked has to be free of materials that can lead to damage. It is recommended to stock the main profiles no higher than 1.0 m and the other profiles no higher than 0.5 m in order to reduce the load on the lowest row of profiles.

In case the profiles are stored outside they should be protected against rain and direct sunlight and sufficiently ventilated so as not to create a greenhouse effect. Profiles should be removed with care from their place of storage preferably without sliding one profile along another which can result in surface damage or scratching.

It is IMPERATIVE to acclimatize the - unpacked - profile for a minimum of 24 hours to a workshop temperature of 15 °C before starting to work with it. Profiles which are too cold can develop internal stresses and tensions. After welding further they will not undergo a good homogenisation at the weld. Either or both of these circumstances can result in poor weld strength and/or ruptured welds.

### 5.2. CUTTING OF THE PROFILES

The sawing machine for the cutting of PVC-profiles should not be used to cut any other type of material such as wood, metal or aluminum, as this can cause contamination of the surfaces to be welded. Neither should the saw blade ever be lubricated. A contaminated cutting surface can result in poor weld strength and/or ruptured welds. The fabricators must ensure that the saw is operating according to the manufacturers recommendations, and that the blade dimension, number & set of the teeth, and the speed are suitable for the cutting of PVC. The cut profiles should be welded within 24 hours of being cut. It has to be possible to install the sawing machine at exact specified angles, normally being 45° or 90°, thus enabling correct and constant saw cuts. Saw cuts should also be square and perpendicular to the external faces. The max. allowed inaccuracy is '15 in the horizontal and vertical plane. The lengths of profiles cut must also incorporate the amount of 'burn off' required for the welder, either 2.5 mm or 3 mm per weld. In order to calculate the correct lengths of profile required for each window or door etc., then we recommend the use of a suitable computer program.

#### 5.2.1. Generalities (fig. 1 and 2)

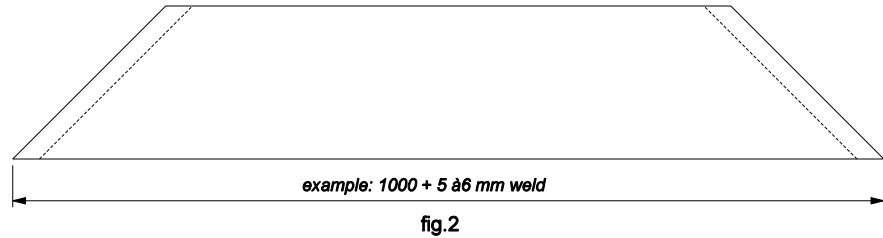
The total length of the cut profile is increased by 5 to 6 mm (according to the type of the used welding machine.)

1st cut at 45°

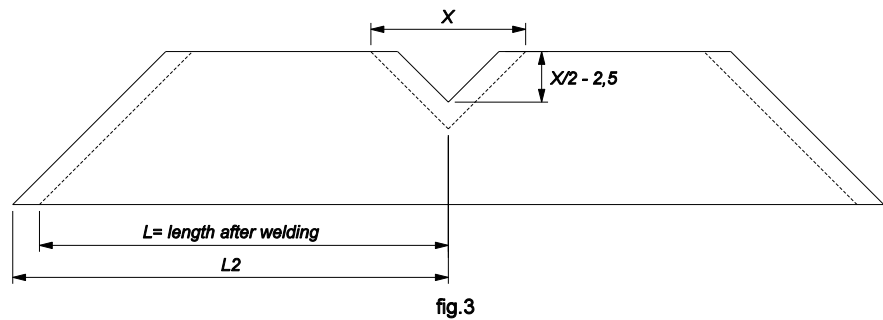


fig.1

Second cut

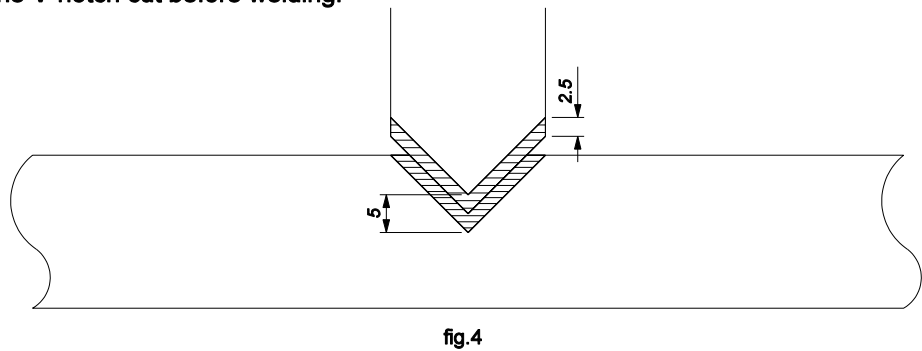


5.2.2. V-NOTCH CUTS IN OUTER FRAMES (fig. 3 en 4)



Example: Position of the T-profile to the corner : L=500  
 Position of the V-notch cut:  $L2 = L + 2,5 = 500 + 2,5 = 502,5$  to the cutted profile end.

Result of the V-notch cut before welding:

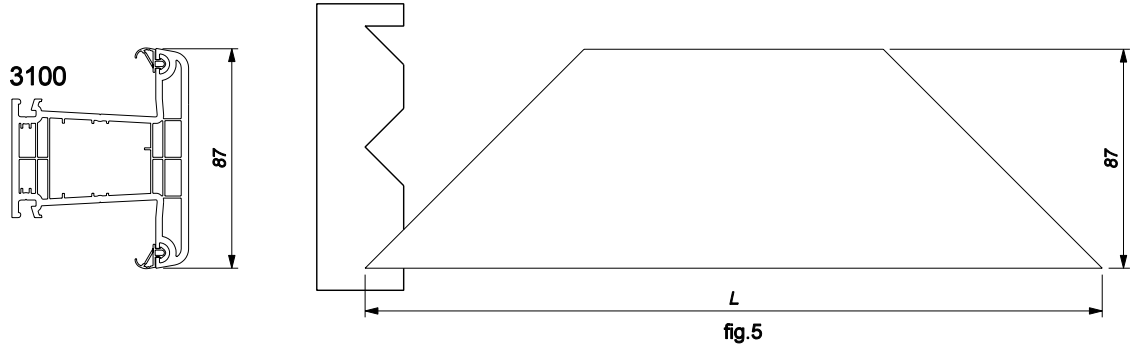


The depth of the V-notch cut is determined by the size of the T-profile. It is calculated as 1/2 of the overall width of the T-profile - 2.5 mm (according to the type of the used welding machine). It is recommended to chamfer the point of the T-profile before welding.

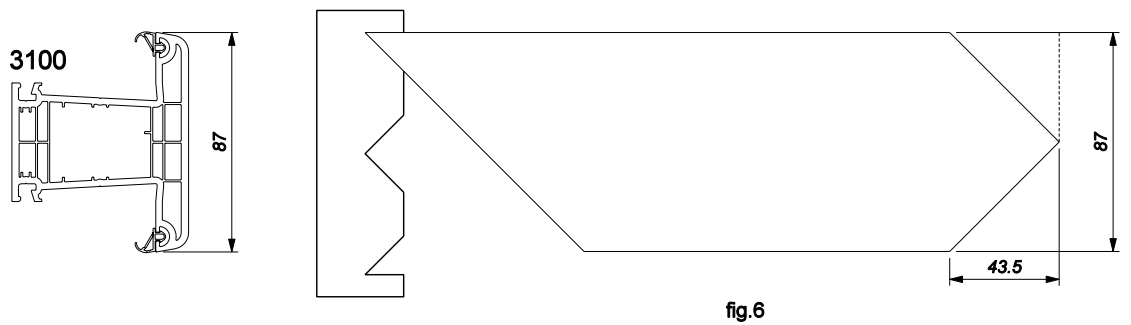
5.2.3. TRANSOM/MULLION CUTS

5.2.3.1. T-profile 3100 (fig.5 till fig.7)

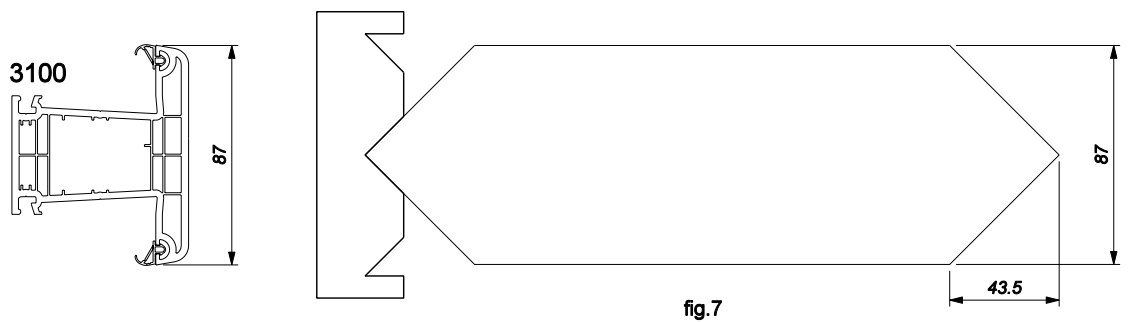
1° cutting of the profile length



2° rotate the profile 180° on the saw table

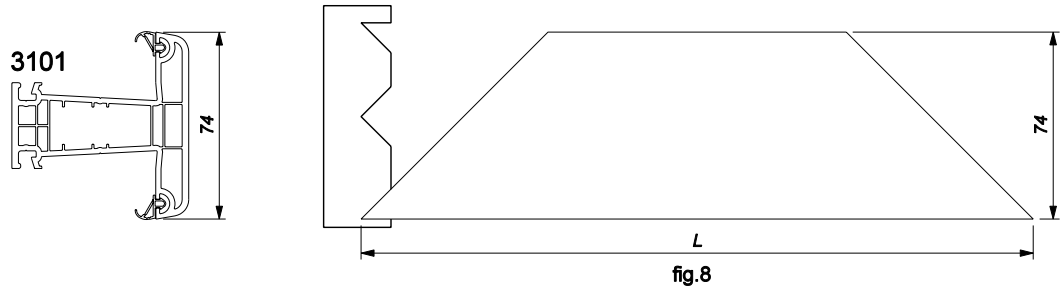


3° for the last cut, turn the profile as shown below and move the profile over a length = 1/2 of the overall width of the T-profile (for T-profile 2510 is this 37mm)

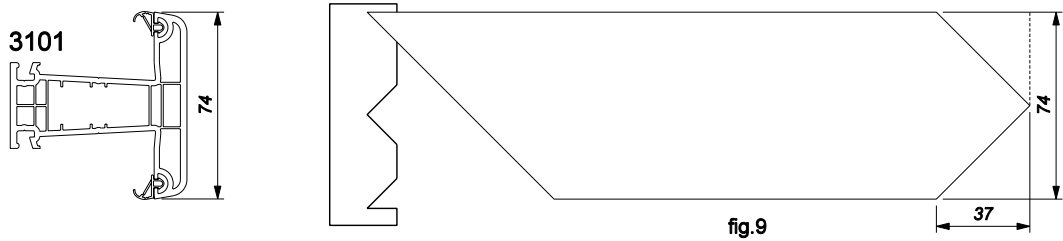


5.2.3.2. T-profile 3101 (fig.8 till fig.10)

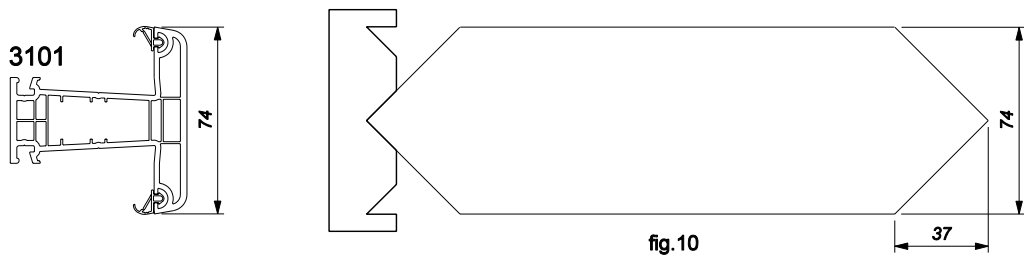
1° cutting of the profile length



2° rotate the profile 180° on the saw table

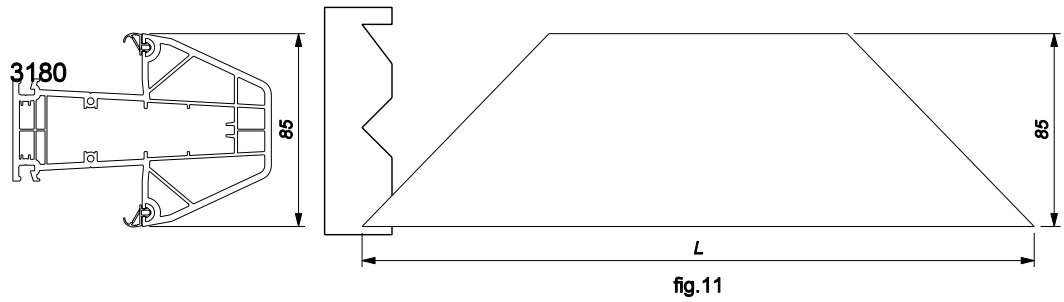


3° for the last cut, turn the profile as shown below and move the profile over a length = 1/2 of the overall width of the T-profile (for T-profile 2511 is this 41mm)

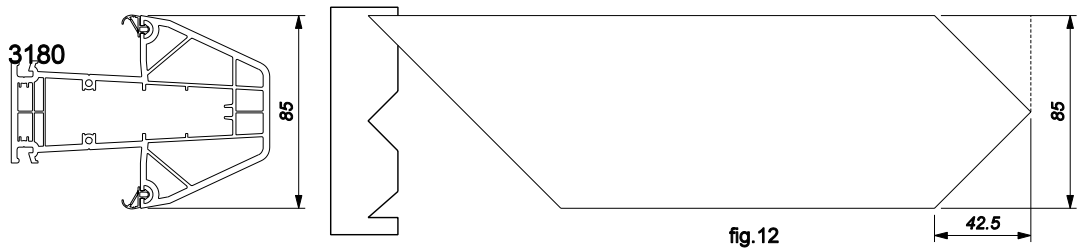


5.2.3.3. T-profile 3180 (fig.11 till fig.13)

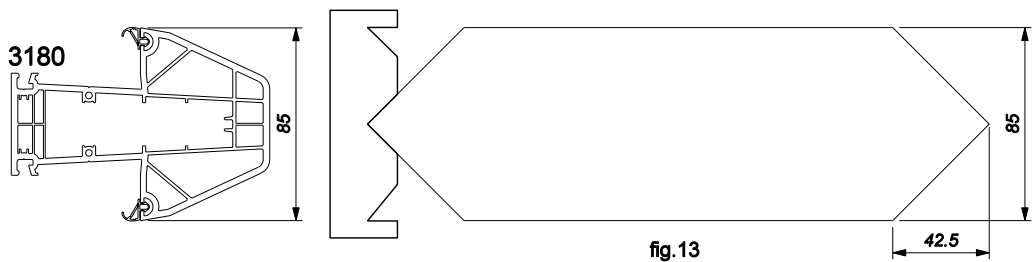
1° cutting of the profile length



2° rotate the profile 180° on the saw table



3° for the last cut, turn the profile as shown below and move the profile over a length = 1/2 of the overall width of the T-profile (for T-profile 2511 is this 41mm)



#### 5.2.4. CALCULATION OF THE LENGTHS (FIG. 10)

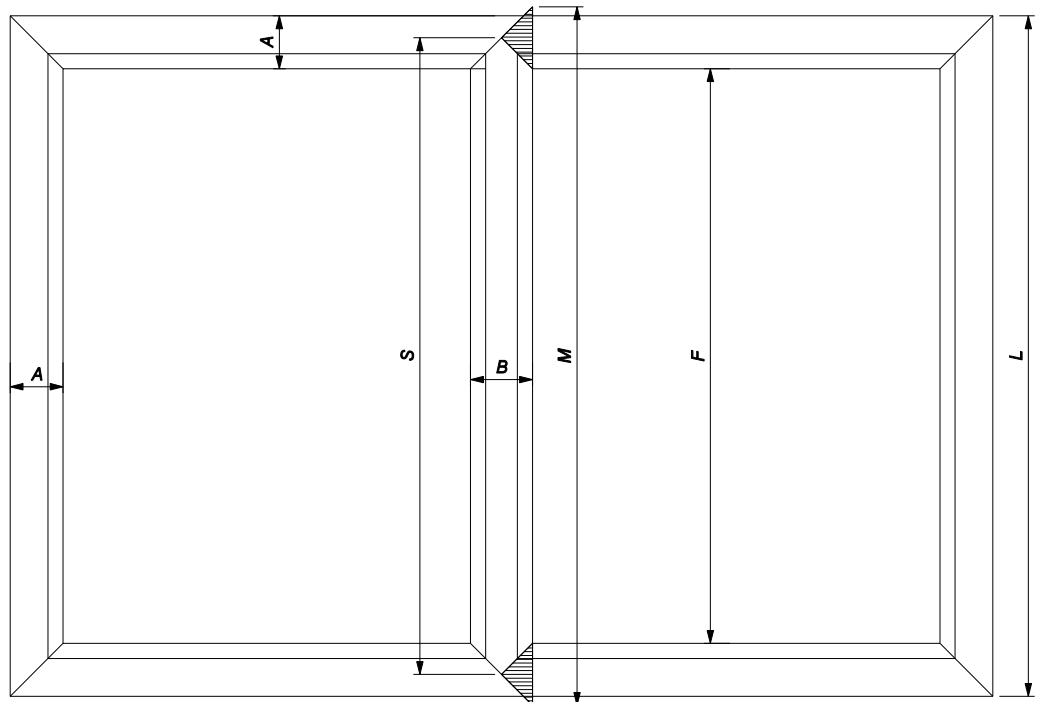


fig.11

Where:  $F = L - 2A$

Cutting length of transom/mullion:

$$M = F + 2B$$

therefore  $M = (L - 2A) + 2B$

Example: 3000 and 3100

If  $L = 1500$  mm and where 3000 ( $A = 65$  mm) and for 3100 ( $B = 87$  mm)

then  $M = 1500 - (65 \times 2) + (87 \times 2)$

$M = 1544$  mm (+ 5 mm for the weld depending the used welding machine)

in this case  $M = L + 18$  mm

this method of calculation is also applicable for all other profiles.



### 5.2.5. HOW TO CALCULATE THE CENTRES OF THE TRANSOM/MULLION (FIG. 12)

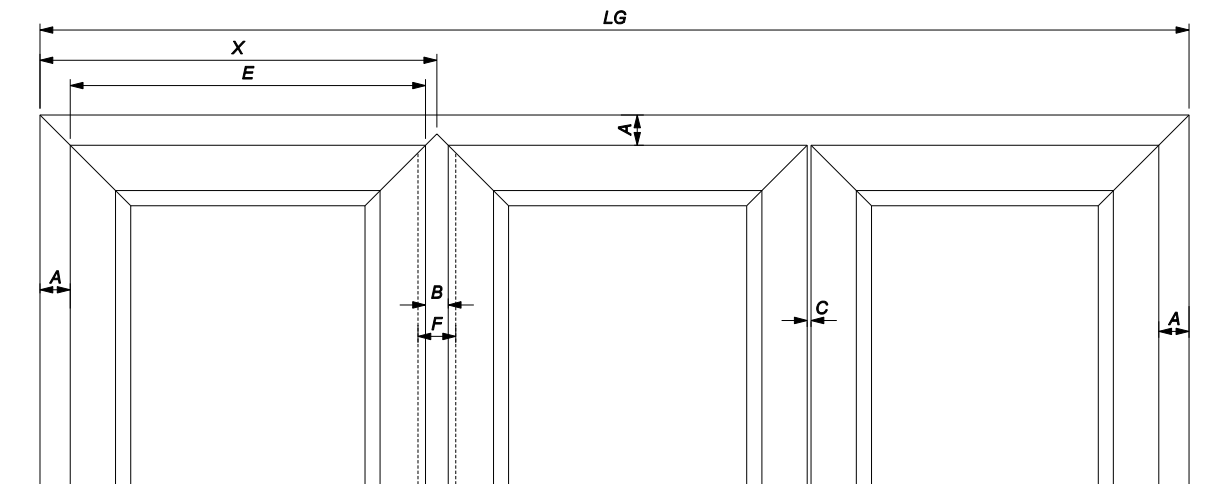


fig.12

Example: 3 sashes (3000, 3100)

X = centre of mullion

LG = overall width of the window

E = width of the sash

For the mullion 3100:

F = small face = 47 mm

B = 31 mm (because B = small face - 2 overlaps of 8 mm)

For the outer frame 3000:

A = 37 mm

C = 5 (clearance between the 2 vents)

1° calculate the width of the sash E:

with LG = 1800 mm then  $E = [LG - (2A + B + C)] : 3$

$$E = [1800 - (2 \times 37 + 31 + 5)] : 3$$

$$E = 563,3 \text{ mm}$$

2° calculate the centres of the mullions:

$$X = A + E + (B : 2)$$

$$X = 37 + 563,3 + (31:2)$$

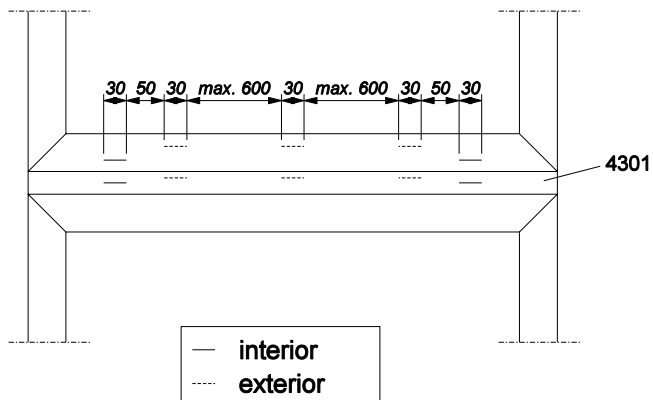
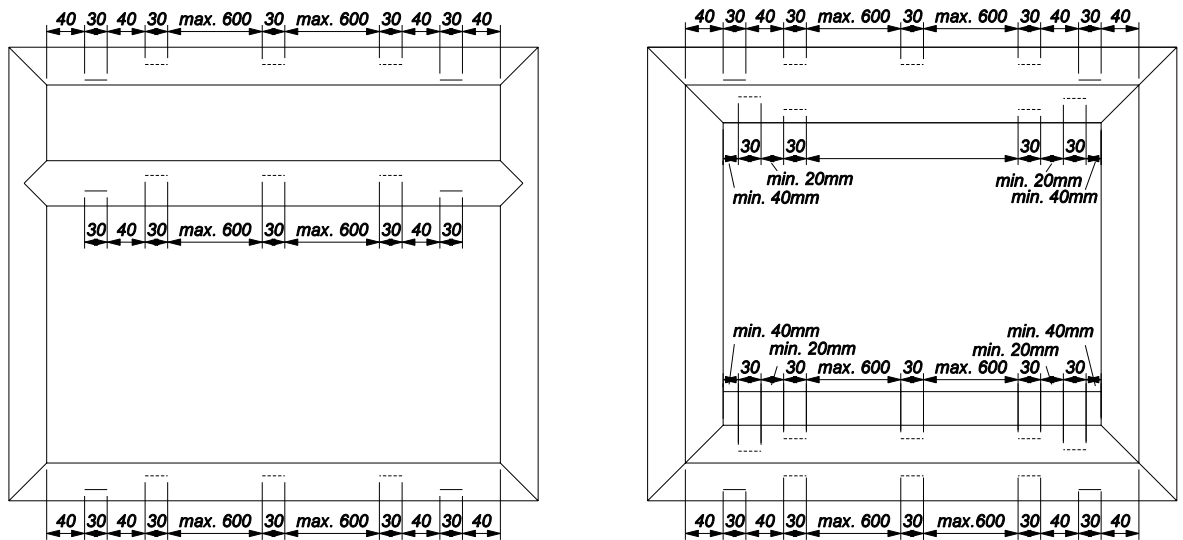
$$X = 615,8 \text{ mm}$$

### 5.3. DRAINAGE AND DECOMPRESSION

Condensation and water infiltration has to be evacuated. This evacuation happens via the drainage chamber of the profile and in no case via the reinforcement chamber. All horizontal main profiles must be drained and ventilated (decompressed) by means of slots measuring 5 x 30 mm or 6 mm diameter holes. The position of the slots/holes in the glazing rebate regarding the external ones should be off-set by a minimum of 50 mm, if not then the airflow may prevent drainage and there is also the possibility of a whistling sound occurring.

For the purpose of drainage, a minimum of 2 slots or holes per profile are required per window element. The maximum axe-distance between 2 slots or holes on the side of the glazing rebate is 600mm and 1300mm on the external face of the profile. Any externally visible drainage slots must be protected from wind pressure by suitable drainage caps, in the matching color of the profile. In case the external drainage slot/hole is on the bottom side of the profile a special developed sill with lowered 'nose', which makes the drainage possible, has to be screwed or clipped on the frame profile.

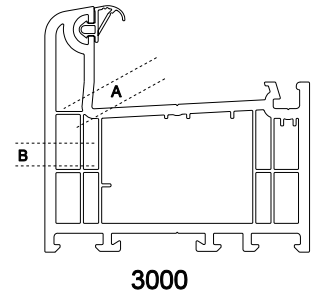
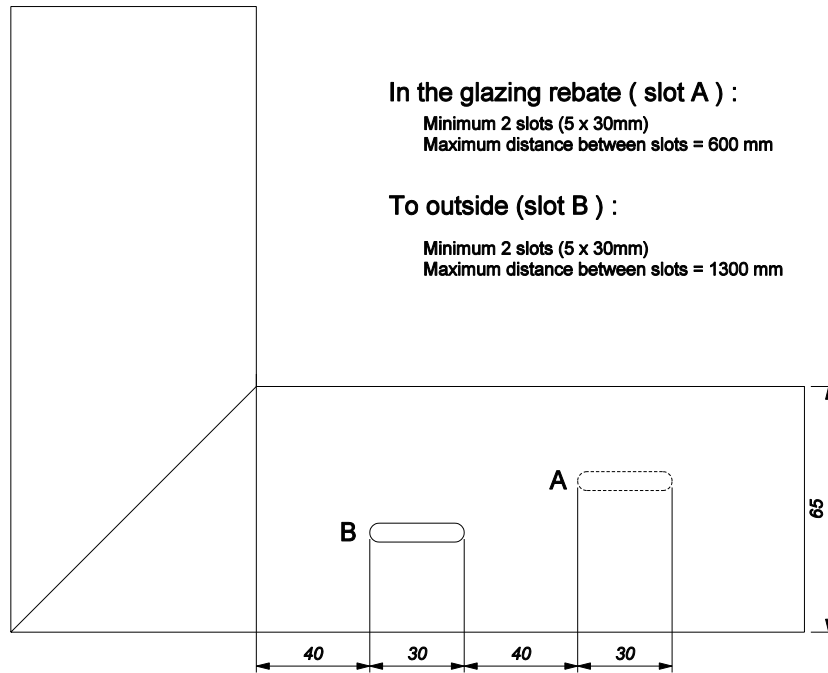
For the purpose of decompressing a minimum of 2 decompression slot (5 x 30 mm) or two 6 mm diameter holes are required per window element. An alternative solution for the decompression is the removal of the external gasket (of the frame profile) over a length of 30 mm in the middle of the window element. The maximum axe-distance between 2 slots or holes is 1300 mm.



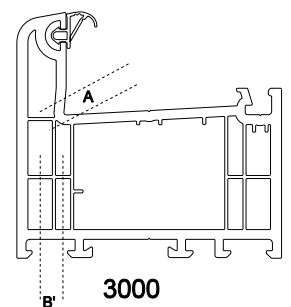
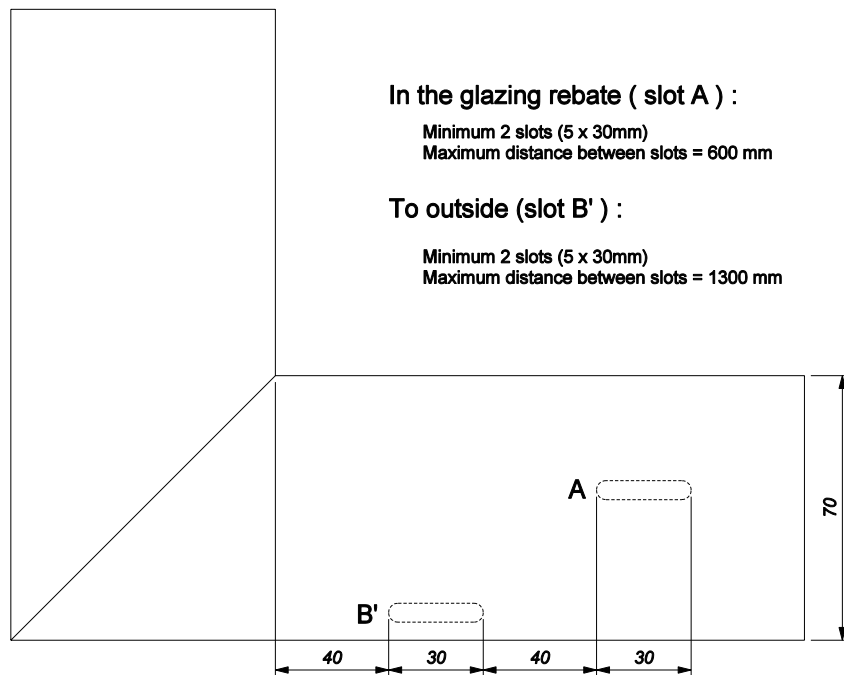
5.3.1. DRAINAGE

5.3.1.1. Outer frame 3000, 3001

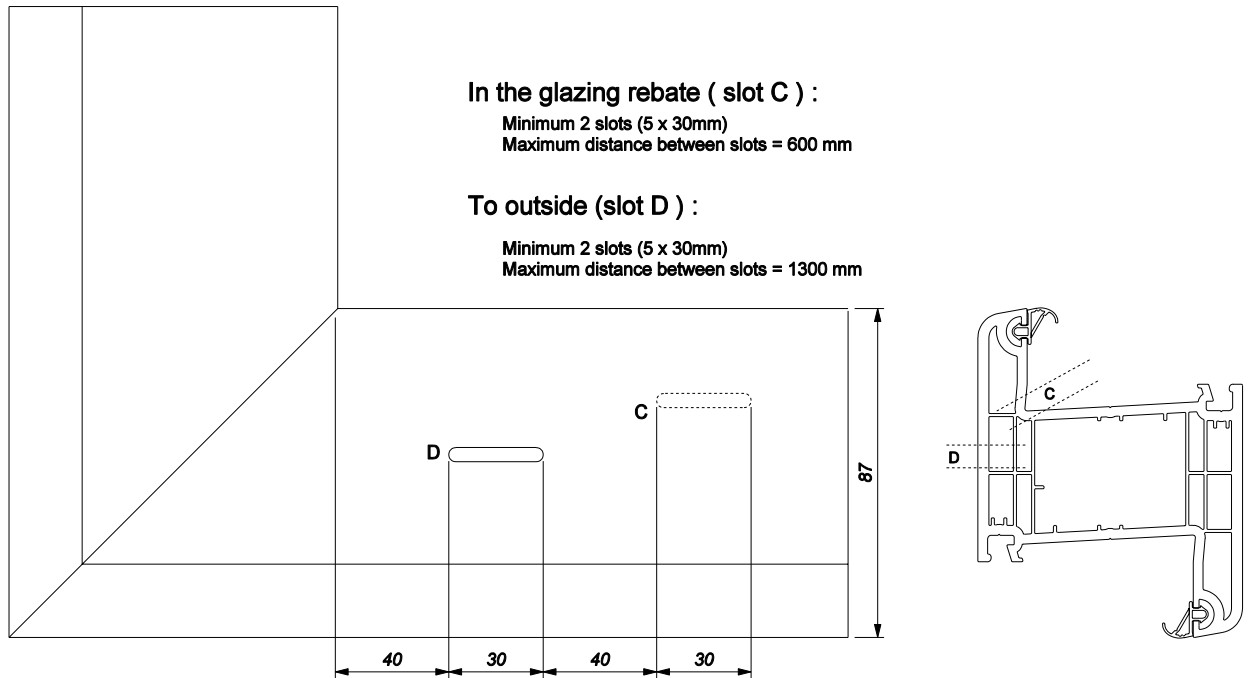
TYPE 1: Drainage to the front



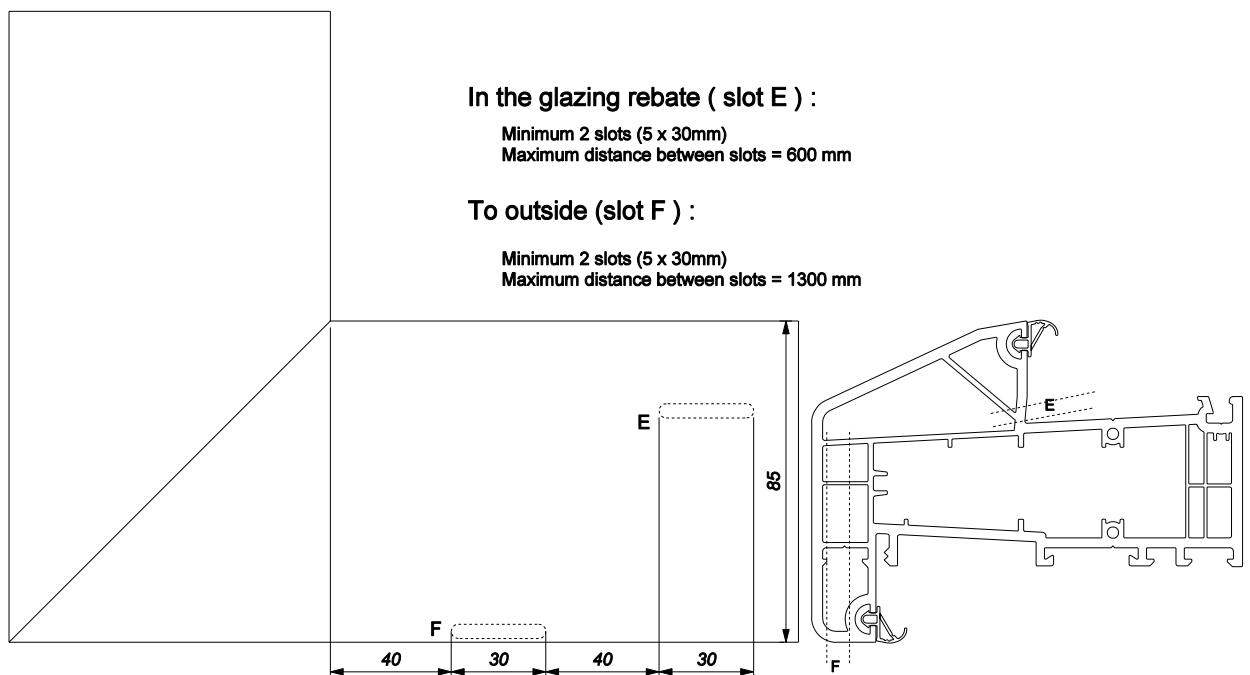
TYPE 2: Drainage downwards



5.3.1.2. Outer frame 3002

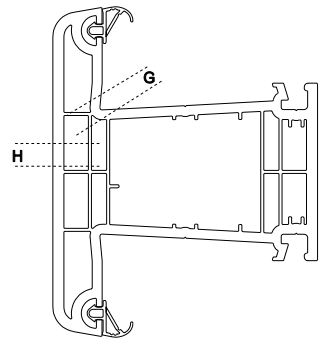
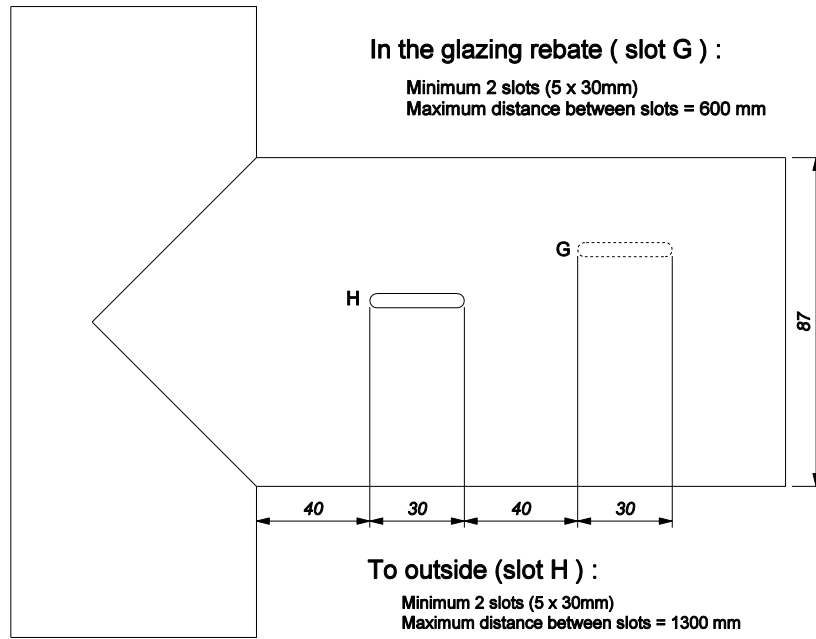


5.3.1.3. Outer frame 3080

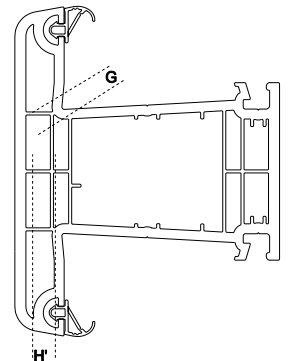
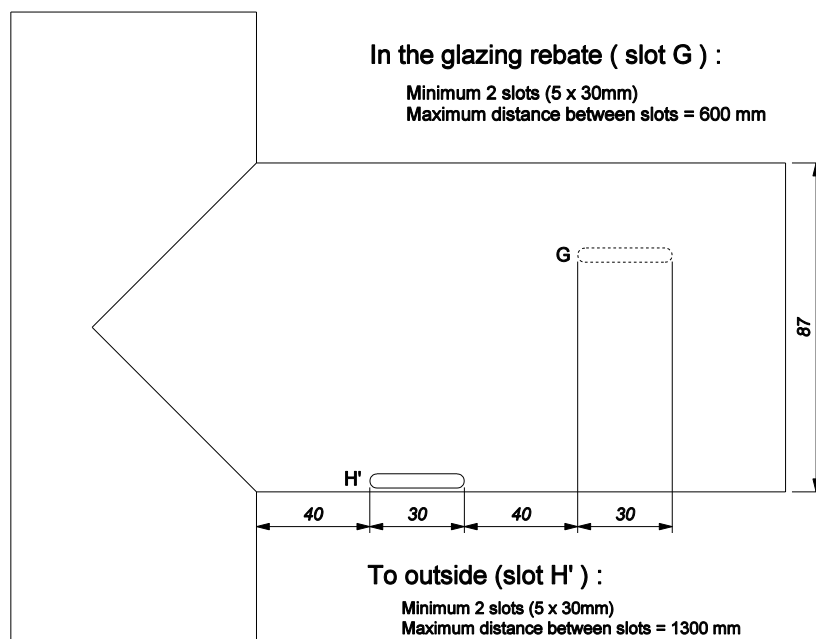


5.3.1.4. T-profile 3100

TYPE 1: Drainage to the front

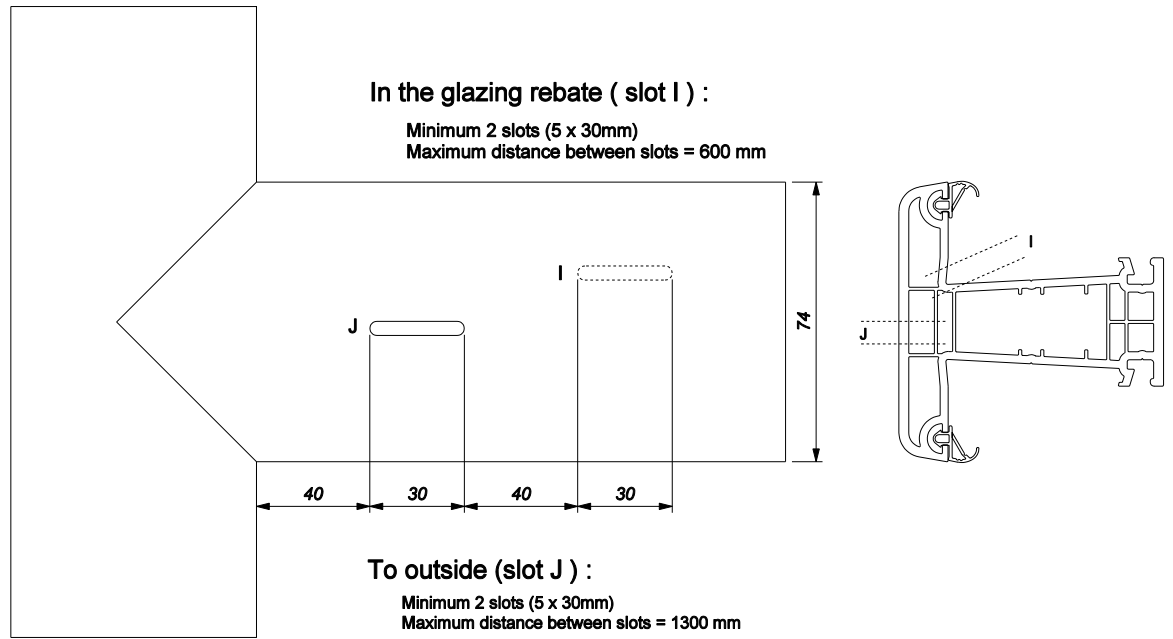


TYPE 2: Drainage downwards

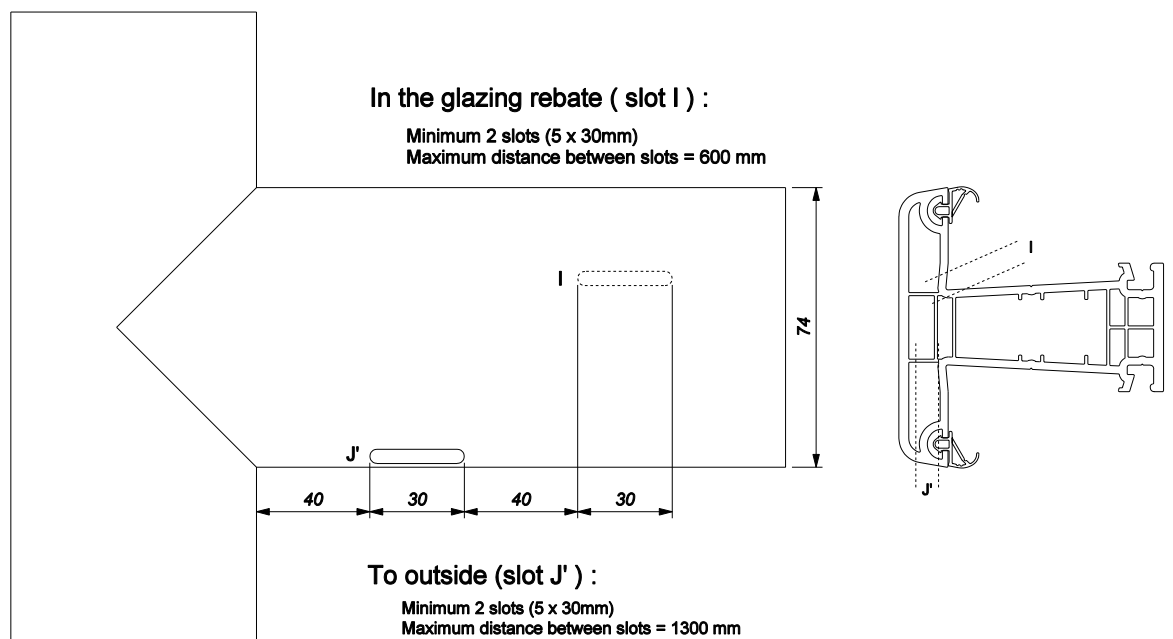


5.3.1.5. T-profile 3101

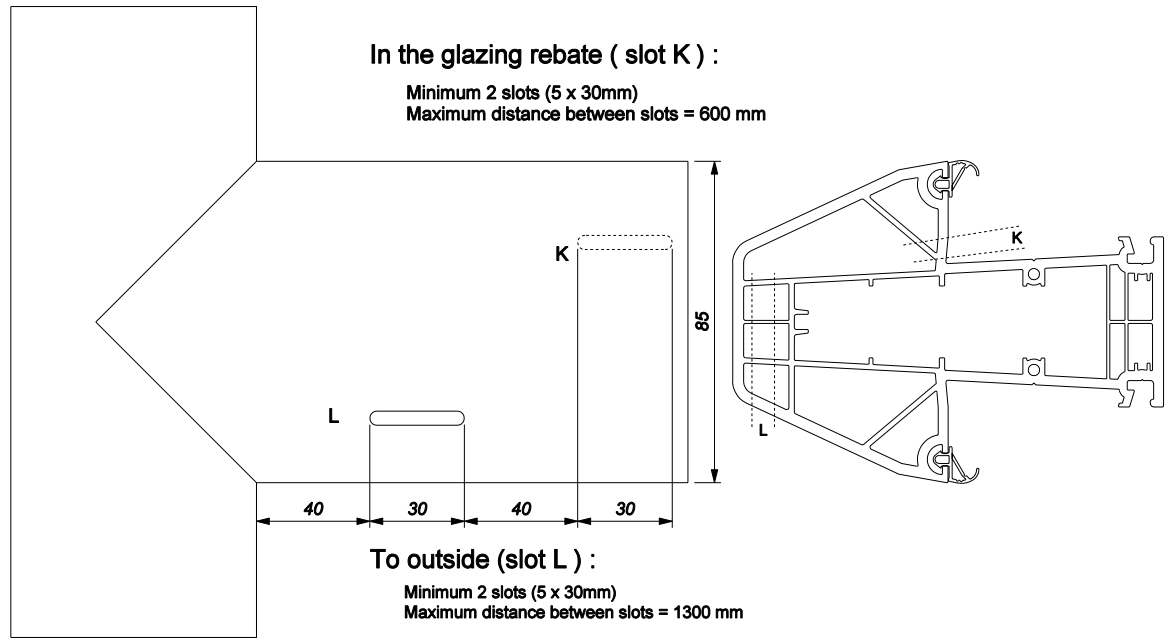
TYPE 1: Drainage to the front



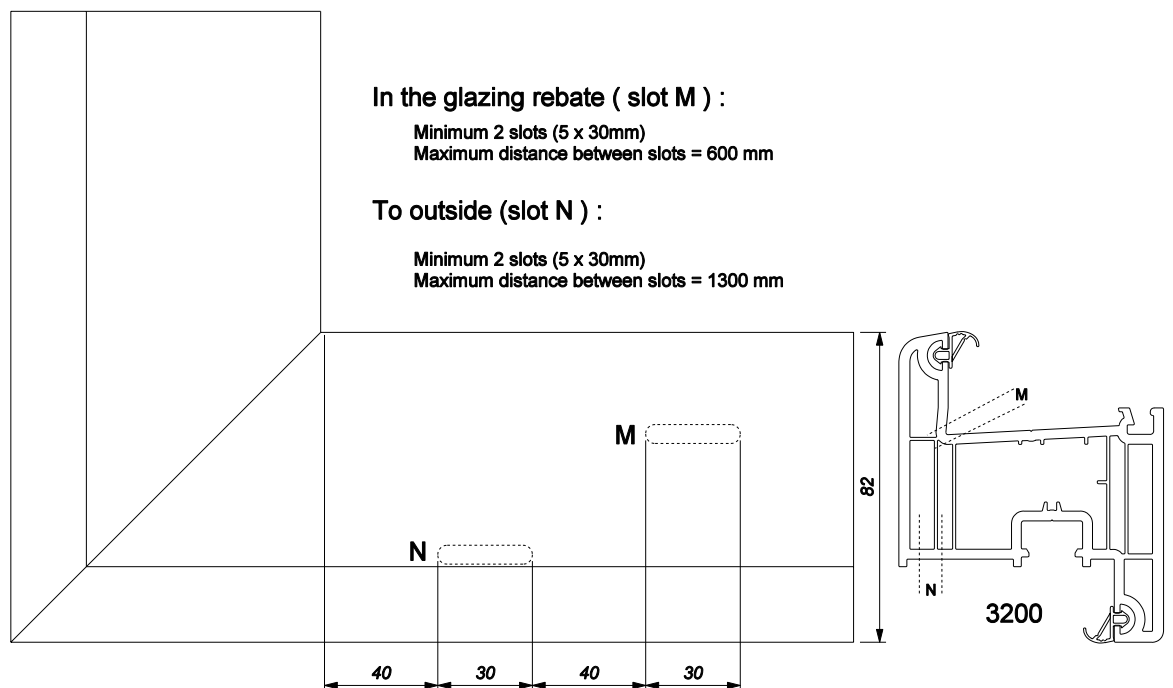
TYPE 2: Drainage downwards



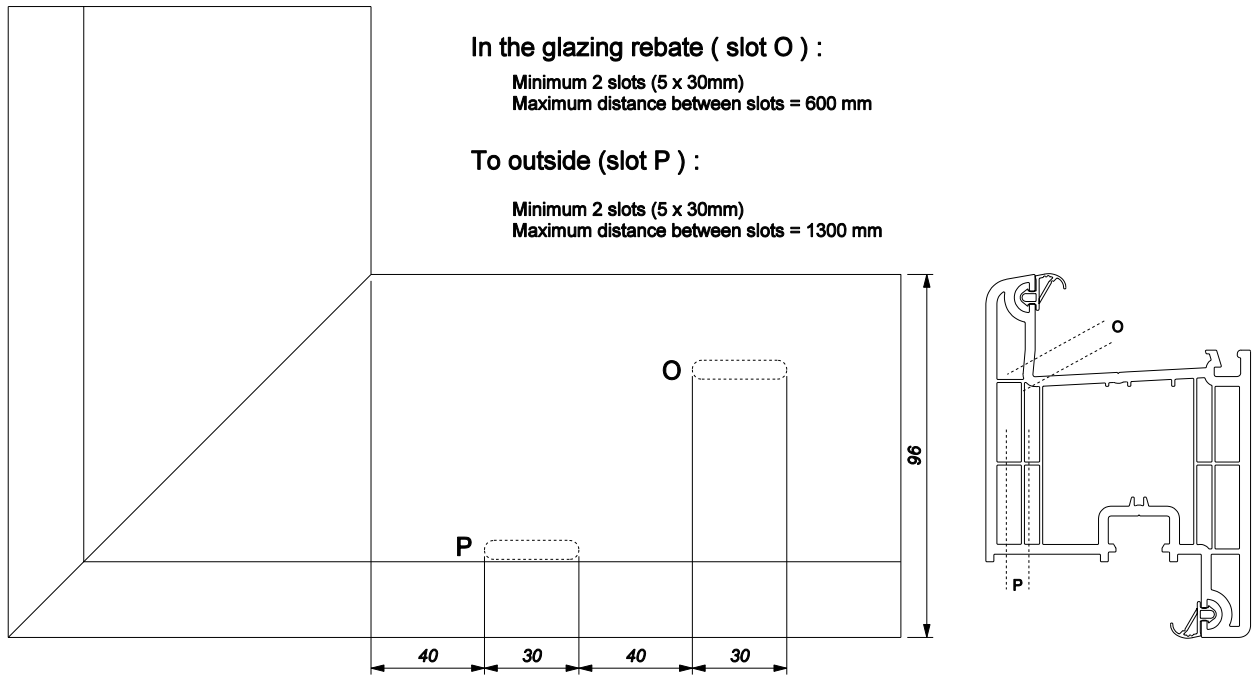
5.3.1.6. T-profile 3180



5.3.1.7. Sash profile 3200, 3201

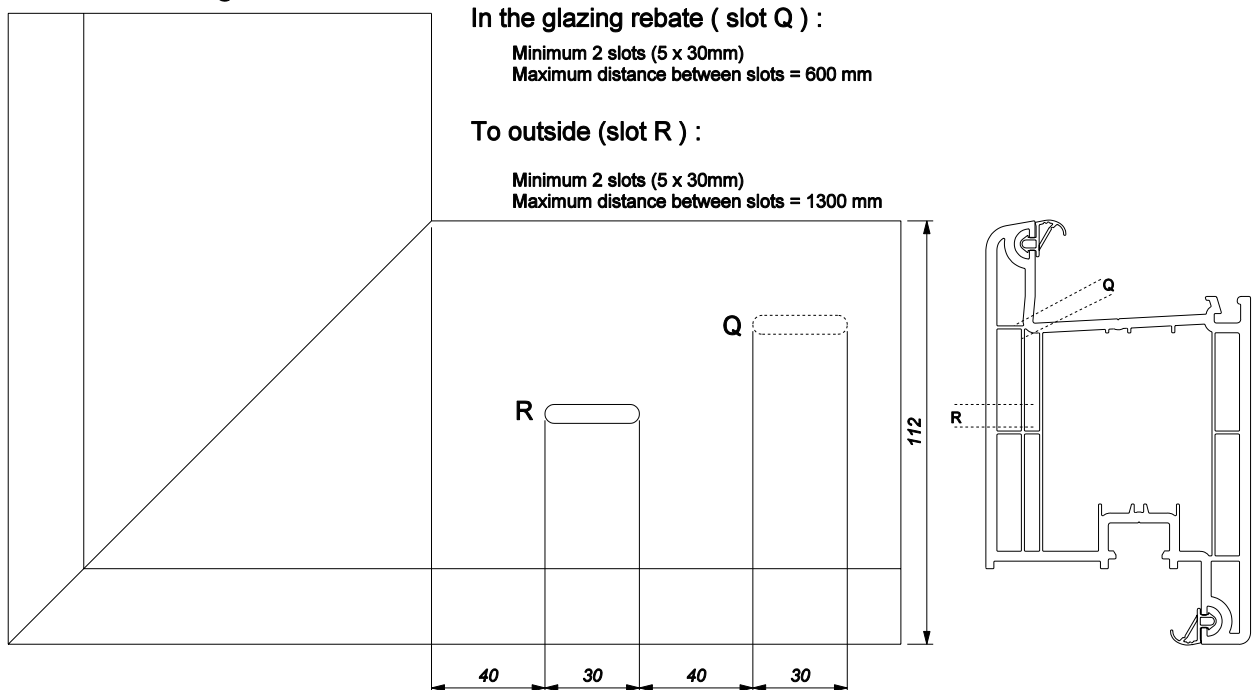


5.3.1.8. Sash profile 3202



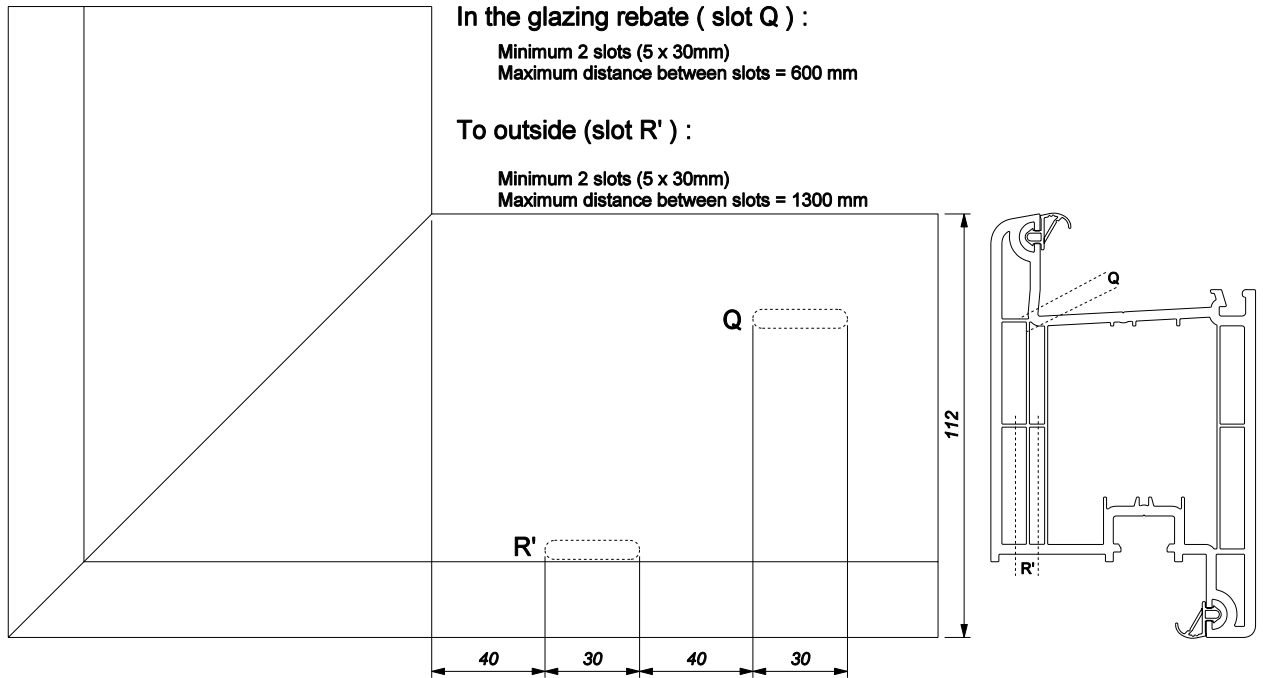
5.3.1.9. Sash profile 3203

TYPE 1: Drainage to the front



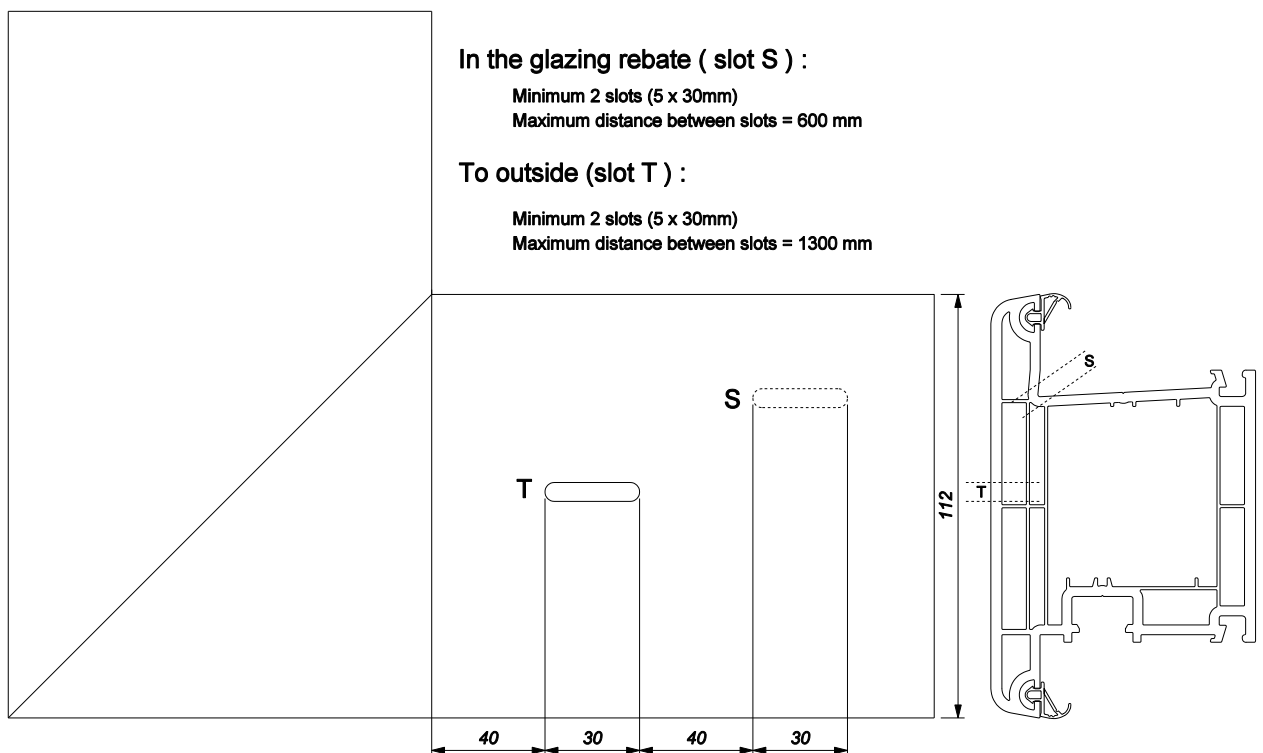


**TYPE 2: Drainage downwards**

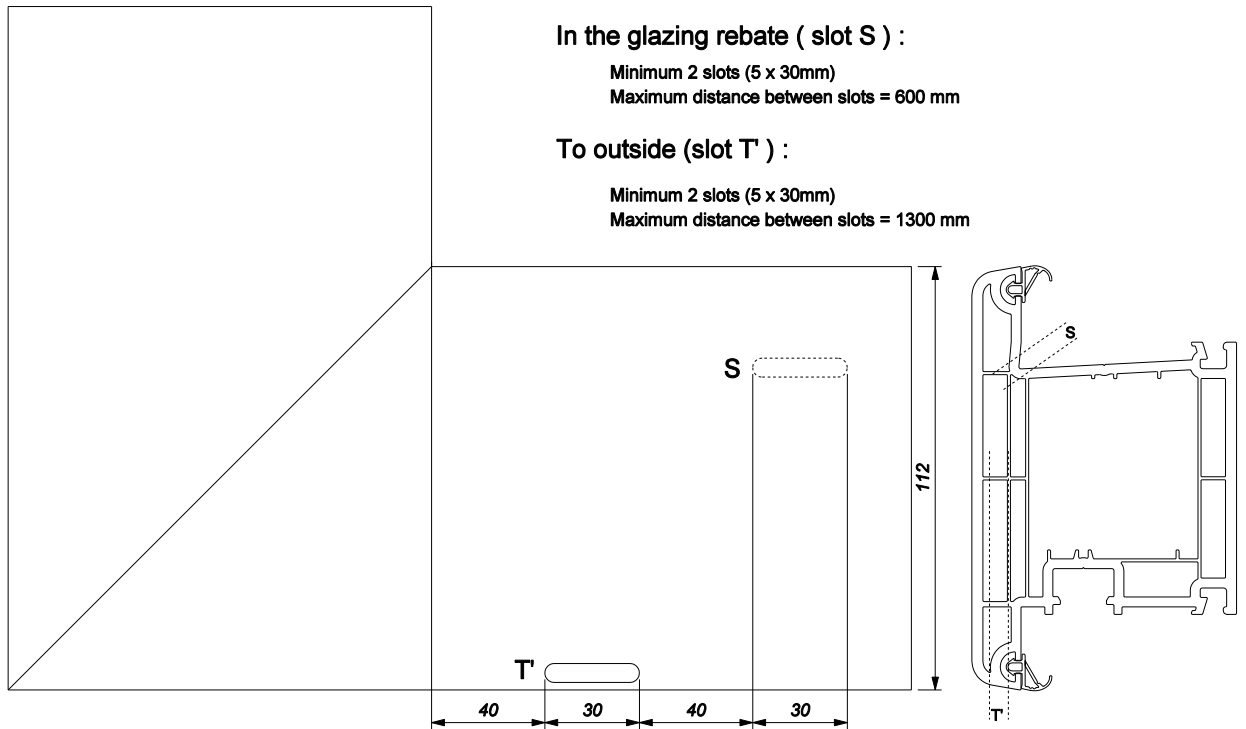


**5.3.1.10. Sash profile 3204 (only in case of the lowest profile of the sash)**

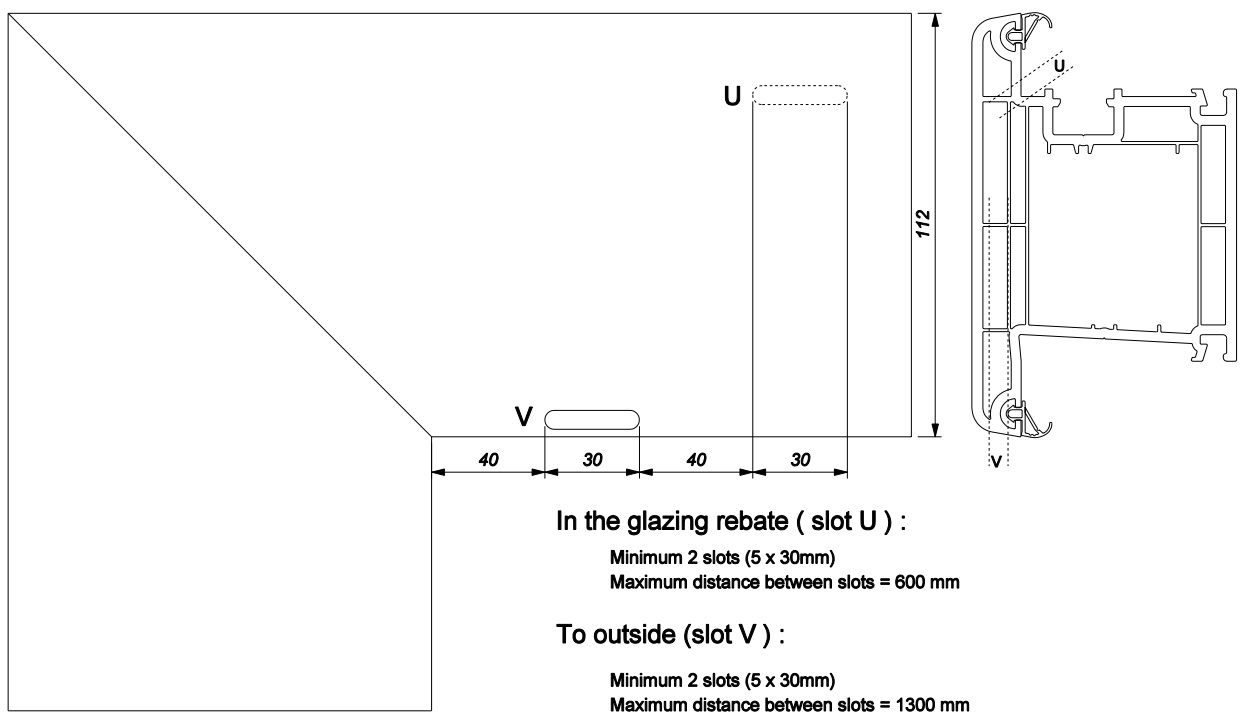
**TYPE 1: Drainage to the front**



**TYPE 2: Drainage downwards**

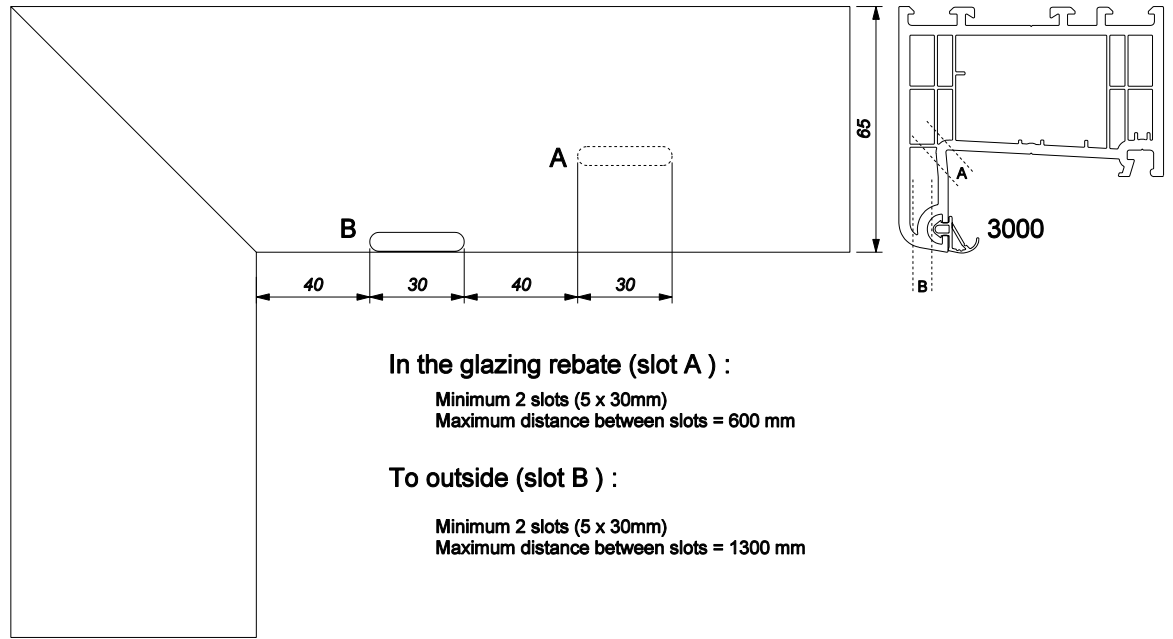


**5.3.1.11. Sash profile 3204 ( only in case of the highest profile of the sash )**

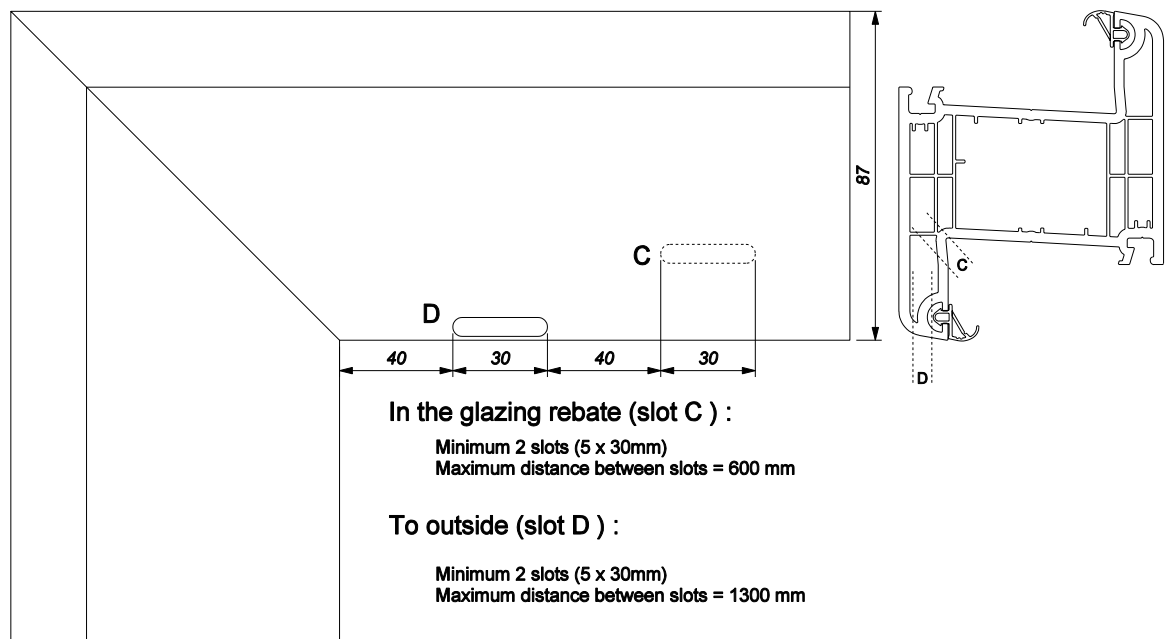


5.3.2. DECOMPRESSION

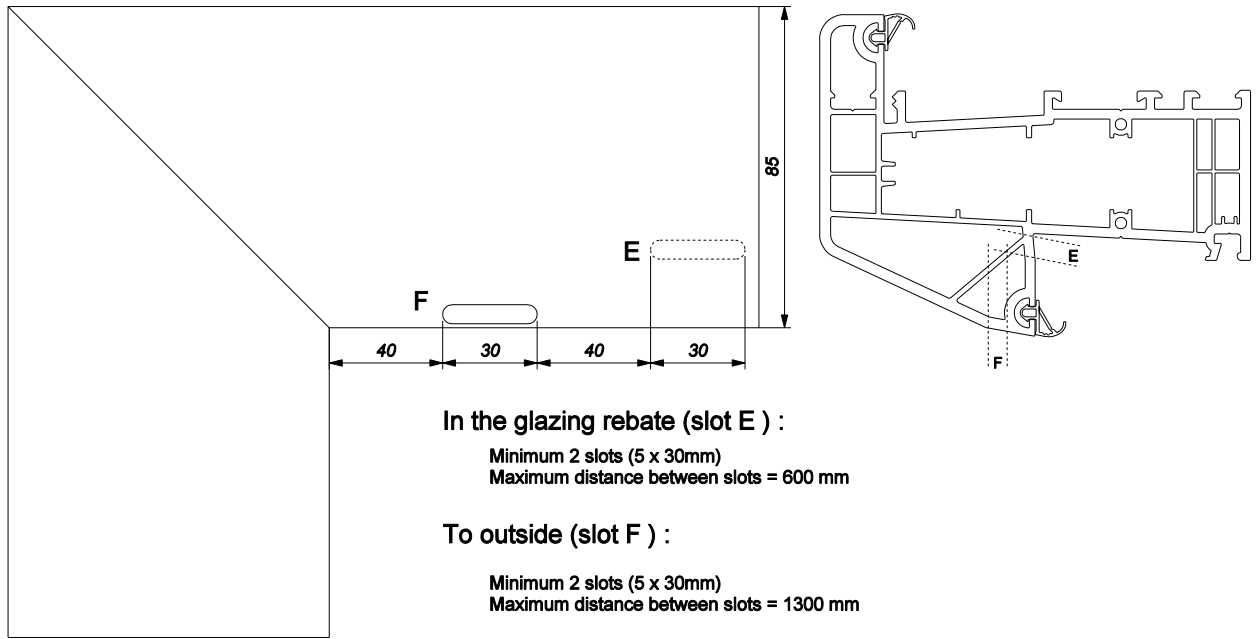
5.3.2.1. Outer frame 3000, 3001



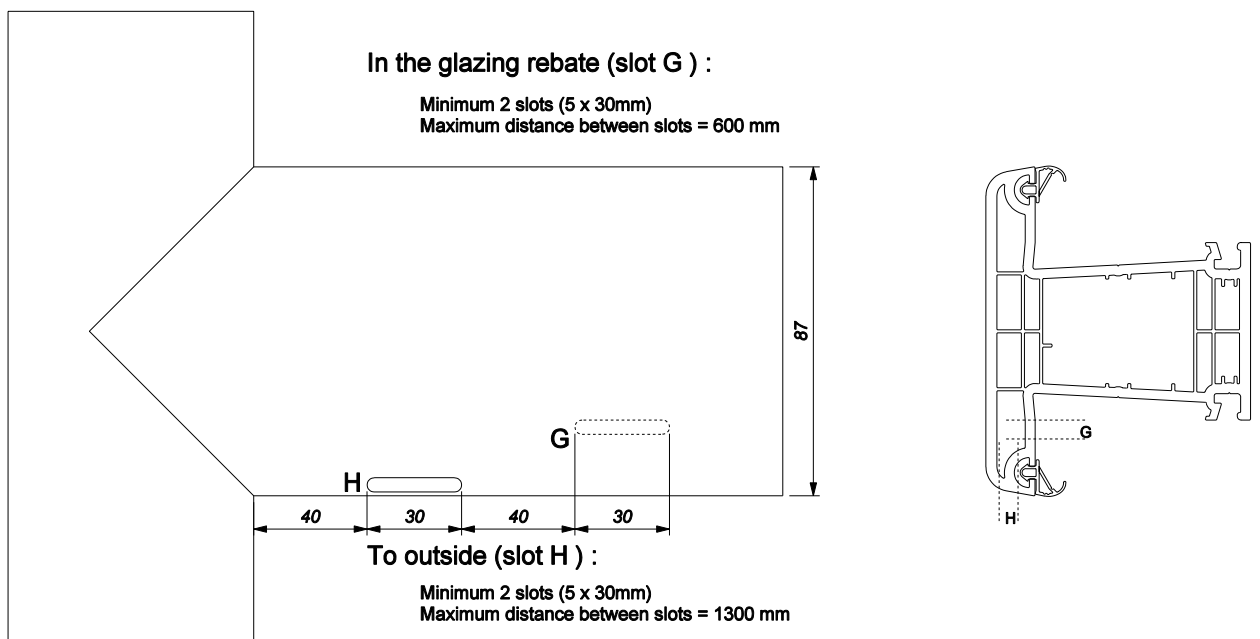
5.3.2.2. Outer frame 3002



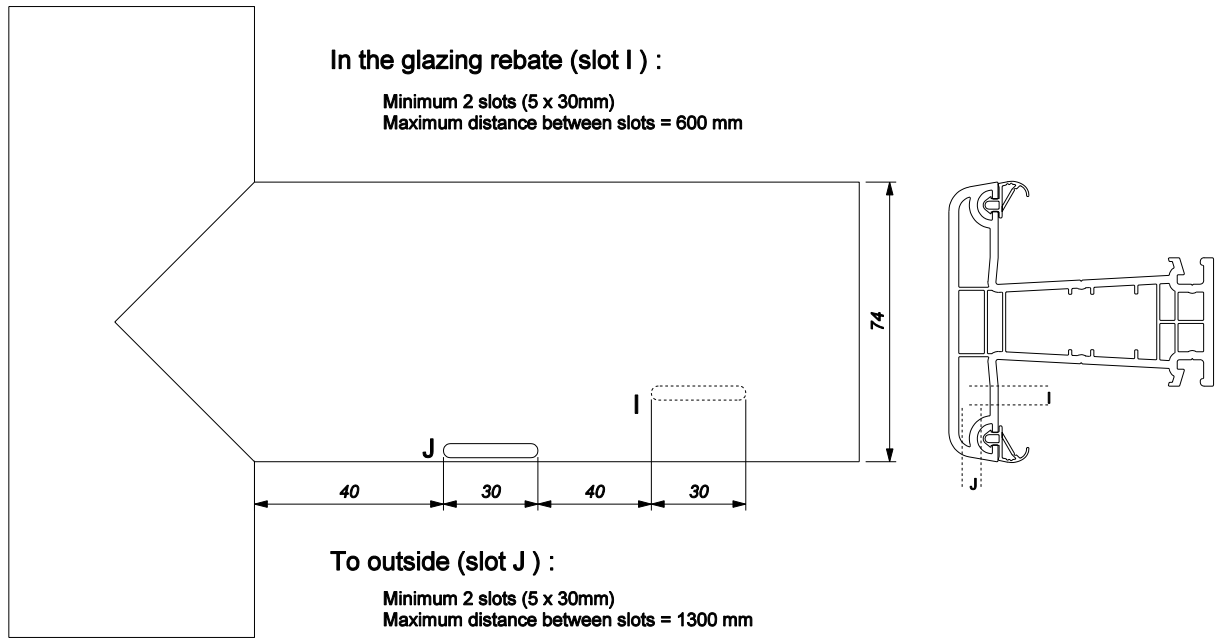
5.3.2.3. Outer frame 3080



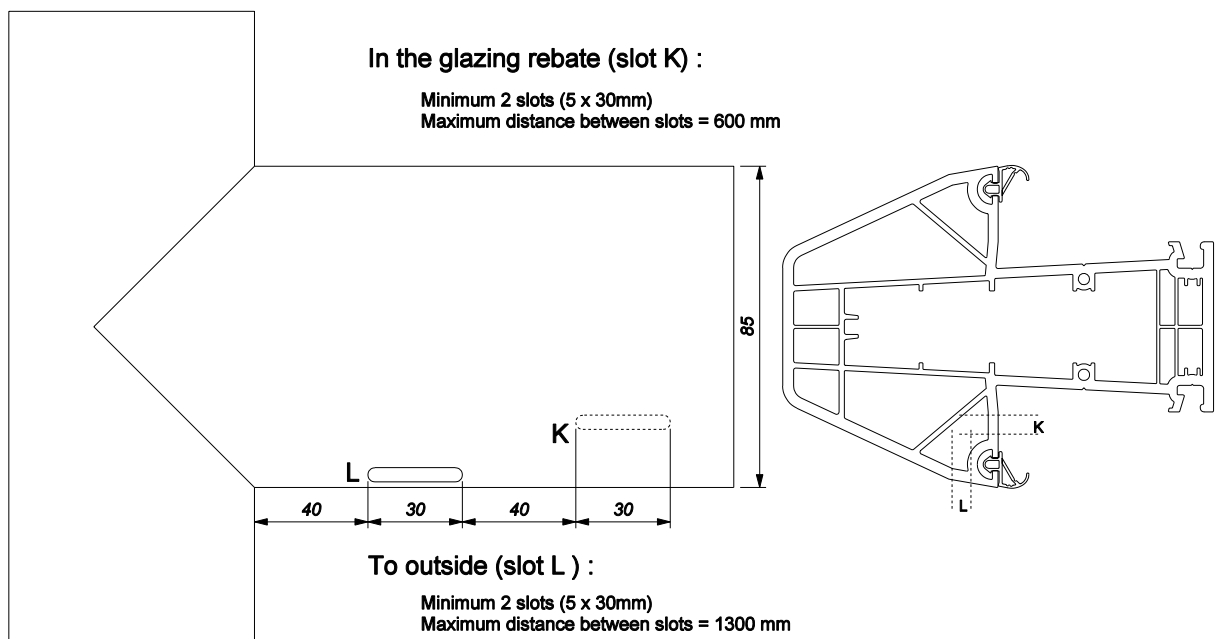
5.3.2.4. T-profile 3100



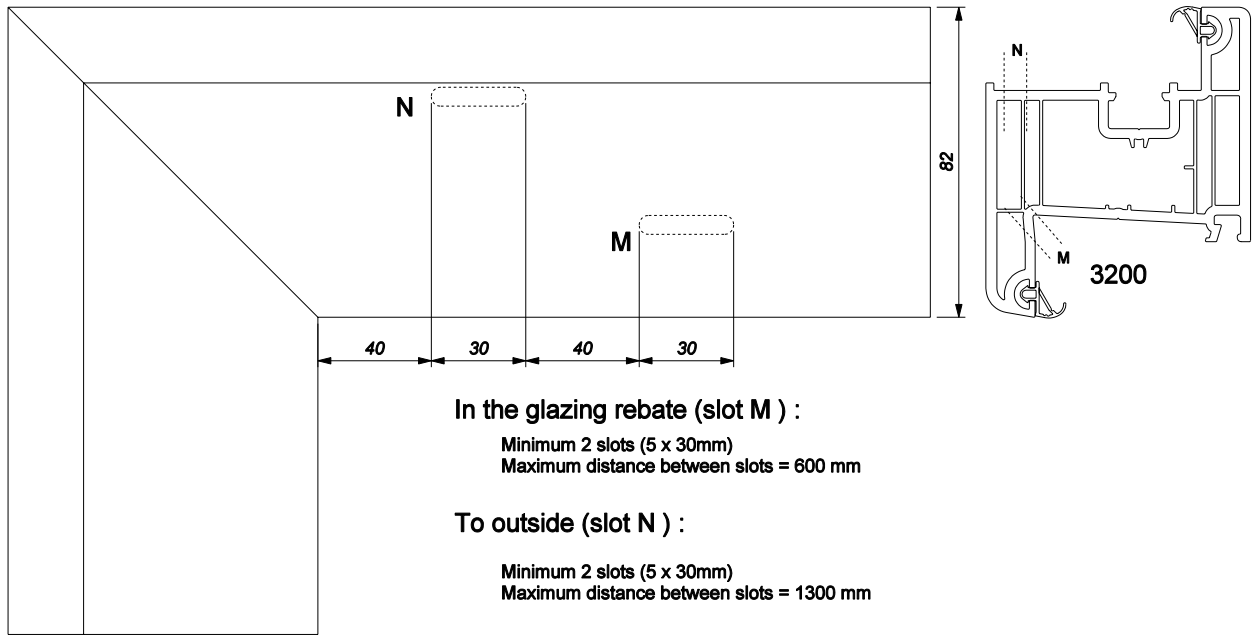
5.3.2.5. T-profile 3101



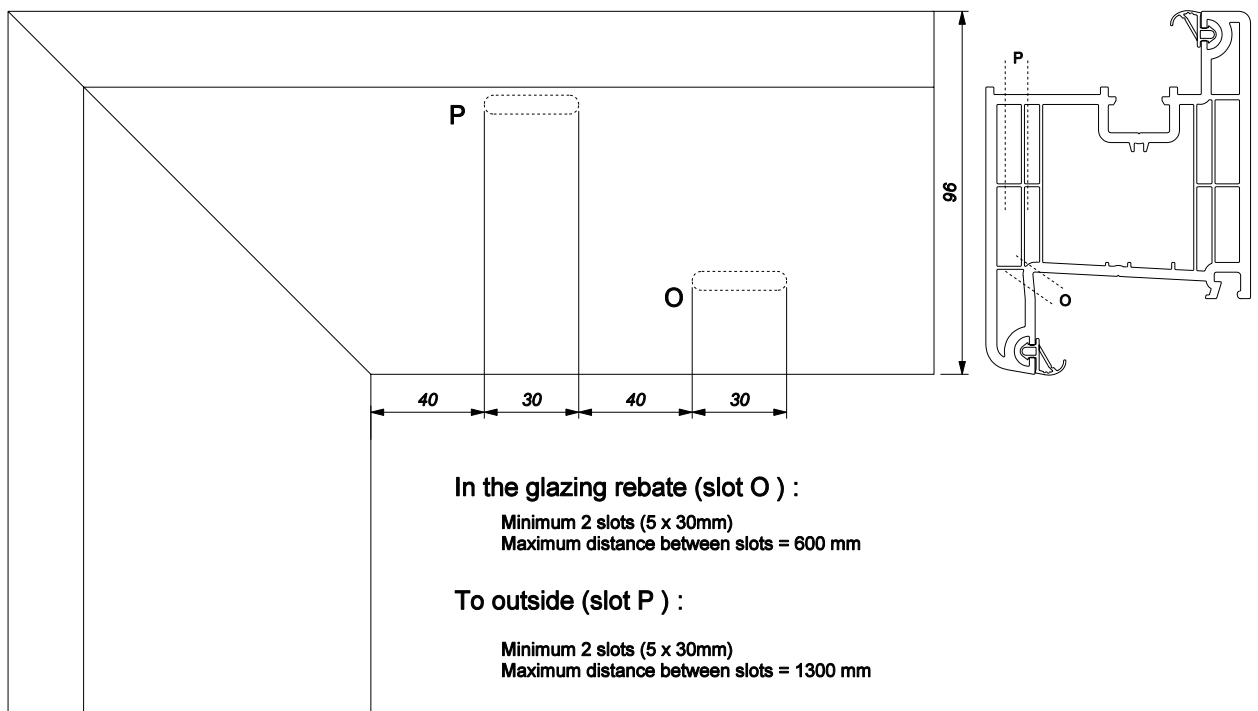
5.3.2.6. T-profile 3180



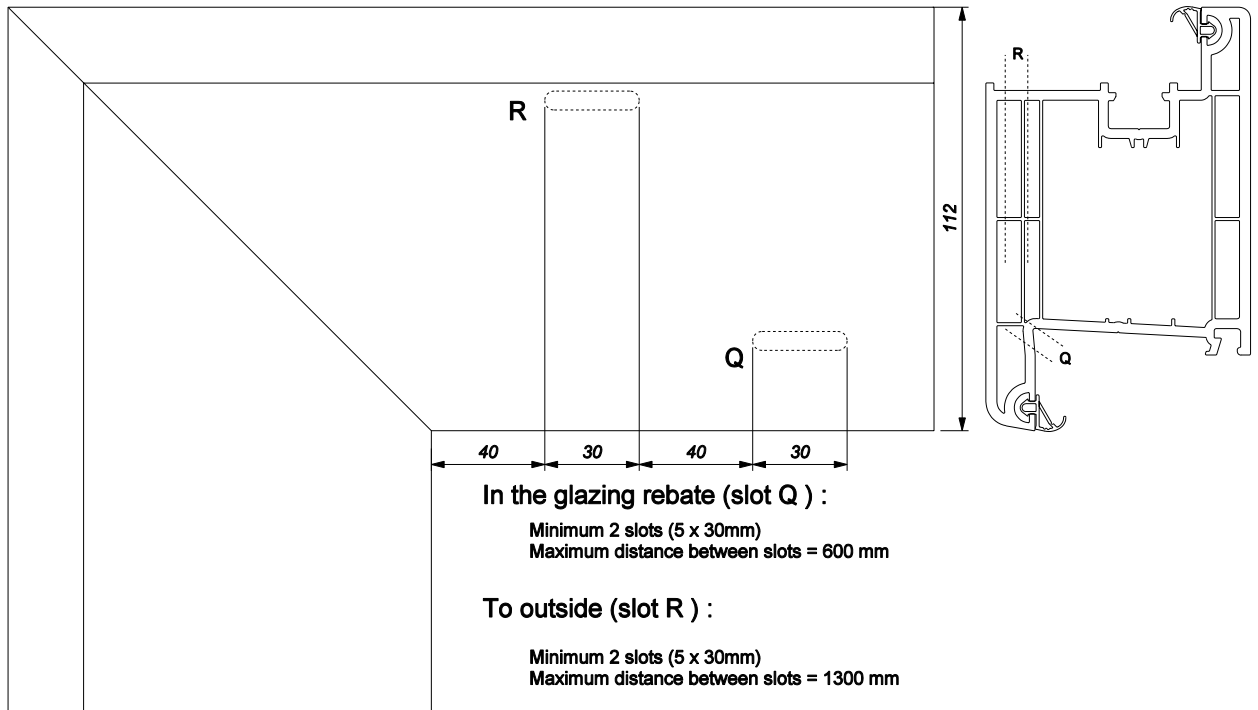
5.3.2.7. Sash profile 3200, 3201



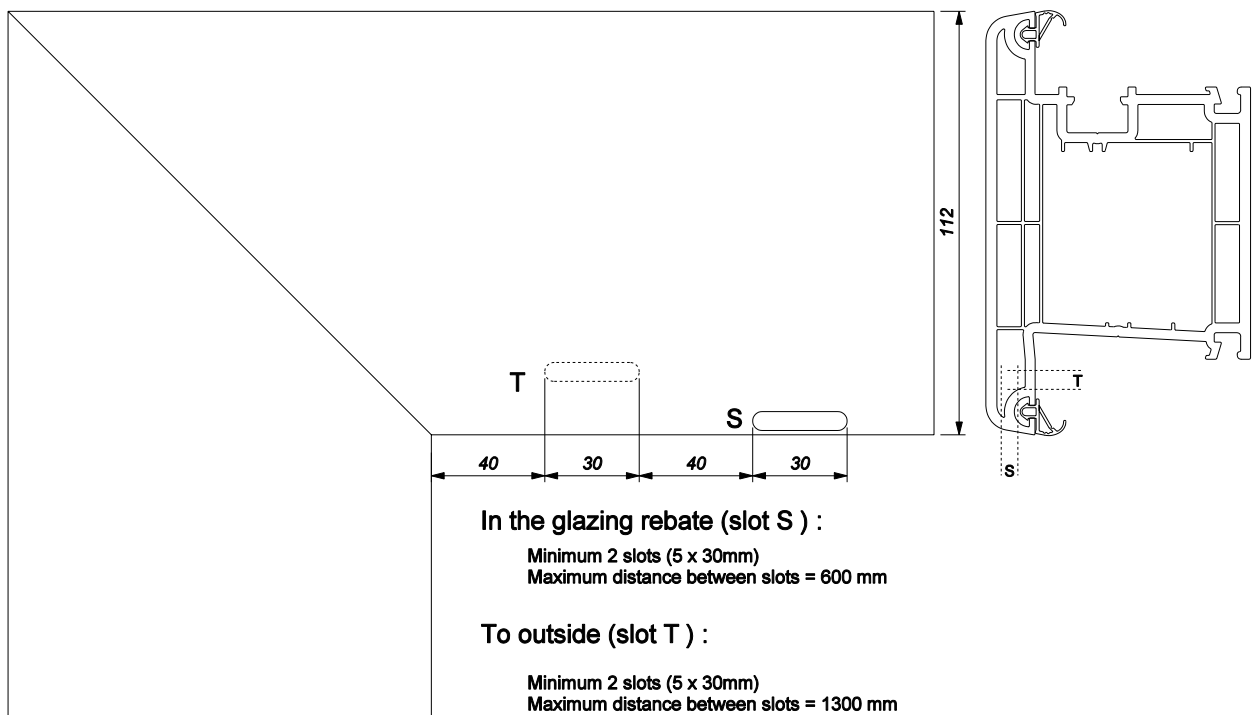
5.3.2.8. Sash profile 3202



5.3.2.9. Sash profile 3203



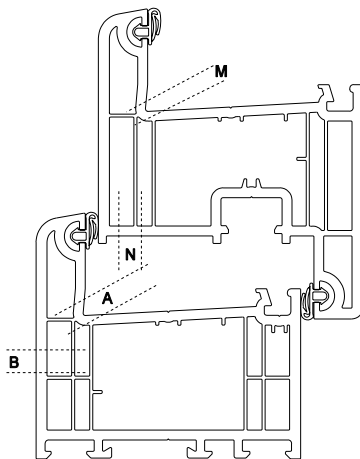
5.3.2.10. Sash profile 3204



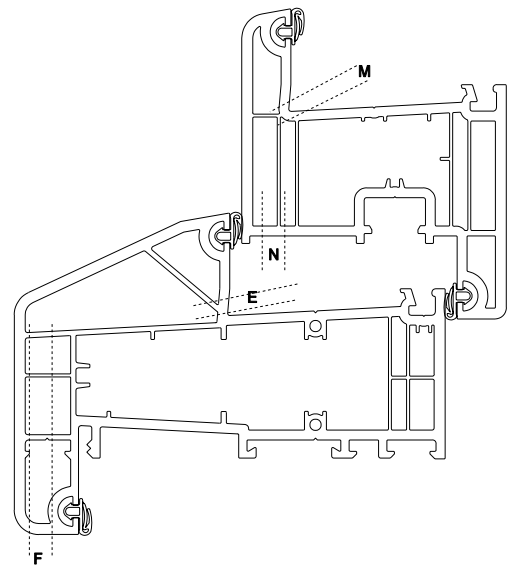
5.3.3. SUMMARY

5.3.3.1. DRAINAGE

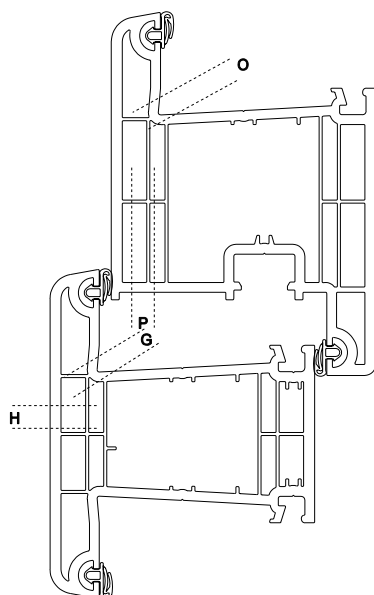
Outer frame 3000 & sash profile 3200



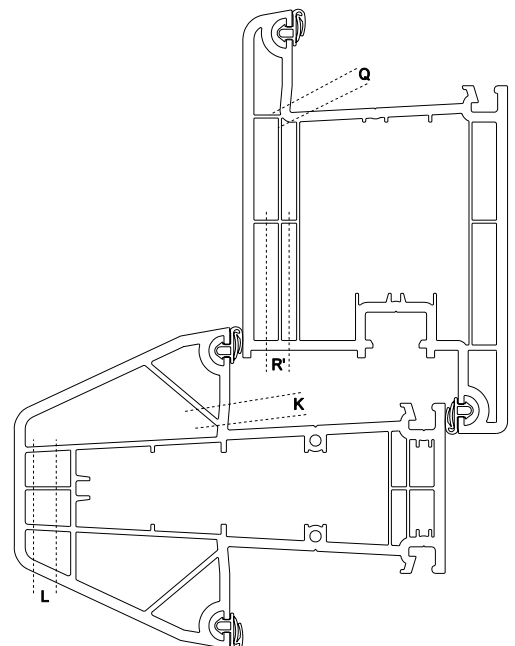
Outer frame 3080 & sash profile 3200



T-profile 3100 & sash profile 3202



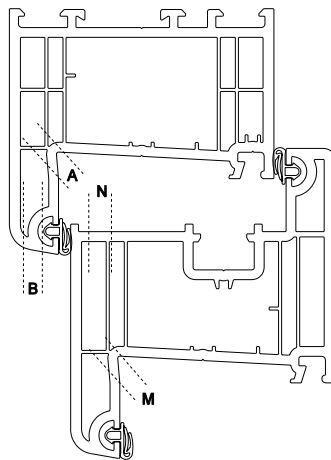
T-profile 3180 & sash profile 3203



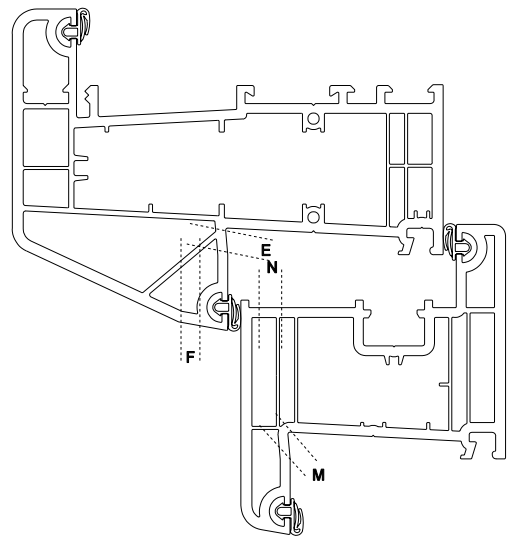


5.3.3.2. DECOMPRESSION

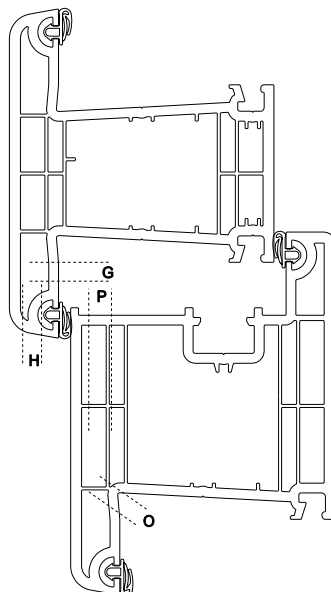
Outer frame 3000 & sash profile 3200



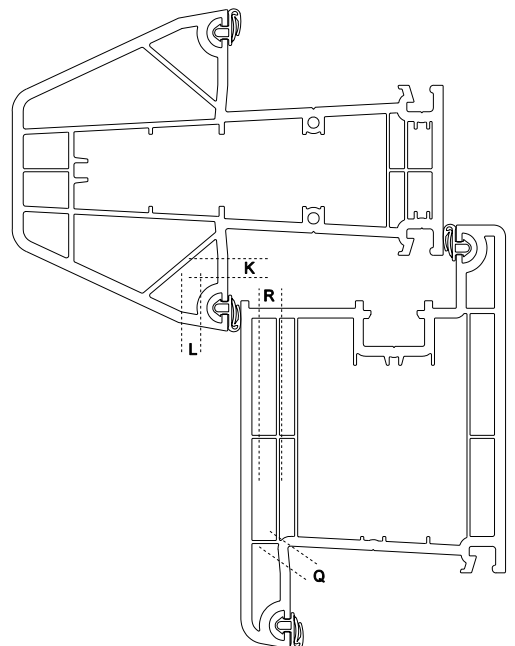
Outer frame 3080 & sash profile 3200



T-profile 3100 & sash profile 3202



T-profile 3180 & sash profile 3203



## 5.4. REINFORCEMENTS

PVC-profiles for windows and doors have hollow chambers. They give the thermal and acoustic insulation, the drainage and the decompression, and allow for the installation of metal reinforcements. The metal reinforcements have to be galvanised (thickness zinc layer = 19 µm).

Reinforcing of PVC-profiles is required for following reasons:

### 5.4.1. EXPANSION BY HEAT

The coefficient of linear expansion of Wymar PVC-profiles is 0.07 mm/m/°K. The temperature on the surface of the profiles can go far beyond the environmental temperature (e.g. on dark colored profiles). Obviously the reflection and absorption of sunlight plays a vital part in case of colored profiles. In case the reinforcement is regularly attached/screwed to the PVC-profiles the expansion of the PVC-profile will be reduced to the expansion of the reinforcement, which is 0.012 mm/m/°K (6 times less than PVC-profiles).

Example: Length of profile: 2 m and DT = 40°C (temperature variation)

Expansion of PVC-profile would be  $0.07 \times 2 \times 40 = 5.6$  mm

If reinforced the expansion is  $0.012 \times 2 \times 40 = 0.96$  mm

Conclusion:

\* Colored profiles: ALWAYS REINFORCED!!

\* White profiles:

For Outer Frames:

No reinforcement is needed for the outer frame profiles when:

- The outer frame is attached to the building in a regular way (see chapter 5.12: installation)

AND

- The length of one of the profiles is smaller than 2.4m.

For Sash profiles:

No reinforcement is needed for the sash profile when:

- The width of the window is smaller than 0.8m

AND

- The height of the window is smaller than 1.0m

AND

- The window surface is smaller than 0.65m<sup>2</sup>.

For T- profiles & false mullion:

see 5.4.2 Stability/strength of construction

### 5.4.2. STABILITY/STRENGTH OF THE CONSTRUCTION

A construction needs to resist to different loads (e.g. wind loads, glass loads, etc.). These loads cause deflections. It is obvious that these deflections have to be restricted. This principal is determined in norms established by every country.

The stability of a construction depends on 2 factors:

\* The modulus of elasticity: E

For Wymar profiles is this 2200 MPa according ISO 178.

For reinforcement is this 210000 MPa.

\* The moment of inertia: I

The moment of inertia indicates the influence of the shape of the profile on the stiffness of that profile.

Calculation has to be made to consider if a certain construction responds to the demands.

Following items are important for the calculation:

- The dimension of the construction
- The modulus of elasticity E
- The allowed deflection (depends on the location and the local norms)
- The wind load (depends on the local norms)

The formula for the calculation is: 
$$I_x = \frac{W \cdot a}{1920 \cdot E \cdot F} (5H^2 - 4a^2)$$

With:  $I_x$  = the moment of inertia  
 F = the allowed deflection  
 W = wind load  
 E = modulus of elasticity  
 H = height of construction

$$a = \frac{\text{width of construction}}{4}$$

With the help of understanding tables one can determine whether a reinforcement is necessary for a certain construction.

### 5.4.3. FUNCTIONALITY

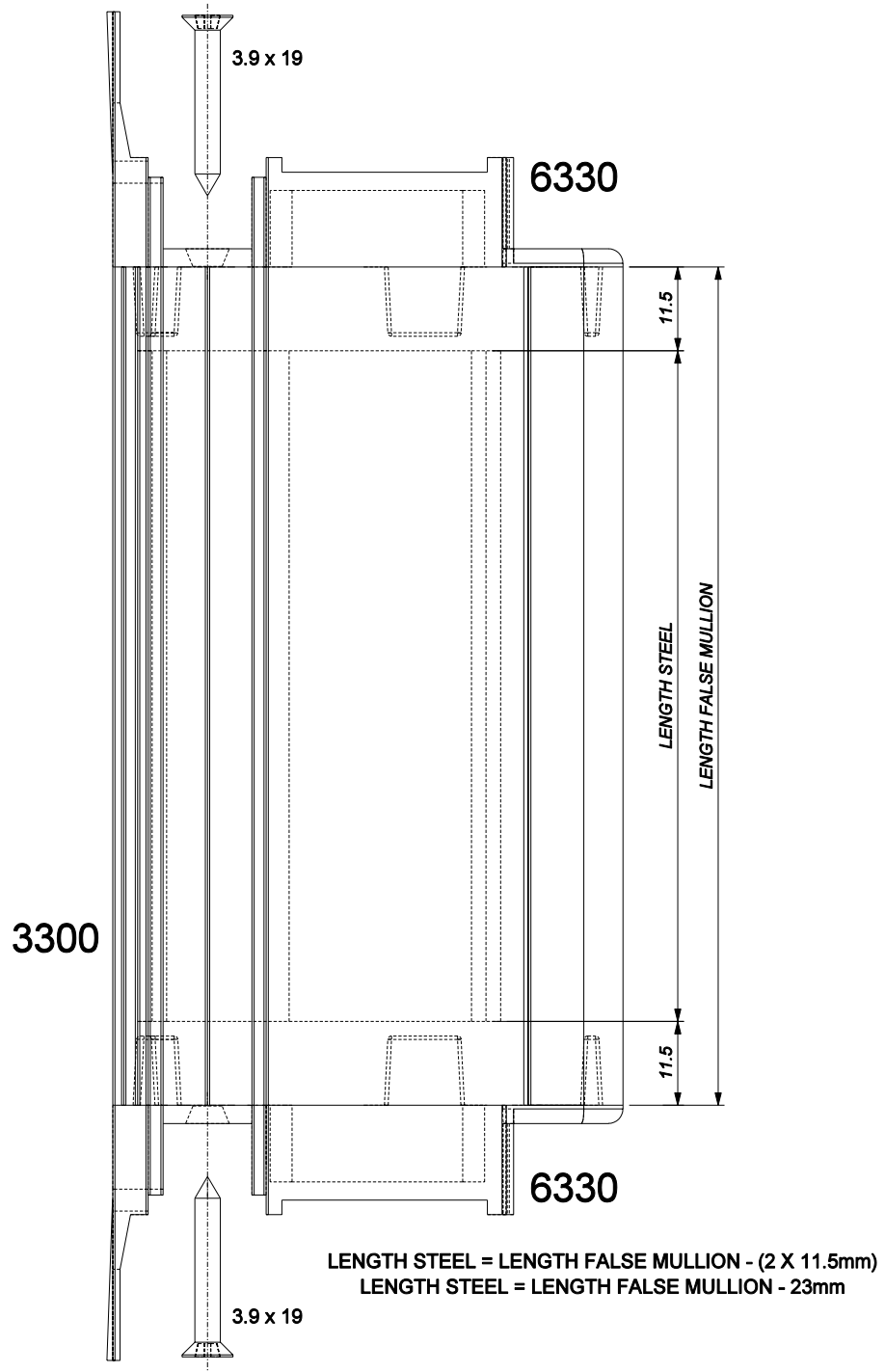
Due to the frequent use, the doors always have to be reinforced and weldable inserts should be placed into the tubular reinforcing of the door sash at the corners to give maximum strength and rigidity.

The vertical outer frame, on the side of the hinges, has to be reinforced. The other profiles don't have to be reinforced on the condition that the outer frame is installed, by direct screwing in the building on a regular way. For recommended fixing points, see chapter 5.13 : Installation

#### 5.4.3.1. GENERAL REMARKS:

- \* Reinforcements must be fixed in the correct chamber by means of self-tapping, rustproof screws at centers of 30 cm starting 50 mm from the end of the reinforcement.
- \* The length of the reinforcement has to be a bit (+/- 1.5cm) smaller than the PVC-profile to allow welding of the PVC-profiles bear in mind that 3mm is needed for welding.
- \* The reinforcement, coming into a PVC-profile, has to consist of 1 piece. Dividing the reinforcement in 2 or more pieces, within one PVC-profile, reduces the effect of reinforcement to zero.
- \* Because the length of the used reinforcement isn't critical, it can be considered to use standard lengths by the window production, which are pre-cut with a maximum variation of 5 cm.
- \* The installation of the metal sawing machine has to be done in such a way that the cutting of the reinforcement cannot damage the PVC-profiles (e.g. by burning parts).
- \* Normally in mechanical constructions the reinforcement is fitted before welding. In case of welded T-junctions it will not be possible to fit the reinforcement where there is a V notch weld. In this case the reinforcement should be inserted into the correct chamber immediately after welding whilst the spru is still soft, and thereafter screwed in place as described previously.
- \* In case of a construction with a mechanical junction the fixing of the mechanical connection on the complimentary profile has to go into the reinforcement.  
 e.g. for a mechanical connection of a T-profile onto a frame profile, the frame profile has to be reinforced with a rectangular reinforcement 5302, 5305 or 5310.

5.4.4. CALCULATION OF THE LENGTH OF THE REINFORCEMENT 5330 FOR THE FALSE MULLION 3300



## 5.5. WELDING

Welding of PVC-profiles is done by means of a fully automated single or multi headed welding machines. The welding happens by melting the cut surfaces of the PVC-profiles and afterwards by pressing these softened weldingsurfaces against each other. This melting happens by bringing the cut faces of the PVC-profile into contact with the hot plate of the welder (= mirror), which is thermostatically controlled, to a given temperature (see below). To prevent the profile from sticking on the plate, the mirror is covered with a synthetic material called Teflon, which is capable of working at very high temperatures. It is imperative that the Teflon is kept clean and regularly renewed. The cleaning can happen with a soft dry cloth. During the welding process the long profiles should be supported along their length. Where applicable contour blocks corresponding to the profile should be used to support the profile.

Wymar profiles should be welded using the settings given below:

Welding temperature: 250 - 255 °C

Melting time: 30 seconds

Clamping time: 30 seconds

Temperature of the restricting knives: 40 - 50 °C

The placing of the welding machine has to be done so that draught during the welding process is avoided. Too hot or too cold welding temperatures will result in defective and weak welds.

N.B. The temperature indication on the welding machine does not always indicate the real temperature of the welding plate. Therefore we suggest regular checks by Wymer technician.

It is important to ensure that the spru is controlled and kept uniform along its' length, on modern welders this can be restricted to 0.2mm and should never exceed 1.5mm. The spru should also never be too shiny or discolored as this indicates too high weld temperature or contamination, which may have a variety of causes e.g. worn-out Teflon, unclean Teflon, etc. After welding the profile should cool naturally, without acceleration. Nor should the weld be placed on a cold surface as either or both will cause internal stresses and tensions leading to weak or broken welds. Cooling should be allowed for 30 min. before starting another operation. Thereafter the welded corners can be cleaned. Immediately after the softened welding surfaces are pressed against each other - during the welding proces - one has to press on the glazing gasket. In the case of V notch welding we recommend to chamfer the point to the T-profile prior to welding.

Remark: We recommend the constant control of welding and therefore advise regular weld strength tests in our laboratory. The results of our observations are to the benefit of the client.

## 5.6. CLEANING OF WELDING JOINTS

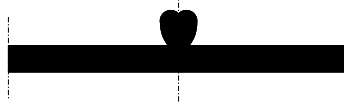
The cleaning of welded joints is a very important point, because this determines the quality of the window.

a/ The spru on the in- and outside of the corners

- \* By hand using a variety of knives, chisels, or snips and dental drills. Special care should be taken not to notch the inside of the corners. This reduces the welding strength of the welded corner
- \* Corner cleaning machine with profile related cutters.

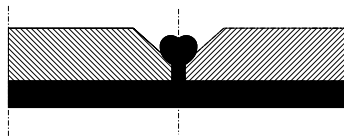
b/ Spru on visible( horizontal) surfaces.

- \* Without restrictor knives



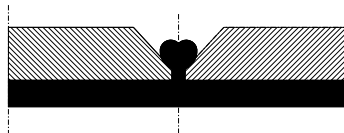
must be polished

- \* With square edged restrictor knives (limited to 1.5 mm)



may be polished or grooved

- \* With sharp edged restrictor knives (limited to 0.2 mm)



may be polished, grooved or knifed off.

Polishing is made in 4 stages:

1. Coarse sanding with sandpaper (180 grit)
2. Afterwards sanding with an orbital sander and medium sandpaper (250 grit)
3. Item 2. but with finer sandpaper (500 grit)
4. Finish by polishing with a sisal brush or lambswool mop, min 2000 revs/min.

By this method a very smooth flat is achieved.

This method is hardly ever used, as it is too labour-intensive.



Grooving is achieved by a specialized corner cleaning machine. This is an automated operation. The obtained groove has a maximum depth of 0.5 mm and a width from 3 till 4 mm.



Knifing off is done while the profile is protected with a thin metal shield, this is a quick manual operation and leaves a slight up-stand just above the surface.



## 5.7. THE MECHANICAL CONNECTOR

The T-profiles with reference 3100, 3101 and 3180 can be connected to the adjacent profile by an aluminium mechanical connector.

- Ref. 6100 for Ref. 3100
- Ref. 6101 for Ref. 3101
- Ref. 6180 for Ref. 3180

### 5.7.1. METHOD FOR USING THE MECHANICAL CONNECTORS 6100 AND 6101

A/ Regular T-connection with 3100/3101 on frame profile or sash profile.

1. The reinforcements have to be placed and screwed in position in both profiles.  
REMARK: A frame profile with a mechanical connector must always have a square reinforcement!
2. The T-profile has to be end milled.
3. By using a drill template you must drill 2 holes of 3mm through the T-profile and reinforcement (DRILL POSITION 1).
4. The mechanical connector has to be placed over the T-profile, pressed (SIT. 1) and screwed down sideways with 2 self-tapping 3.9x16 screws (SIT.2).
5. The position of the T-profile is being marked off on the base profile by the axis of that T-profile.
6. By using a drill template you must drill a hole of 7mm through the base profile and reinforcement (REMARK: the 2 positions depend on the base profile: frame profile, sash profile or exterior door sash profile) and 4 x 3mm through one wall of the base profile and reinforcement (REMARK: the 2 positions depend on the T-profile: 3100 or 3101) (DRILL POSITION 2).
7. The T-profile with mechanical connector is placed onto the base profile (after removing a piece of the gasket from the base profile) and screwed by using 4 self-tapping 3.9x19 (SIT.3). It is then necessary to screw a metric screw M6 through the bottom of the base profile into the mechanical connector (SIT.4).

B/ Regular T-connection with 3100/3101 onto an other profile.

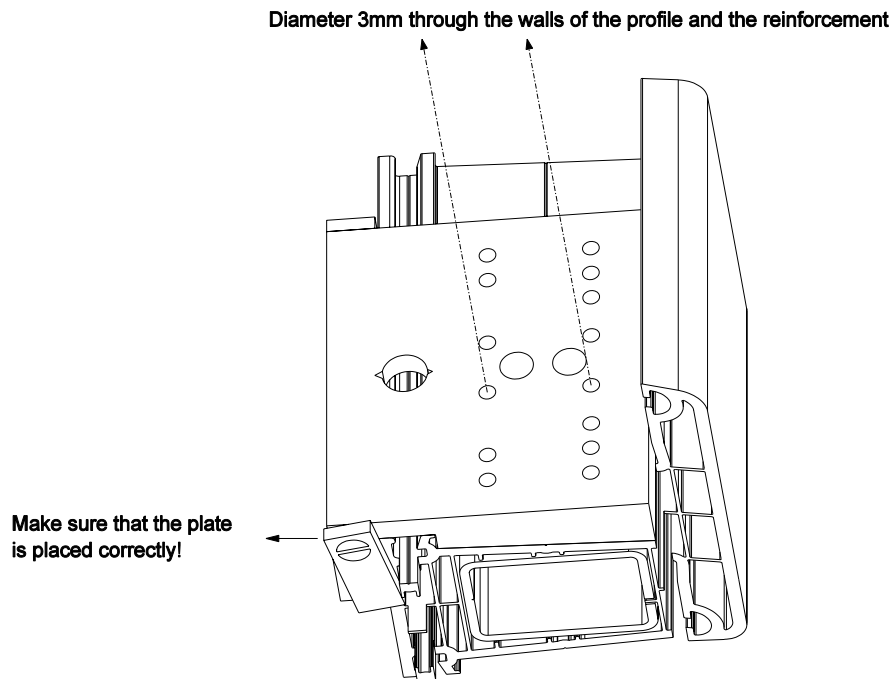
1. The reinforcements have to be placed and screwed in position in both profiles.
2. T-profile 1 has to be end milled.
3. By using a drill template you must drill 2 holes of 3mm through T-profile 1 and reinforcement (DRILL POSITION 1).
4. The mechanical connector has to be placed over T-profile 1, pressed (SIT.1) and screwed down sideways with 2 self-tapping 3.9x16 screws (SIT.2).
5. The position of T-profile 1 is being marked off on T-profile 2 by using the axis of that T-profile.
6. By using a drill template you must drill a hole of 7mm through T-profile 2 and reinforcement and 3 x 4mm through one wall of T-profile 2 and its reinforcement.(REMARK: the 2 positions depend on the T-profile: 3100 of 3101) (DRILL POSITION 2)
7. On one side of T-profile 2 you must drill the hole of 7mm through the wall and the reinforcement until 13mm (see drawing!)
8. T-profile 1 with mechanical connector has to be placed onto T-profile 2 and screwed by using 4 self-tapping 3.9x19 screws. It is then necessary, using a metric screw M6, to screw through the 13 mm hole into the mechanical connector. (SIT.5).
9. Put a plastic cover piece over the 13 mm drill hole!

**C/ Cross connection with 2 x 3100/3101**

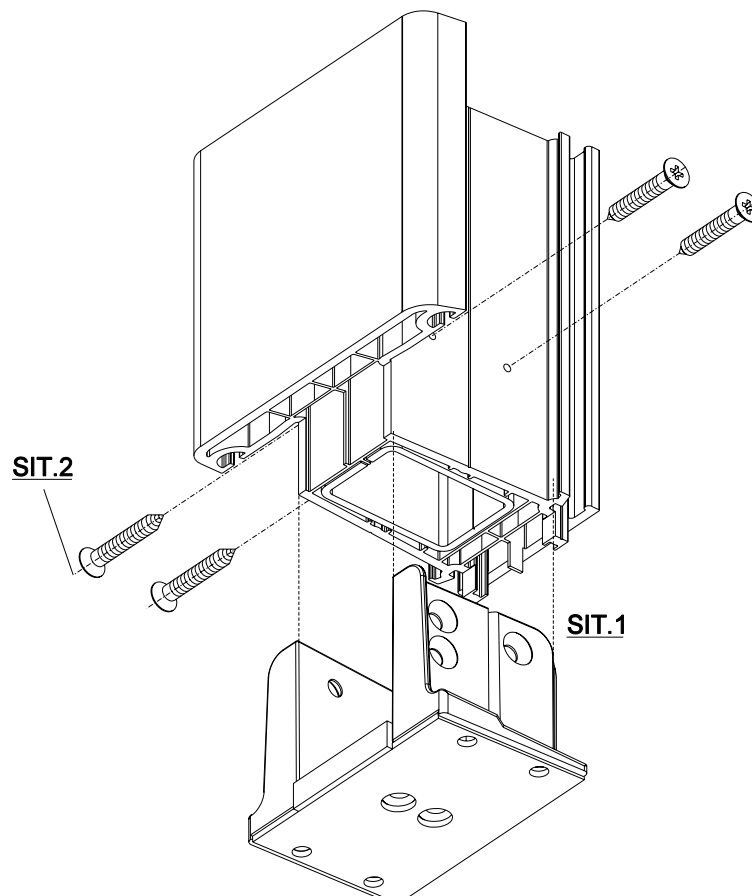
1. The reinforcements have to be placed and screwed in position in the 3 T-profiles.
2. T-profiles 2 and 3 have to be end milled.
3. By using a drill template you must drill 2 holes of 3mm through T-profile 2 and 3 and their reinforcement (DRILL POSITION 1).
4. The mechanical connector has to be placed over T-profile 2 and 3, pressed (SIT.1) and screwed down sideways with self-tapping 3.9x16 screws (SIT.2).
5. The positions of T-profiles 2 and 3 are being marked off on T-profile 1.
6. By using a drill template you must drill 4 holes of 3mm through all the walls of T-profile 1 and reinforcement (REMARK: the 2 positions depend on the profile type: 3100 or 3101) (DRILL POSITION 2).
7. T-profiles 2 and 3 with their mechanical connector have to be placed onto T-profile 1 and screwed by using 4 self-tapping screws 3.9x16 (SIT.3).



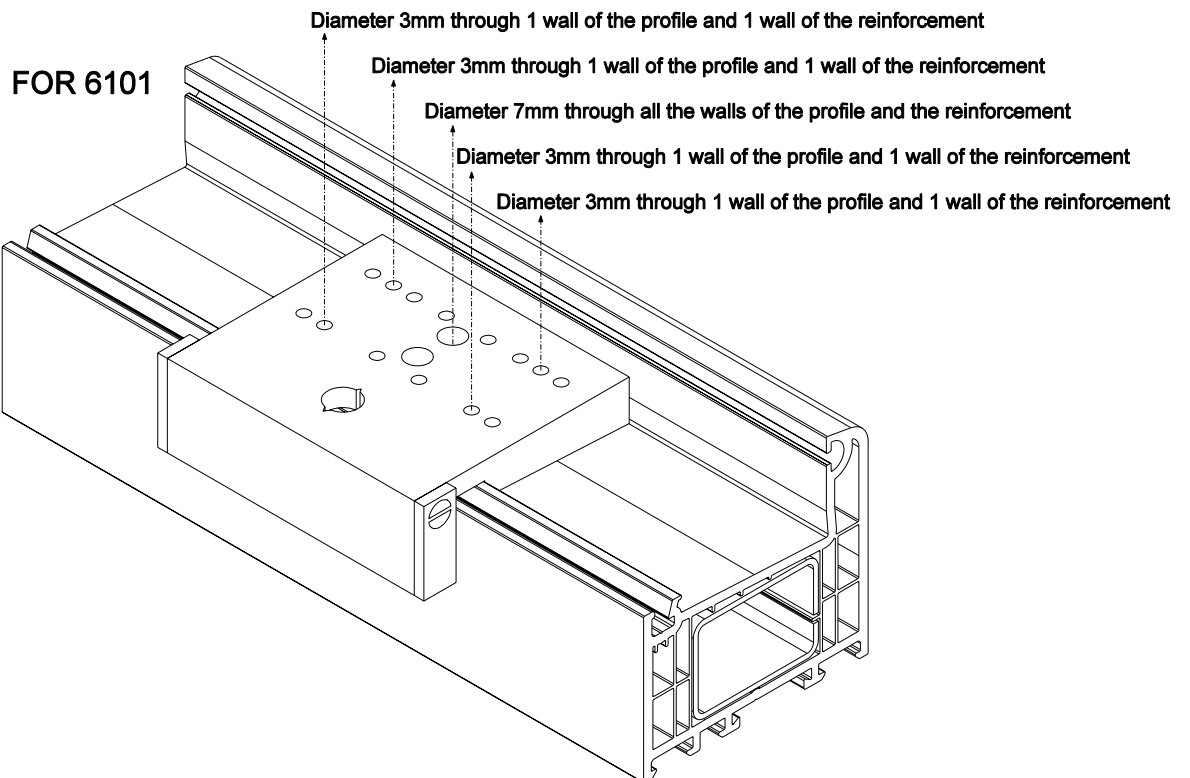
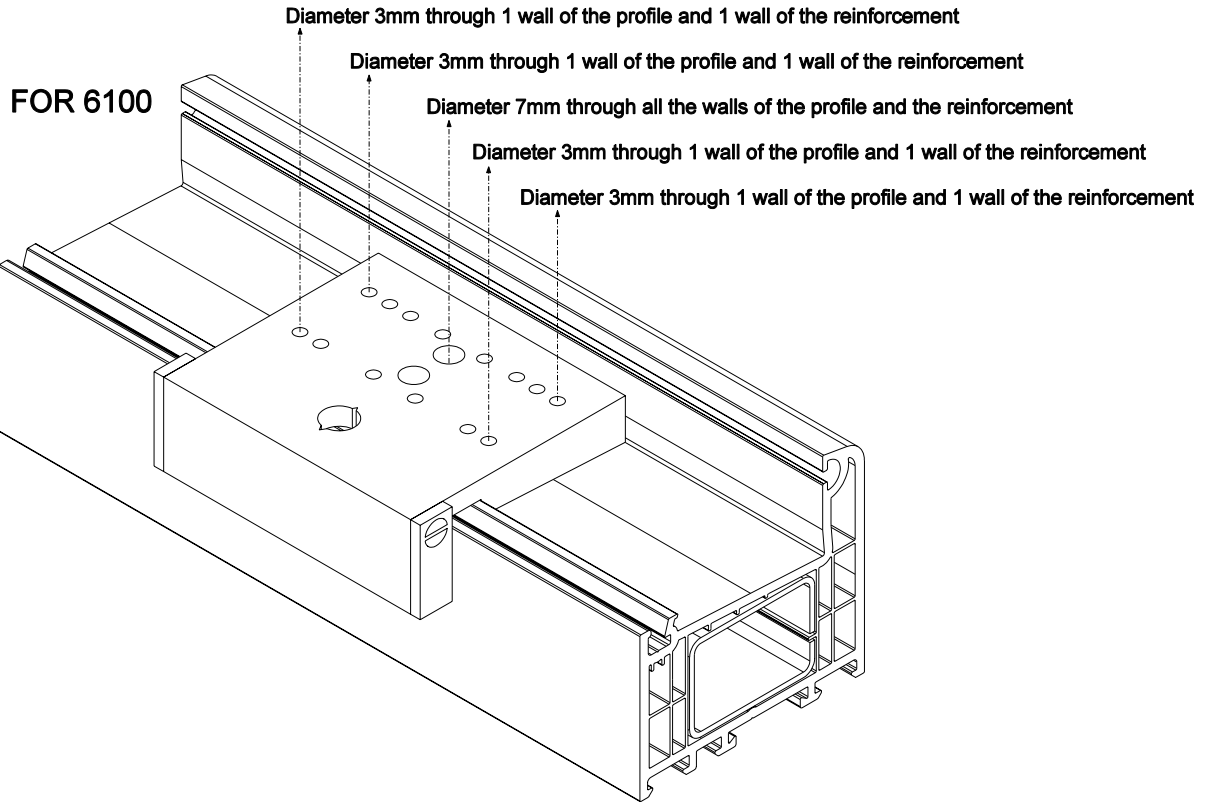
**DRILL POSITION 1 for 6100 and 6101**



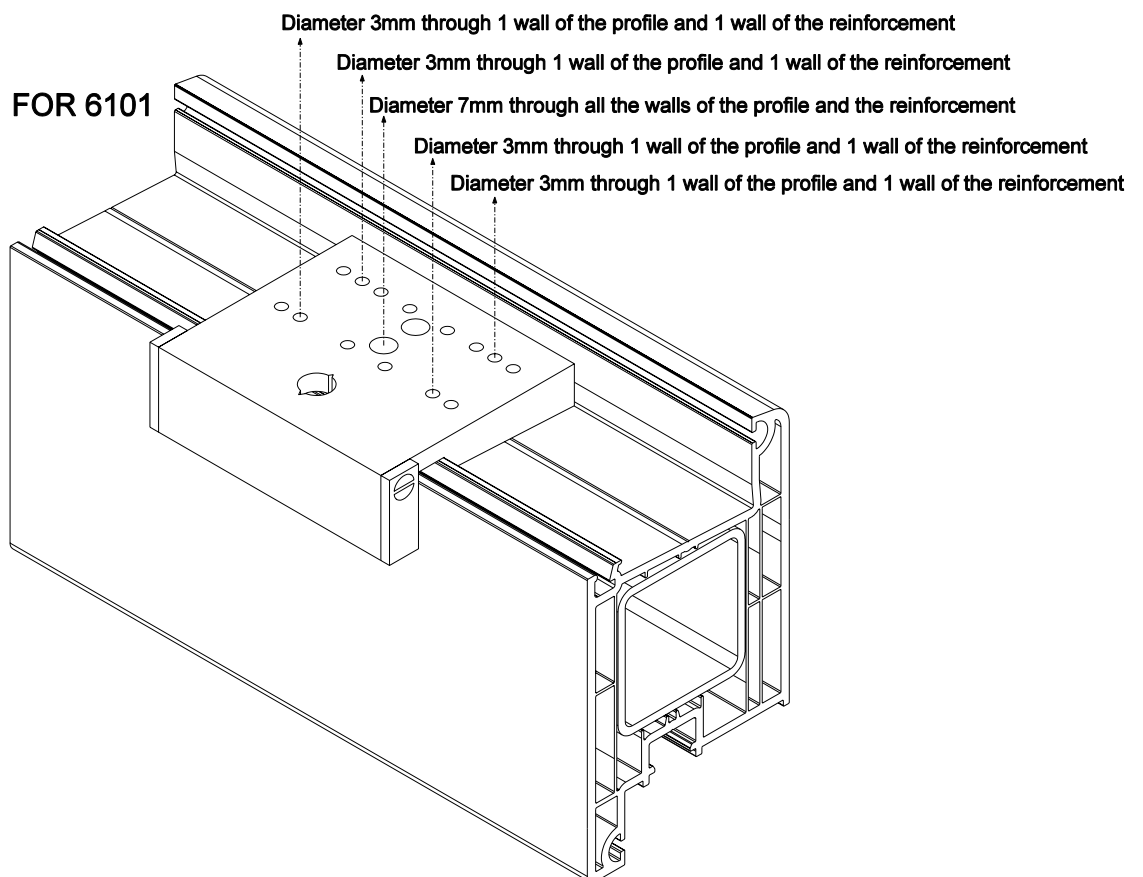
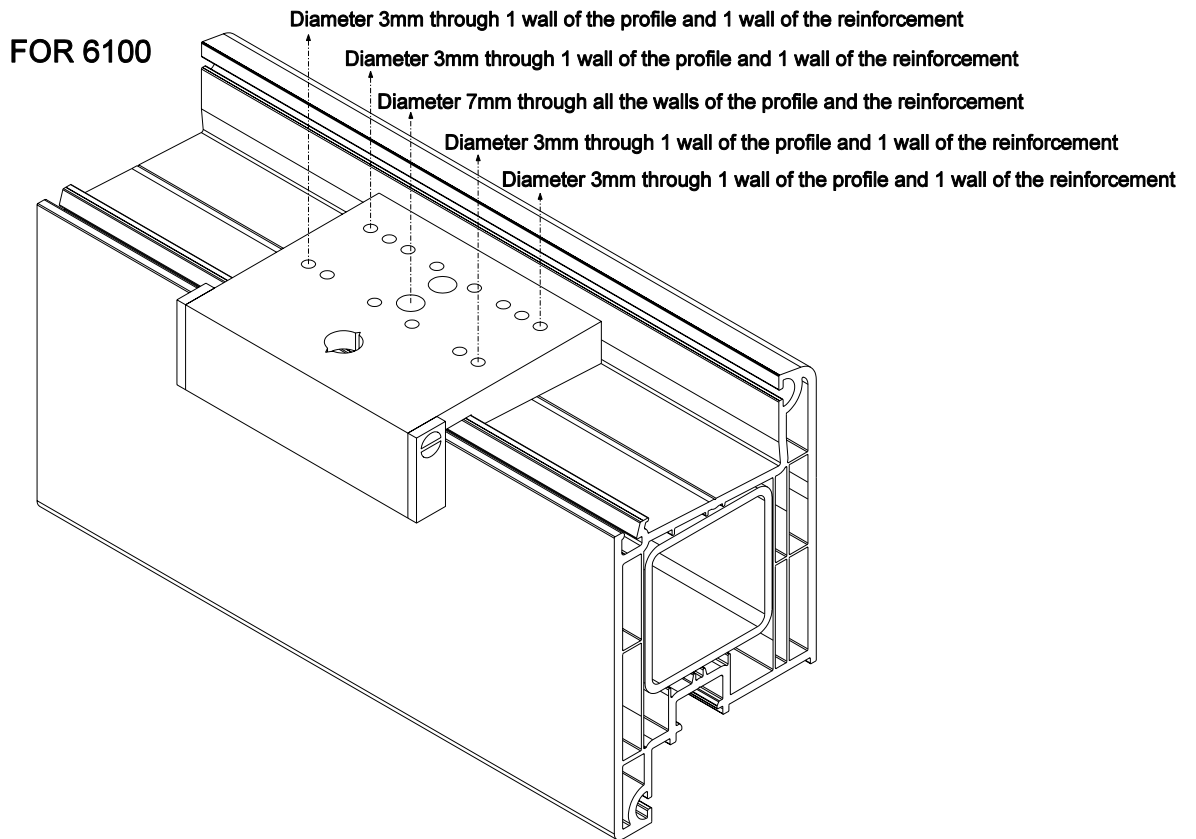
**SIT.1 and SIT.2**



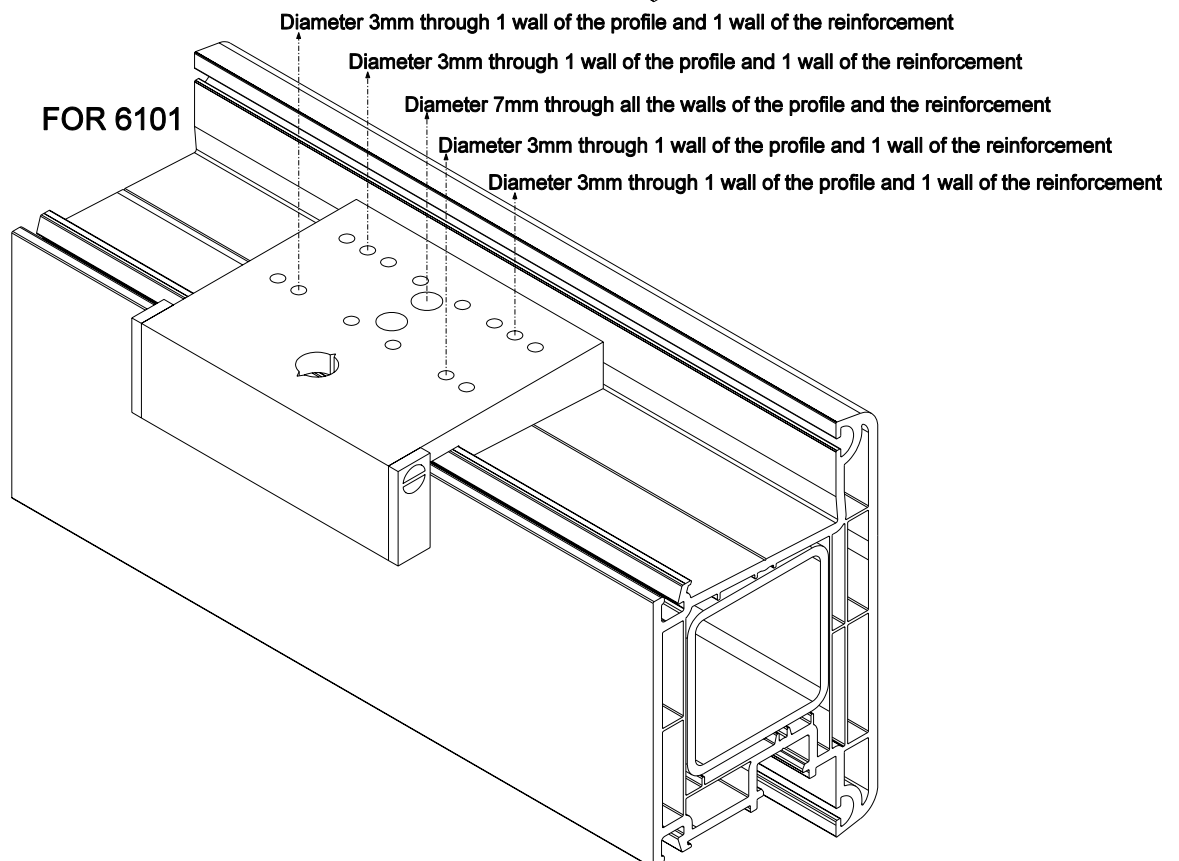
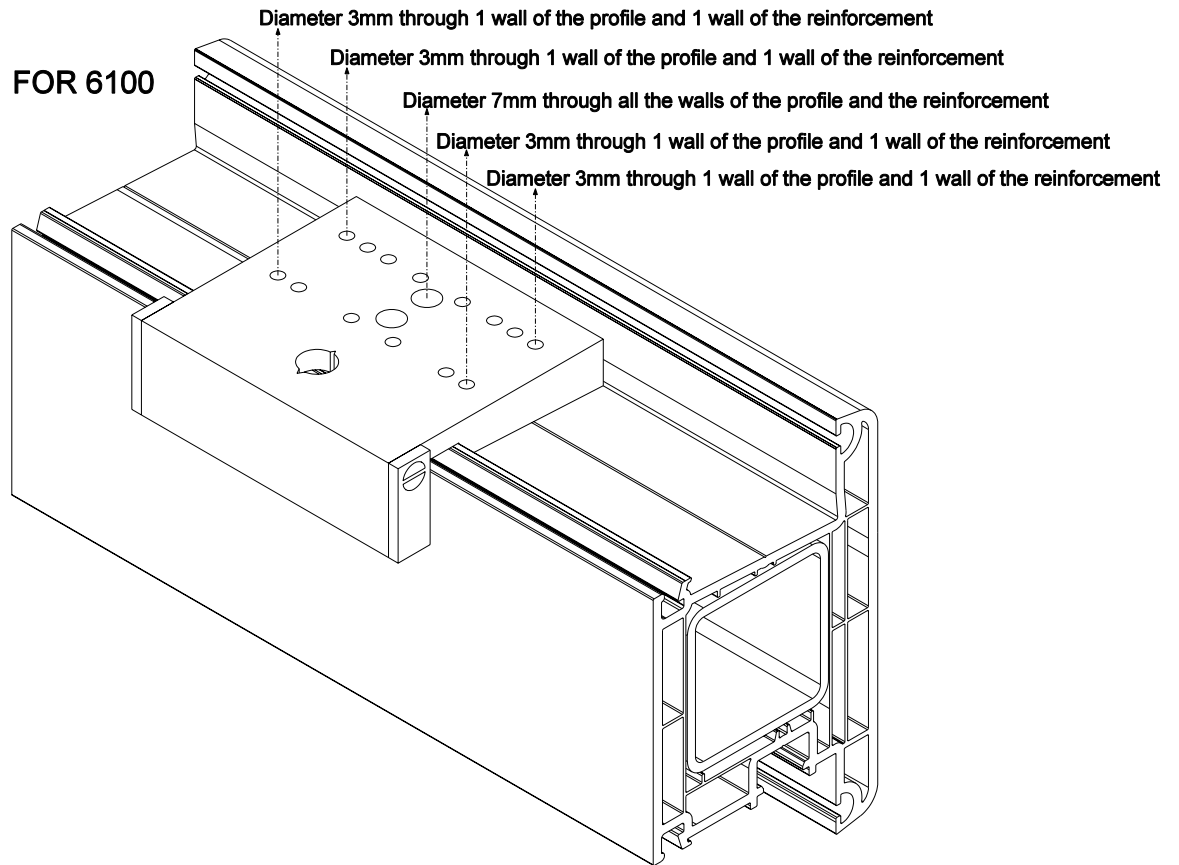
***DRILL POSITION 2 for 6100 and 6101  
the base profiles 3000, 3001, 3002***



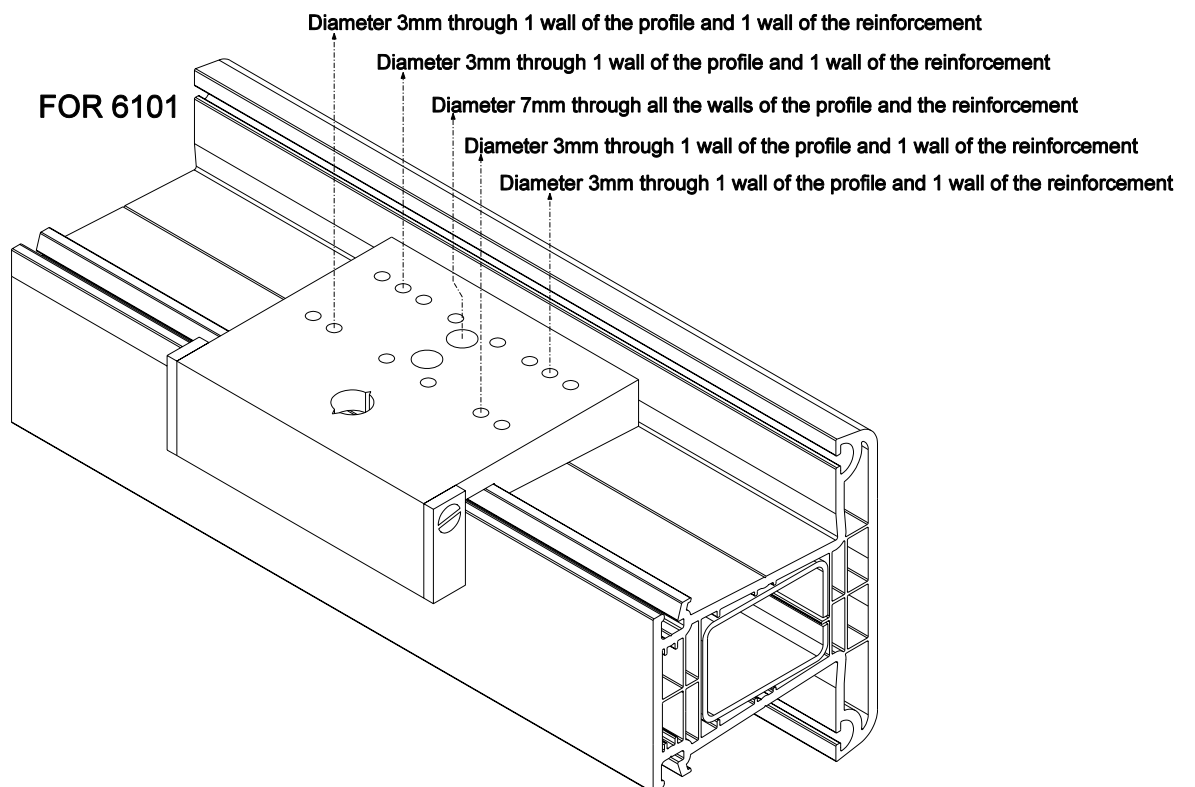
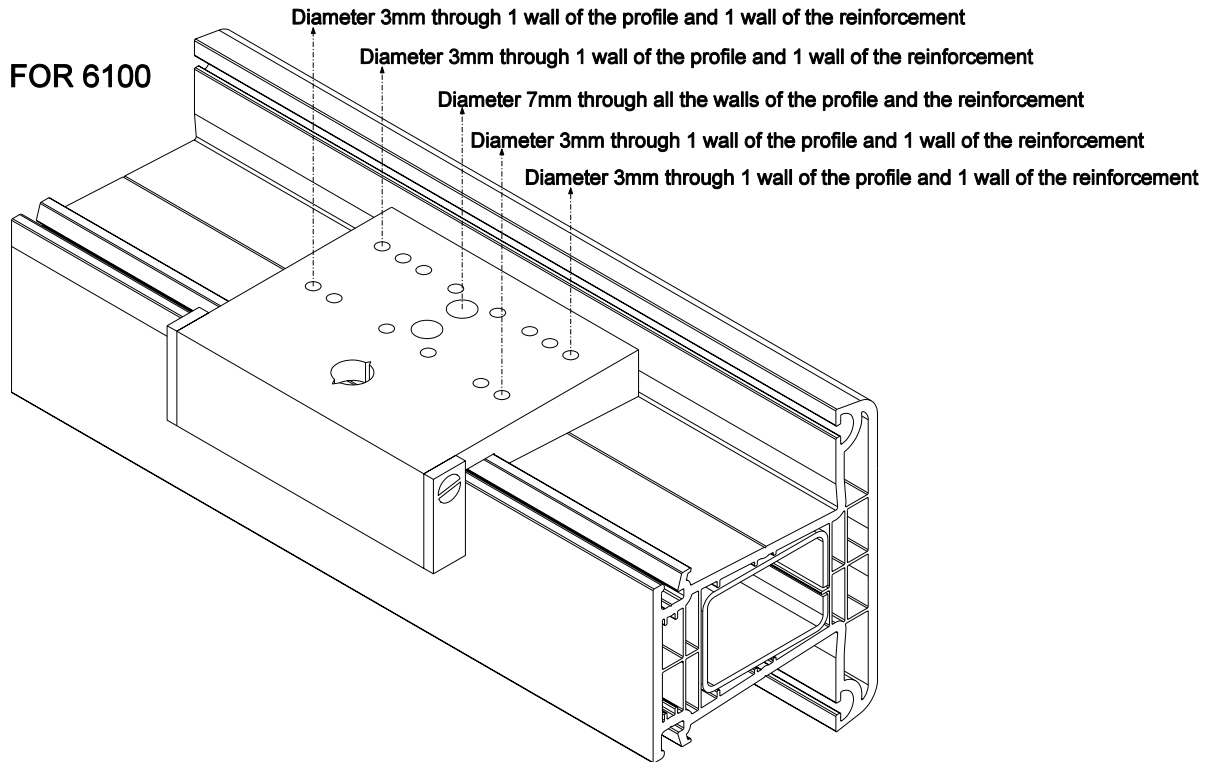
***DRILL POSITION 2 for 6100 and 6101  
the base profiles 3200, 3201, 3202, 3203***



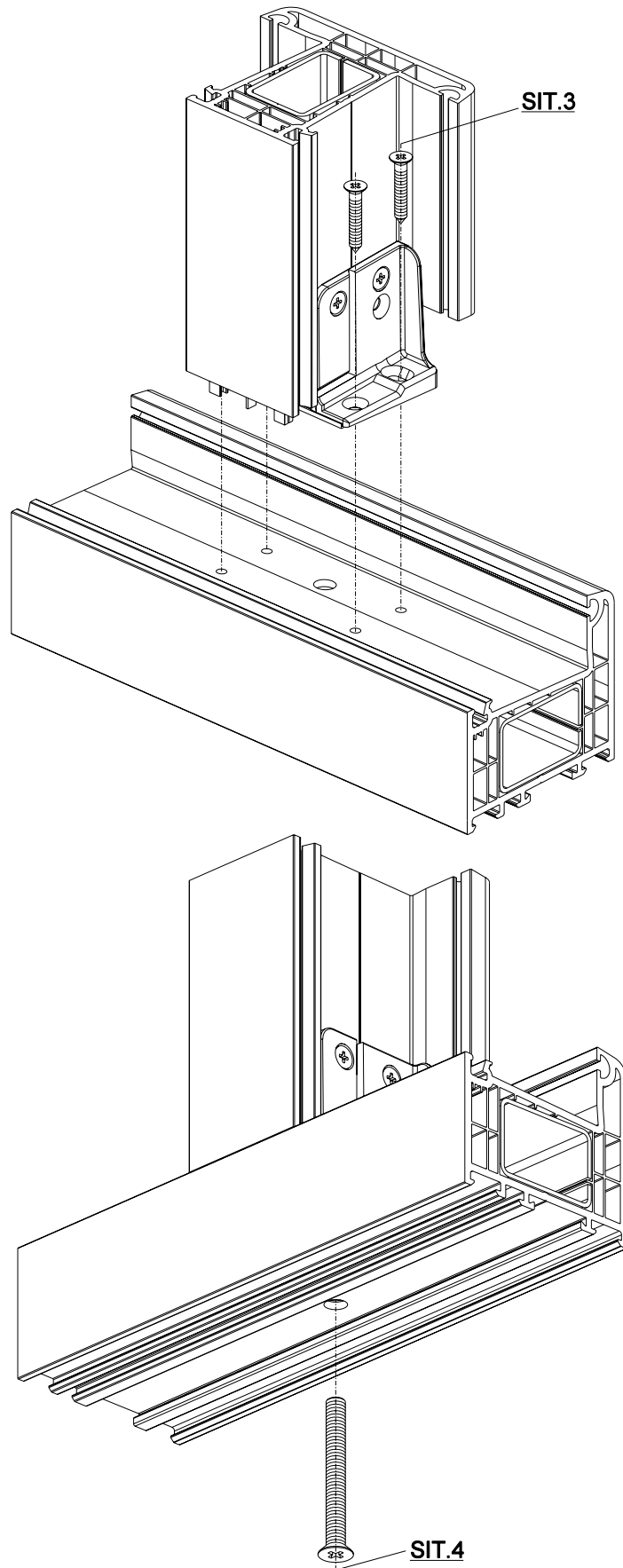
***DRILL POSITION 2 for 6100 and 6101  
the base profile 3204***



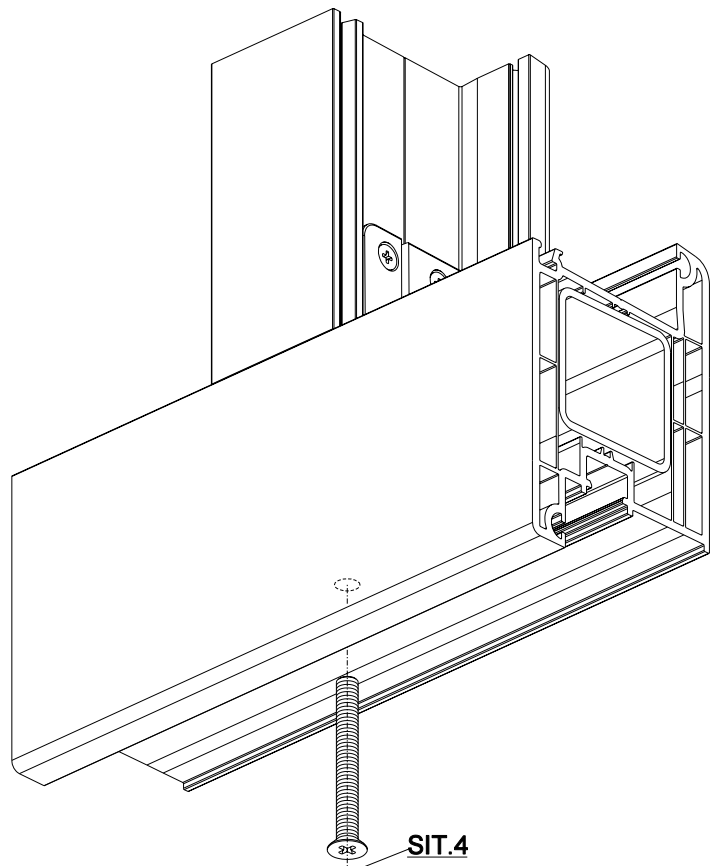
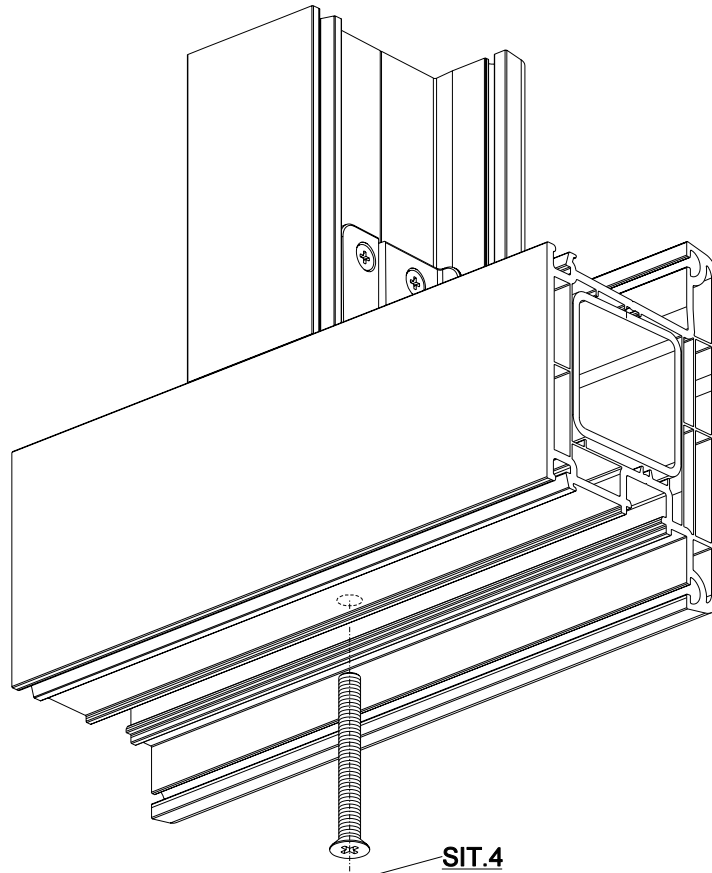
***DRILL POSITION 2 for 6100 and 6101  
the base profiles 3100, 3101***



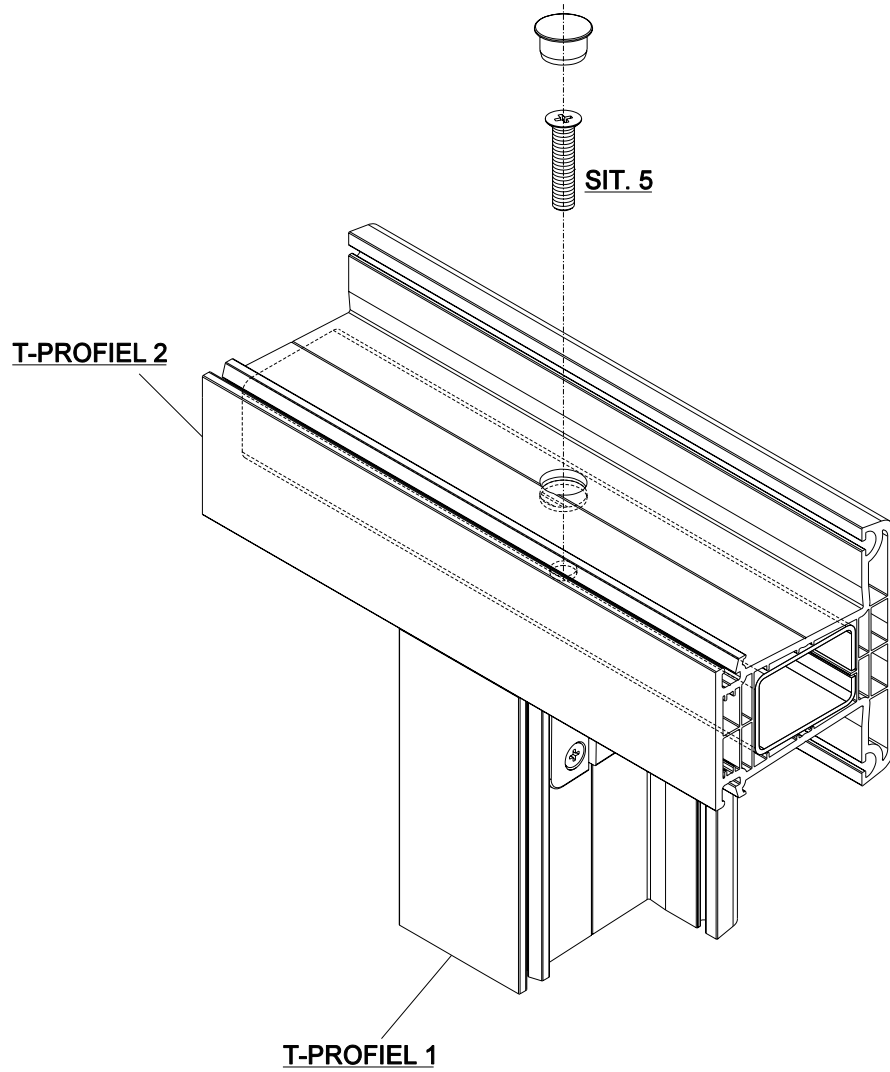
SIT.3 and SIT.4



SIT.4

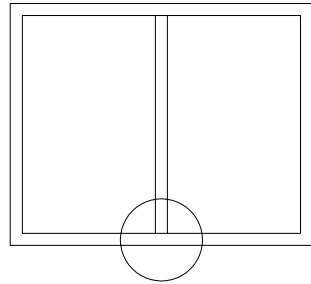


SIT.5

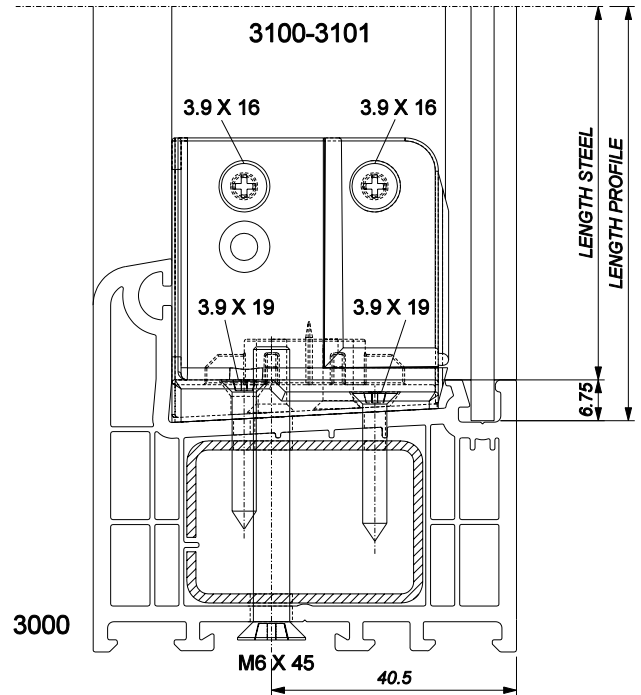




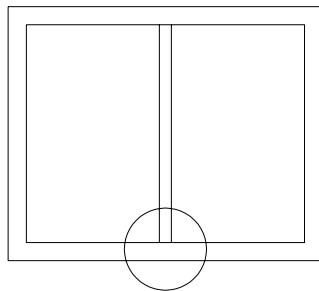
**SECTION DRAWING OF T-JUNCTION WITH 3100/3101 ONTO THE 3000**



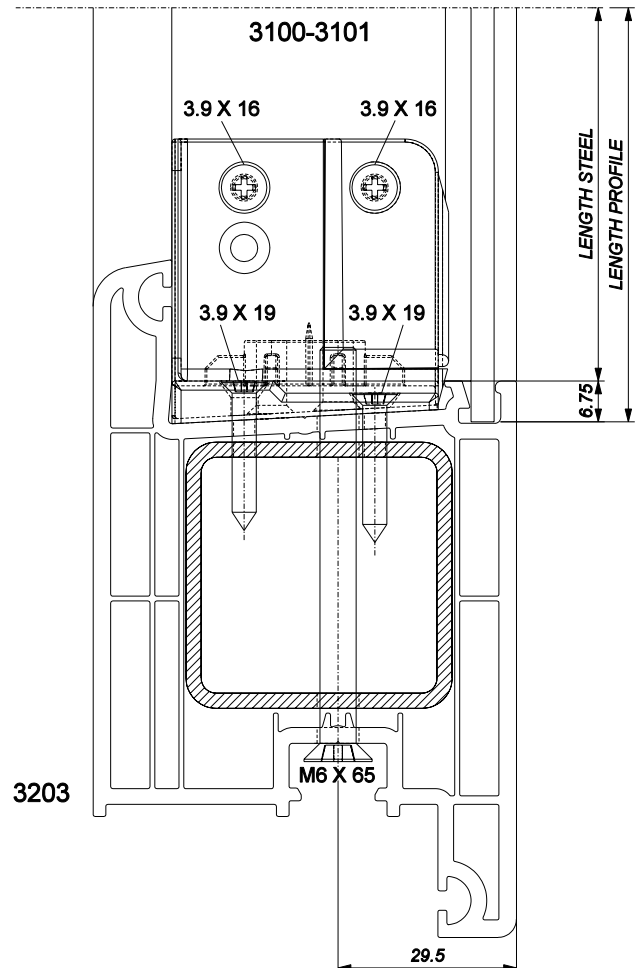
LENGTH STEEL = LENGTH PROFILE - (2 X 6.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 13.5 mm  
 In practice it's necessary to comply with a margin of 10 mm so:  
 LENGTH STEEL = LENGTH PROFILE - 23.5 mm



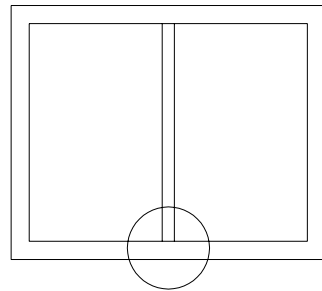
**SECTION DRAWING OF T-JUNCTION WITH 3100/3101 ONTO THE 3203**



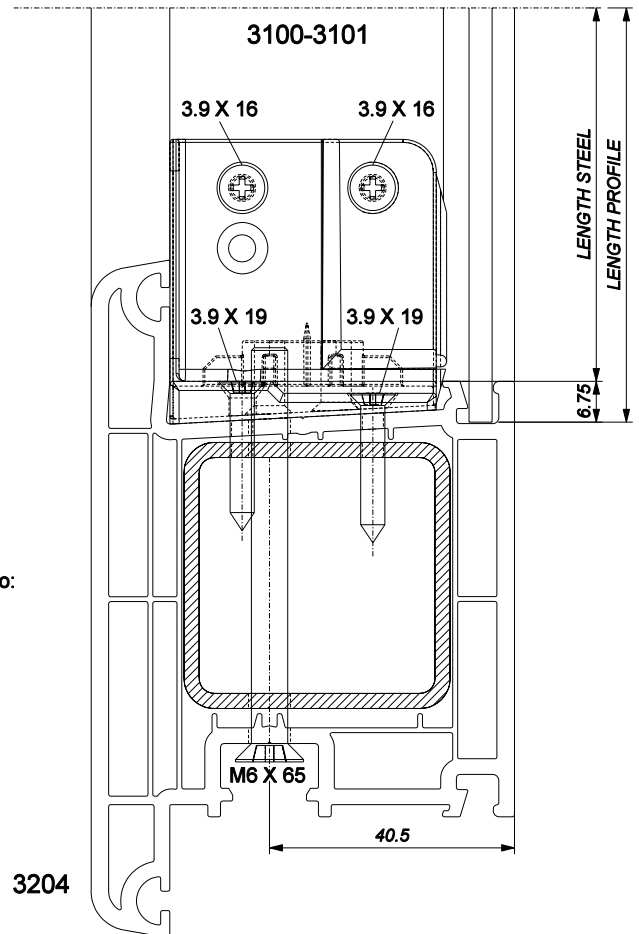
LENGTH STEEL = LENGTH PROFILE - (2 X 6.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 13.5 mm  
 In practice it's necessary to comply with a margin of 10 mm so:  
 LENGTH STEEL = LENGTH PROFILE - 23.5 mm



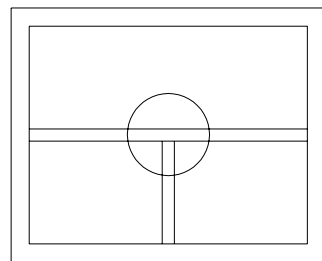
**SECTION DRAWING OF T-JUNCTION WITH 3100/3101 ONTO 3204**



LENGTH STEEL = LENGTH PROFILE - (2 X 6.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 13.5 mm  
 In practice it's necessary to comply with a margin of 10 mm so:  
 LENGTH STEEL = LENGTH PROFILE - 23.5 mm

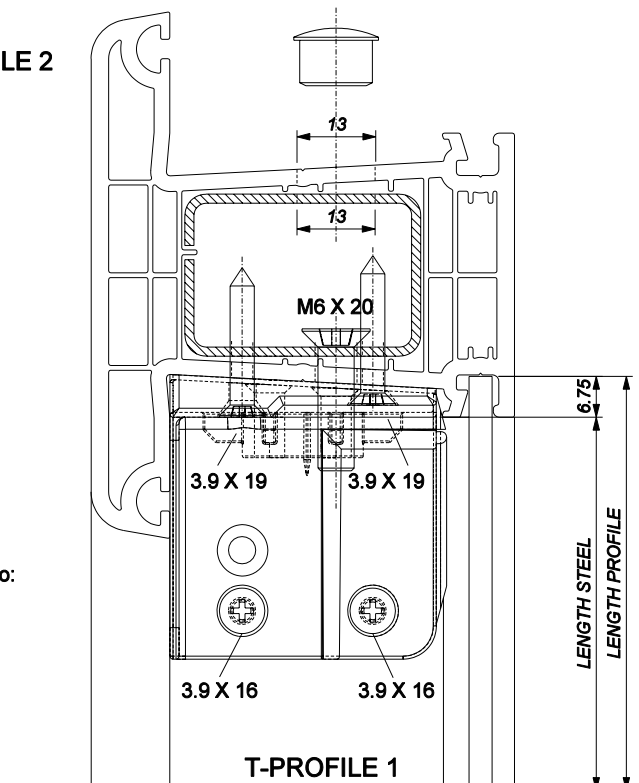


**SECTION DRAWING OF T-JUNCTION WITH 3100/3101 ONTO 3100/3101**

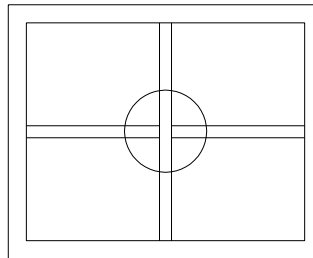


LENGTH STEEL = LENGTH PROFILE - (2 X 6.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 13.5 mm  
 In practice it's necessary to comply with a margin of 10 mm so:  
 LENGTH STEEL = LENGTH PROFILE - 23.5 mm

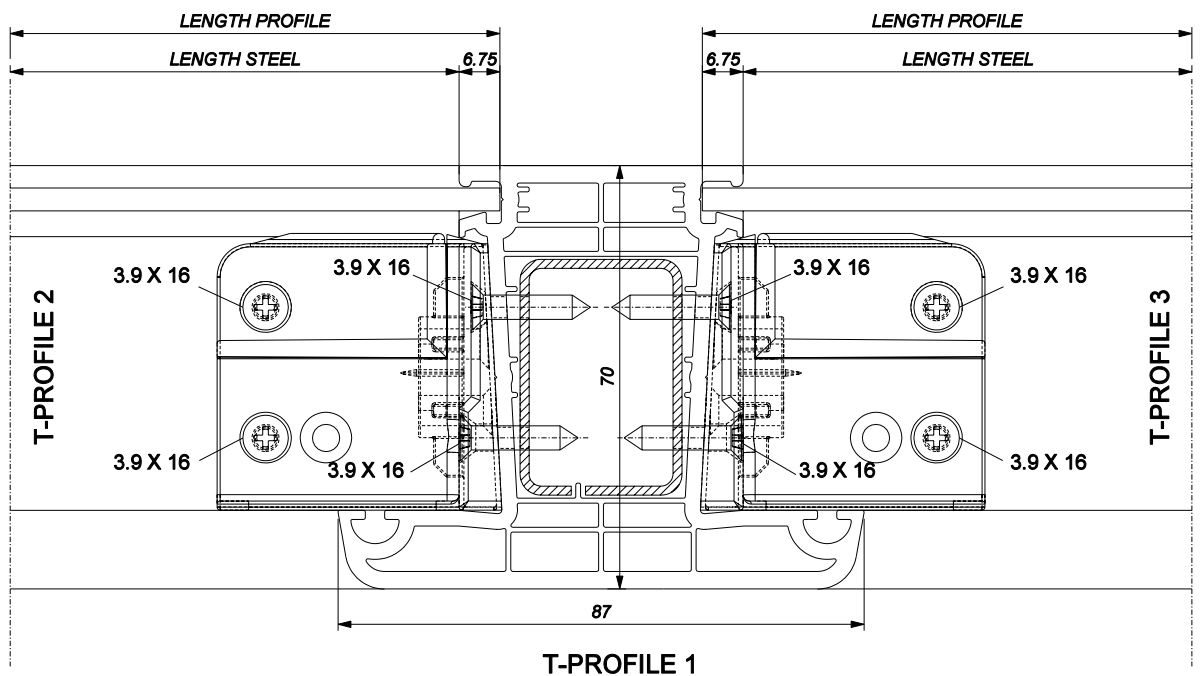
T-PROFILE 2



**SECTION DRAWING OF CROSS JUNCTION WITH 2x 3100/3101**



**LENGTH STEEL = LENGTH PROFILE - (2 X 6.75 mm)**  
**LENGTH STEEL = LENGTH PROFILE - 13.5 mm**  
 In practice it's necessary to comply with a margin of 10 mm so:  
**LENGTH STEEL = LENGTH PROFILE - 23.5 mm**



### 5.7.2. METHOD FOR USING THE REINFORCEMENT 6180

#### A/ Regular T-connection with 3180 onto 3080.

1. The reinforcements have to be placed and screwed in position in both profiles.
2. The T-profile has to be end milled.
3. The mechanical connector has to be pressed into the T-profile and screwed down sideways with self-tapping 3.9x29 screws (SIT.1). The nose of the mechanical connector can also be screwed in the T-profile (SIT.2).
4. By using a drill template you must drill 2 holes of 3mm on both sides through the T-profile, the reinforcement and the mechanical connector (DRILL POSITION 1) to make sure that you can screw them sideways (SIT.3).
5. The PE-mousse is being glued on the front of the T-profile with a little piece over the mechanical connector (SIT.4)
6. The position of the T-profile is being marked off on the outer frame.
7. By using a drill template you must drill 2 holes of 7mm through the outer frame and the reinforcement and 4 x 3mm through one wall of the outer frame and the reinforcement (DRILL POSITION 2).
7. The T-profile with mechanical connector is placed onto the outer frame and screwed by using 4 self-tapping 3.9x19 (SIT.3). It is then necessary to screw a metric screw M6 through the bottom of the base profile into the mechanical connector (SIT.6).

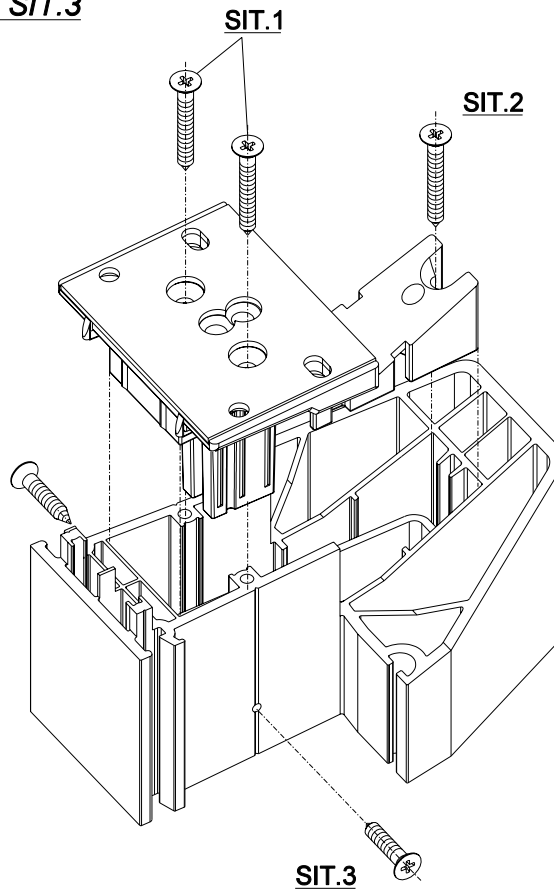
#### B/ Regular T-connection with 3180 onto 3180

1. The reinforcements have to be placed and screwed in position in both profiles.
2. T-profile 1 has to be end milled.
3. The mechanical connector has to be pressed into T-profile 1 and screwed down sideways with self-tapping 3.9x29 screws (SIT.1). The nose of the mechanical connector can also be screwed in the T-profile (SIT.2).
4. By using a drill template you must drill 2 holes of 3mm on both sides through T-profile 1, the reinforcement and the mechanical connector (DRILL POSITION 1) to make sure that you can screw them sideways (SIT.3).
5. The PE-mousse is being glued on the front of the T-profile with a little piece over the mechanical connector (SIT.4).
6. The position of T-profile 1 is being marked off on T-profile 2.
7. By using a drill template you must drill a hole of 7mm through T-profile 2 and the reinforcement (not through the nose of the profile!) and 3 x 4mm through one wall of T-profile 2 and the reinforcement. (DRILL POSITION 2)
8. On one side of T-profile 2 you must drill a hole of 7mm through the wall and the reinforcement until 13mm (see drawing!)
8. T-profile 1 with mechanical connector has to be placed onto T-profile 2 and screwed by using 4 self-tapping 3.9x19 screws. It is then necessary, using a metric screw M6, to screw through the 13 mm hole into the mechanical connector. (SIT.7).
9. Put a plastic cover piece over the 13 mm drill hole!

**C/ Cross connection with 2 x 3180 (Connecting the left T-profile with the right T-profile can only be done for big windows, for the little windows it's necessary to us the traditional connection method.)**

1. The reinforcements have to be places and screwed in position in the 3 T-profiles.
2. T-profiles 2 and 3 have to be end milled.
3. The mechanical connector is being pressed into T-profile 2 and 3 and screwed through the bottom with self-tapping 3.9x29 screws (SIT.1). The nose of the mechanical connector can also be screwed in T-profile 2 (SIT.2). This is not possible for T-profile 3.
4. By using a drill template you must drill 2 holes of 3mm through T-profile 2 and 3 and the reinforcements (DRILL POSITION 1) to make sure that you can screw T-profile 2 sideways (SIT.3). After this it's necessary to loosen the mechanical connector of T-profile 3.
5. The PE-mousse is being glued on the front of T-profile 2 with a little peace over the mechanical connector! (SIT.4)
6. The positions of T-profiles 2 and 3 are being marked off on T-profile 1.
7. By using a drill template you must drill 2 holes of 3mm through all the walls of T-profile 1 and the reinforcement (DRILL POSITION 4). REMARK: Also drill the third hole of 7mm now!
8. T-profile 1 is being set up in the window (AFB.1).
9. T-profile 2 has to be set in place and the mechanical connector has to be screwed into T-profile 1 by using 4 self-tapping 3.9x19 screws (SIT.2) (AFB.2).
10. The 2 drill holes M6 of the mechanical connector of T-profile 3 have to be 7mm (see drawing) REMARK: Also change the third drill hole so it will be easier to screw sideways!
11. On the other side of T-profile 1 you must screw the mechanical connector of T-profile 3, with the PE-mousse, into T-profile 1 by using 4 self-tapping 3.9x19 screws (SIT.8) (AFB.3). It is then necessary to screw, through T-profile 1, the mechanical connector of T-profile 3 by using 2 metric M6 screws into the mechanical connector of T-profile 2. This to make a solid connection (SIT.9).
12. T-profile 3 is being screwed sideways through the reinforcement into the mechanical connector by using 2 self-tapping 3.9x16 screws! (SIT.10) (AFB. 4)

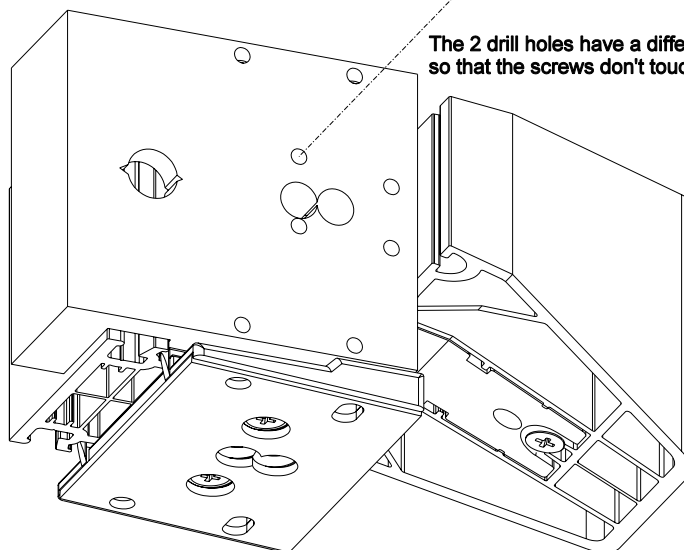
SIT.1 and SIT.2 and SIT.3



DRILL POSITION 1

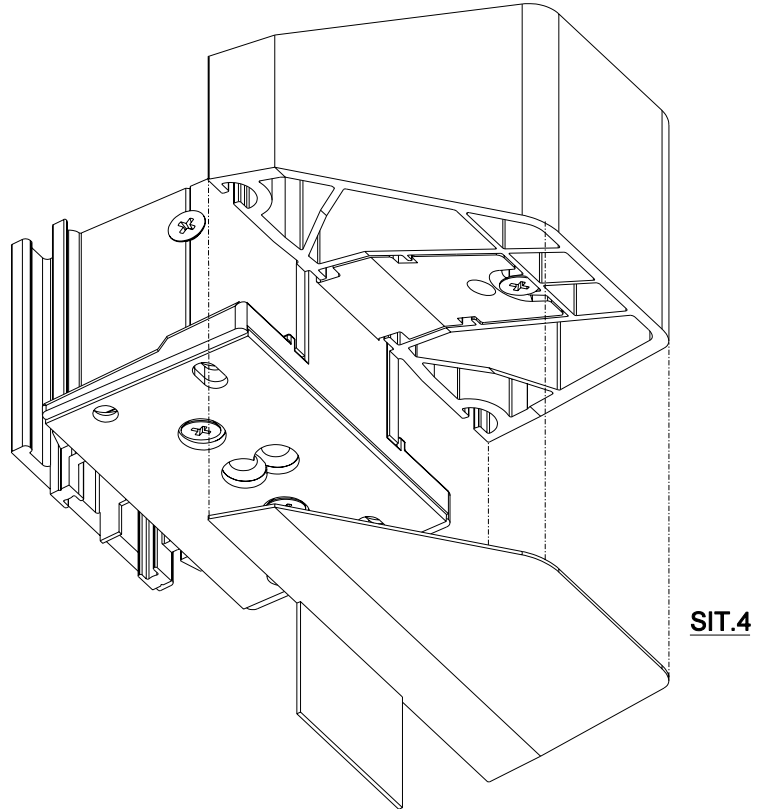
Diam. 3mm through 1 wall of the profile, the reinforcement and the mechanical connector.

The 2 drill holes have a different height so that the screws don't touch each other!

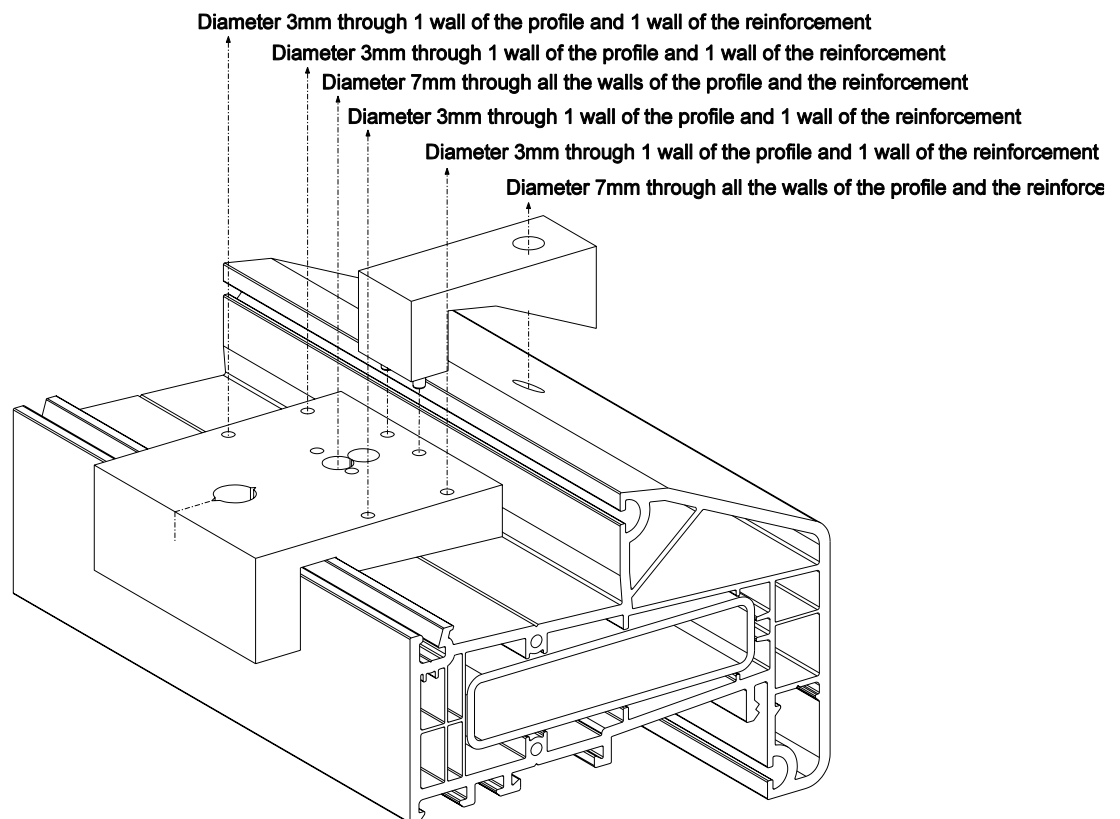


The drill template is placed into the vertical wall of the mechanical connector!

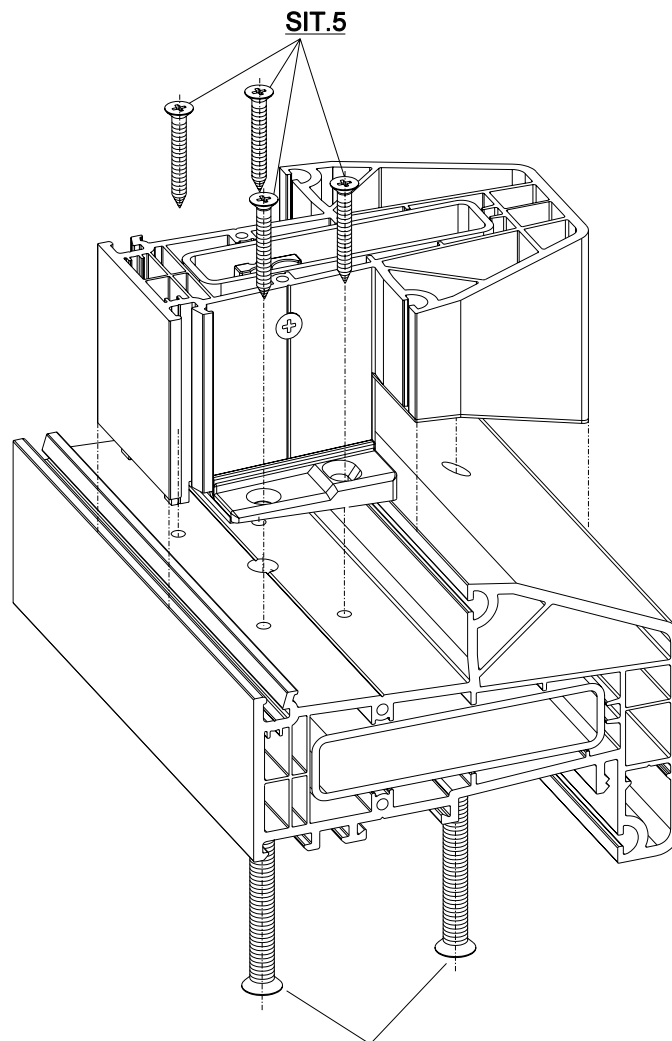
SIT.4



DRILL POSITION 2

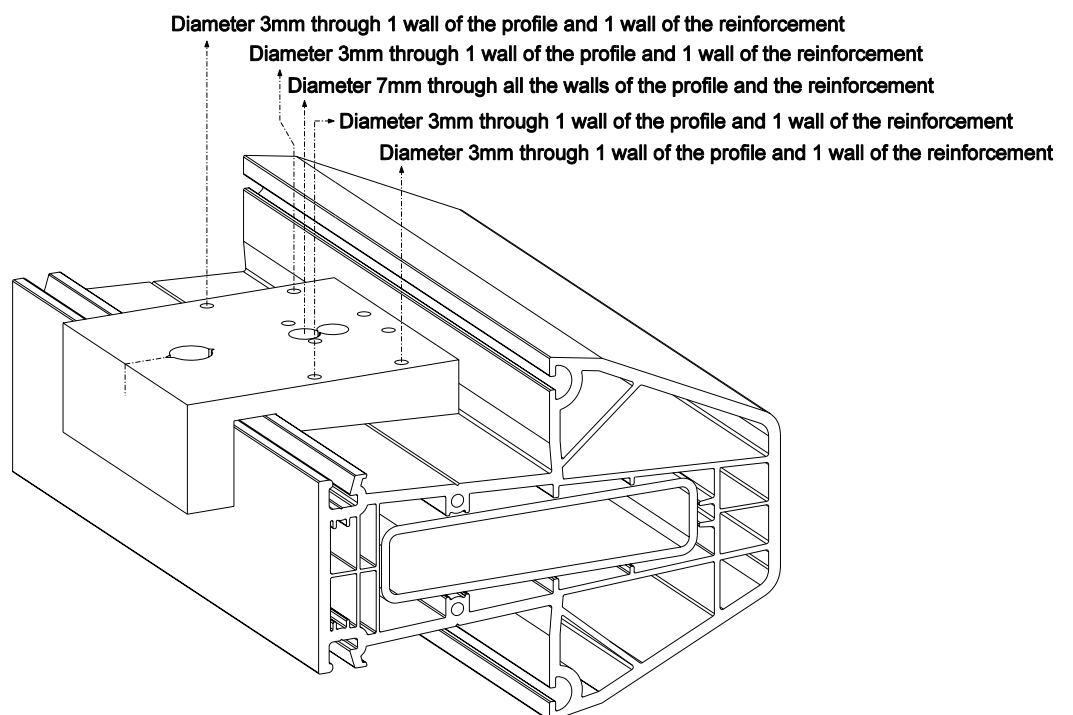


SIT.5 and SIT.6



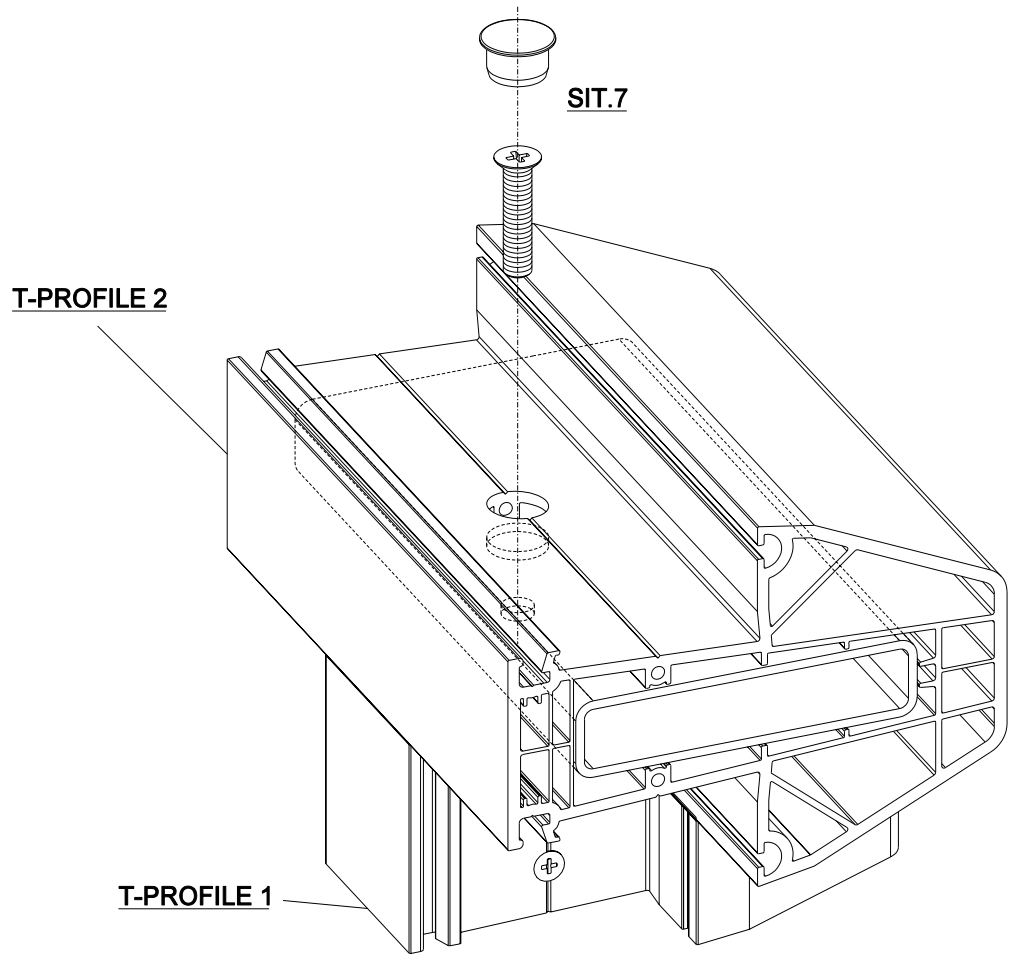
DRILL POSITION 3

SIT.6

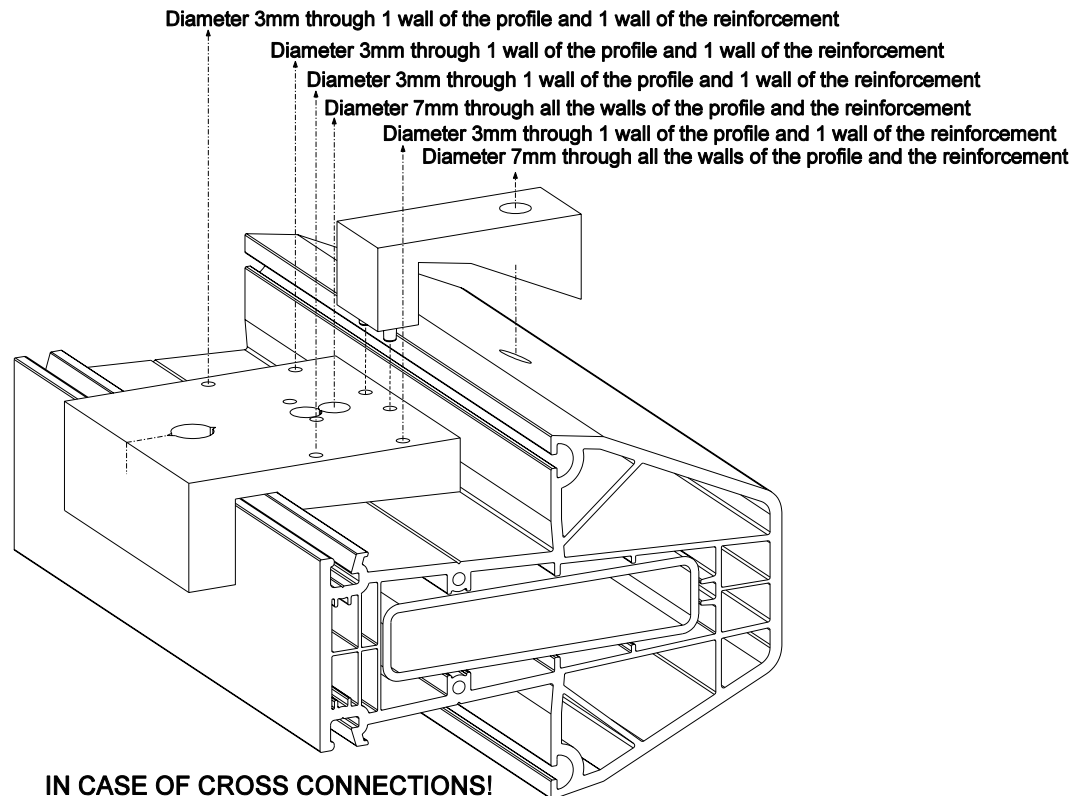




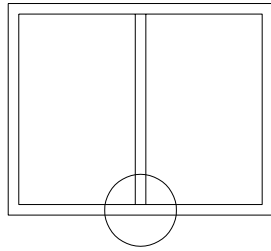
SIT.7



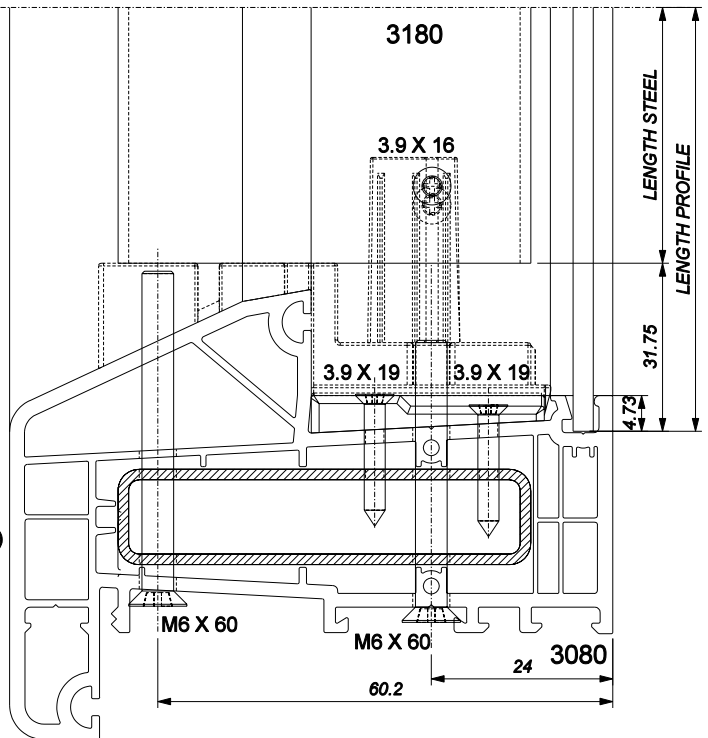
DRILL POSITION 4



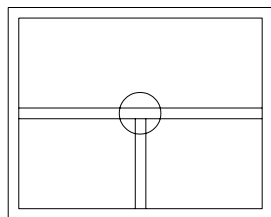
**SECTION DRAWING OF 3080 WITH 6180**



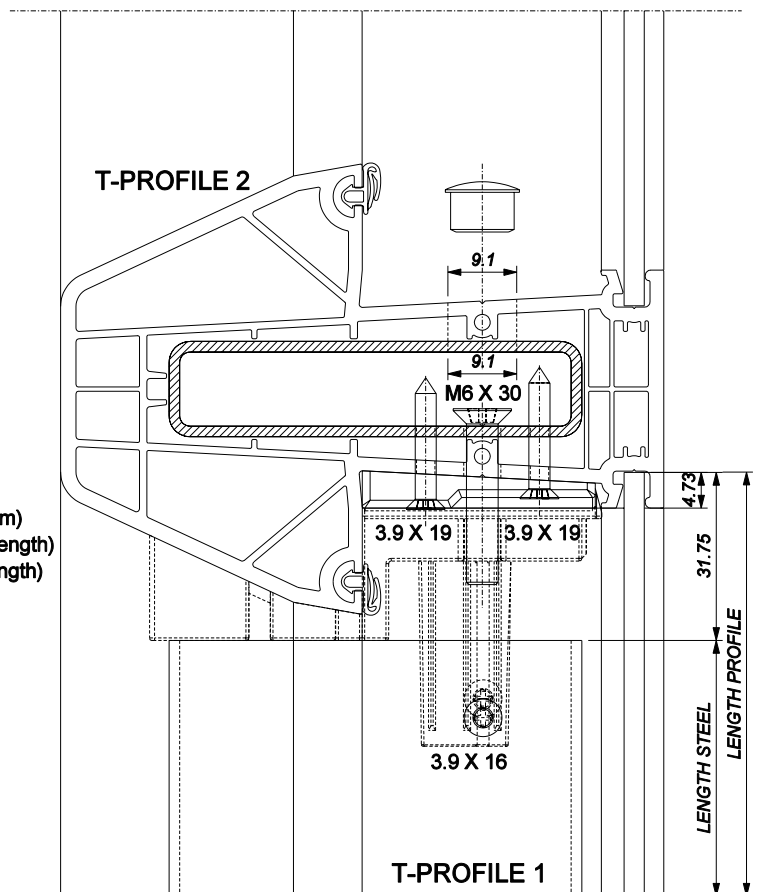
LENGTH STEEL = LENGTH PROFILE - (2 X 31.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 63.5 mm (max. length)  
 LENGTH STEEL = LENGTH PROFILE - 70 mm (min. length)



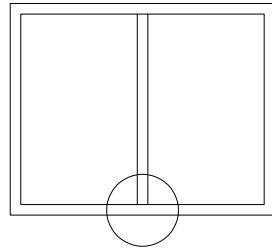
**SECTION DRAWING OF 3180 WITH 6180**



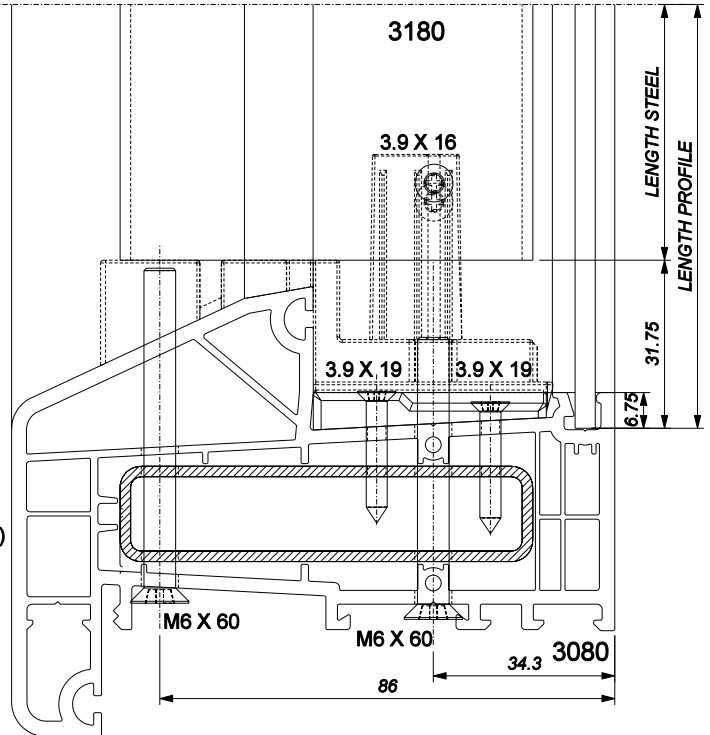
LENGTH STEEL = LENGTH PROFILE - (2 X 31.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 63.5 mm (max. length)  
 LENGTH STEEL = LENGTH PROFILE - 70 mm (min. length)



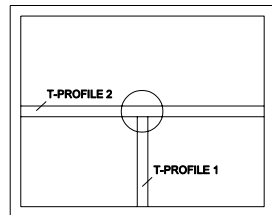
**SECTION DRAWING OF T-JUNCTION WITH 6180 ONTO THE 3080**



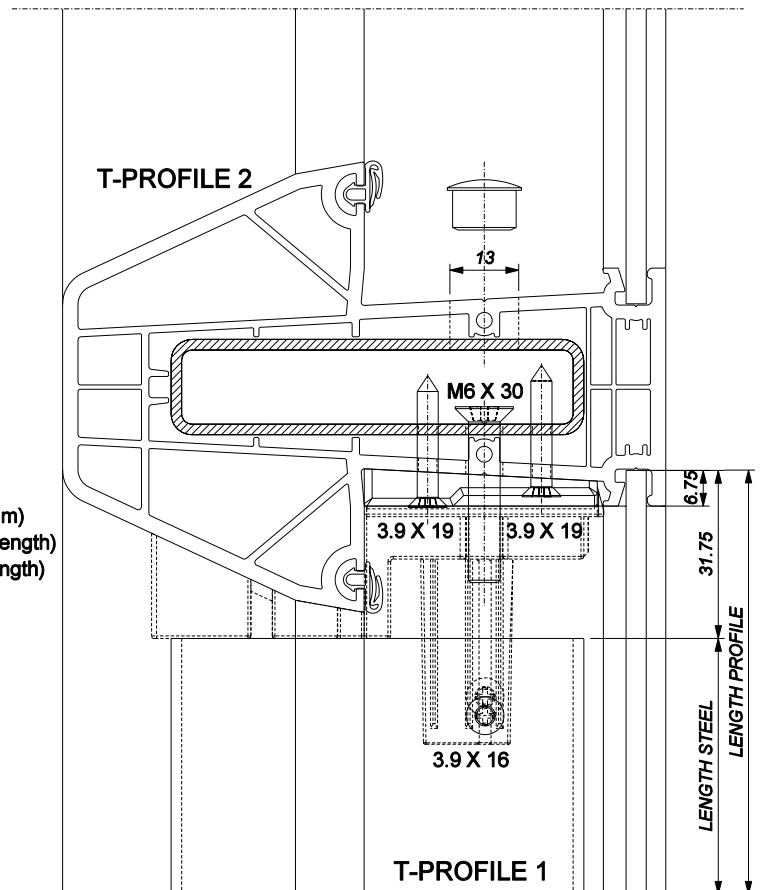
LENGTH STEEL = LENGTH PROFILE - (2 X 31.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 63.5 mm (max. length)  
 LENGTH STEEL = LENGTH PROFILE - 70 mm (min. length)



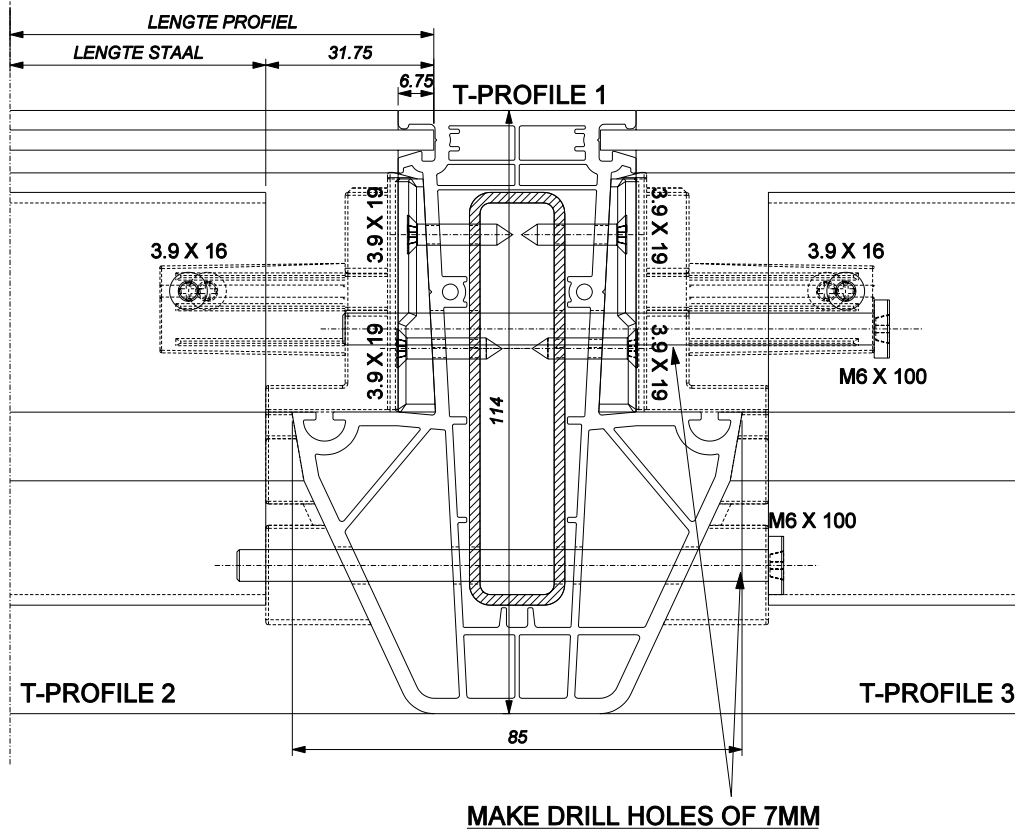
**SECTION DRAWING OF T-JUNCTION WITH 6180 ONTO THE 3180**



LENGTH STEEL = LENGTH PROFILE - (2 X 31.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 63.5 mm (max. length)  
 LENGTH STEEL = LENGTH PROFILE - 70 mm (min. length)

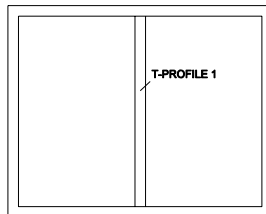


**SECTION DRAWING OF CROSS JUNCTION WITH 2x 3180**

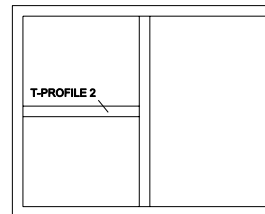


LENGTH STEEL = LENGTH PROFILE - (2 X 31.75 mm)  
 LENGTH STEEL = LENGTH PROFILE - 63.5 mm (max. length)  
 LENGTH STEEL = LENGTH PROFILE - 70 mm (min. length)

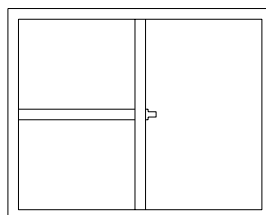
**AFB.1**



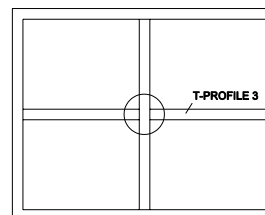
**AFB.2**



**AFB.3**



**AFB.4**



## 5.8. FITTING THE IRONMONGERY

The ironmongery enables the sashes to be opened and closed and facilitates ventilation. Nevertheless security and weatherproofing must remain guaranteed. The ironmongery and its fixing should be able to resist torsion, flexing, shocks and be able to support the load required. The ironmongery is installed with self-drilling rustproof screws and according to the instructions of the ironmongery supplier. Screws should, where possible, pass through a minimum of 2 PVC-walls, but even better is the screwing into the reinforcement.

Special care should be taken to ensure sufficient locking points are foreseen depending on the width and height of the opening parts. Constant care must be taken to ensure that the prescribed clearance of 12 mm between the fixed and part that opens is foreseen to ensure a perfect working.

## 5.9. GASKETS

In the 3000 Series the glazing- and weather-tightness are achieved using a TPE-gasket, which is on-line inserted into the gasket groove during the extrusion process of the main profiles. This gasket can be welded at the same temperature as the profile and is dual purpose, functioning as a weather seal, and as a glazing gasket. This TPE-gasket can be manually reinstalled. Only original gaskets prescribed by the system supplier can be used and resist against atmospheric influences and symptoms of aging. In case of light-colored profiles (white, cream, light grey, ...) they use grey gasket, in case of darker profiles and woodimitations they use black gaskets.

## 5.10. AUXILIARY PROFILES

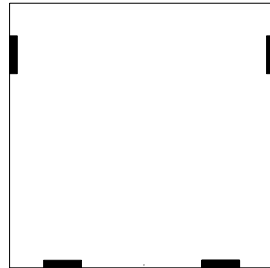
Auxiliary profiles may be clipped, screwed or glued onto or into the main profiles to achieve the desired effect.

## 5.11. GLAZING

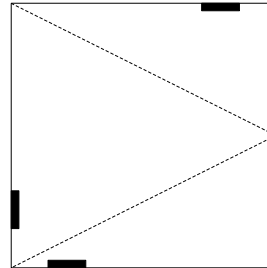
Glazing is done on site or in the workshop. The glass has to be installed from the inside. The corners where the glazing beads meet can be either mitered or scribed depending on the fabricator's choice. The glazing beads clip into the main profiles and are co-extruded with a white seal (except where the profiles are woodgrained, in which case they are co-extruded with a black seal). The glazing beads are available in different sizes to allow a variety of glass unit thickness. The minimum glazing is 16 mm, the maximum is 45 mm. An overall gap of 8 to 10 mm, 4 to 5 mm either side, is allowed between the glass and the frame. It is supported and centralized within the frames by means of glass supporting blocks. These should have a minimum length of 10 mm and not impede the evacuation of water. The width of the glass supporting block = width glass + 2 mm. The purpose of the support blocks is to allow ventilation around the glass unit and to transfer the weight of the glass to the best reinforced supporting places. The thickness of the glazing has to be adapted to the dimensions of the window.

### 5.10.1. POSITION OF THE GLASS SUPPORTING BLOCKS

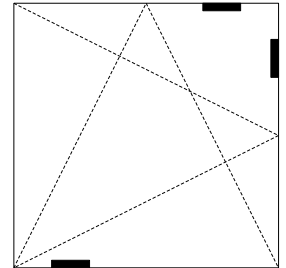
Fixed frame



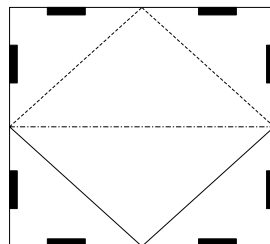
Single opening window



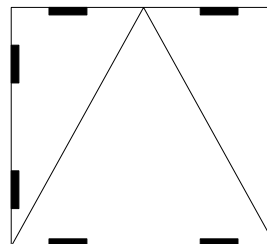
Tilt / Turn



Pivot Window



T / Hung Casement



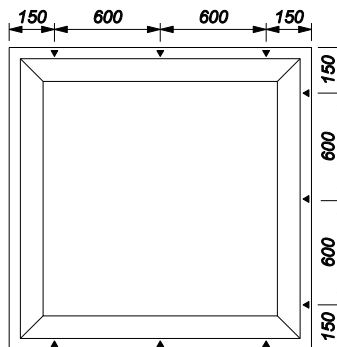
## 5.12. FINAL INSPECTION AND CONTROL

Before the windows leave the workshop they must be carefully inspected to ensure the correct level of quality. The windows should be controlled on their requirements concerning dimensions, drainage, decompression, fitting of ironmongery, corner cleaning, gaskets, glazing beads etc. For a high quality window a fine adjust of the welding parameters is of high importance.

## 5.13. INSTALLATION

Rigid PVC is sensitive to sharp shocks which often results in fractured welds, therefore during transportation, storage and installation special care should be taken to ensure that frames are not subjected to these. During transportation and storage the frames should be stacked off the ground and separated by suitable pieces of non-abrasive packaging material. The finished windows should also be stored dry until ready for installation.

Frames should be fixed by means of screws, frame anchors, expanding foam or fixing lugs. Any metallic fixings should be suitable rustproof and where fixing through the frame a suitable plastic packer should be placed to ensure that the frame is kept square and not distorted. Fixing lugs should be suitably spaced (see below) around the sides and top of the outer frame and fixed to it with self-drilling screws. Fixing should not take place through the bottom of the outer frame, as it will cause water infiltration. It should also be kept level and suitably supported at such points where glass is to be supported, locking points are located or anchorage takes place. If the tops or bottoms of frames are not to be fixed then they must be reinforced. When fitting frames with PVC cills onto stone cills a gap of min 3 mm must be kept between the nose of the PVC cill and the stonework to allow expansion and contraction. This gap is then filled with silicone mastic and is especially important with wood grain profiles. Frames must be positioned vertical, square, level and not in twist. For the recommended number and positioning of the fixing points see drawing below.



Fixing must not be placed too near to the welded corners and should be placed to support hinges and permit positive locking. A gap of 10 mm should be allowed for around the perimeter of the frame to allow expansion and contraction. This gap is then filled with low modulus silicone mastic backed by a suitable foam strip if required.

## 6. TOOLS AND MACHINERY

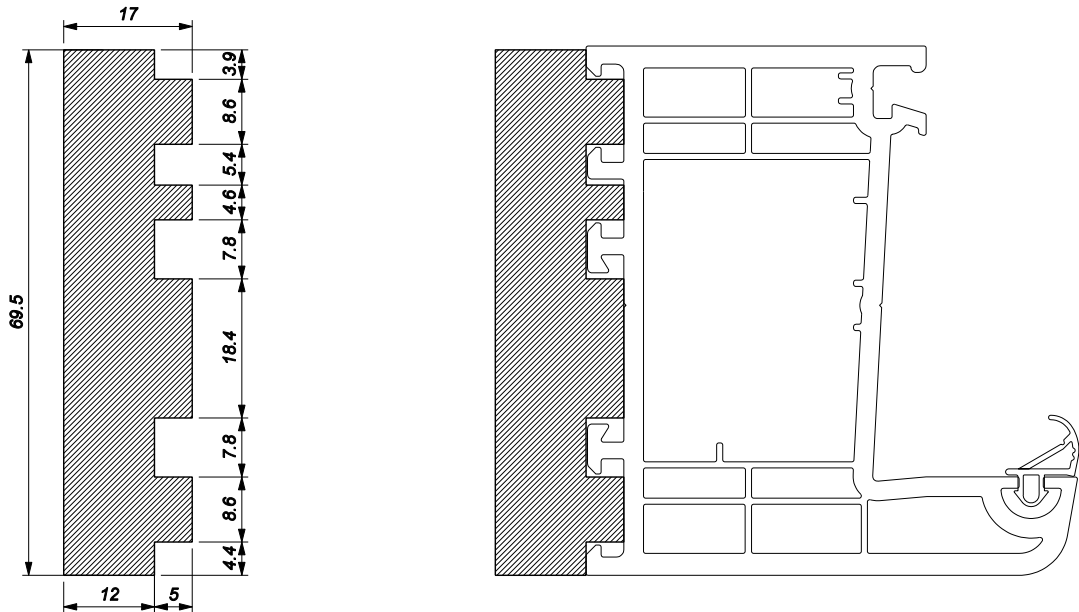


## 6. TOOLS AND MACHINERY

### 6.1. SUPPORTING BLOCKS FOR WELDING MACHINE

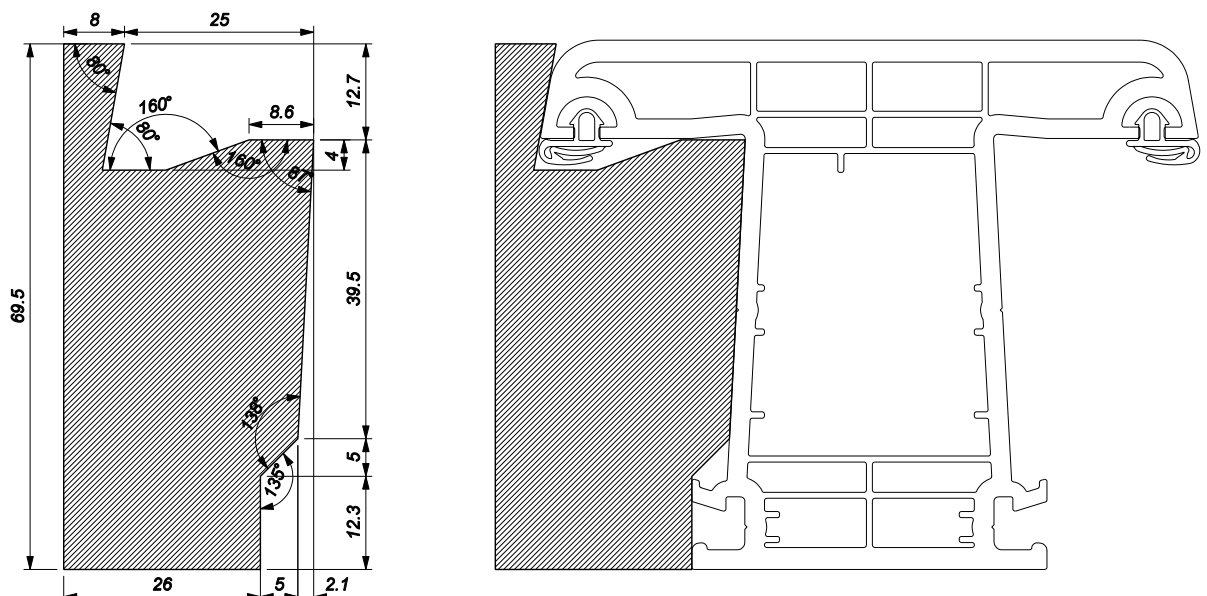
#### 6.1.1. PROFILE 3000 - 3001

SCALE 1/1



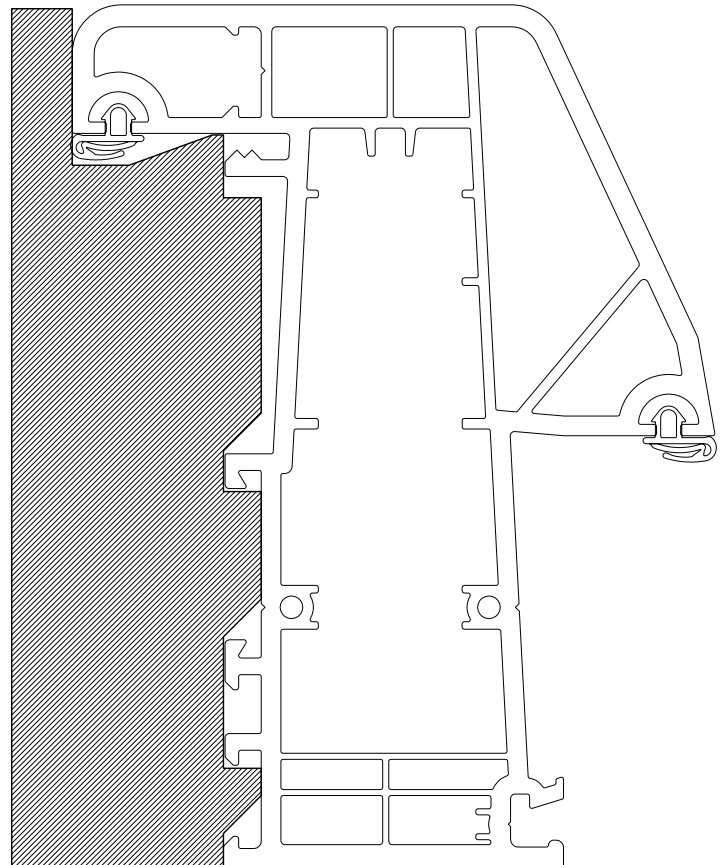
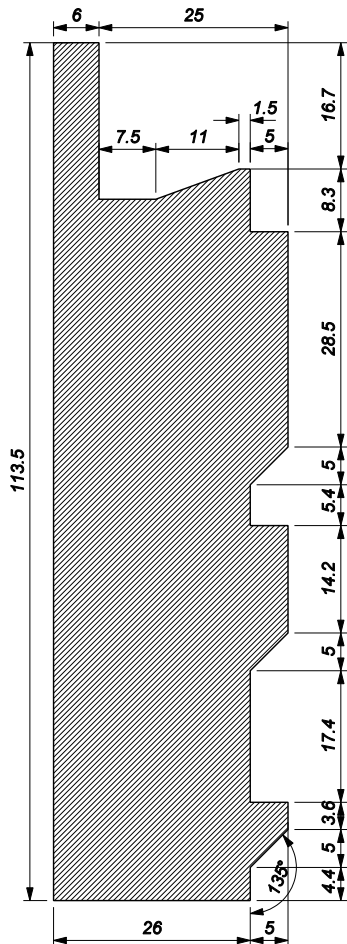
#### 6.1.2. PROFILE 3002 - 3100 - 3101

SCALE 1/1



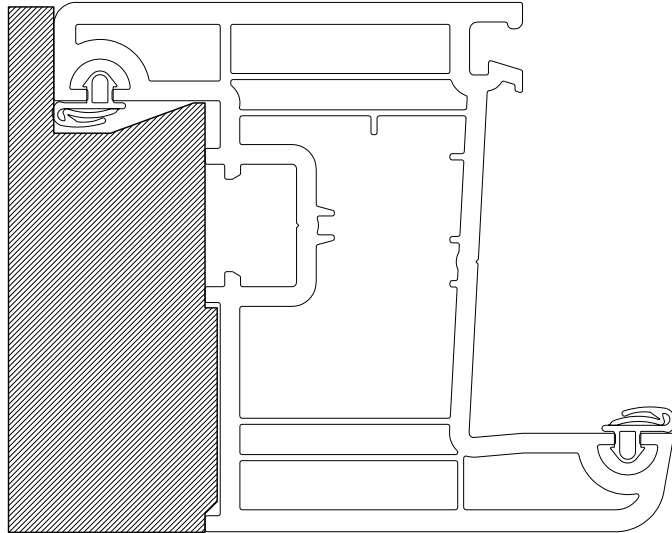
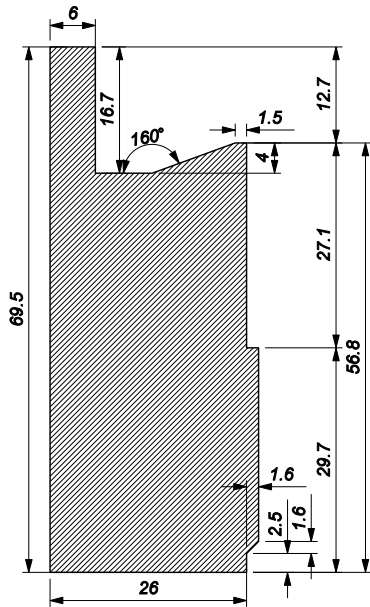
6.1.3. PROFILE 3080

SCALE 1/1



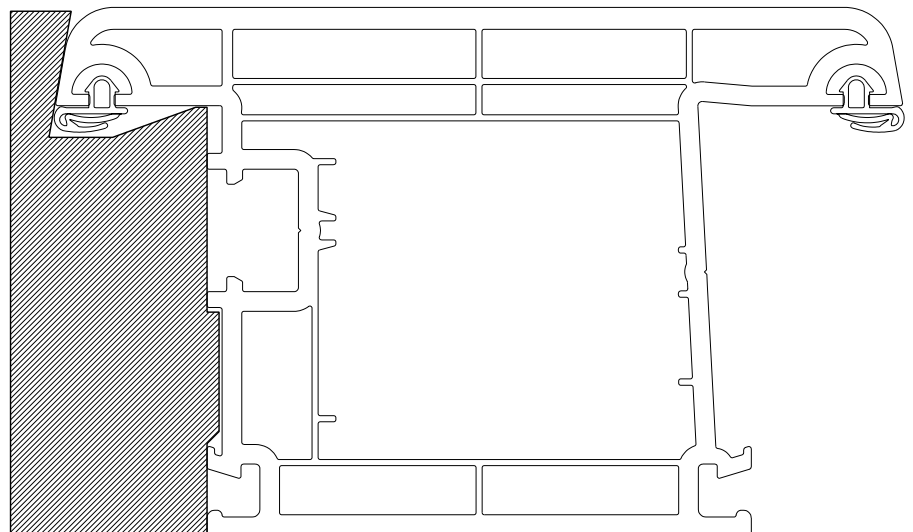
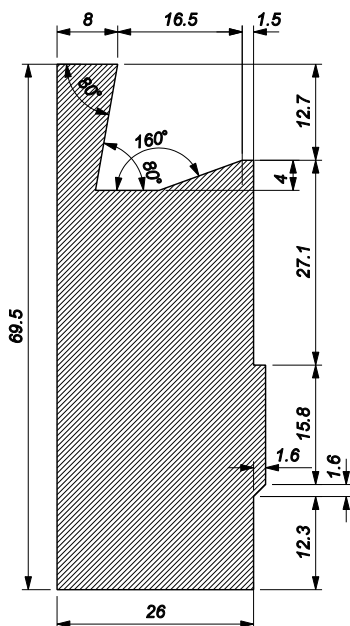
6.1.4. PROFILE 3200 - 3201 - 3202 - 3203

SCALE 1/1



6.1.5. PROFILE 3204

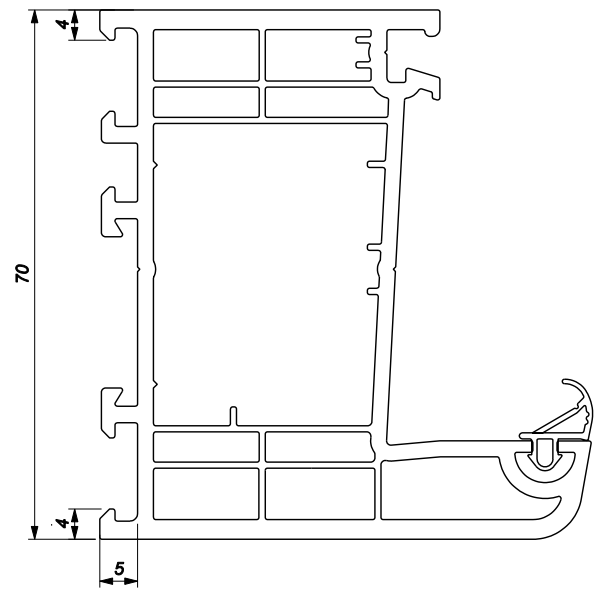
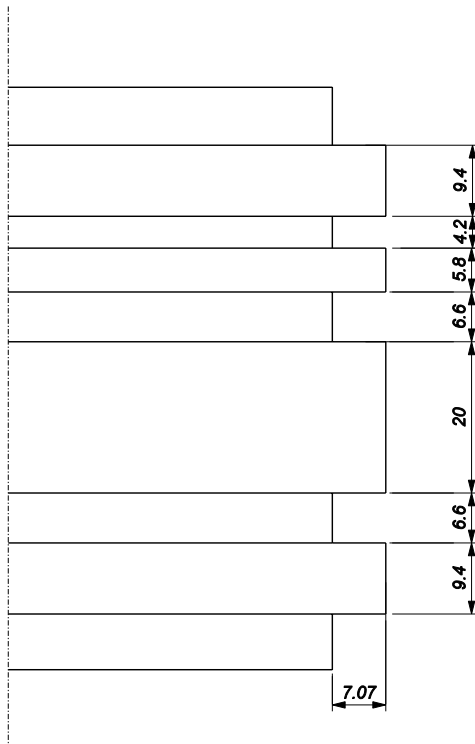
SCALE 1/1



## 6.2. CORNER CLEANER CUTTER

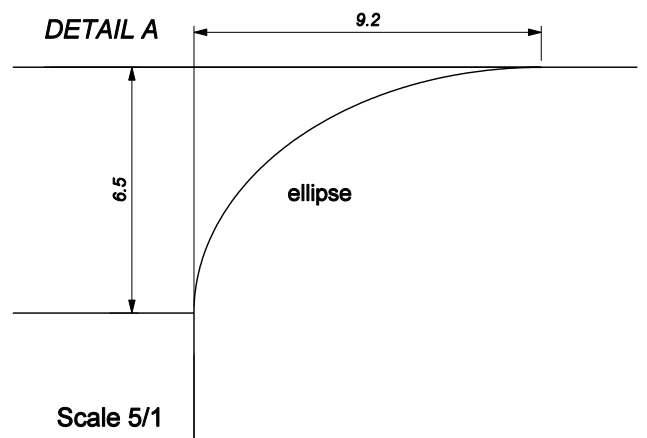
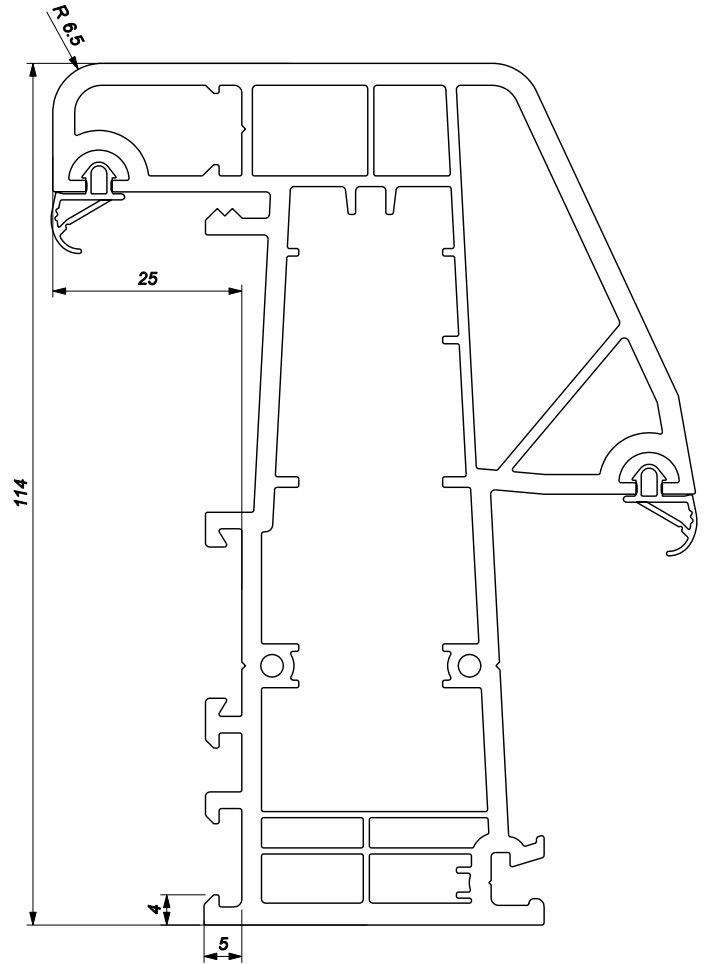
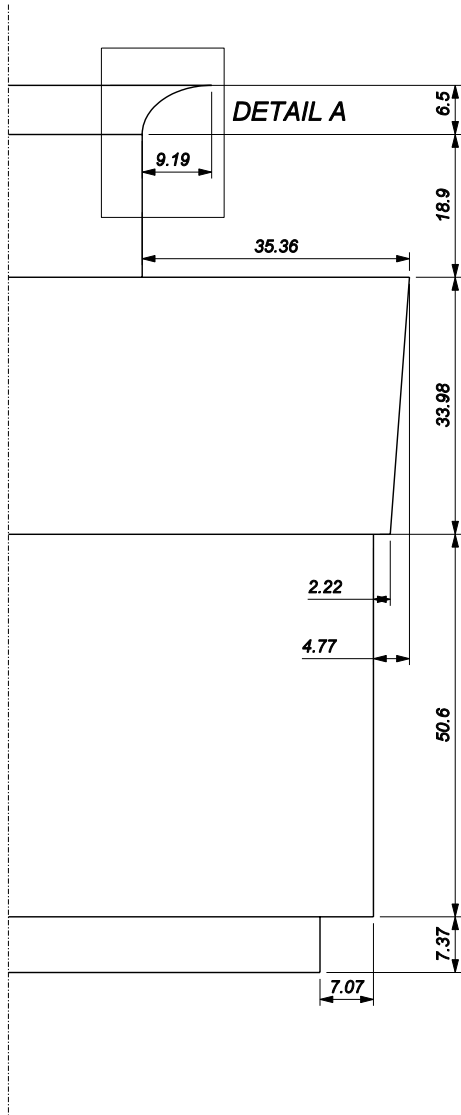
### 6.2.1. PROFILE 3000 - 3001

SCALE 1/1



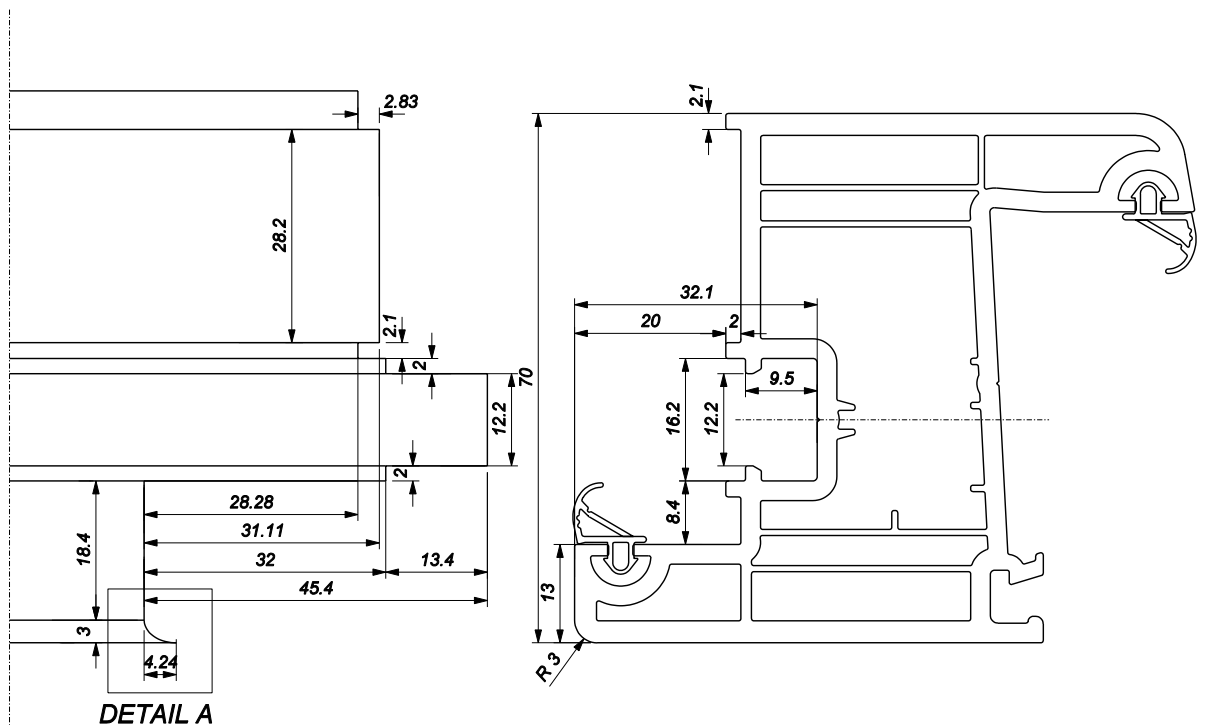
6.2.2. PROFILE 3080

SCALE 1/1

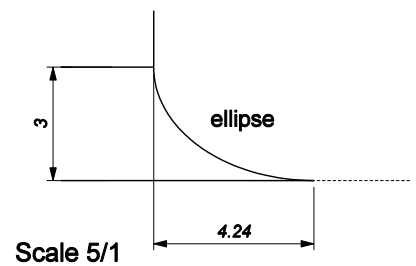


6.2.3. PROFILE 3200 - 3201 - 3202 - 3203

SCALE 1/1

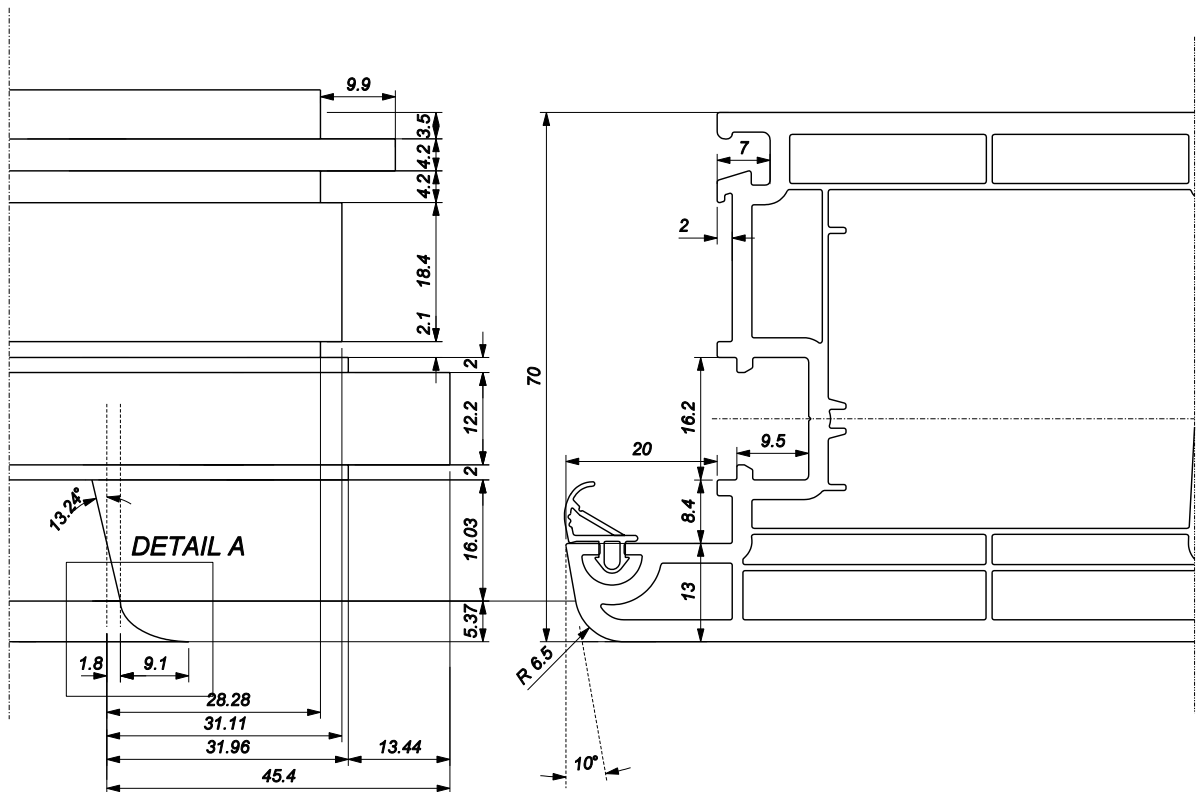


DETAIL A

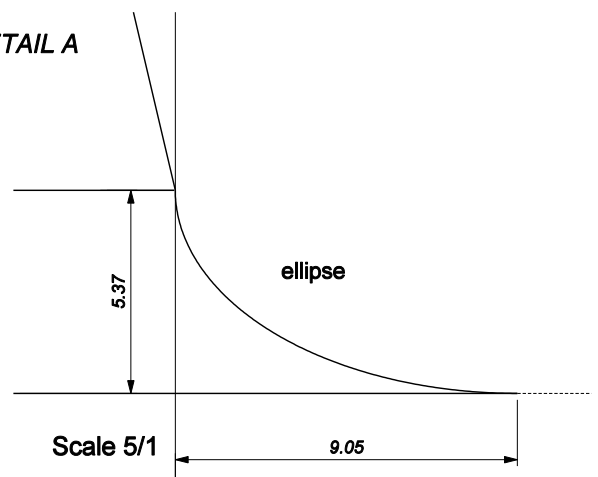


6.2.4. PROFILE 3204

SCALE 1/1



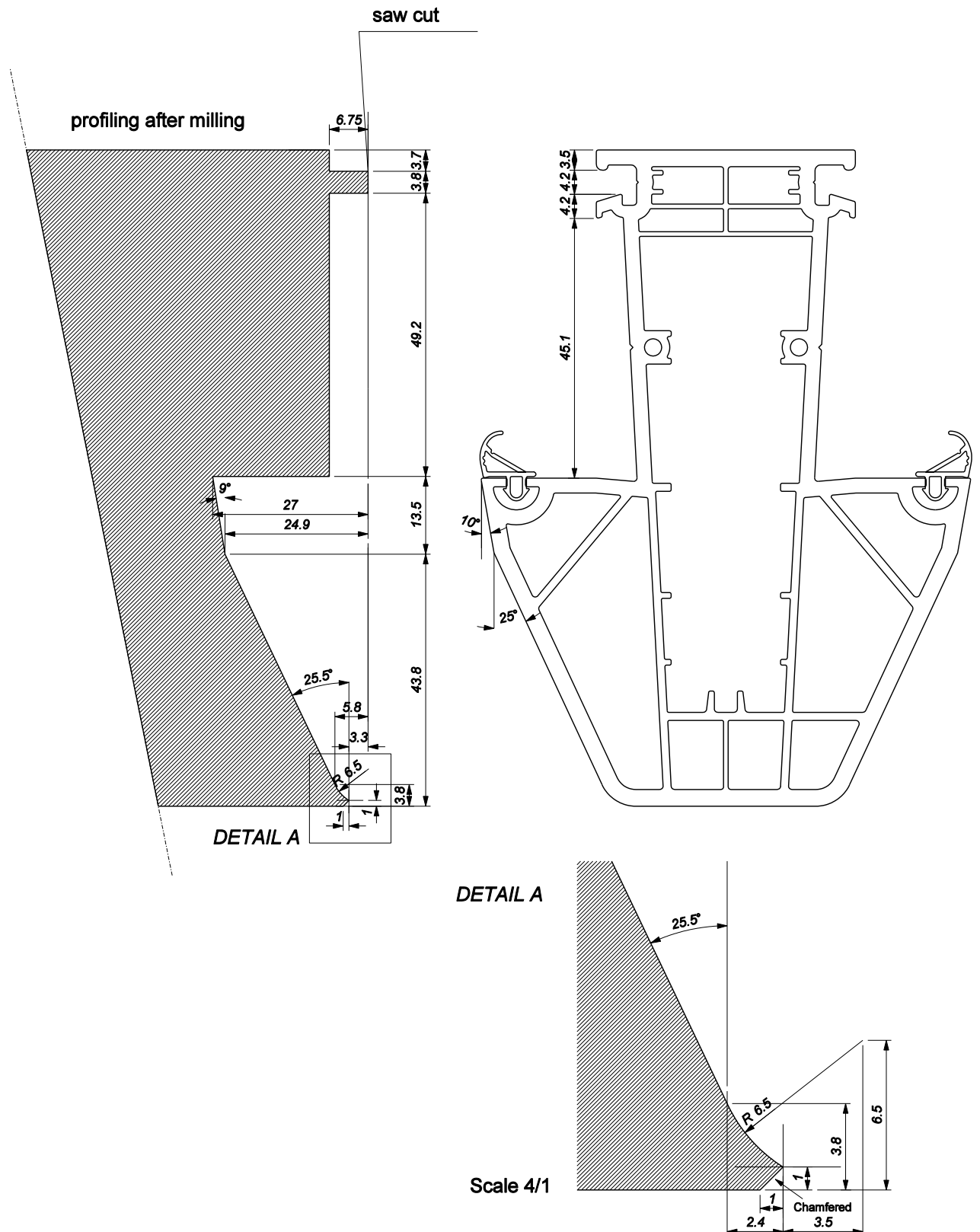
DETAIL A



### 6.3. END MILL CUTTER FOR A MECHANICAL JOINT

#### 6.3.1. PROFILE 3180

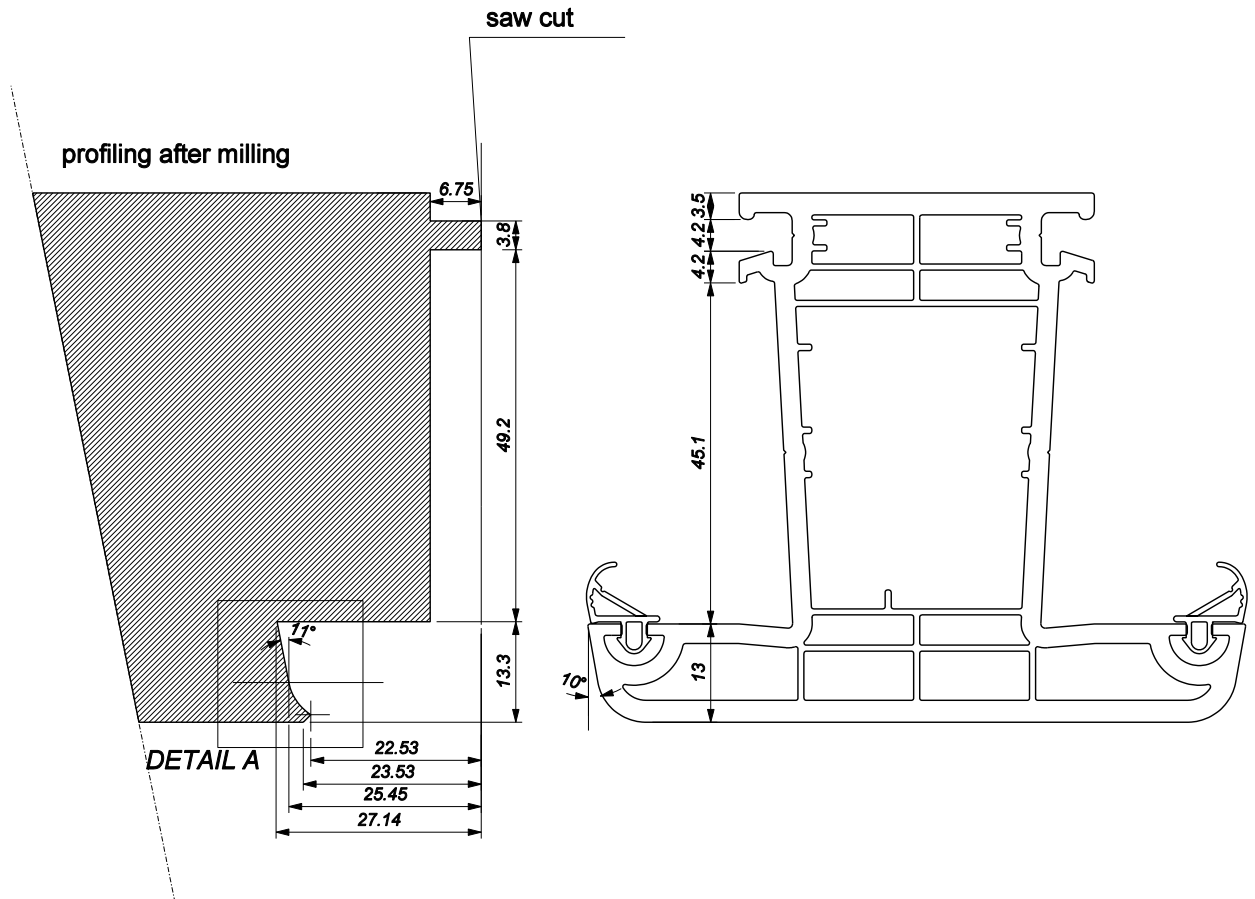
SCALE 1/1





6.3.2. PROFILE 3100 - 3101

SCALE 1/1



DETAIL A

