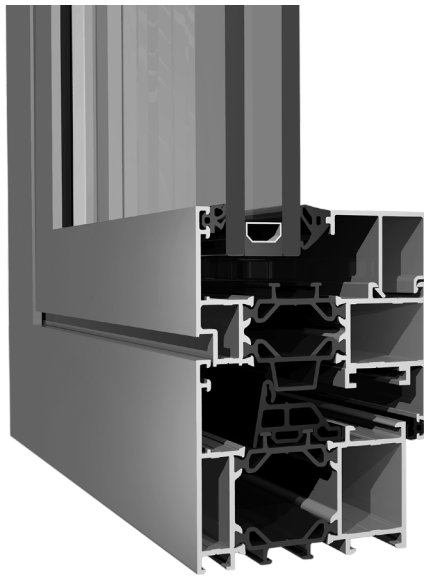




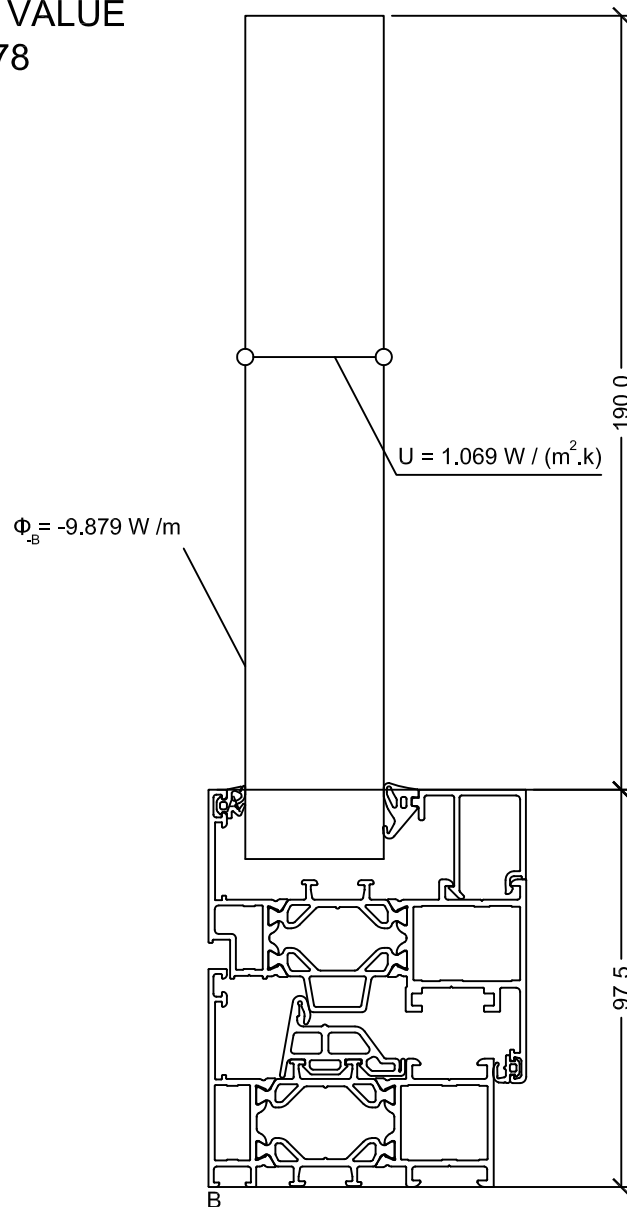
GlobAlum
Globaly Aluminum Passion

GC78

**CASEMENT
SERIES GC78**



FRAME U- VALUE
GC 78



$$U_{fA,B} = \frac{\frac{\Phi}{\Delta T} - U_P \cdot b_P}{b_f} = \frac{\frac{9.879}{20,000} - 1.069 \times 0.190}{0.098} = 2.11 \text{ W / (m}^2 \cdot \text{k)}$$

Thermal Transmittance Calculation

EN ISO 10077-1:2008

The thermal transmittance of a single window, U_w , shall be calculated using Equation:

$$U_w = \frac{\sum U_g \cdot A_g + \sum U_f \cdot A_f + \sum \Psi_g \cdot \Psi_g}{\sum A_g + \sum A_f}$$

Where

U_g = Thermal transmittance of the glazing;

U_f = Thermal transmittance of the frame;

Ψ_g = Linear thermal transmittance due to the combined thermal effects of glazing, spacer and frame;

**Values of linear thermal transmittance for common types of glazing spacer bars
(e.g. aluminum or steel)**

Frame Type	Linear thermal transmittance for different types of glazing Ψ_g	
	Double or triple glazing uncoated glass air -or gas -field	Double ^a or triple ^b glazing low-emissivity glass air -or gas -field
Wood or PVC	0,06	0,08
Metal with thermal break	0,08	0,11
Metal without thermal break	0,02	0,05
a One pane coated for double glazed. b Two panes coated for triple glazed.		

**Values of linear thermal transmittance for common types of glazing spacer bars
With improved thermal performance**

Frame Type	Linear thermal transmittance for different types of glazing With improved thermal performance Ψ_g	
	Double or triple glazing uncoated glass air -or gas -field	Double ^a or triple ^b glazing low-emissivity glass air -or gas -field
Wood or PVC	0,05	0,06
Metal with thermal break	0,06	0,08
Metal without thermal break	0,01	0,04
a One pane coated for double glazed. b Two panes coated for triple glazed.		

محاسبه ضریب انتقال حرارت
EN ISO 10077-1:2008

ضریب انتقال حرارت برای پنجره از فرمول زیر محاسبه می شود:

$$U_w = \frac{\sum U_g \cdot A_g + \sum U_f \cdot A_f + \sum \lambda_g \cdot \Psi_g}{\sum A_g + \sum A_f}$$

که در آن :

U_g = ضریب انتقال حرارت شیشه

U_f = ضریب انتقال حرارت فریم

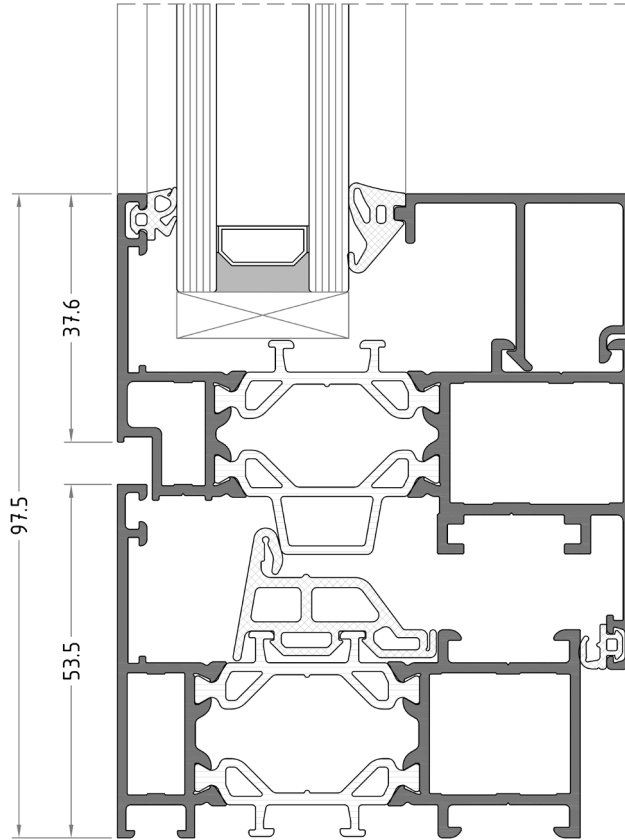
Ψ_g = ضریب انتقال حرارت خطی اسپیسر که به نوع اسپیسر و فریم پنجره بستگی دارد.

ضریب انتقال حرارت خطی اسپیسر های معمولی (مانند اسپیسر آلومینیومی یا استیل)

نوع فریم	ضریب انتقال حرارت خطی اسپیسر با توجه به نوع شیشه Ψ_g	
	شیشه دو یا سه جداره معمولی لایه میانی پر شده از هوا یا گاز	شیشه دو* یا سه جداره** با پوشش Low-e لایه میانی پر شده از هوا یا گاز
فریم چوبی یا یوپی وی سی	0,06	0,08
فریم ترمال بریک	0,08	0,11
فریم غیر ترمال بریک	0,02	0,05
*یک لایه شیشه پوشش دار ** دو لایه شیشه پوشش دار		

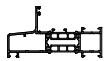














ضریب انتقال حرارت خطی اسپیسر با ارتقا عملکرد حرارتی (وارم ایچ)

نوع فریم	ضریب انتقال حرارت خطی اسپیسر با توجه به نوع شیشه برای اسپیسر با ارتقا عملکرد حرارتی (وارم ایچ) Ψ_g	
	شیشه دو یا سه جداره معمولی لایه میانی پر شده از هوا یا گاز	شیشه دو* یا سه جداره** با پوشش Low-e لایه میانی پر شده از هوا یا گاز
فریم چوبی یا یوپی وی سی	0,05	0,06
فریم ترمال بریک	0,06	0,08
فریم غیر ترمال بریک	0,01	0,04
*یک لایه شیشه پوشش دار ** دو لایه شیشه پوشش دار		





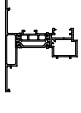




















GC78 Window - Thermal Transmittance													
EN ISO 10077-1:2008													
Casement Window 1230 x 1480 mm.													
Casement Window Combination	PSI Ψ_g	Glazing Ug											
		1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50
2117802 Frame 2217802 Sash	0.06	1.73	1.80	1.88	1.95	2.03	2.10	2.18	2.25	2.33	2.40	2.48	2.56
	0.08	1.78	1.85	1.93	2.00	2.08	2.15	2.23	2.30	2.38	2.46	2.53	2.61
	0.11	1.85	1.93	2.00	2.08	2.15	2.23	2.30	2.38	2.46	2.53	2.61	2.68








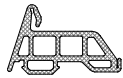

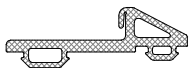



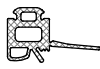


PROFILES :

Number	Shape	DESCRIPTION	I cm ⁴	I cm ⁴
2117801		Frame profile53/31/100	55.38	9.26
2117802		Frame profile53/31	30.58	7.92
2117803		Frame profile72/50	40.69	24.30
2117851		Frame profile78/31 Hidden vent	39.33	13.92
2217802		Sash profile 50/37-2	44.67	8.39
2217851		Sash profile 59/14 Hidden vent	32.90	10.12
2317802		Sash profile 63/76-2	67.74	33.22
2317804		Sash profile 98/41-2	56.60	40.44
2417801		Mullion Transom 75/31	33.39	12.14
2417802		Mullion Transom 94/50	42.69	31.84
2417804		Mullion Transom 75/31-2	35.31	12.24
2417805		Mullion Transom 94/50-2	43.82	32.23
2417803		Insertion Mullion Transom 94/50	53.68	32.81
2417806		Insertion Mullion Transom 94/50	55.07	33.19
2417851		Mullion Transom 125/31 Hidden vent	40.40	38.46

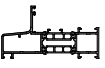














PROFILES :

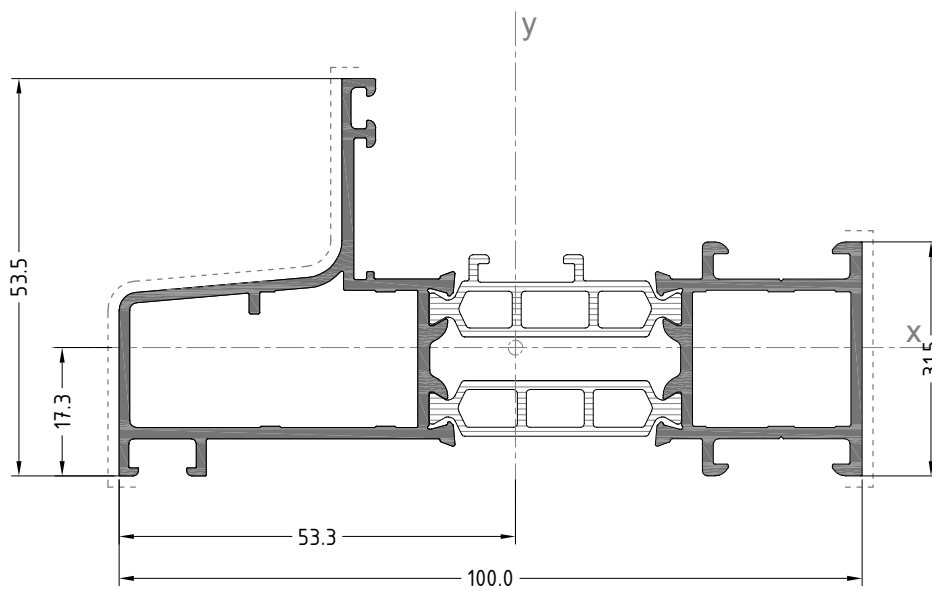
Number	Shape	DESCRIPTION
2617801		Meeting profile
2617802		Threshold profile
2617803		Threshold profile
2617804		Outside opening convertor
2617851		Meeting profile
1000466		Glazing bead 4 mm. 14/18
1000409		Glazing bead 12 mm. 14/18
1000405		Glazing bead 20 mm. 14/18
1000414		Glazing bead 28 mm. 14/18
1000467		Glazing bead 36 mm. 14/18
1000575		Threshold Add on Profile
1000578		Threshold Add on Profile
1000579		Threshold Add on Profile
1000247		Threshold profile
1000168		Rain screen profile
1000361		Curtain wall adaptor
1000621		Glazing convertor
1000622		Sash Glazing bead
5624100		Glazing Support
1000582		Reinforce profile 36/55
1000200		Cover profile
1000626		Reinforce profile 43/68
1000456		Cover profile

ACCESSORIES :

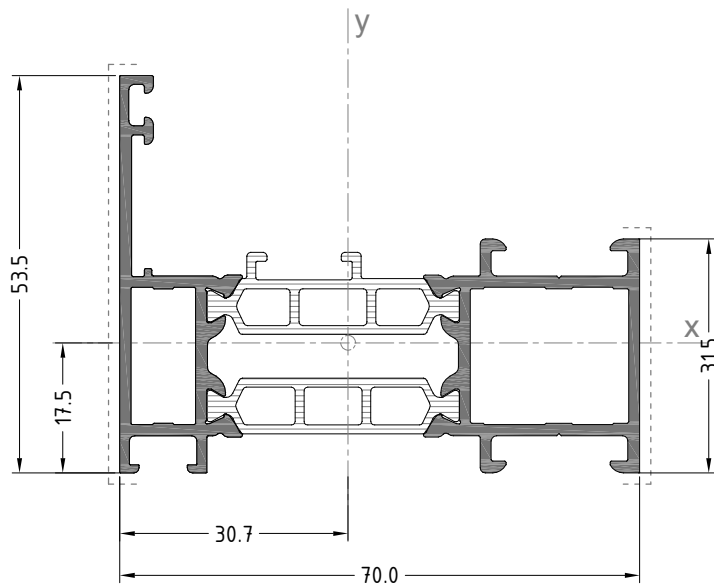
Number	Shape	DESCRIPTION
7001001		Outer glazing gasket
7001062		Inner glazing gasket 10-11 mm
7001002		Inner glazing gasket 8-9 mm
7001005		Inner glazing gasket 6-7 mm
7001034		Inner glazing gasket 4-5 mm
7001013		Inner glazing gasket
7001040		Stop gasket
7001085		Central gasket
7001086		Add on gasket
7001074		Threshold gasket
7001051		Threshold gasket
7001017		Inner glazing gasket 12mm
7001019		Glazing gasket transom 8mm
7001041		Inner glazing gasket 10mm
7001044		Inner glazing gasket 4mm
7001071		Inner glazing gasket 6mm

CORNERS :

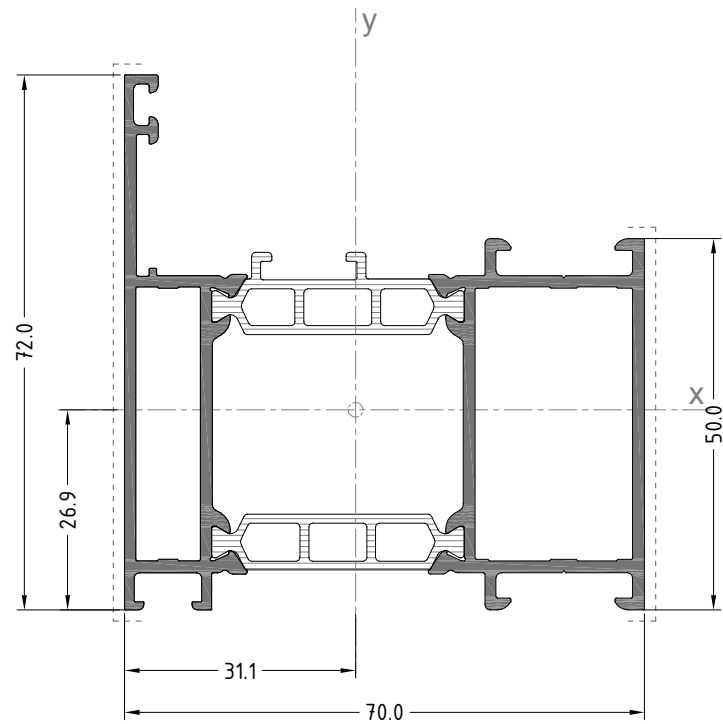
Number	Shape	Corner Nail / Crimp	Corner Alignment	T.Connector
2117801		5384208 5384208	7501020	—
2117802		5384208 5384083	7501020	—
2117803		5385208 5385083	7501020	—
2117851		5384208 5384083	7501020	—
2217802		5384258 5386062	7501020	—
2217851		5514320	—	—
2317802		5236257 5236062	7501020	—
2317804		5236060 5236257	7501020	—
2417801		—	—	5415017 5416017
2417802		—	—	5415036 5416036
2417804		—	—	5416017
2417805		—	—	5416036
2417803		—	—	5415036
2417806		—	—	—
2417851		—	—	5415017 5416017



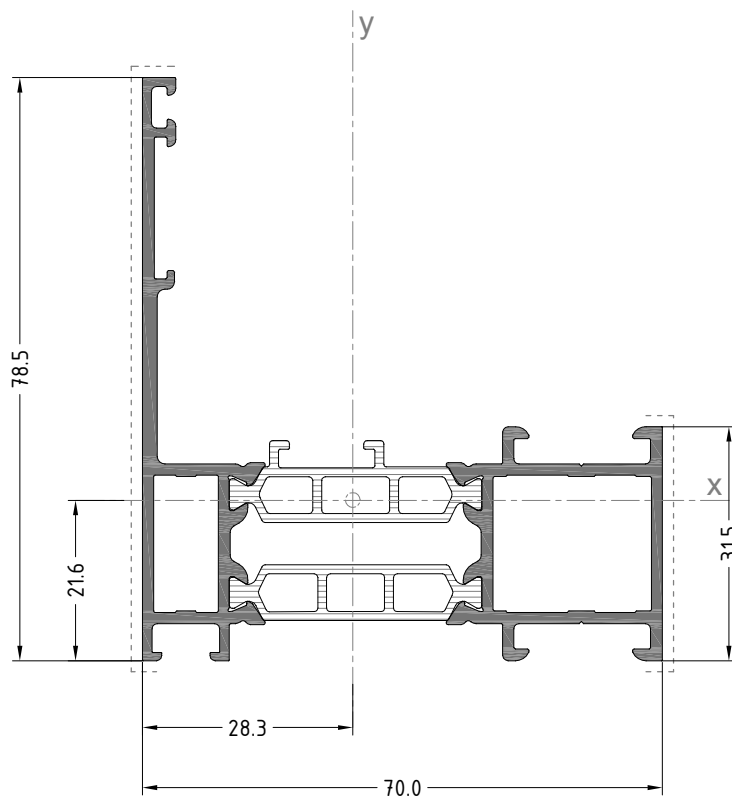
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Frame Profile 53/31/100	2117801	55.38	9.26	5.33	1.73	15.30	1.98



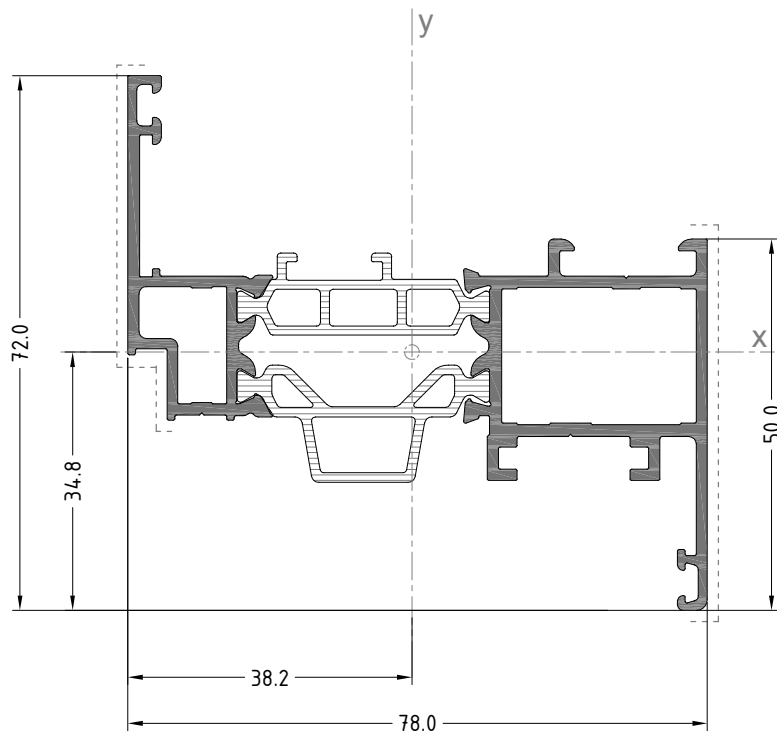
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Frame Profile 53/31	2117802	30.58	7.92	3.07	1.75	8.51	2.01



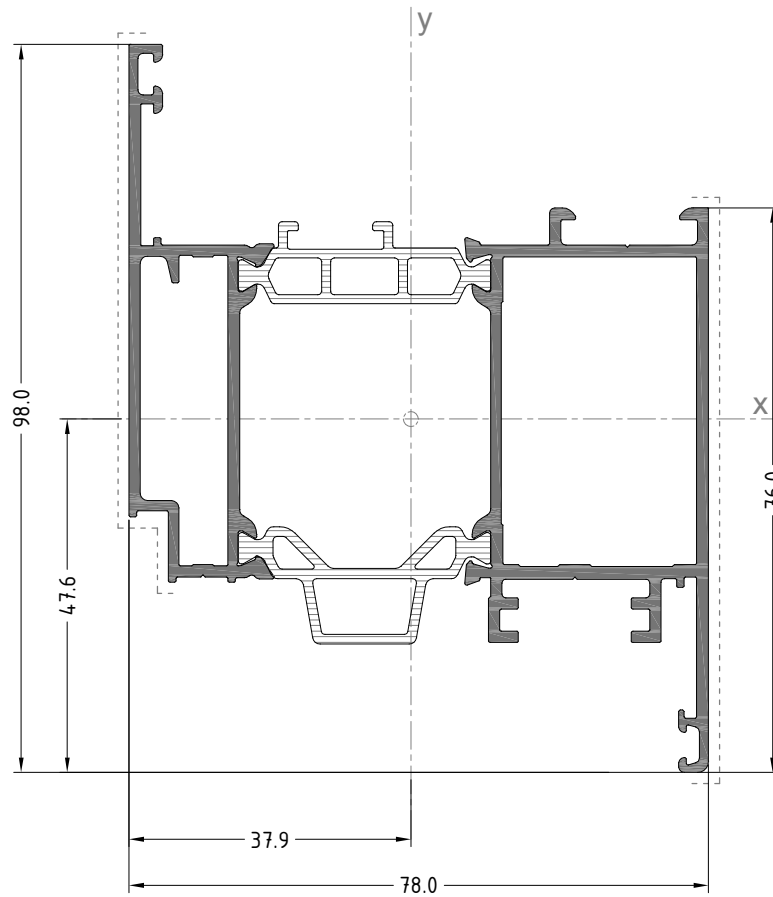
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Frame Profile 72/50	2117803	40.69	24.30	3.11	2.69	9.02	6.25



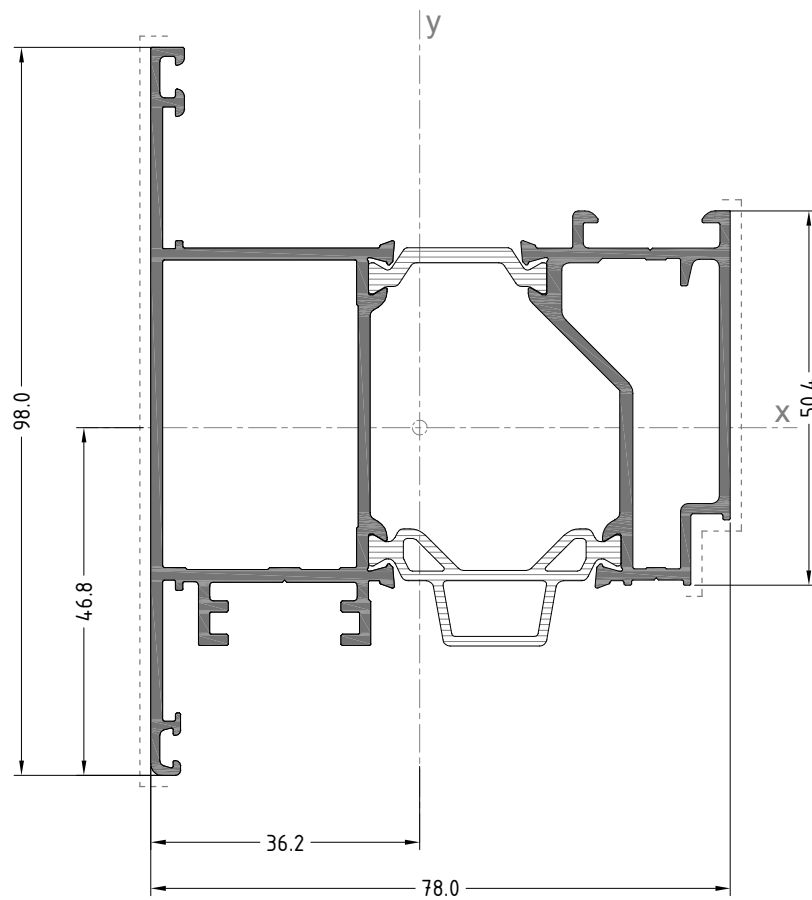
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Frame profile 78/31 Hidden vent	2117851	39.33	13.92	2.83	2.16	6.909	3.341



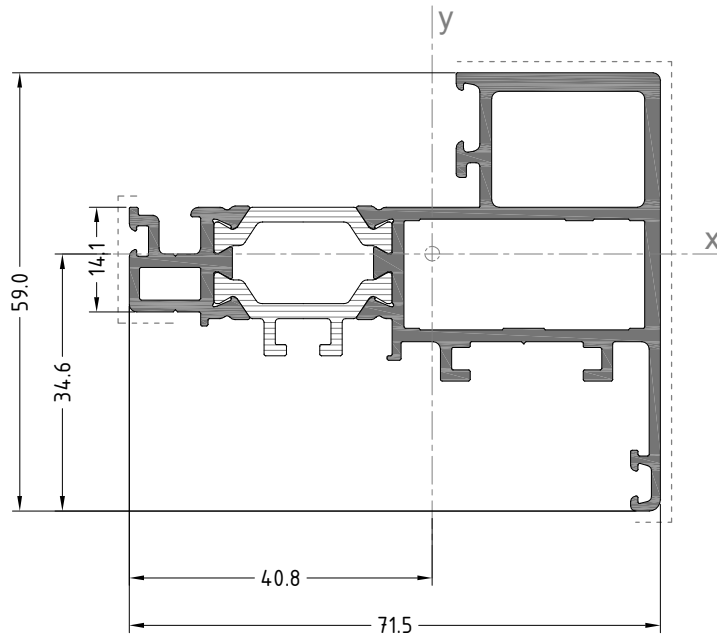
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Sash Profile 50/37-2	2217802	44.67	8.39	3.82	3.48	12.03	2.11



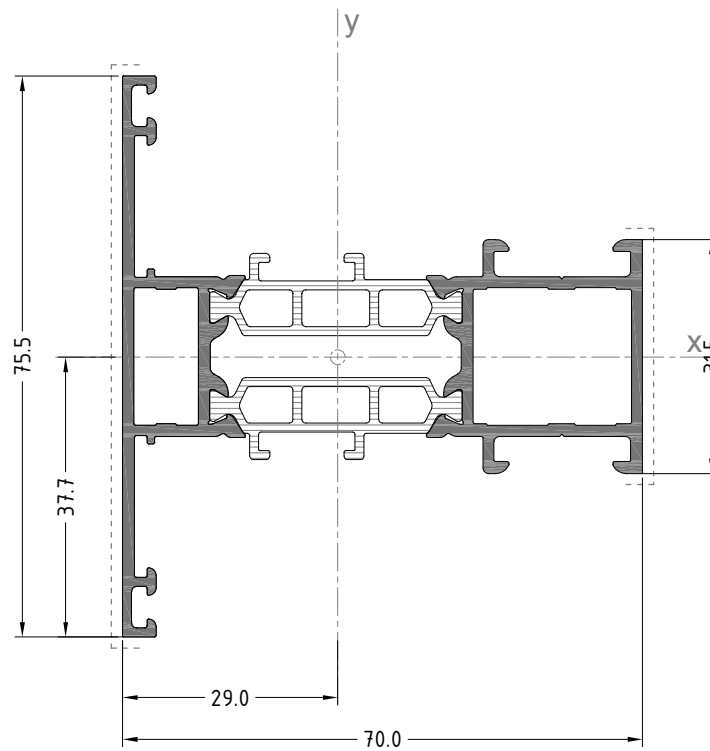
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Sash Profile 63/76-2	2317802	67.74	33.22	3.79	4.76	13.44	8.29



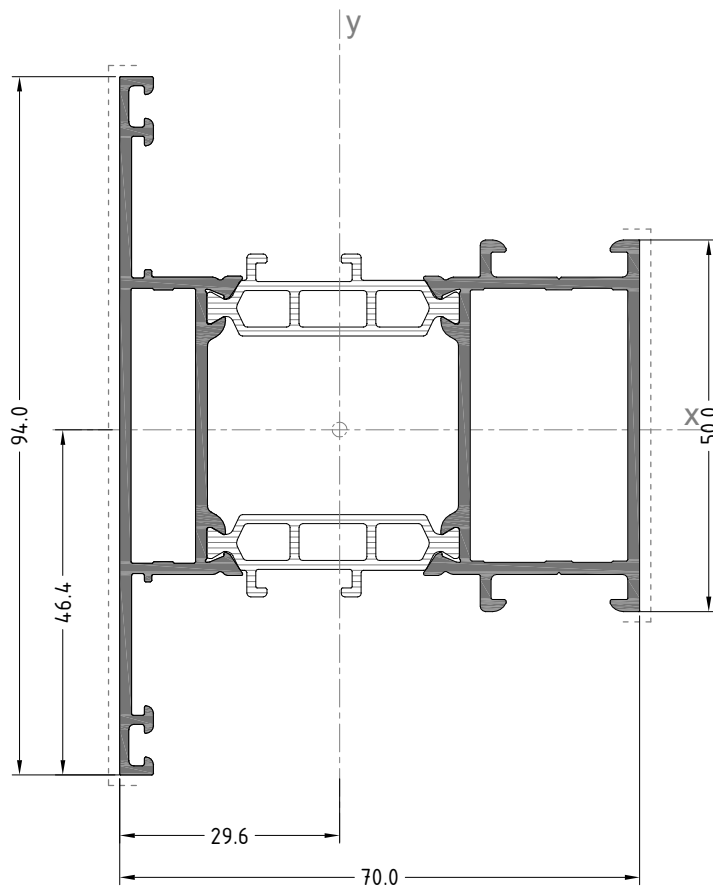
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Sash Profile 98/41-2	2317804	56.60	40.44	3.62	4.68	11.05	9.66



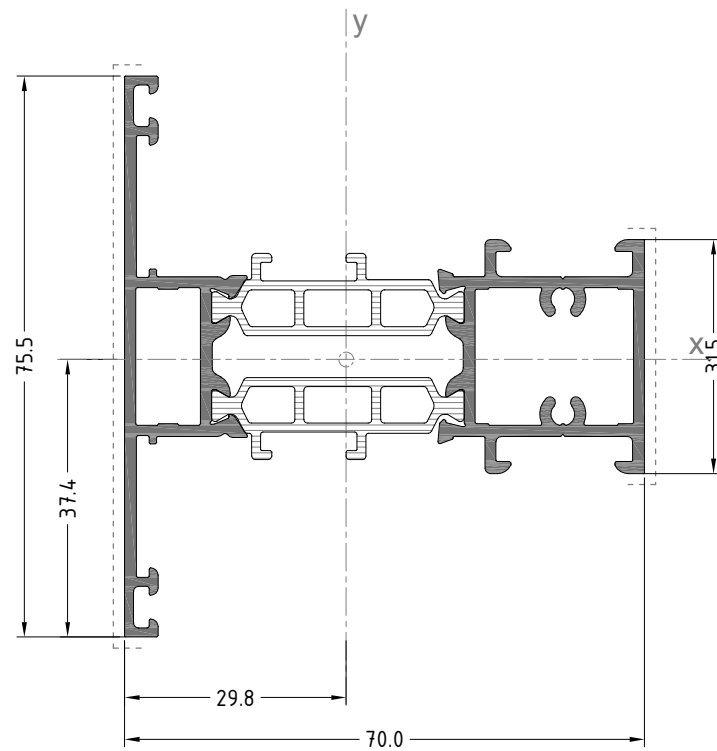
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Sash profile 59/14 Hidden vent	2217851	32.90	10.12	4.08	3.46	13.47	3.29



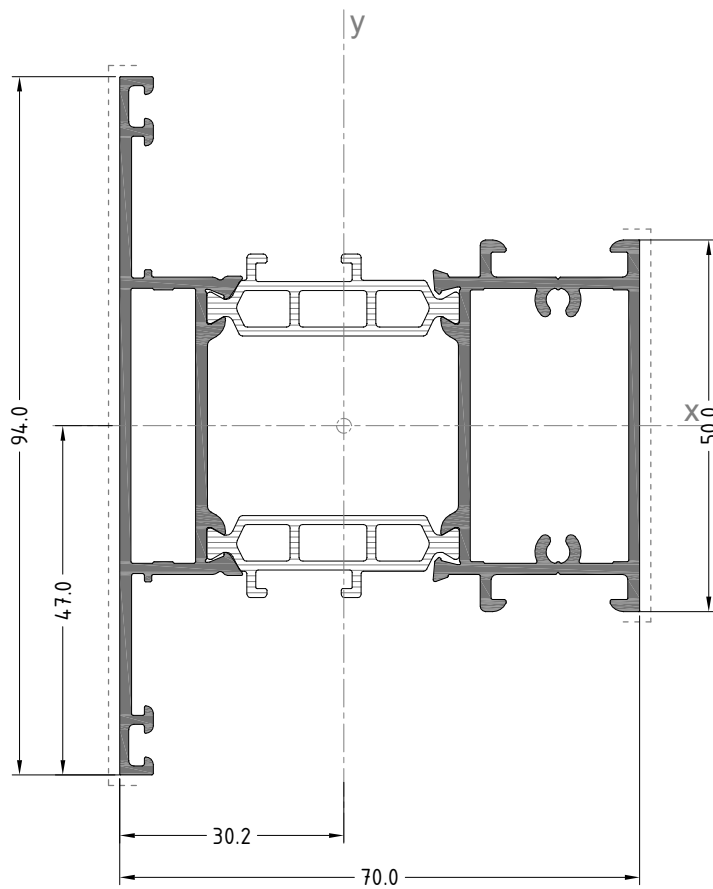
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Mullion.Transon 75/31	2417801	33.39	12.14	2.90	3.77	8.84	2.96



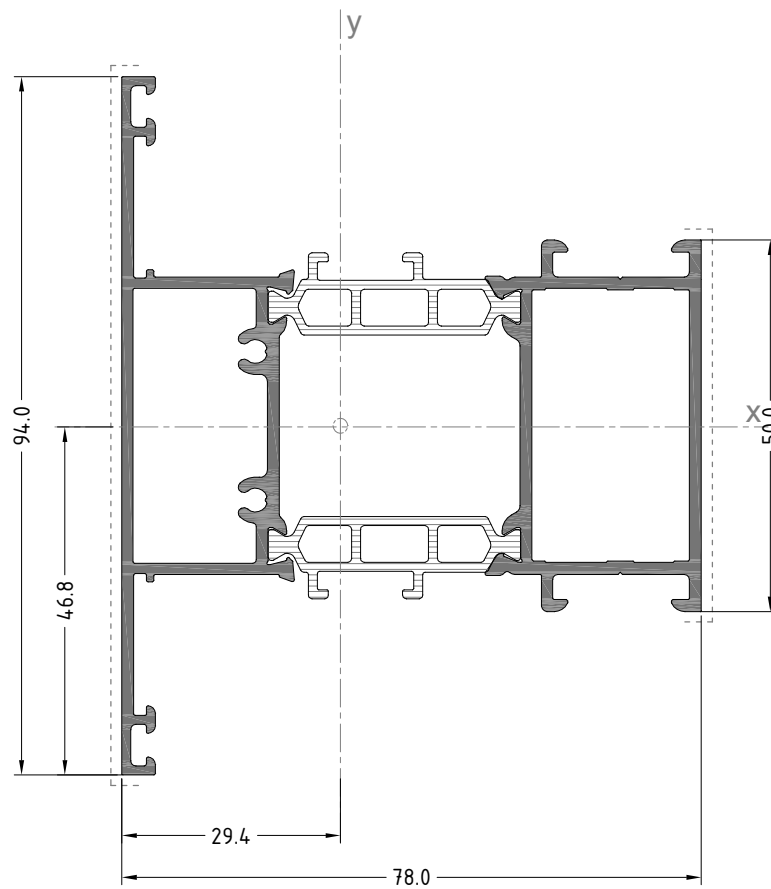
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Mullion.Transon 94/50	2417802	42.69	31.84	2.96	4.64	8.97	7.89



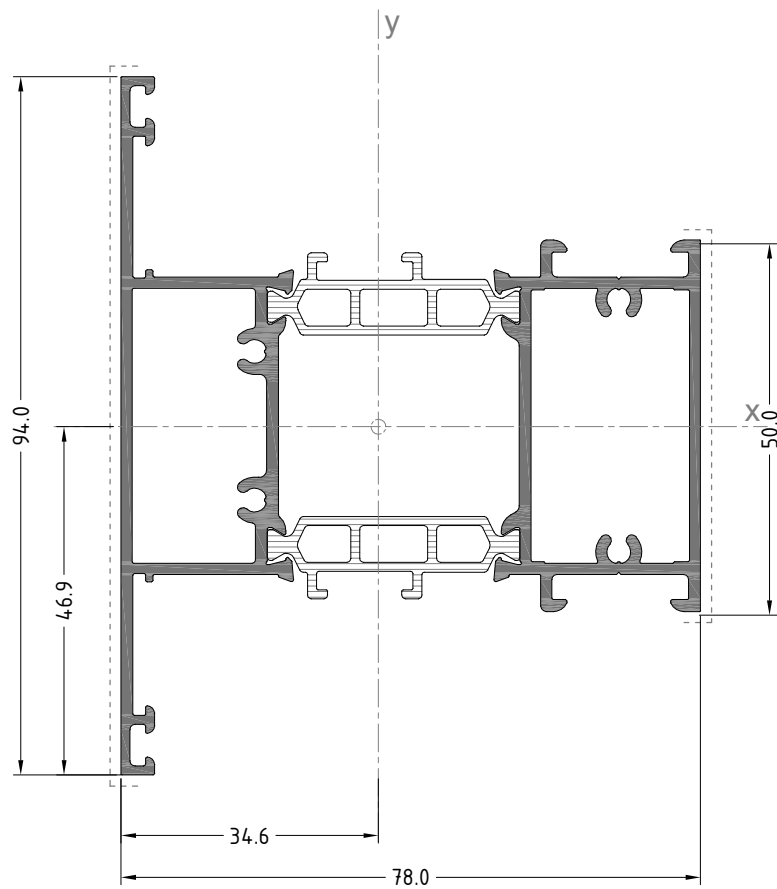
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Mullion.Transon 75/31-2	2417804	35.31	12.24	2.98	3.74	9.35	3.05



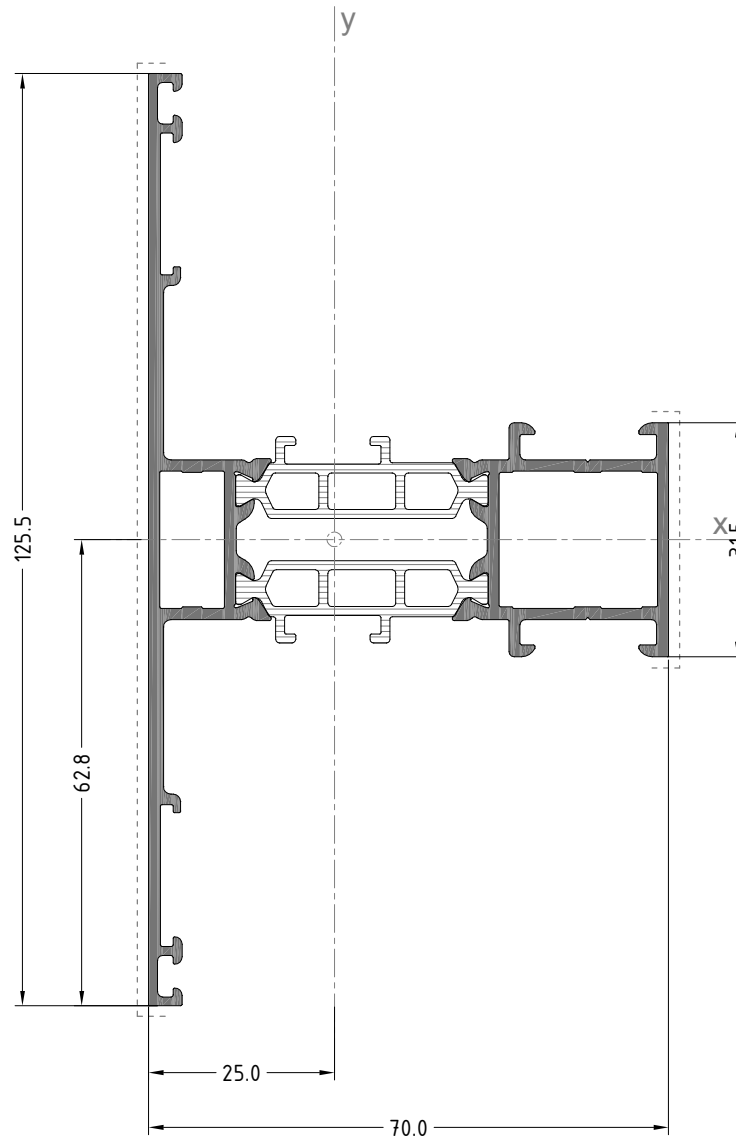
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Mullion.Transon 94/50-2	2417805	43.82	32.23	3.02	4.70	9.32	8.08



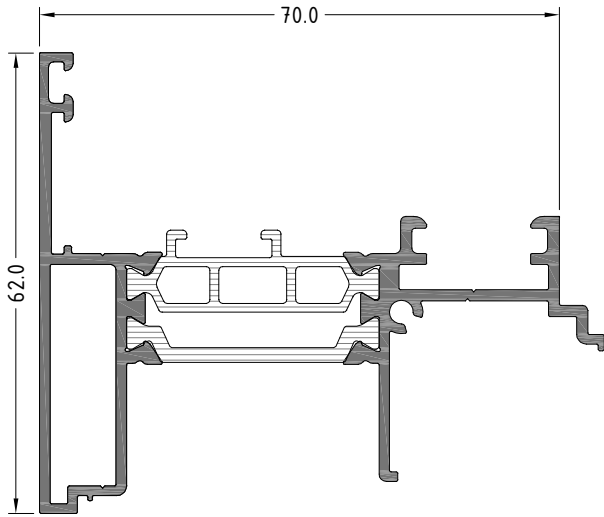
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Insertion Mullion.Transon 94/50	2417803	53.68	32.81	2.94	4.68	11.41	7.57



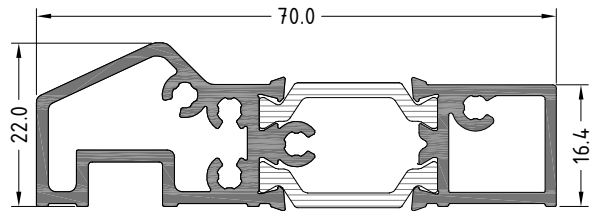
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Insertion Mullion. Transon 94/50	2417806	55.07	33.19	3.46	4.69	11.67	7.75



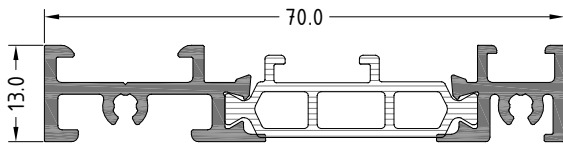
DESCRIPTION	Number	I_x cm ⁴	I_y cm ⁴	e_x cm	e_y cm	W_x cm ³	W_y cm ³
Mullion Transom 125/31 Hidden vent	2417851	40.40	38.46	2.50	6.28	6.44	8.55



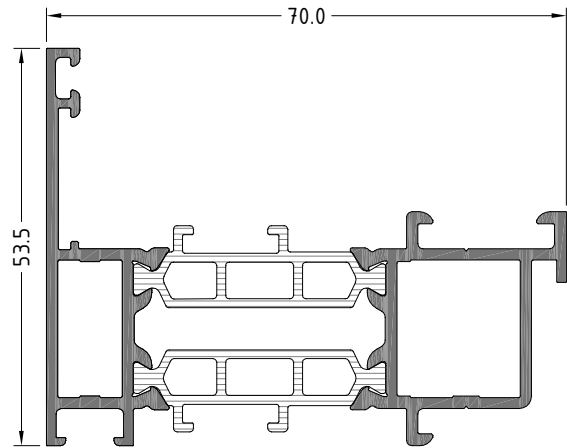
DESCRIPTION	Number
Meeting Profile	2617801



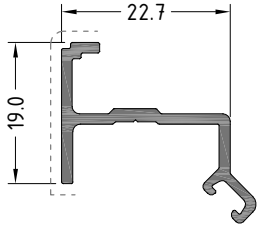
DESCRIPTION	Number
Threshold Profile	2617802



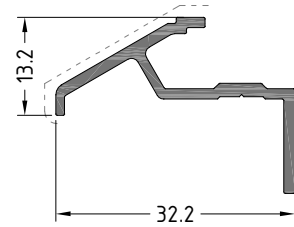
DESCRIPTION	Number
Threshold Profile	2617803



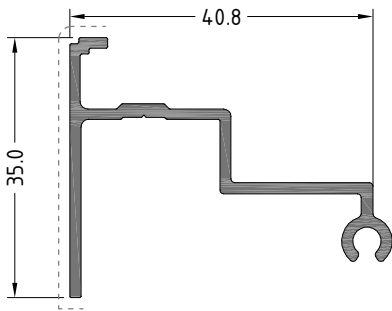
DESCRIPTION	Number
Outside Opening Converter	2617804



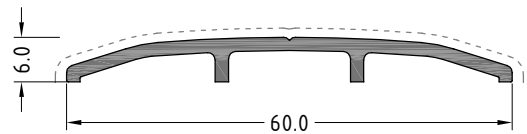
DESCRIPTION	Number
Threshold Add on Profile	1000575



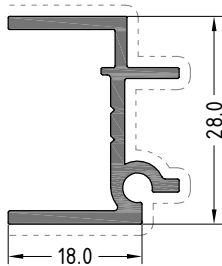
DESCRIPTION	Number
Threshold Add on Profile	1000578



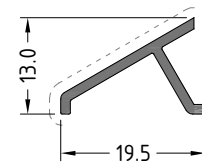
DESCRIPTION	Number
Threshold Add on Profile	1000579



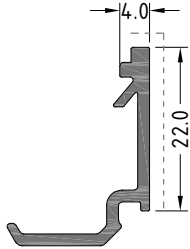
DESCRIPTION	Number
Threshold profile	1000247



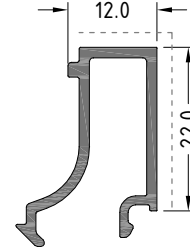
DESCRIPTION	Number
Non Thermal break add on profiles	1000361



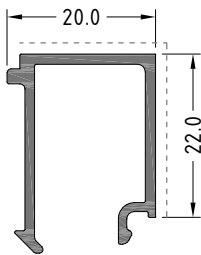
DESCRIPTION	Number
Rain screen profile	1000178



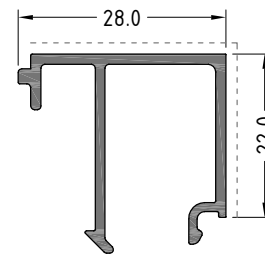
DESCRIPTION	Number
Glazing bead 4mm. 14/18	1000466



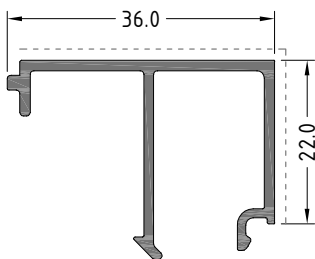
DESCRIPTION	Number
Glazing bead 12mm. 14/18	1000409



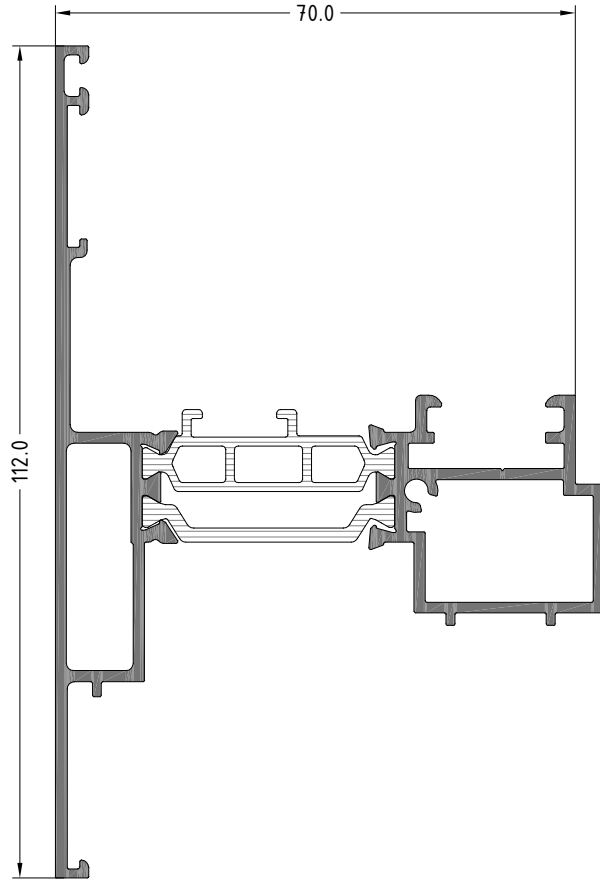
DESCRIPTION	Number
Glazing bead 20mm. 14/18	1000405



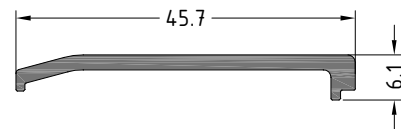
DESCRIPTION	Number
Glazing bead 28mm. 14/18	1000414



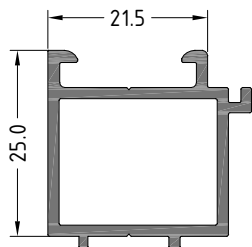
DESCRIPTION	Number
Glazing bead 36mm. 14/18	1000467



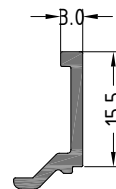
DESCRIPTION	Number
Meeting Profile	2617801



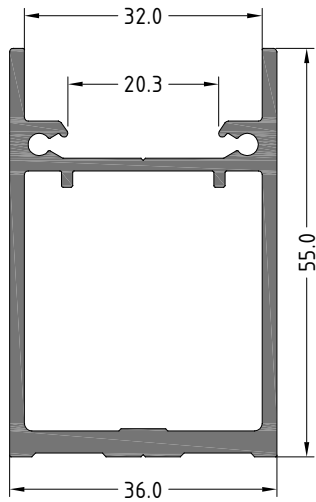
DESCRIPTION	Number
Glazing support	5624100



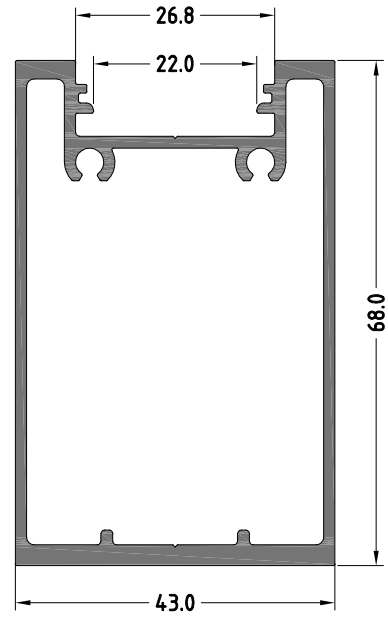
DESCRIPTION	Number
Glazing convertor	1000621



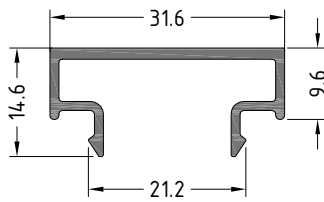
DESCRIPTION	Number
Sash Glazing bead	1000622



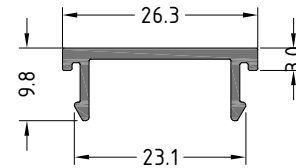
DESCRIPTION	Number
Reinforce profile 36/55	1000582



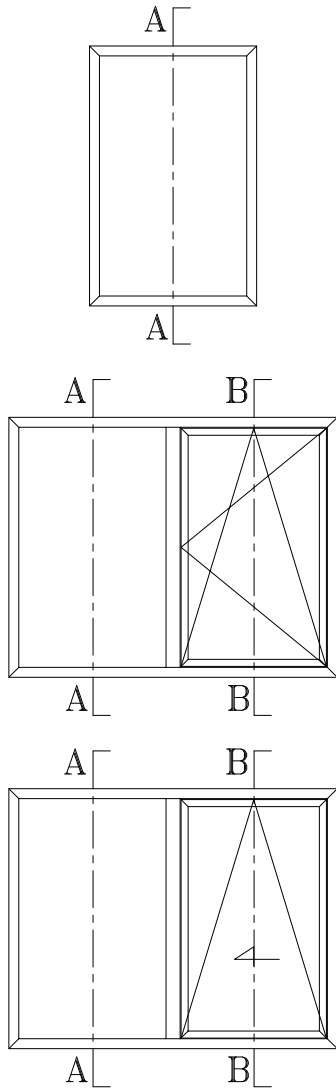
DESCRIPTION	Number
Reinforce profile 43/68	1000626



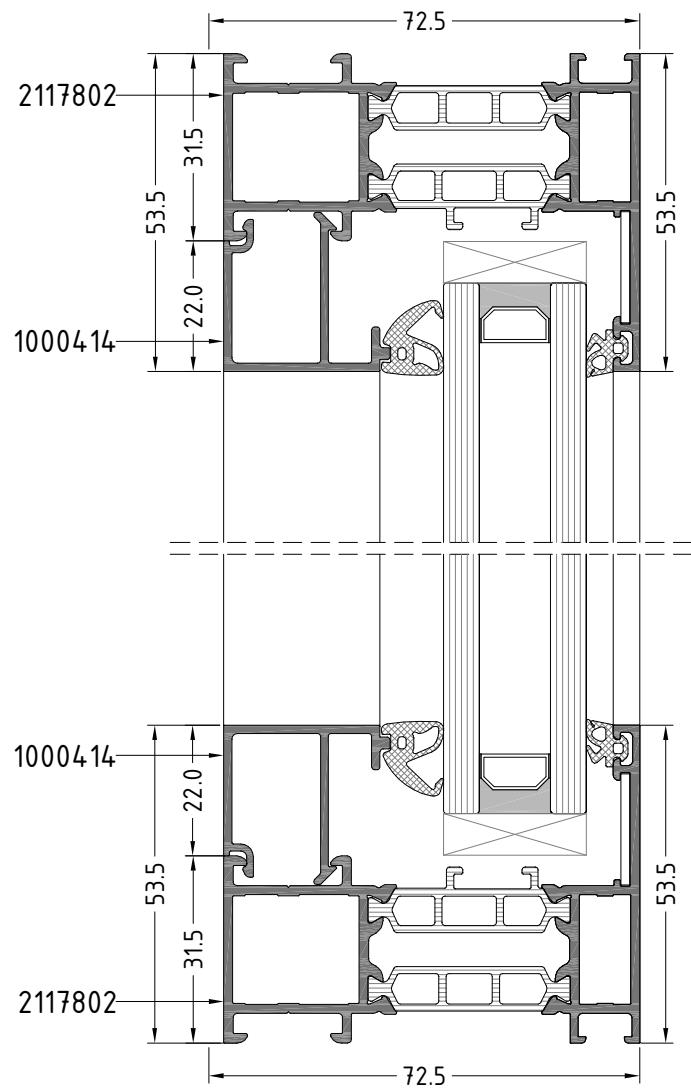
DESCRIPTION	Number
Cover profile	1000200

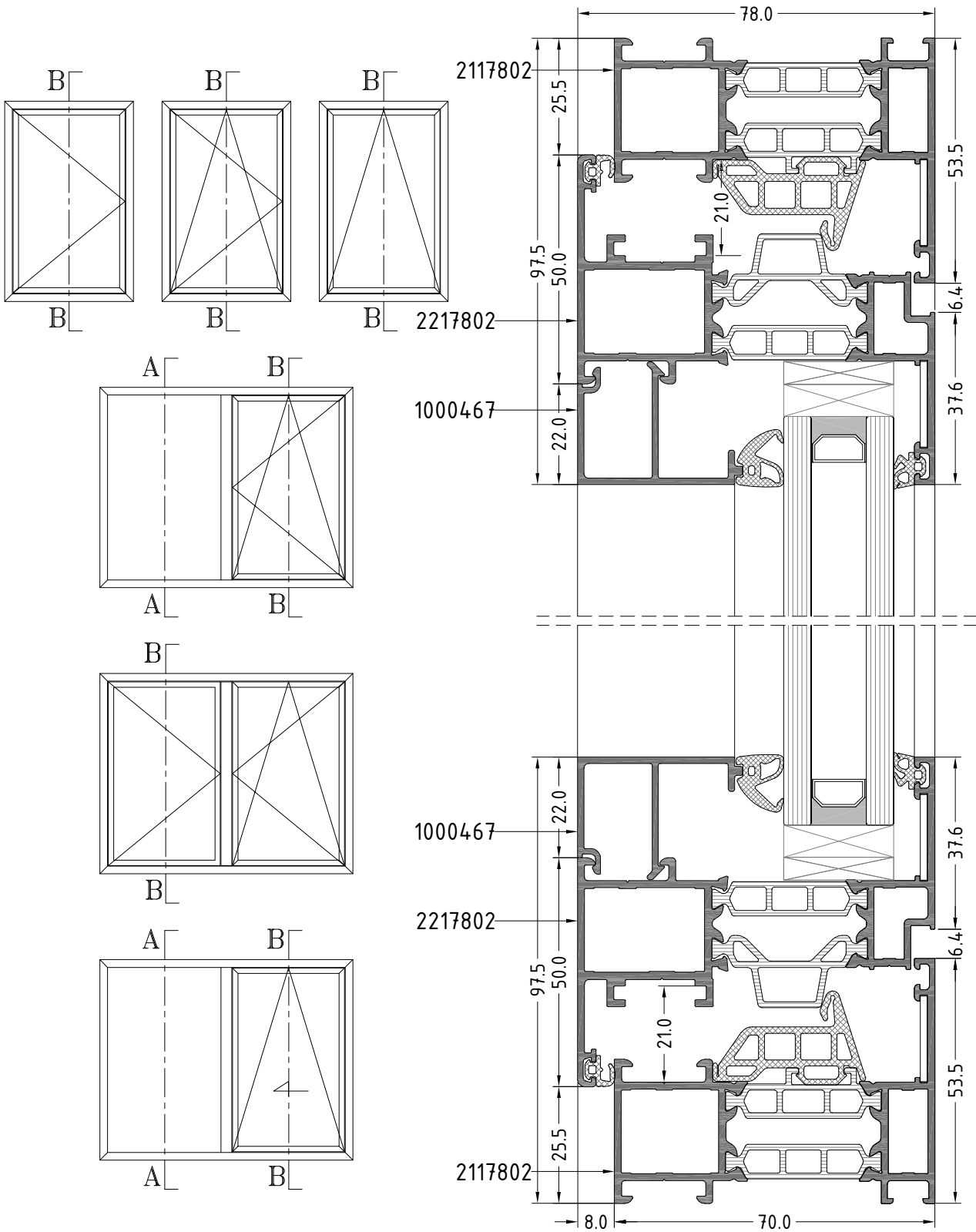


DESCRIPTION	Number
Cover profile	1000456

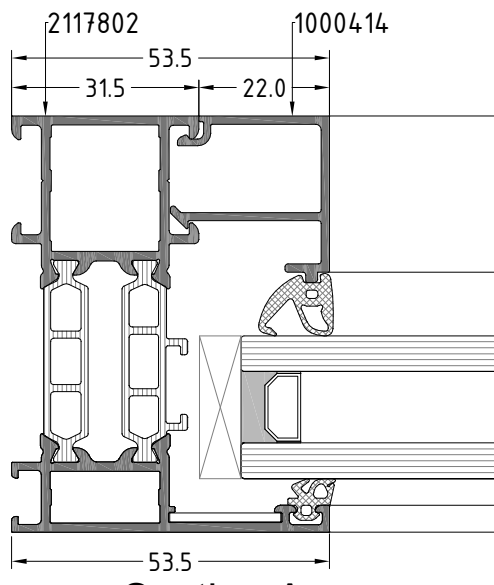
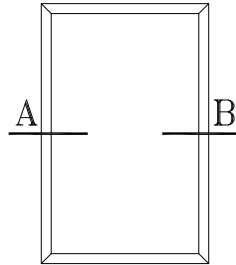


Section A-A

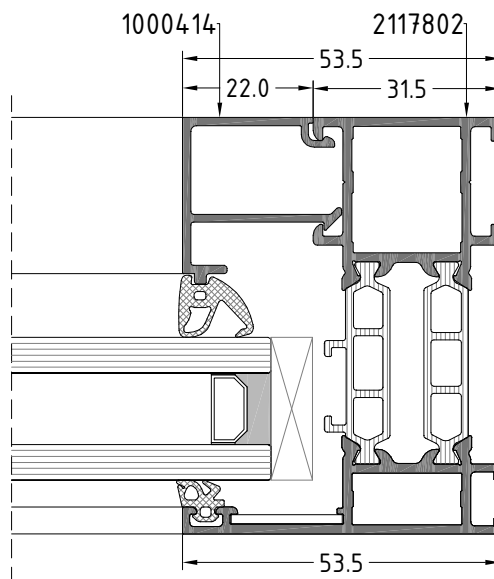




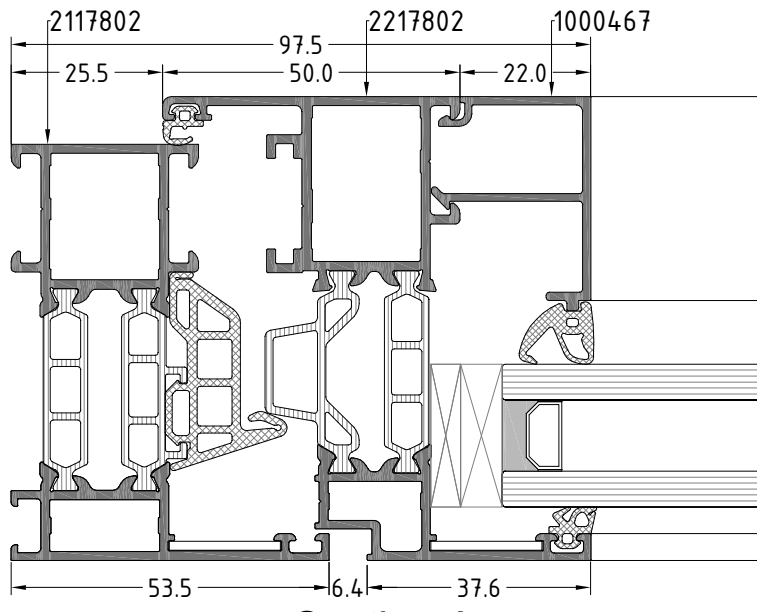
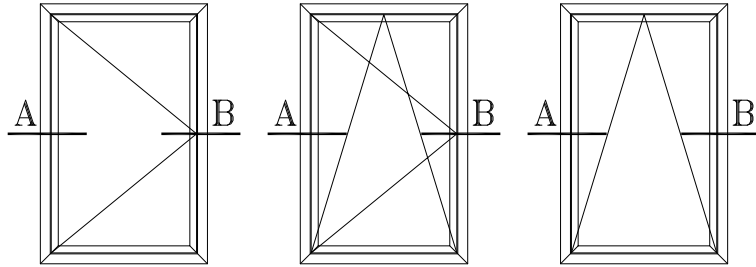
Section B-B



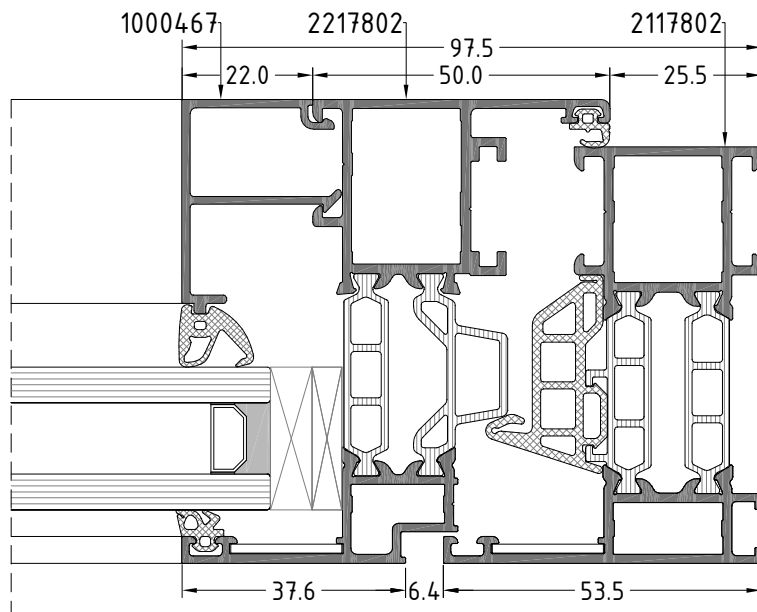
Section A



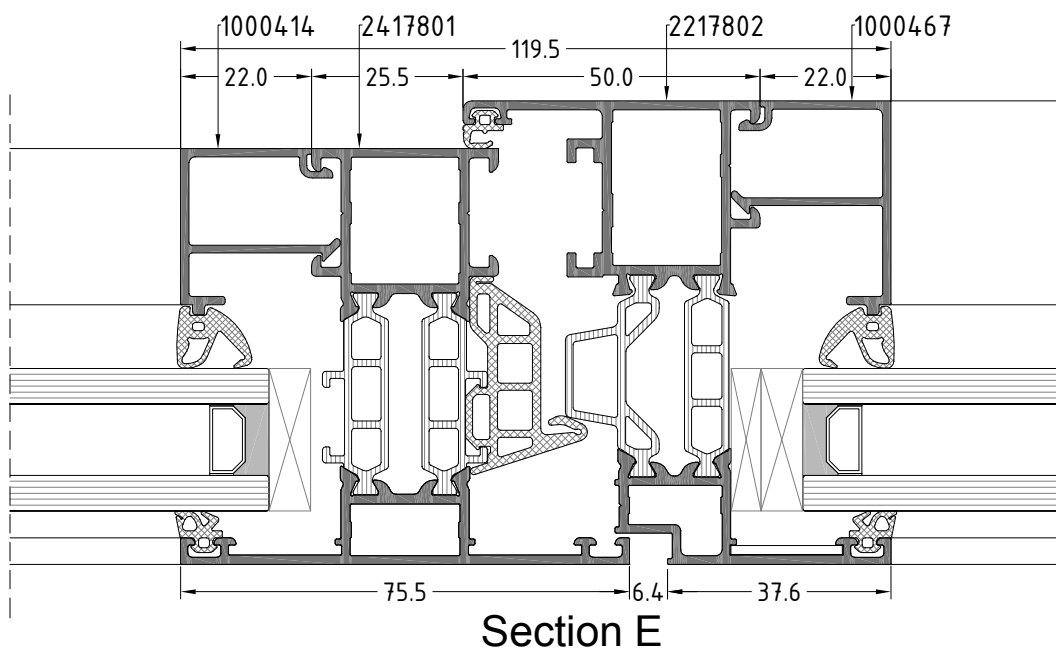
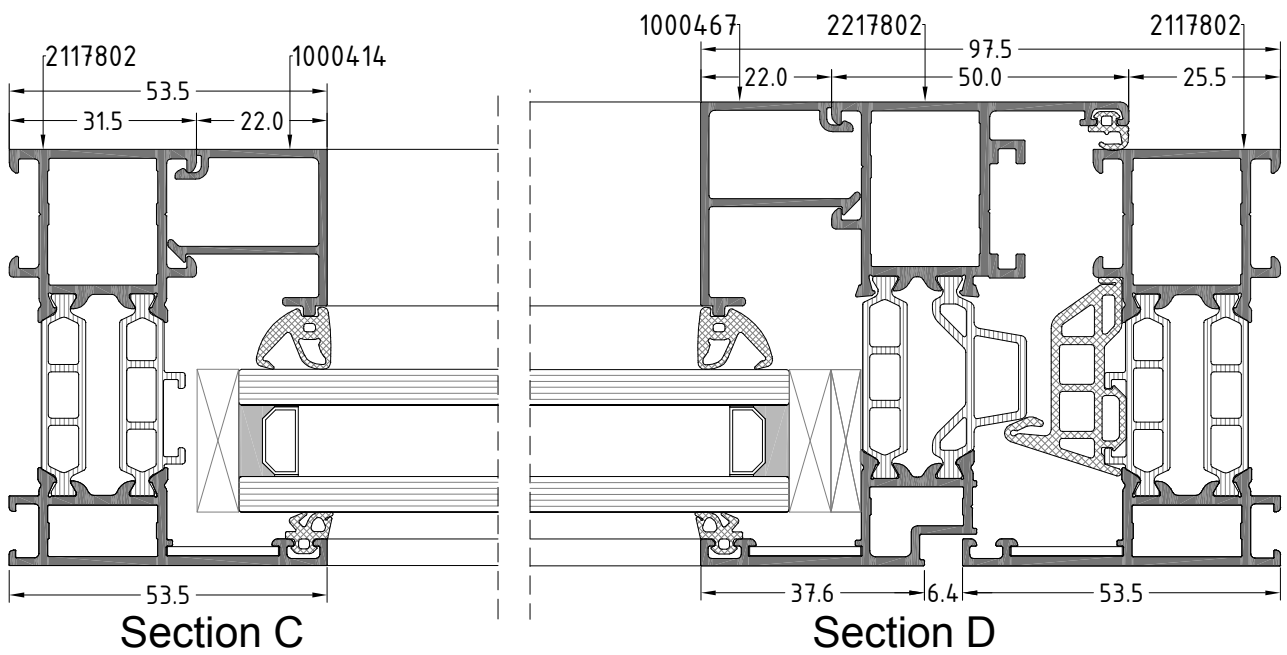
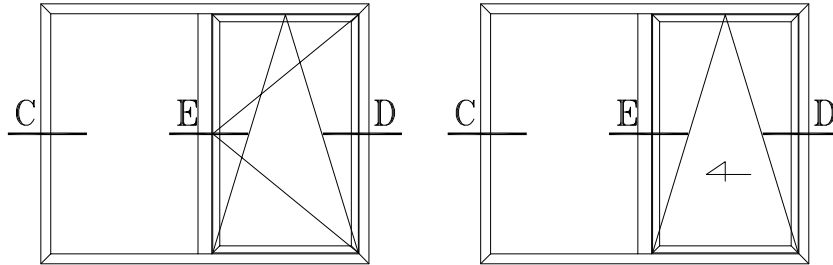
Section B

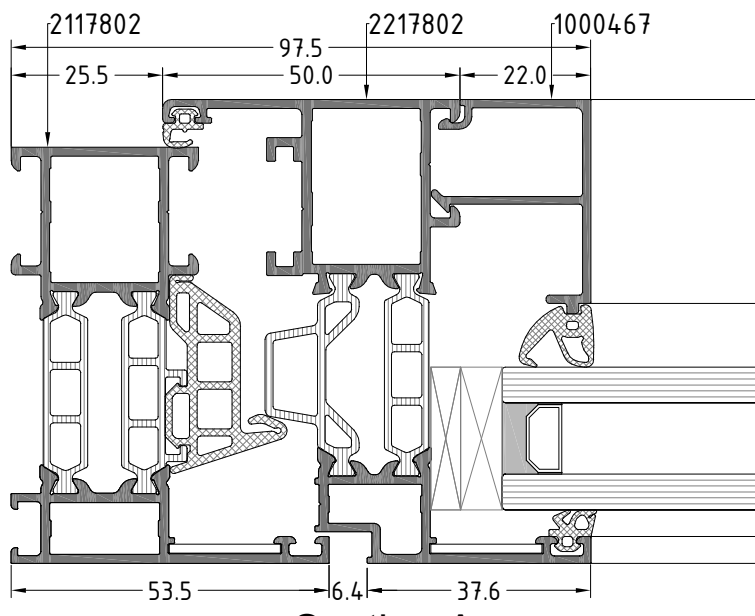
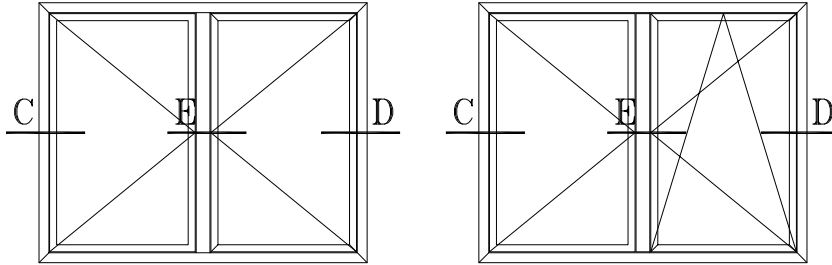


Section A

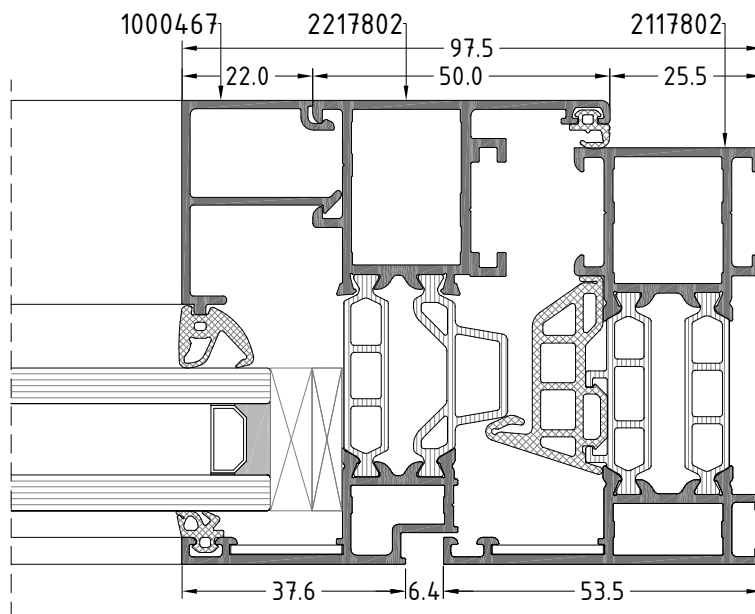


Section B

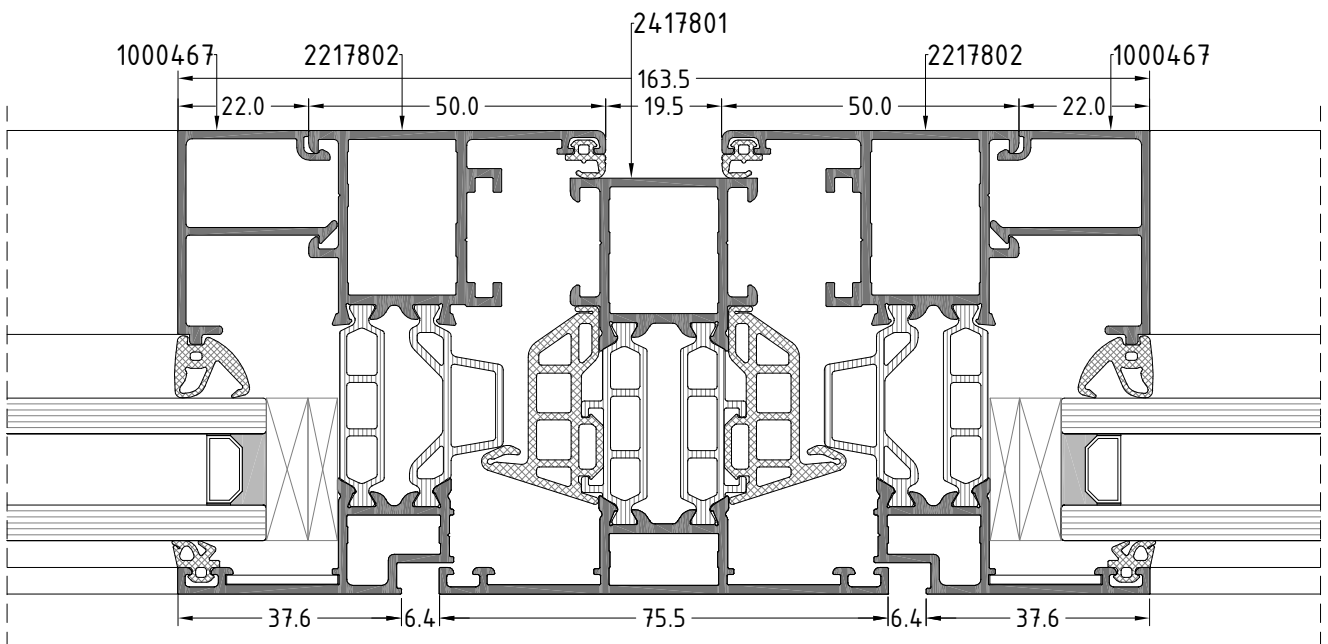
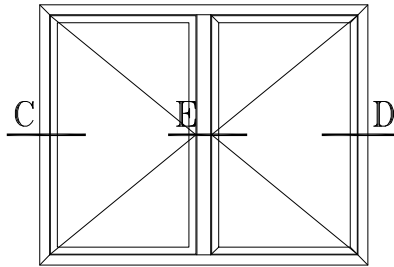




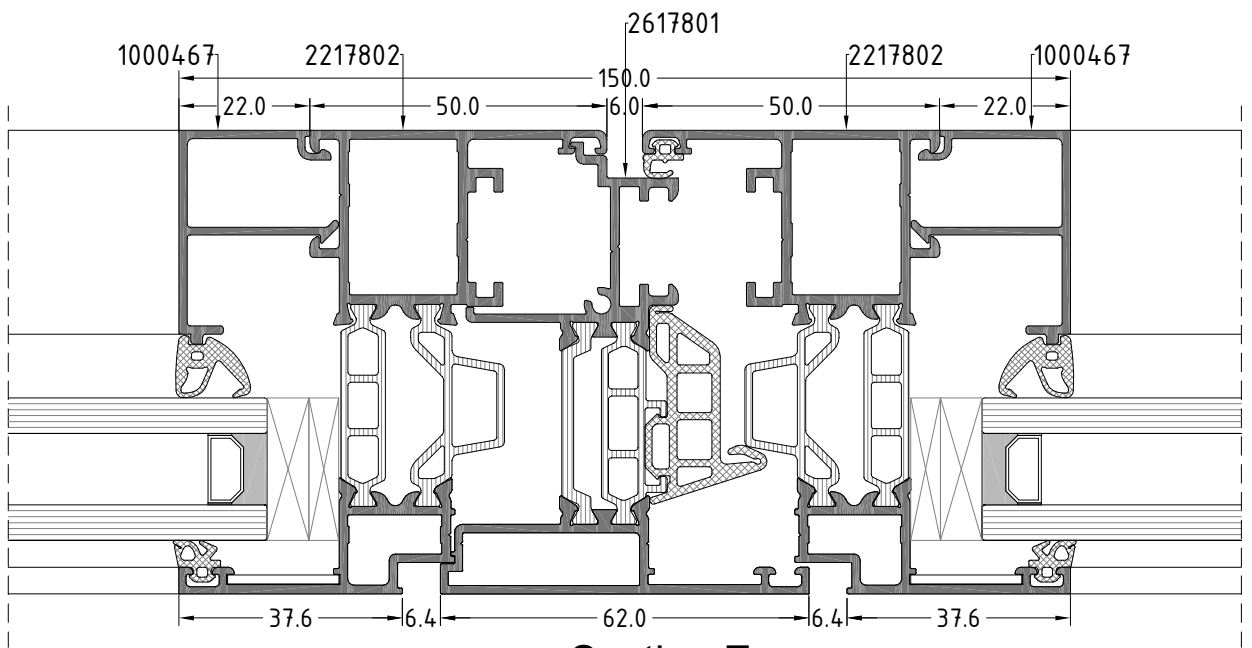
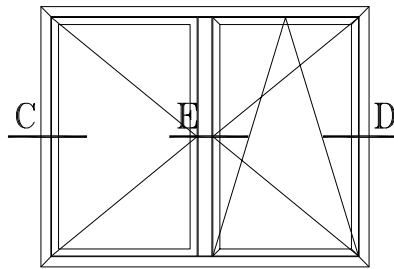
Section A



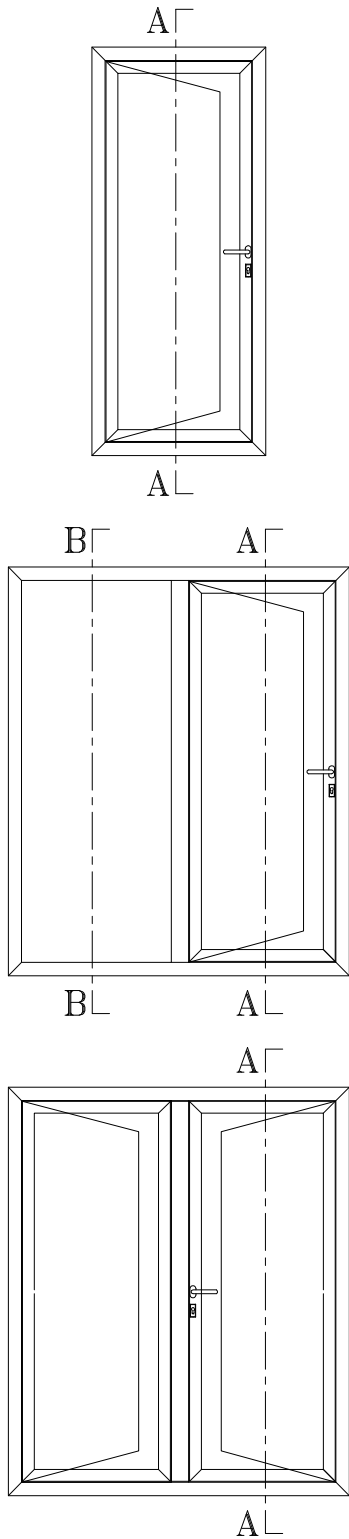
Section B



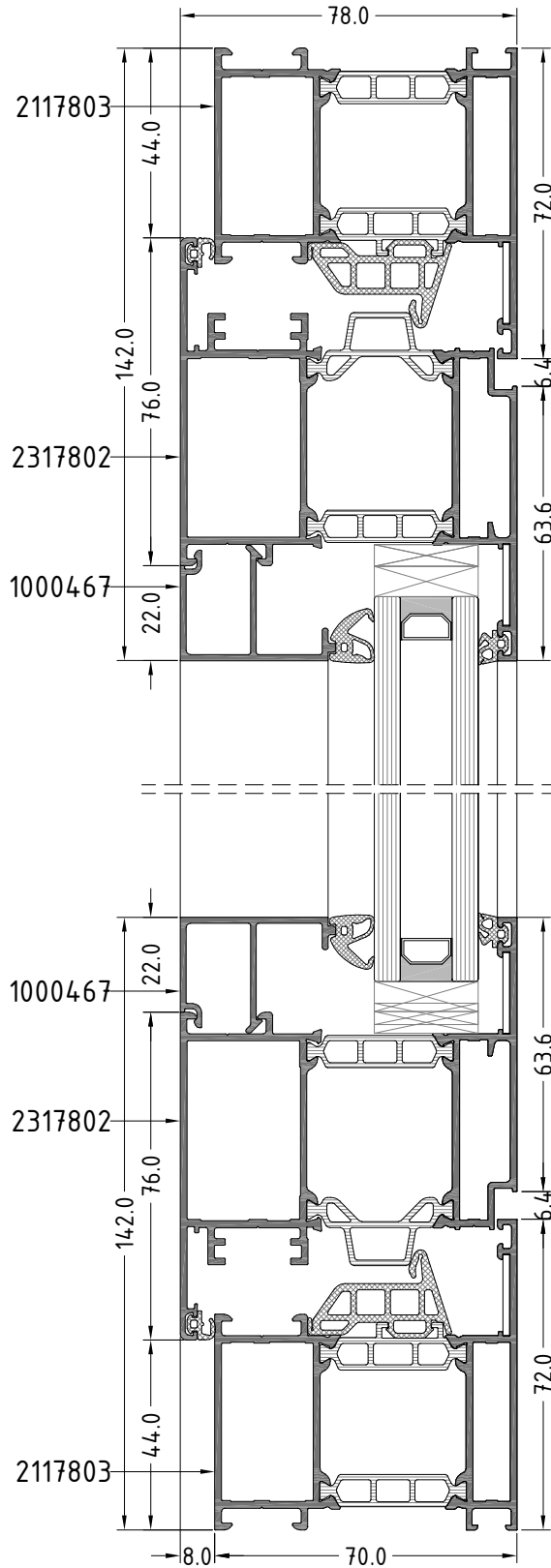
Section E

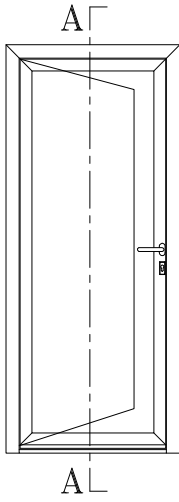


Section E

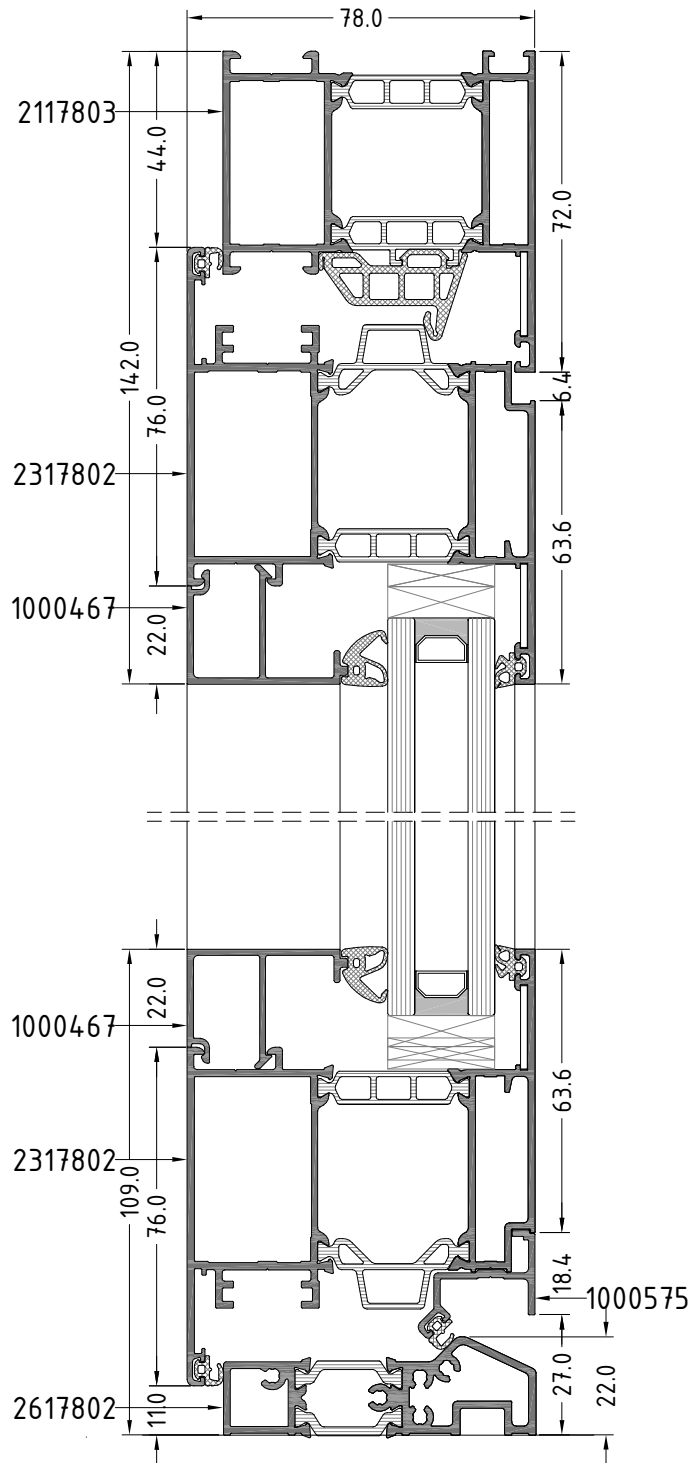


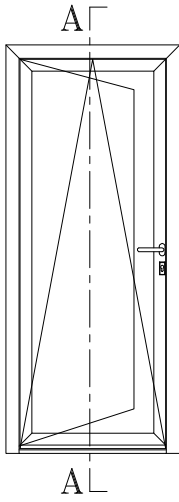
Section A-A



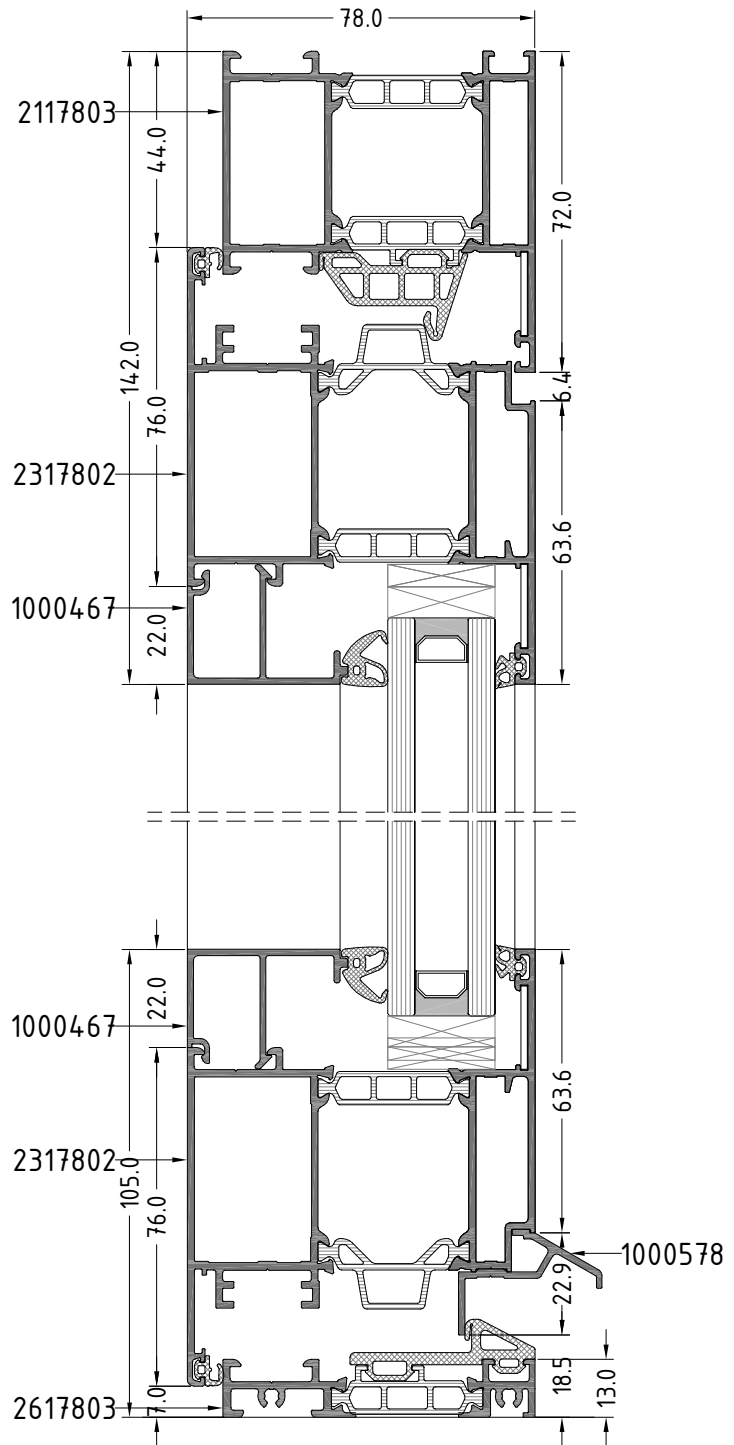


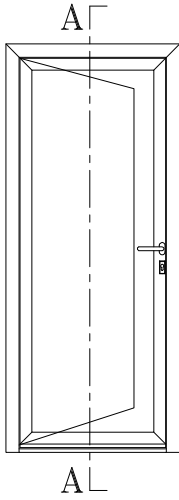
Section A-A



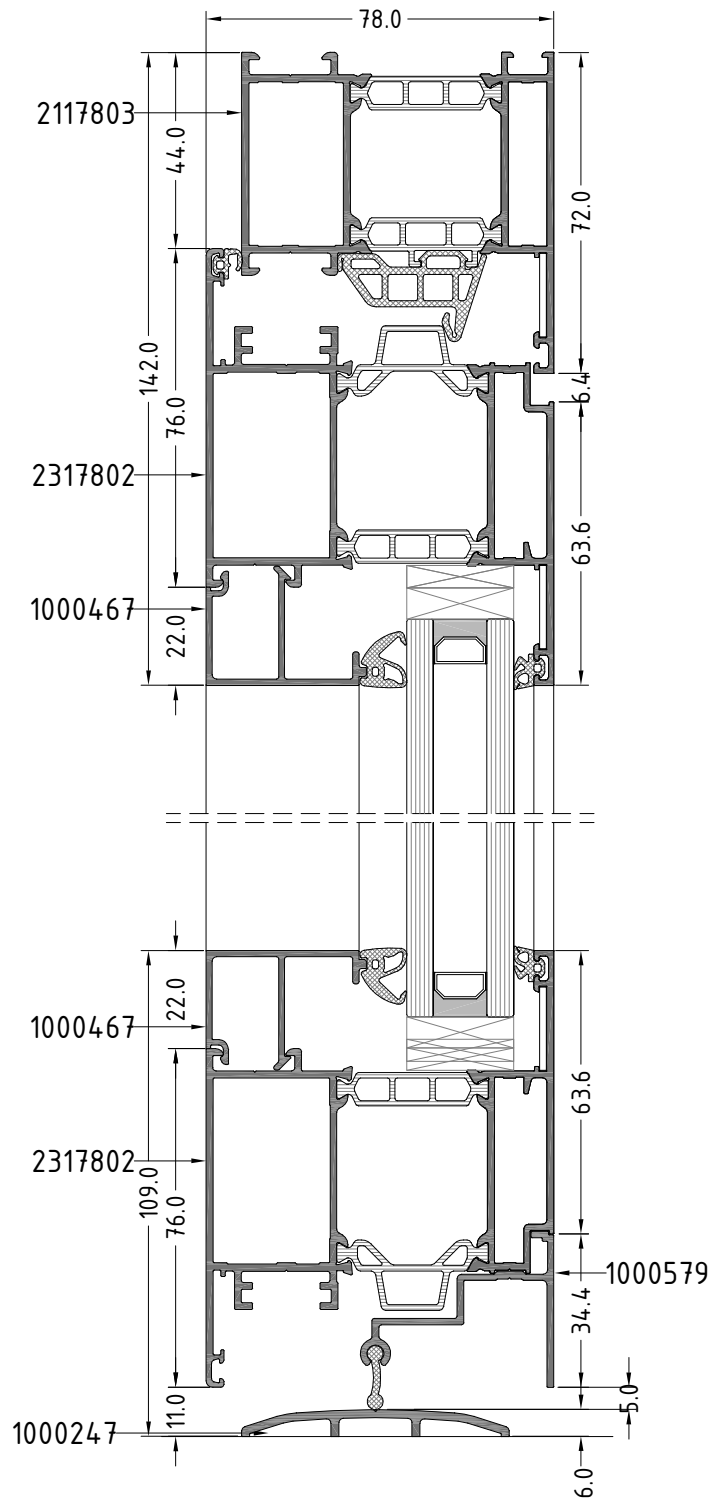


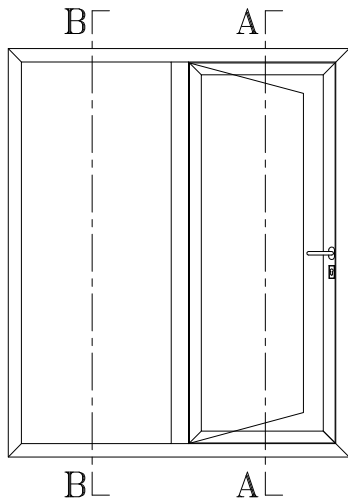
Section A-A



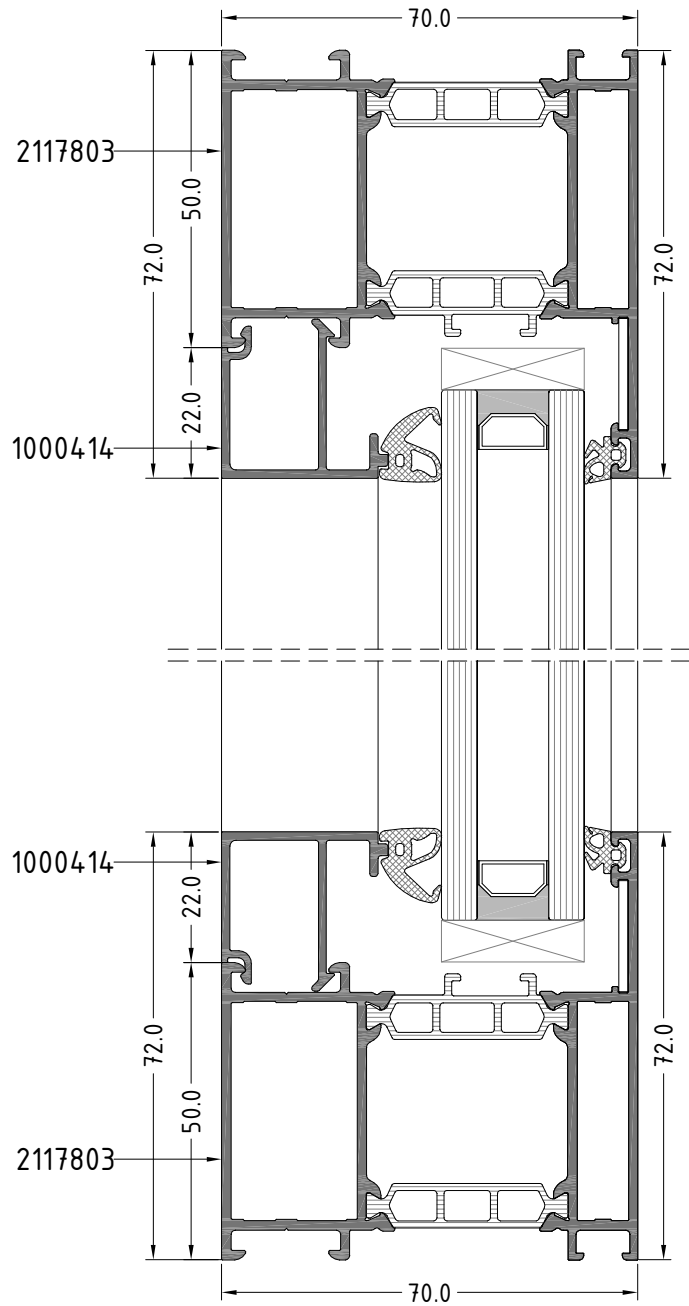


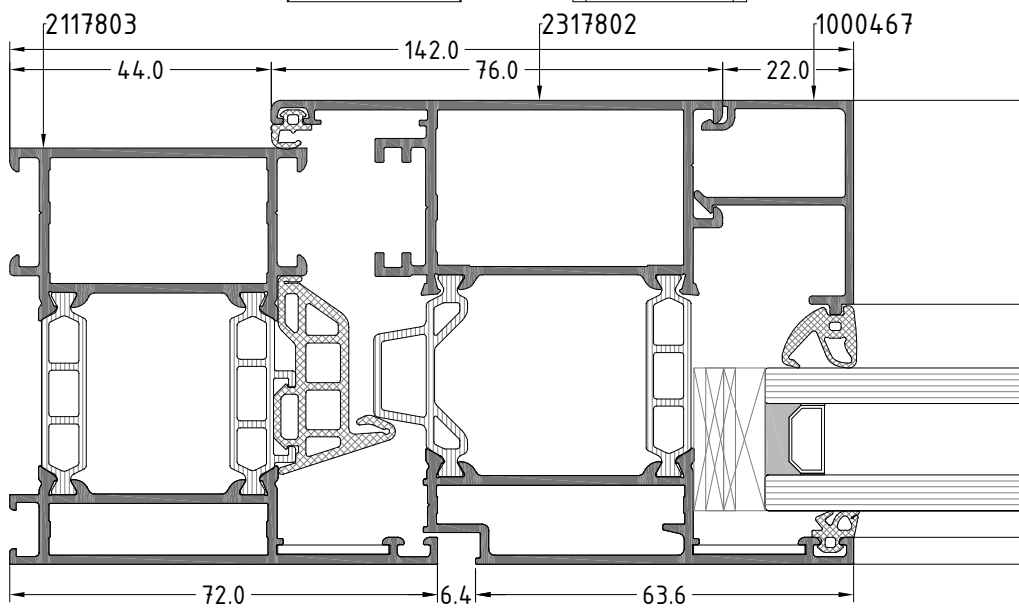
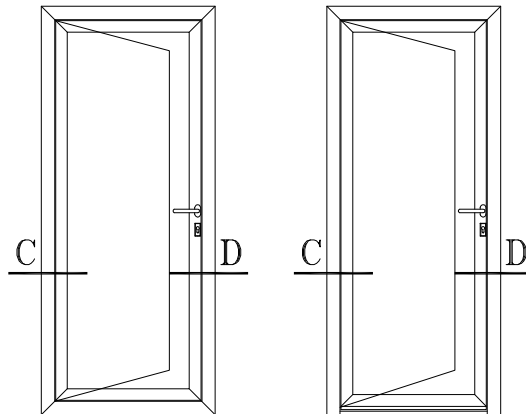
Section A-A



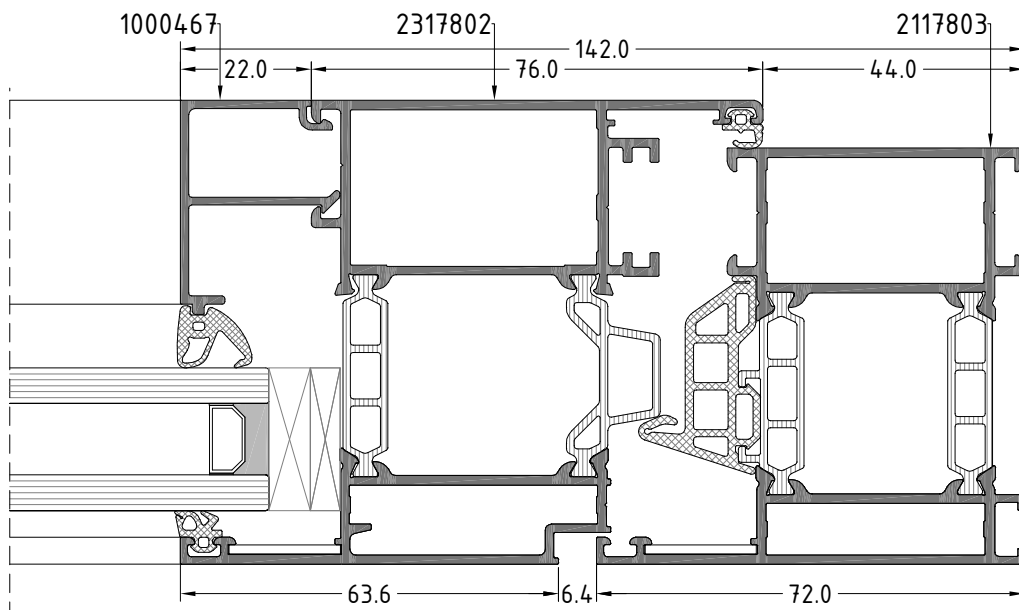


Section B-B

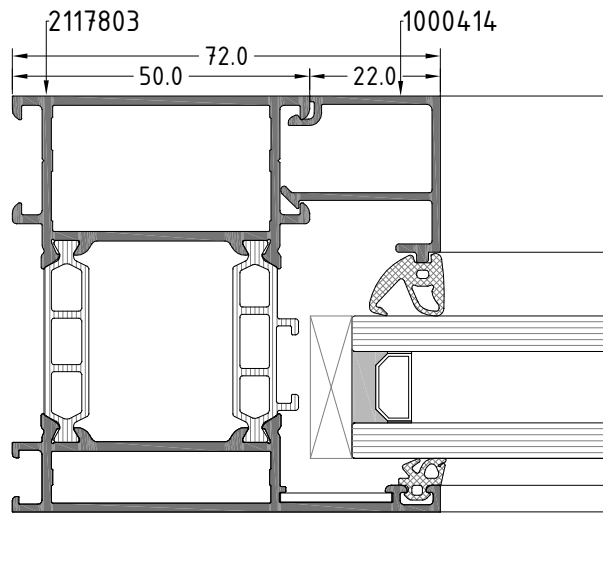
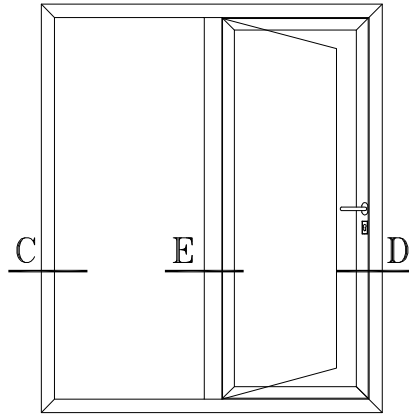




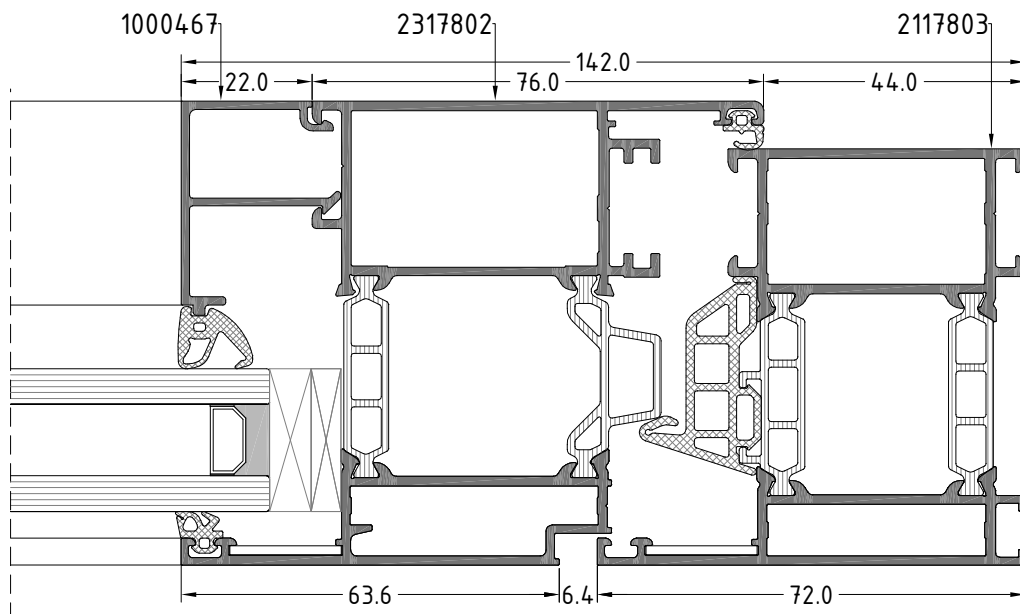
Section C



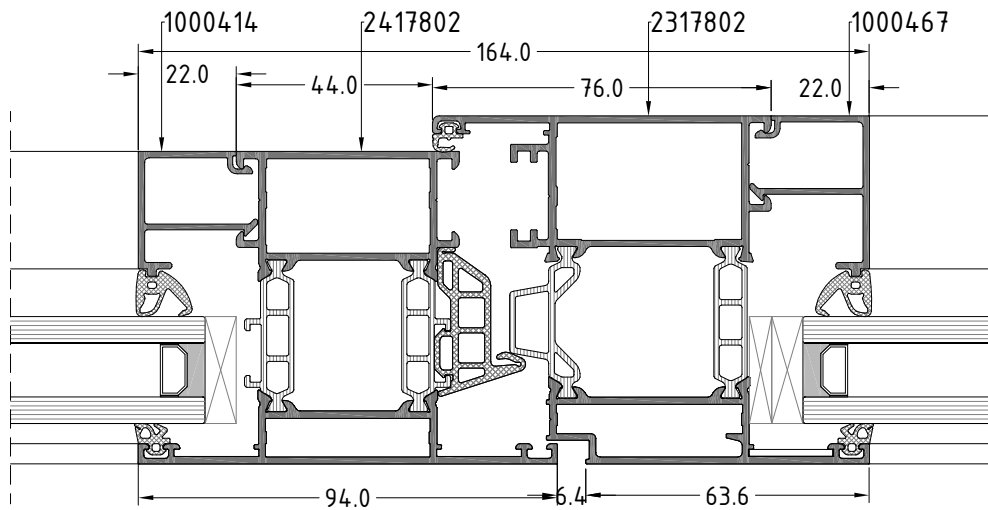
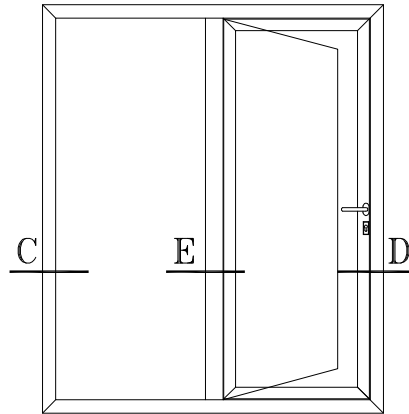
Section D



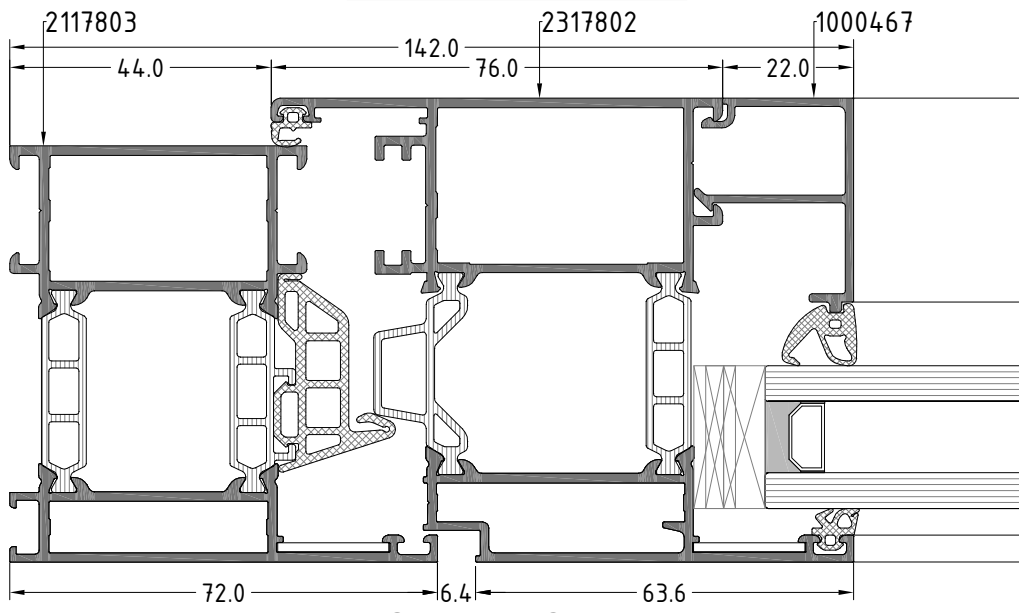
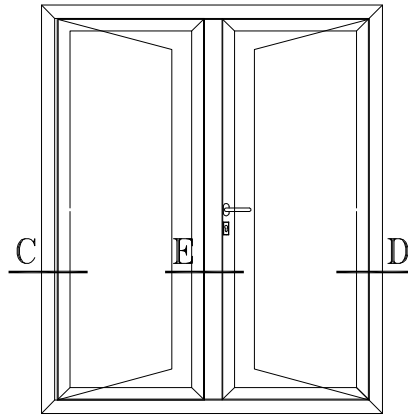
Section C



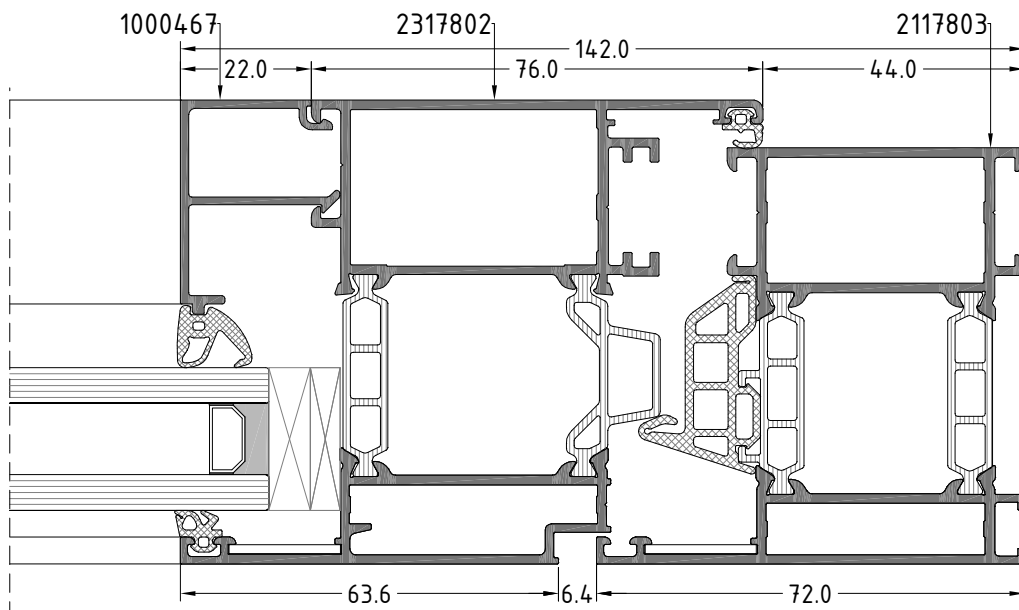
Section D



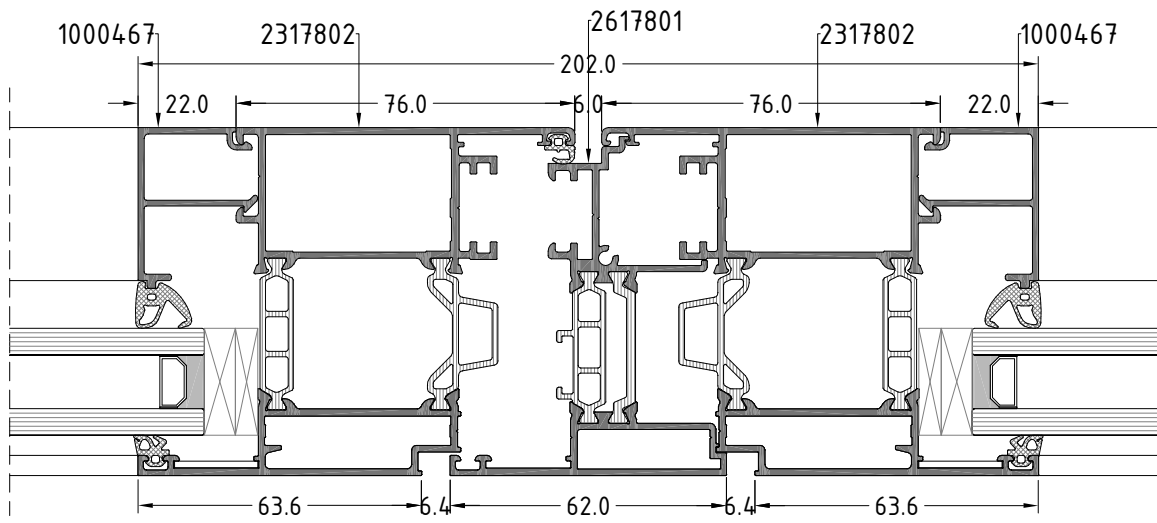
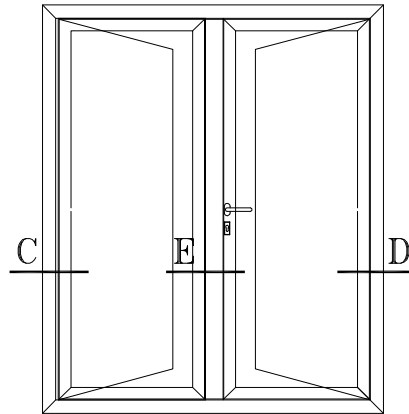
Section E



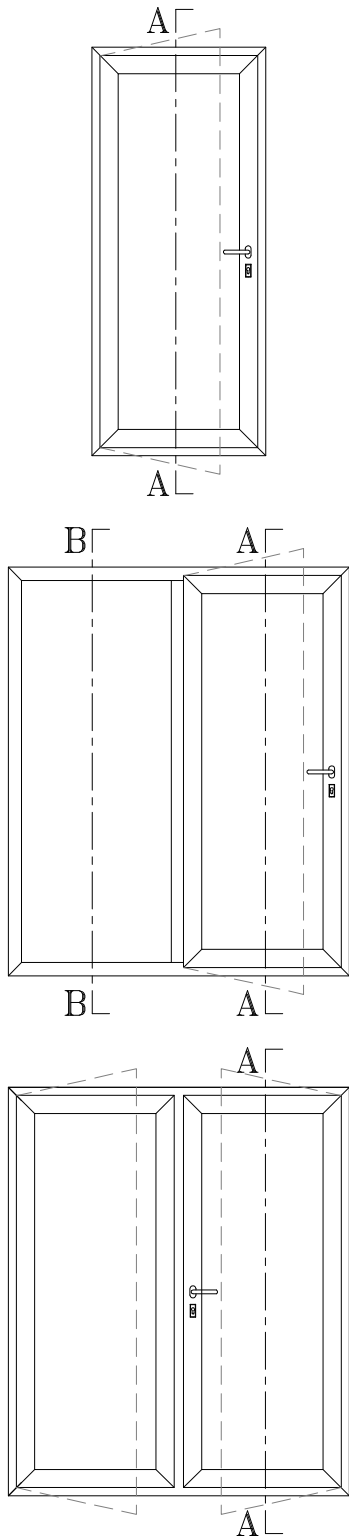
Section C



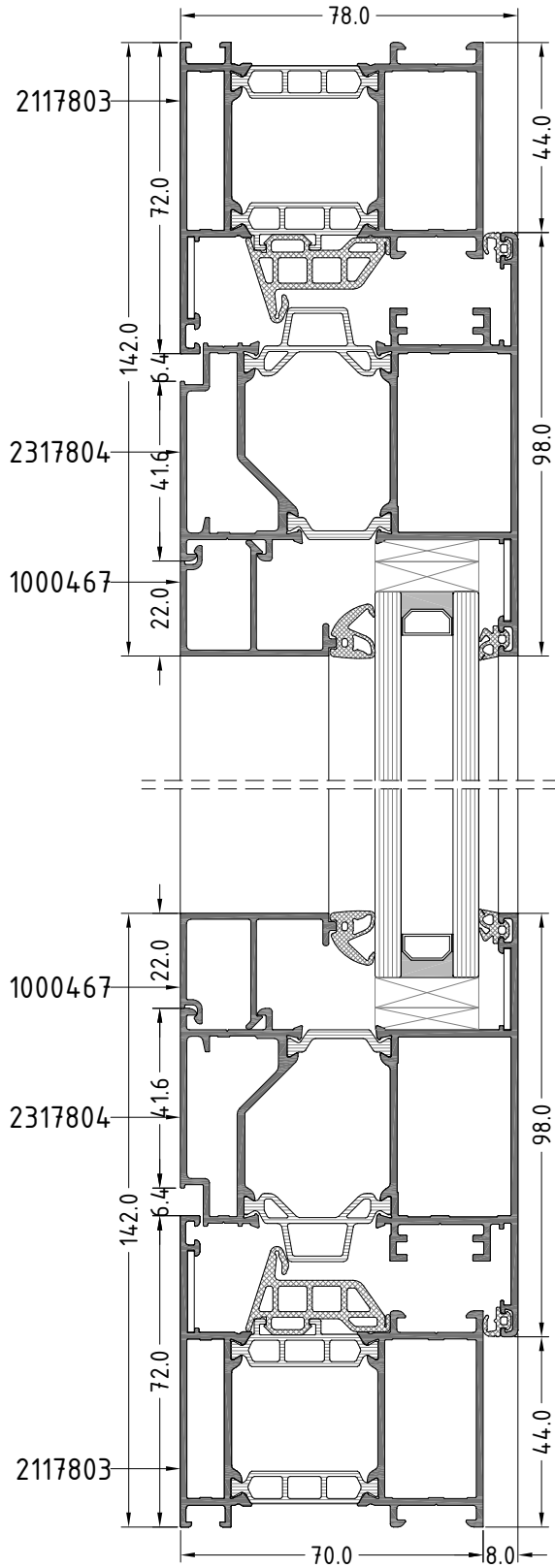
Section D

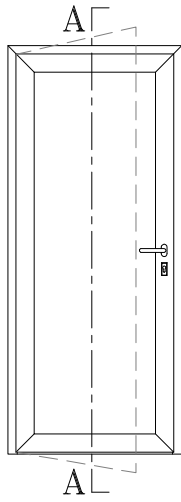


Section E

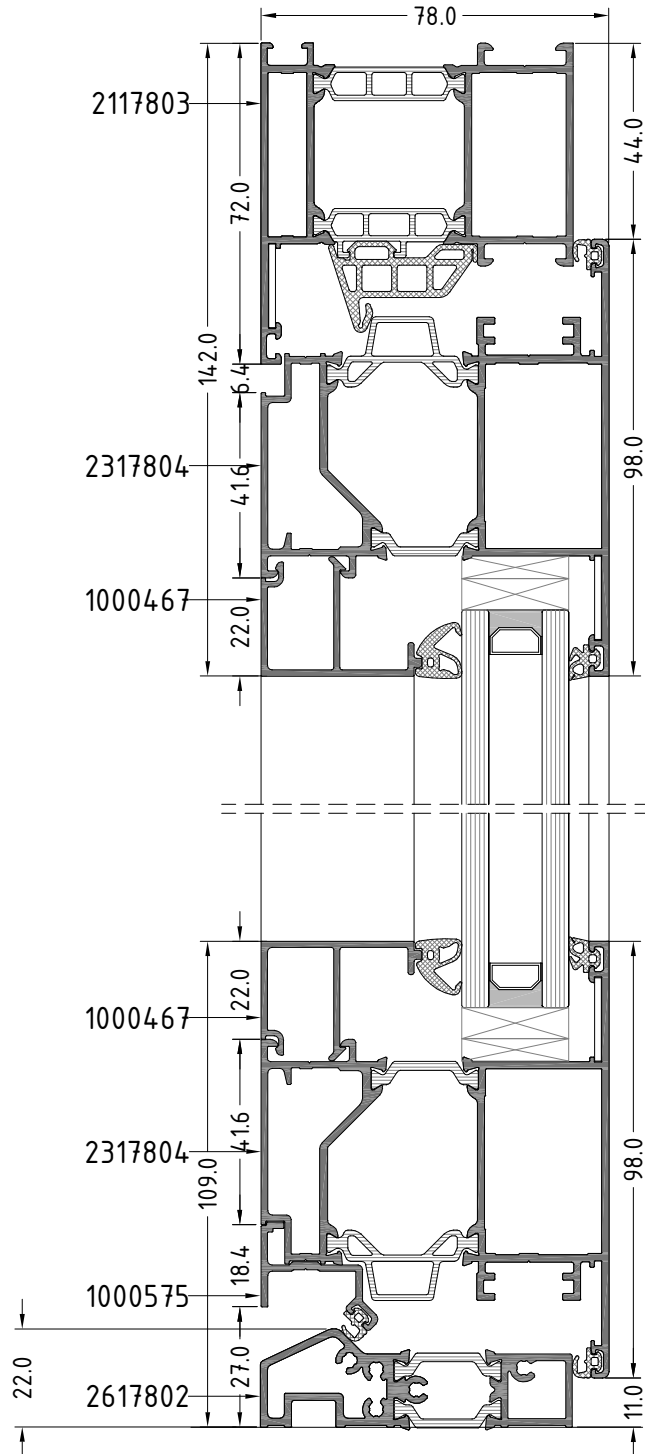


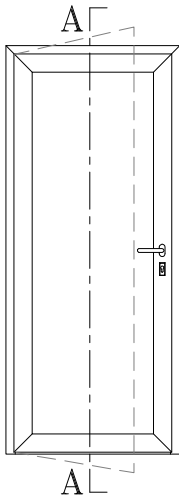
Section A-A



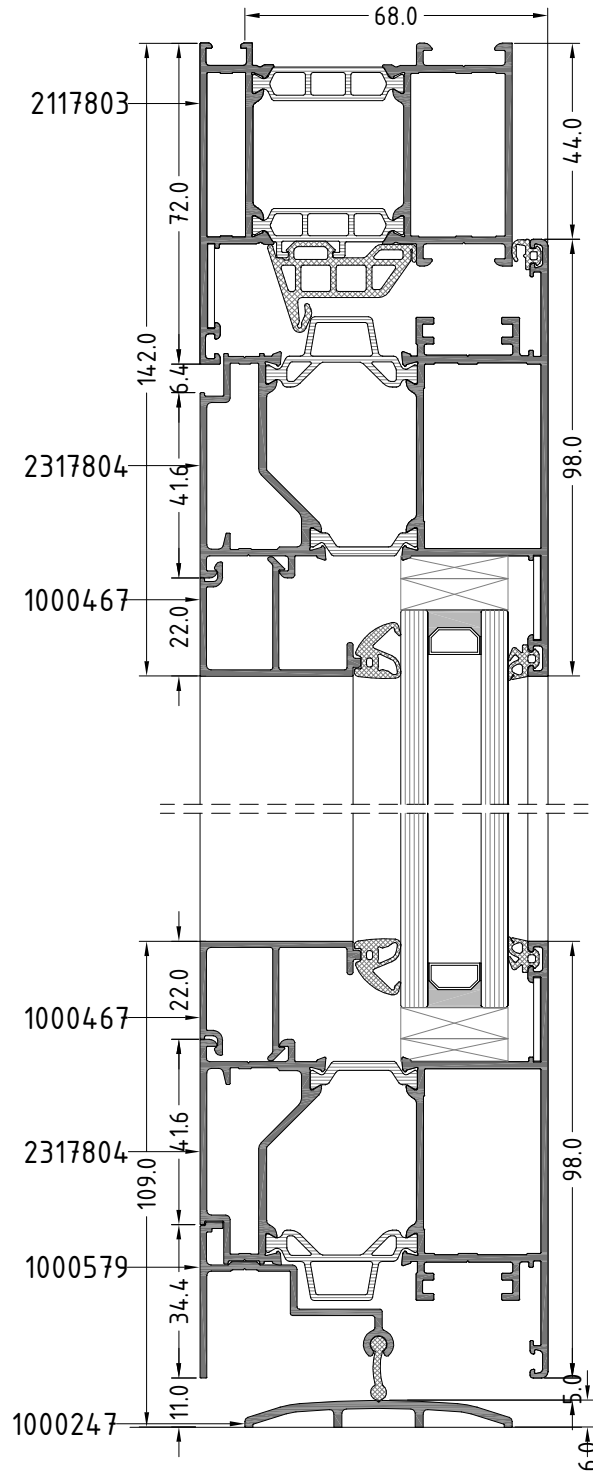


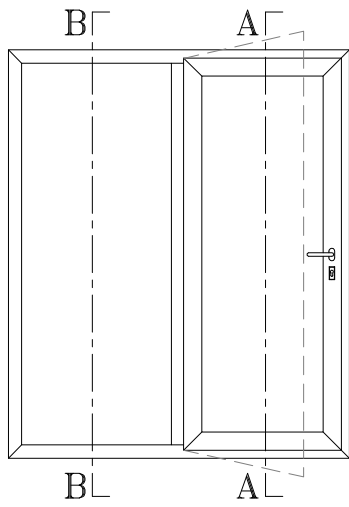
Section A-A



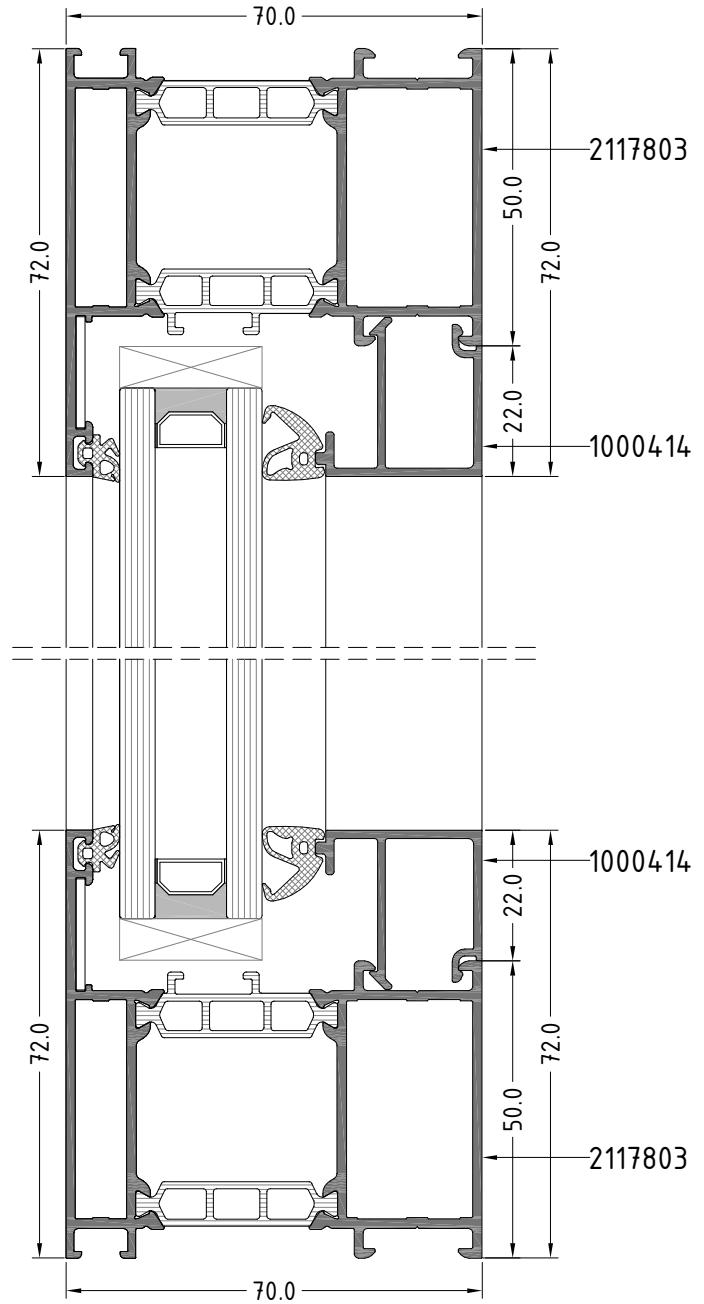


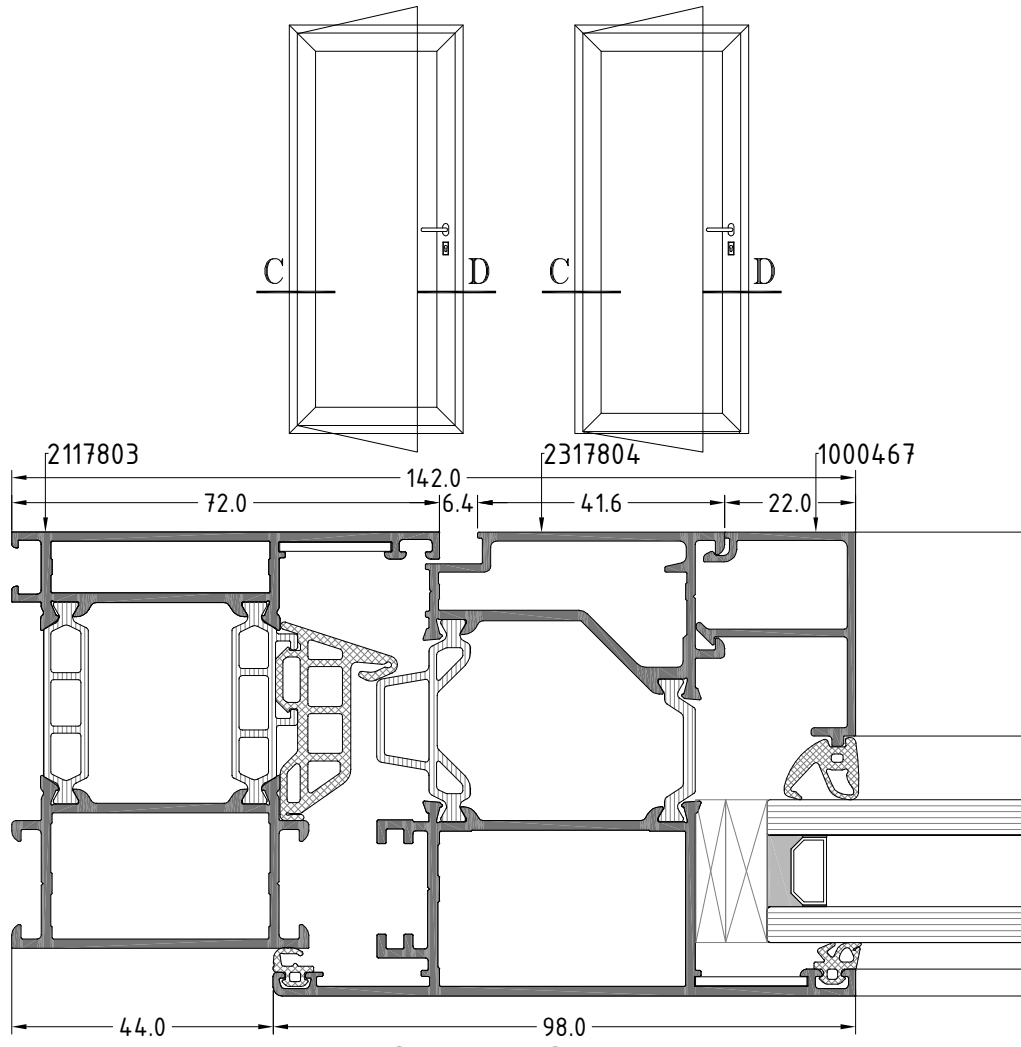
Section A-A



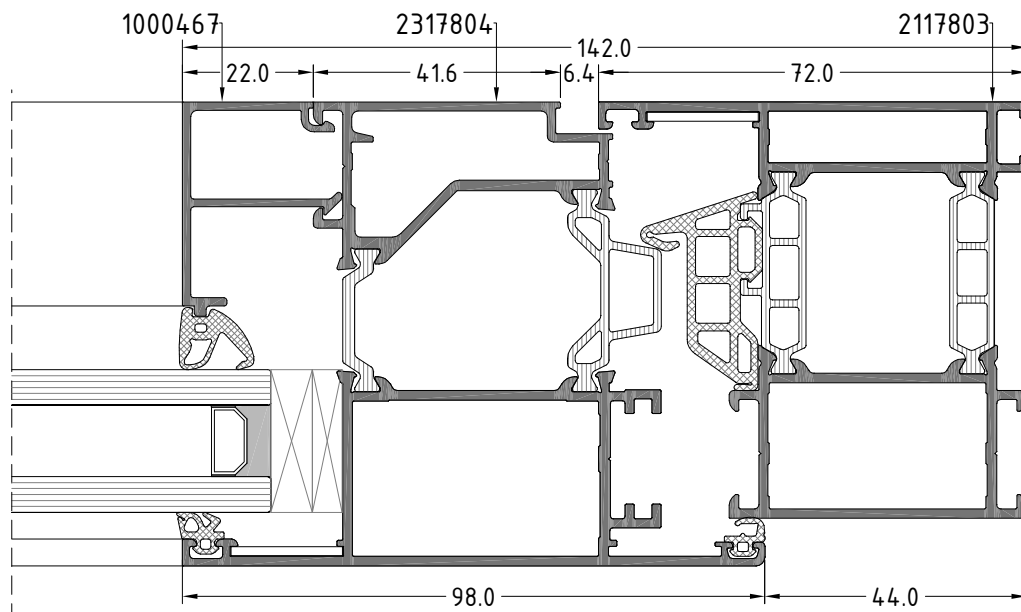


Section B-B

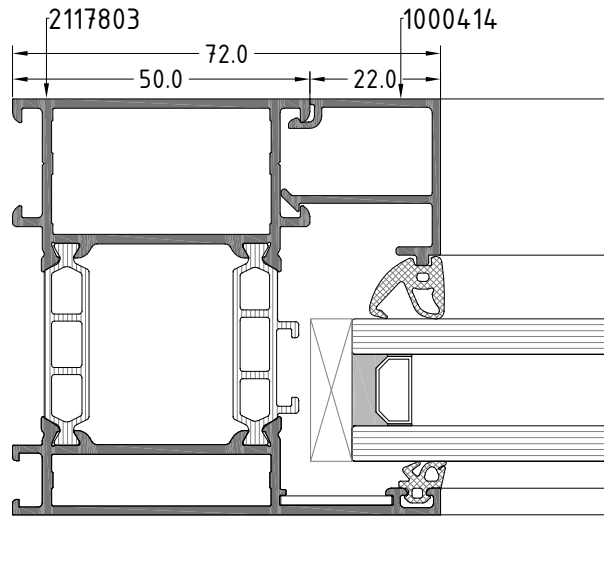
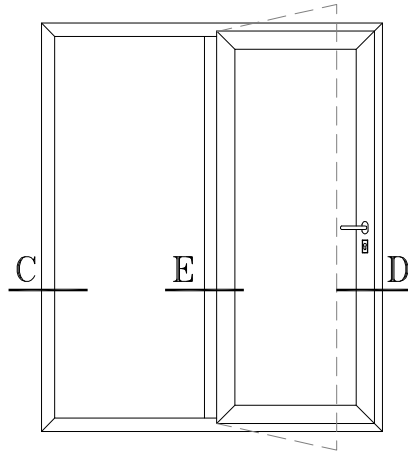




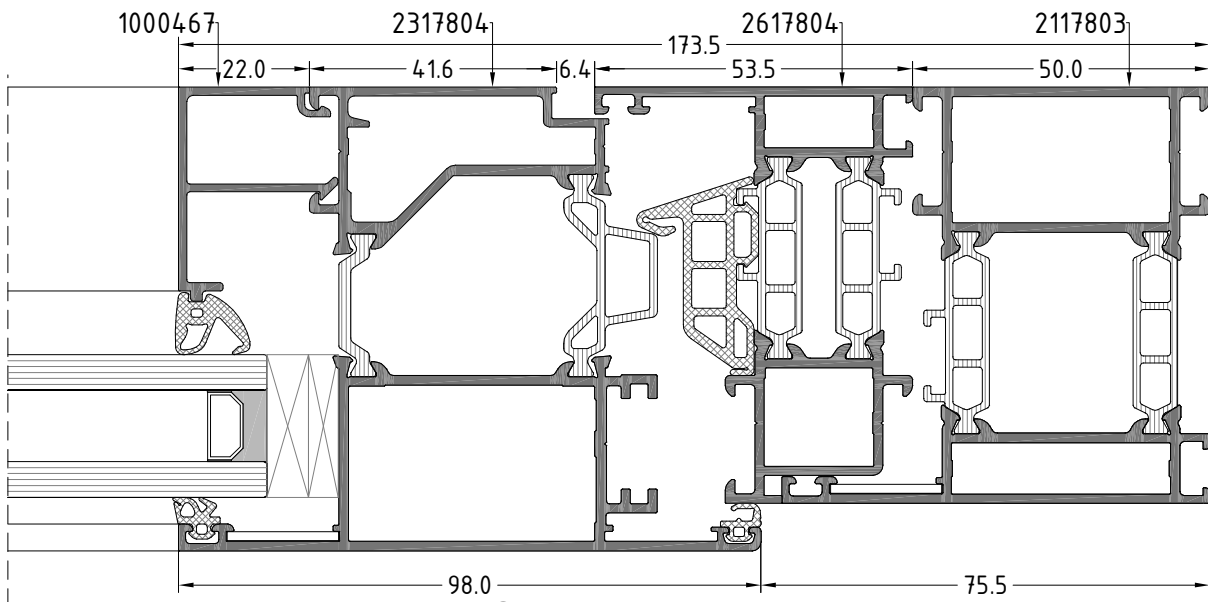
Section C



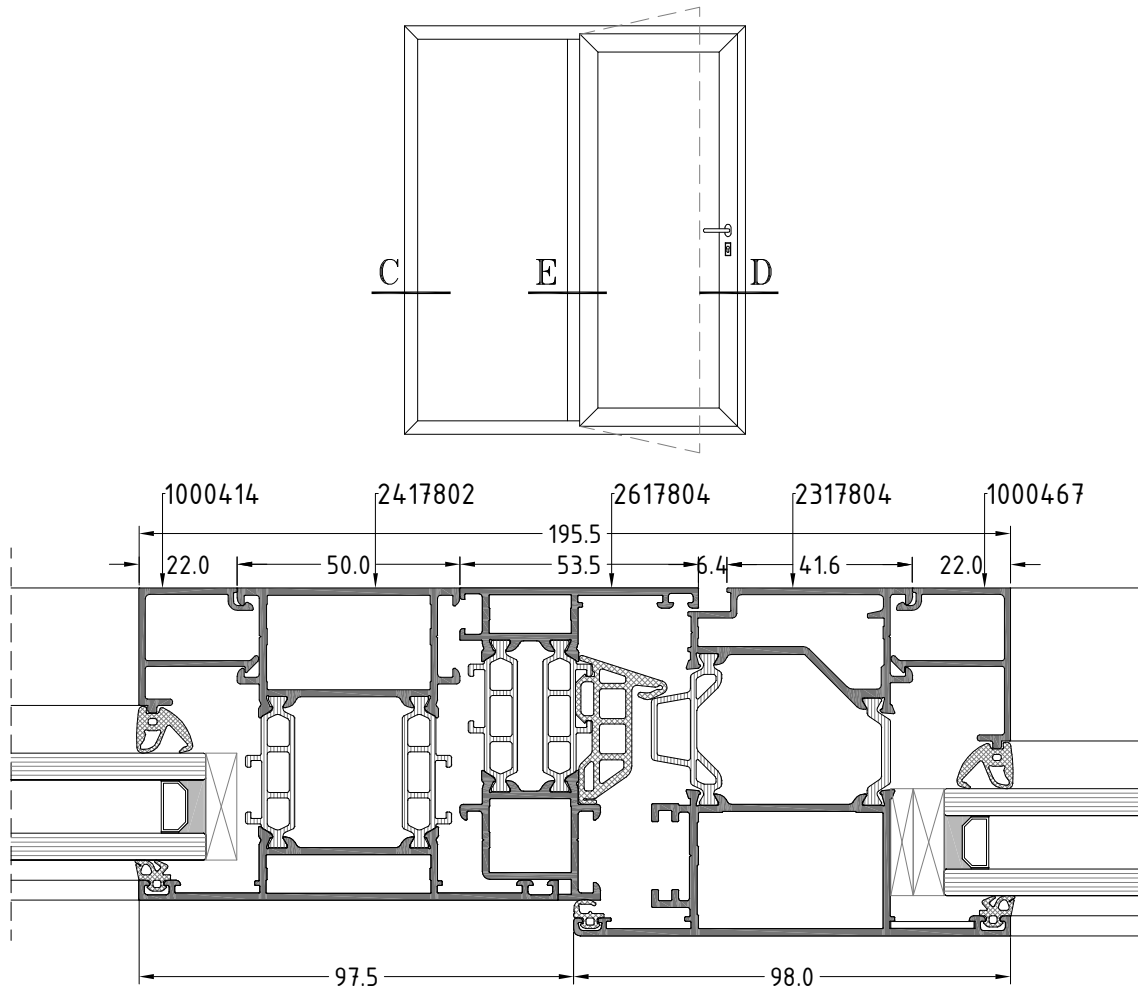
Section D



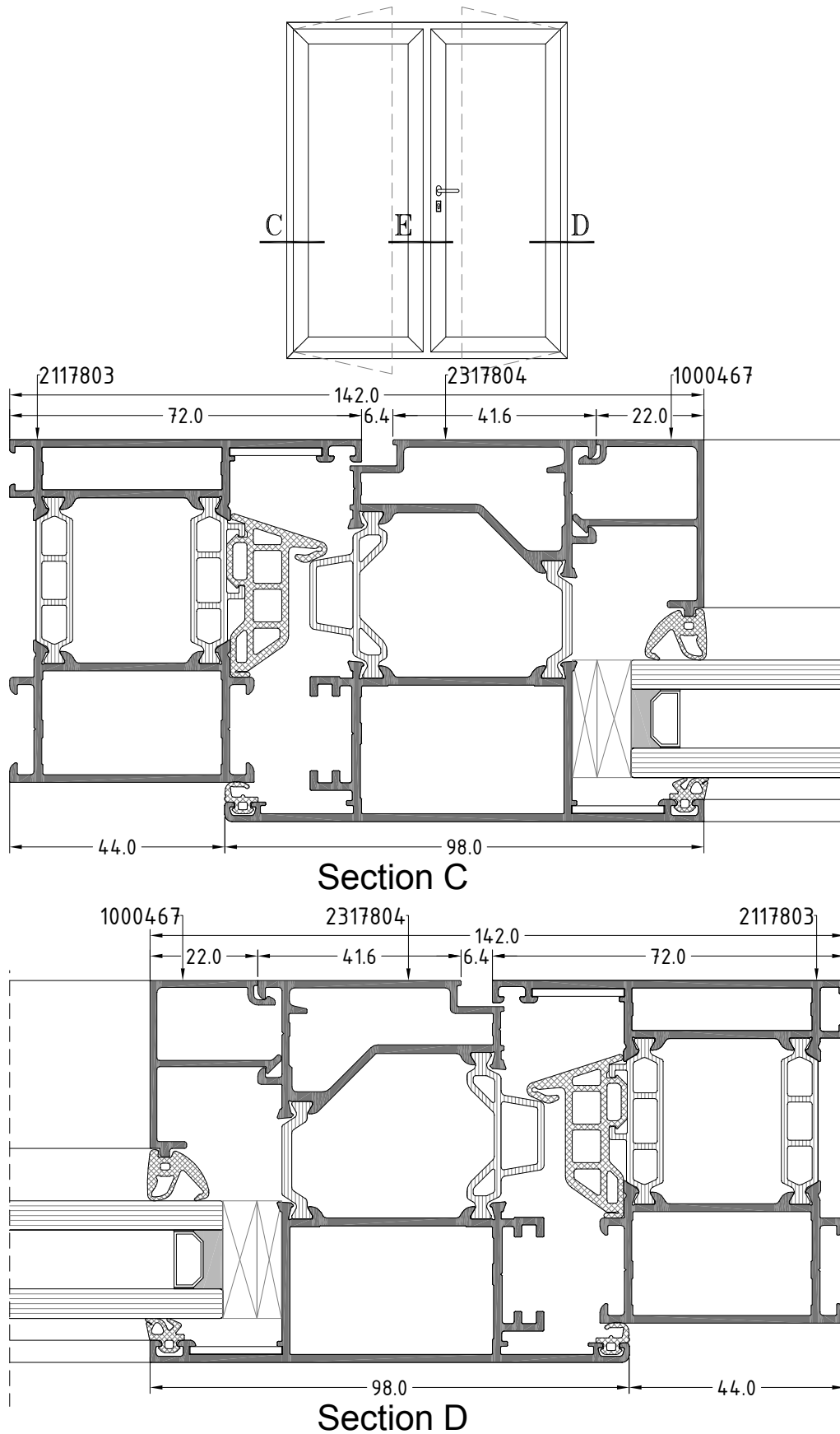
Section C

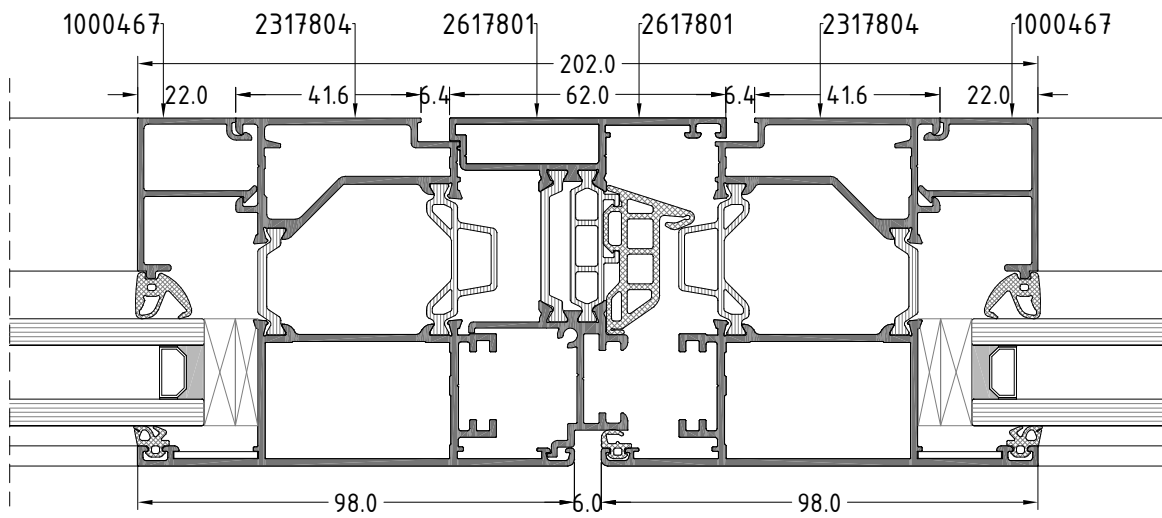
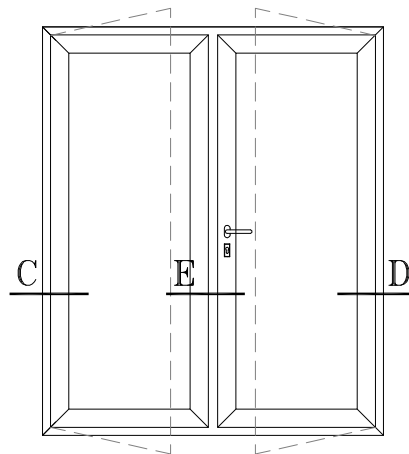


Section D

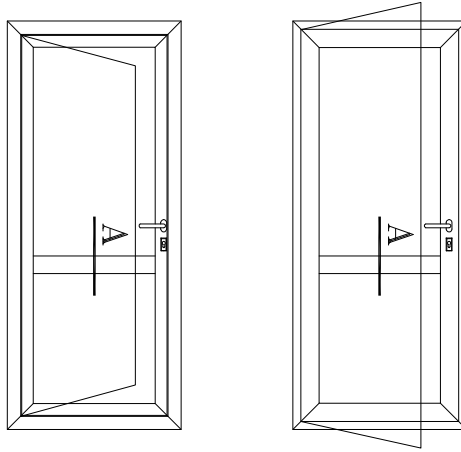


Section E

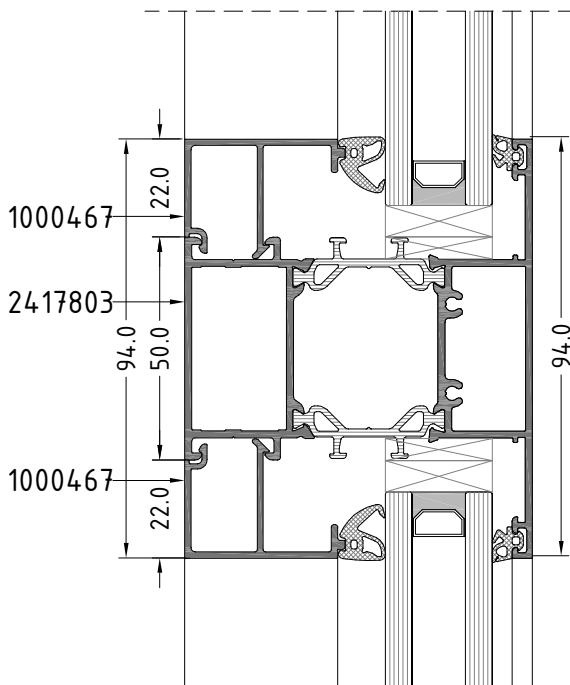




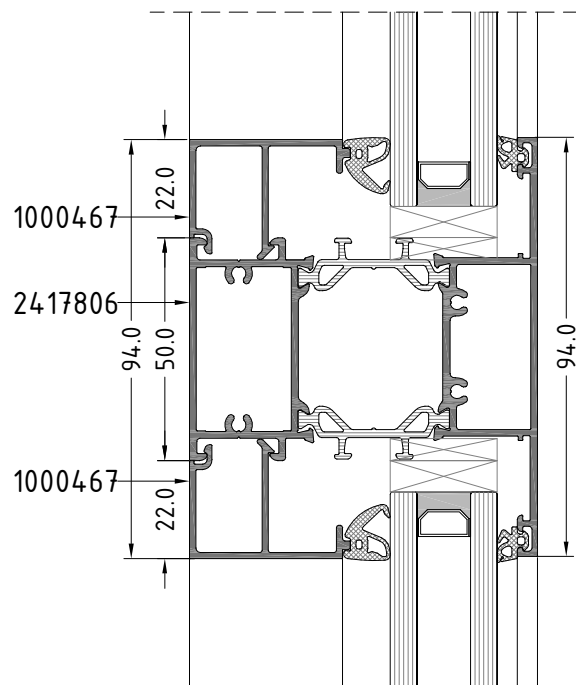
Section E



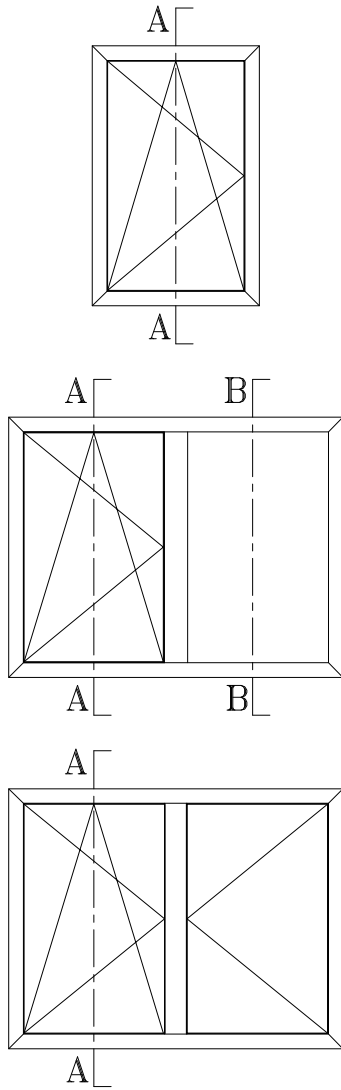
Section A



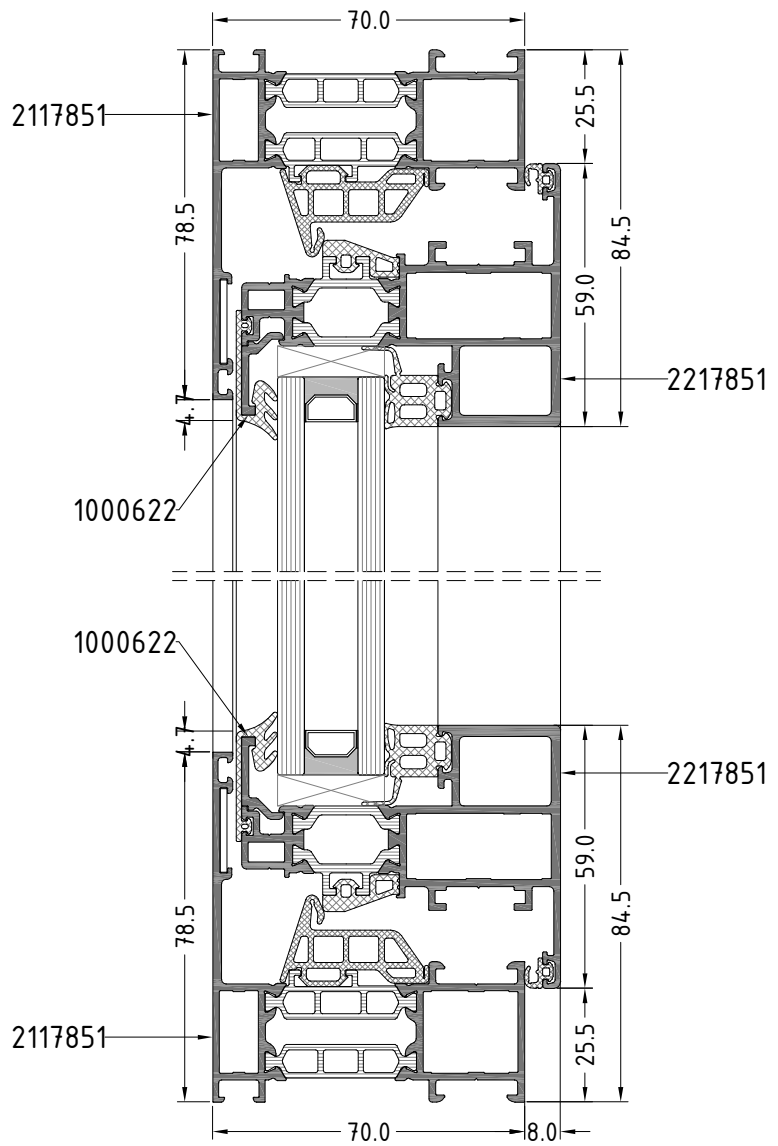
Option 1

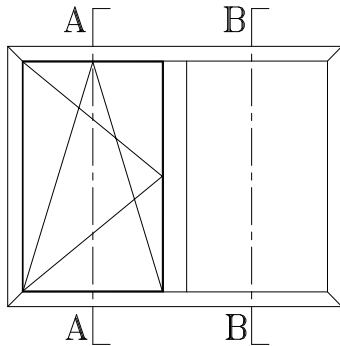


Option 2

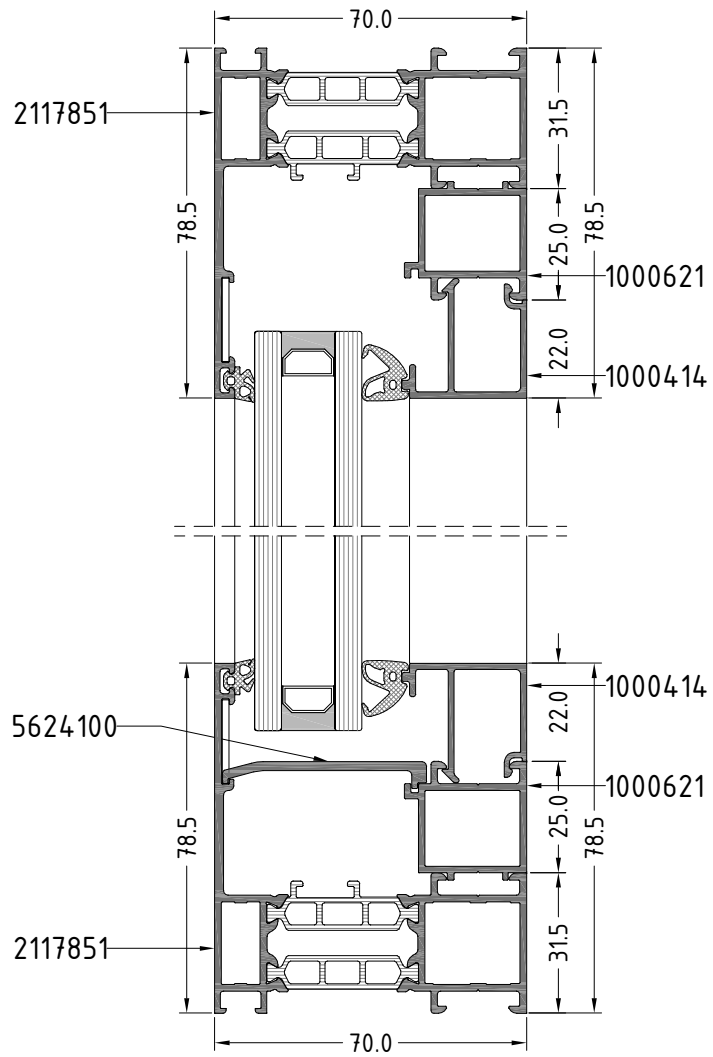


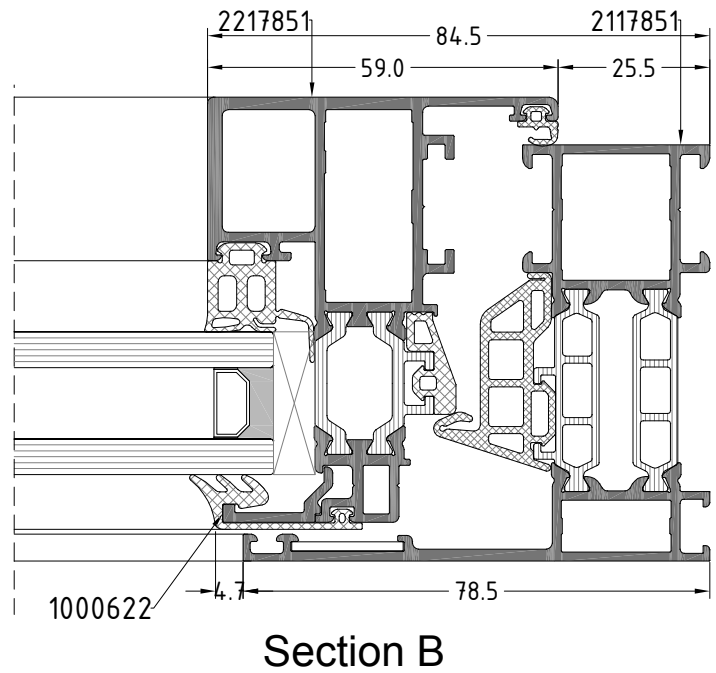
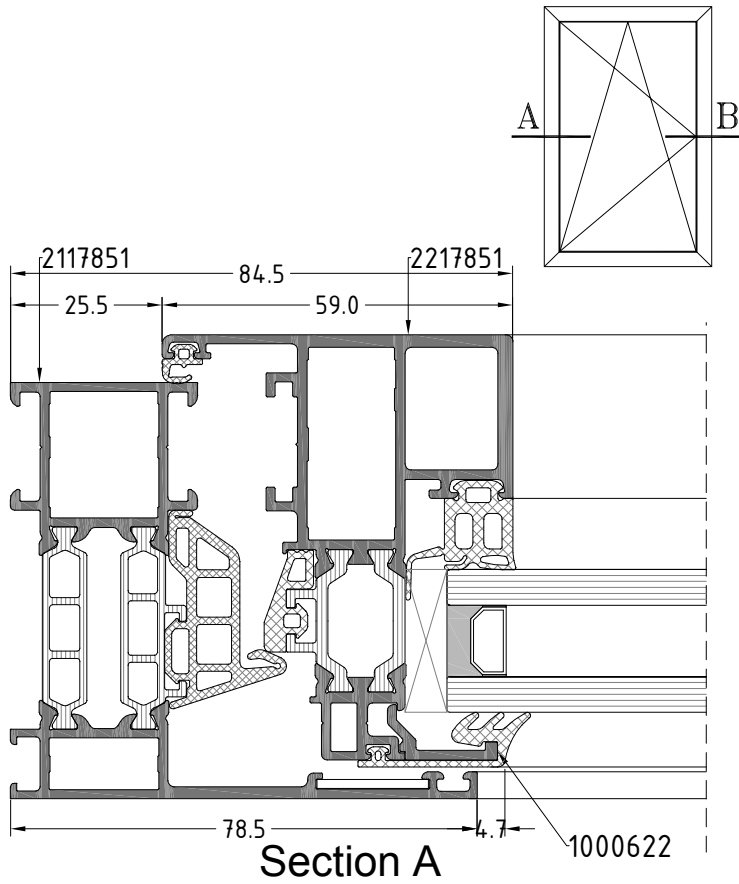
Section A-A

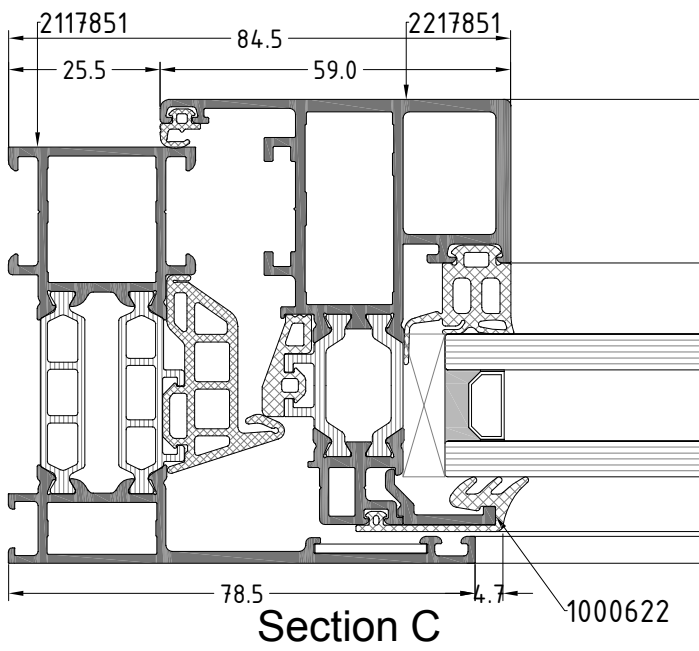
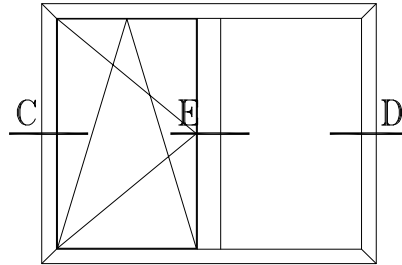




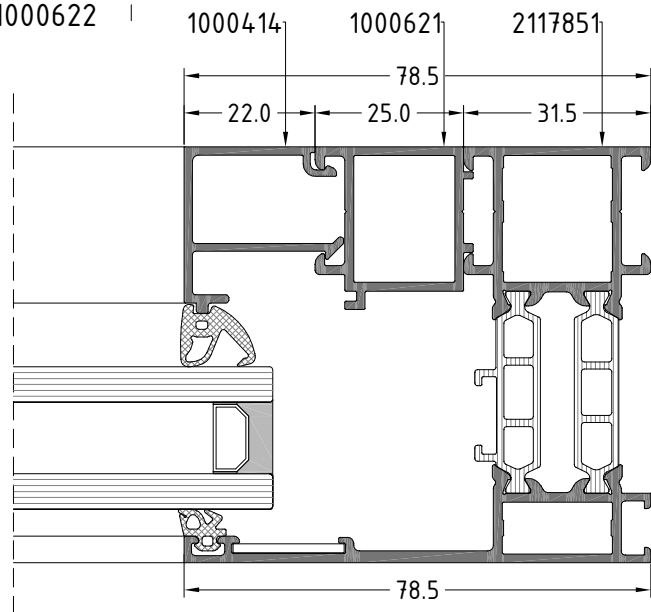
Section B-B



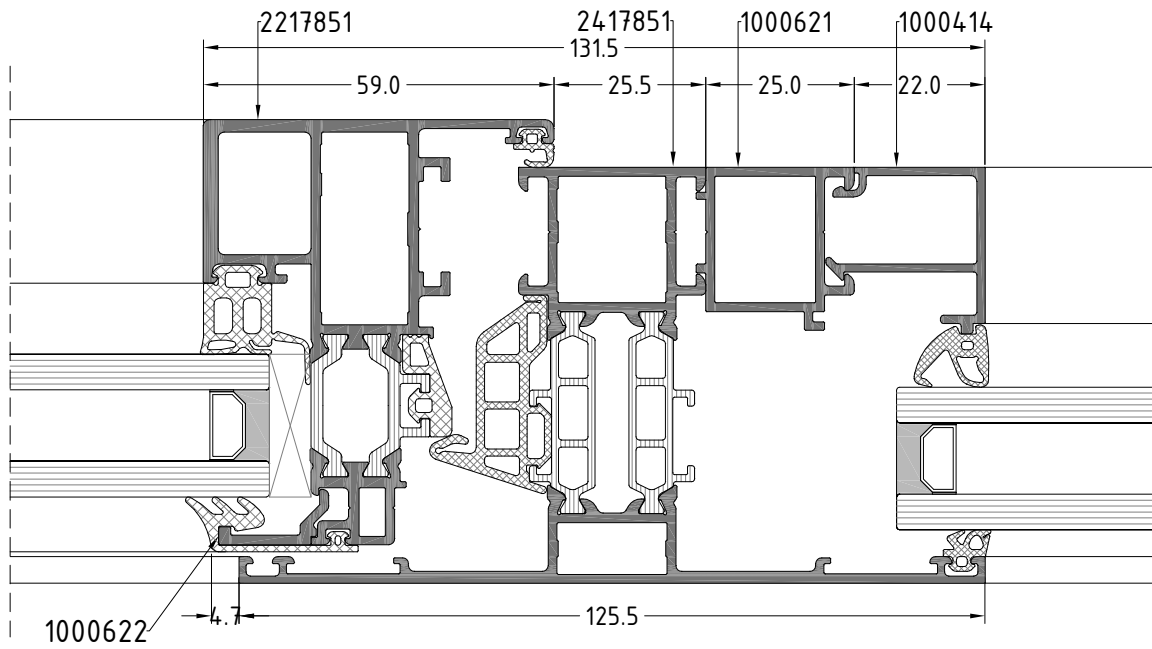
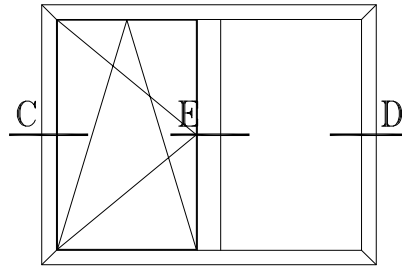


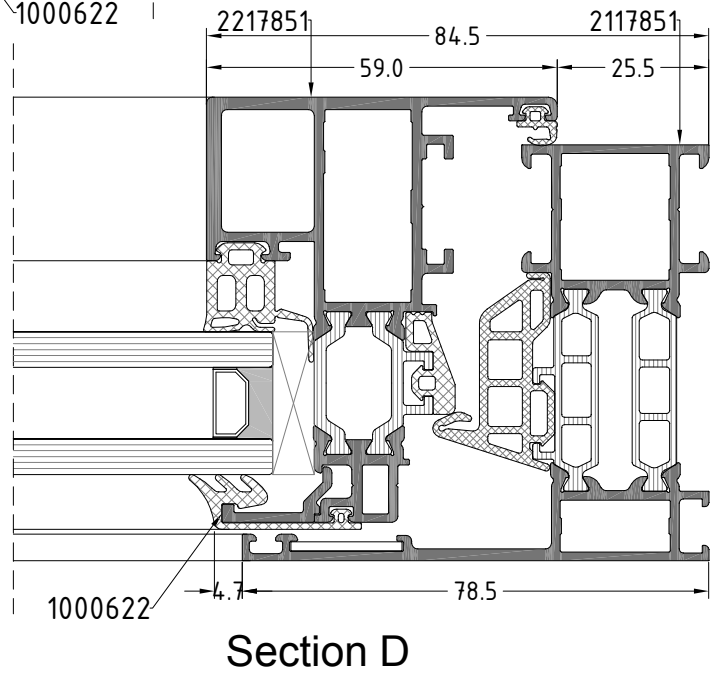
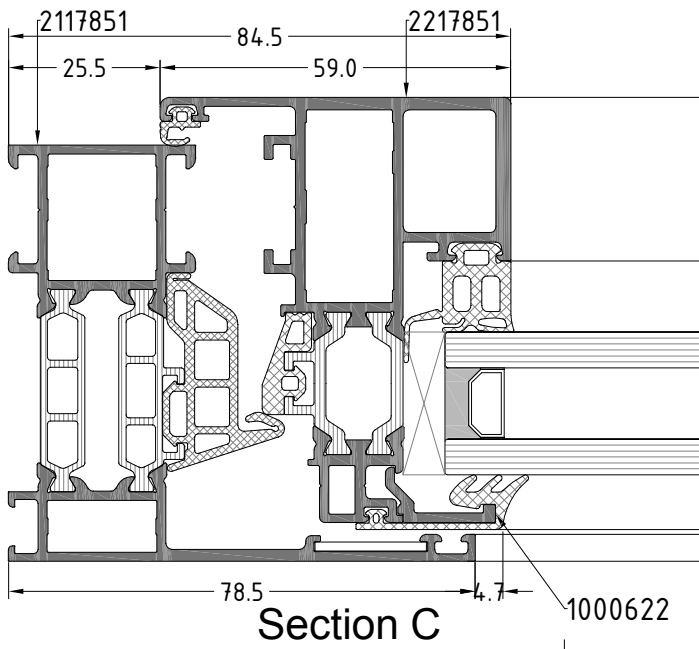
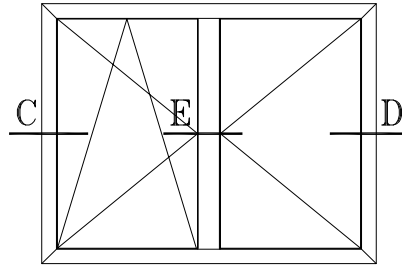


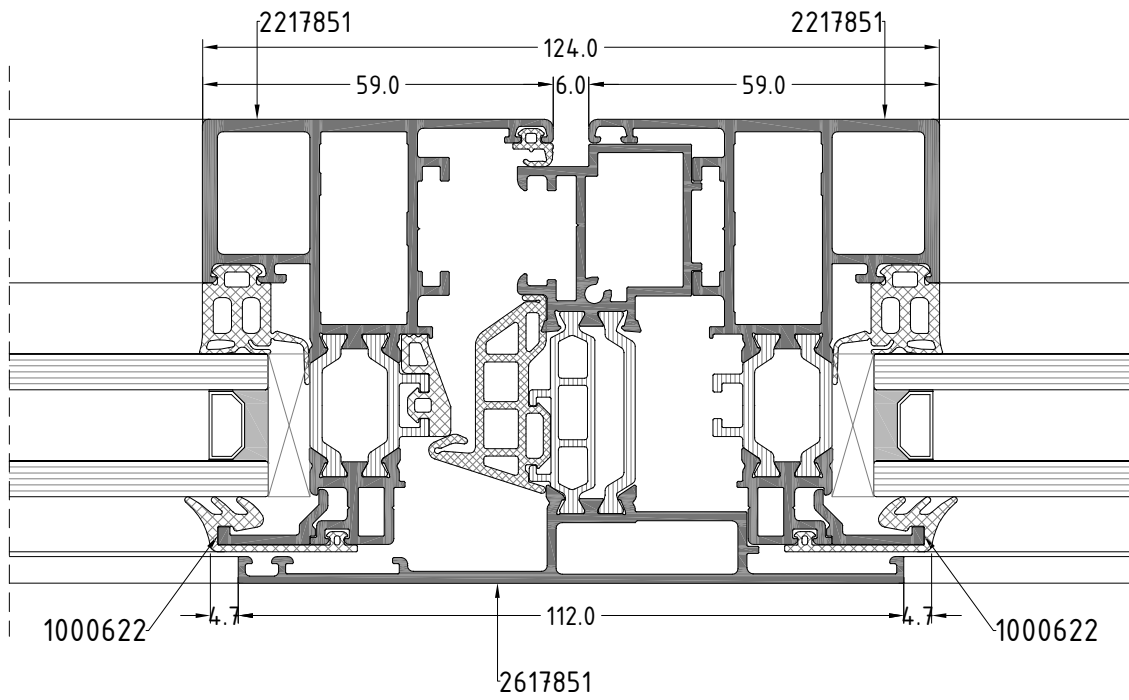
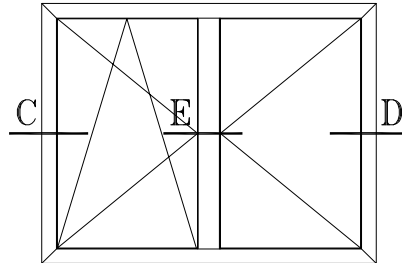
Section C

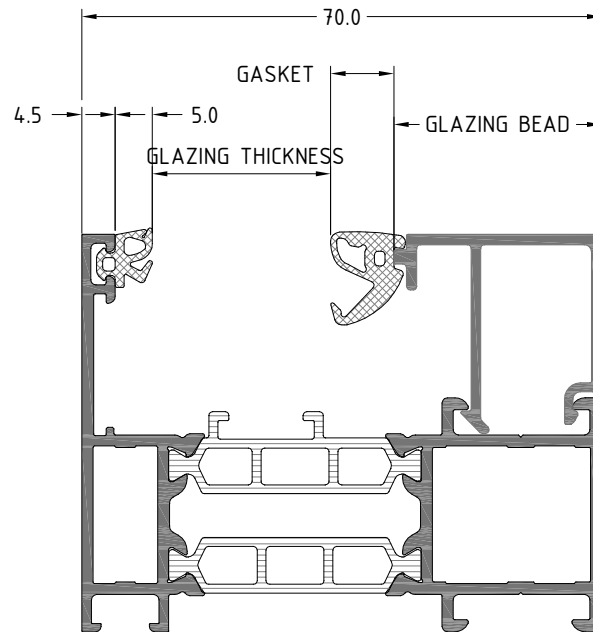


Section D

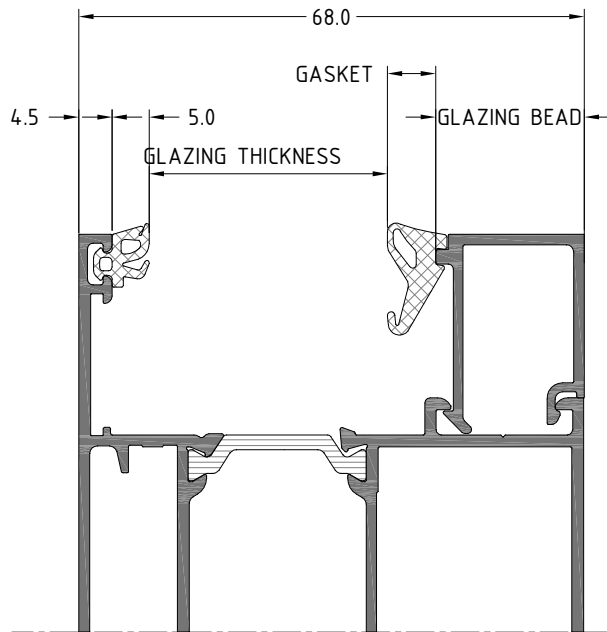




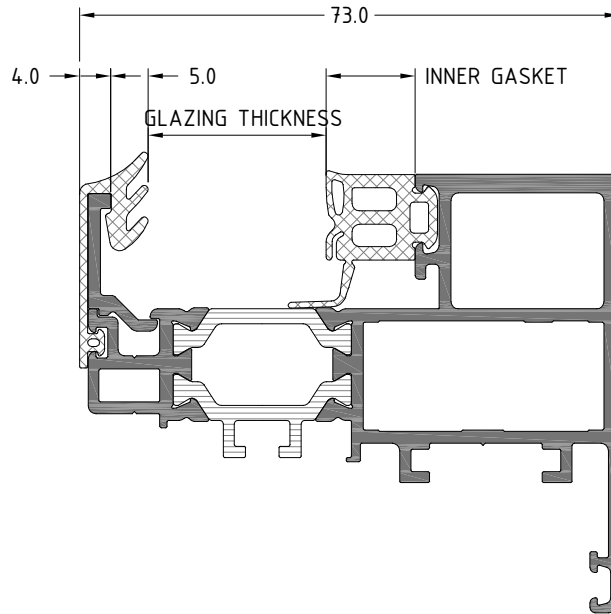




GLAZING THICKNESS	OUTER GLAZING GASKET	INNER GLAZING GASKET	INNER GLAZING GASKET TICK.	GLAZING BEAD PROFILE	GLAZING BEAD DEPTH
14mm.	7001001	7001062	10.5 mm.	1000467	36mm.
16mm.	7001001	7001002	8.5 mm.	1000467	36mm.
18mm.	7001001	7001005	6.5 mm.	1000467	36mm.
20mm.	7001001	7001034	4.5 mm.	1000467	36mm.
22mm.	7001001	7001062	10.5 mm.	1000414	28mm.
24mm.	7001001	7001002	8.5 mm.	1000414	28mm.
26mm.	7001001	7001005	6.5 mm.	1000414	28mm.
28mm.	7001001	7001034	4.5 mm.	1000414	28mm.
30mm.	7001001	7001062	10.5 mm.	1000405	20mm.
32mm.	7001001	7001002	8.5 mm.	1000405	20mm.
34mm.	7001001	7001005	6.5 mm.	1000405	20mm.
36mm.	7001001	7001034	4.5 mm.	1000405	20mm.
38mm.	7001001	7001062	10.5 mm.	1000409	12mm.
40mm.	7001001	7001002	8.5 mm.	1000409	12mm.
42mm.	7001001	7001005	6.5 mm.	1000409	12mm.
44mm.	7001001	7001034	4.5 mm.	1000409	12mm.



GLAZING THICKNESS	OUTER GLAZING GASKET	INNER GLAZING GASKET	INNER GLAZING GASKET TICK.	GLAZING BEAD PROFILE	GLAZING BEAD DEPTH
22mm.	7001001	7001062	10.5 mm.	1000467	36mm.
24mm.	7001001	7001002	8.5 mm.	1000467	36mm.
26mm.	7001001	7001005	6.5 mm.	1000467	36mm.
28mm.	7001001	7001034	4.5 mm.	1000467	36mm.
30mm.	7001001	7001062	10.5 mm.	1000414	28mm.
32mm.	7001001	7001002	8.5 mm.	1000414	28mm.
34mm.	7001001	7001005	6.5 mm.	1000414	28mm.
36mm.	7001001	7001034	4.5 mm.	1000414	28mm.
38mm.	7001001	7001062	10.5 mm.	1000405	20mm.
40mm.	7001001	7001002	8.5 mm.	1000405	20mm.
42mm.	7001001	7001005	6.5 mm.	1000405	20mm.
44mm.	7001001	7001034	4.5 mm.	1000405	20mm.
46mm.	7001001	7001062	10.5 mm.	1000409	12mm.
48mm.	7001001	7001002	8.5 mm.	1000409	12mm.
50mm.	7001001	7001005	6.5 mm.	1000409	12mm.
52mm.	7001001	7001034	4.5 mm.	1000409	12mm.



GLAZING THICKNESS	OUTER GLAZING GASKET	INNER GLAZING GASKET	INNER GLAZING GASKET TICK.	GLAZING BEAD PROFILE
24mm.	7001013	7001017	12 mm.	1000622
26mm.	7001013	7001041	10 mm.	1000622
28mm.	7001013	7001019	8 mm.	1000622
26mm.	7001013	7001071	6 mm.	1000622
28mm.	7001013	7001044	4 mm.	1000622