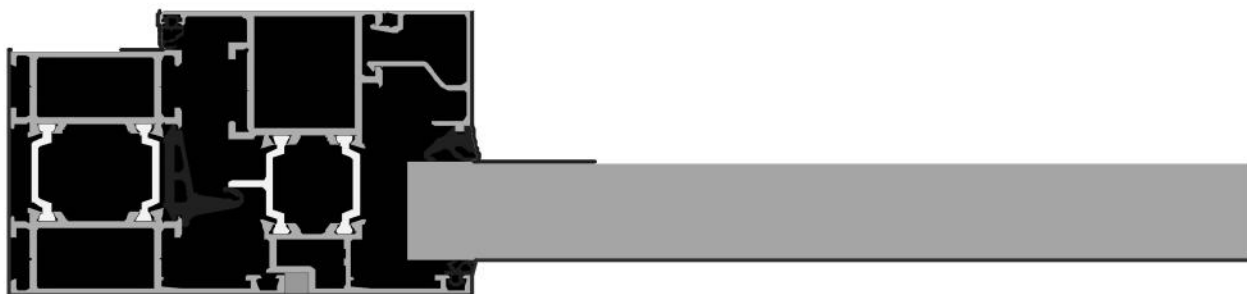


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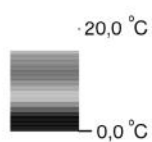
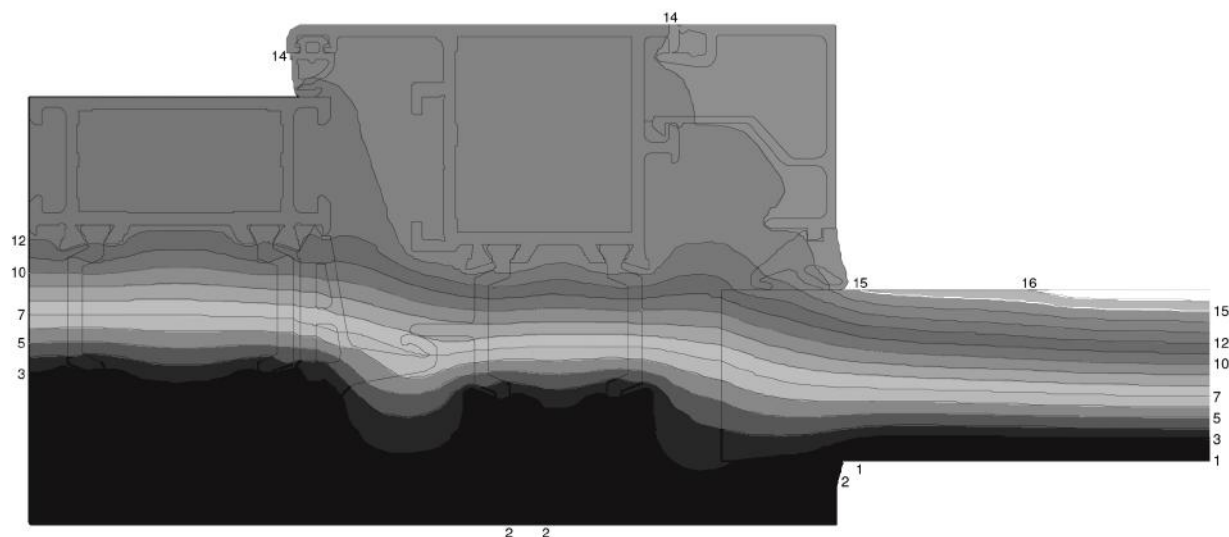
Material	λ [W/(m·K)]
Aluminium (Si alloys)	160,000
EPDM (ethylene propylene diene monomer)	0,250
Panel	0,035
Polyamid 6.6 with 25% glassfibre	0,300
Slightly ventilated air cavity	Eps=0,9/0,9
Unventilated air cavity	Eps=0,9/0,9

Boundary Condition	q [W/m ²]	θ [°C]	R [(m ² ·K)/W]	ϵ
Exterior, frame		0,000		0,040
Interior, frame, normal		20,000		0,130
Interior, frame, reduced		20,000		0,200
Symmetry/Model section	0,000			

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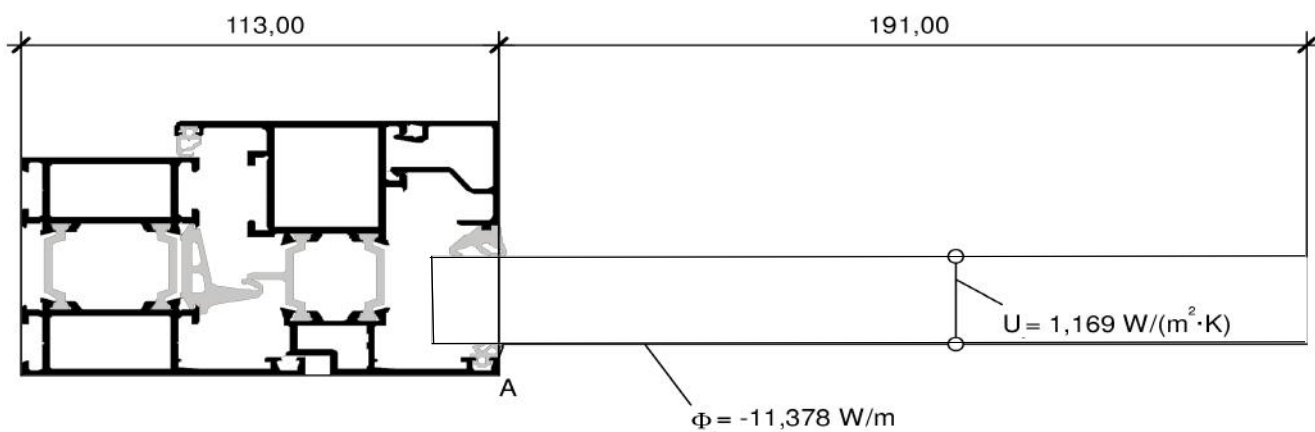
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$$U_{fA} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{11,378}{20,000} - 1,169 \cdot 0,191}{0,113} = 3,059 \text{ W/(m}^2 \cdot \text{K)}$$

Thermal Transmittance Calculation

EN ISO 10077-1:2008

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

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

Where

U_g = Thermal transmittance of the glazing;

U_f = Thermal transmittance of the frame;

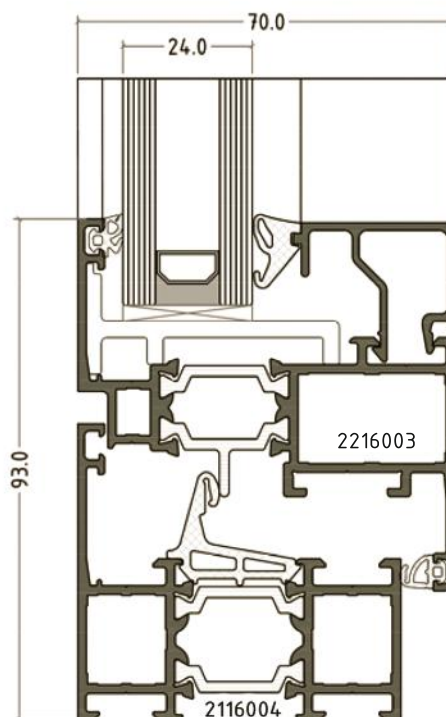
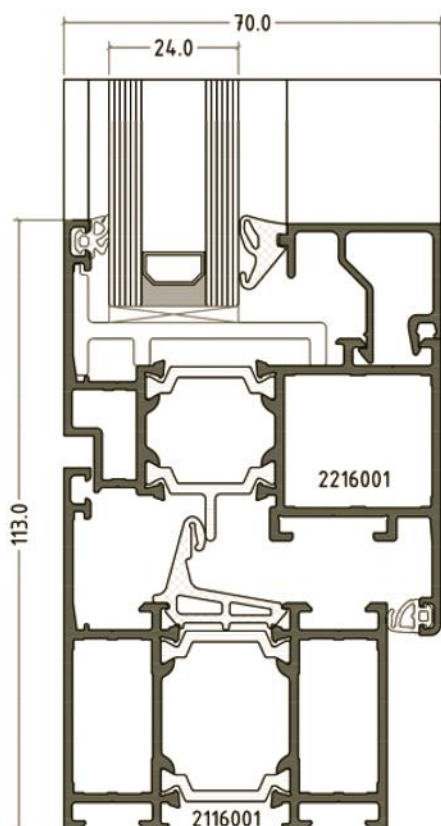
ψ_g = Linear thermal transmittance due to the combined thermal effects of glazing, spacer and frame;

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.		



S60 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
2116001 Frame 2216001 Sash	0.06	2.04	2.11	2.18	2.25	2.32	2.39	2.46	2.53	2.60	2.67	2.74	2.81
	0.08	2.09	2.16	2.23	2.30	2.37	2.44	2.51	2.58	2.65	2.72	2.79	2.86
	0.11	2.16	2.23	2.30	2.37	2.44	2.51	2.58	2.65	2.73	2.80	2.87	2.94
2116004 Frame 2216003 Sash	0.06	1.97	2.05	2.12	2.20	2.27	2.35	2.43	2.50	2.58	2.65	2.73	2.80
	0.08	2.02	2.10	2.17	2.25	2.33	2.40	2.48	2.55	2.63	2.70	2.78	2.86
	0.11	2.10	2.17	2.25	2.33	2.40	2.48	2.55	2.63	2.70	2.78	2.86	2.93

PROFILES :

Number	Shape	DESCRIPTION	I cm ⁴	I cm ⁴
2116001		Thermal break frame 67/42	27.32	13.17
2116002		Thermal break frame 75/50	36.96	26.47
2116003		Thermal break frame 75/50	35.36	25.13
2116004		Thermal break frame 55/30	20.93	6.25
2116005		Thermal break frame 89/64	42.67	27.62
2116006		Thermal break frame 145/120	178.50	49.18
2116007		Thermal break frame 42/42	21.15	8.73
2116008		Thermal break frame 30/30	16.36	3.20
2116009		Thermal break frame 64/64	27.60	27.25
2116010		Thermal break frame 120/120	148.2	45.82
2116011		Thermal break frame 67/67	39.82	16.75
2116012		Thermal break frame 55/55	28.70	8.07
2116013		Thermal break frame 89/89	60.84	27.73
2116014		Thermal break frame 145/145	214.0	51.46
2116015		Thermal break frame 92/67	38.69	25.86
2116016		Thermal break frame 80/55	30.72	15.89
2116017		Thermal break frame 114/89	65.84	38.59
2116018		Thermal break frame 170/145	240.98	58.52

PROFILES :

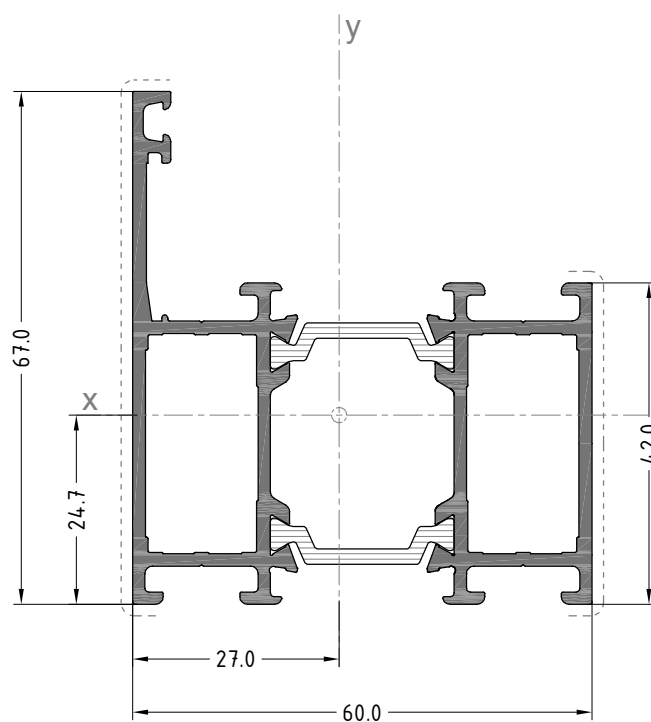
Number	Shape	DESCRIPTION	I cm ⁴	I cm ⁴
2216001		Thermal break window sash 55/40	37.93	8.80
2216002		Thermal break window sash 92/42	36.97	23.84
2216003		Thermal break window sash 47/32	30.49	5.02
2316001		Thermal break door sash 75/75	52.10	26.79
2316002		Thermal break door sash 100/50	42.57	31.90
2316003		Thermal break door sash 80/65	56.65	26.29
2416001		Thermal break frame Mullion Transom 92/42	28.64	23.35
2416002		Thermal break frame Mullion Transom 80/30	23.63	13.42
2416003		Thermal break frame Mullion Transom 114/64	51.79	35.33
2416004		Thermal break frame Mullion Transom 170/120	210.45	54.04
2416005		Thermal break frame Mullion Transom 48/42	138.0	31.75
2616001		Meeting profile	21.03	10.76
2616002		Outward opening adaptor	18.29	7.32
2616003		Pivot opening adaptor	17.42	11.11
2616004		Door adaptor	11.95	4.55
2616005		Door adaptor	9.85	4.16
2616006		Threshold profile	20.38	8.19
2616007		Door adaptor	8.58	1.46

PROFILES :

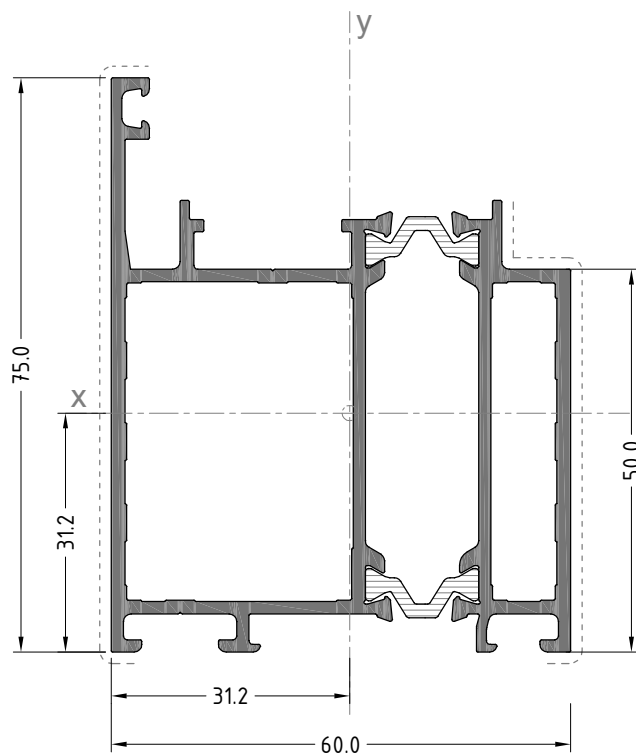
Number	Shape	DESCRIPTION	I cm ⁴	I cm ⁴
1000359		Door bottom profile	—	—
1000246		Door bottom profile	—	—
1000168		Rain screen profile	—	—
1000247		Threshold profile	—	—
1000235		Door adaptor profile	—	—
1000367		Friction stay spacer	—	—
1000361		Curtain wall adaptor	—	—
1000255		Mullion Transom Connector	—	—
1000334		Glazing bead 5 mm	—	—
1000213		Glazing bead 12 mm	—	—
1000286		Glazing bead 15 mm	—	—
1000285		Glazing bead 20 mm	—	—
1000194		Glazing bead 25 mm	—	—
1000208		Glazing bead 30 mm	—	—
1000193		Glazing bead 35 mm	—	—

ACCESSORIES :

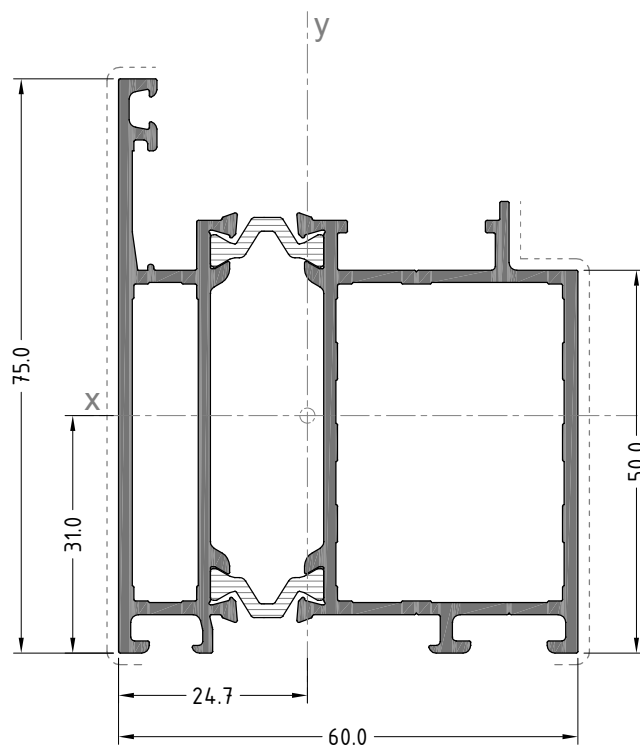
Number	Shape	DESCRIPTION
7001001		Outer glazing gasket
7001003		Stop gasket
7001006		Door gasket
7001002		Inner glazing gasket 7-8 mm
7001005		Inner glazing gasket 5-6 mm
7001034		Inner glazing gasket 3-4 mm
7001033		Threshold gasket
7001004		Central gasket
7001008		Inward adaptor gasket
7801007		Corner gasket



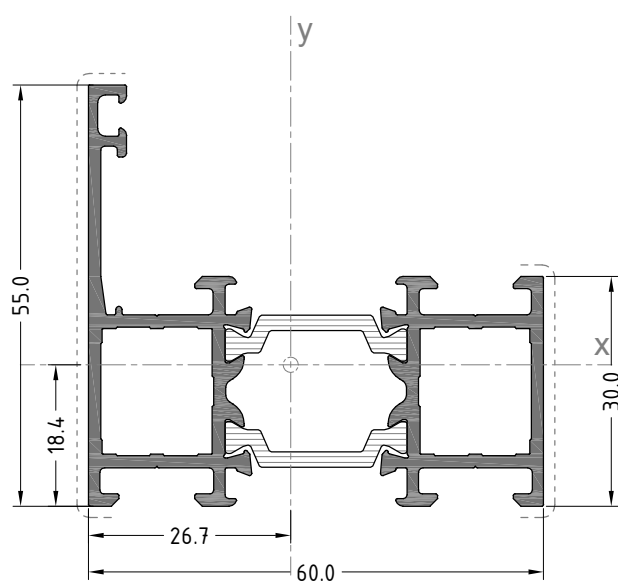
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Thermal break frame 67/42	2116001	27.32	13.17	2.69	2.47	8.27	3.11



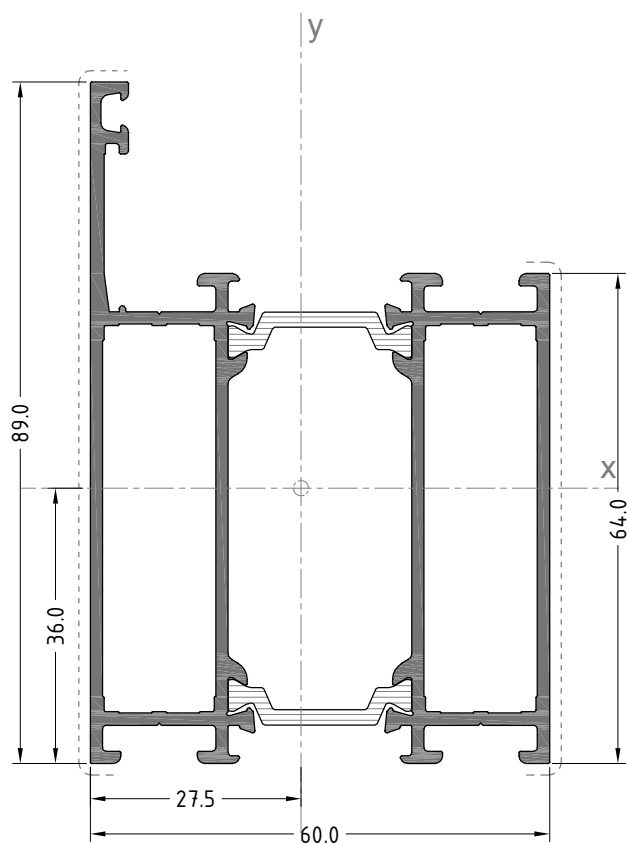
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Thermal break frame 75/50	2116002	36.96	26.47	3.12	3.12	12.82	6.04



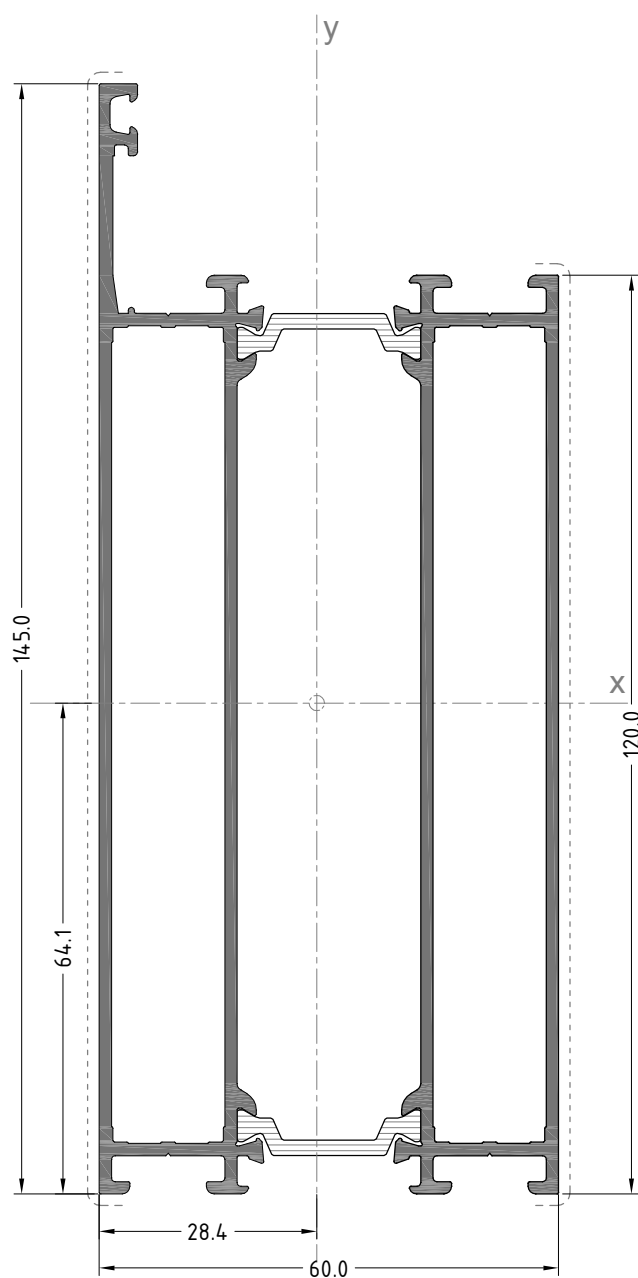
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Thermal break frame 75/50	2116003	35.36	25.13	2.46	3.10	10.01	5.71



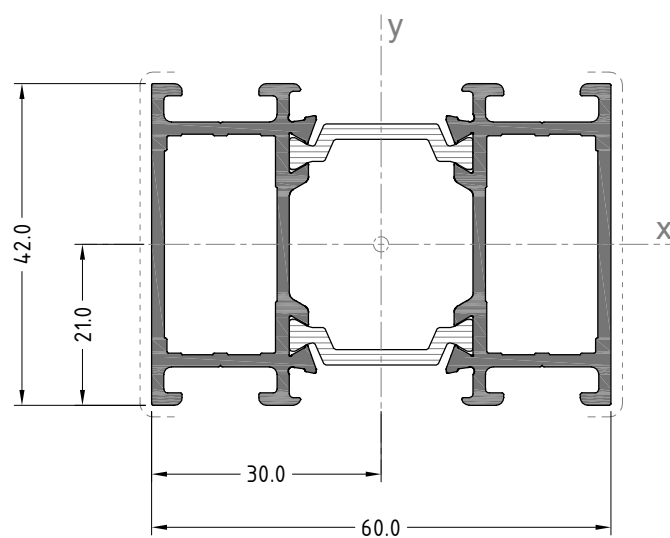
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Thermal break frame 55/30	2116004	20.93	6.25	2.67	1.84	5.72	1.87



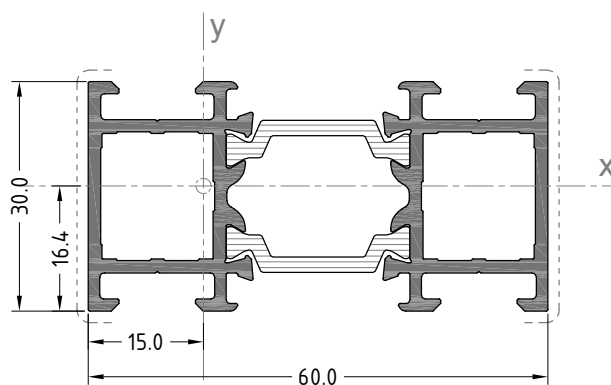
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Thermal break frame 89/64	2116005	42.67	27.62	2.75	3.6	13.14	3.20



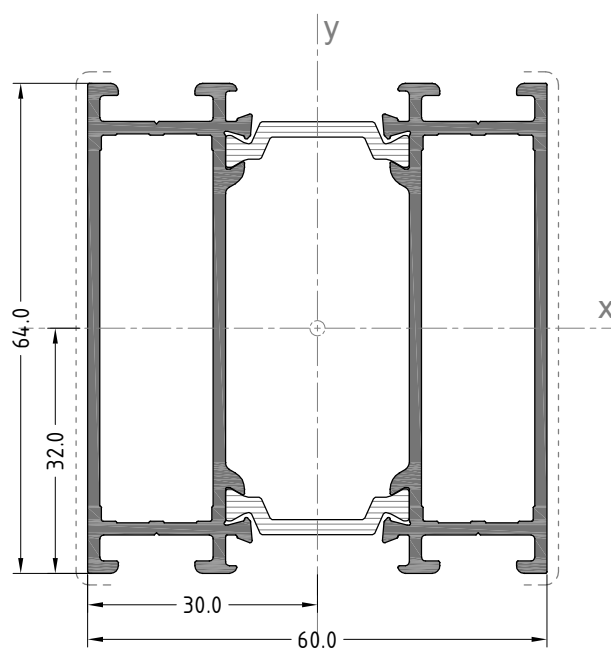
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Thermal break frame 145/120	2116006	178.50	49.18	2.84	6.41	22.07	15.57



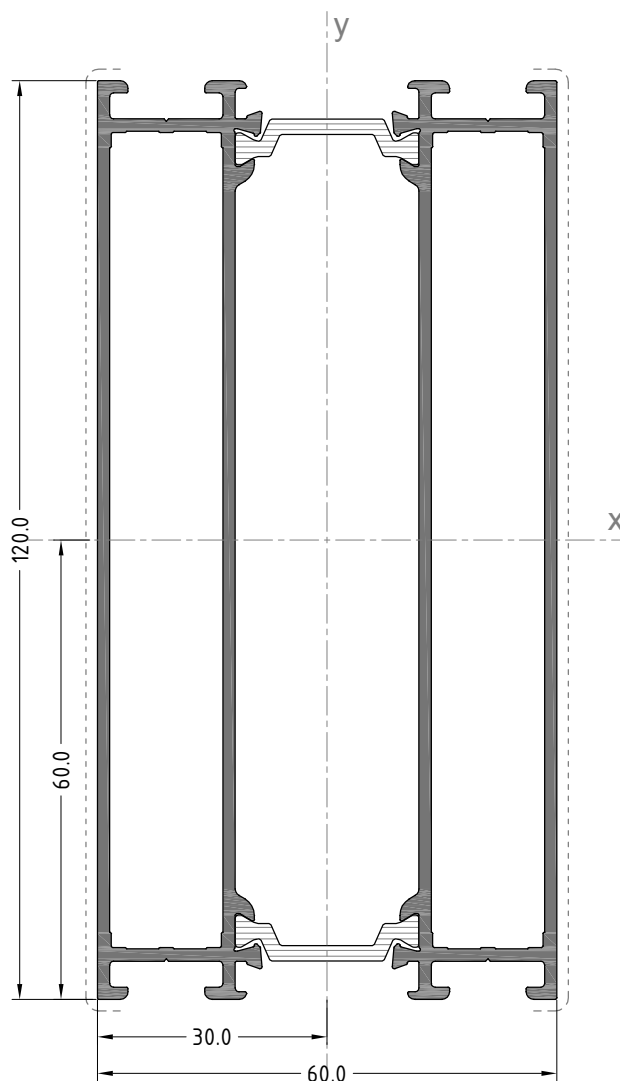
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Thermal break frame 42/42	2116007	21.15	8.73	3	2.1	7.05	4.16



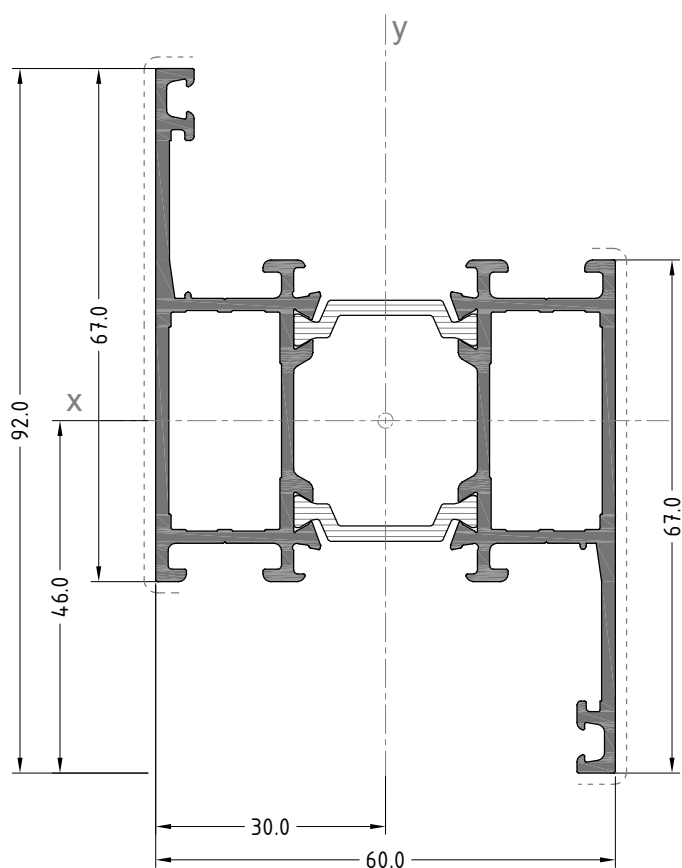
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Thermal break frame 30/30	2116008	16.36	3.20	3	1.5	10.94	1.06



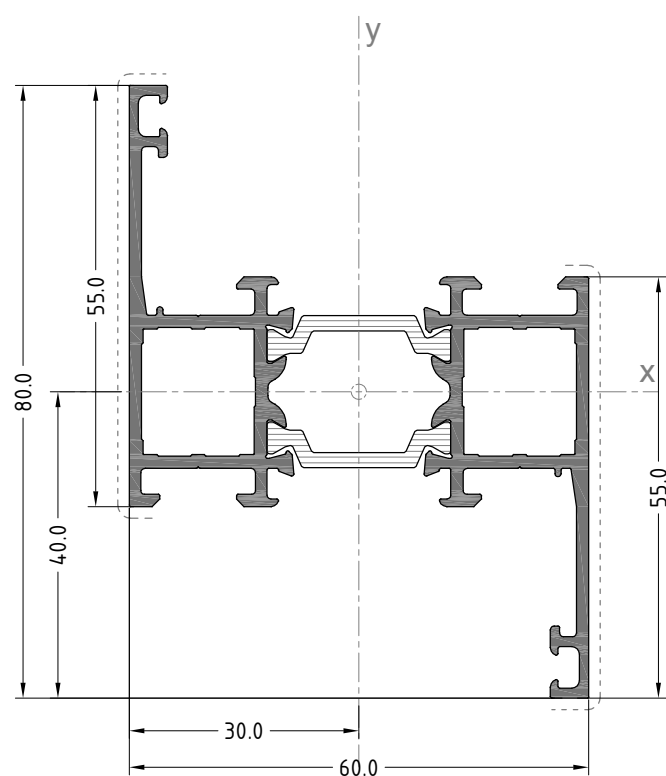
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Thermal break frame 64/64	2116009	27.60	27.25	3	3.2	9.20	8.51



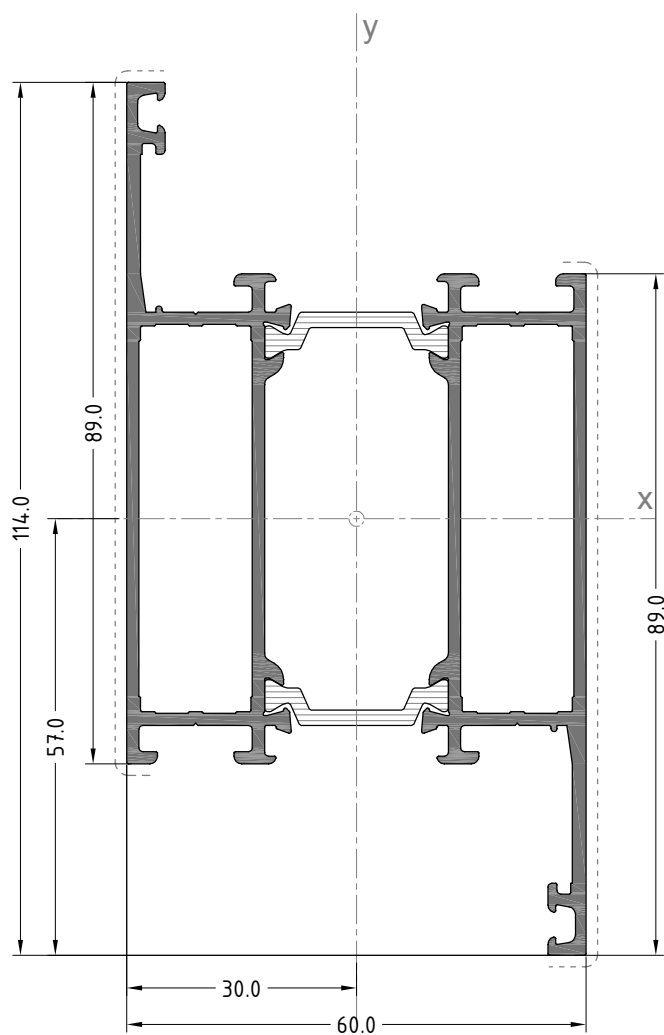
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Thermal break frame 120/120	2116010	148.02	45.82	3	6	24.67	15.27



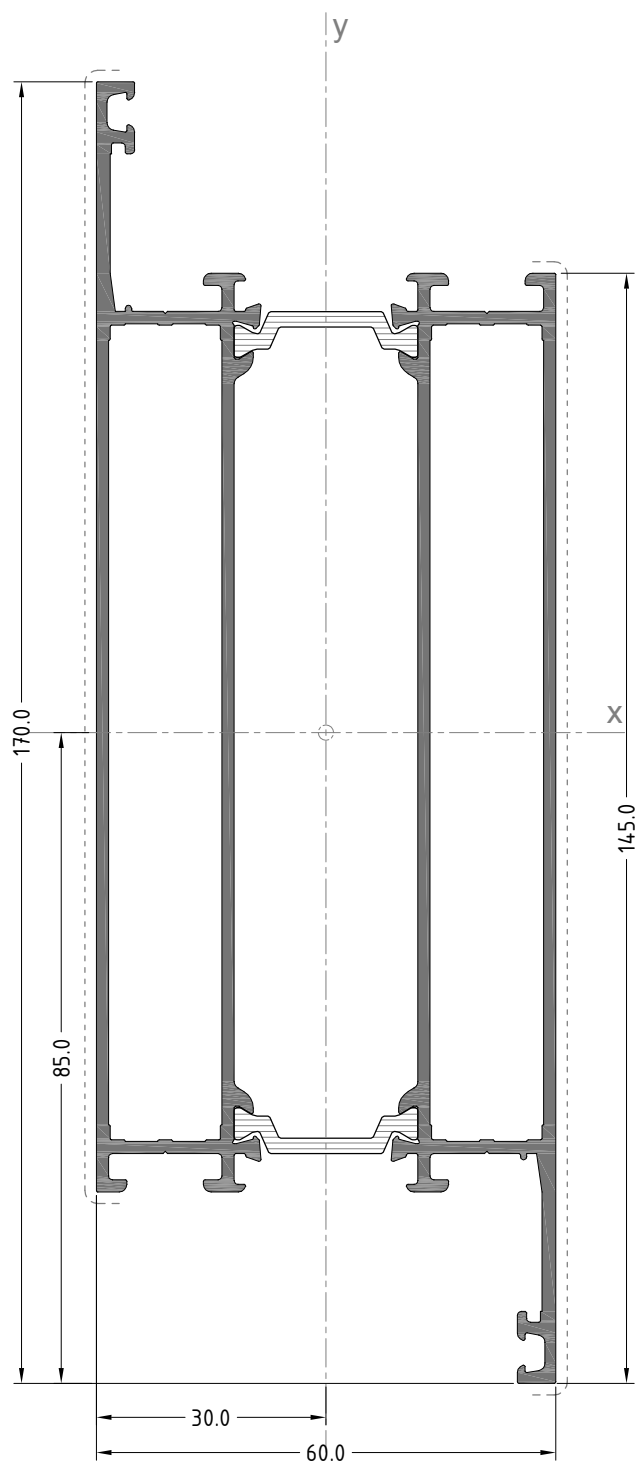
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Thermal break frame 67/67	2116011	39.82	16.73	3	4.6	13.27	3.63



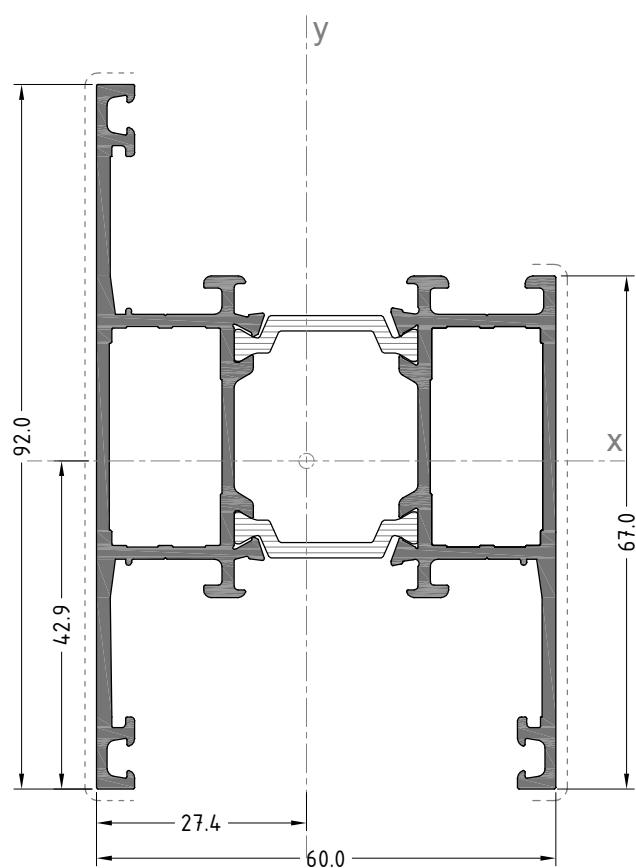
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Thermal break frame 55/55	2116012	28.70	8.07	3	4	7.17	2.69



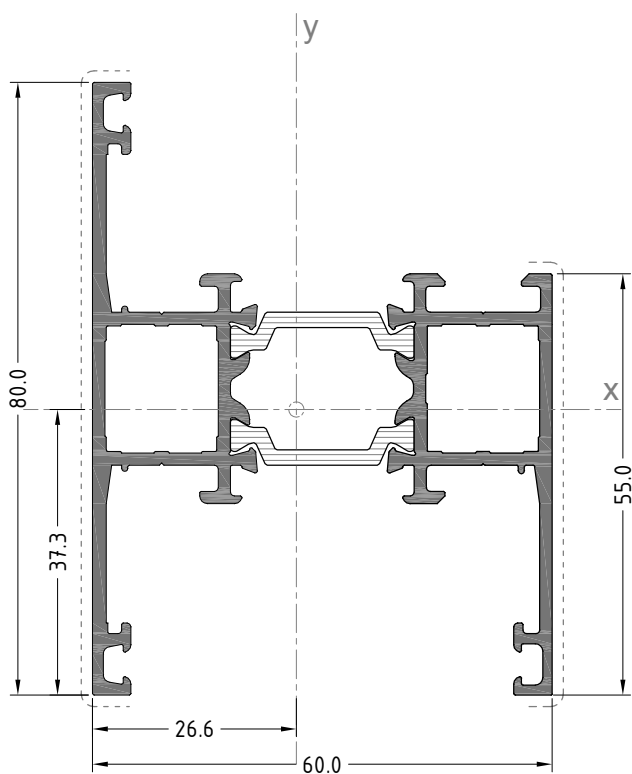
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Thermal break frame 89/89	2116013	60.84	27.73	3	5.7	10.67	9.24



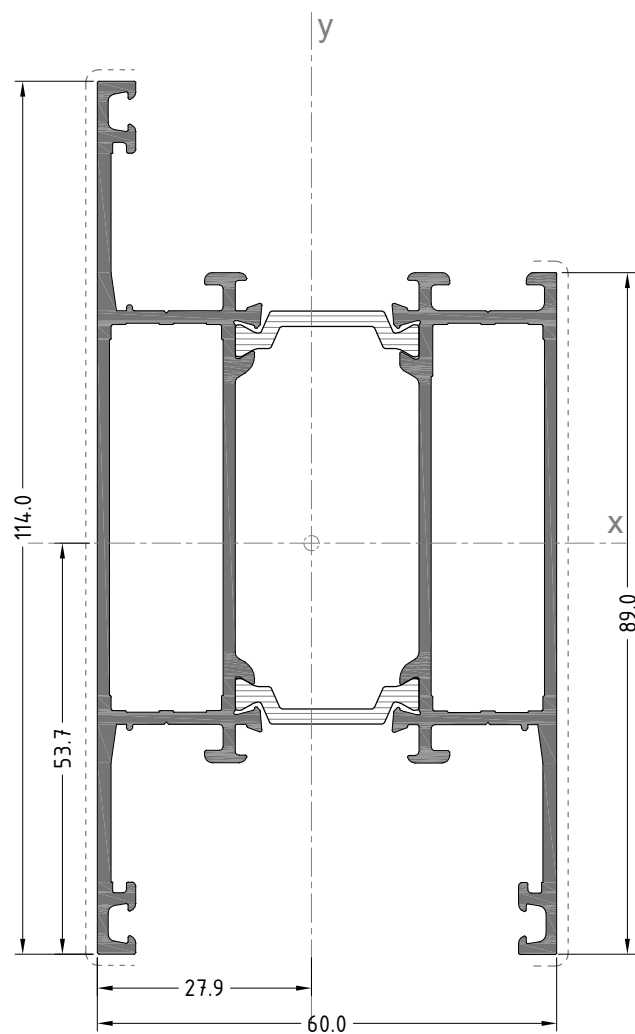
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Thermal break frame 145/145	2116014	214.00	51.46	3	8.5	25.17	17.15



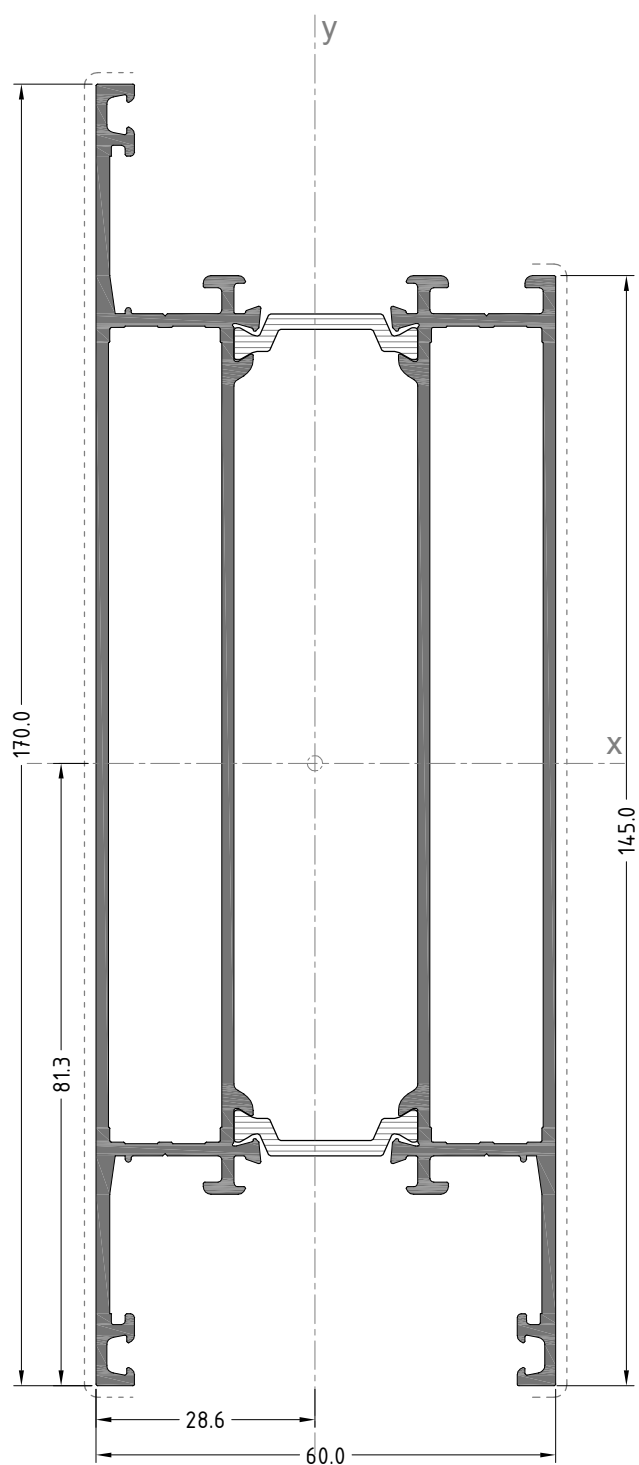
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Thermal break frame 92/67	2116015	38.69	25.86	2.74	4.29	11.88	5.26



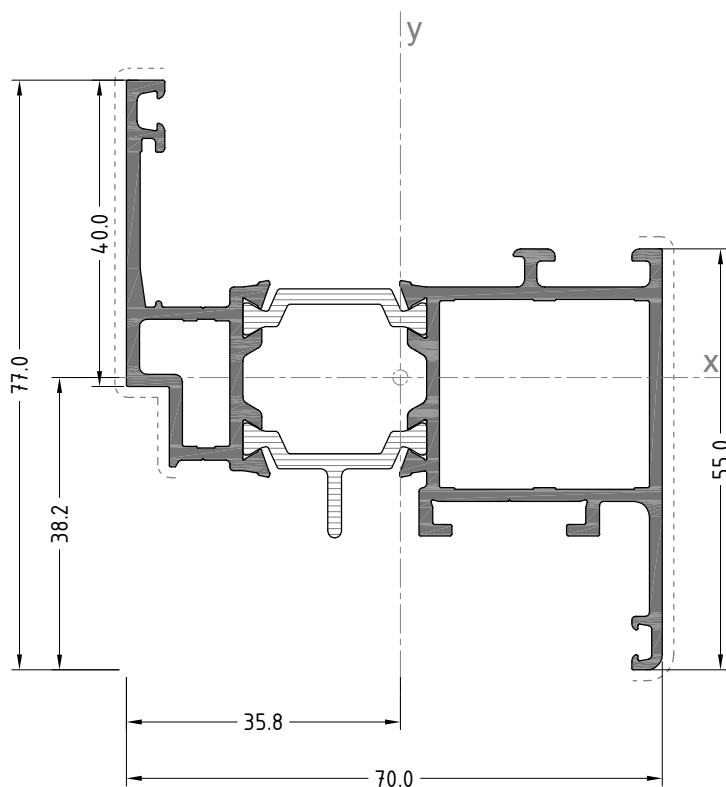
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Thermal break frame 80/55	2116016	30.72	15.89	2.66	3.73	7.19	4.76



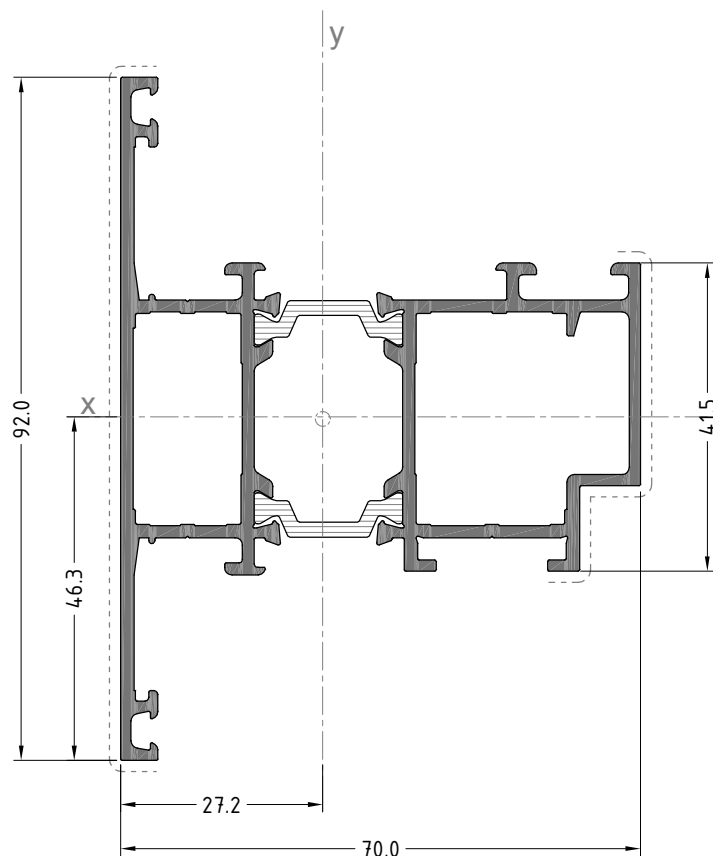
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Thermal break frame 114/89	2116017	65.84	38.59	2.79	5.37	20.54	6.39



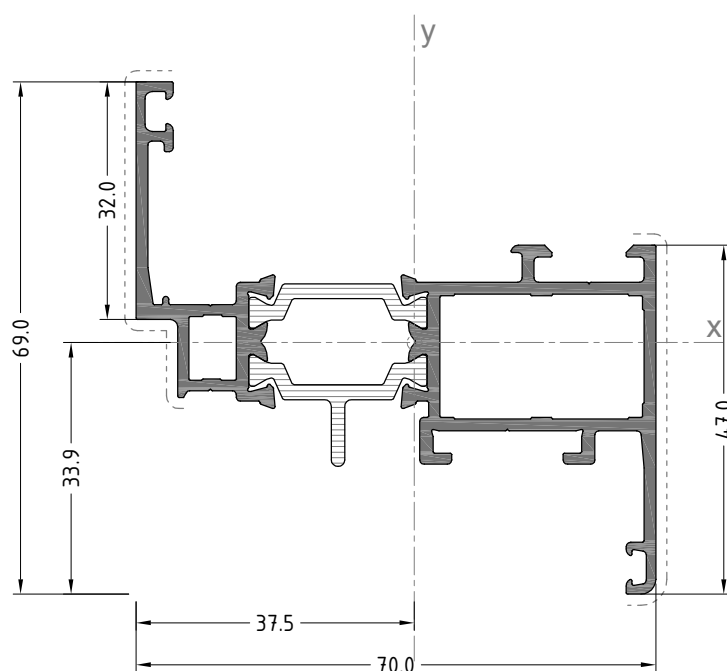
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Thermal break frame 170/145	2116018	240.98	58.52	2.86	8.13	27.16	18.62



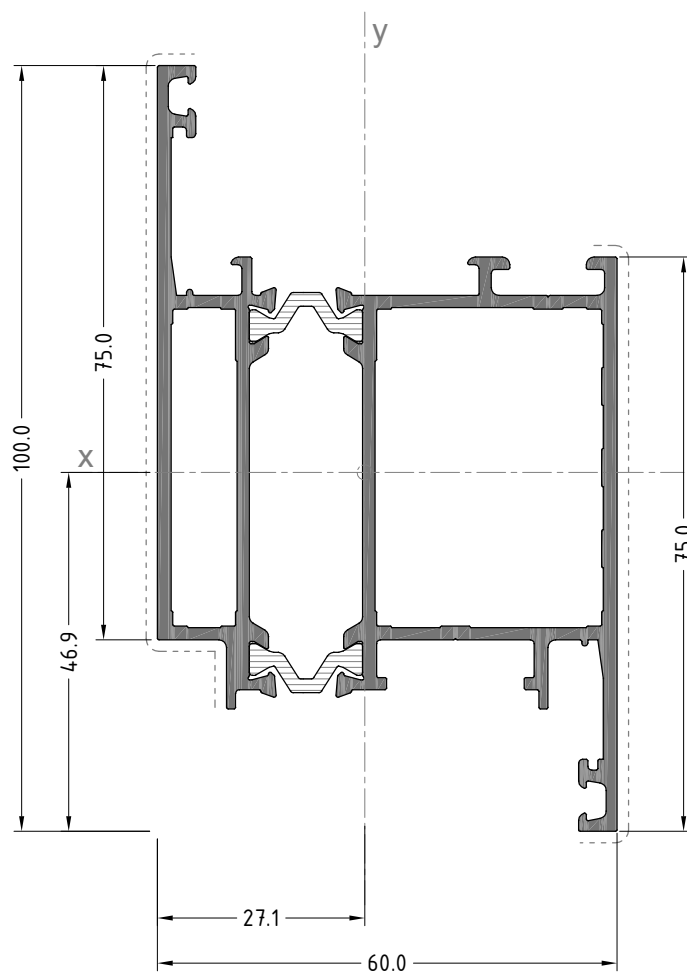
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Thermal break window sash 55/40	2216001	37.93	8.80	3.57	3.81	11.08	2.27



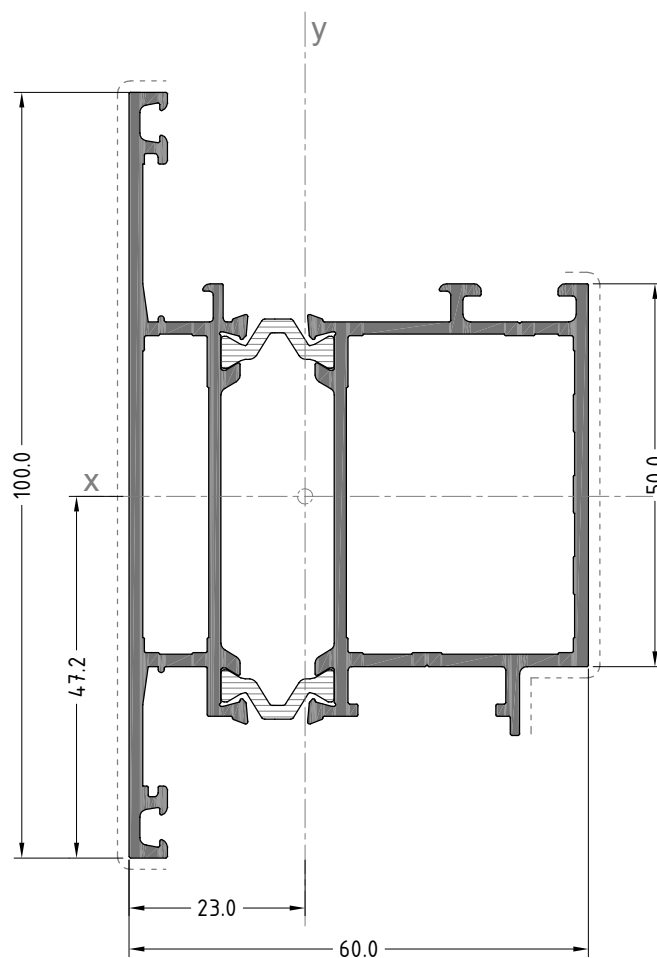
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Thermal break window sash 92/42	2216002	36.97	23.84	2.72	4.62	8.64	5.20



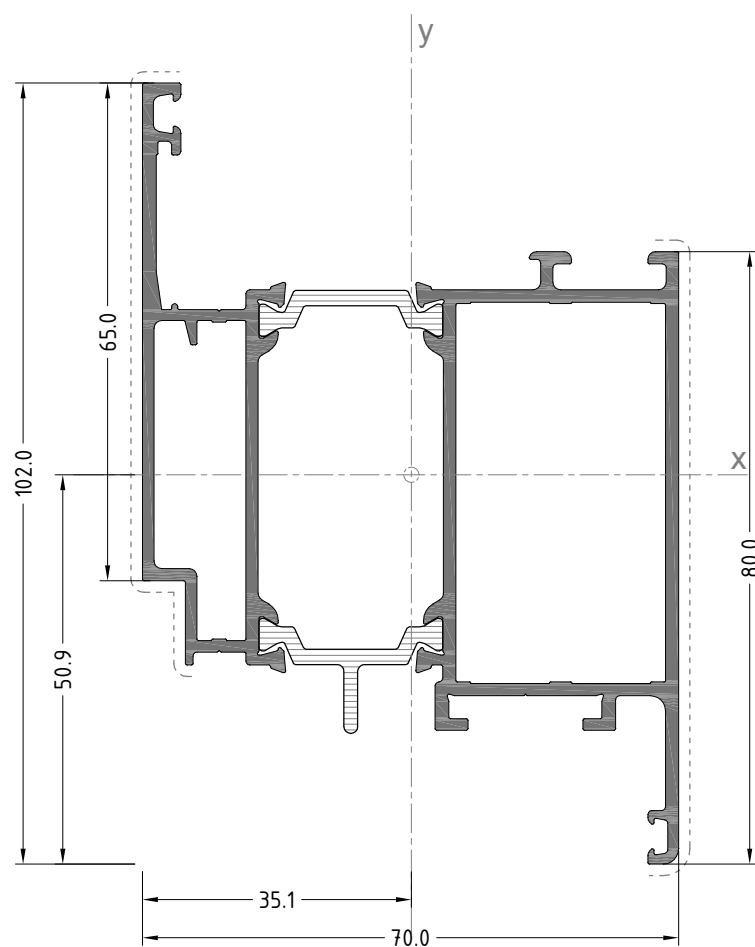
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Thermal break window sash 47/32	2216003	30.49	5.02	3.75	3.39	8.68	1.54



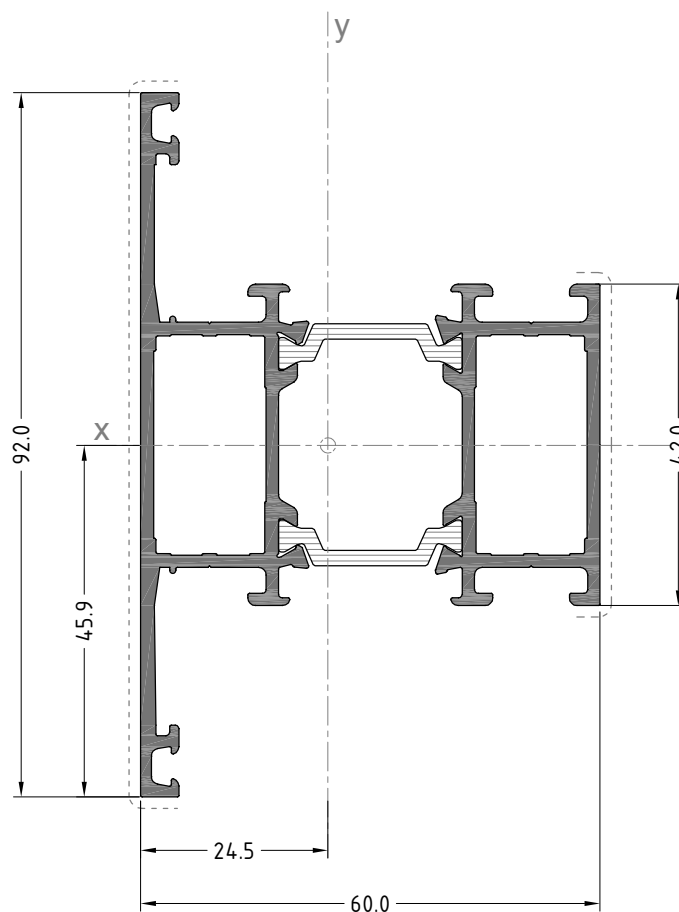
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Thermal break door sash 75/75	2316001	52.10	26.79	2.70	4.68	16.13	5.04



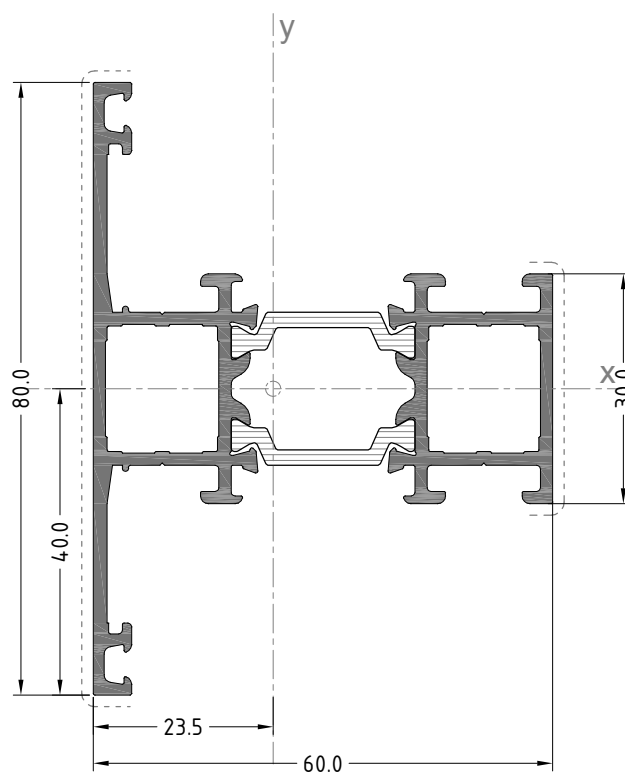
DESCRIPTION	Number	I_x cm	I_y cm	e_x cm	e_y cm	W_x cm	W_y cm
Thermal break door sash 100/50	2316002	42.57	31.90	2.29	4.72	11.49	6.04



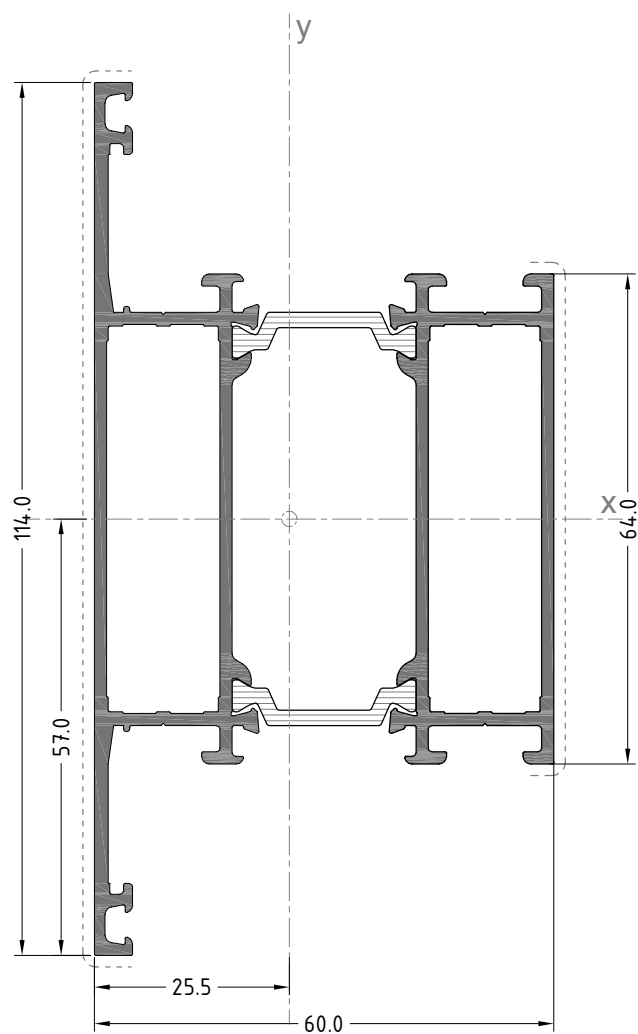
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Thermal break door sash 80/65	2316003	56.65	26.29	3.51	5.09	11.07	7.54



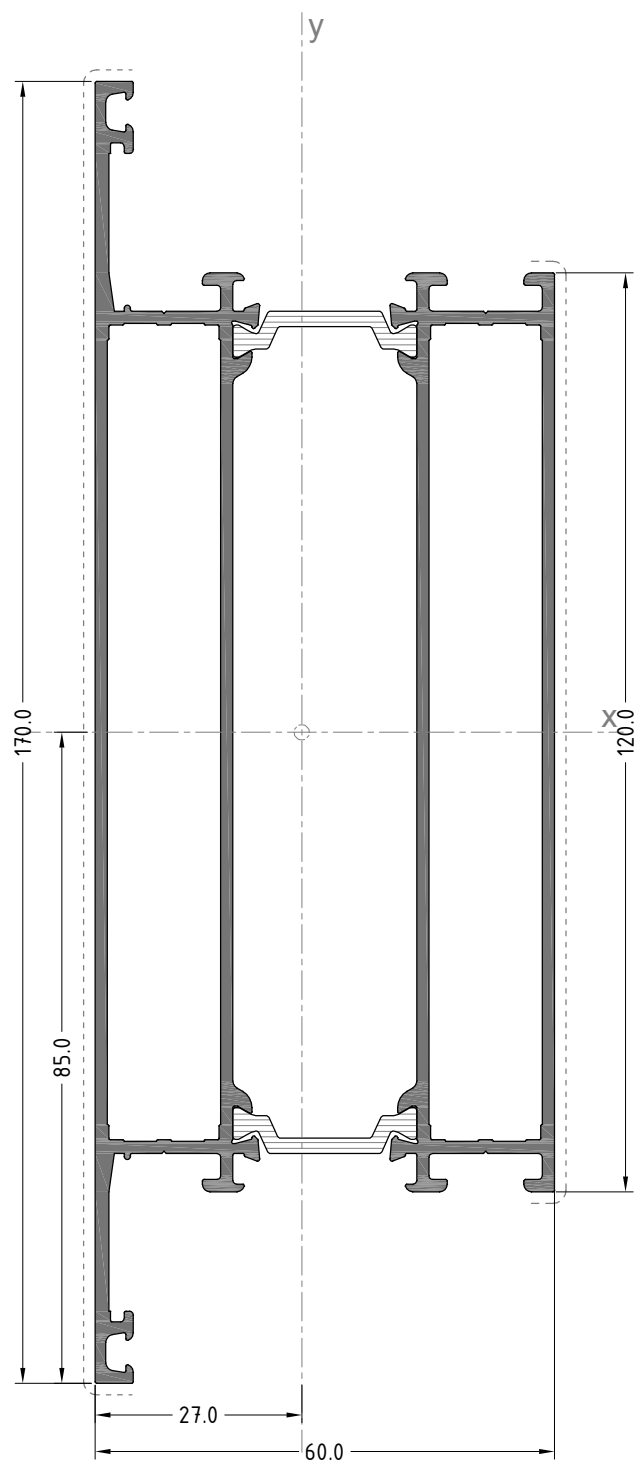
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Thermal break frame mullion.transon 92/42	2416001	28.64	23.35	2.44	4.59	8.06	5.06



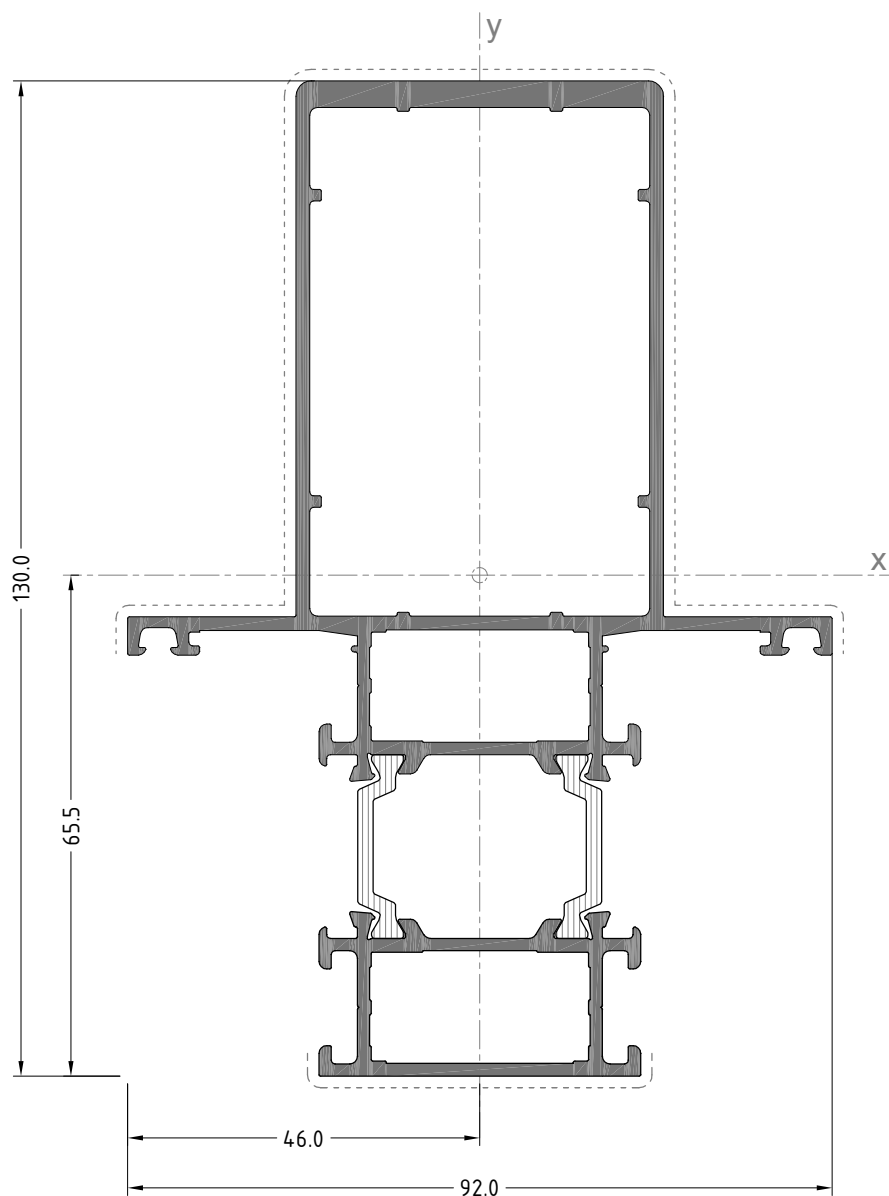
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Thermal break frame mullion.transon 80/30	2416002	23.63	13.42	2.34	4	5.90	3.67



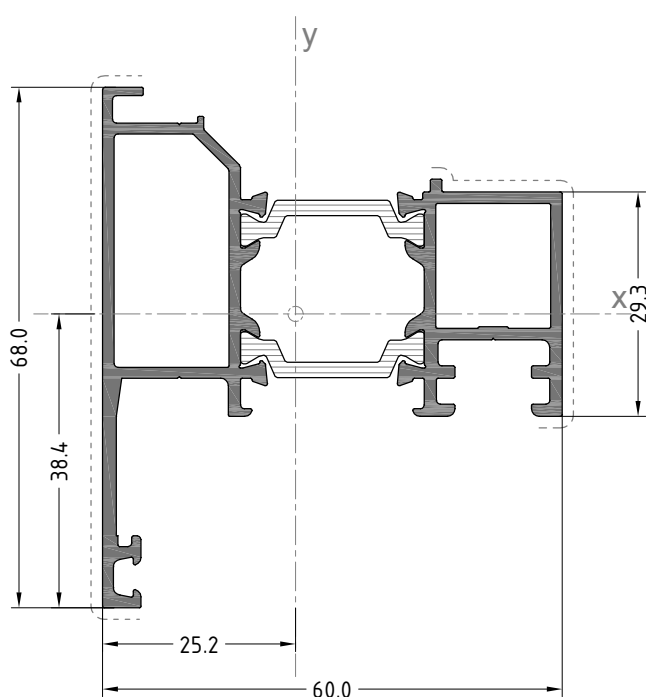
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Thermal break frame mullion.transon 114/64	2416003	51.79	35.33	2.54	5.7	15.0	6.2



DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Thermal break frame mullion.transon 170/120	2416004	210.45	54.04	2.7	8.5	24.76	16.37



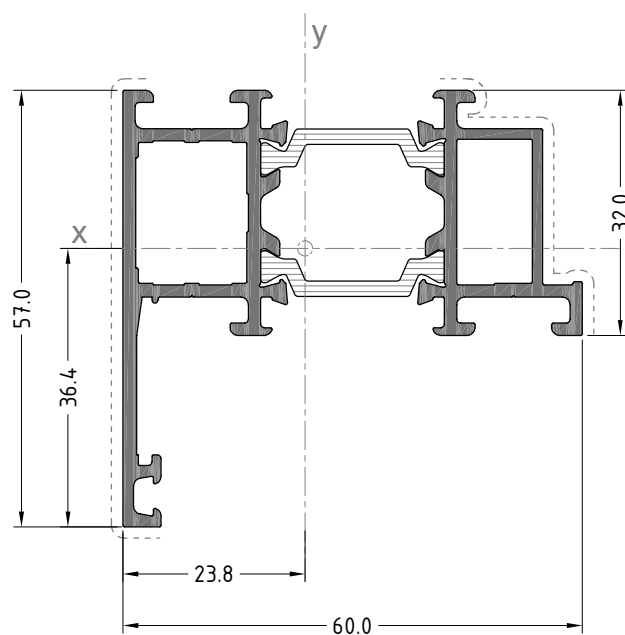
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Thermal break frame mullion.transon 48/42	2416005	138.0	31.75	4.6	6.5	21.39	6.90



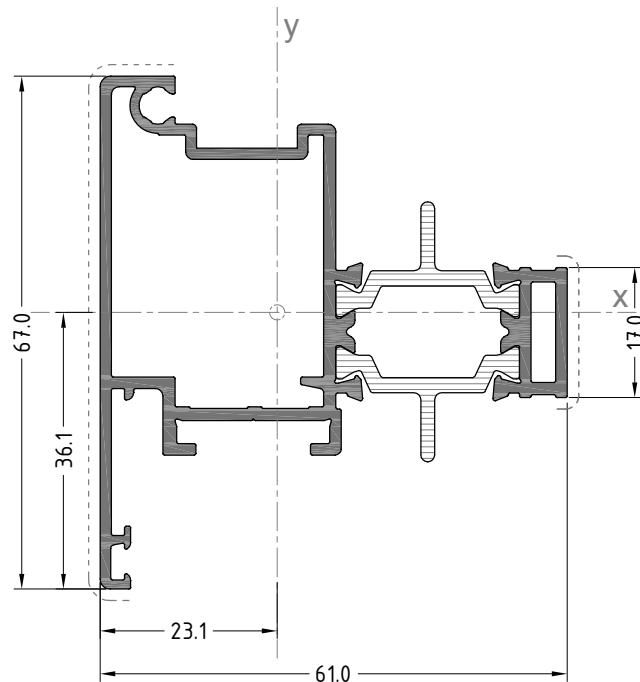
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Meeting profile	2616001	20.99	9.83	2.52	3.83	7.08	2.82

PROFILES

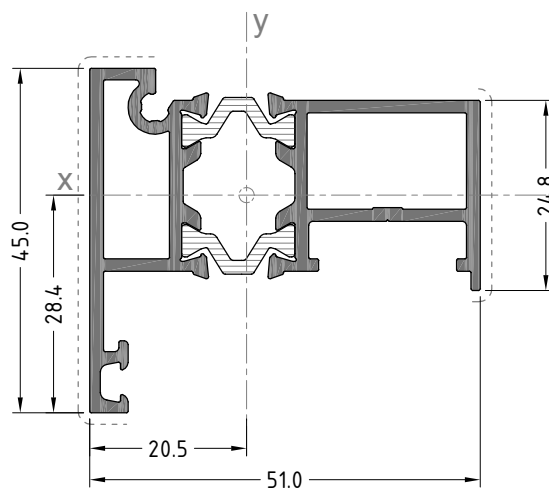
Casement System Series GC60



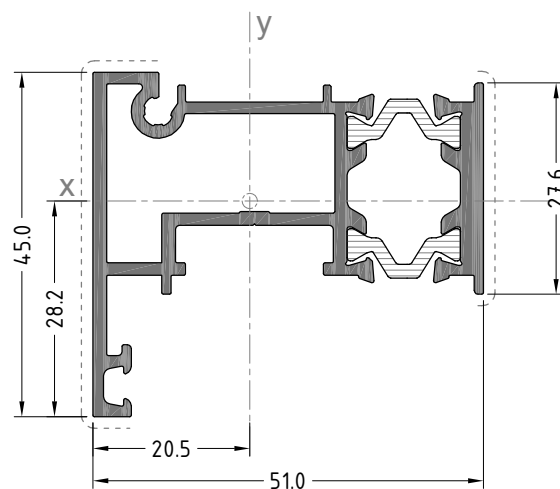
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Outward opening adaptor	2616002	18.29	7.32	2.38	3.63	5.05	3.53



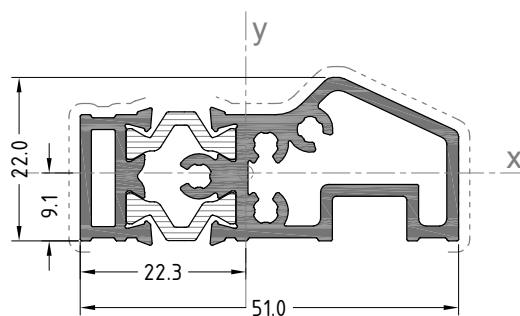
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Pivot opening adaptor	2616003	17.42	11.11	2.31	3.61	5.64	2.93



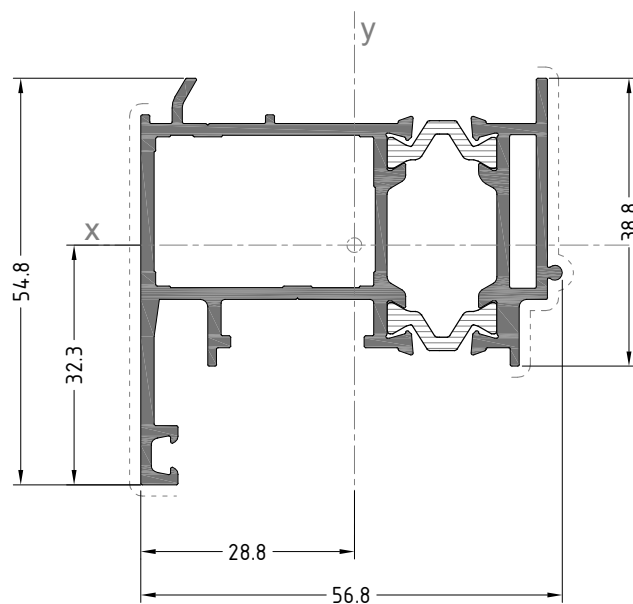
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Door adaptor	2616004	11.95	4.55	2.04	2.84	3.92	2.75



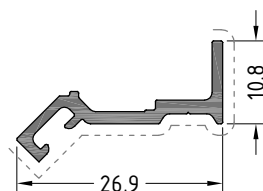
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Door adaptor	2616005	9.85	4.16	2.04	2.81	3.58	2.47



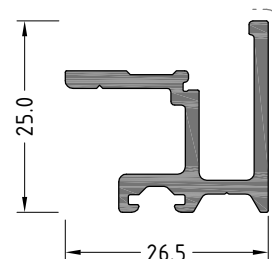
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Threshold profile	2616006	8.58	1.46	2.23	0.91	6.67	0.51



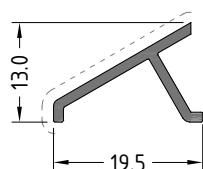
DESCRIPTION	Number	$I_x \text{ cm}^4$	$I_y \text{ cm}^4$	$e_x \text{ cm}$	$e_y \text{ cm}$	$W_x \text{ cm}^3$	$W_y \text{ cm}^3$
Door adaptor	2616007	20.38	8.19	2.87	3.23	7.27	3.64



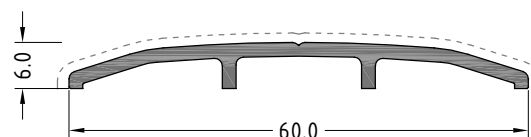
DESCRIPTION	Number
Door bottom profile	1000359



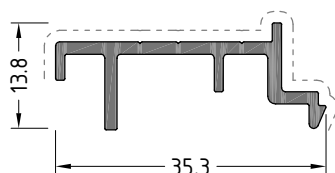
DESCRIPTION	Number
Door bottom profile	1000246



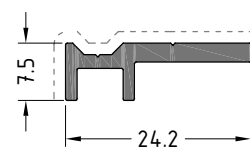
DESCRIPTION	Number
Rain screen profile	1000168



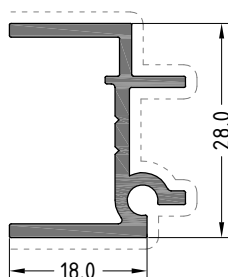
DESCRIPTION	Number
Threshold profile	1000247



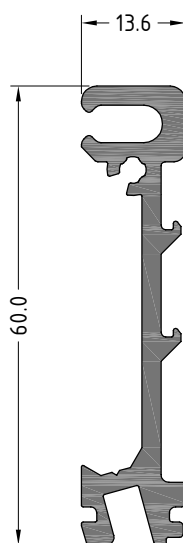
DESCRIPTION	Number
Door adaptor profile	1000235



DESCRIPTION	Number
Friction stay spacer	1000367

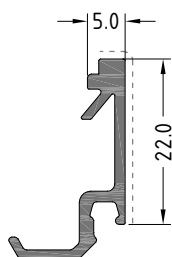


DESCRIPTION	Number
Non Thermal break add on profiles	1000361

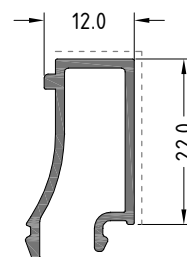


Description :

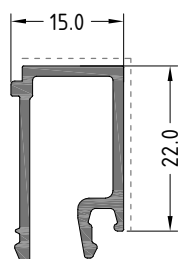
Useable with	Article number	Length
2416001 - 2416005	5255028	28
2416002	5255016	16
2416003	5255050	50
2416004	5255106	106



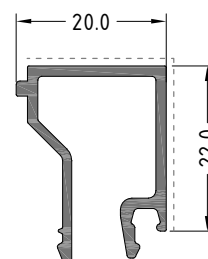
DESCRIPTION	Number
Glazing bead	1000334



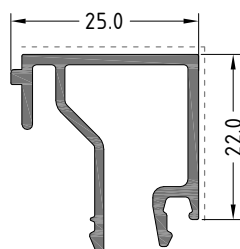
DESCRIPTION	Number
Glazing bead	1000213



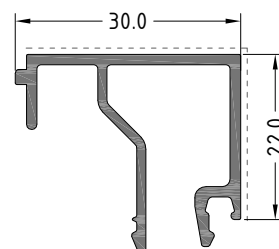
DESCRIPTION	Number
Glazing bead	1000286



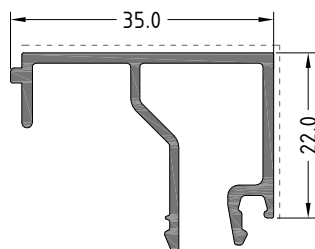
DESCRIPTION	Number
Glazing bead	1000285



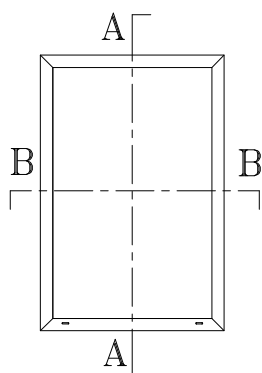
DESCRIPTION	Number
Glazing bead	1000194



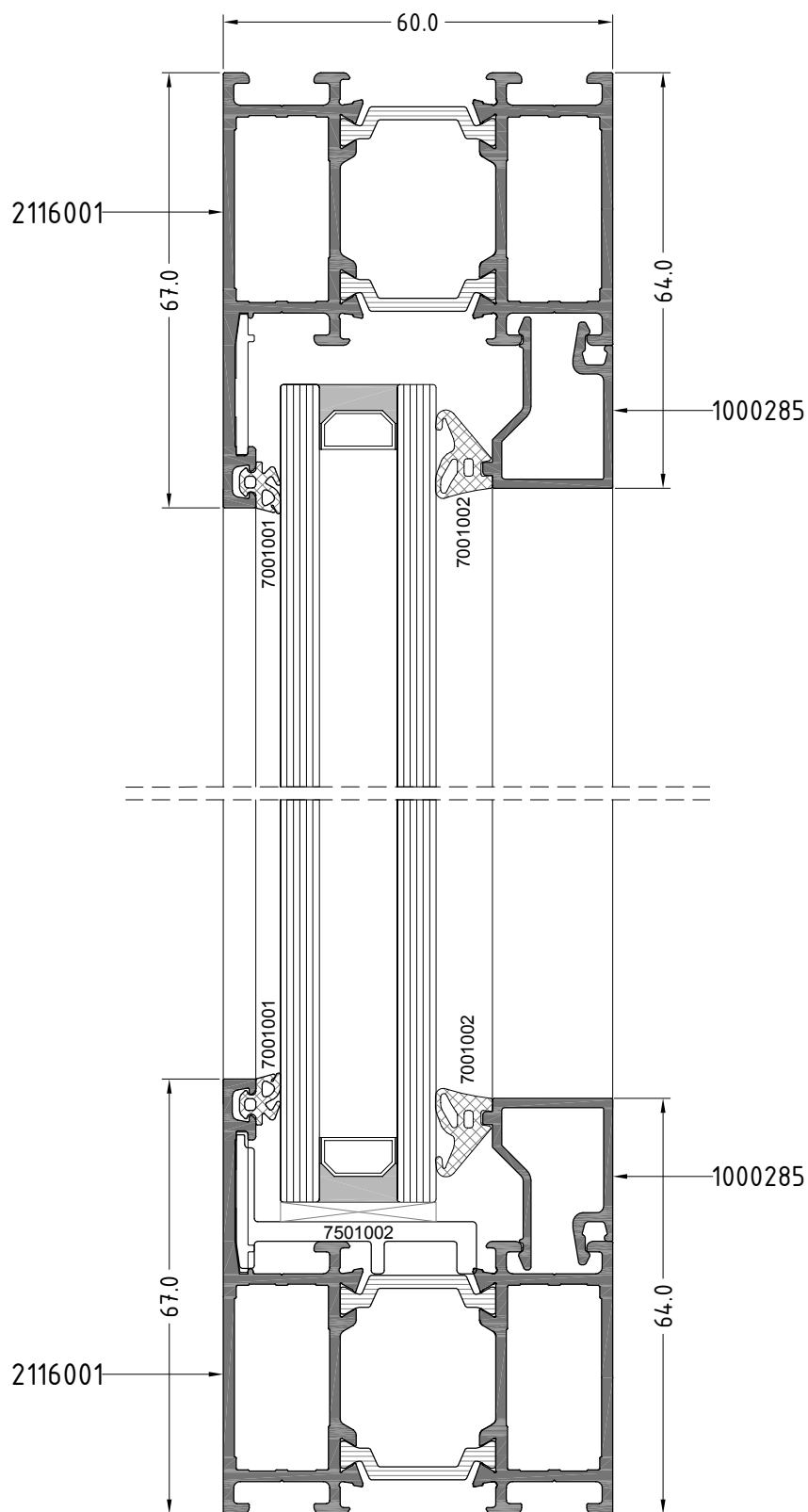
DESCRIPTION	Number
Glazing bead	1000208

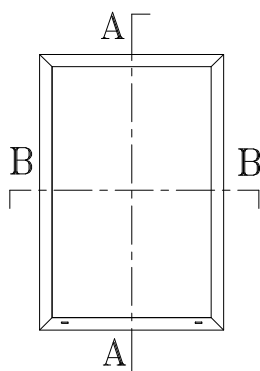


DESCRIPTION	Number
Glazing bead	1000193

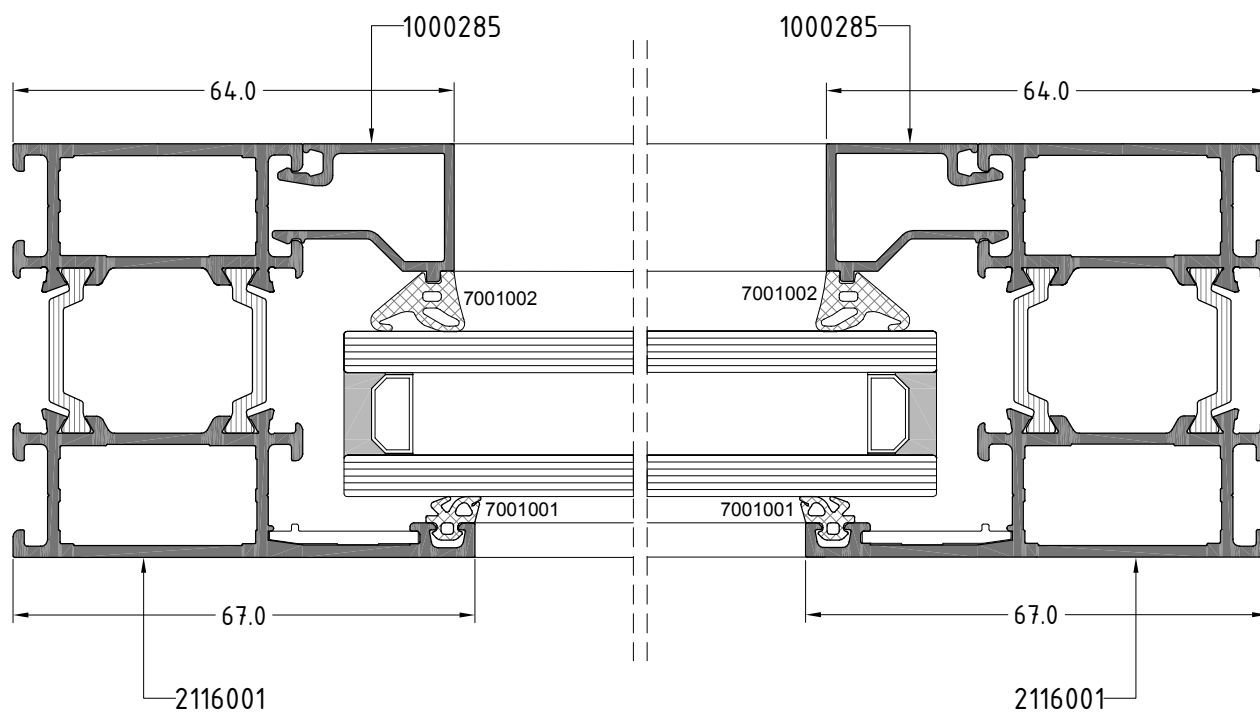


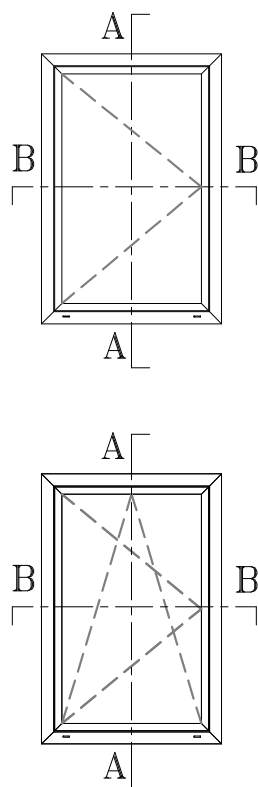
Section A-A



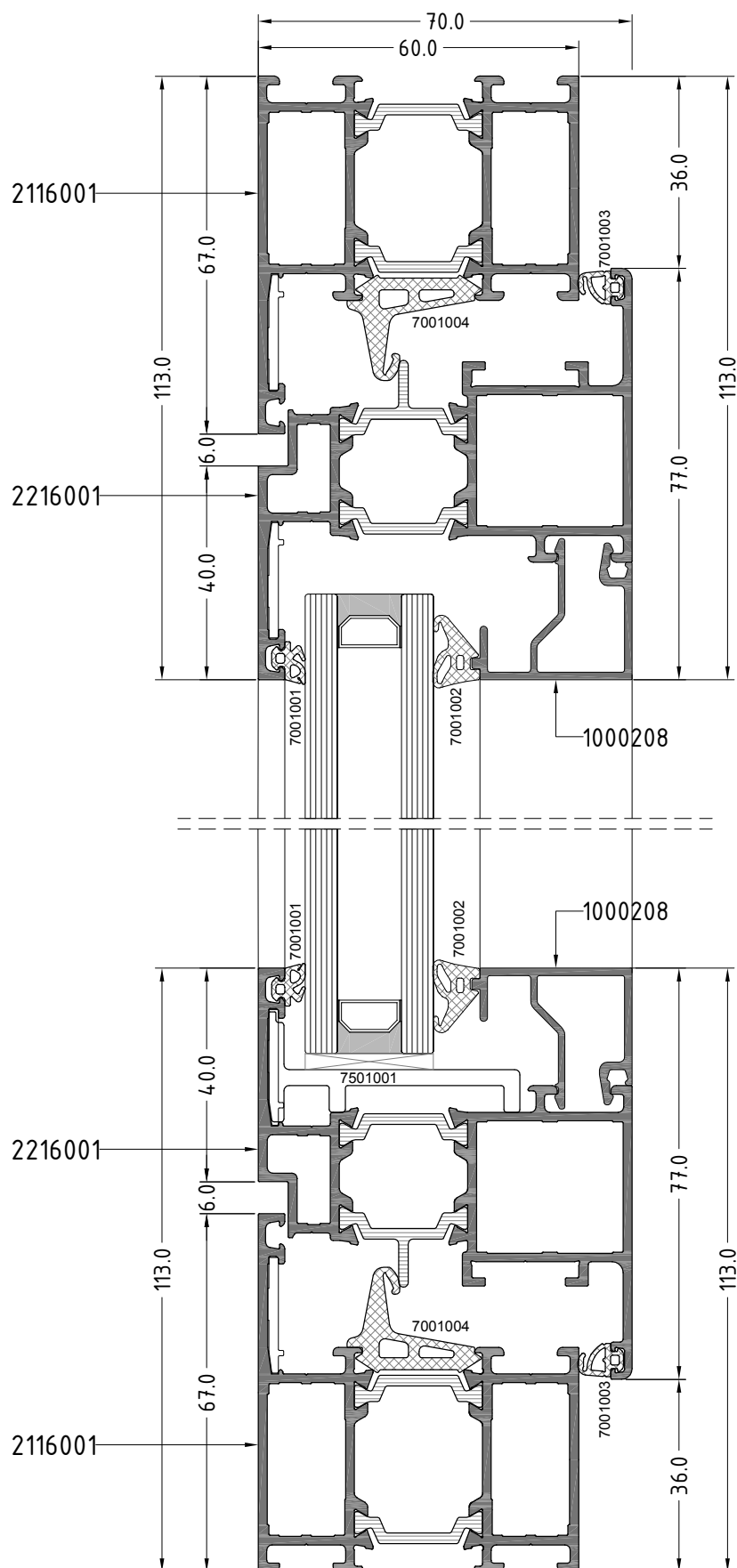


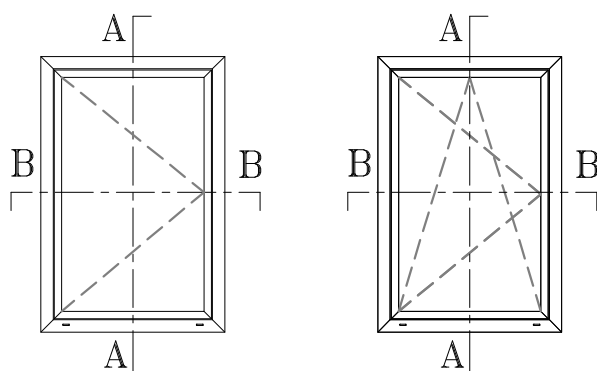
Section B-B



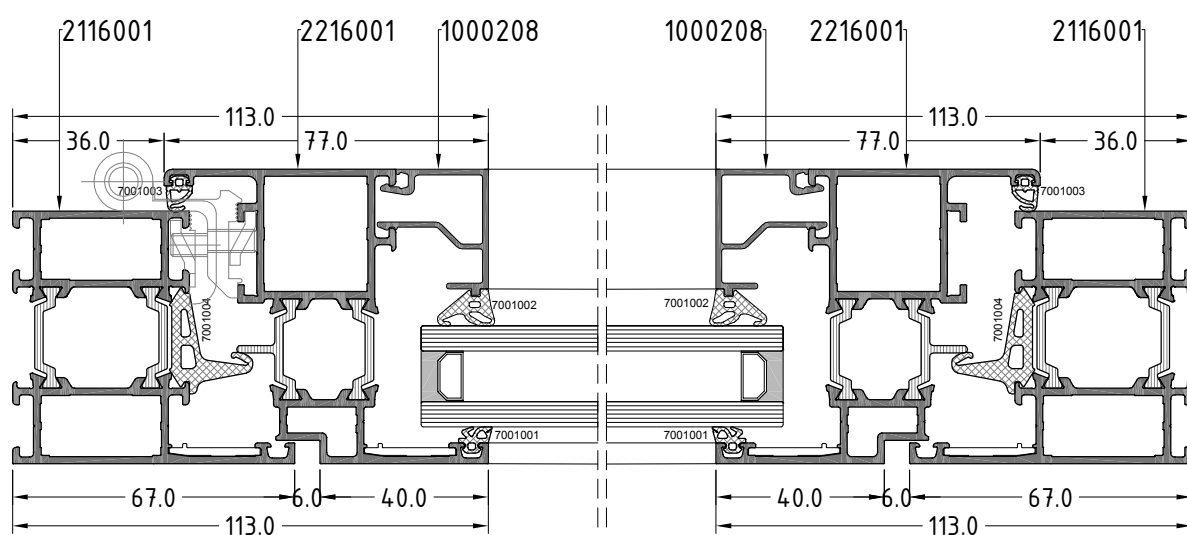


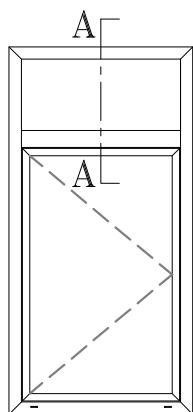
Section A-A



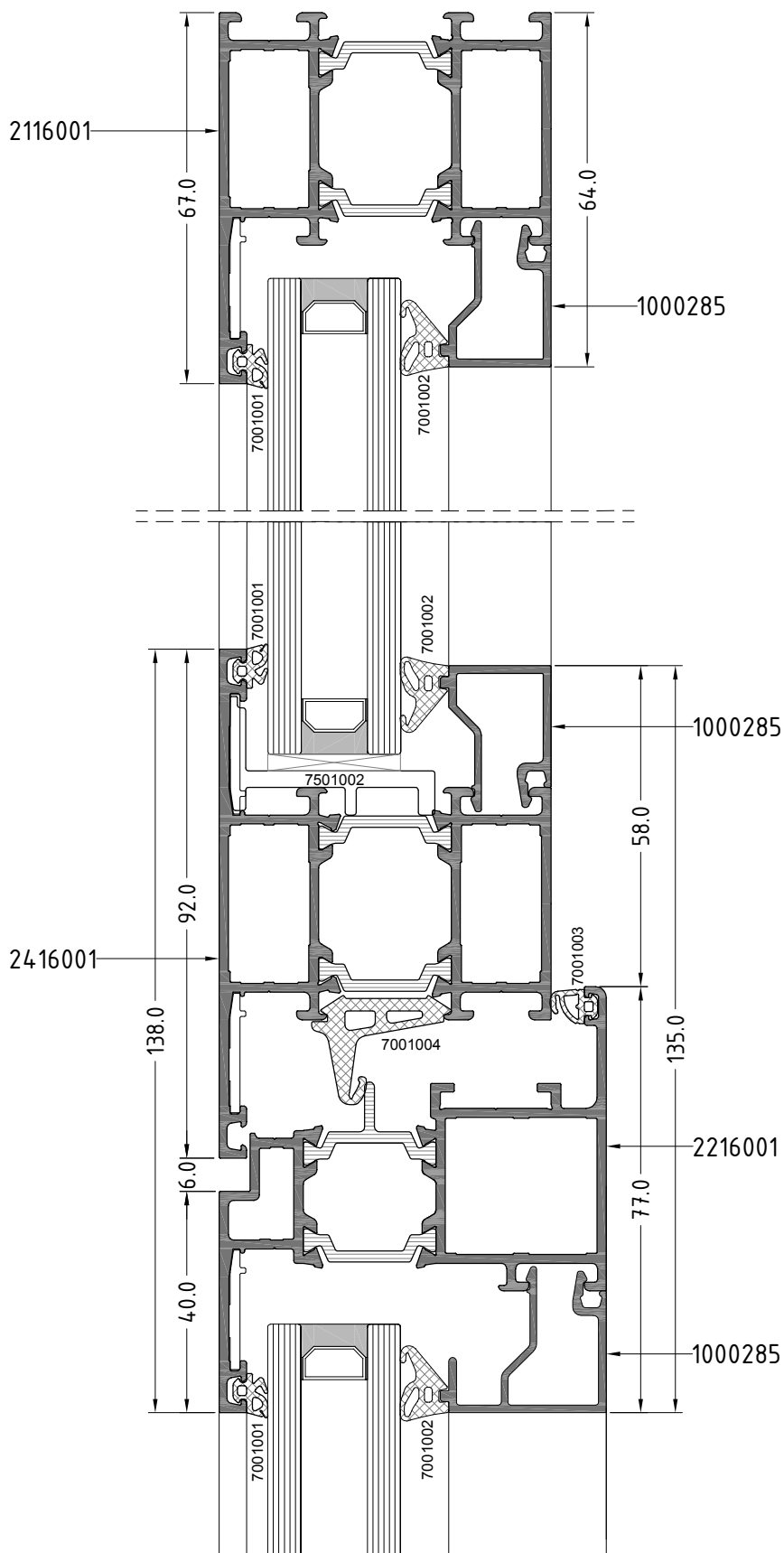


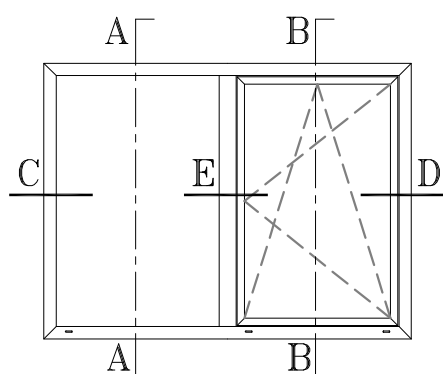
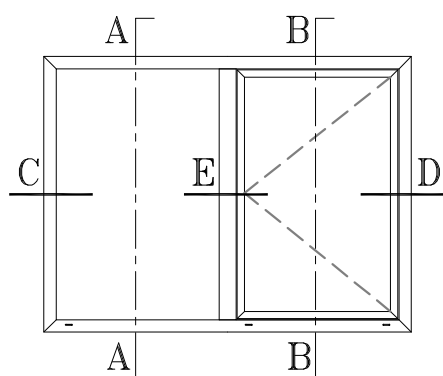
Section B-B



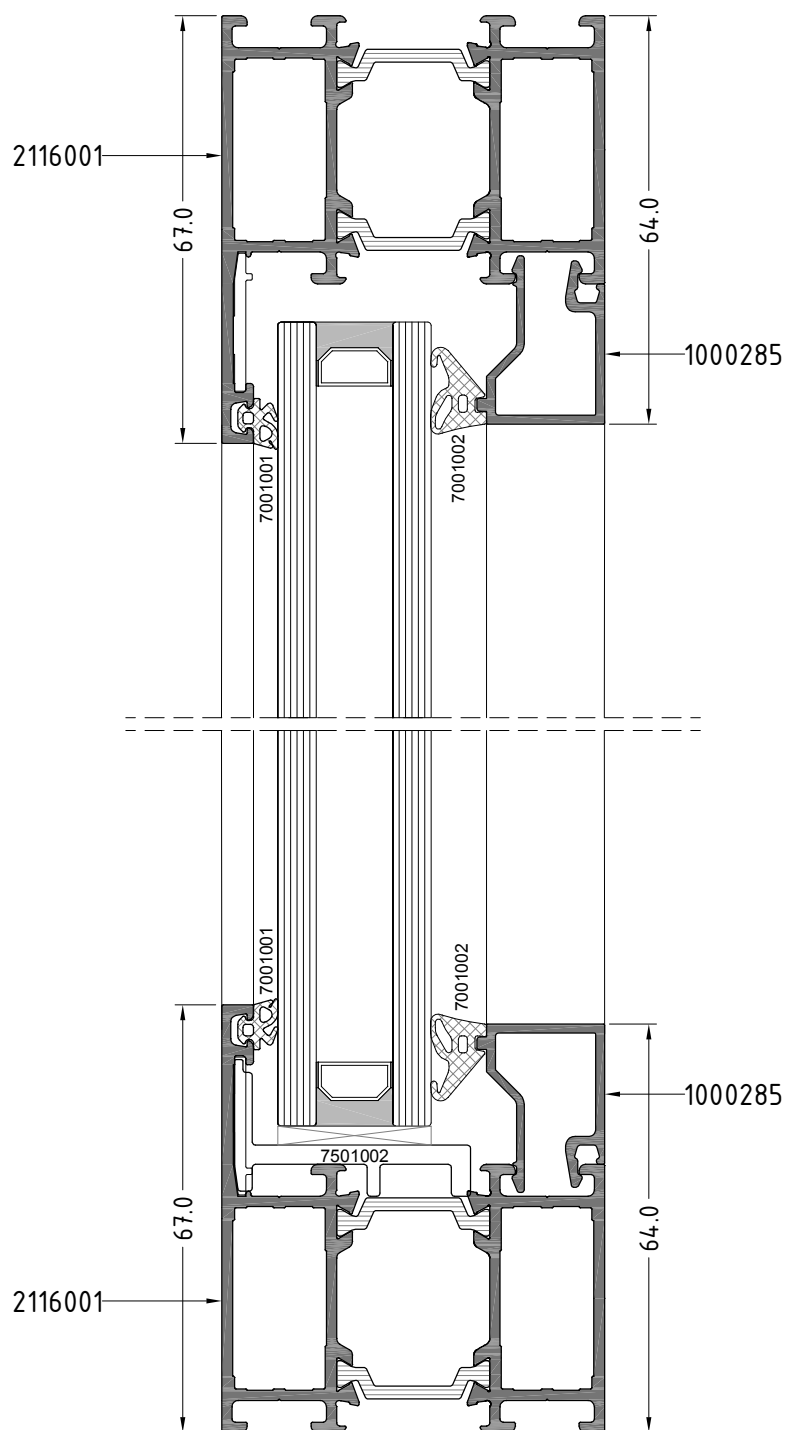


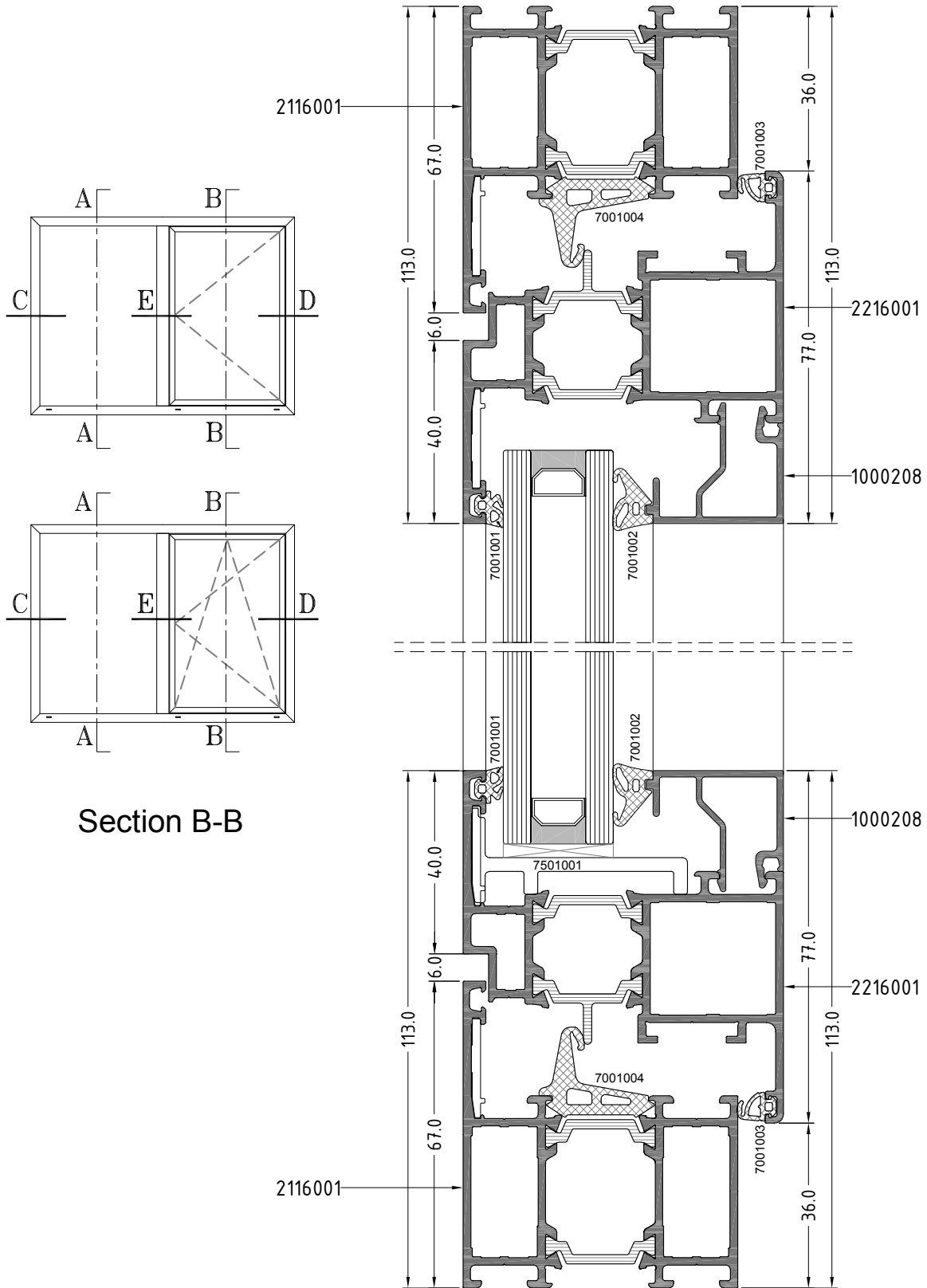
Section A-A

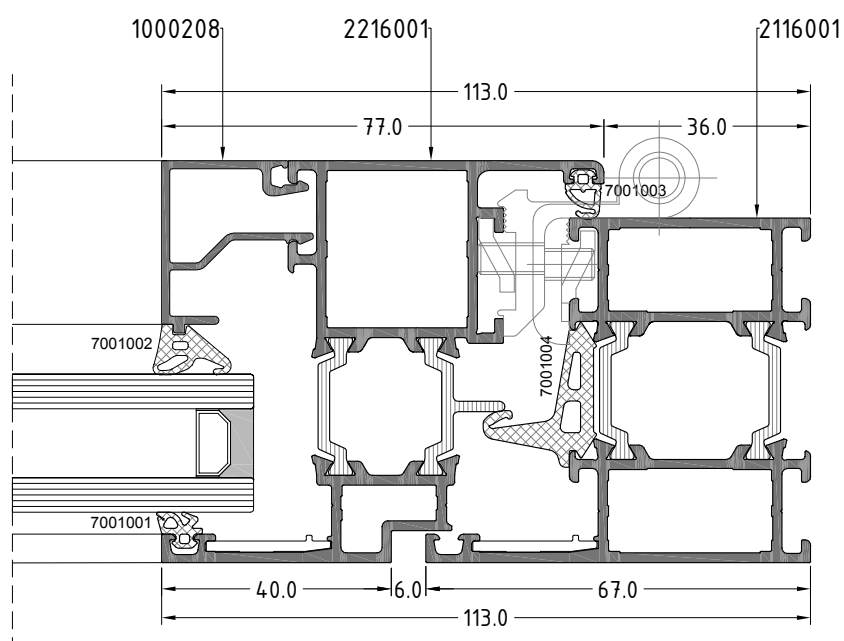
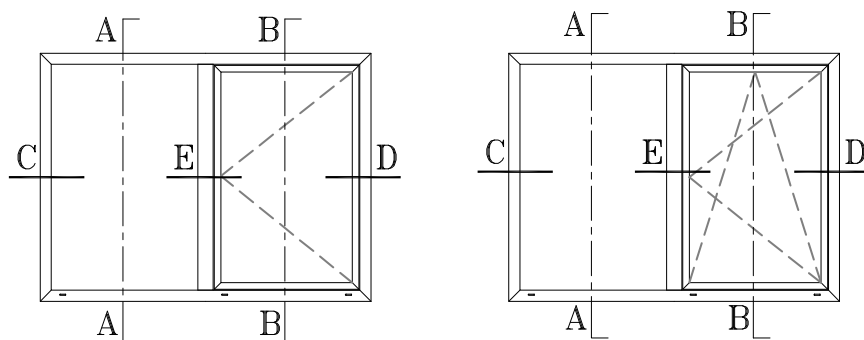




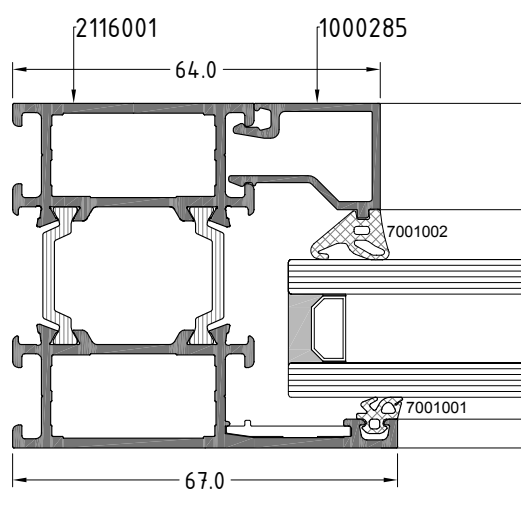
Section A-A



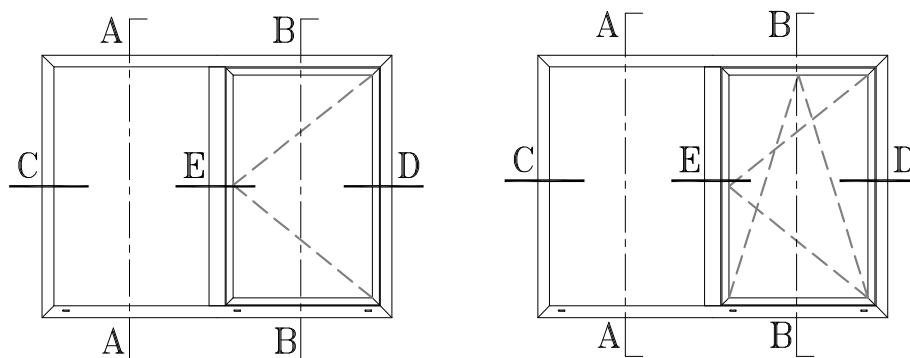




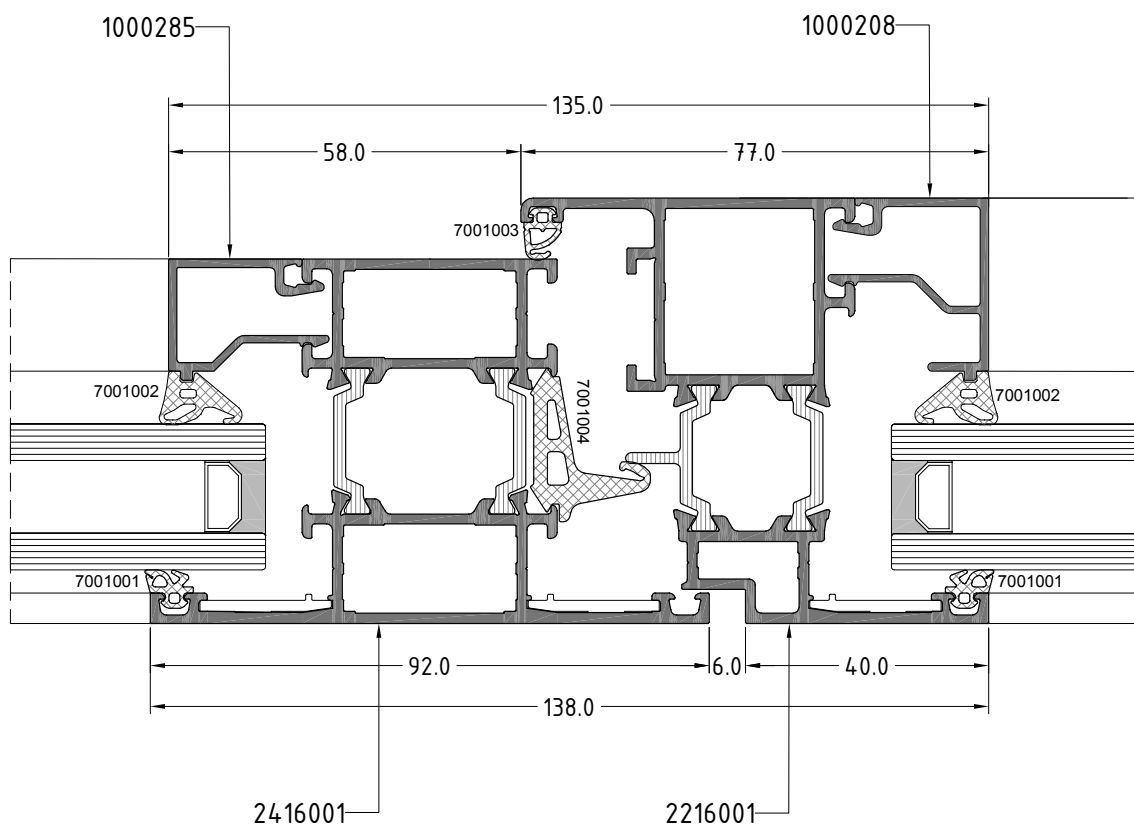
Section D

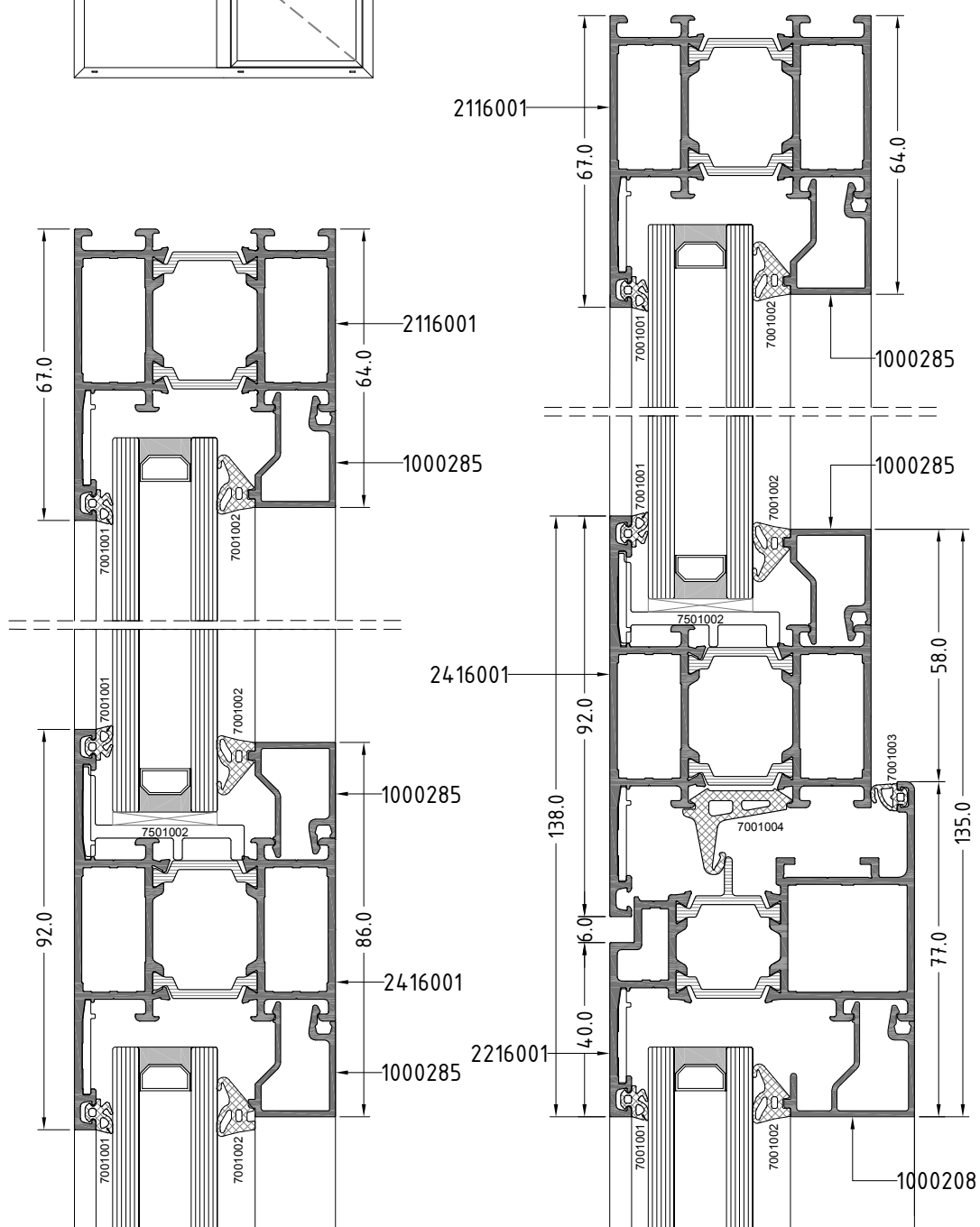
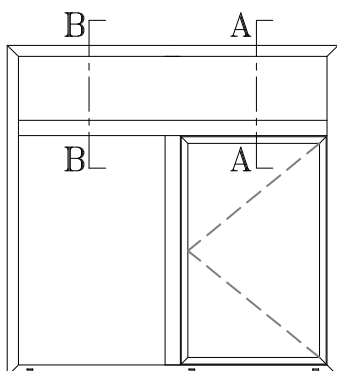


Section C



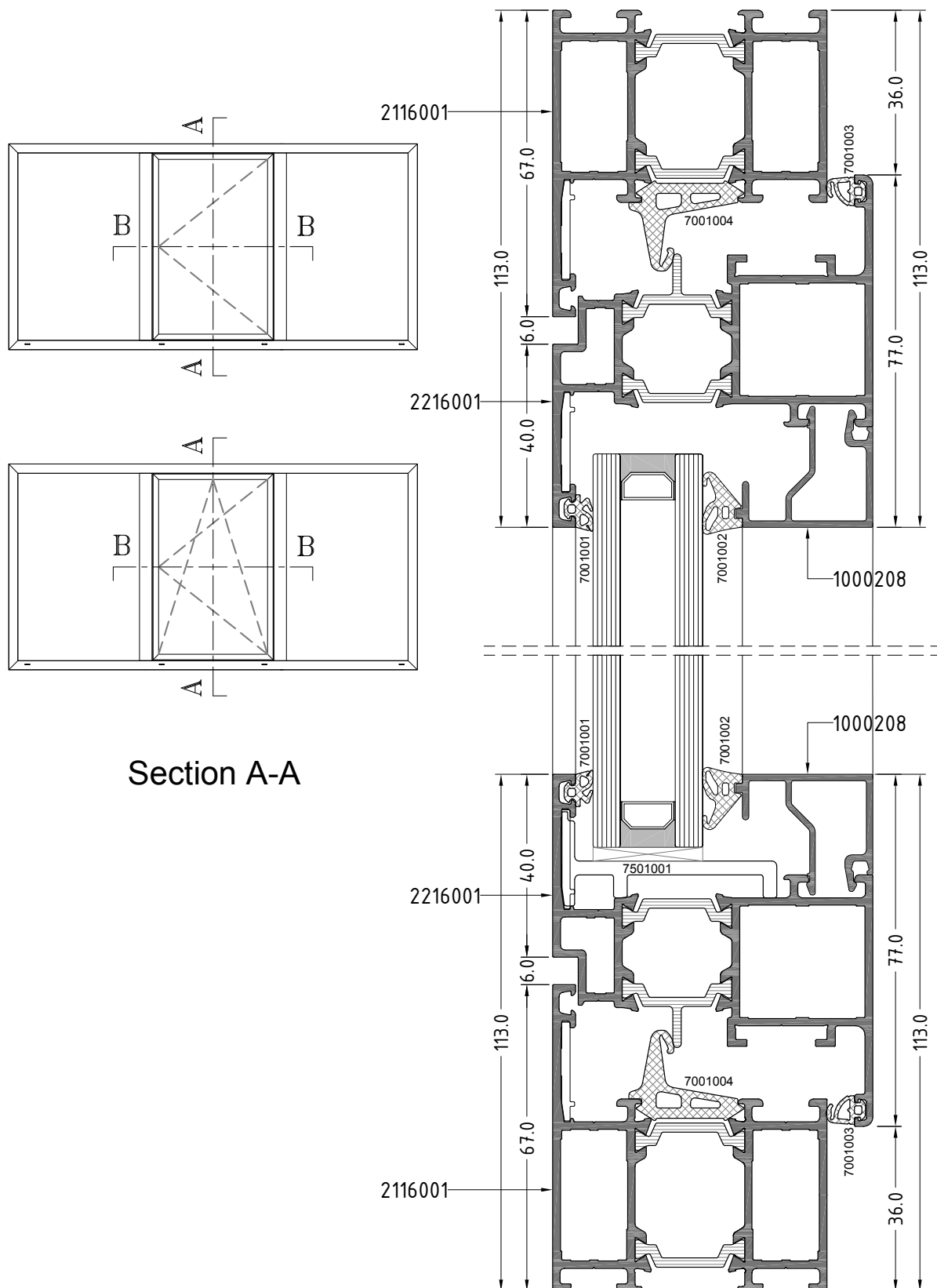
Section E



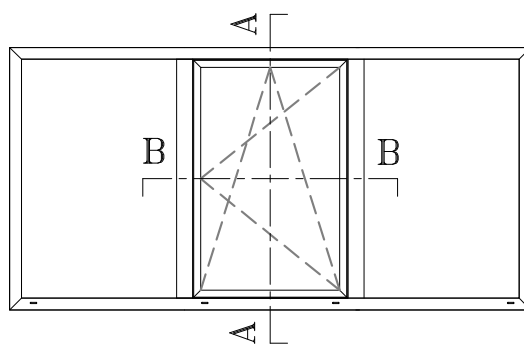
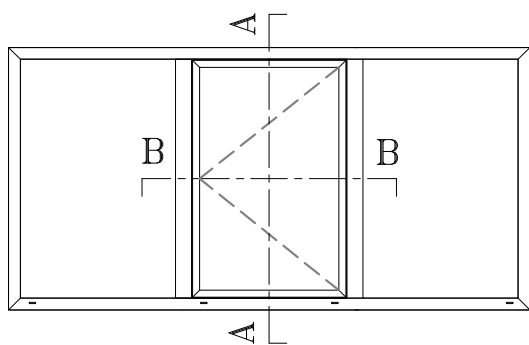


Section B-B

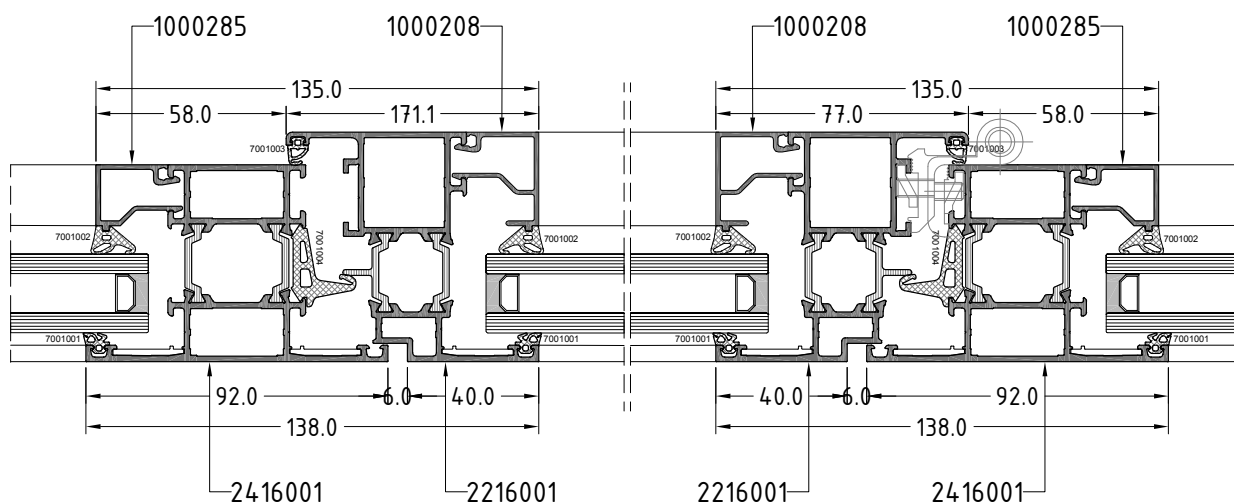
Section A-A

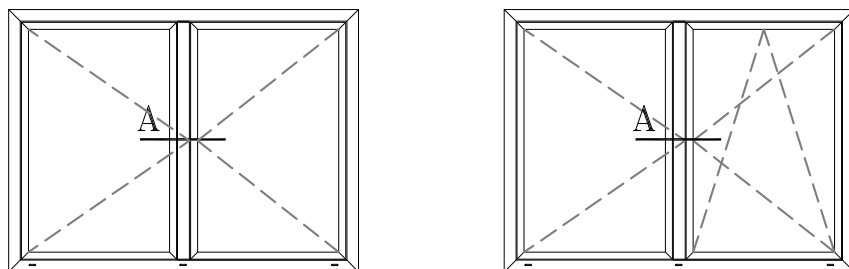


Section A-A

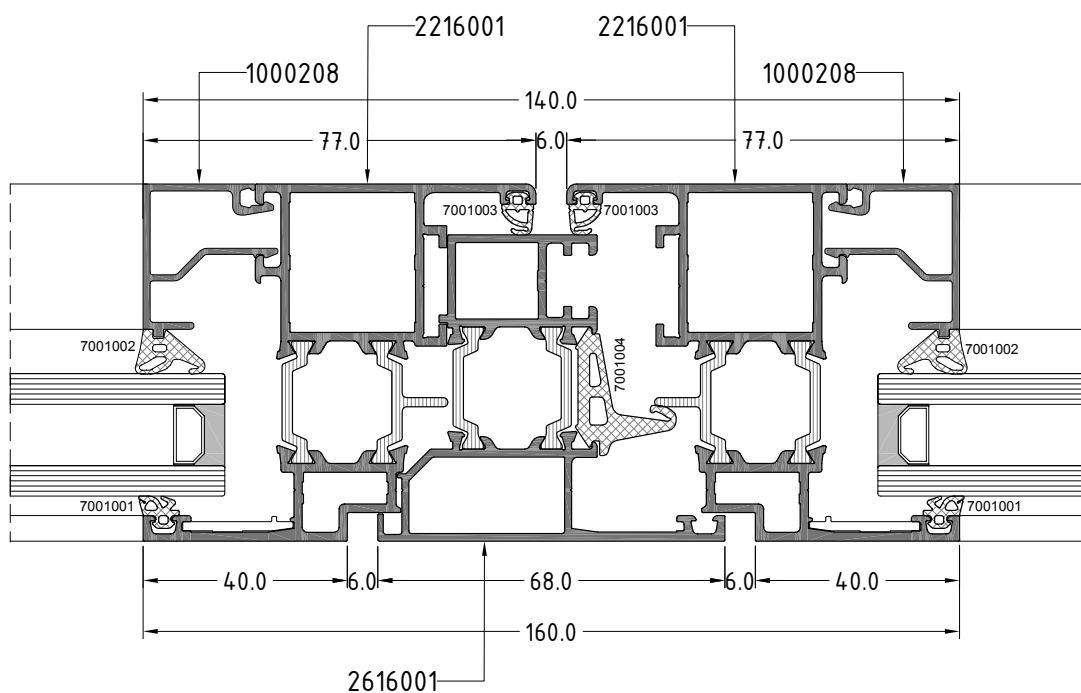


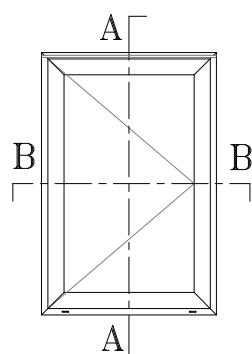
Section B-B



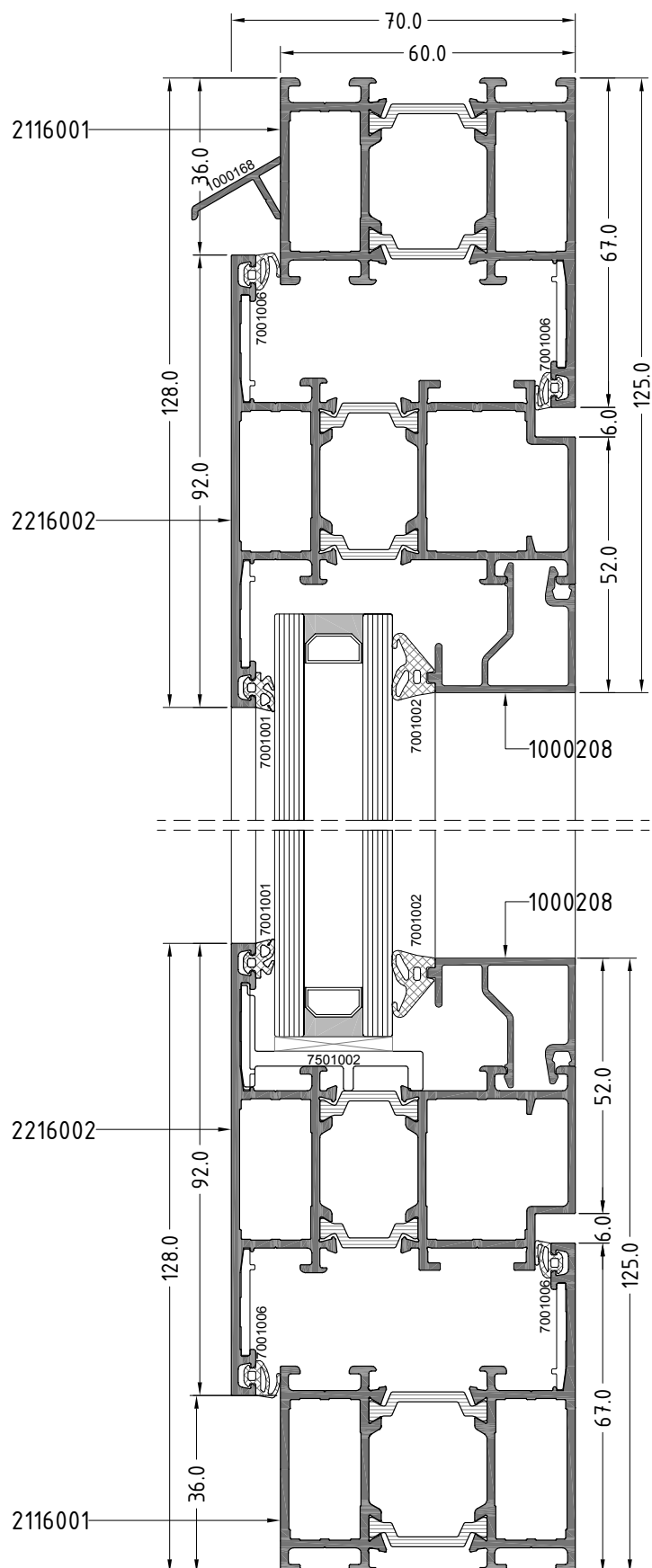


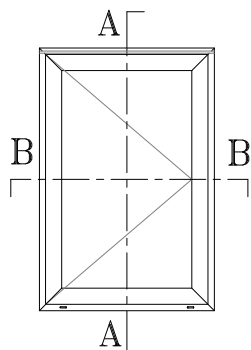
Section A



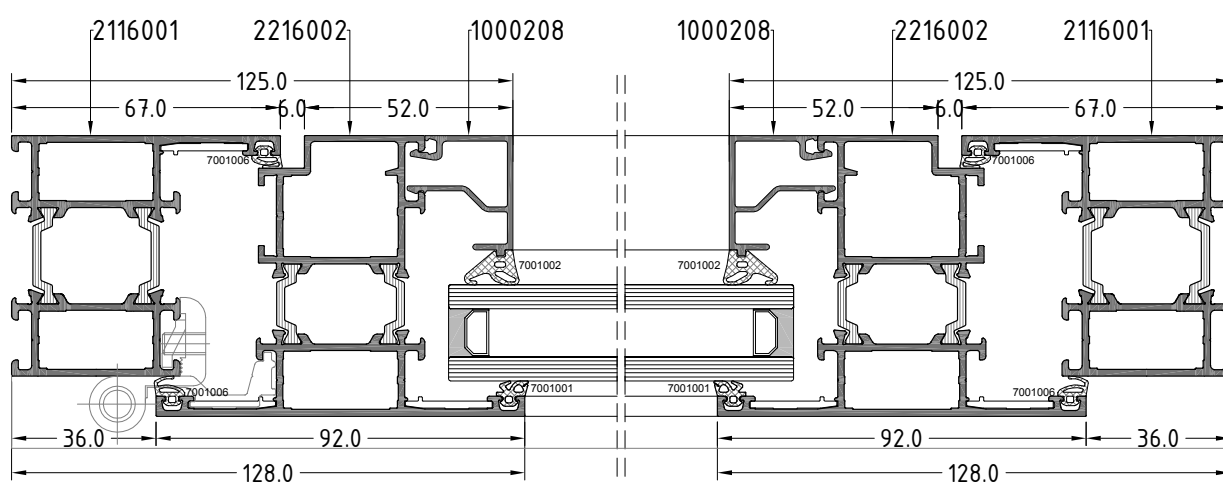


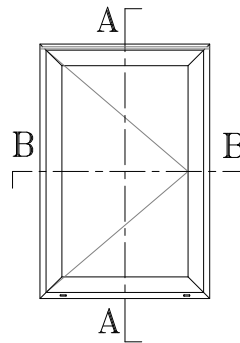
Section A-A



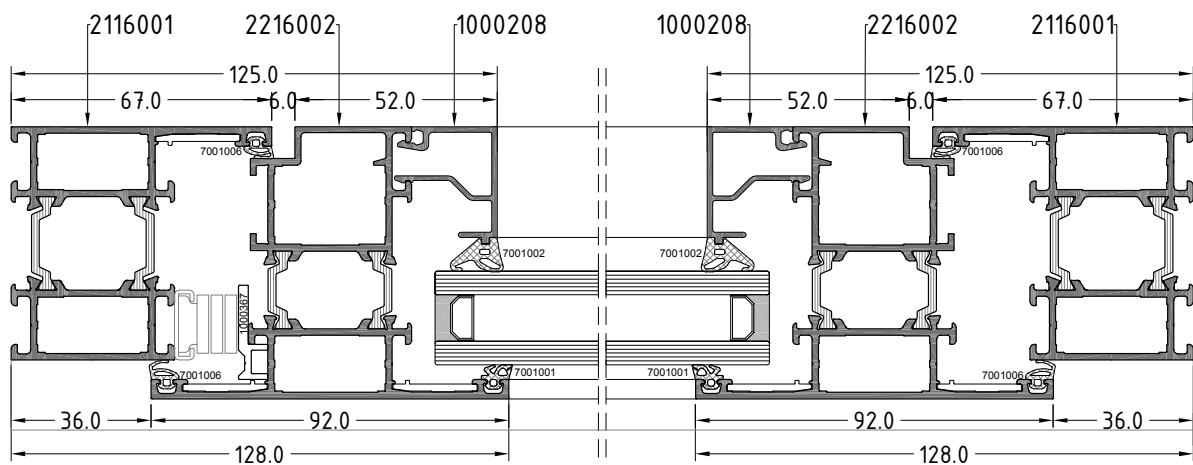


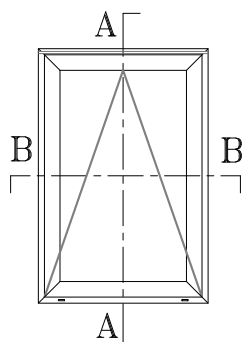
Section B-B
Option 1



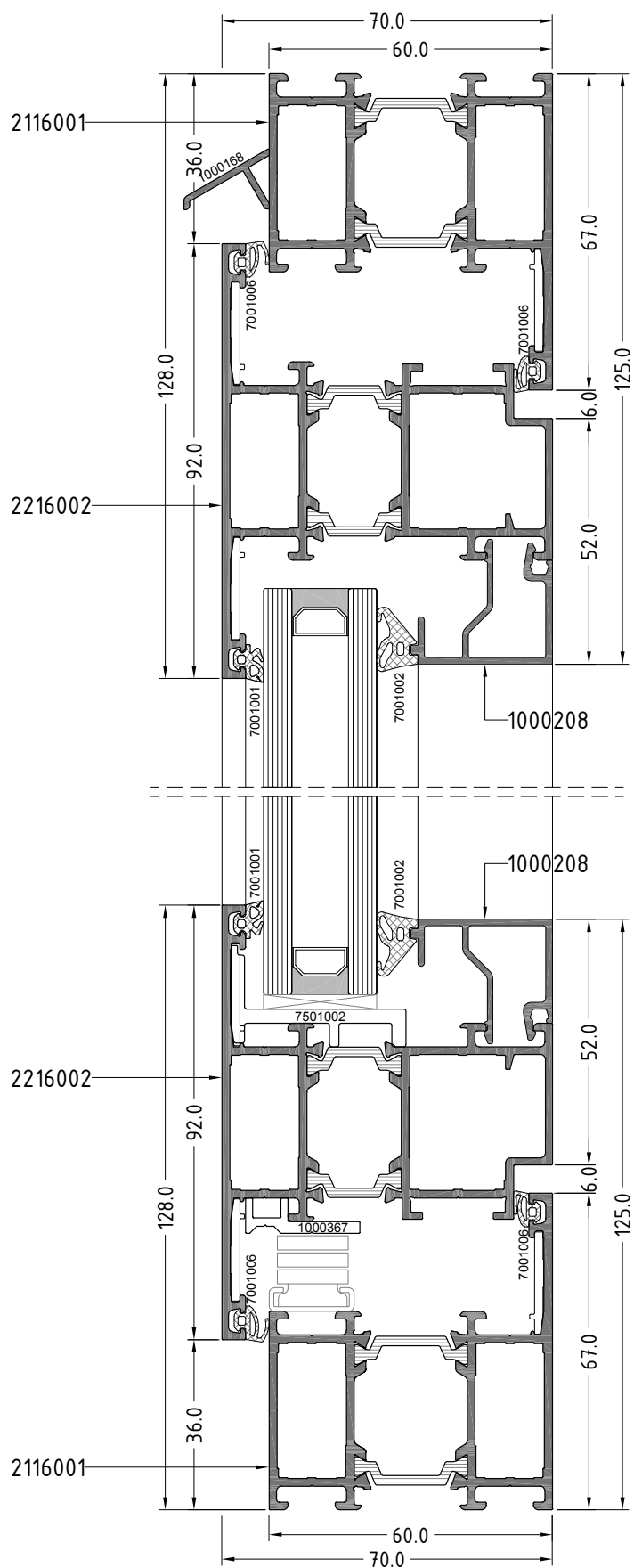


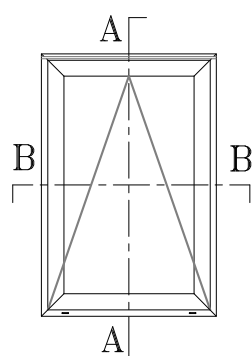
Section B-B
Option 2



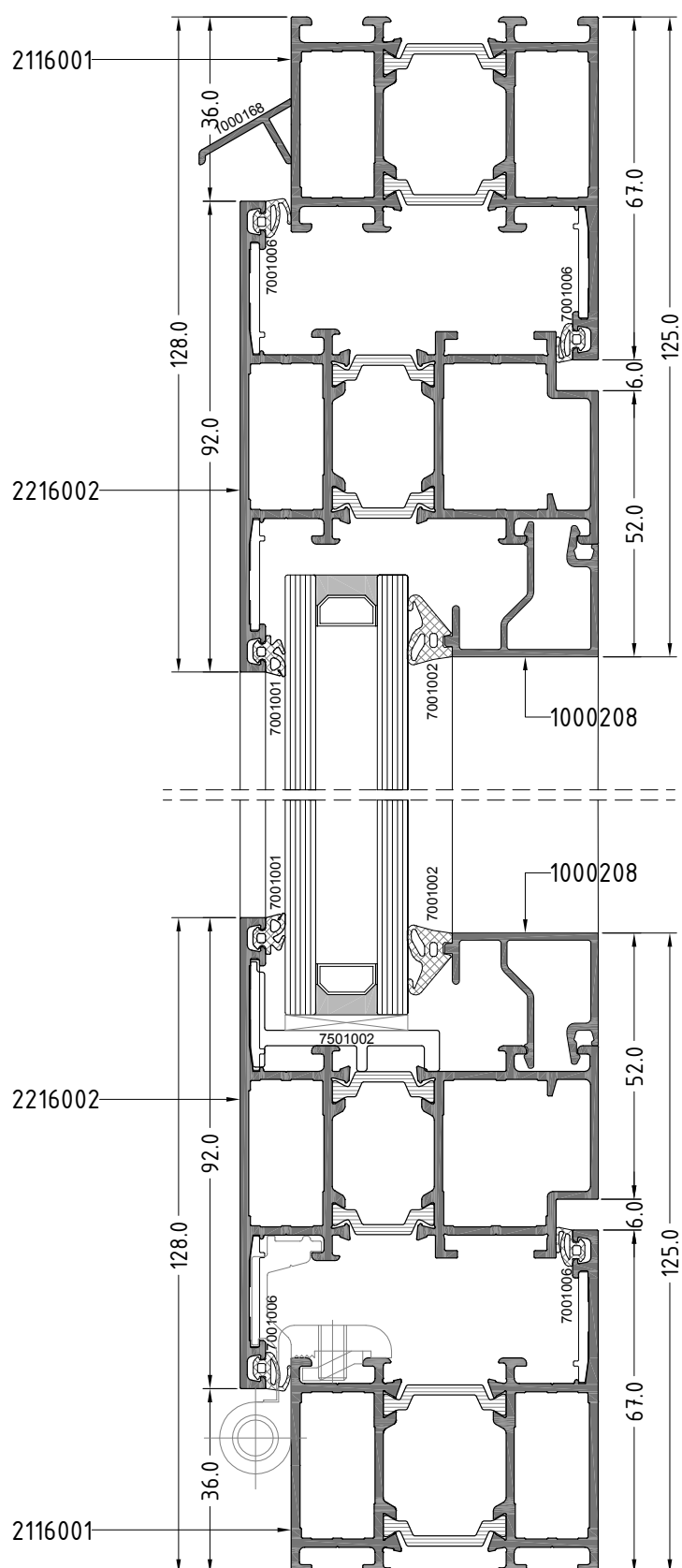


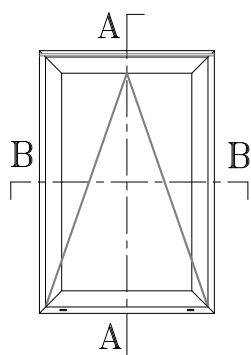
Section A-A
Option 1



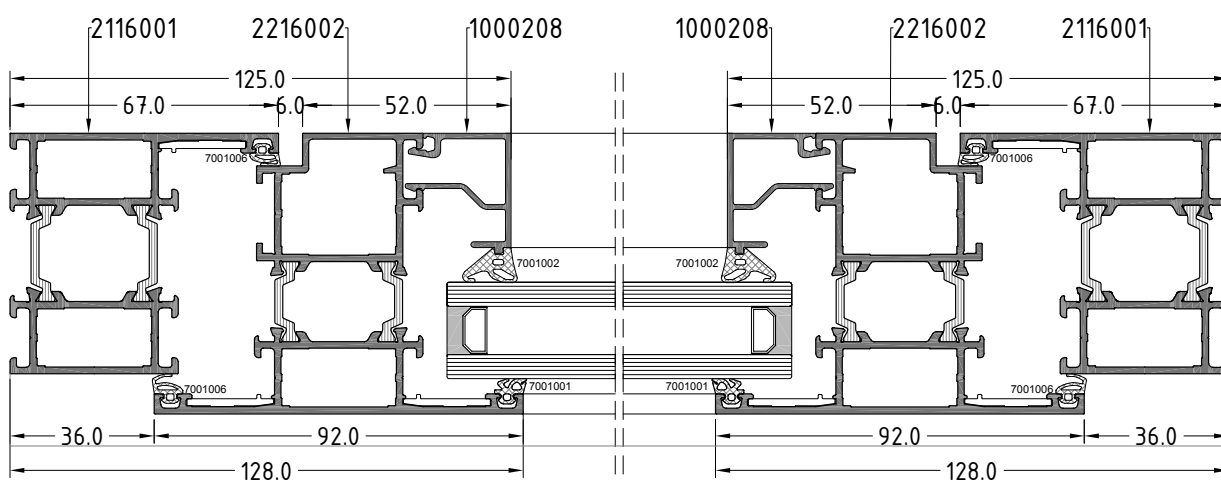


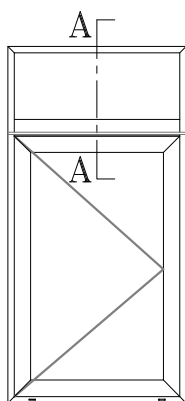
Section A-A
Option 2



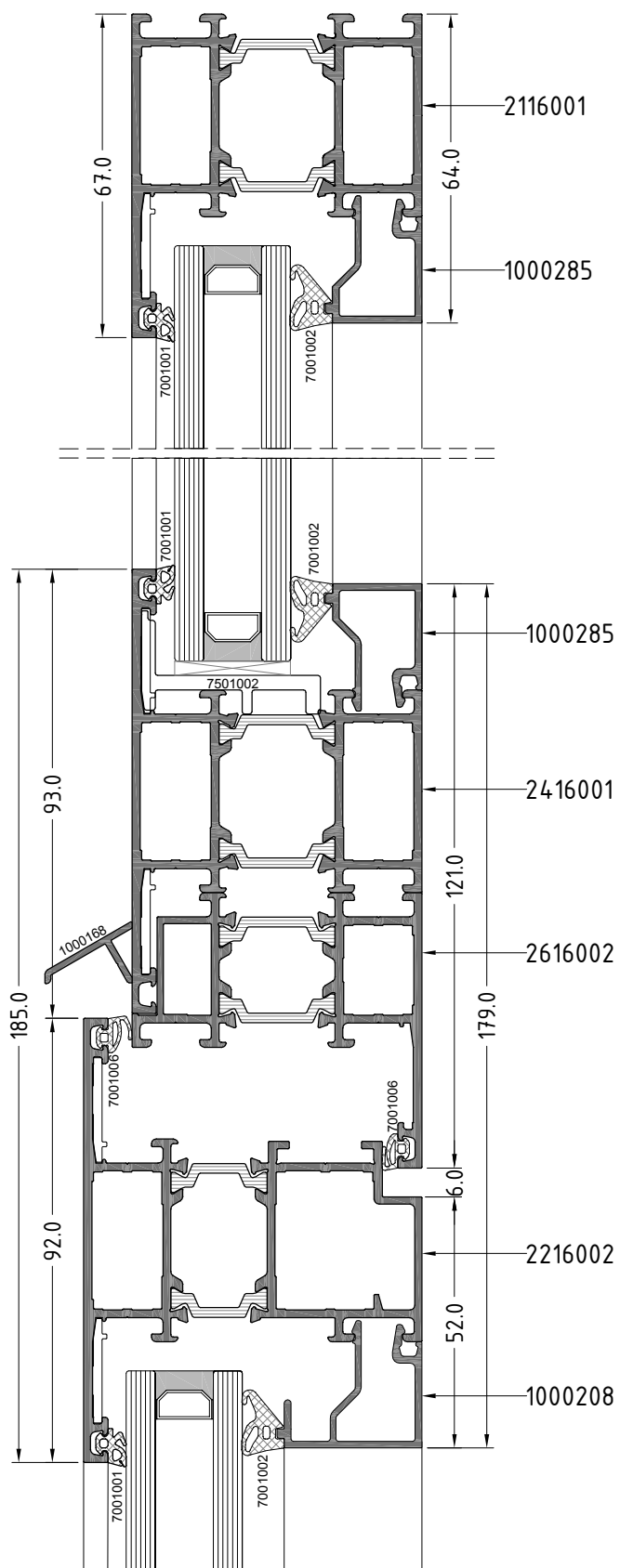


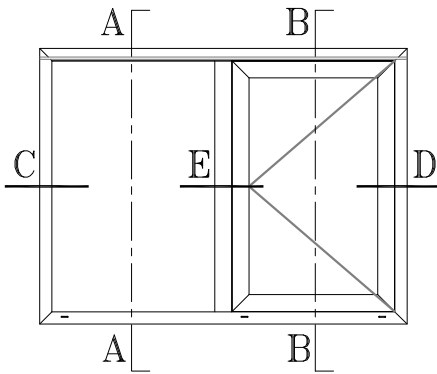
Section B-B



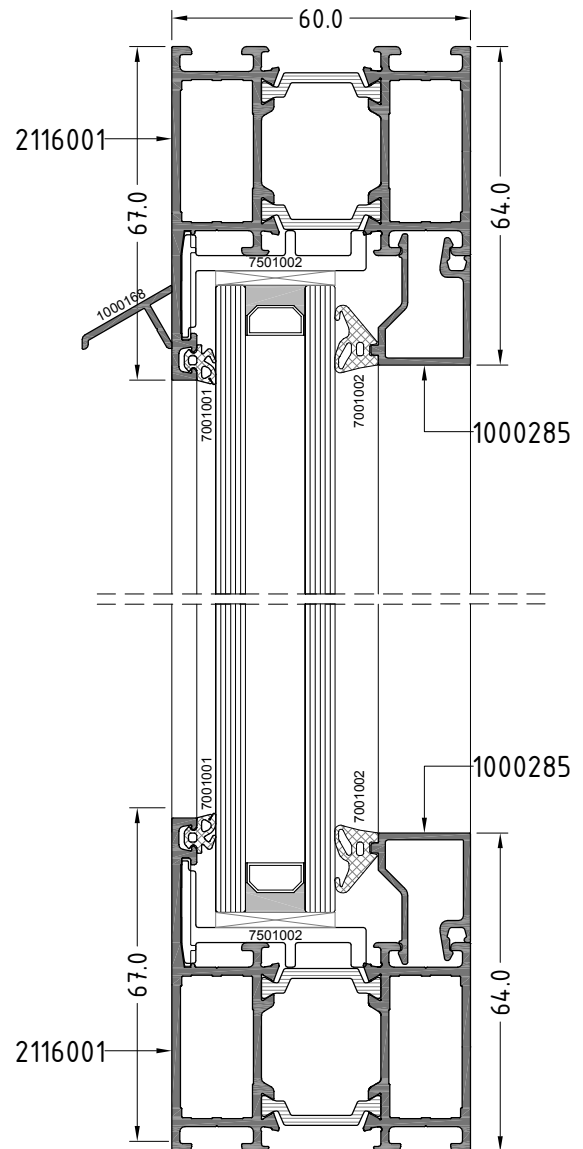


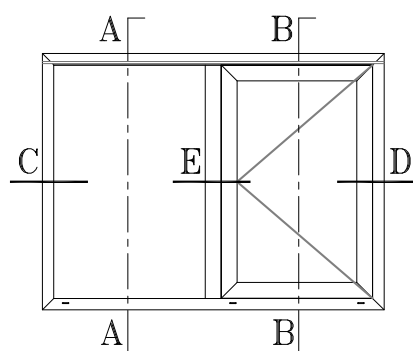
Section A-A



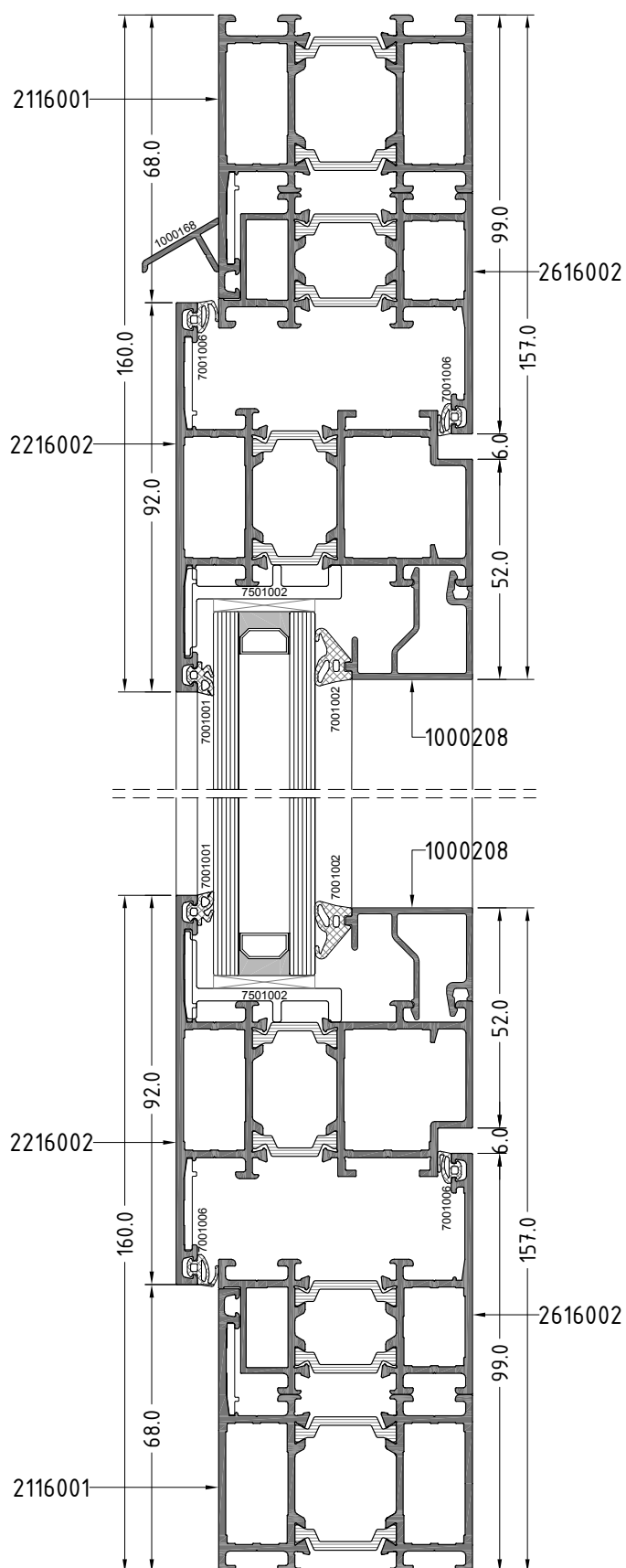


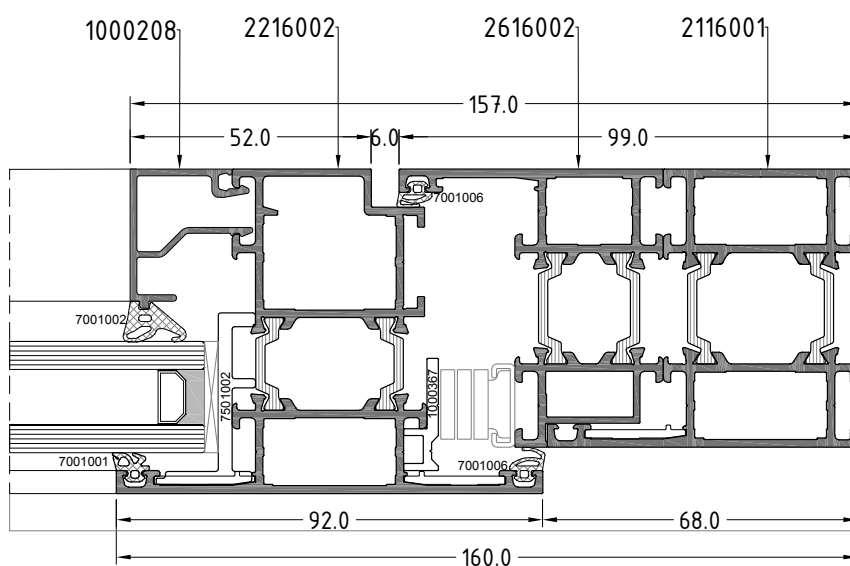
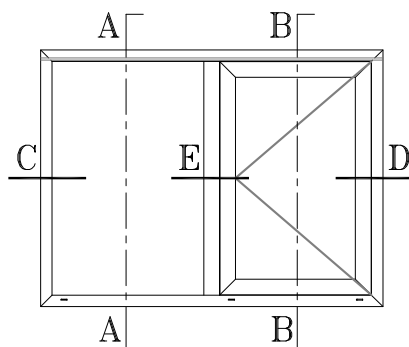
Section A-A



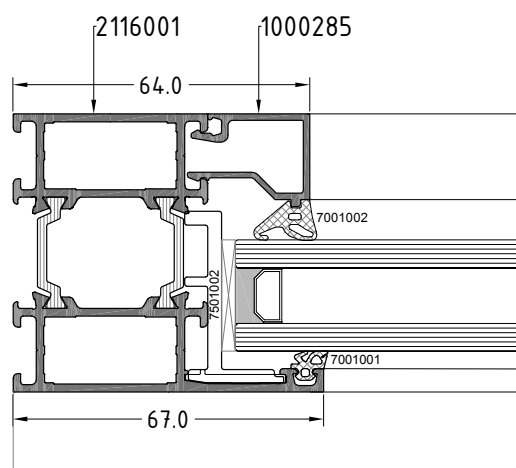


Section B-B

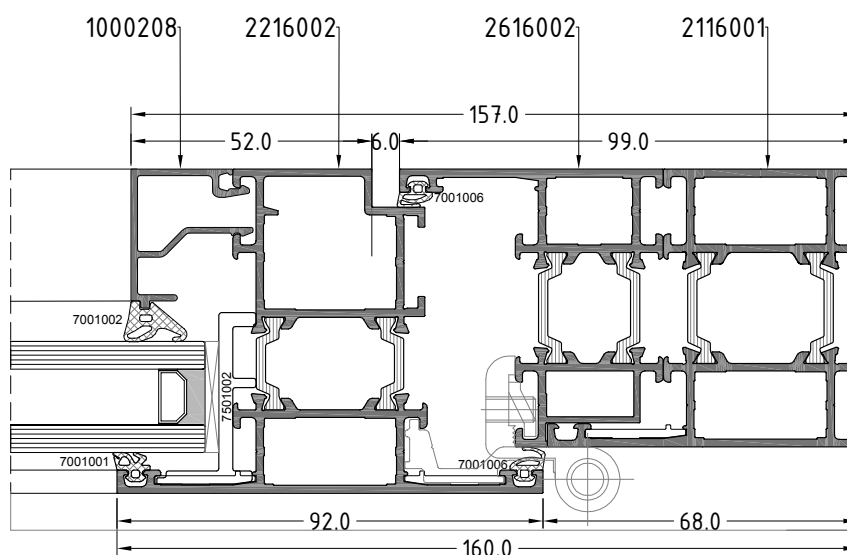
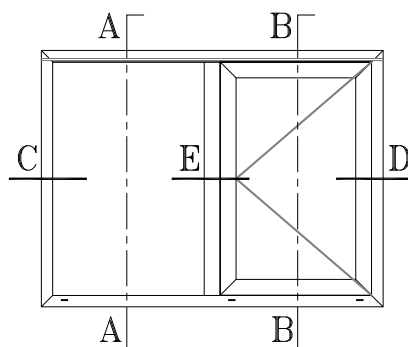




Section D
Option 1

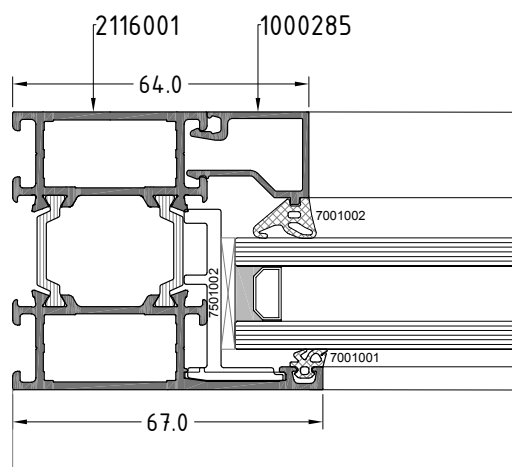


Section C

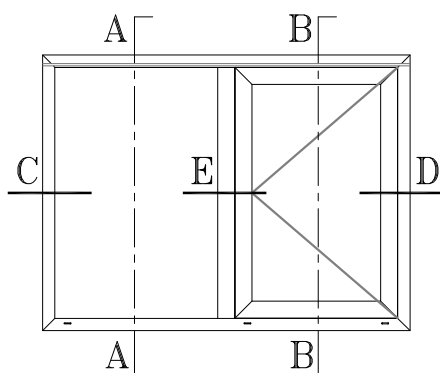


Section D

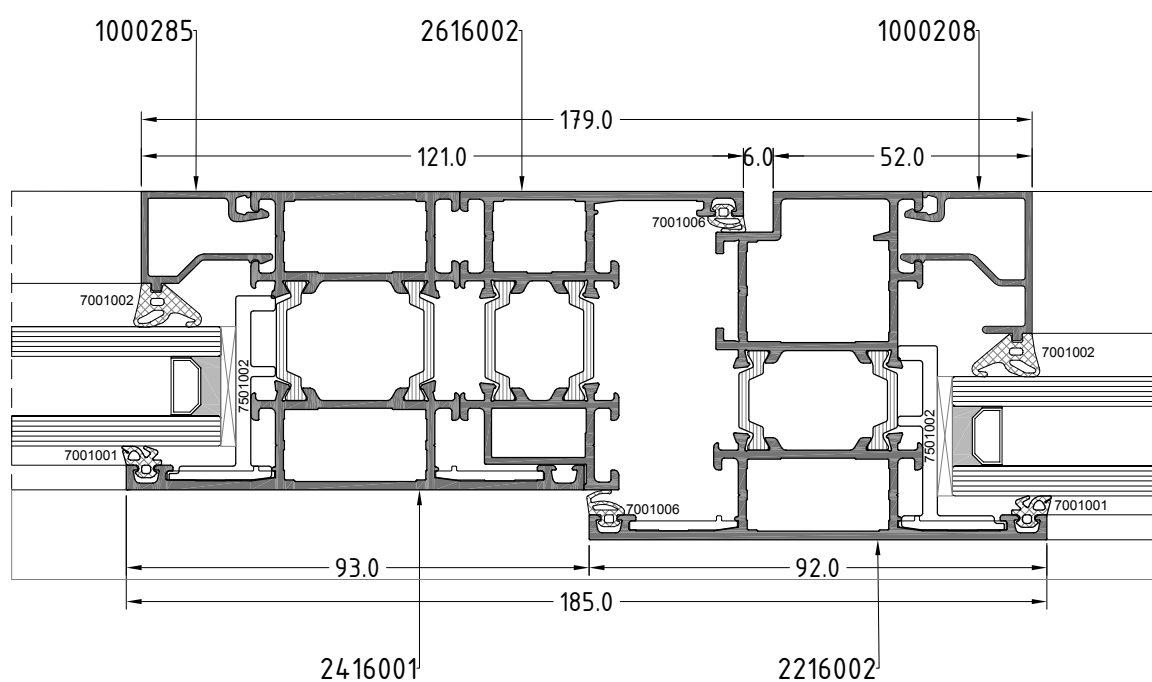
Option 2

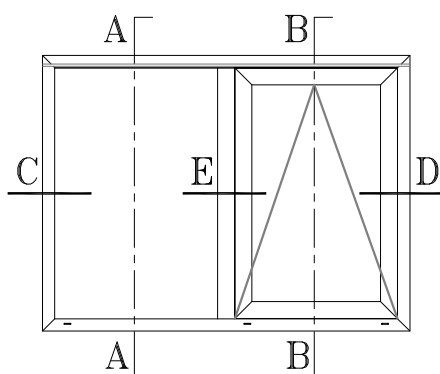


Section C

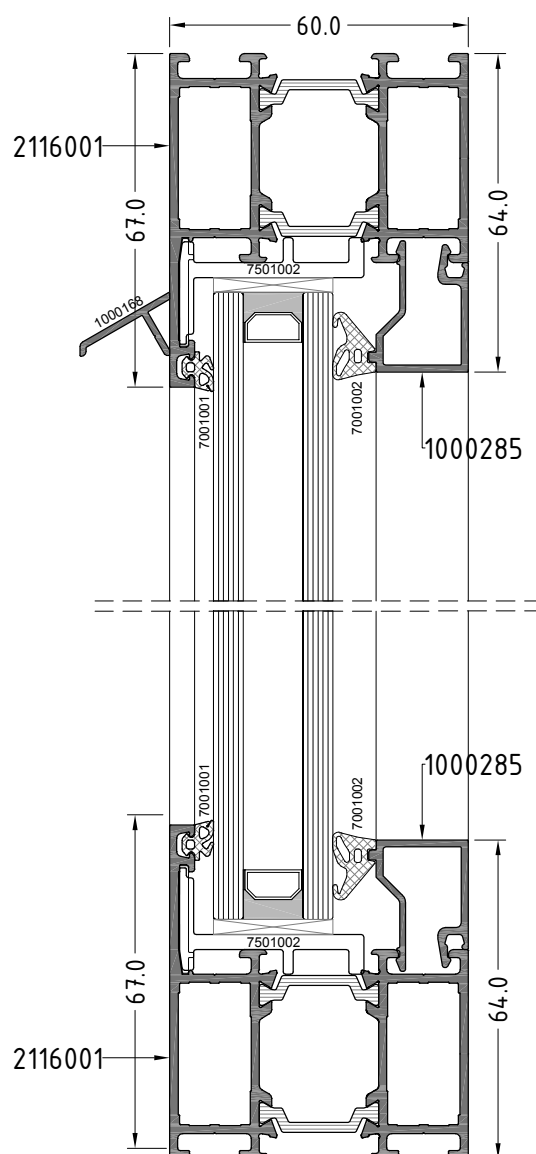


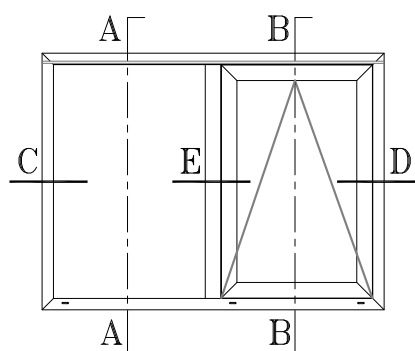
Section E



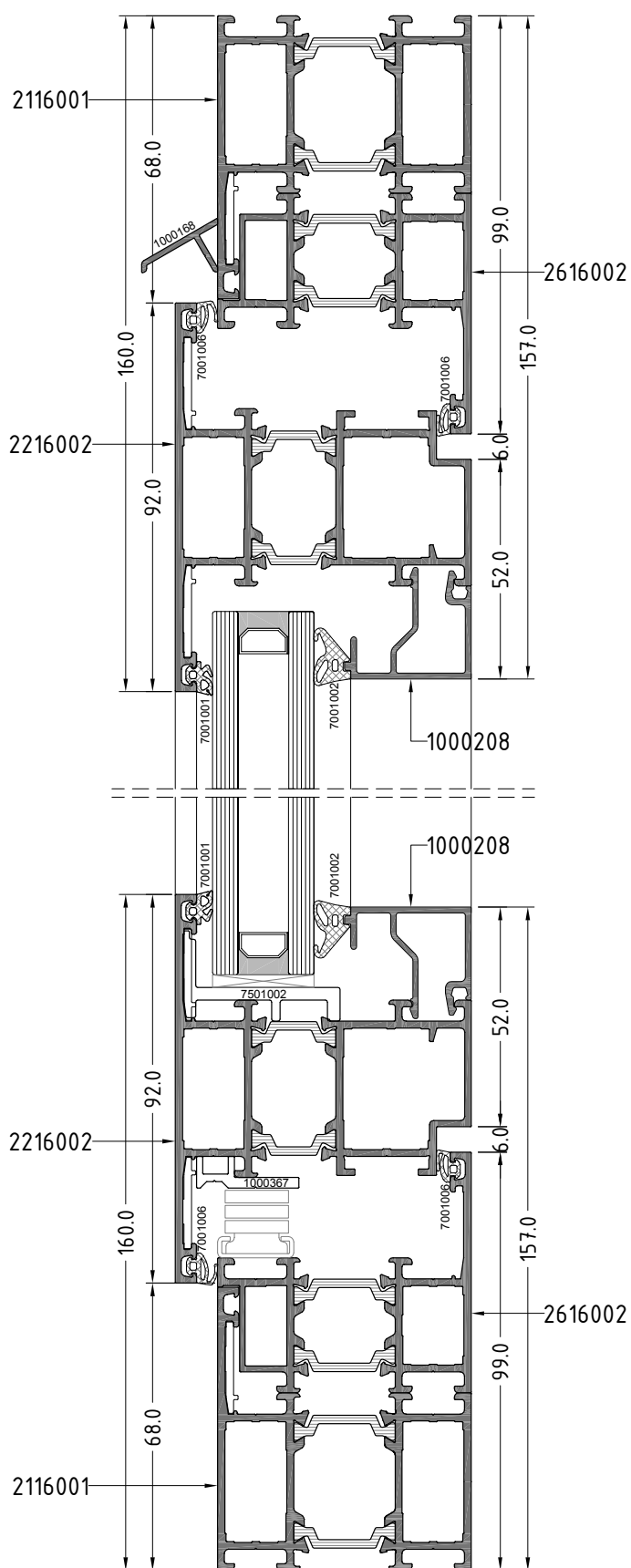


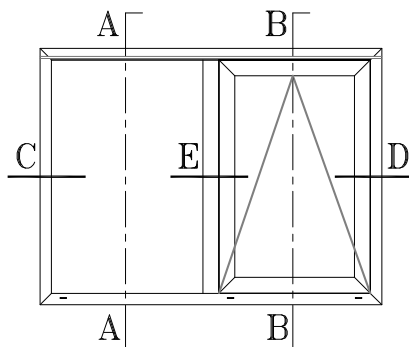
Section A-A



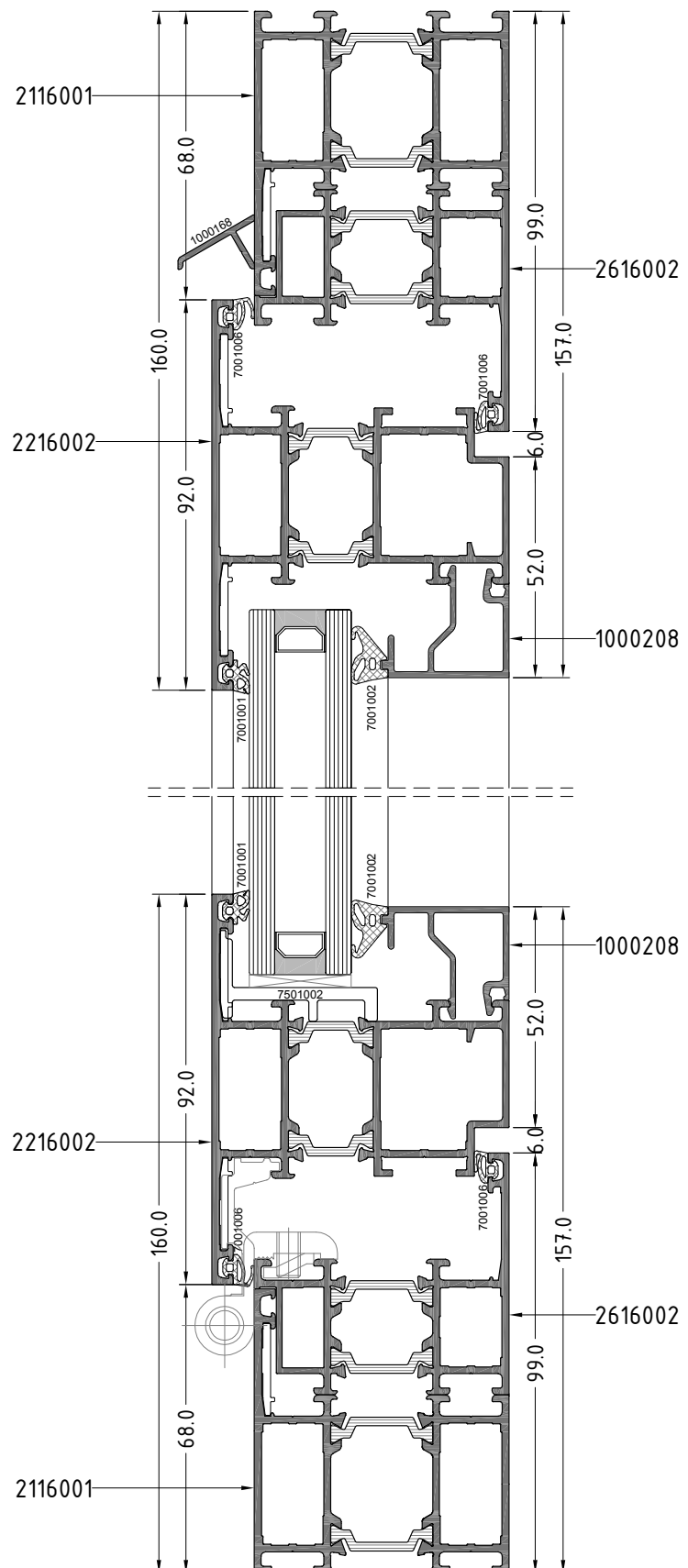


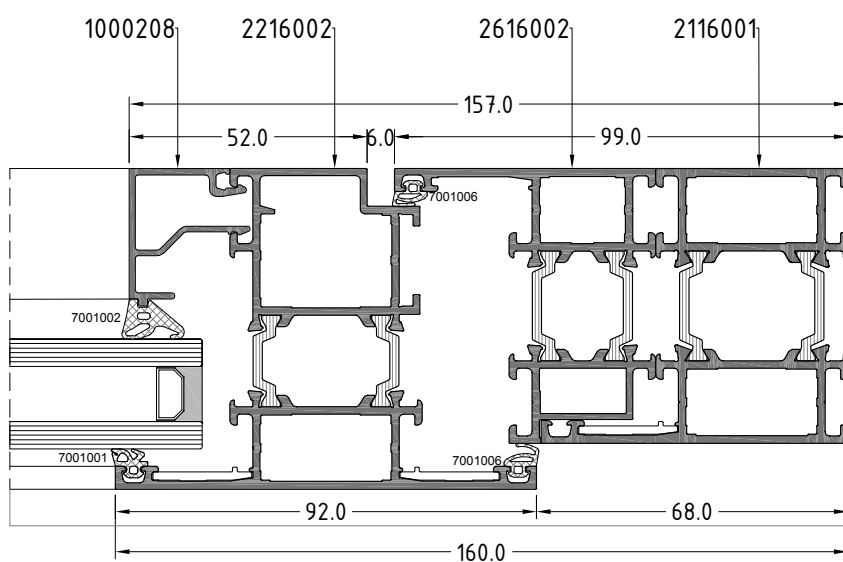
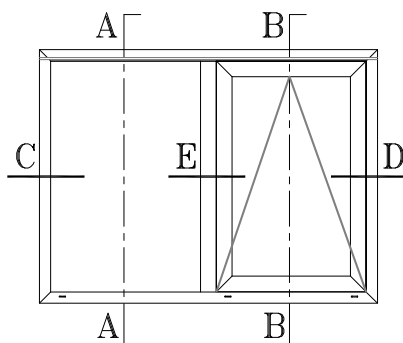
Section B-B
Option 1



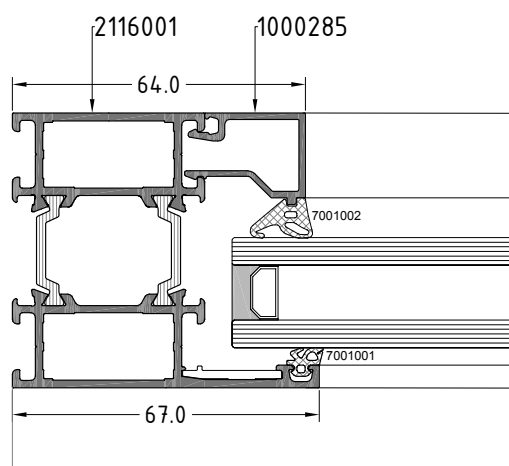


Section B-B
Option 2

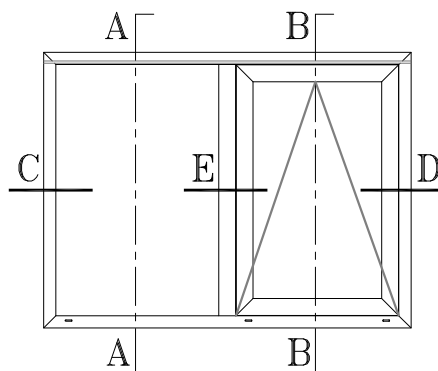




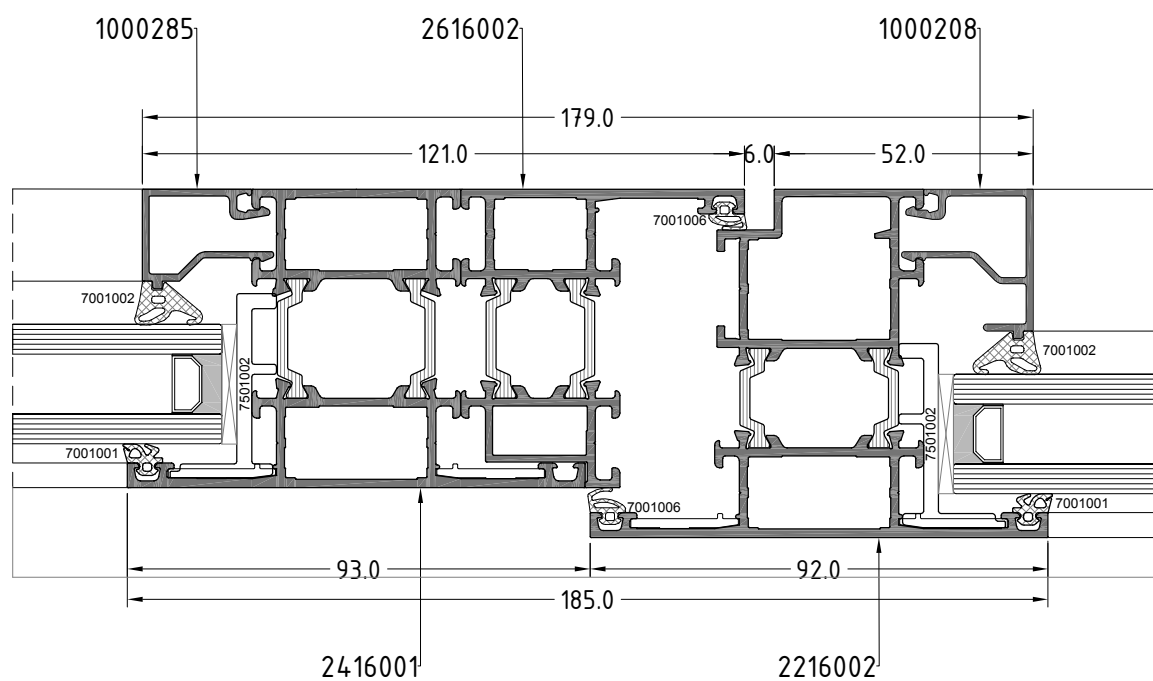
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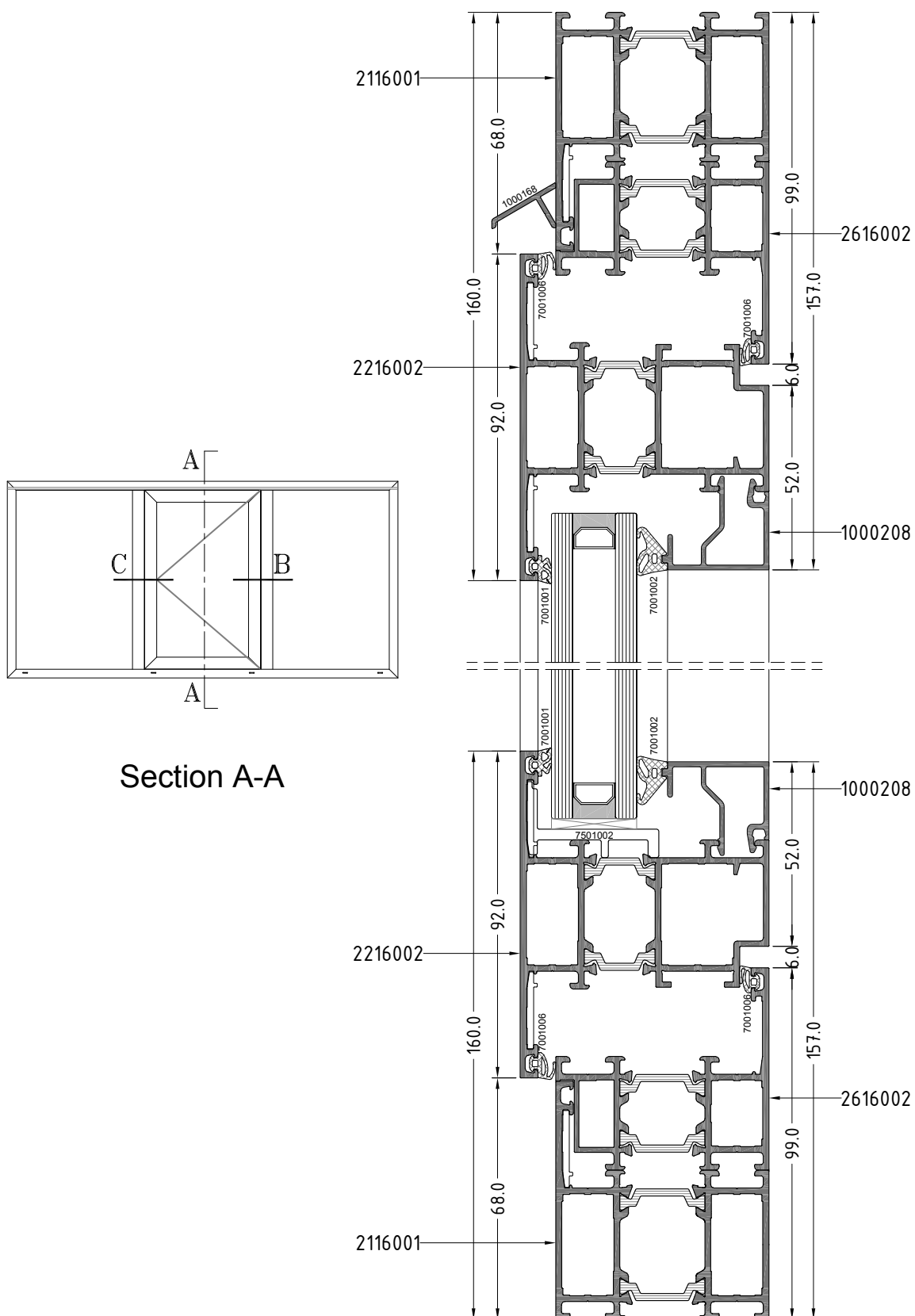


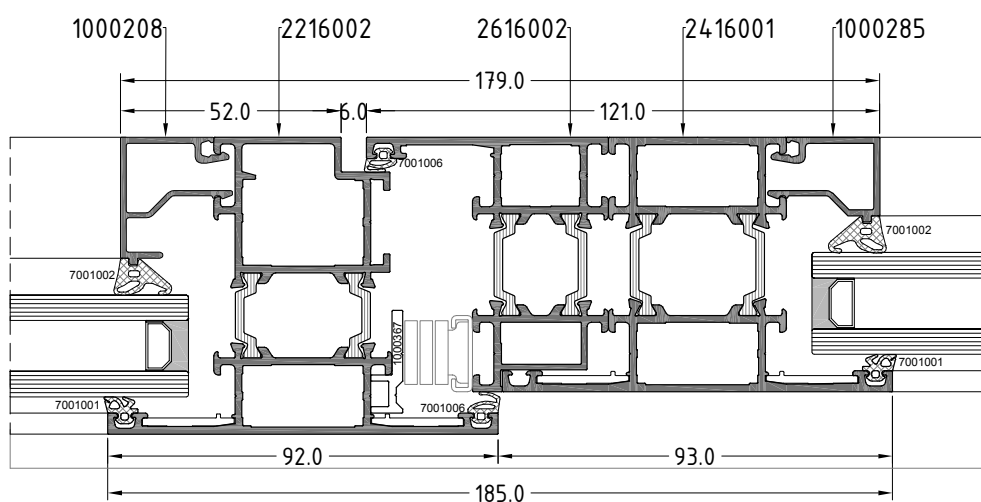
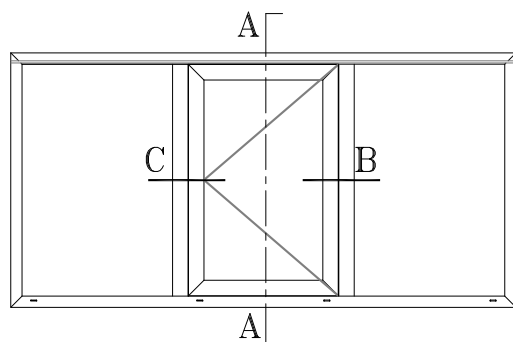
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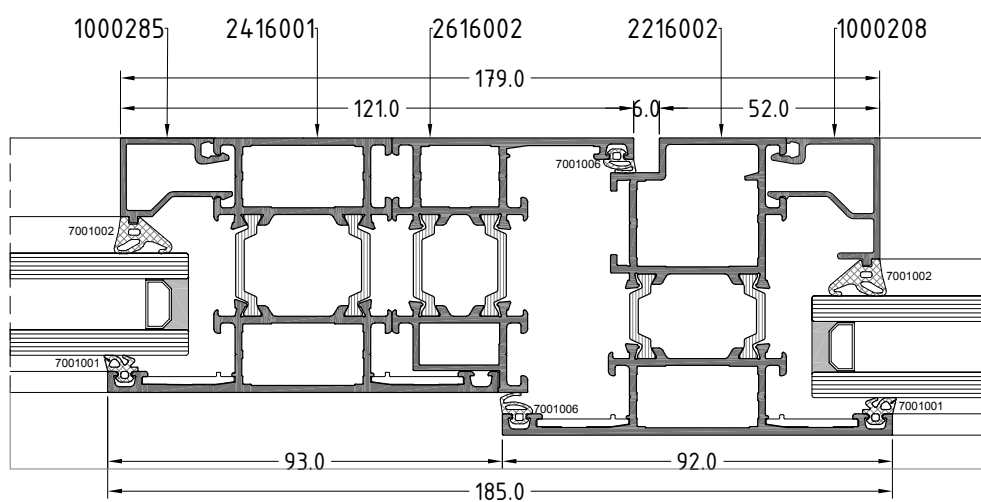
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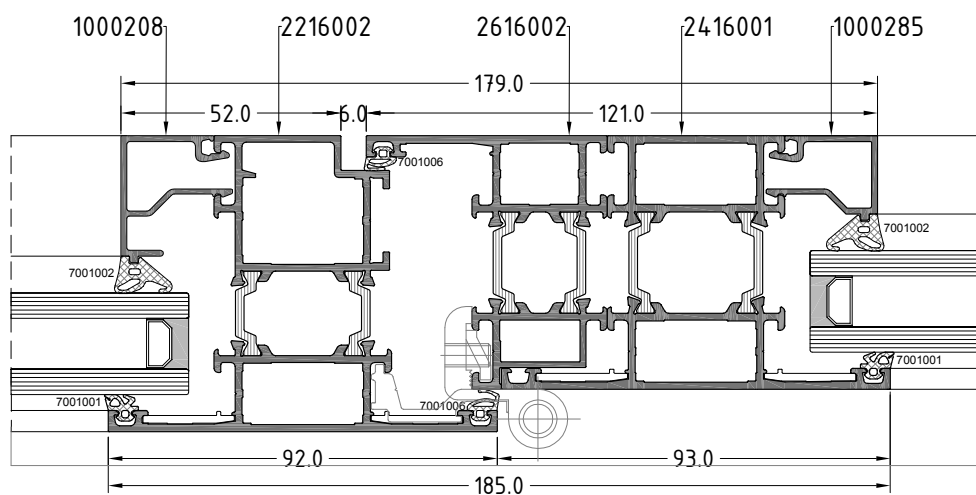
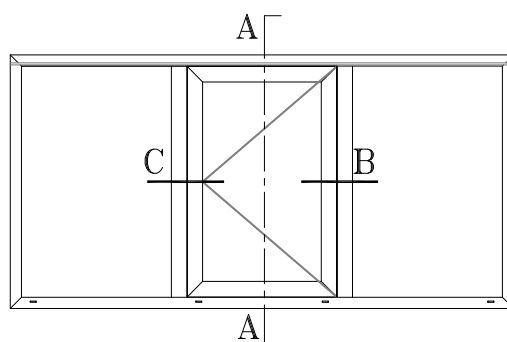




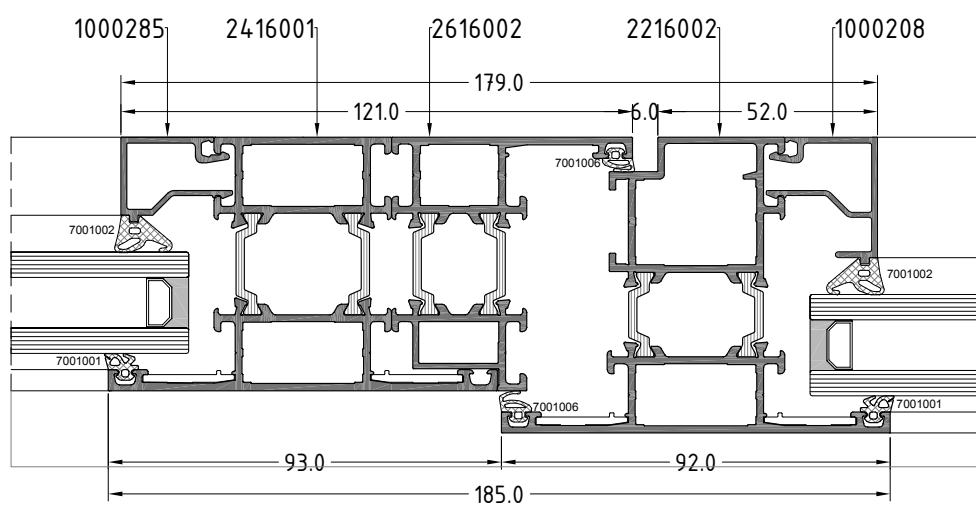
Section B
Option 1



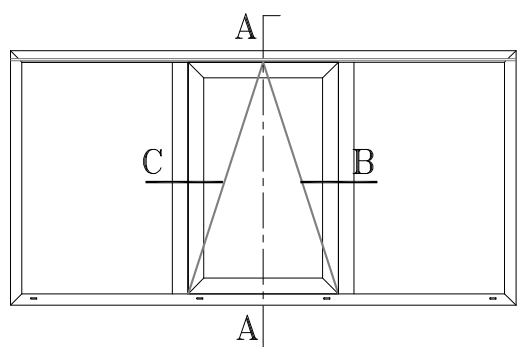
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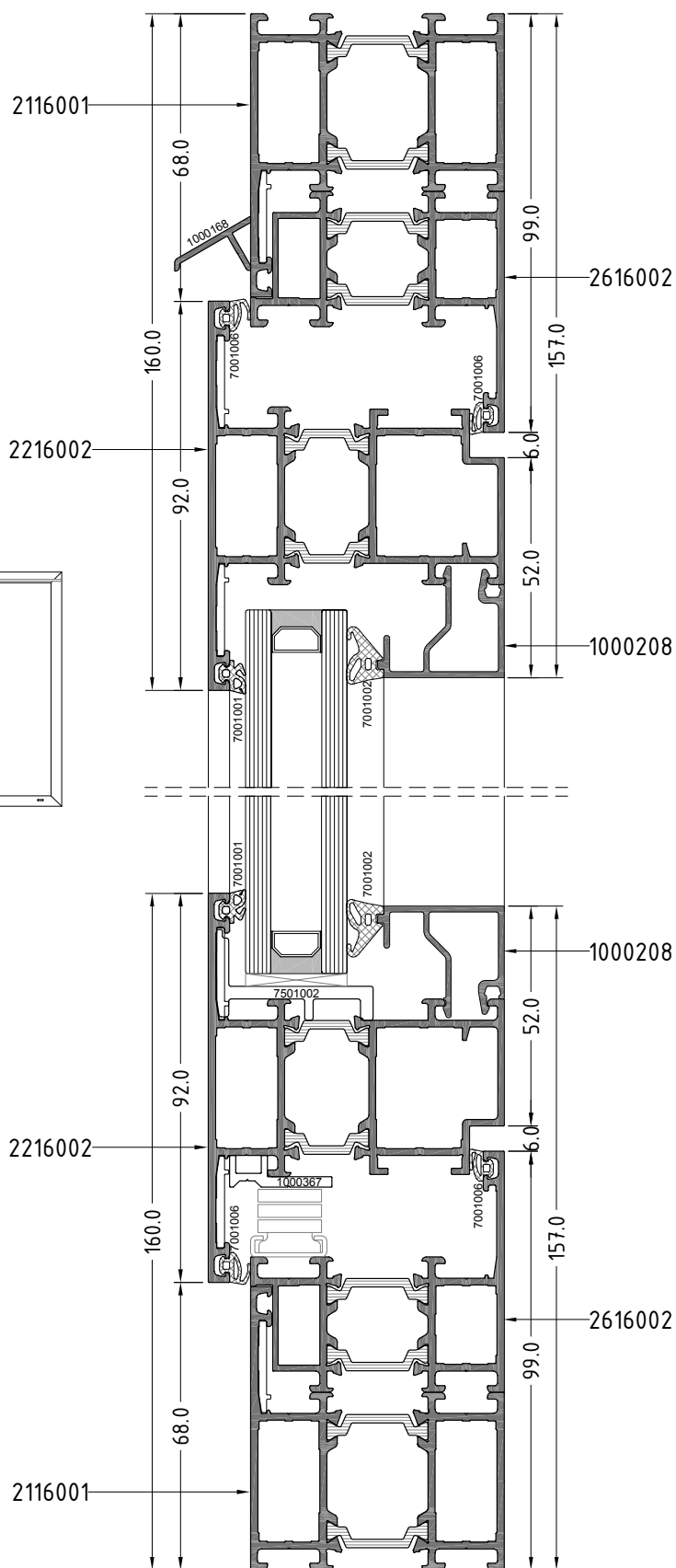
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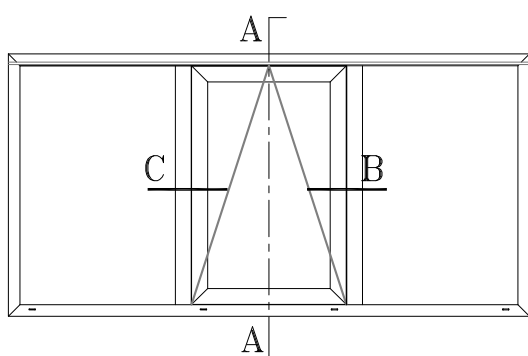


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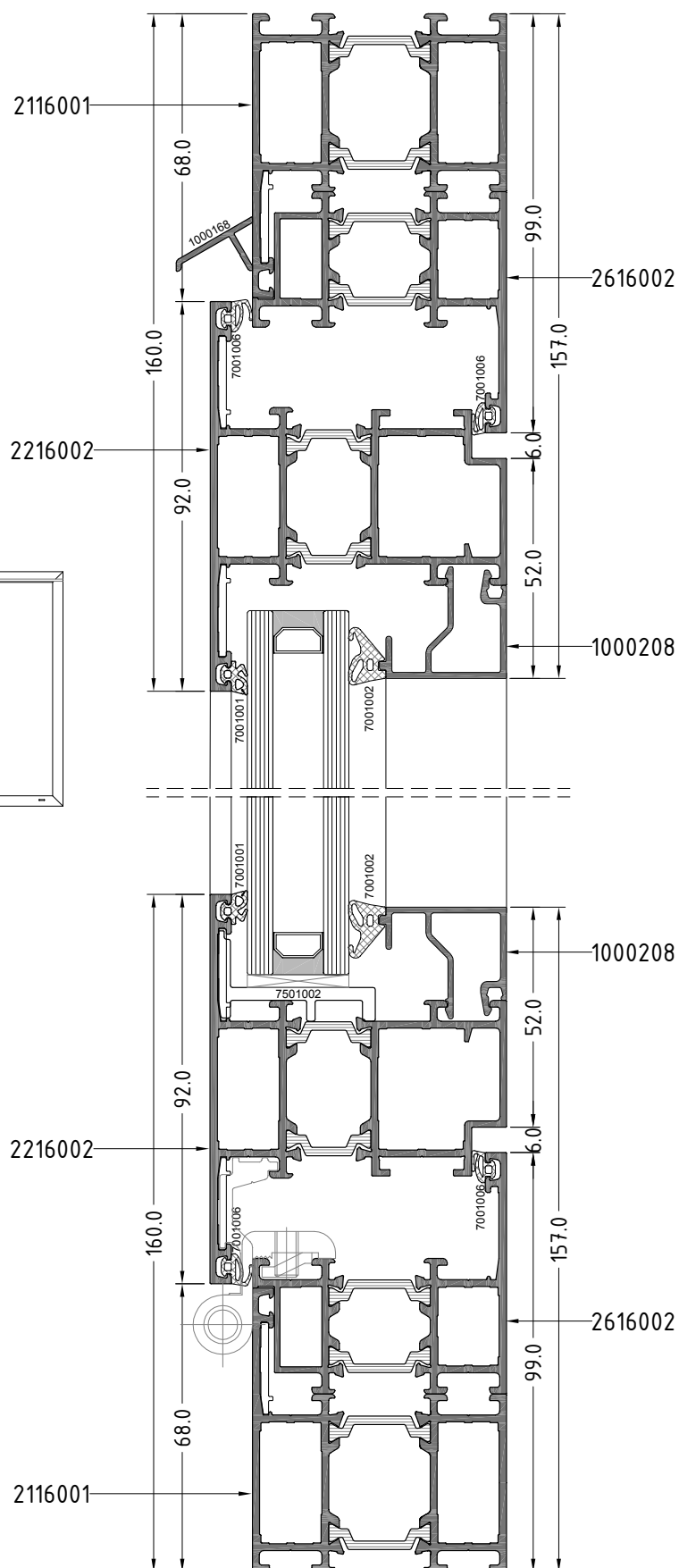


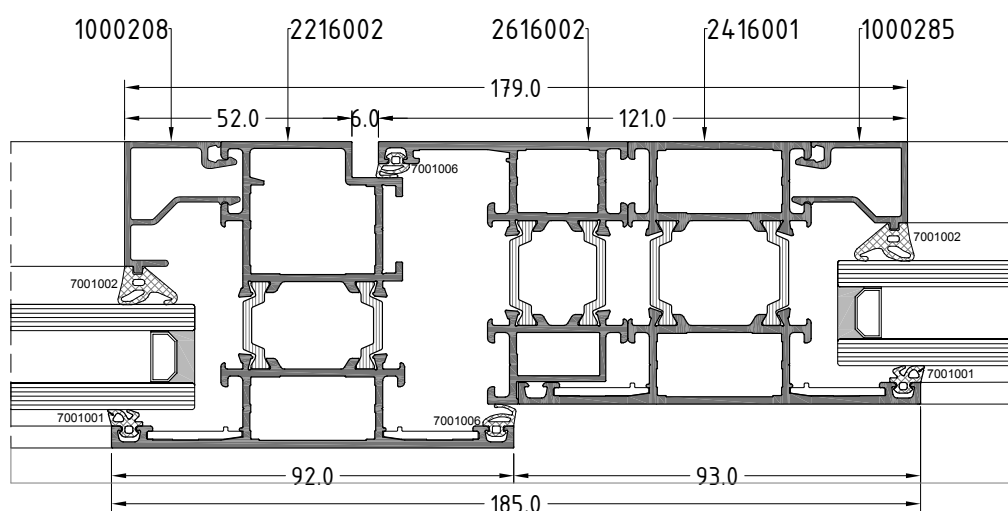
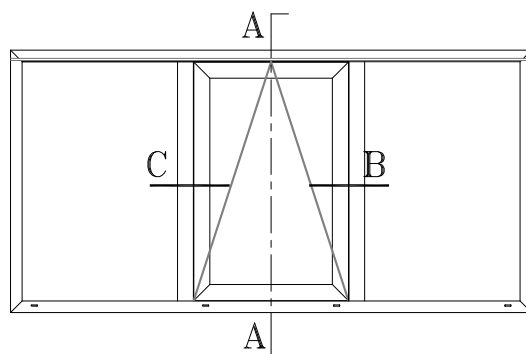
Section A-A
Option 1



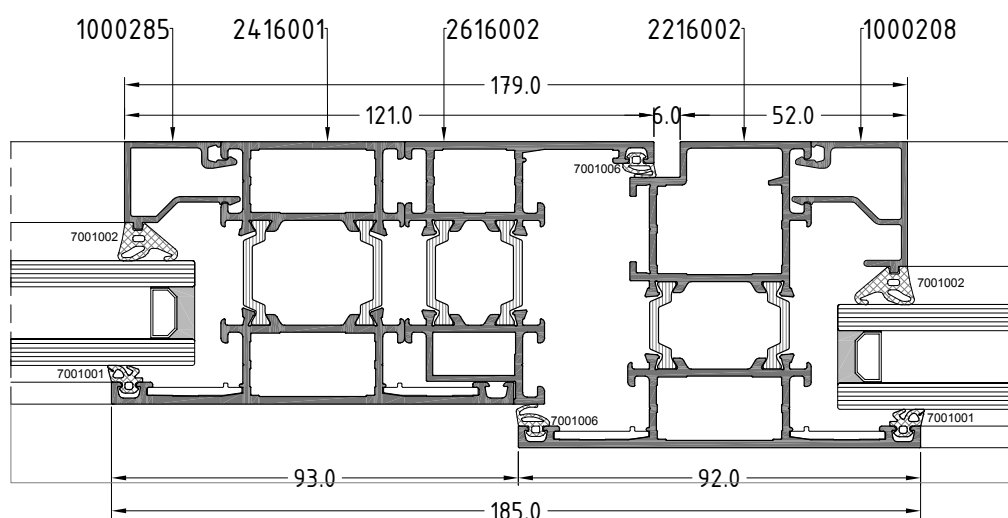


Section A-A
Option 2

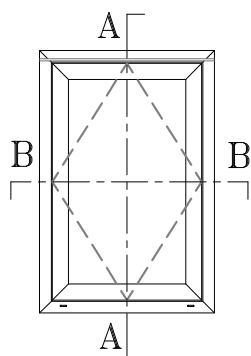




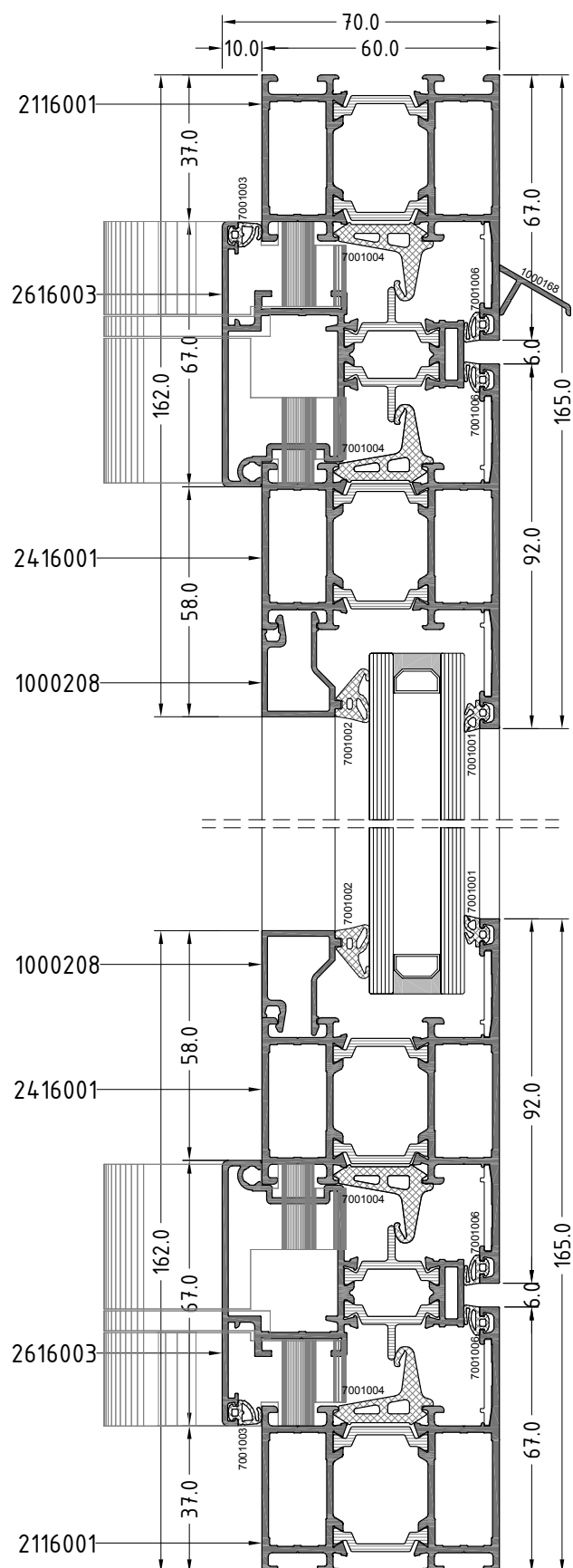
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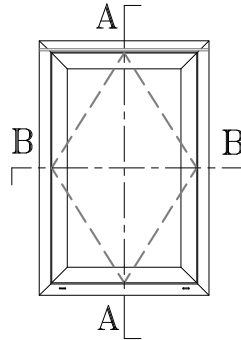


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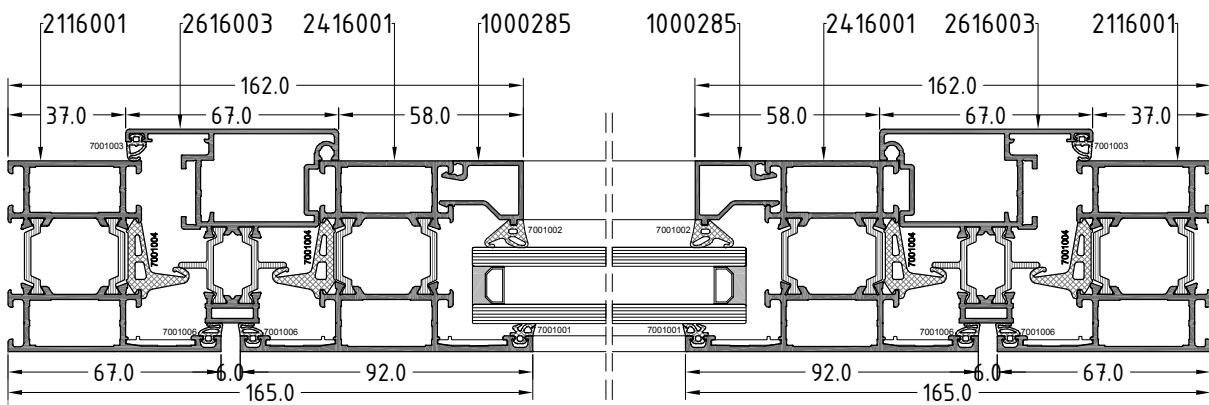


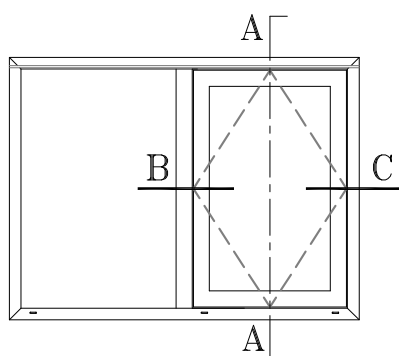
Section A-A



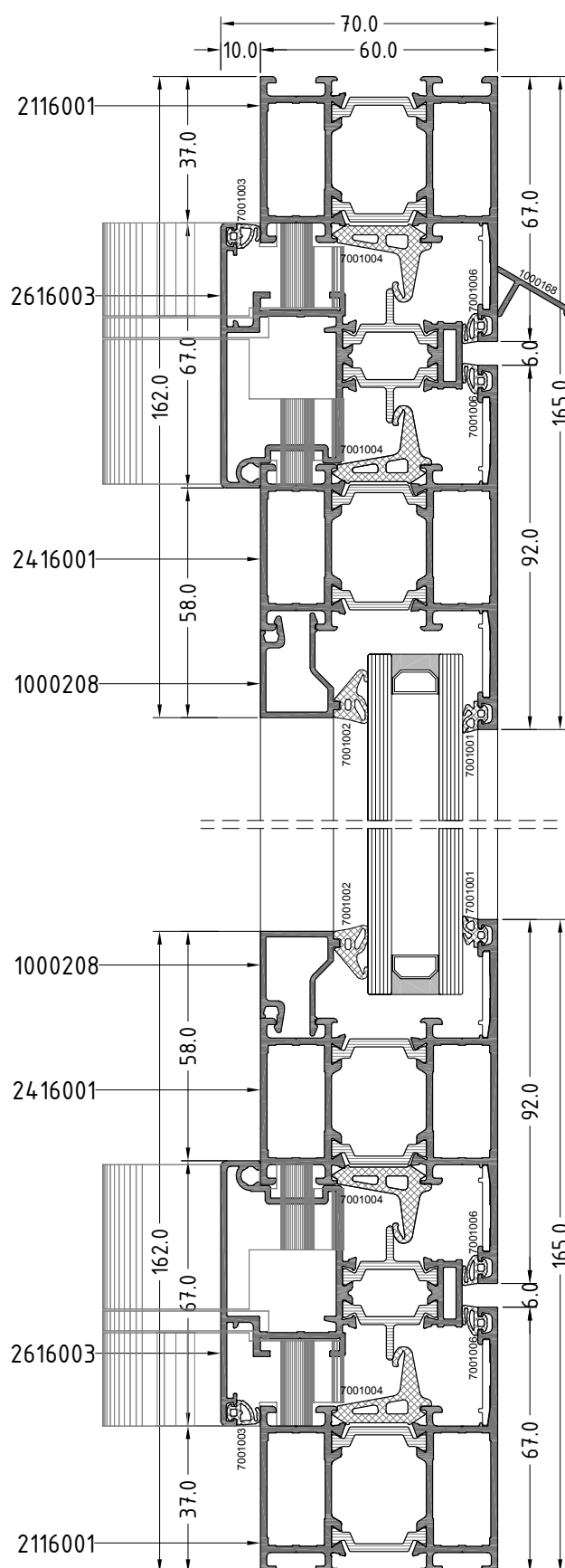


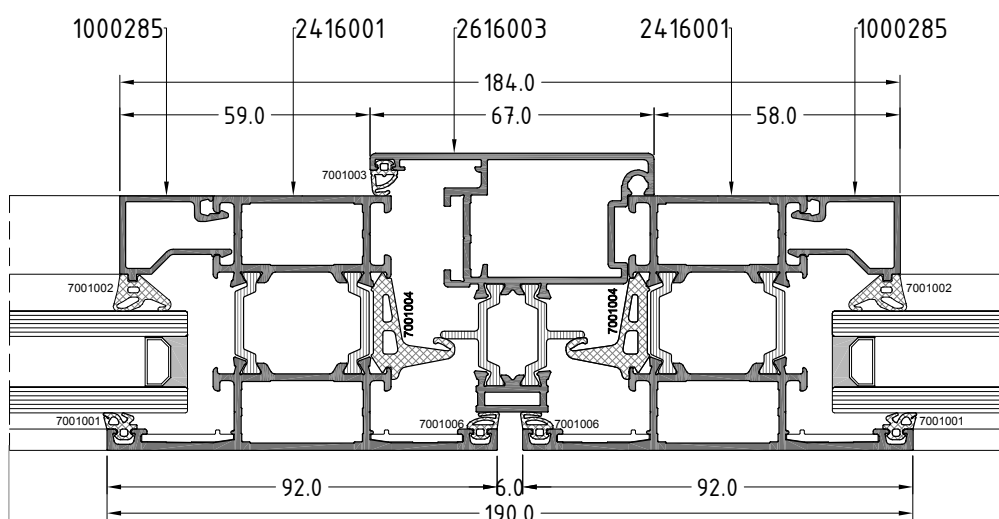
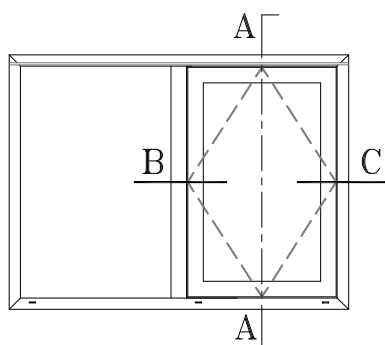
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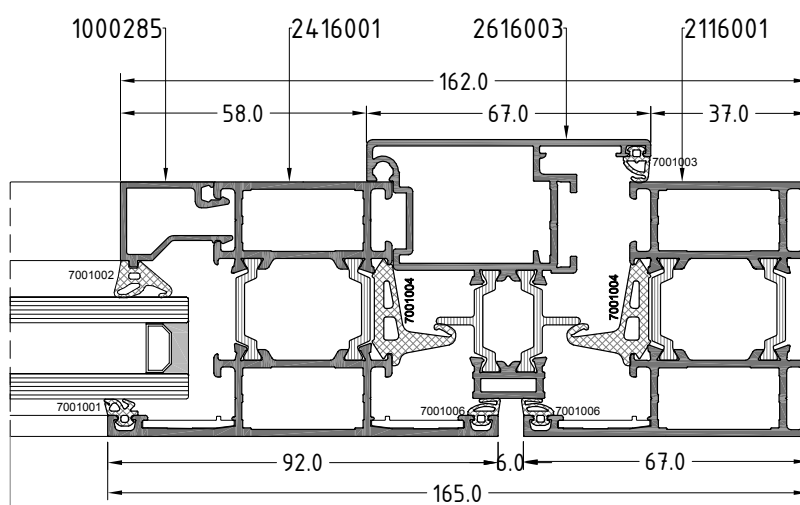


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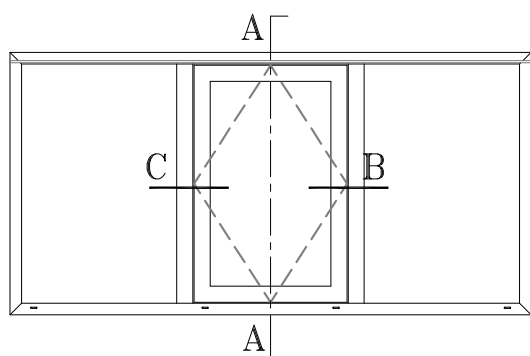




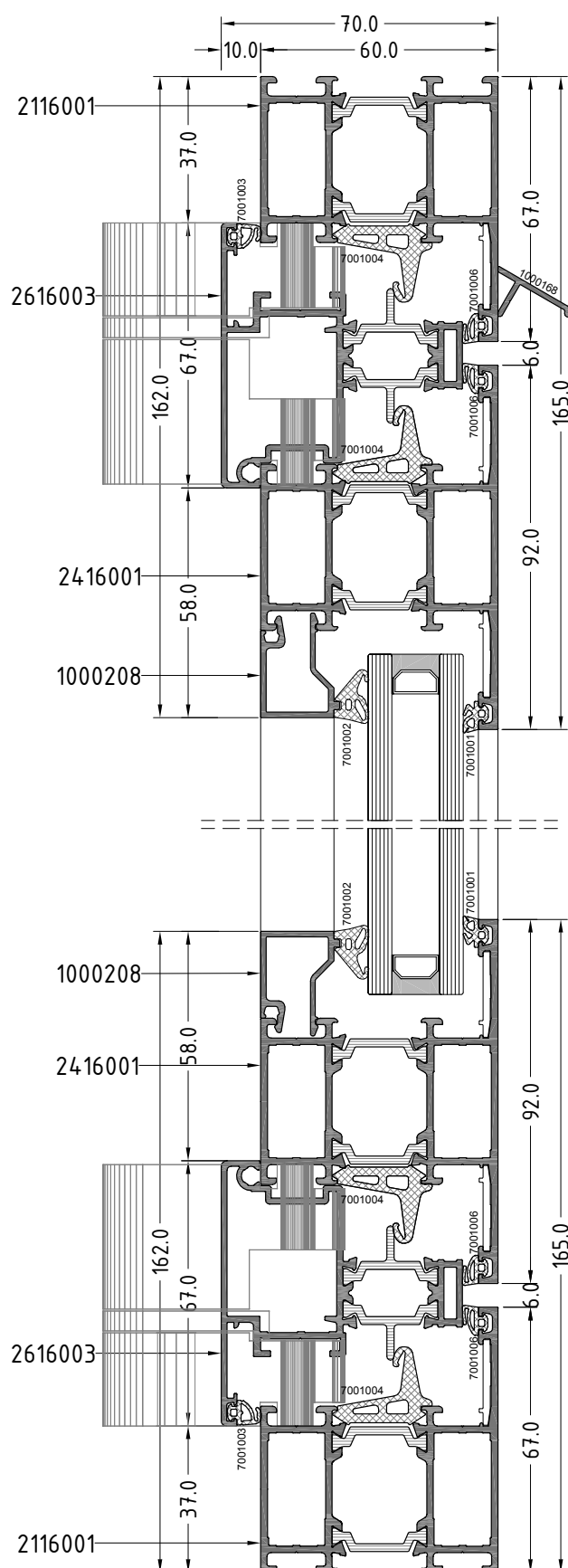
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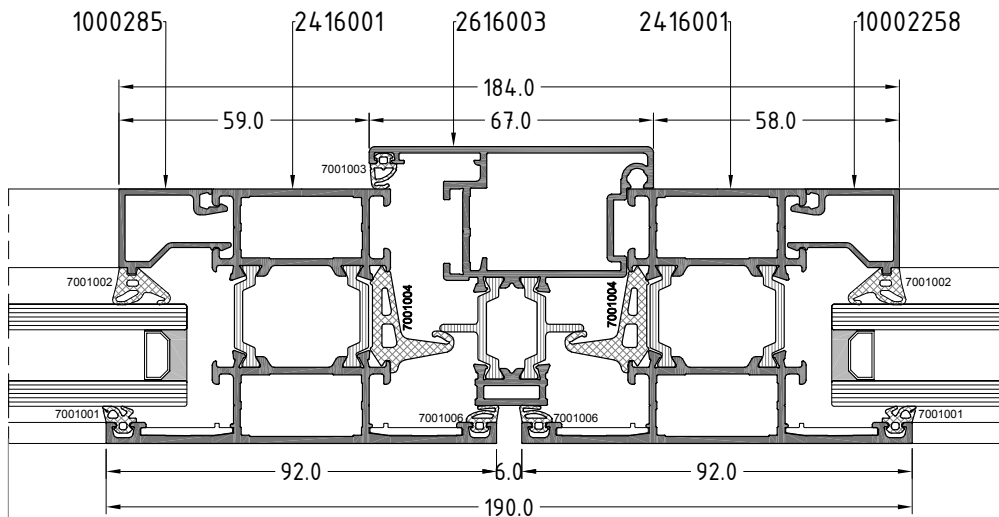
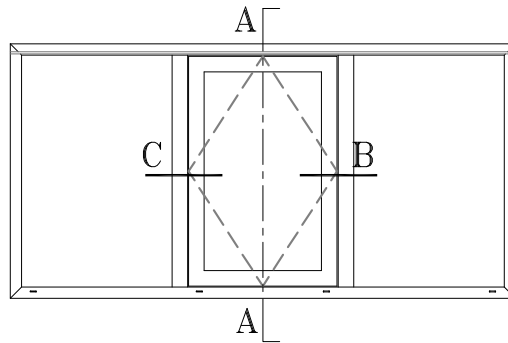


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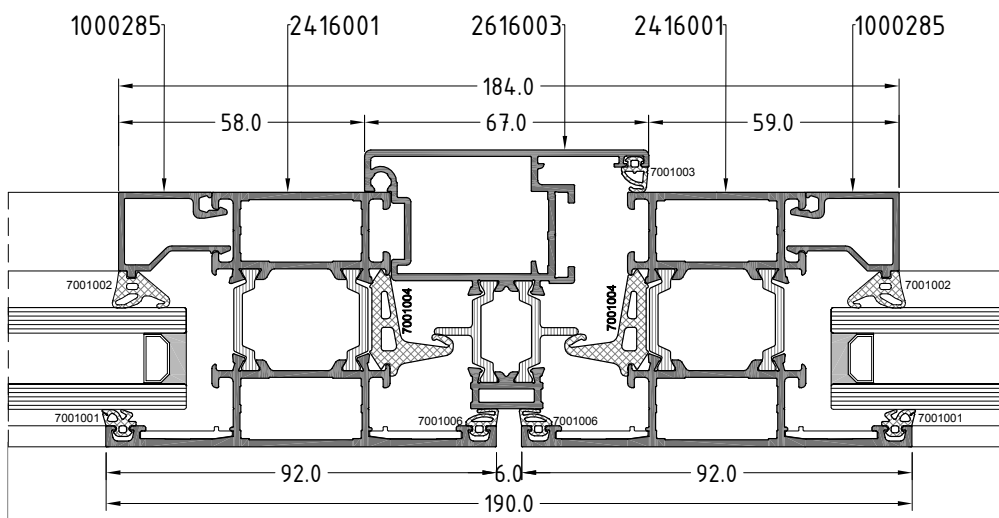


Section A-A

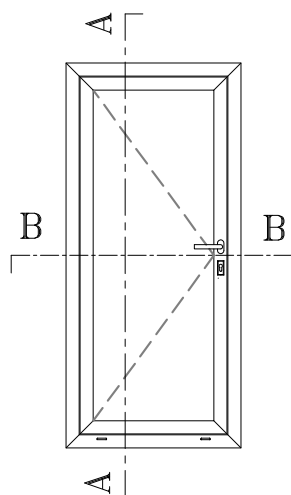




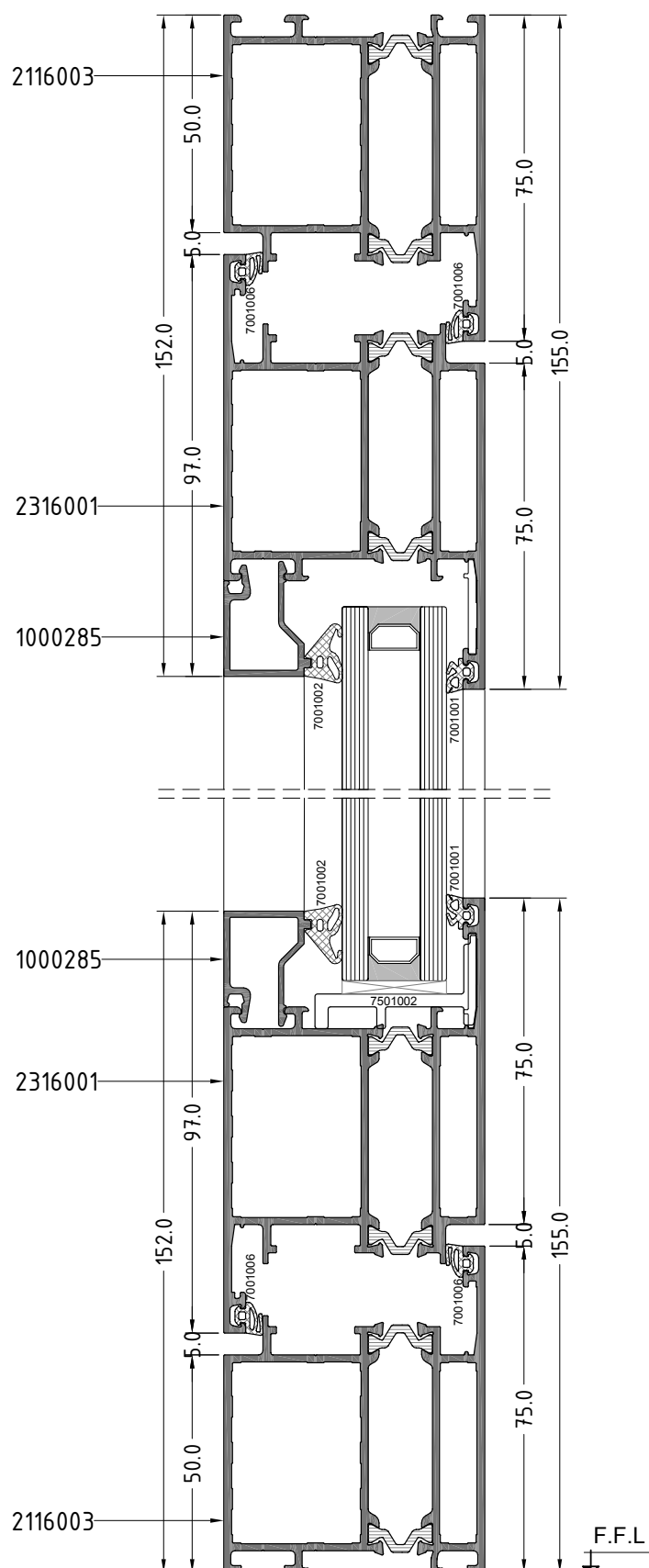
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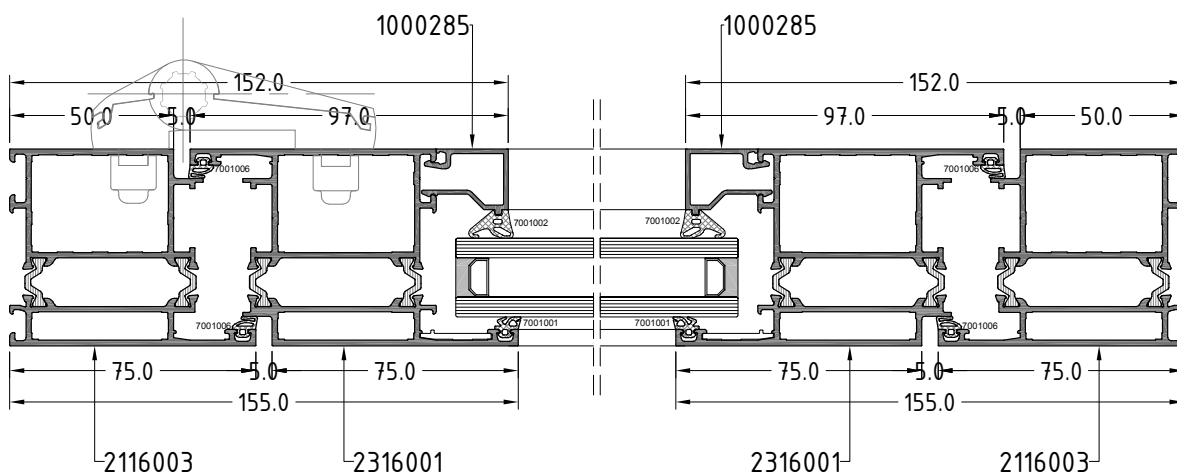
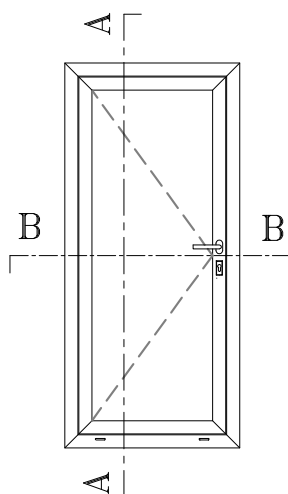


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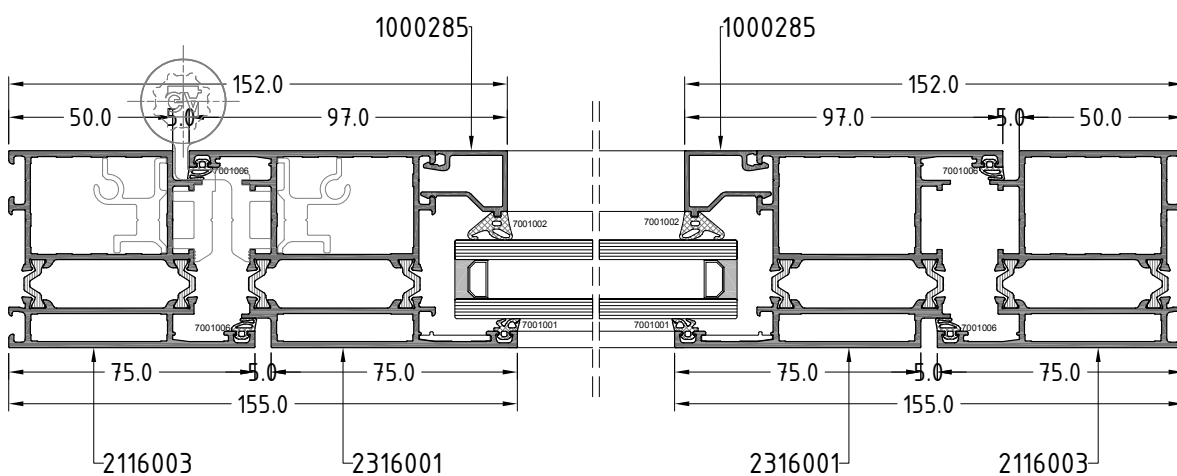
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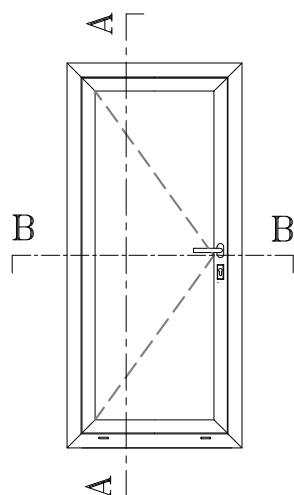
Section B-B

Option 1

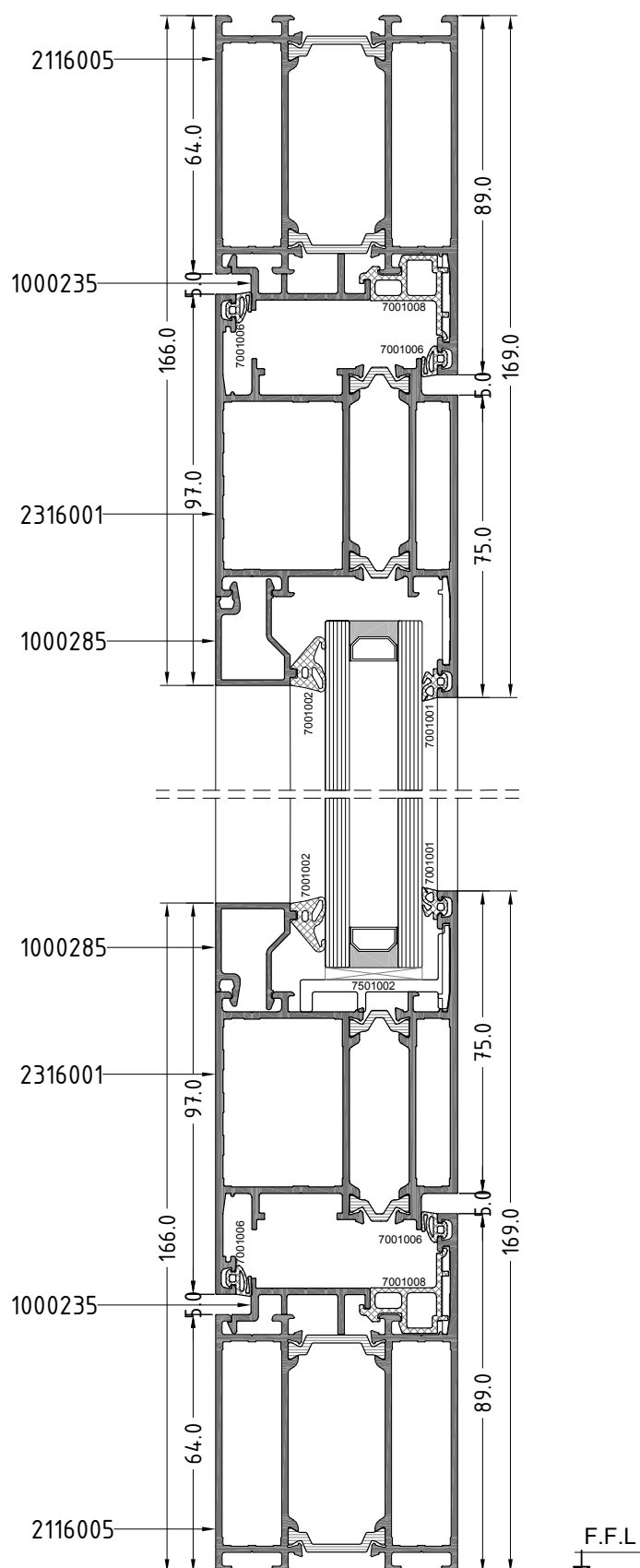


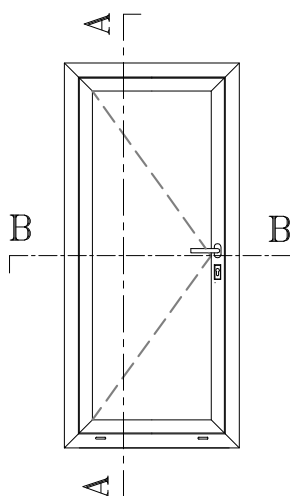
Section B-B

Option 2

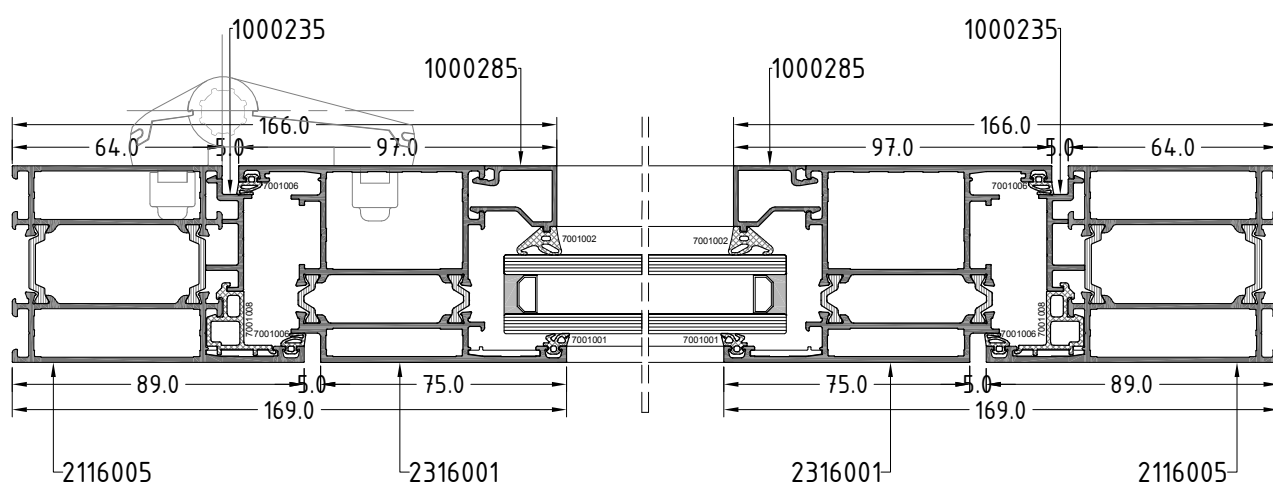


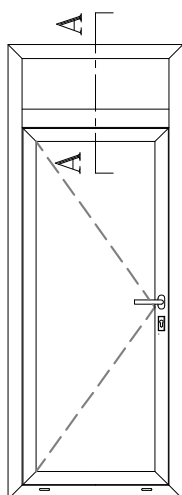
Section A-A



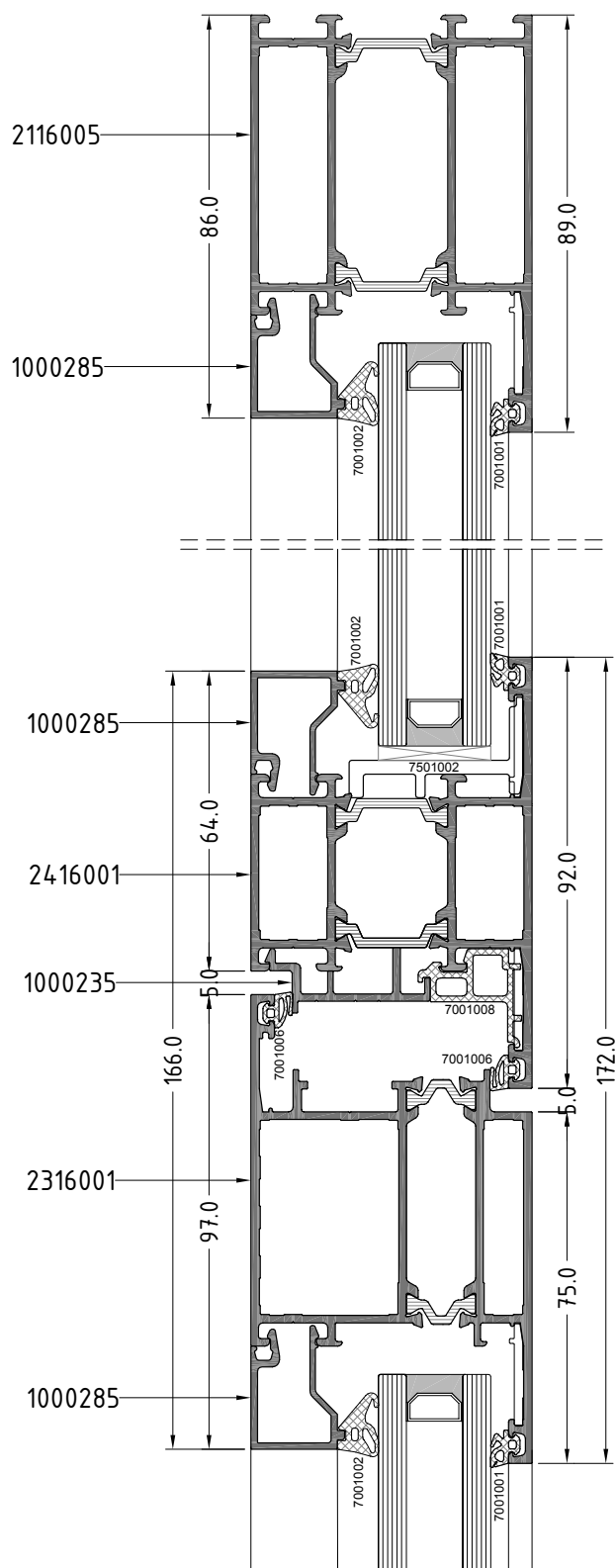


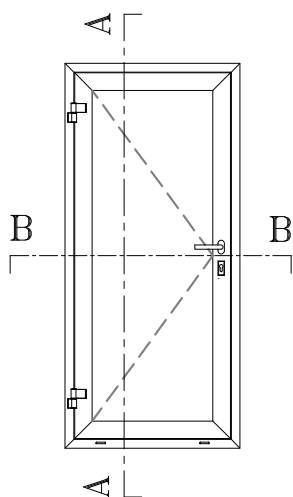
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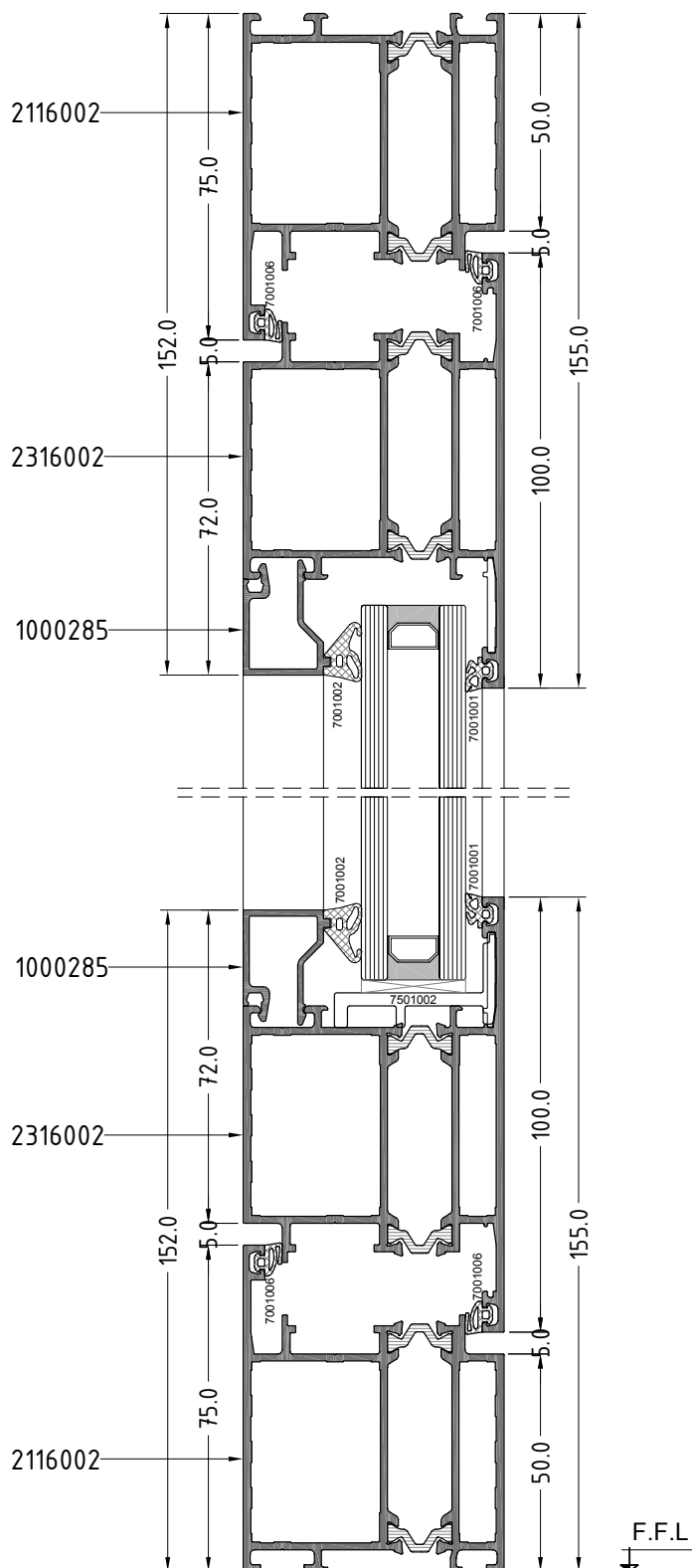


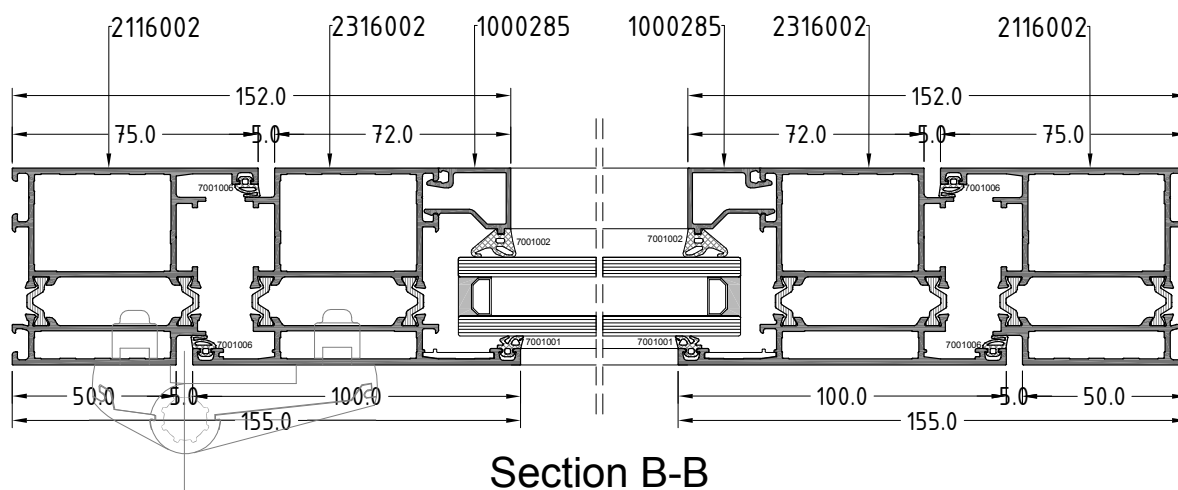
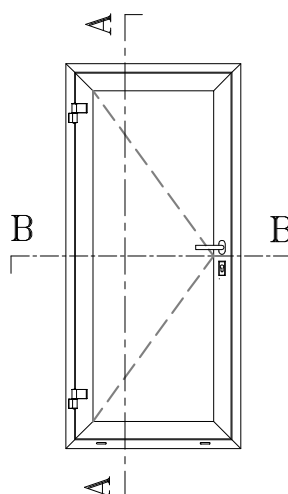
Section A-A





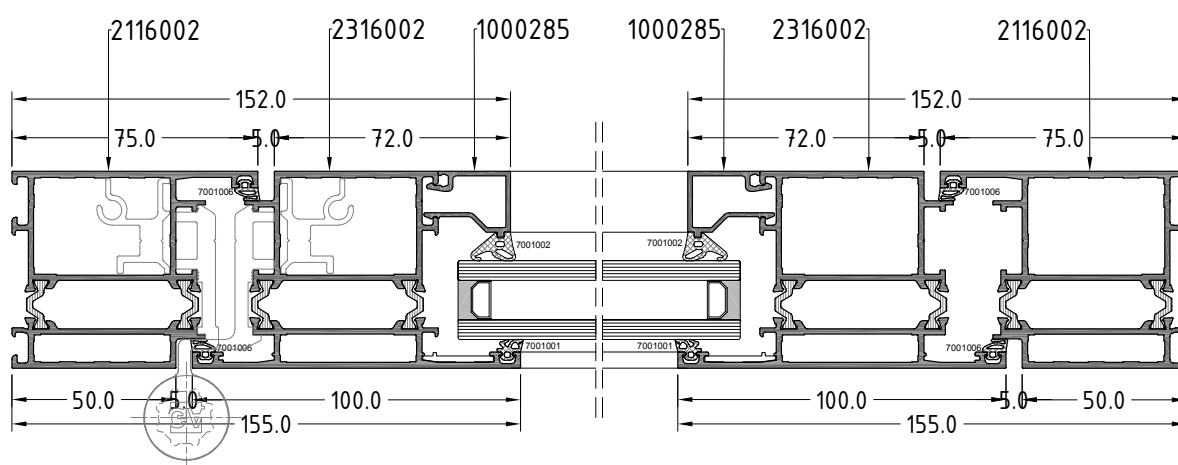
Section A-A





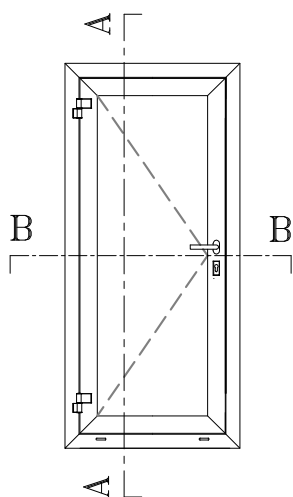
Section B-B

Option 1

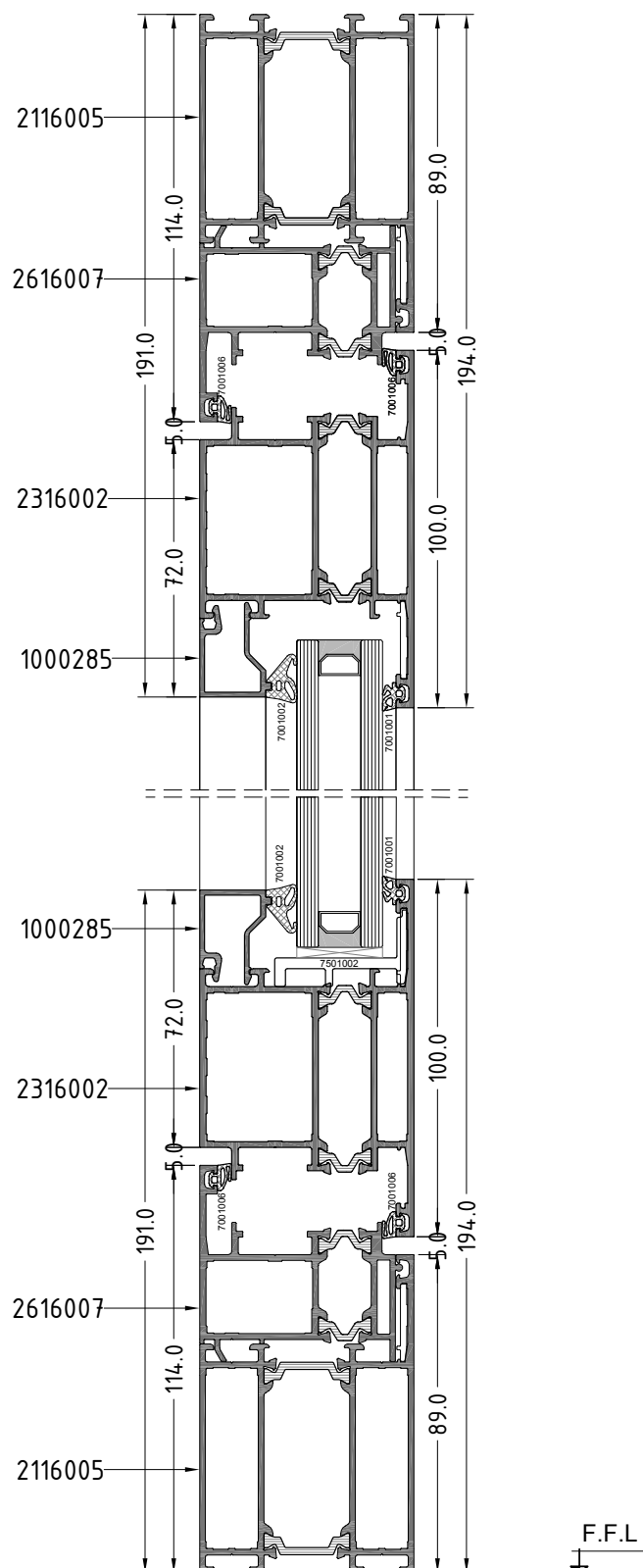


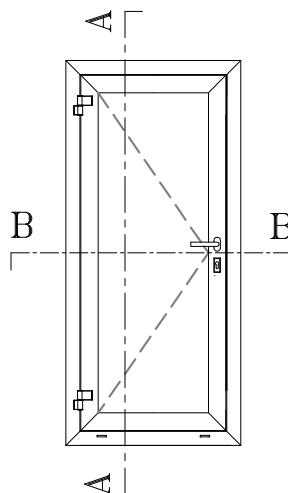
Section B-B

Option 2

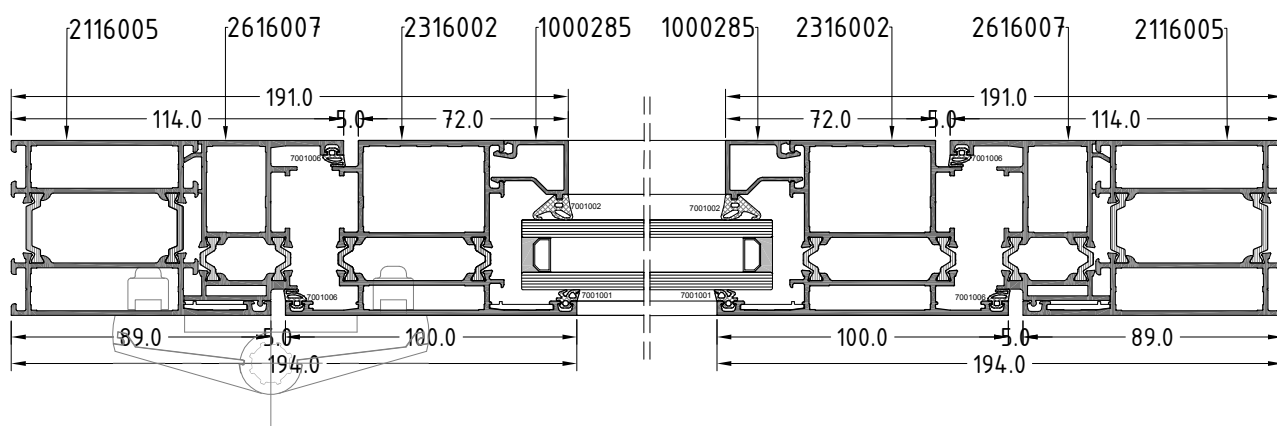


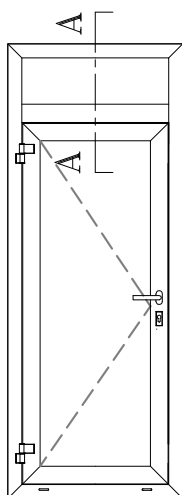
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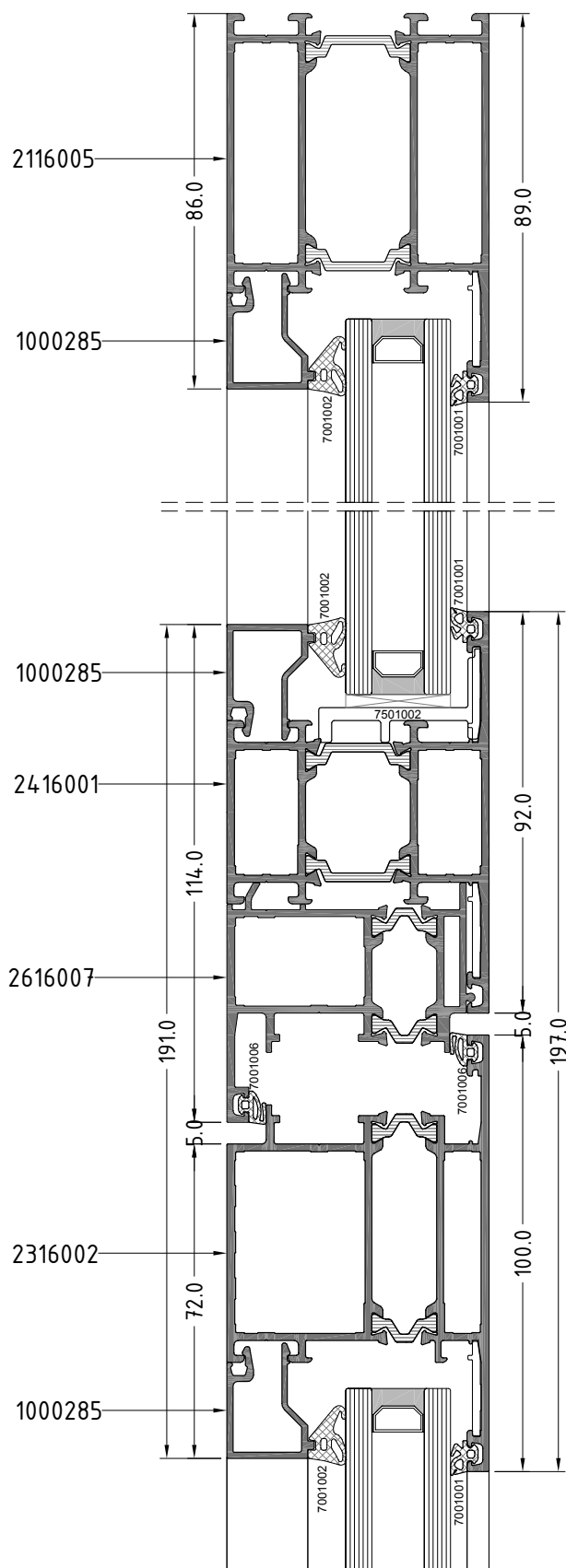


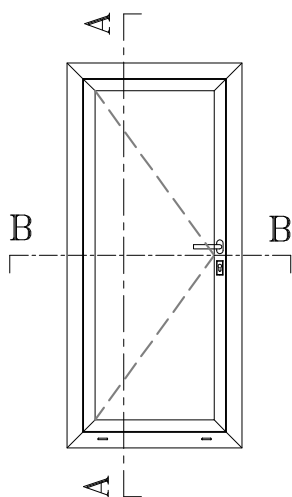
Section A-A



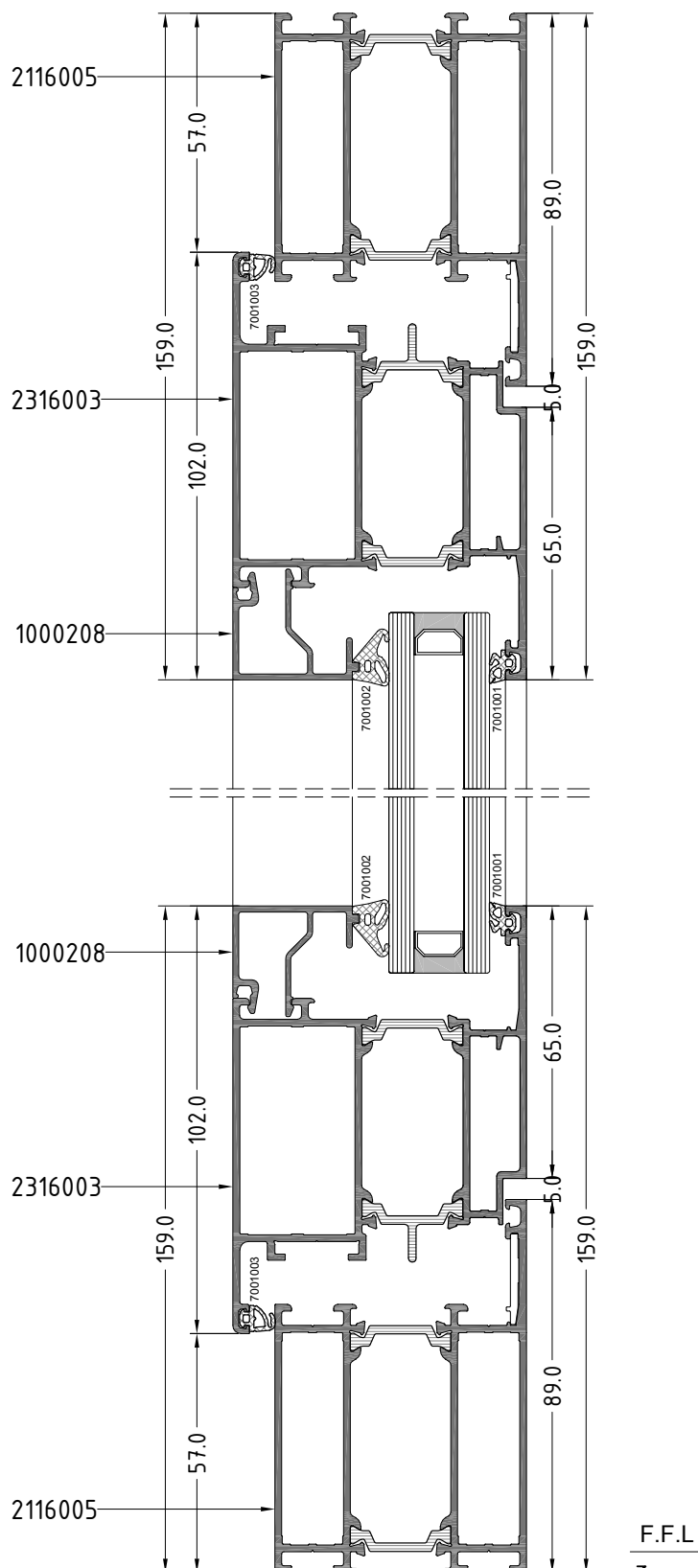


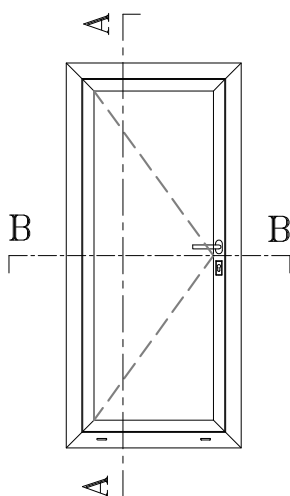
Section A-A



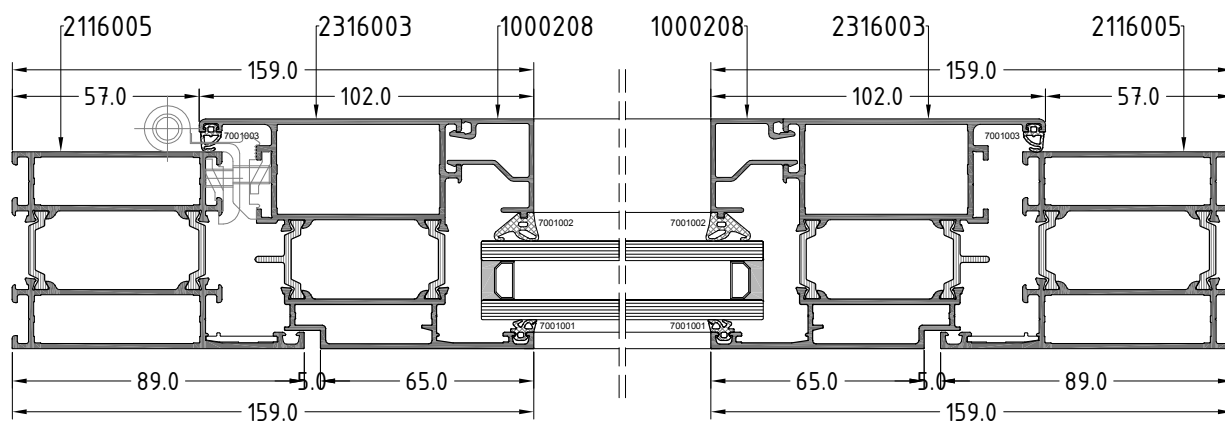


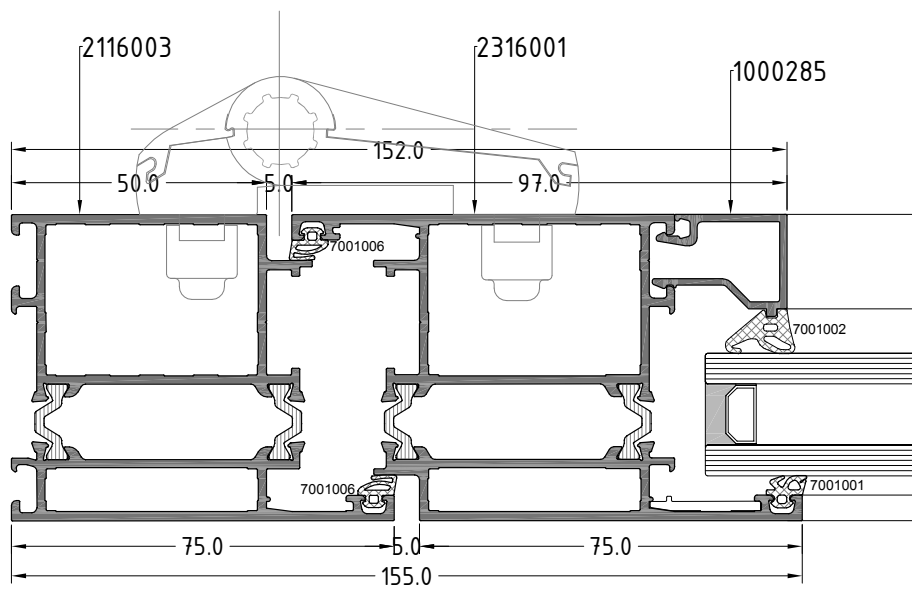
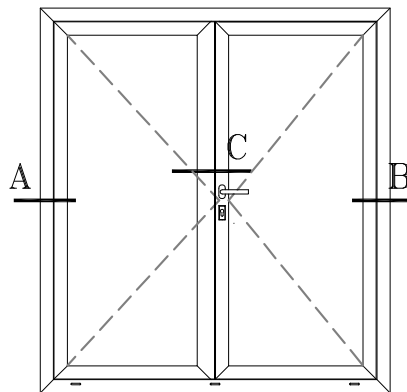
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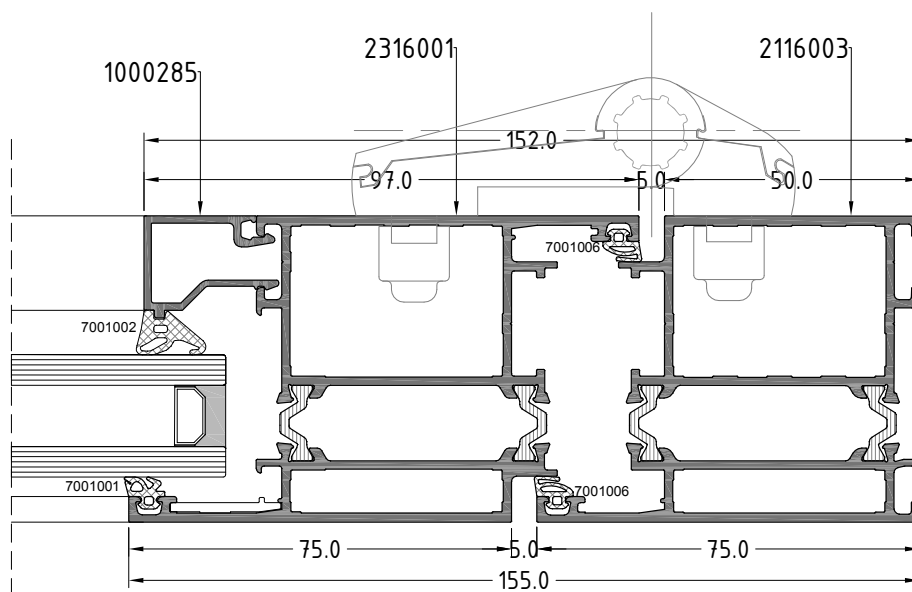


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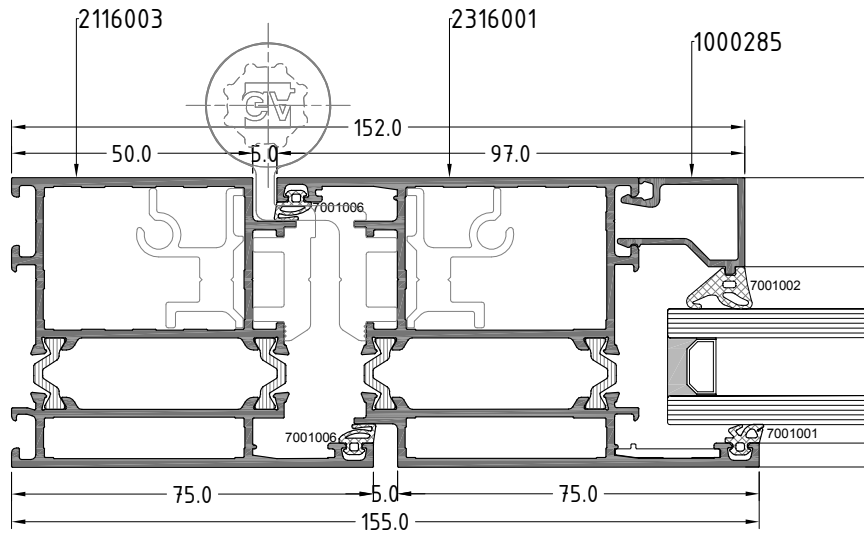
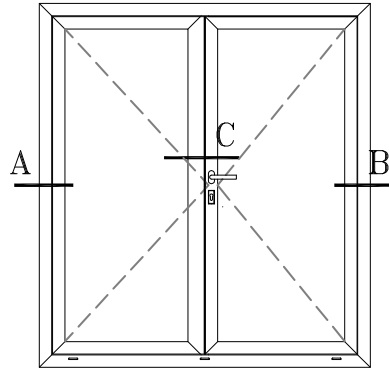




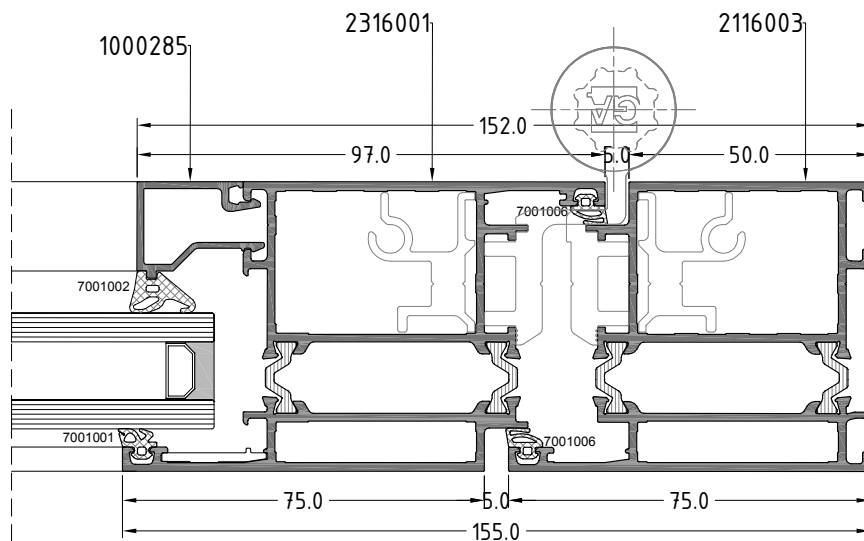
Section A .Option 1



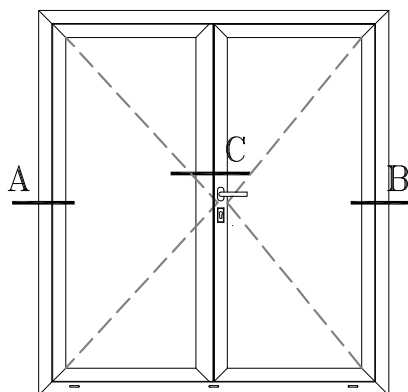
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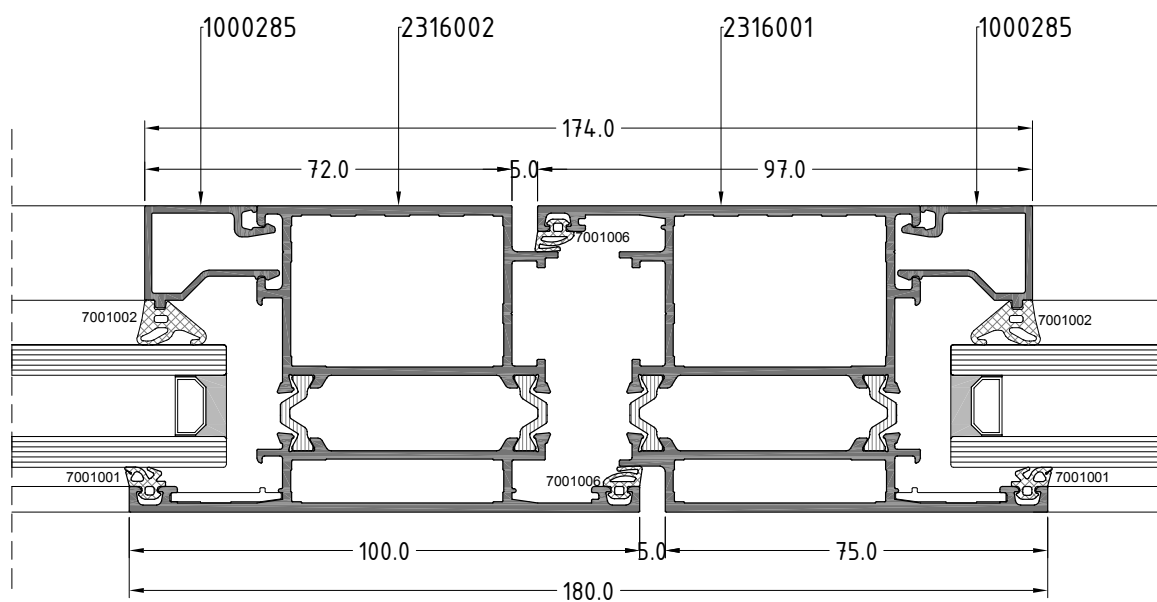
Section A .Option 2

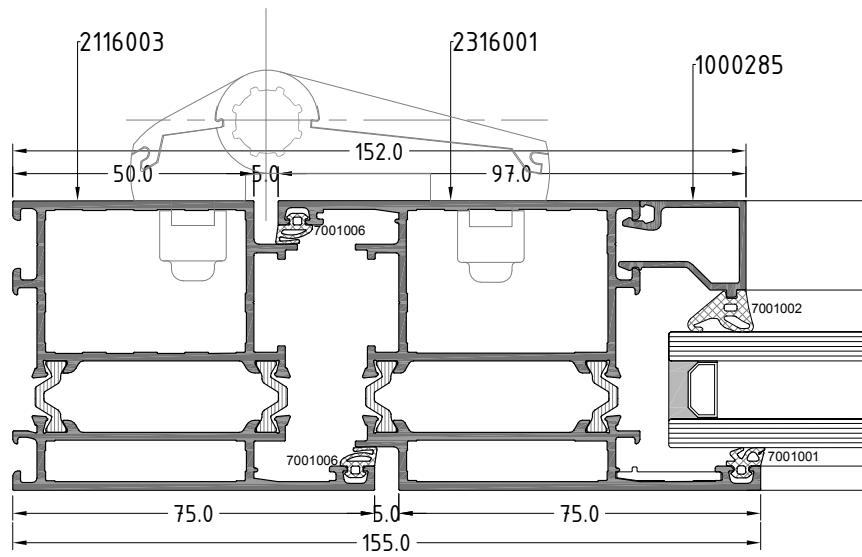
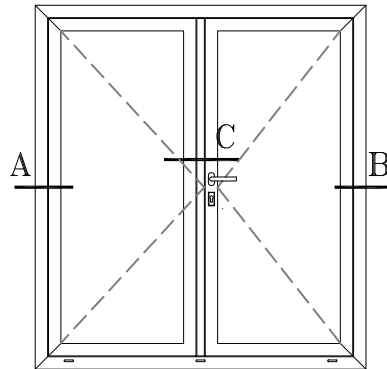


Section B .Option 2

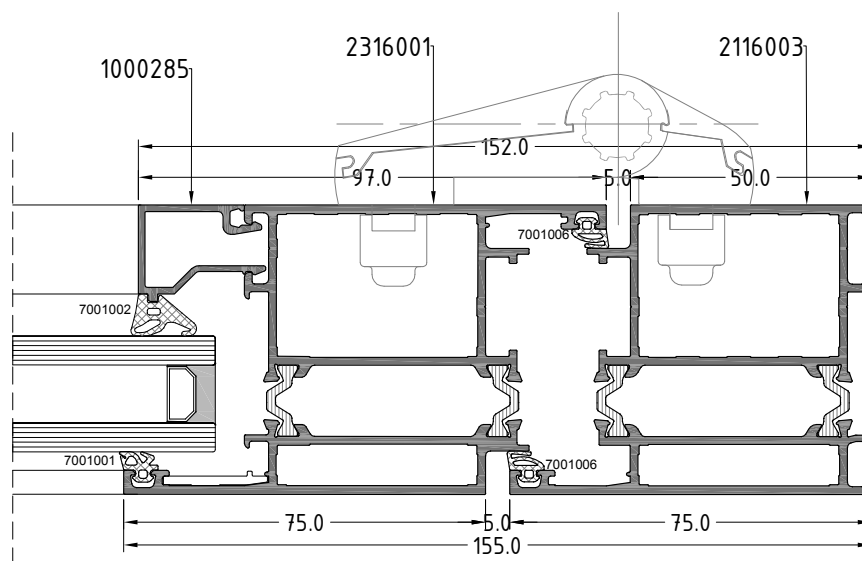


Section C

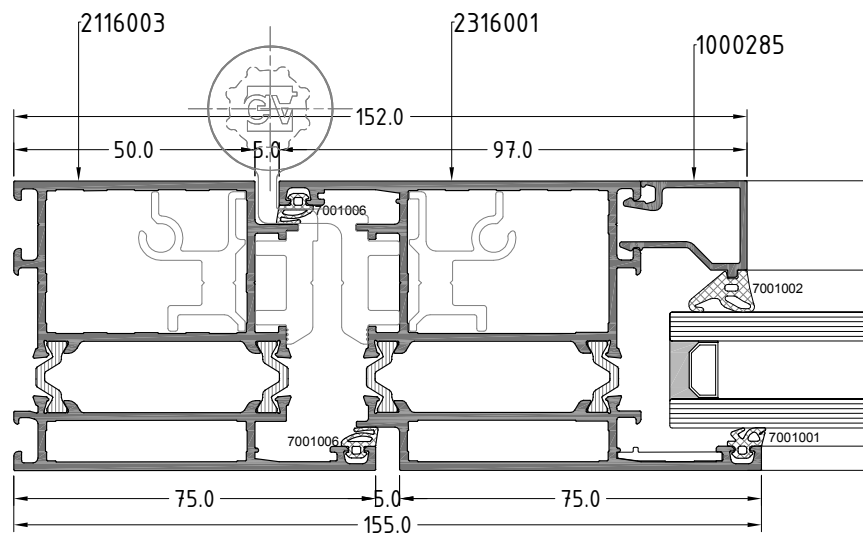
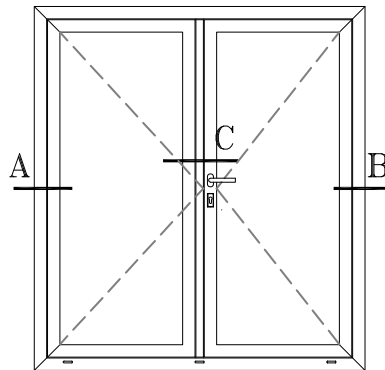




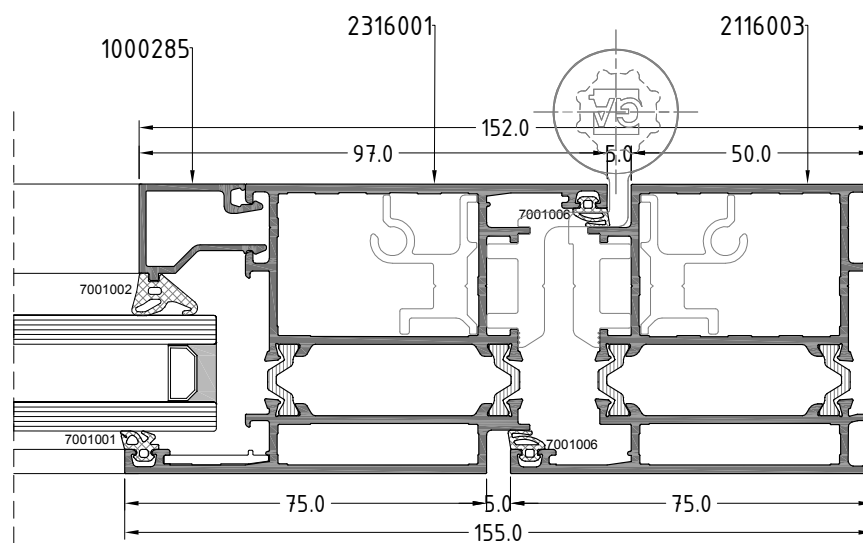
Section A .Option 1



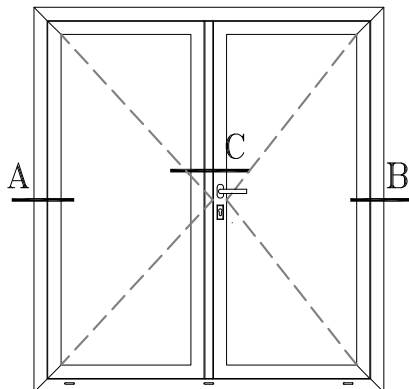
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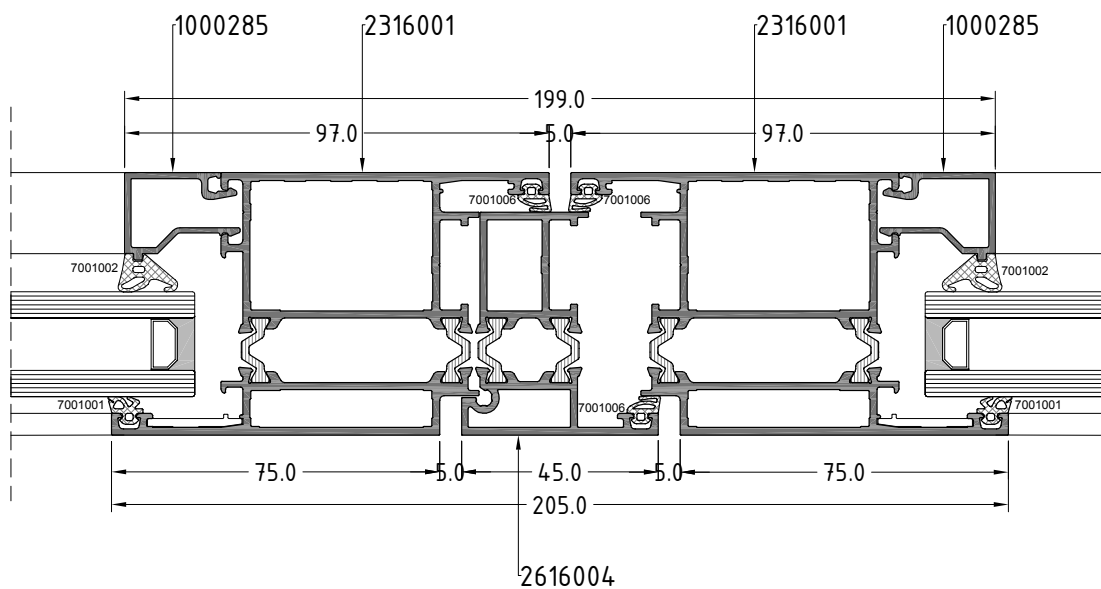
Section A .Option 2

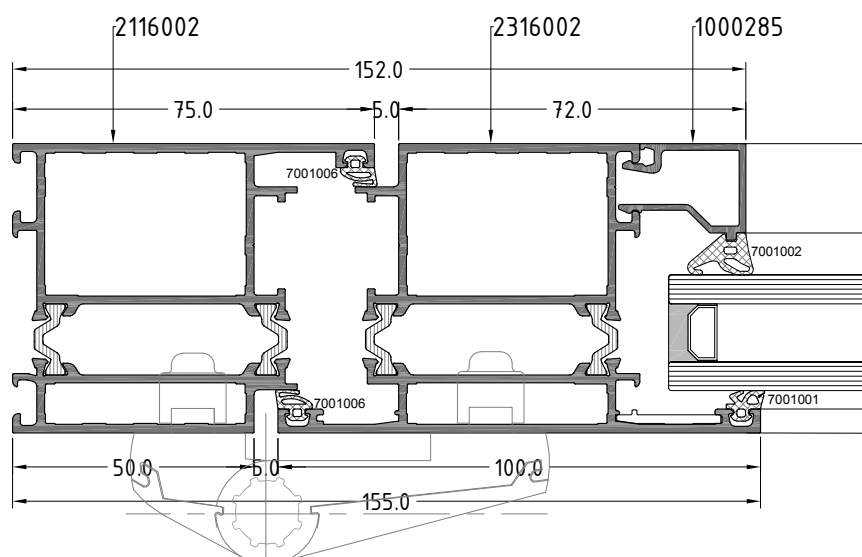
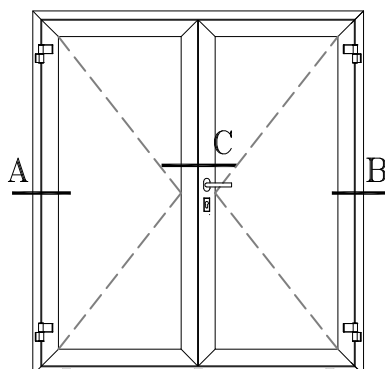


Section B .Option 2

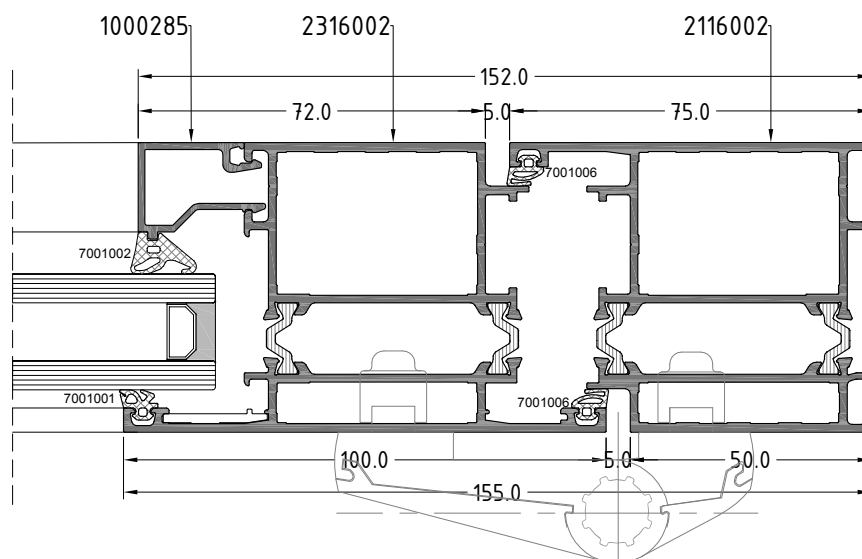


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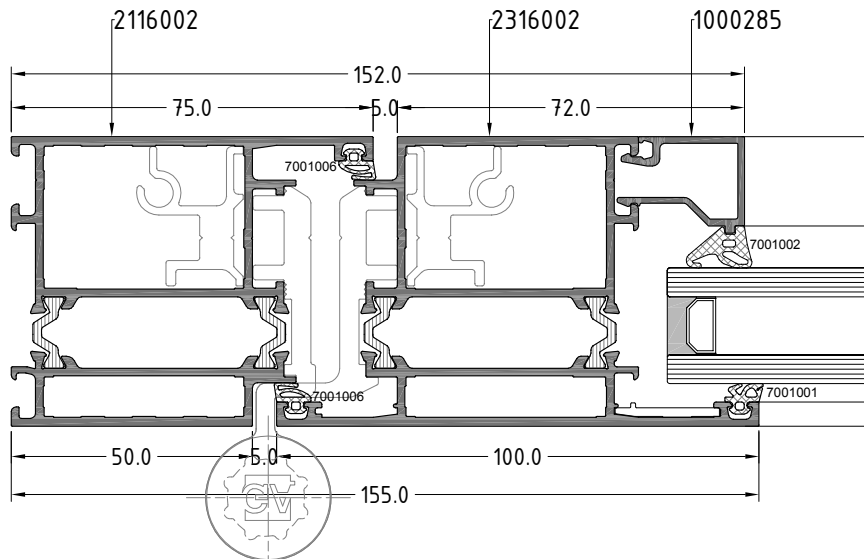
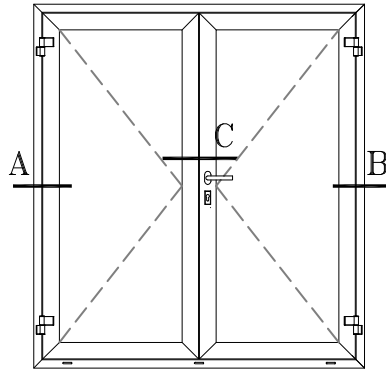




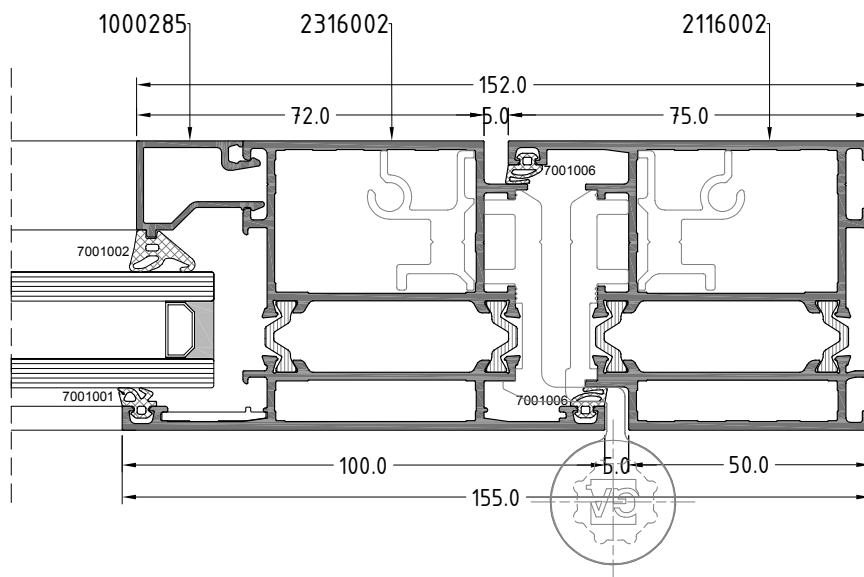
Section A .Option 1



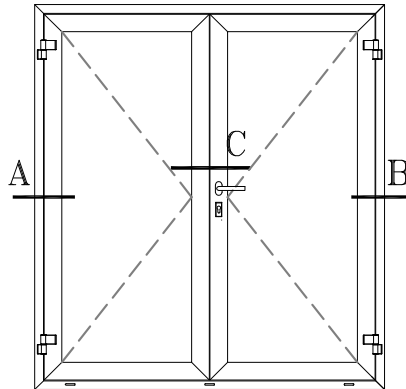
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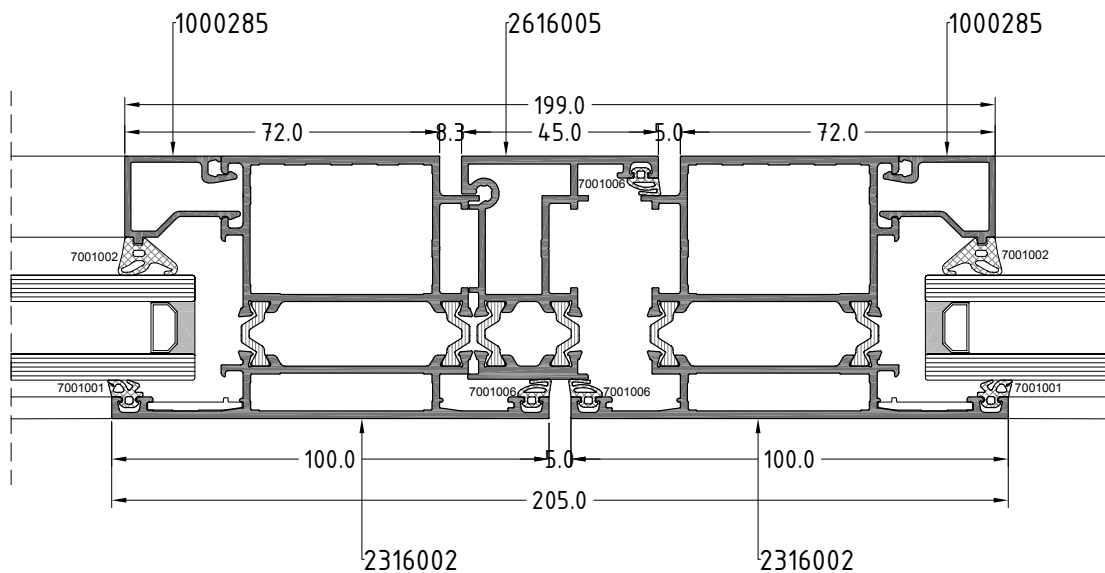
Section A .Option 2

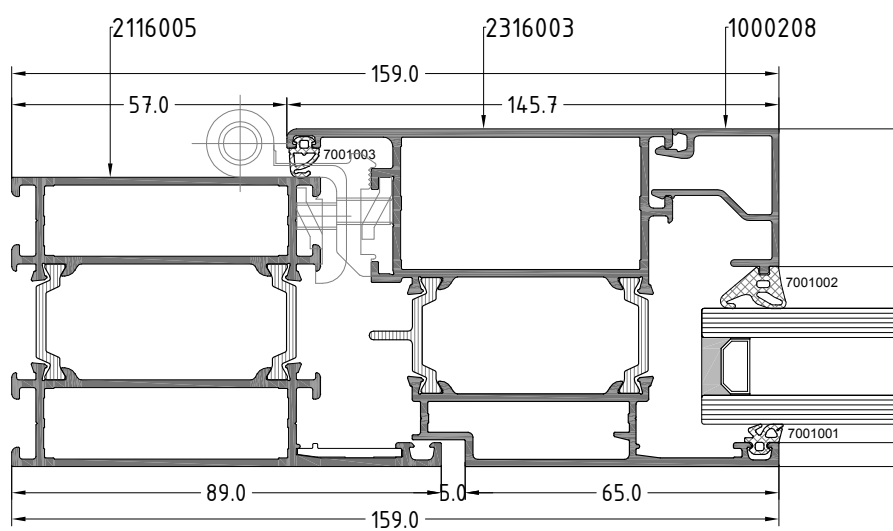
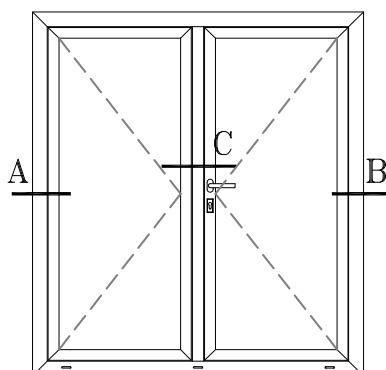


Section B .Option 2

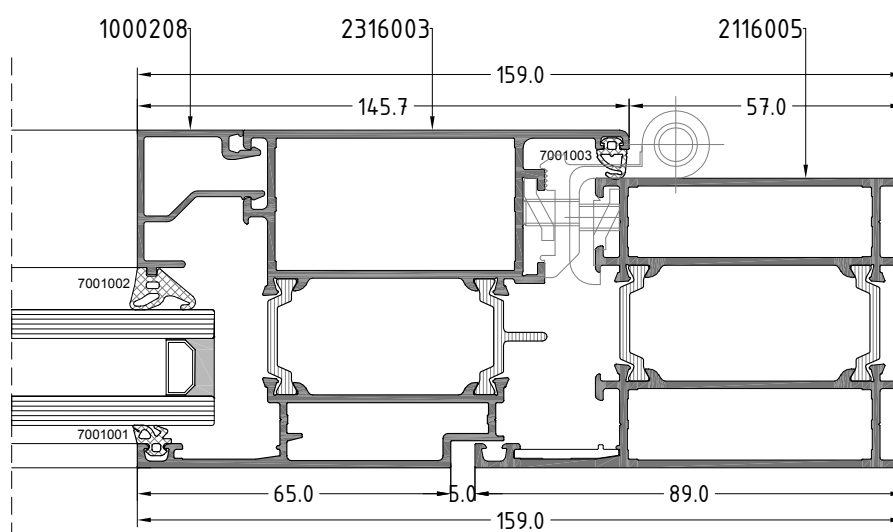


Section C

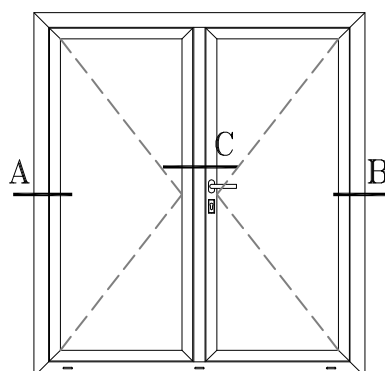




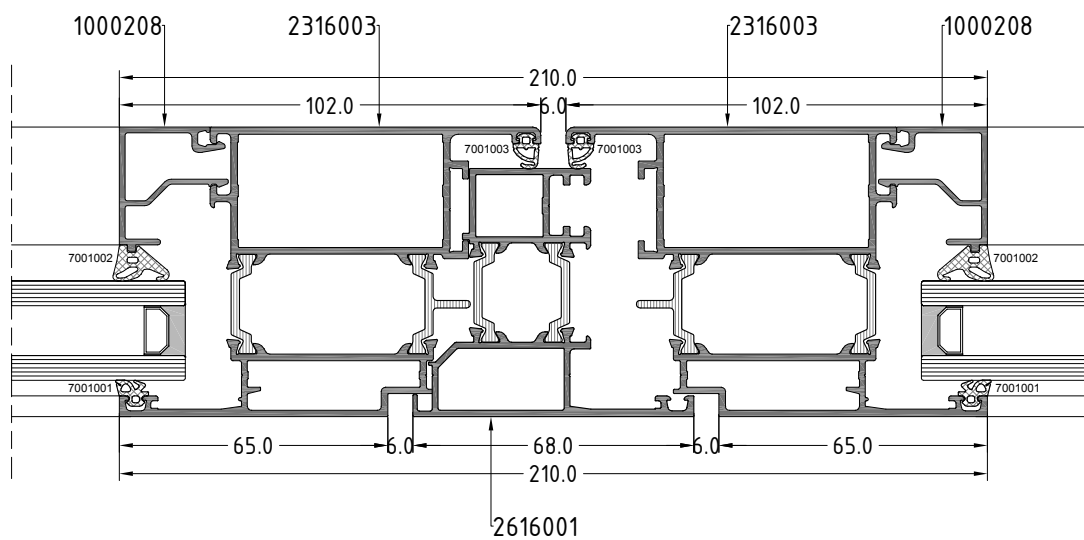
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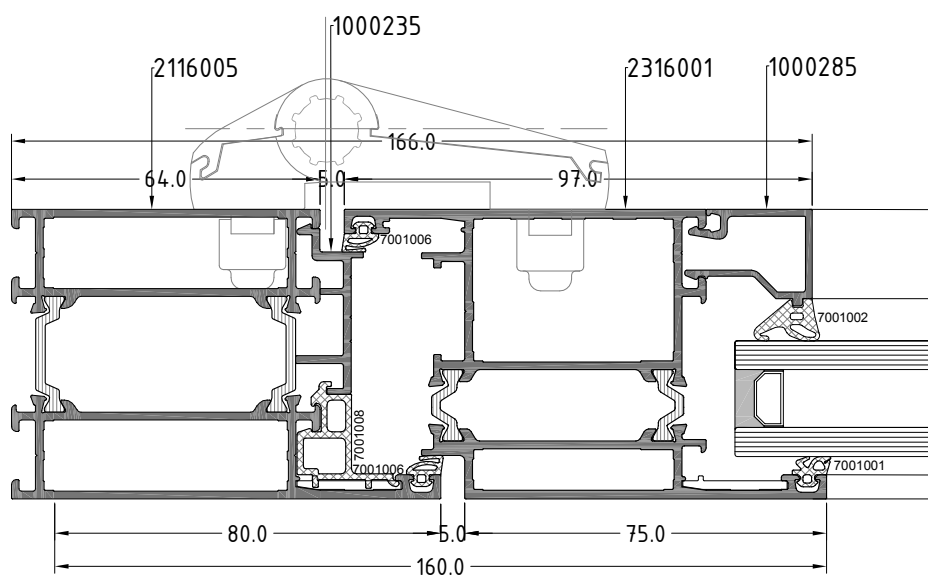
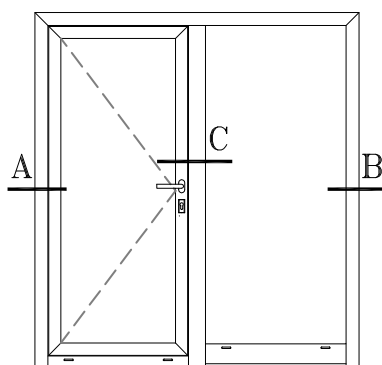


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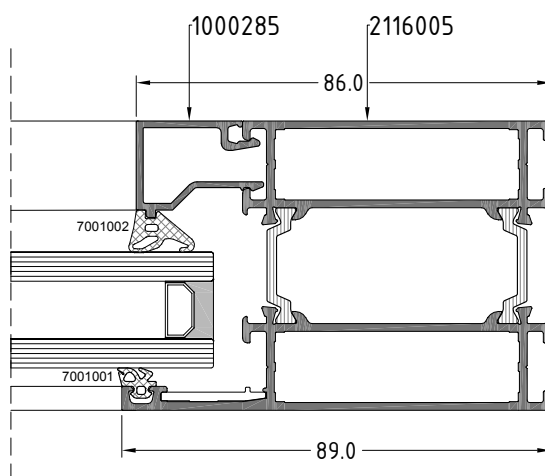


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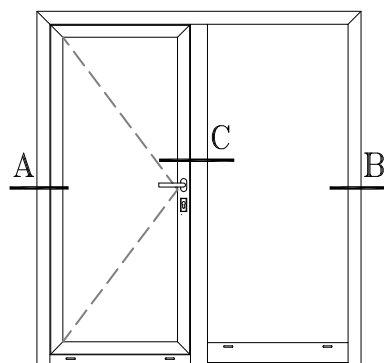




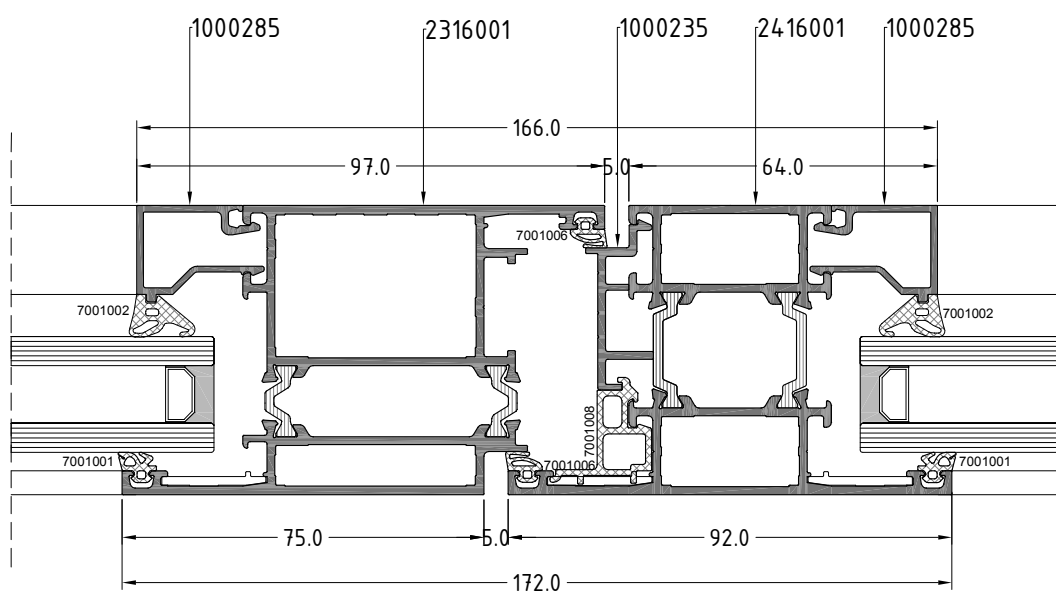
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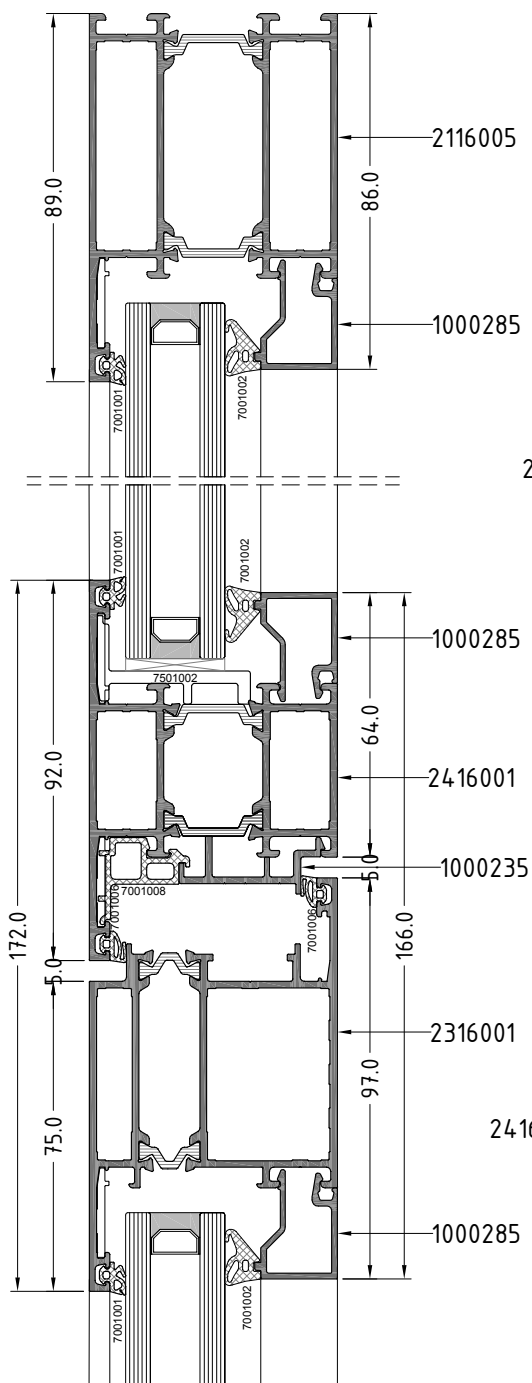


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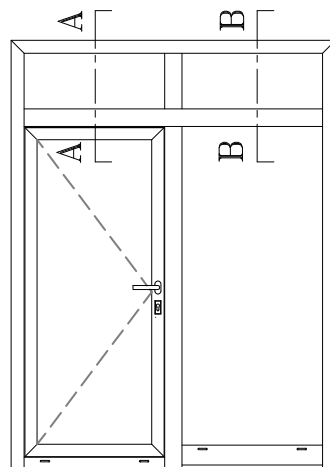


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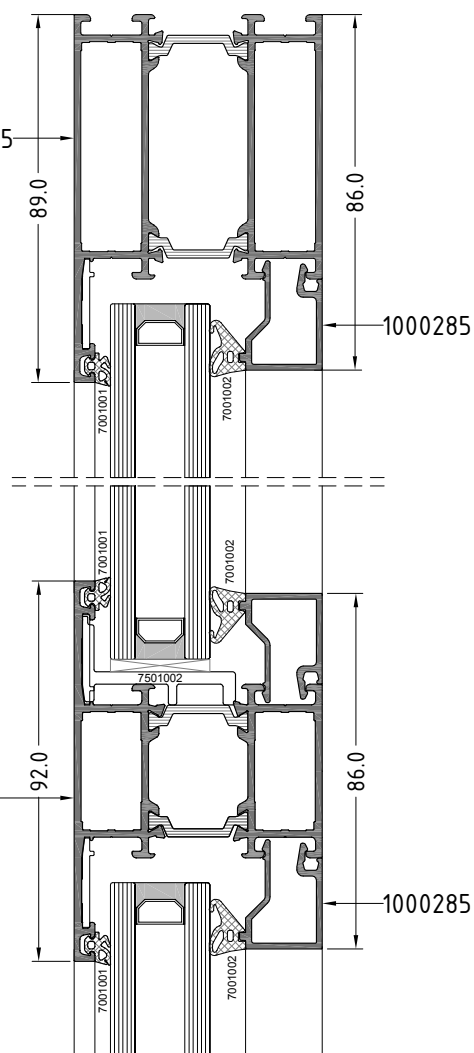


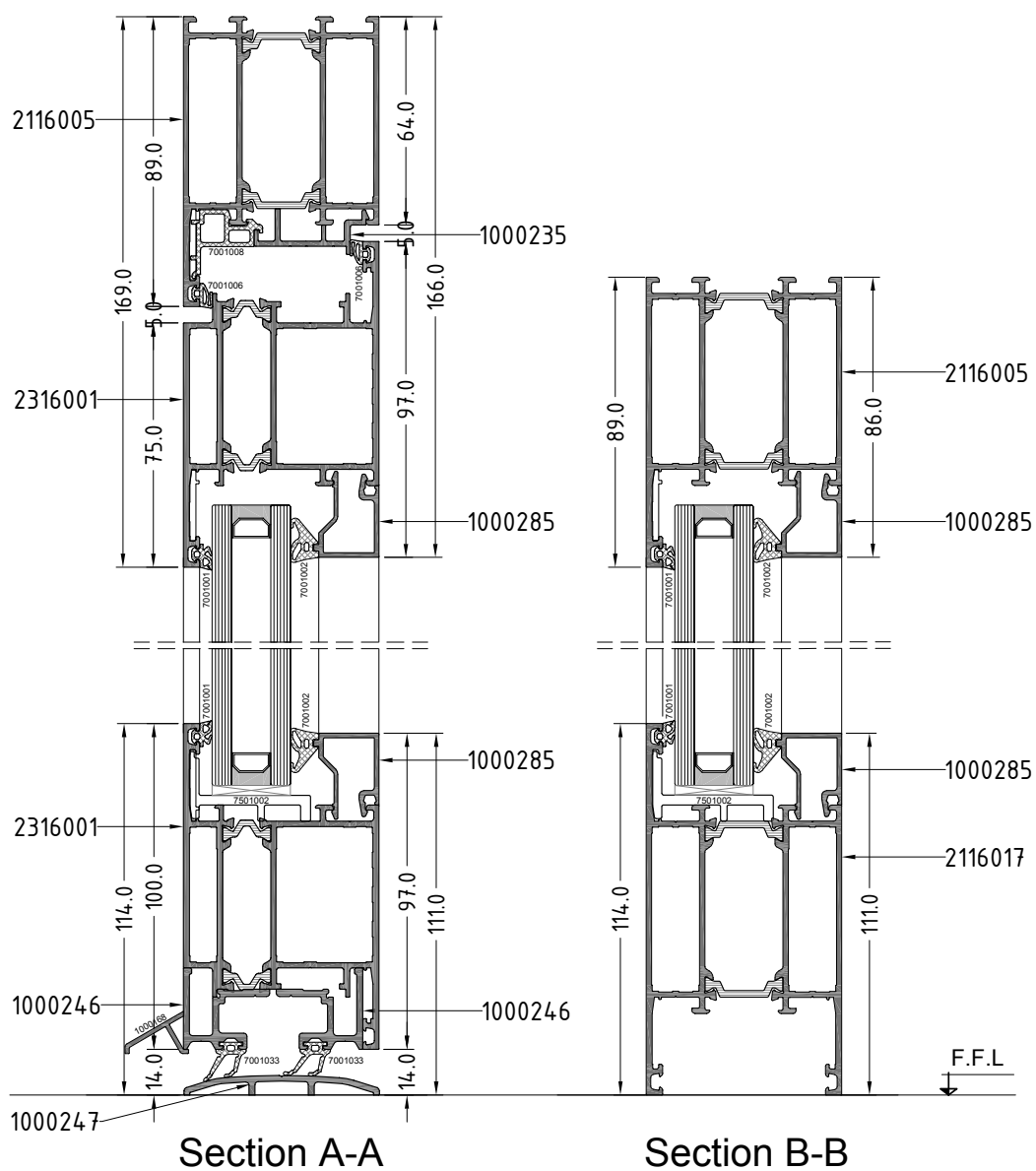
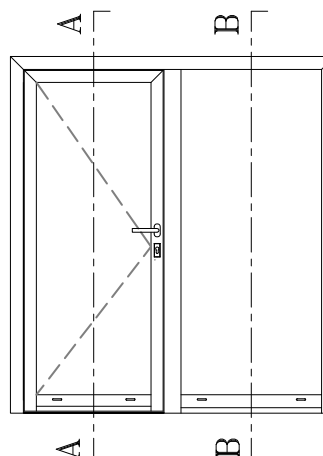


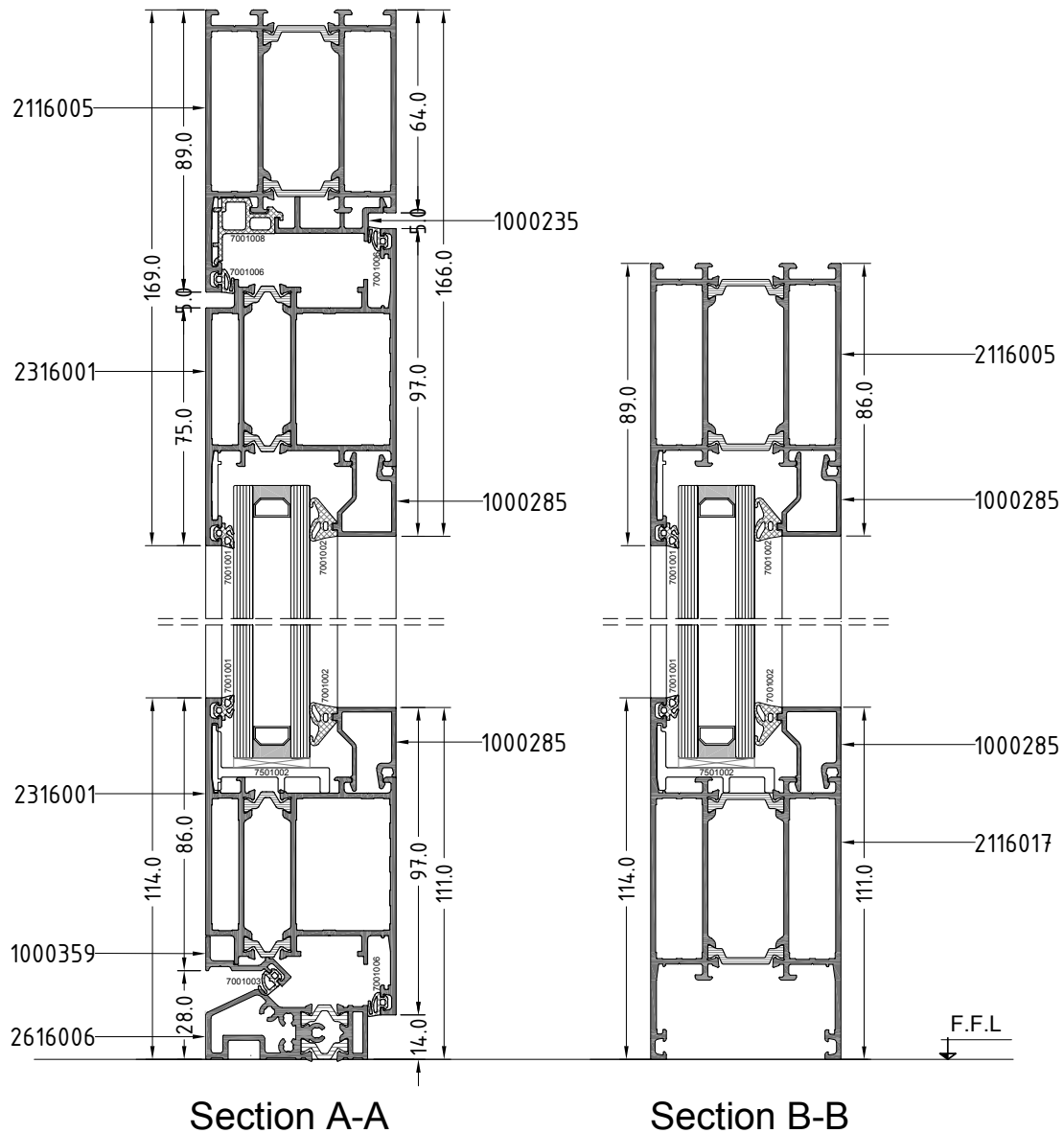
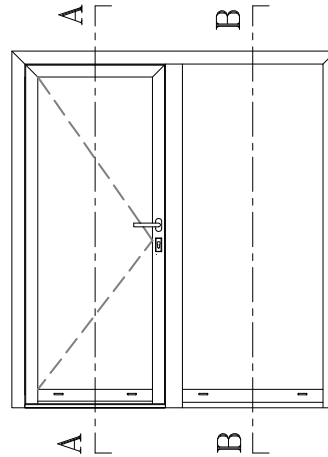
Section A-A

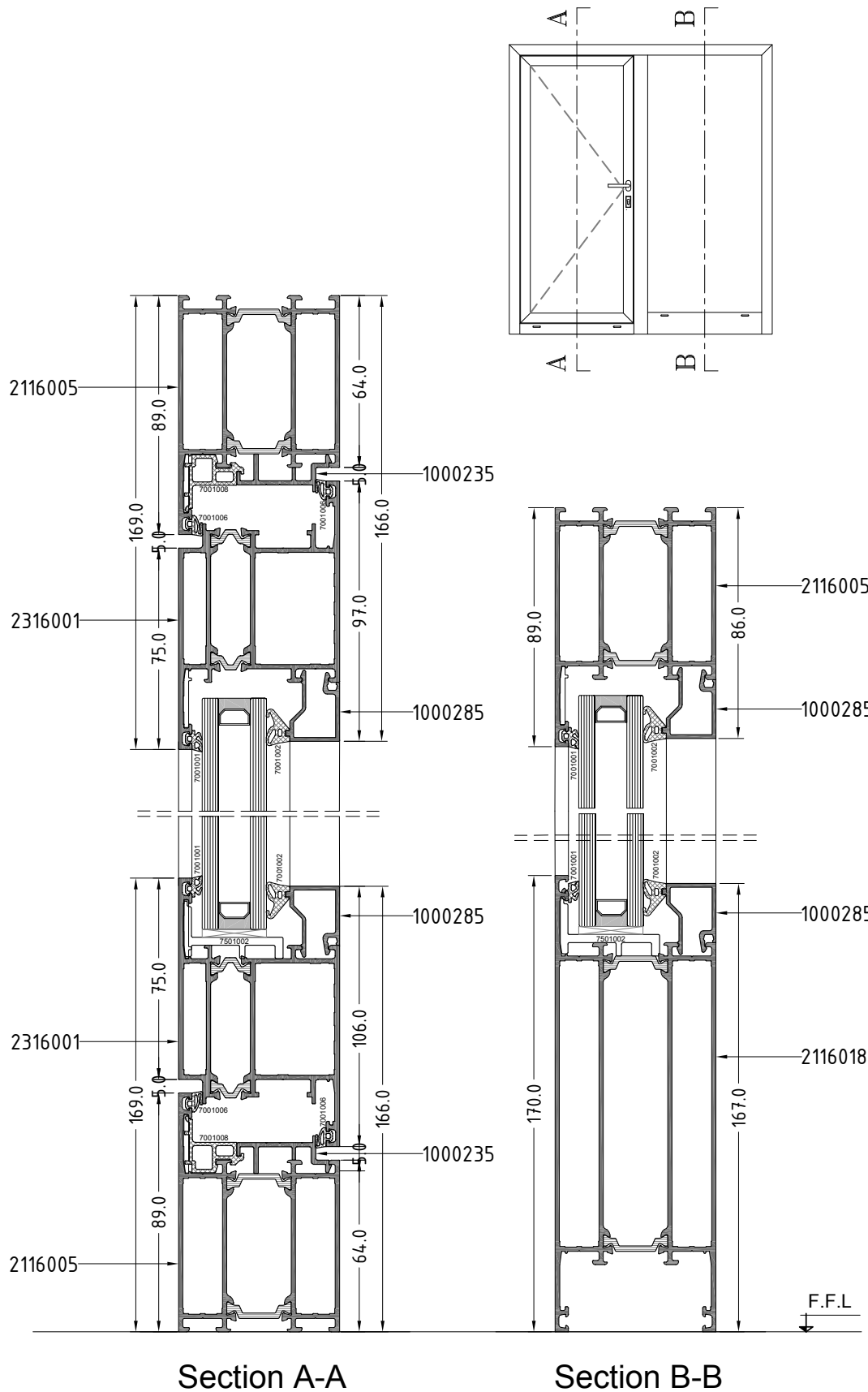


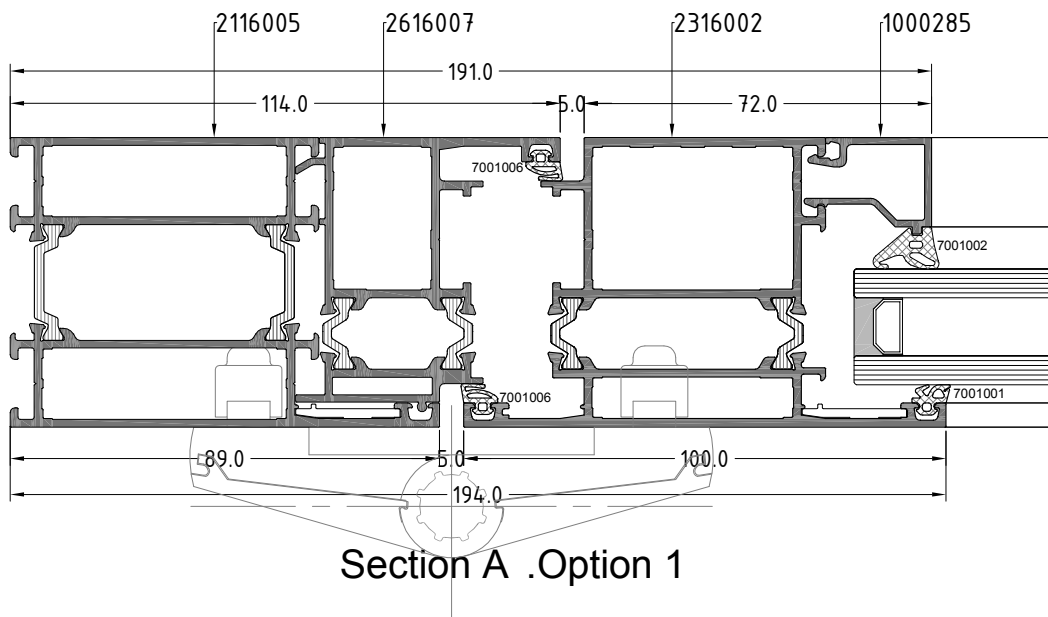
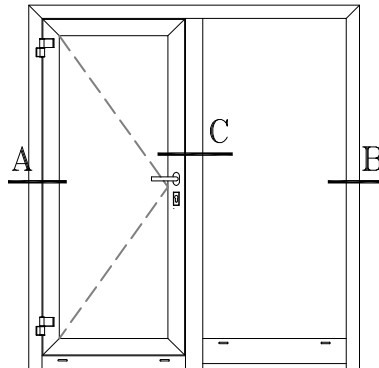
Section B-B



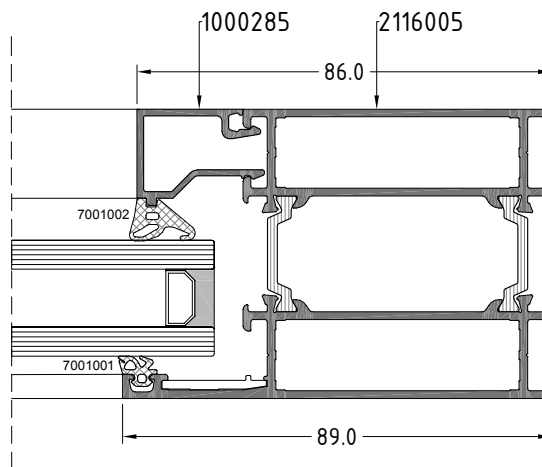




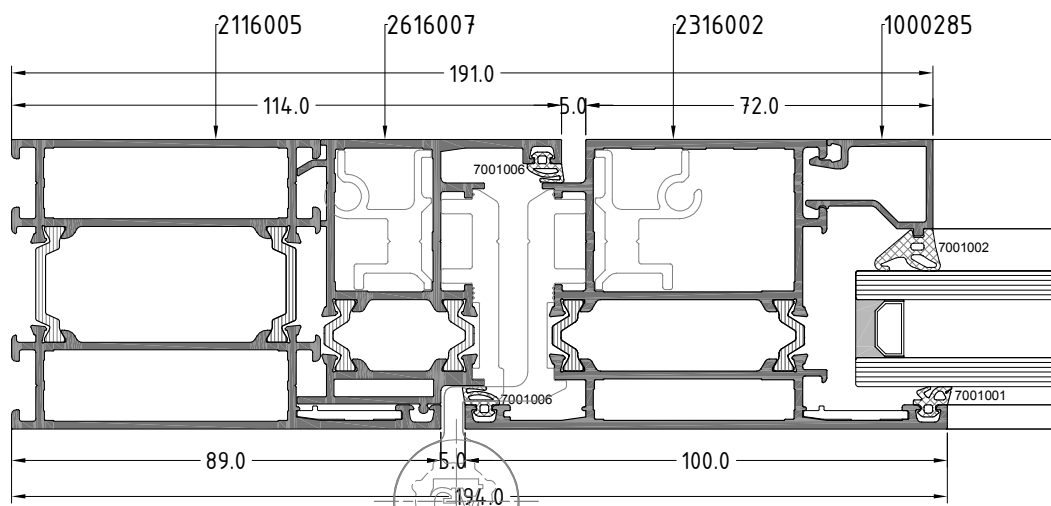
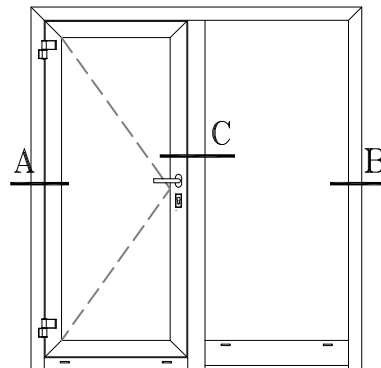




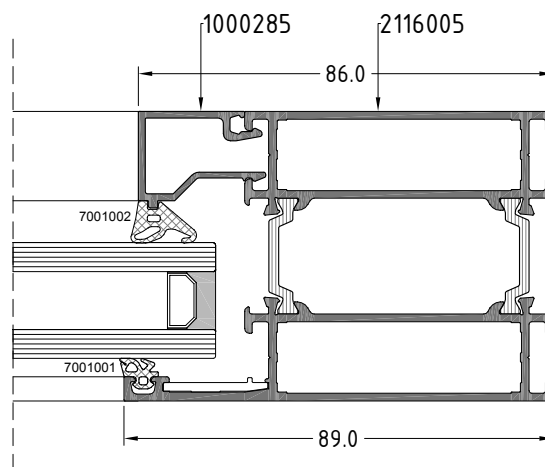
Section A .Option 1



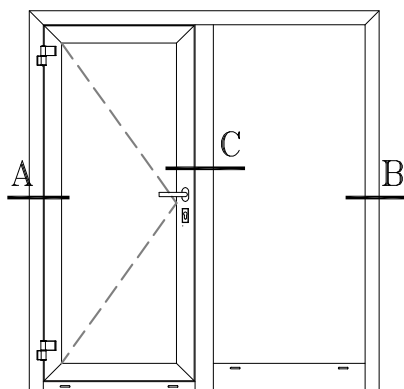
Section B



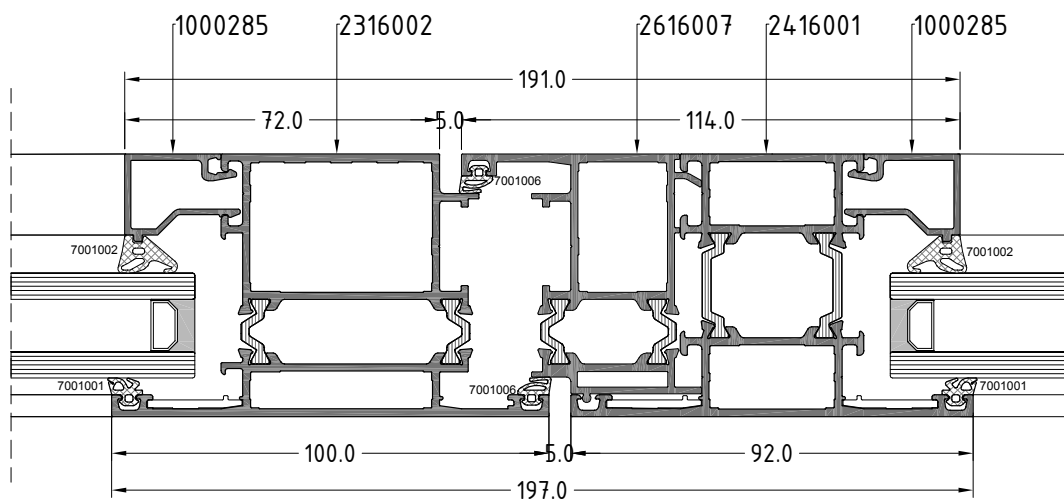
Section A .Option 2

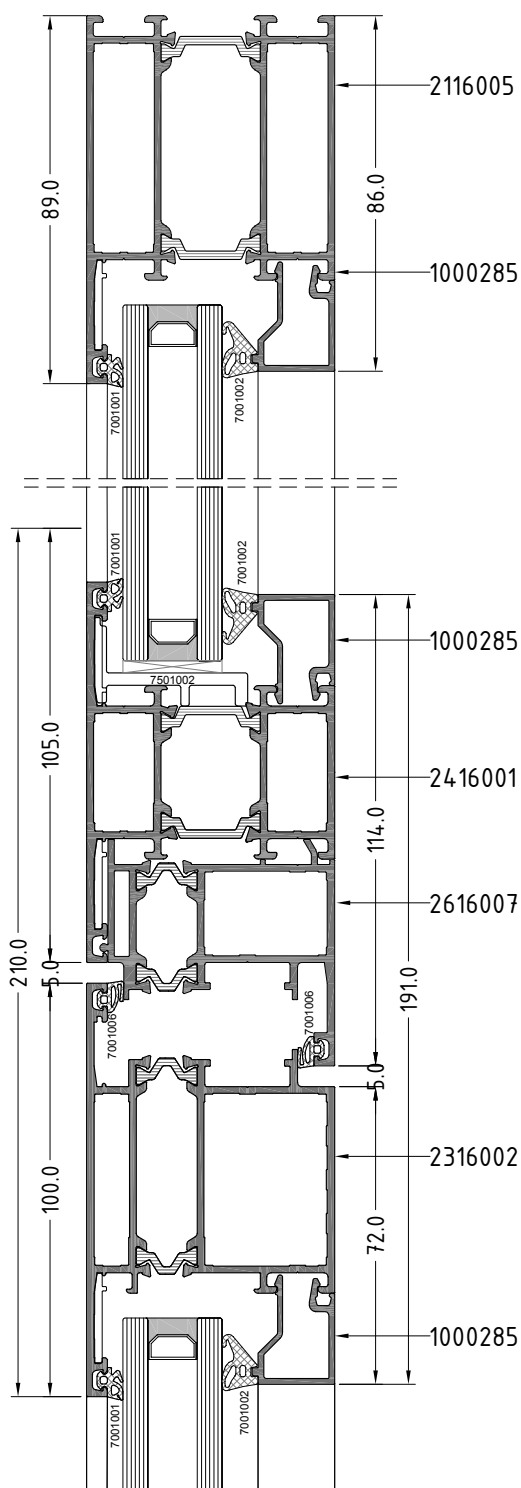


Section B

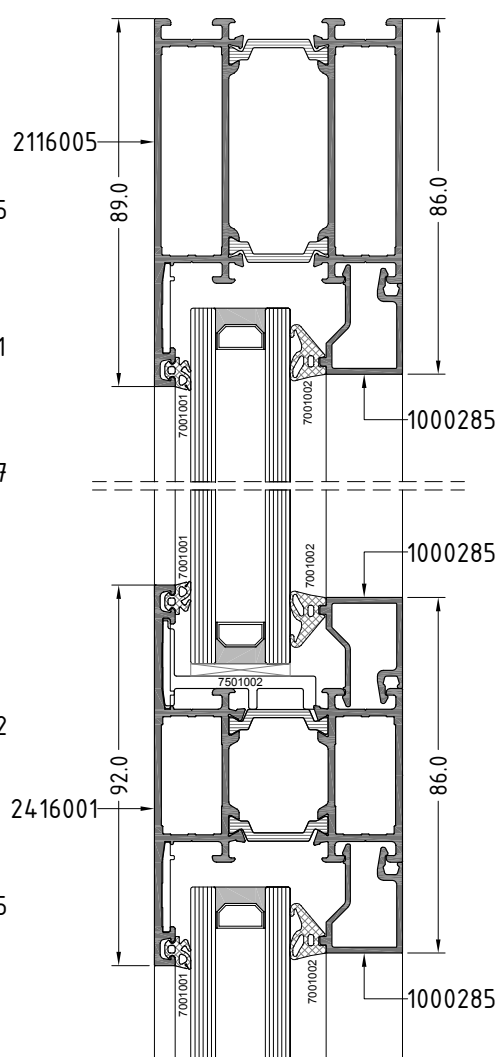
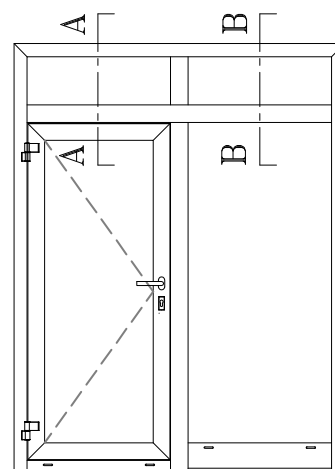


Section C

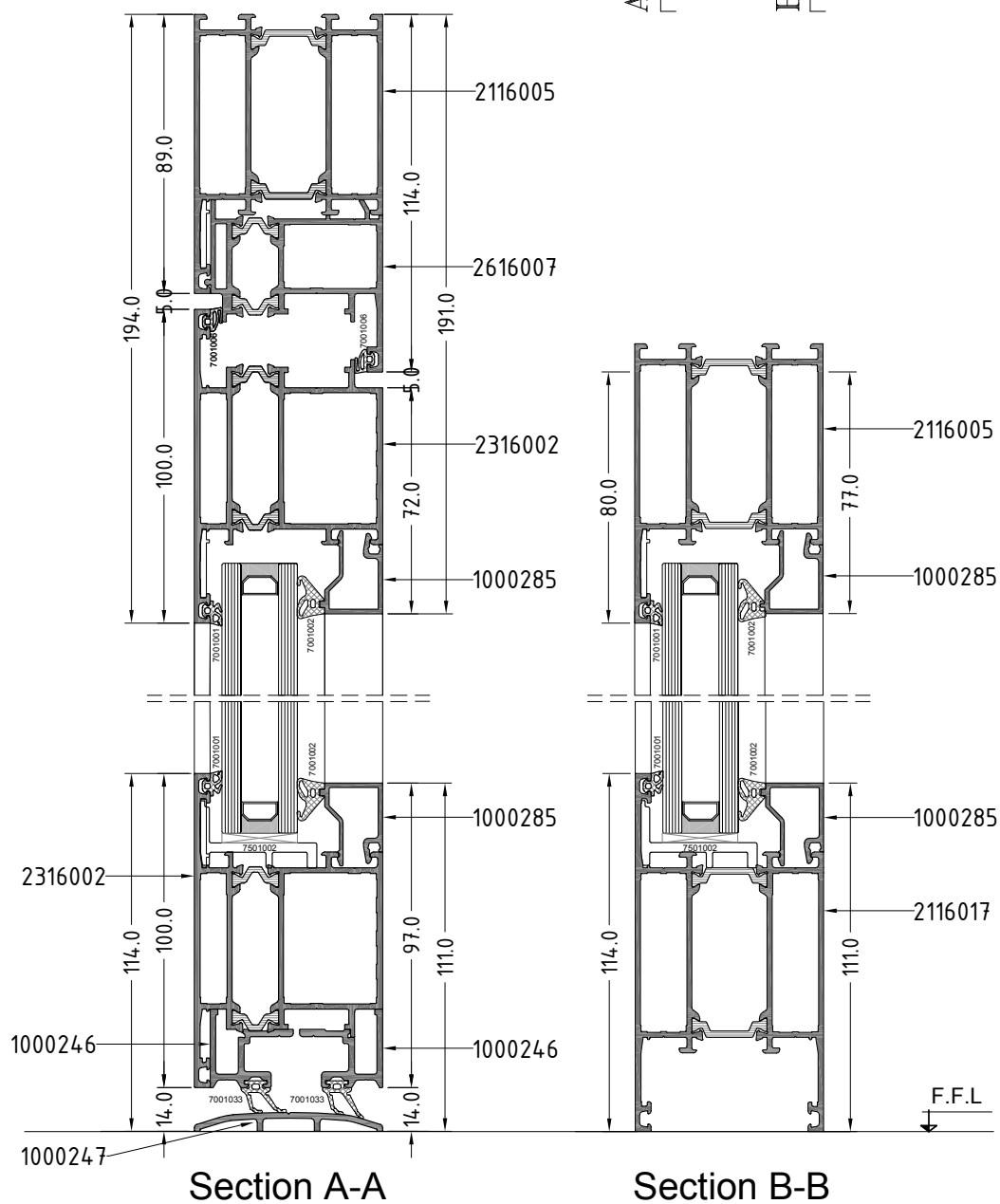
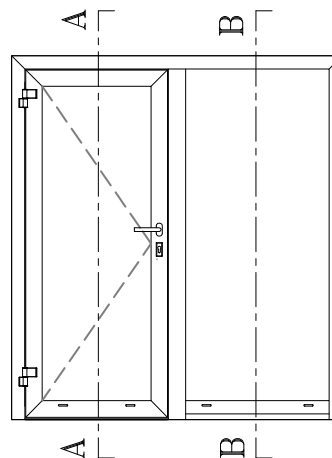


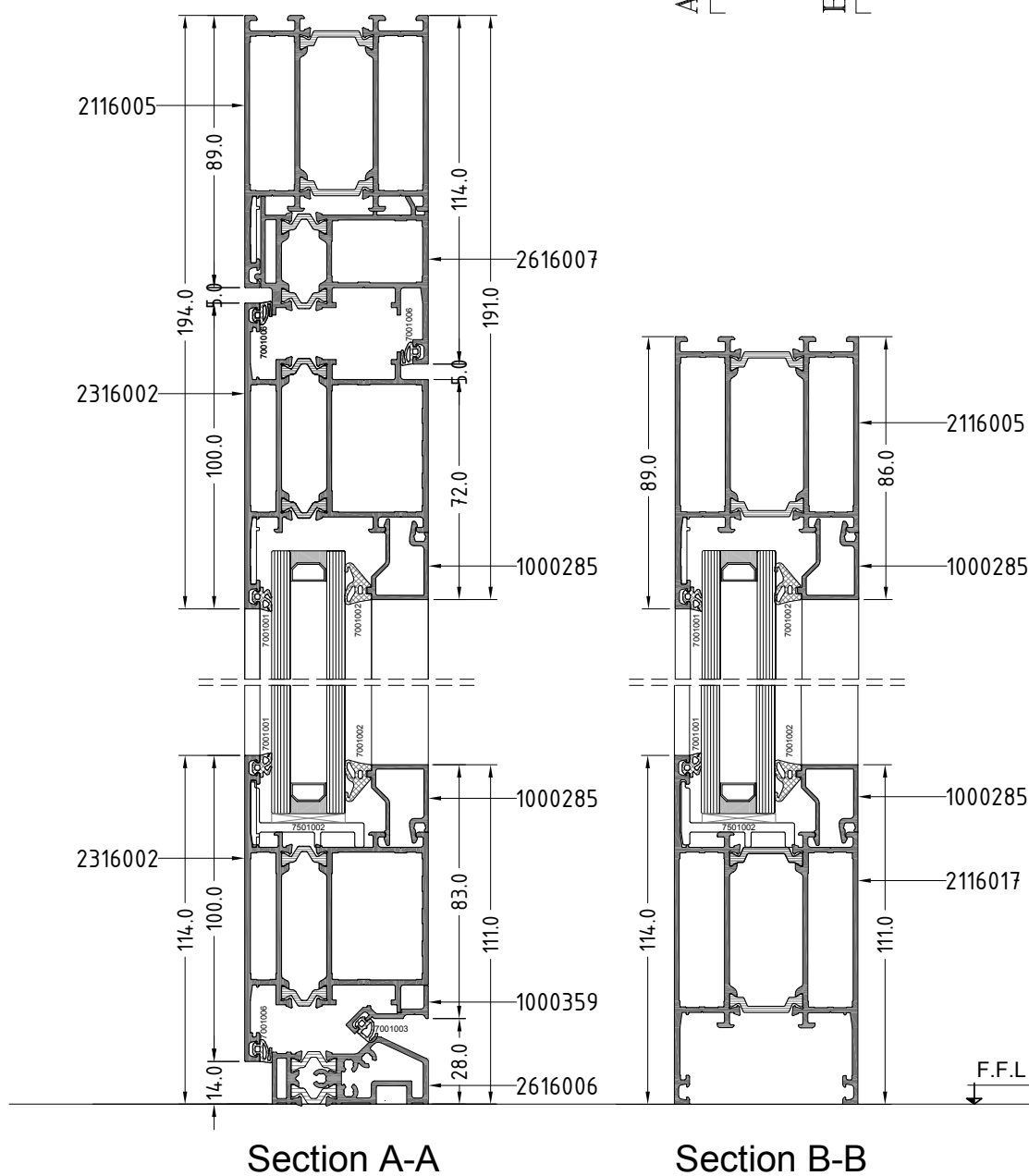
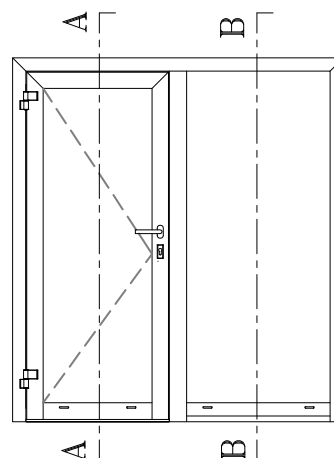


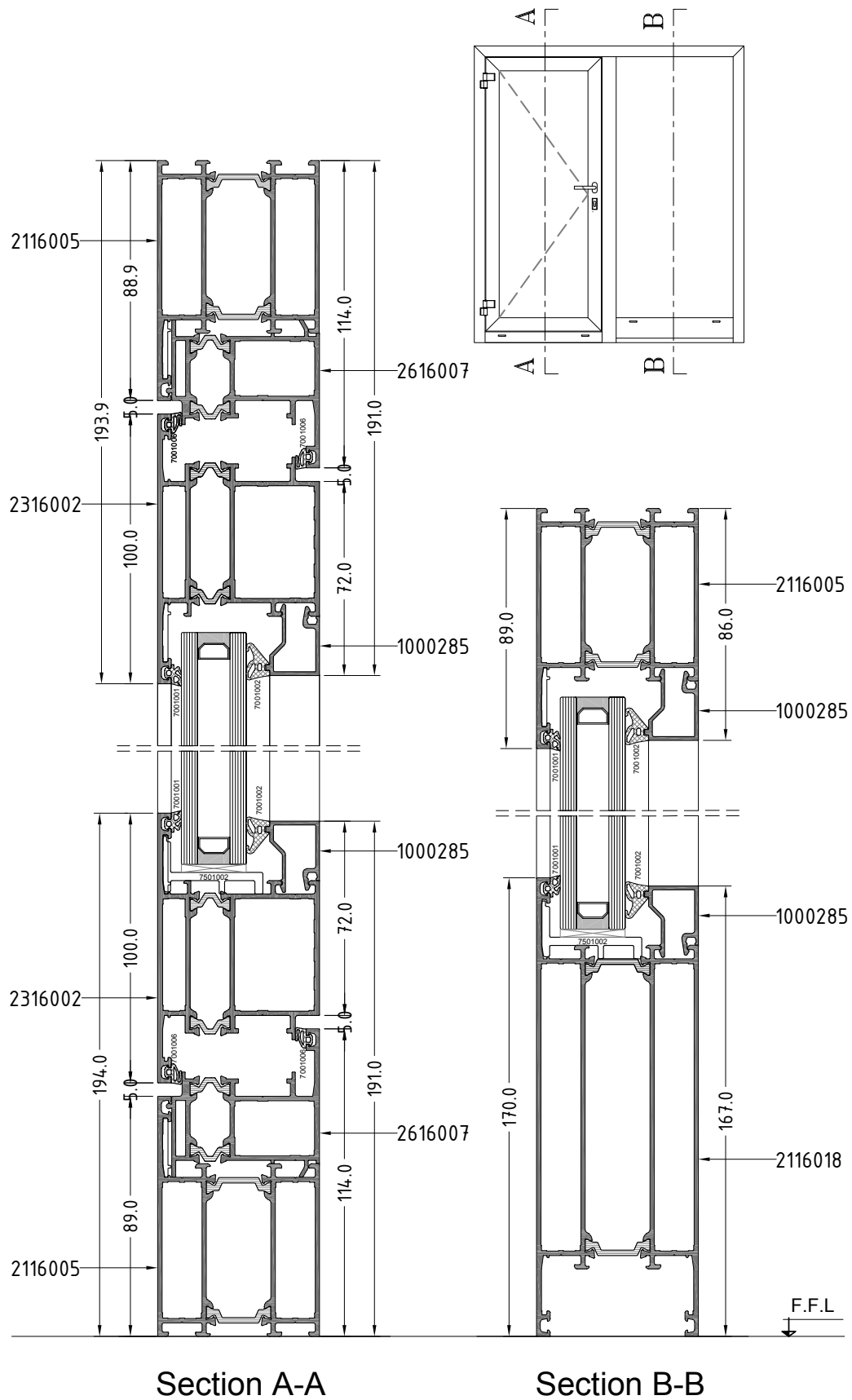
Section A-A

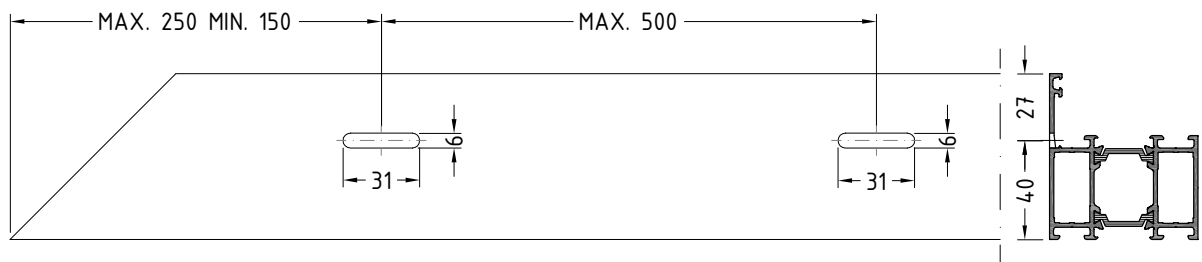


Section B-B



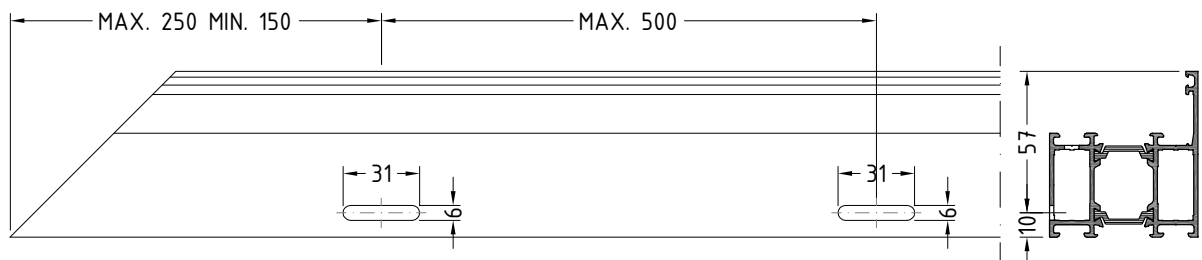






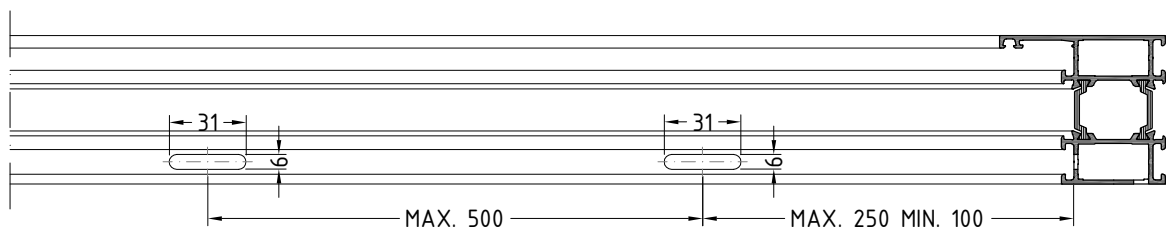
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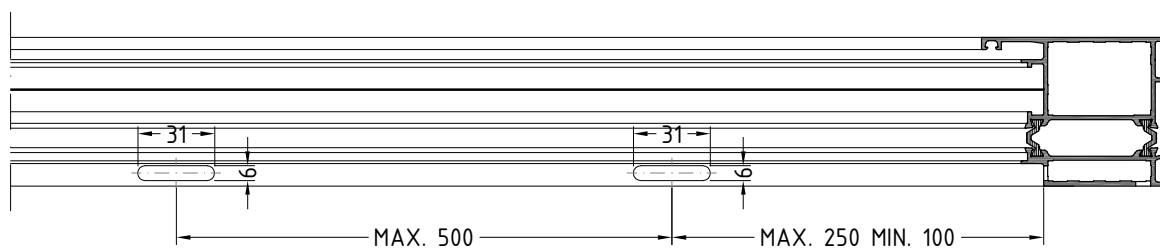
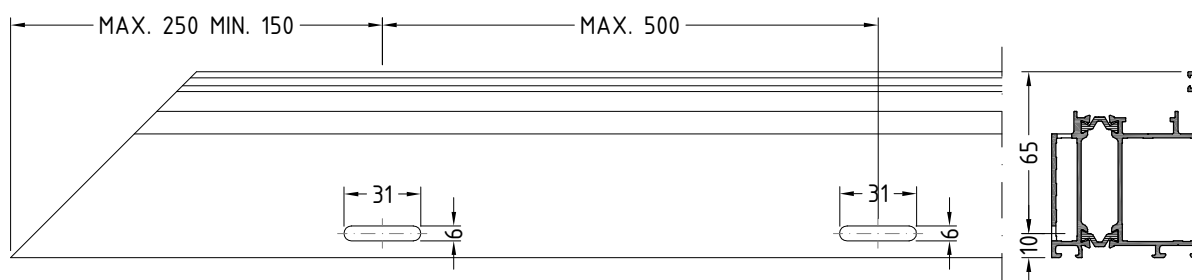
Termal break frame No. 2116001



Outward

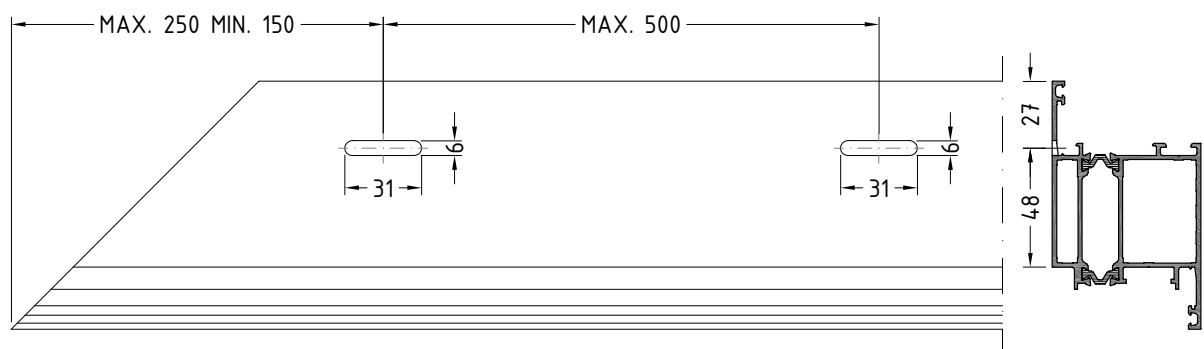
Termal break frame No. 2116001



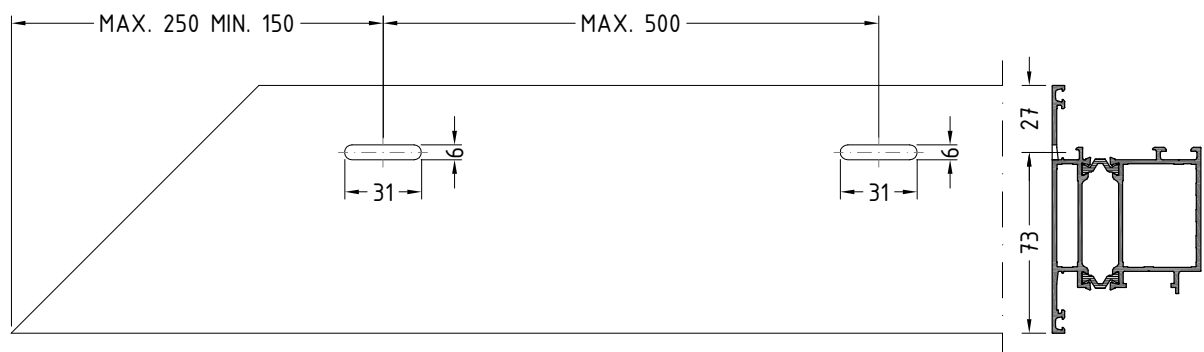


Outward Thermal break frame No. 2116002

Inward Thermal break frame No. 2116003



Termal break door sash No. 2316001



Termal break door sash No. 2316002

