

navarra[®]
a marca do alumínio

n18 200 SISTEMA DE BATENTE COM
RUTURA DE PONTE TÉRMICA



enchimentos
9-56 mm



resistência ao vento
Classe C5



permeabilidade ao ar
Classe 4



transmissão térmica
 $U_{10}=1,29 \text{ W/m}^2\cdot\text{K}$
($U_g=1,0 \text{ W/m}^2\cdot\text{K}$)



estanquidade à água
Classe E1350



atenuação acústica
 $R_w(C;Ctr)=38(-1;-6)\text{dB}$
 $c/\text{vidro } R_w(C;Ctr)=40(-2;-7)\text{dB}$

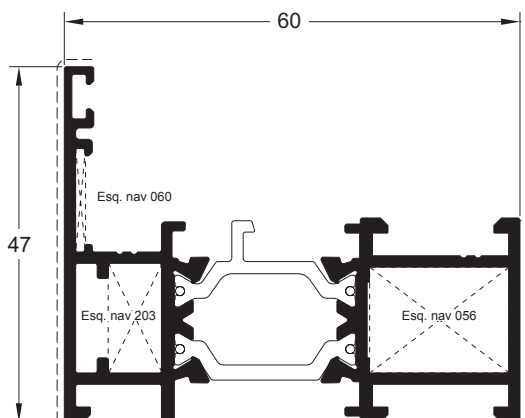
Ved. nav 066
vedante exterior de vidro

consultar tabela de enchimentos
vedante interior de vidro

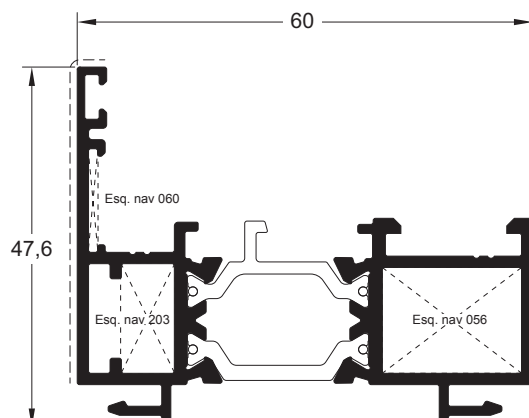
Ved. nav 197
vedante exterior

Ved. nav 350
vedante central

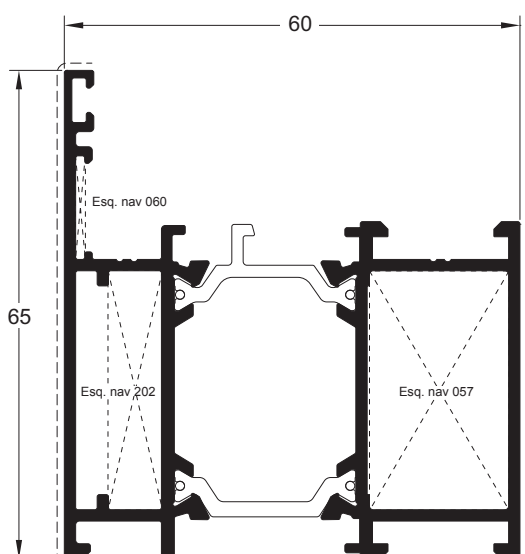
Ved. nav 196
vedante interior



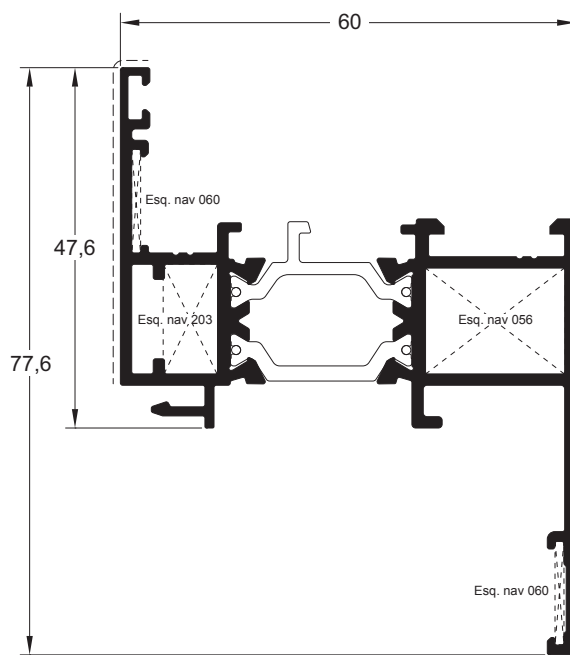
n18 201 $I_x = 3.867 \text{ cm}^4$
 aro fixo $I_y = 14.508 \text{ cm}^4$



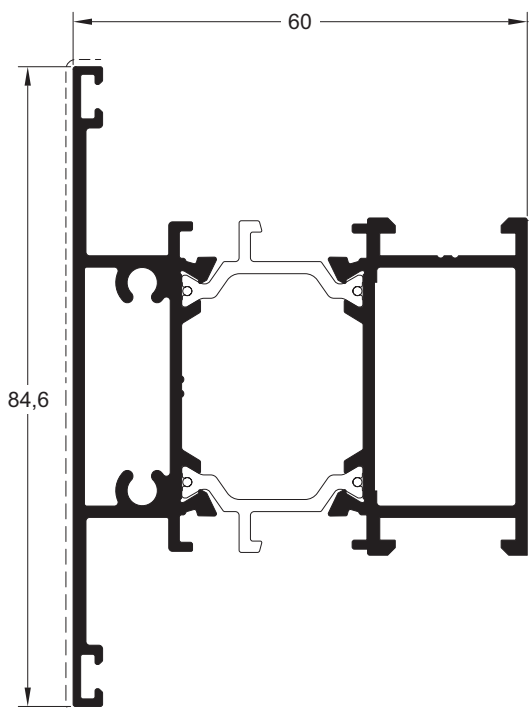
n18 202 $I_x = 3.699 \text{ cm}^4$
 aro fixo $I_y = 13.903 \text{ cm}^4$



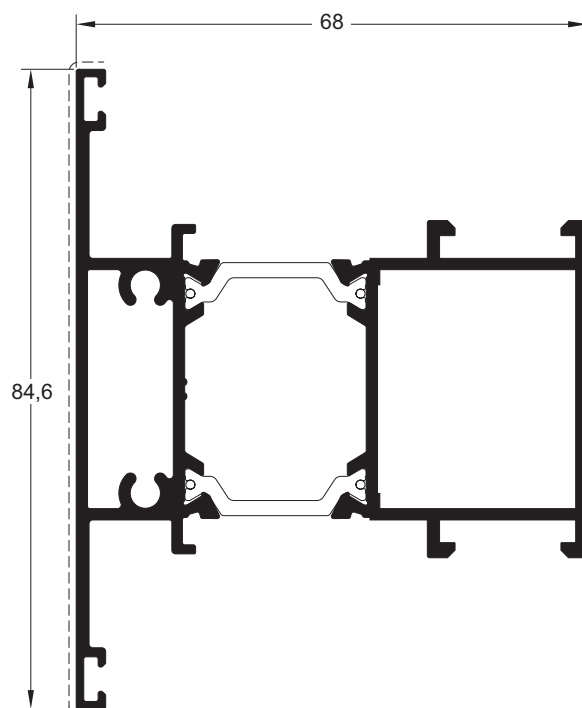
n18 203 $I_x = 13.025 \text{ cm}^4$
 aro fixo $I_y = 18.973 \text{ cm}^4$



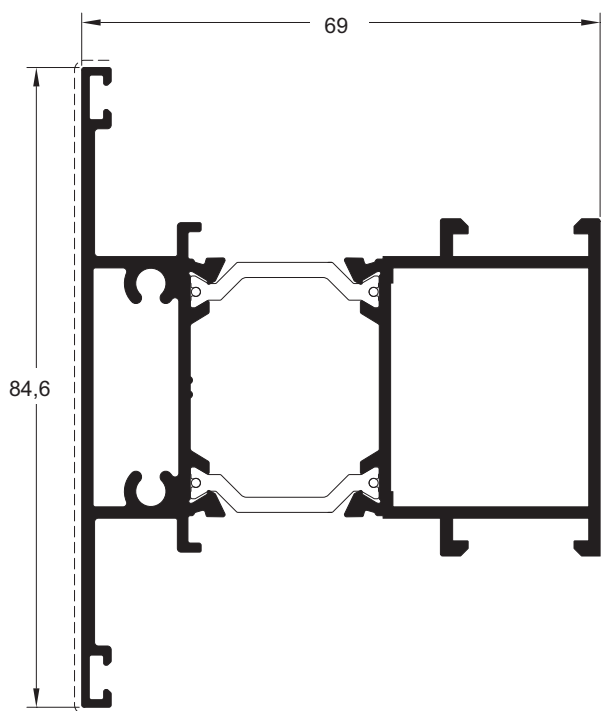
n18 204 $I_x = 7.923 \text{ cm}^4$
 aro fixo $I_y = 18.006 \text{ cm}^4$



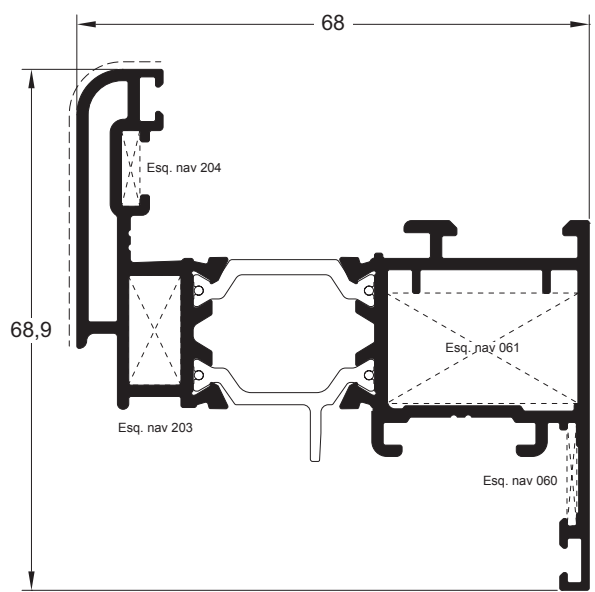
n18 212 $I_x = 16.858 \text{ cm}^4$
travessa $I_y = 20.952 \text{ cm}^4$



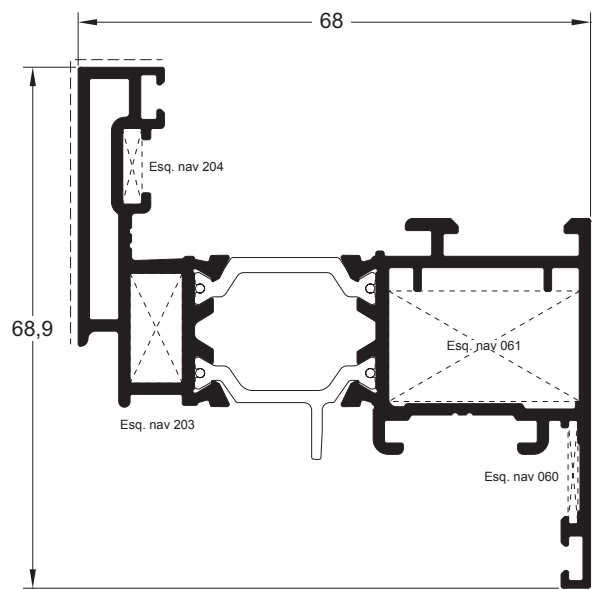
n18 213 $I_x = 16.821 \text{ cm}^4$
travessa $I_y = 27.080 \text{ cm}^4$



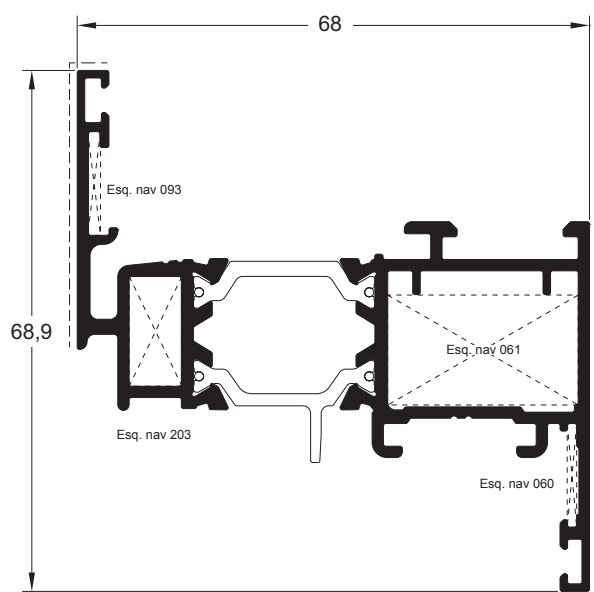
n18 214 $I_x = 16.774 \text{ cm}^4$
travessa $I_y = 28.146 \text{ cm}^4$



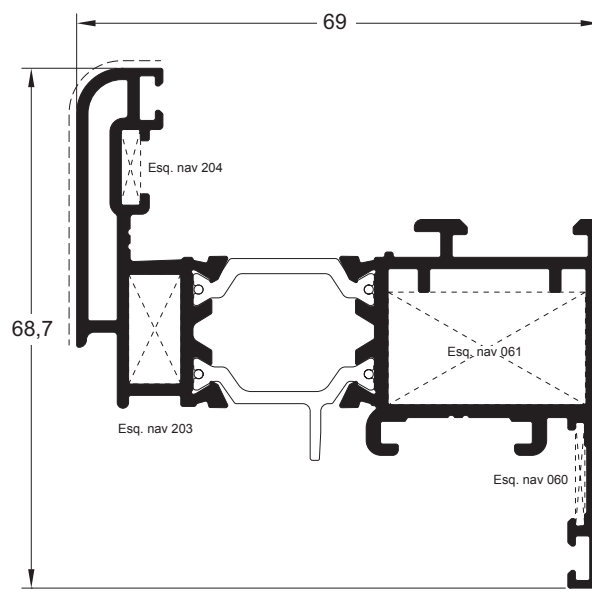
n18 221 $I_x = 9.366 \text{ cm}^4$
folha $I_y = 25.252 \text{ cm}^4$



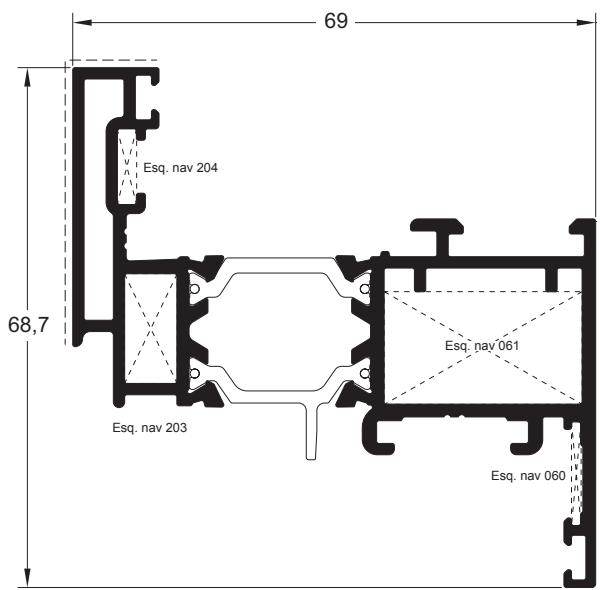
n18 222 $I_x = 9.656 \text{ cm}^4$
folha $I_y = 25.518 \text{ cm}^4$



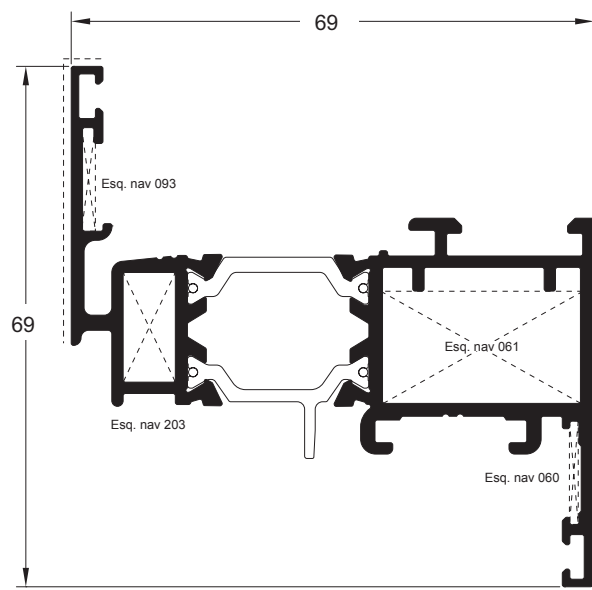
n18 223 $I_x = 7.024 \text{ cm}^4$
folha $I_y = 23.148 \text{ cm}^4$



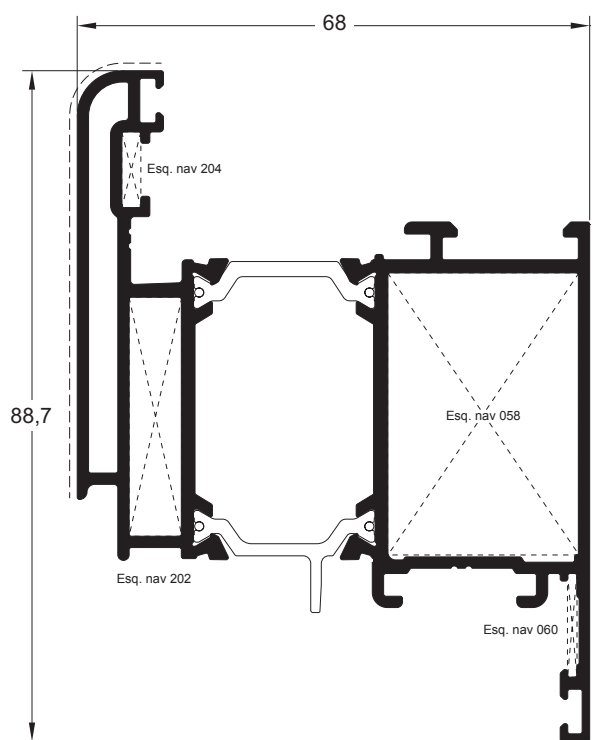
n18 224 $I_x = 9.856 \text{ cm}^4$
folha $I_y = 28.204 \text{ cm}^4$



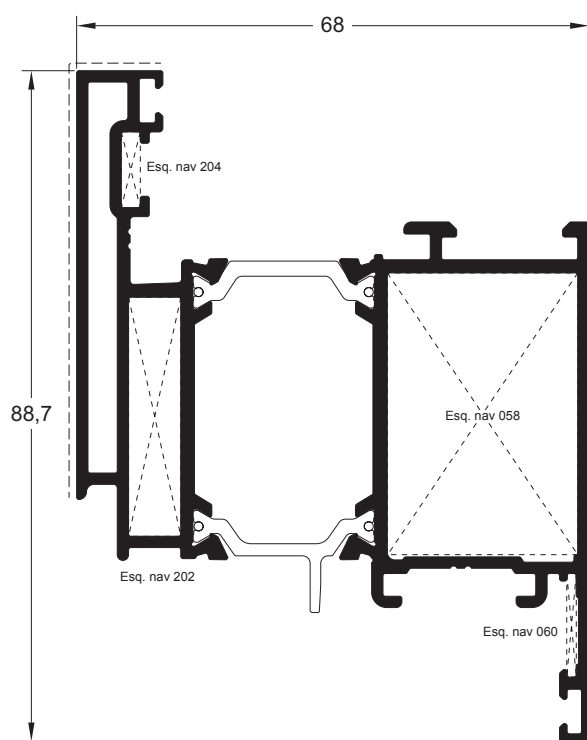
n18 228 $I_x = 10.154 \text{ cm}^4$
folha $I_y = 28.497 \text{ cm}^4$



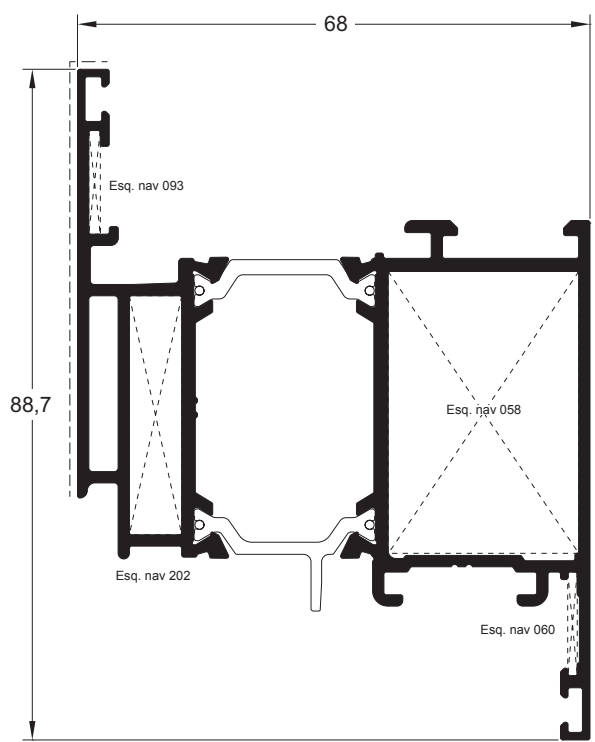
n18 229 $I_x = 7.449 \text{ cm}^4$
folha $I_y = 25.810 \text{ cm}^4$



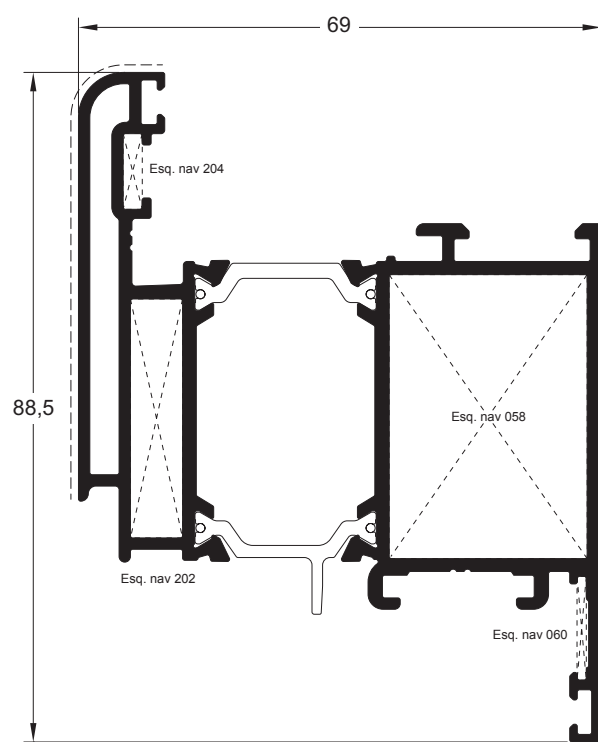
n18 231 $I_x = 25.809 \text{ cm}^4$
folha $I_y = 32.976 \text{ cm}^4$



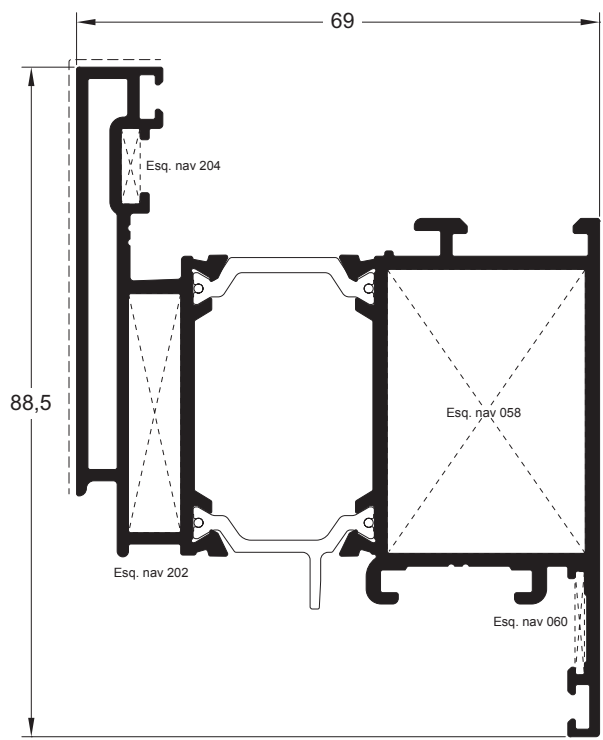
n18 232 $I_x = 26.294 \text{ cm}^4$
folha $I_y = 33.212 \text{ cm}^4$



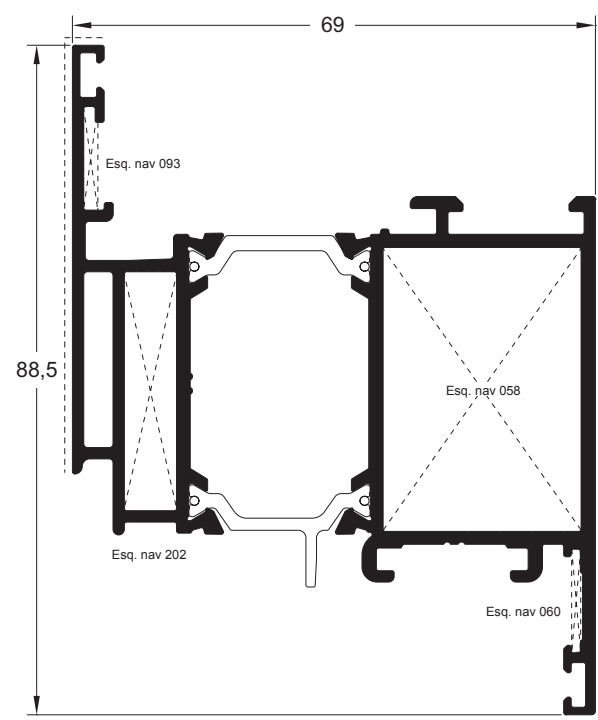
n18 233 $I_x = 21.393 \text{ cm}^4$
folha $I_y = 31.142 \text{ cm}^4$



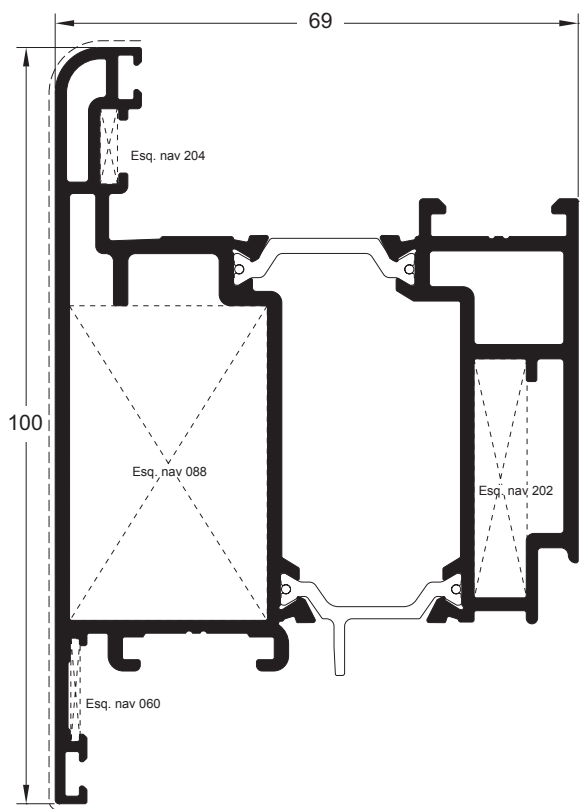
n18 234 $I_x = 27.122 \text{ cm}^4$
folha $I_y = 37.190 \text{ cm}^4$



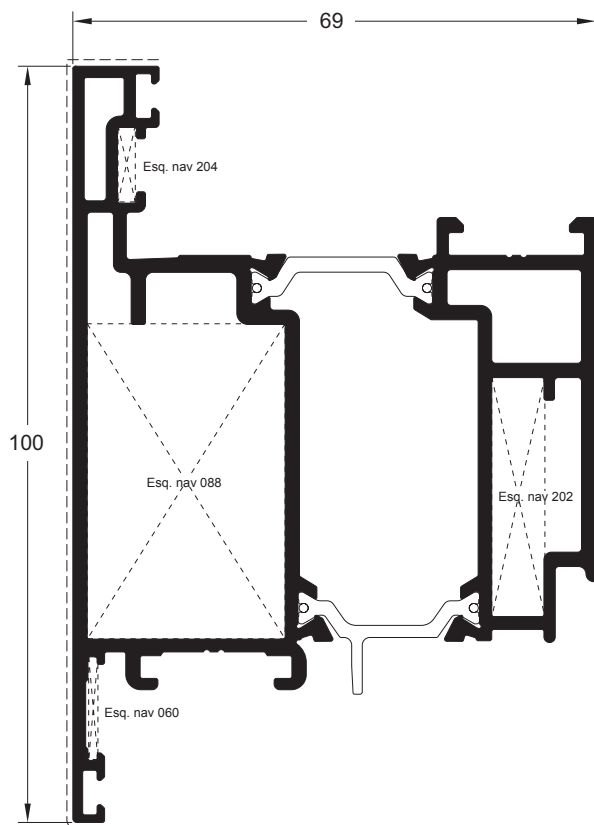
n18 238 $I_x = 27.622 \text{ cm}^4$
folha $I_y = 37.464 \text{ cm}^4$



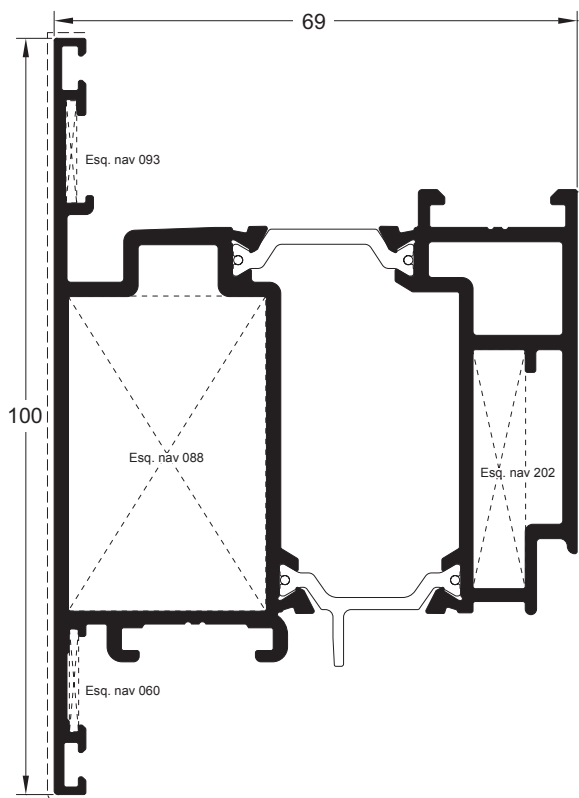
n18 239 $I_x = 22.557 \text{ cm}^4$
folha $I_y = 35.070 \text{ cm}^4$



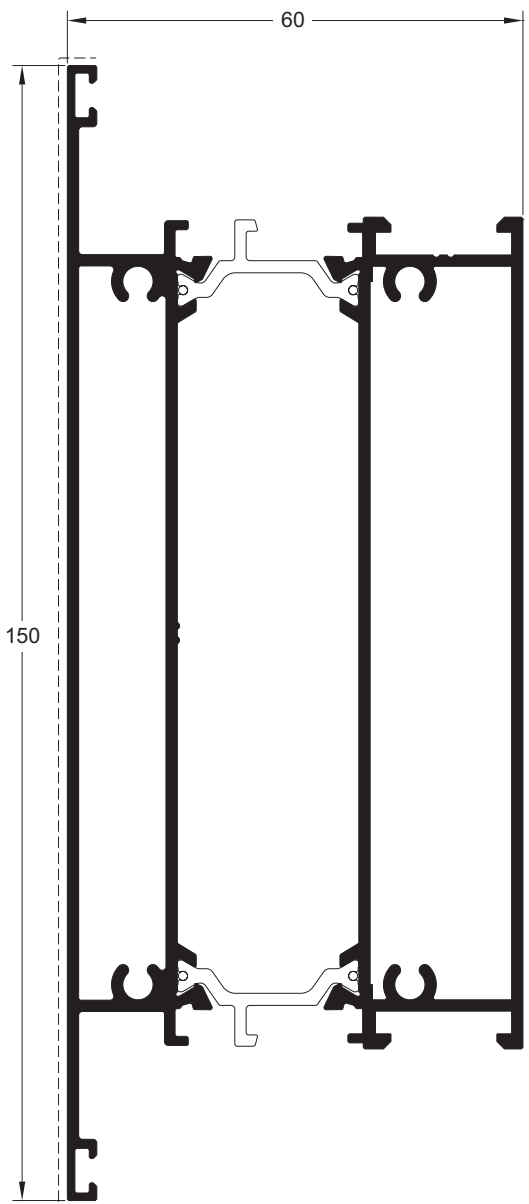
n18 235 $I_x = 44.018 \text{ cm}^4$
folha (abertura exterior) $I_y = 43.416 \text{ cm}^4$



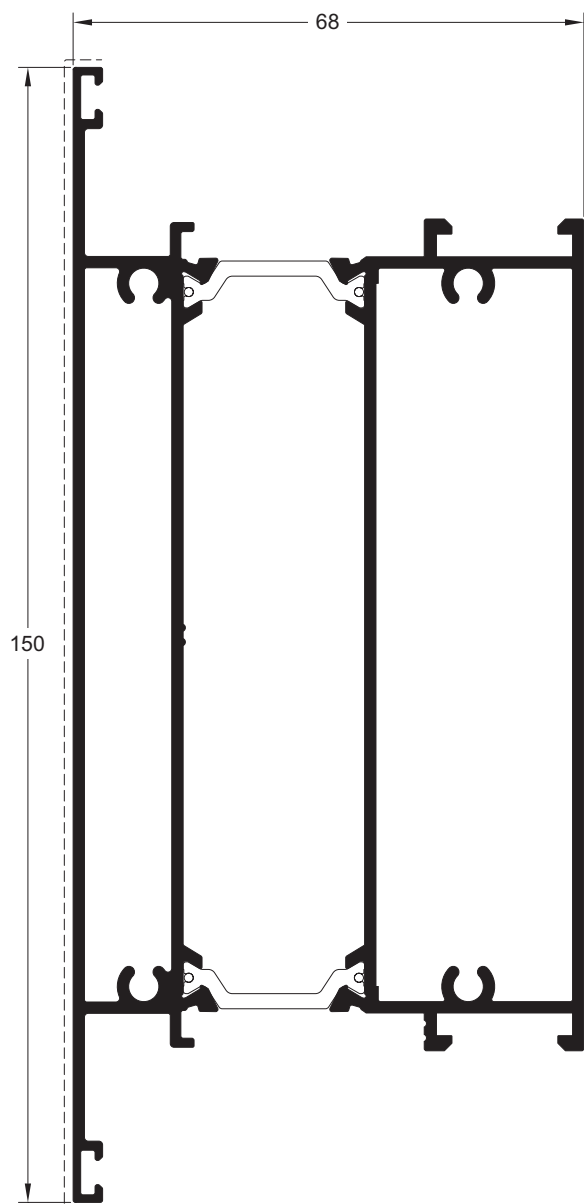
n18 236 $I_x = 44.630 \text{ cm}^4$
folha (abertura exterior) $I_y = 43.688 \text{ cm}^4$



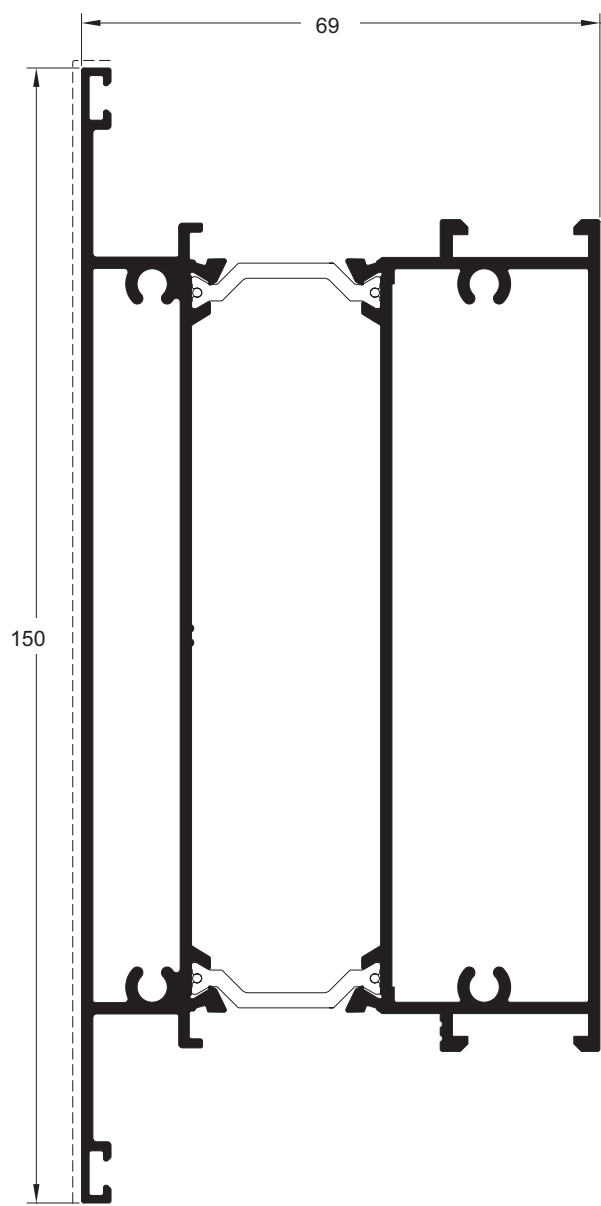
n18 237 $I_x = 37.477 \text{ cm}^4$
folha (abertura exterior) $I_y = 40.864 \text{ cm}^4$



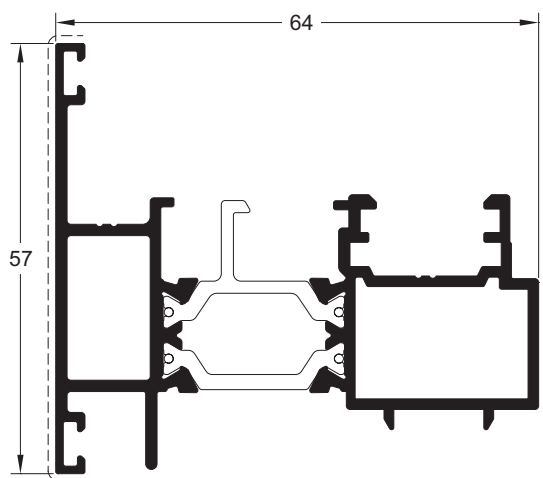
n18 241 $I_x = 145.950 \text{ cm}^4$
almofada $I_y = 38.052 \text{ cm}^4$



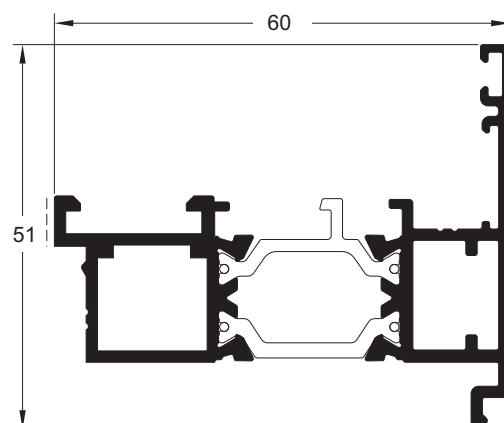
n18 242 $I_x = 147.101 \text{ cm}^4$
almofada $I_y = 48.297 \text{ cm}^4$



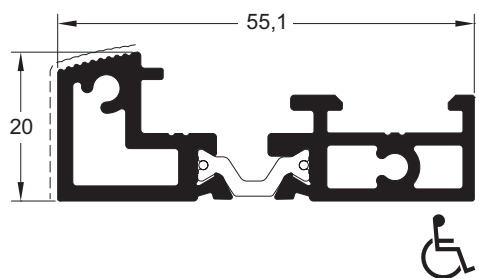
n18 244 $I_x = 147.074 \text{ cm}^4$
 almofada $I_y = 50.141 \text{ cm}^4$



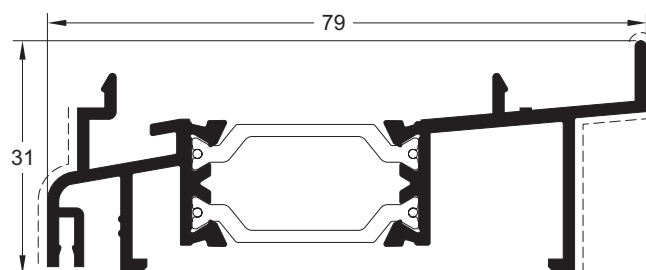
n18 271 $I_x = 5.324 \text{ cm}^4$
 inversor $I_y = 16.511 \text{ cm}^4$



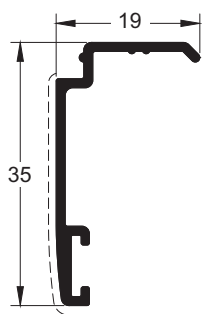
n18 274 $I_x = 3.507 \text{ cm}^4$
 inversor de aro fixo $I_y = 12.931 \text{ cm}^4$



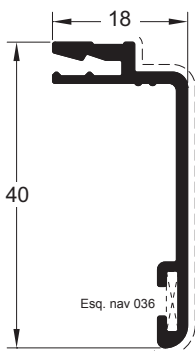
n18 288 $I_x = 0.817 \text{ cm}^4$
 soleira $I_y = 8.337 \text{ cm}^4$



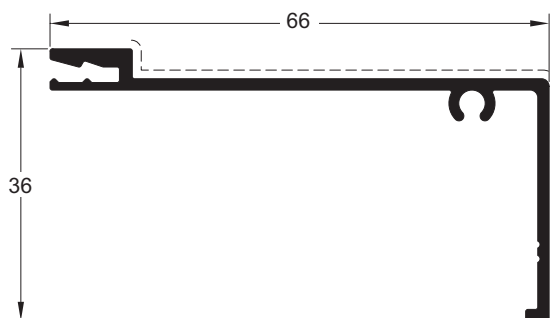
n18 283 $I_x = 1.670 \text{ cm}^4$
 soleira $I_y = 18.537 \text{ cm}^4$



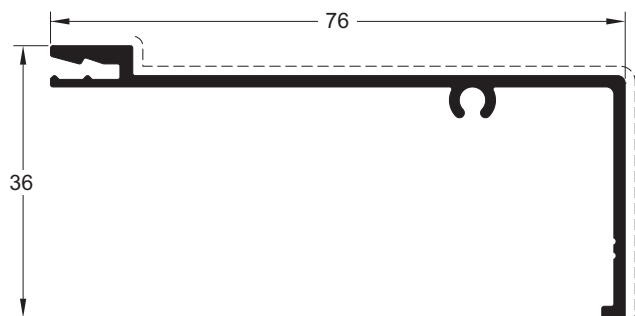
n14 047 $I_x = 1.141 \text{ cm}^4$
perfil complementar $I_y = 0.191 \text{ cm}^4$



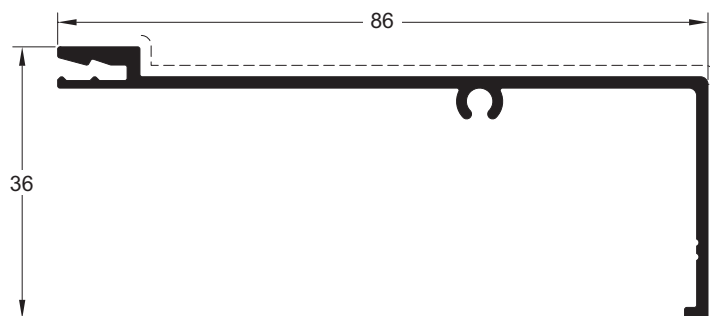
n14 053 $I_x = 1.931 \text{ cm}^4$
perfil complementar $I_y = 0.314 \text{ cm}^4$



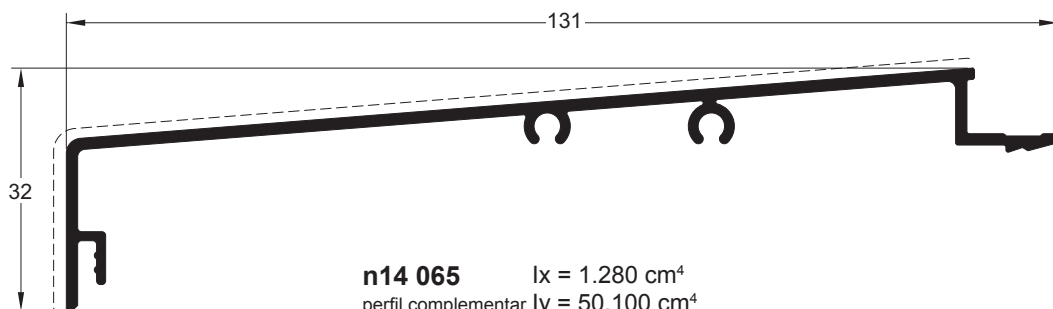
n14 055 $I_x = 1.464 \text{ cm}^4$
perfil complementar $I_y = 9.864 \text{ cm}^4$



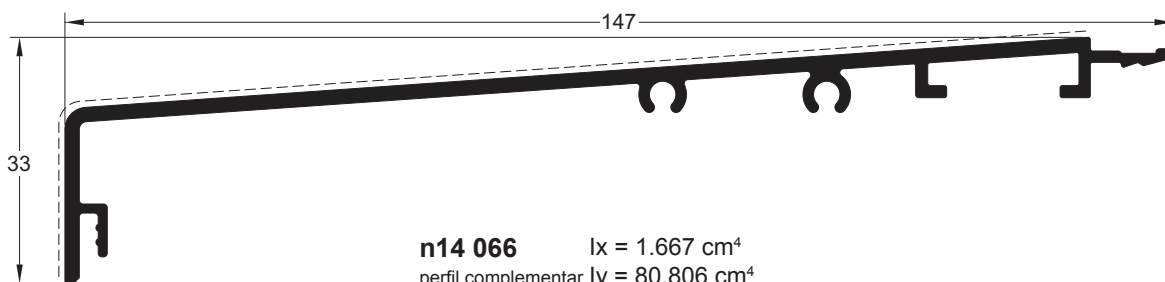
n14 056 $I_x = 1.488 \text{ cm}^4$
perfil complementar $I_y = 13.781 \text{ cm}^4$



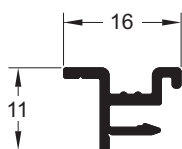
n14 057 $I_x = 1.508 \text{ cm}^4$
perfil complementar $I_y = 18.671 \text{ cm}^4$



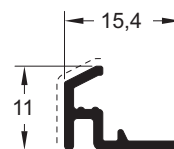
n14 065 $I_x = 1.280 \text{ cm}^4$
perfil complementar $I_y = 50.100 \text{ cm}^4$



n14 066 $I_x = 1.667 \text{ cm}^4$
perfil complementar $I_y = 80.806 \text{ cm}^4$

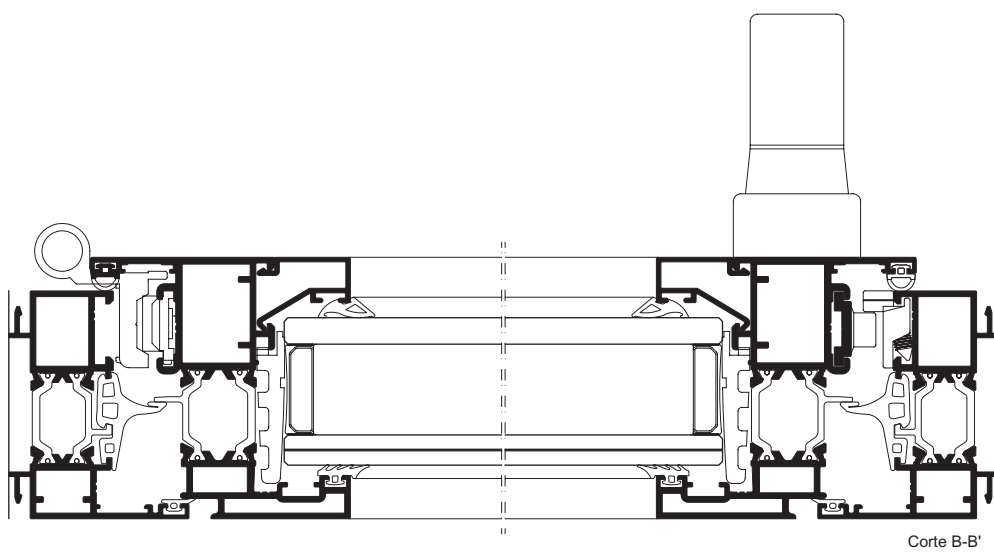
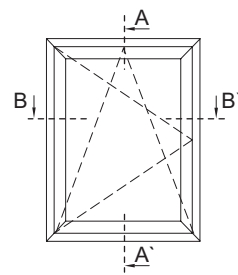
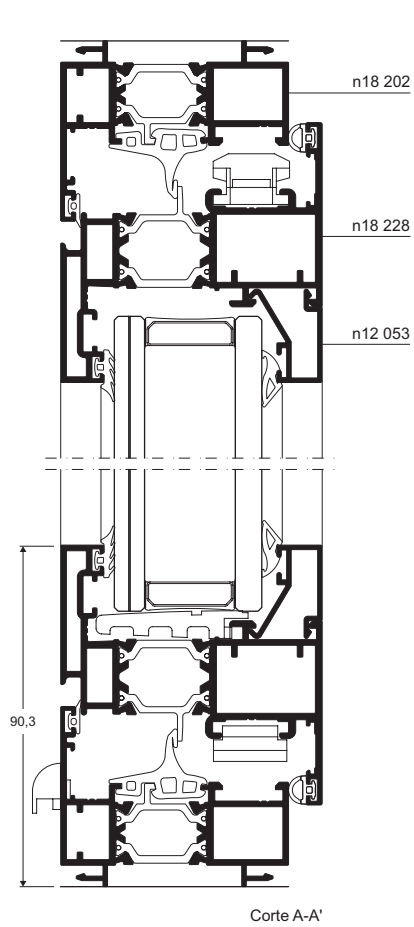


n14 050 $I_x = 0.042 \text{ cm}^4$
diverso $I_y = 0.069 \text{ cm}^4$

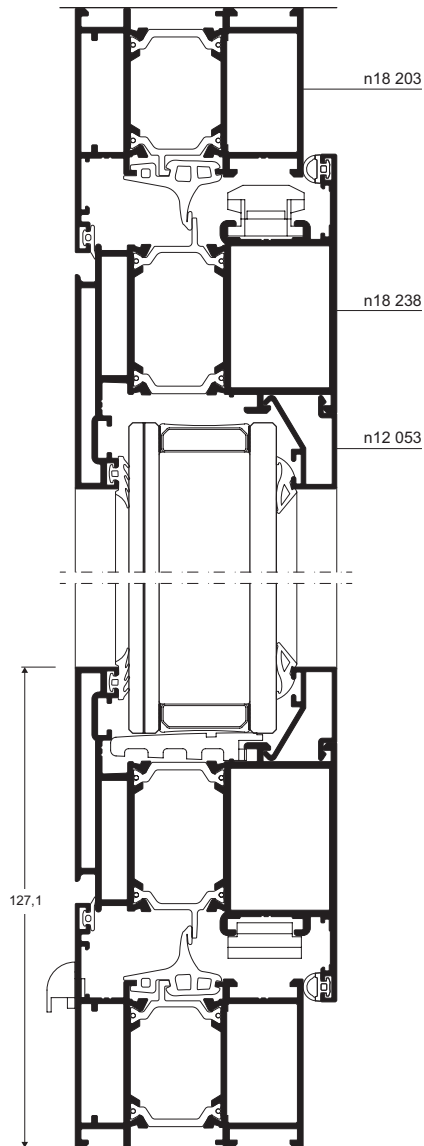
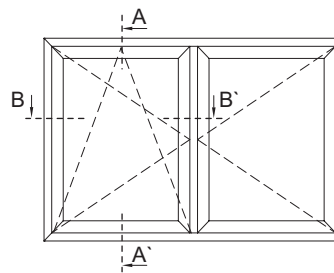


n18 289 $I_x = 0.043 \text{ cm}^4$
diverso $I_y = 1.072 \text{ cm}^4$

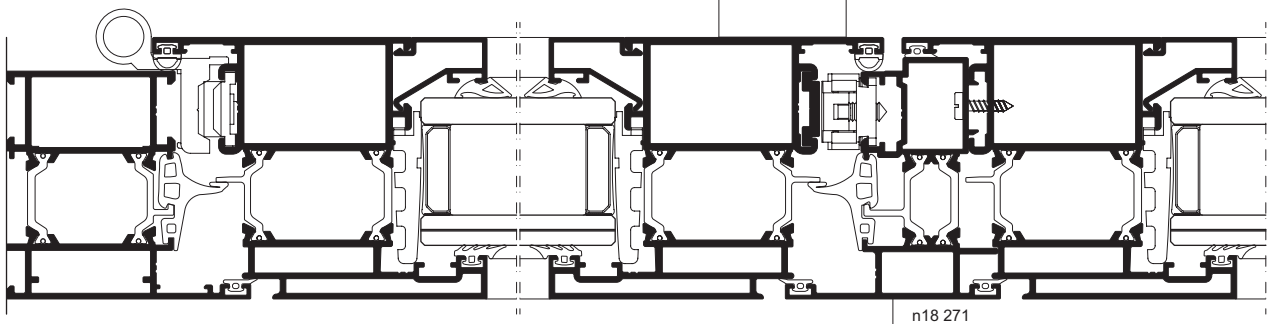
Janela oscilobatente 1 folha



Janela oscilobatente 2 folhas

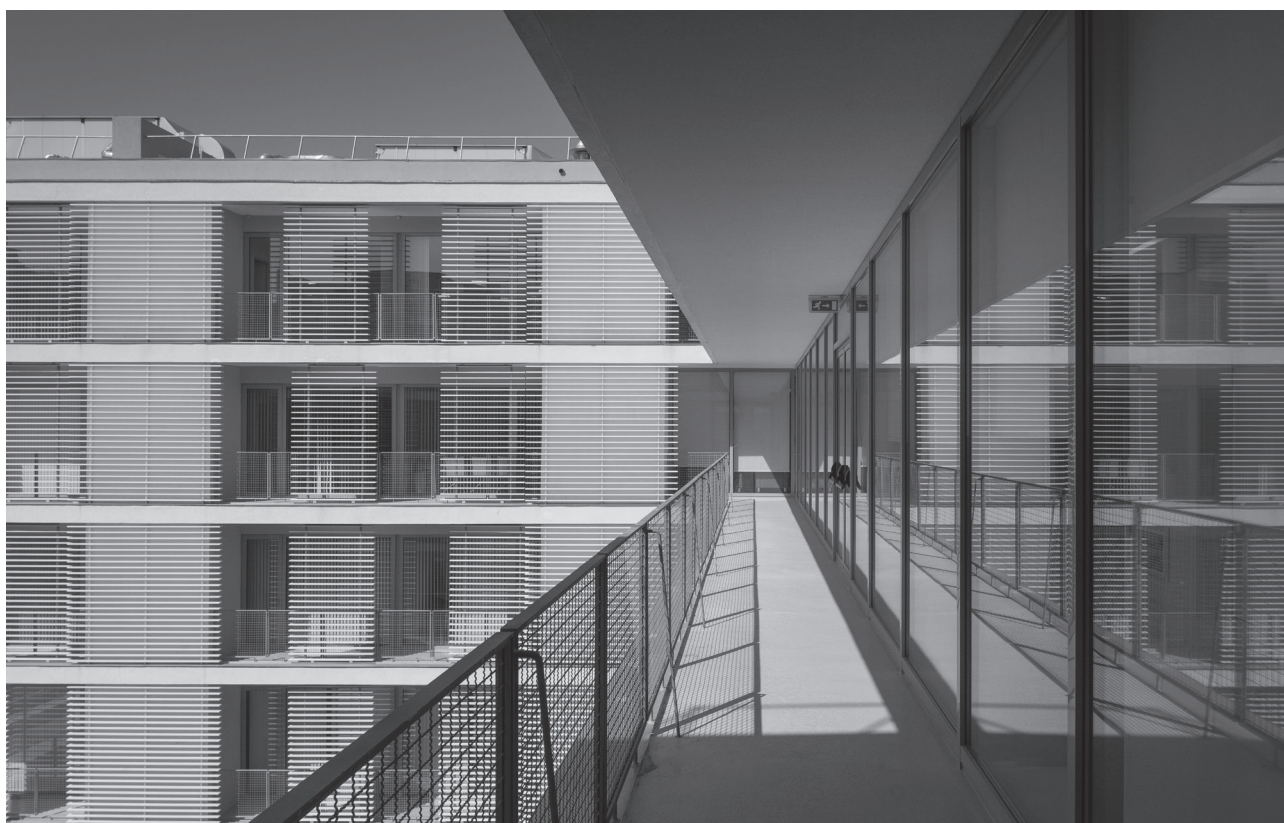


Corte A-A'



n18 271

Corte B-B'



Hospital Lusíadas Lisboa (obra exemplificativa) | Arquitetura: Arq. Carlos Prata

aro fixo: 60 milímetros.

folhas: 68/69 milímetros (folhas de 69 mm permitem aplicação de dobradiças fortes).

vidro: até 56 milímetros. Vasta gama de bites para múltiplas soluções de vidros duplo ou triplo.

acessórios: câmara europeia normalizada, com uma vasta gama de acessórios devidamente testados e recomendados pela navarra®.

acabamentos: anodizados, lacados, bicolor (interior/exterior) e efeito madeira.

poliamida: 24 e 25 milímetros.

construção: sistema perimetral de elevada simplicidade, com uniões à meia esquadria e utilização de esquadros de aperto rápido.

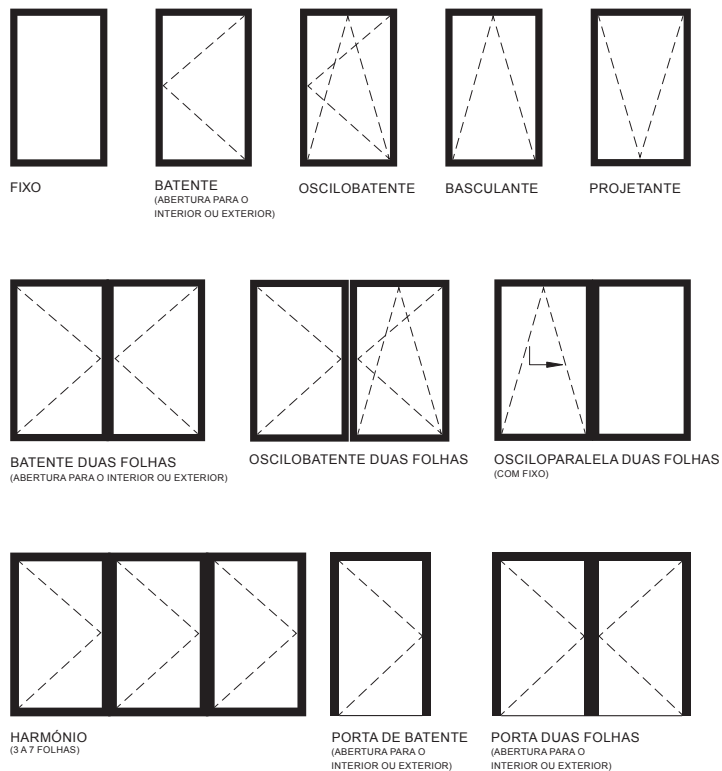
(consultar catálogo técnico para mais informações).

desempenho: elevado desempenho funcional, permitindo o fabrico de vãos de grandes dimensões. Os elevados desempenhos de permeabilidade ao ar e estanquidade à água são demonstrados pelos resultados obtidos nos ensaios em Organismos Notificados.

dimensões e pesos máximos: de acordo com a tipologia do vão e da capacidade dos acessórios.

medidas de corte

		abatimentos	
aros	nº de folhas	largura	altura
n18 201	1	L - 43	H - 43
	2	(L - 48)/2	H - 43
n18 202	1	L - 44	H - 44
n18 204	2	(L - 49)/2	H - 44
n18 203	1	L - 78	H - 78
	2	(L - 83)/2	H - 78
inversor:		H ₁ - 68	
(medidas de corte relativas à altura da folha)			



janela de batente;
em material alumínio com corte térmico;
vidro duplo (exemplo 44.1 / 20 Argon 90% / 4)
 $U_g = 1,0 \text{ W/(m}^2 \cdot ^\circ\text{C)}$
fator solar (g) = 0,54
 $U_w = 1,60 \text{ W/(m}^2 \cdot ^\circ\text{C)}$
permeabilidade ao ar - Classe 4

notas:
valor de U_w calculado para uma janela de referência de 1,48 x 2,18 (m) - 1 folha considerou-se o valor $\Psi_g = 0,04 \text{ W/mK}$ (separador de vidro térmicamente melhorado).

fonte: SEEP - Sistema de Etiquetagem Energética de Produtos.

tabelas de enchimentos

Importante: Os valores das caixas de vidro são valores nominais. Na escolha dos vedantes de vidro, tendo em conta as tolerâncias dos perfis e dos vidros, poderá ser necessário aplicar um vedante mais estreito ou mais largo.

60.3

67.8

3.9















11.4

Vedante vidro exterior EPDM Ved. 066	Vedante vidro cunha interior EPDM			Bites
7-8 Ved. 204	5-6 Ved. 203	3-4 Ved. 185		
⌘ (R) (R) (R)	9-10	10-11	-	n12 057
	14-15	15-16	-	n12 056
	21-22	22-23	-	n12 055
	24-25	26	-	n12 059
	28-29	29-30	-	n12 054
	32-33	33-34	-	n12 058
	35-36	36-37	-	n12 053
	37-38	38-39	-	n12 052
	43-44	45	-	n12 051
	43-44	45-46	47	n12 156

aros fixos: n18 201, n18 202, n18 203 e n18 204
travessas/almofadas: n18 212 e n18 241
folhas: n18 221, n18 222, n18 231 e n18 232

67.7

4.2

Vedante vidro exterior EPDM Ved. 066	Vedante vidro cunha interior EPDM			Bites
 → 7-8 Ved. 204	 → 5-6 Ved. 203	 → 3-4 Ved. 185		
⌘ (R) (R) (R)	10-11	12	-	 n12 060
	16-17	18	-	 n12 057
	21-22	23	-	 n12 056
	28-29	30	-	 n12 055
	31-32	33-34	-	 n12 059
	35-36	37	-	 n12 054
	39-40	41	-	 n12 058
	42-43	44	-	 n12 053
	44-45	46	-	 n12 052
	50-51	52	-	 n12 051
50-51	52-53	54-55	 n12 156	

travessas/almofadas: n18 213 e n18 242
folhas: n18 223 e n18 233

69.2

11.4

Vedante vidro exterior EPDM Ved. 066	Vedante vidro cunha interior EPDM			Bites
7-8 Ved. 204	5-6 Ved. 203	3-4 Ved. 185		
⌘ (R) (R) (R)	10-11	12	-	n12 057
	15-16	17	-	n12 056
	22-23	24	-	n12 055
	25-26	27-28	-	n12 059
	29-30	31	-	n12 054
	33-34	35	-	n12 058
	36-37	38	-	n12 053
	38-39	40	-	n12 052
	44-45	46	-	n12 051
	44-45	46-47	48-49	n12 156

travessas/almofadas: n14 213, n14 242 e n14 246
folhas: n18 224, n18 228, n18 234, n18 235, n18 236 e n18 238

69.2

4.2

Vedante vidro exterior EPDM Ved. 066	Vedante vidro cunha interior EPDM			Bites
7-8 Ved. 204	5-6 Ved. 203	3-4 Ved. 185		
⌘ (R) (R) (R)	17-18	19	-	n12 057
	22-23	24	-	n12 056
	29-30	31	-	n12 055
	33-34	35	-	n12 059
	36-37	38	-	n12 054
	40-41	42	-	n12 058
	43-44	45	-	n12 053
	45-46	47	-	n12 052
	51-52	53-54	-	n12 051
	51-52	53-54	55-56	n12 156

travessas/almofadas: n18 214 e n18 244
folhas: n18 229, n18 237 e n18 239

JANELAS | PORTAS 1 FOLHA BATENTE + FIXO

CARACTERÍSTICAS ESSENCIAIS - RESISTÊNCIA AO VENTO

ESPECIFICAÇÕES TÉCNICAS HARMONIZADAS - EN14351-1:2006+ A1:2010 (EN 12211 e EN 12210)

C5															
3400	B3*	B3*	B2*	B2*	B2*	B2*	B2*	C1*	C1*	C1*	C1*	B1*	B1*	B1*	
	C2*	C2*	C1*	C1*	C1*	C1*	C1*								C1*
3200	B3*	B3*	B3*	B2*	B2*	B2*	B2*	B2*	B2*	C1*	C1*	C1*	C1*	B1*	
	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*	C1*						
3000	B4*	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*	B2*	B2*	B2*	C1*	C1*	
	C3*	C2*	C2*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*			
2800	B5*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	B3*	B2*	B2*	B2*	B2*	B2*	
	C3*	C3*	C3*	C2*	C2*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*	
2700	B5*	B5*	B5*	B4*	B4*	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*	B2*	
	C4*	C4*	C3*	C3*	C3*	C2*	C2*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	
2600	B5*	B5*	B5*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*	
	C4*	C4*	C4*	C3*	C3*	C3*	C3*	C2*	C2*	C2*	C2*	C2*	C1*	C1*	
2500	C5*	C5*	B5*	B5*	B5*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	B3*	B3*	
			C4*	C4*	C3*	C3*	C3*	C3*	C2*	C2*	C2*	C2*	C2*	C2*	
2400	C5*	C5*	C5*	B5*	B5*	B5*	B5*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	
				C4*	C4*	C4*	C4*	C4*	C3*	C3*	C2*	C2*	C2*	C2*	
2300	C5*	C5*	C5*	C5*	C5*		B5*	B5*	B5*	B5*	B4*	B4*	B4*	B4*	
						C4*	C4*	C4*	C3*	C3*	C3*	C3*	C2*	C2*	
2100	C5*	C5*	C5*	C5*	C5*	C5*	C5		C5*	B5*	B5*	B5*	B5*	B5*	
						C4*				C4*	C4*	C3*	C3*		
2000	C5*	C5*	C5*	C5*	C5*	C5*	C5		C5*	C5*	B5*	B5*	B5*	B5*	
						C4*				C4*	C4*	C4*	C4*		
1800	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
1600	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
1400	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
1200	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
1000	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
H	L	650	700	750	850	900	950	1000	1100	1200	1300	1400	1500	1600	1700
altura total															
largura da folha															

valores cobertos pelo ensaio
* valores de cálculo

pressão ensaio		
B1	C1	400Pa
B2	C2	800Pa
B3	C3	1200Pa
B4	C4	1600Pa
B5	C5	2000Pa

flecha perfis	
C	1/300
B	1/200

ensaios realizados

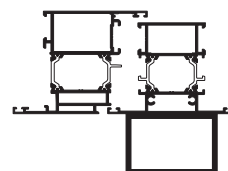
relatório de ensaio	data	O.N	resultados
CXL 044/16	18/10/16	2211	C5

modelo ensaiado: JOB1FI+Fixo 2100x2100 (mm)

resultado válido para folhas L < 1100 e H < 2100 (mm)
perfis n18 233 + n18 212 + n30 517 (lx = 126,62 cm²)

respeitar relação largura/altura e peso da folha

modelo



JANELAS | PORTAS 2 FOLHAS BATENTE

CARACTERÍSTICAS ESSENCIAIS - RESISTÊNCIA AO VENTO

ESPECIFICAÇÕES TÉCNICAS HARMONIZADAS - EN14351-1:2006+ A1:2010 (EN 12211 e EN 12210)

↑	3400	B2*	B2*	B2*	C1*	C1*	C1*	C1*	B1*	B1*	B1*	B1*	B1*	npd*	npd*
		C1*	C1*	C1*											
	3200	B2*	B2*	B2*	B2*	B2*	B2*	C1*	C1*	C1*	B1*	B1*	B1*	B1*	B1*
		C1*	C1*	C1*	C1*	C1*	C1*								
	3000	B3*	B3*	B3*	B2*	B2*	B2*	B2*	C1*	C1*	C1*	C1*	B1*	B1*	
		C2*	C2*	C2*	C1*	C1*	C1*	C1*							
	2800	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*	B2*	B2*	C1*	C1*	C1*	
		C2*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*				
	2700	B4*	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*	B2*	B2*	C1*	C1*	
		C3*	C3*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*			
	2600	B5*	B5*	B5*	B5*	B3*	B3*	B3*	B3*	B2*	B2*	B2*	B2*	B2*	
		C4*	C4*	C4*	C3*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*	C1*	
	2500	C5*	C3*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	B2*	B2*	B2*	B2*	
		C4*	C4*		C2*	C2*	C2*	C2*	C2*	C1*	C1*	C1*	C1*		
altura total	2400	C5*	C4*	C4*	B5*	B5*	B4*	B4*	B4*	B3*	B3*	B3*	B3*	B2*	B2*
		C4*	C3*	C3*		C2*	C2*	C2*	C2*	C2*	C2*	C1*	C1*		
	2300	C5*	C4*	C4*	C4*	B5*	B5*	B5*	B4*	B4*	B3*	B3*	B3*	B3*	B3*
		C3*	C3*	C3*	C3*	C2*	C2*	C2*	C2*	C2*	C2*	C2*	C2*	C2*	
	2200	C5*	C5*	C5*	C5*	C5*	B5*	B5*	B5*	B5*	B5*	B4*	B4*	B4*	B3*
		C4*	C4*	C4*	C4*	C3*	C3*	C3*	C3*	C3*	C3*	C3*	C2*	C2*	
	2000	C5*	C5*	C5*	C5*	C5*	C5*	C5*	B5*	B5*	B5*	B5*	B5*	B4*	B4*
		C4*	C4*	C4*	C4*	C4*	C4*	C4*	C3*	C3*	C3*	C3*	C3*	C3*	
	1800	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	B5*	B5*	B5*
		C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C4*	C4*	
	1600	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*
		C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
	1400	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*
		C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
	1200	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*
		C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
	1000	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*
		C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	C5*	
H	L	650	700	750	850	900	950	1000	1100	1200	1300	1400	1500	1600	1700
largura da folha															

* valores de cálculo

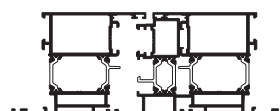
pressão ensaio		
B1	C1	400Pa
B2	C2	800Pa
B3	C3	1200Pa
B4	C4	1600Pa
B5	C5	2000Pa

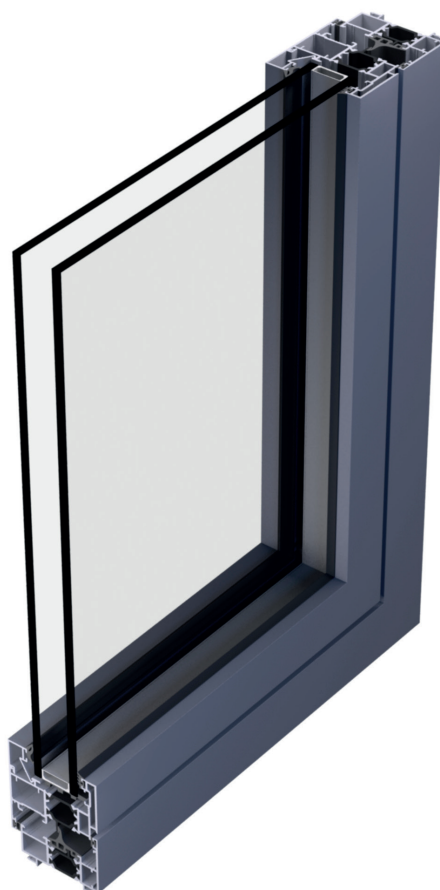
flecha perfis	
C	1/300
B	1/200

perfis n18 233 + n18 271 + n18 233 (lx = 95,35 cm²)

respeitar relação largura/altura e peso da folha

modelo





grupo  **navarra**

 **navarra**
extrusão de alumínio



 **navarra**
alumínio para arquitetura

 **n.2.a.**
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