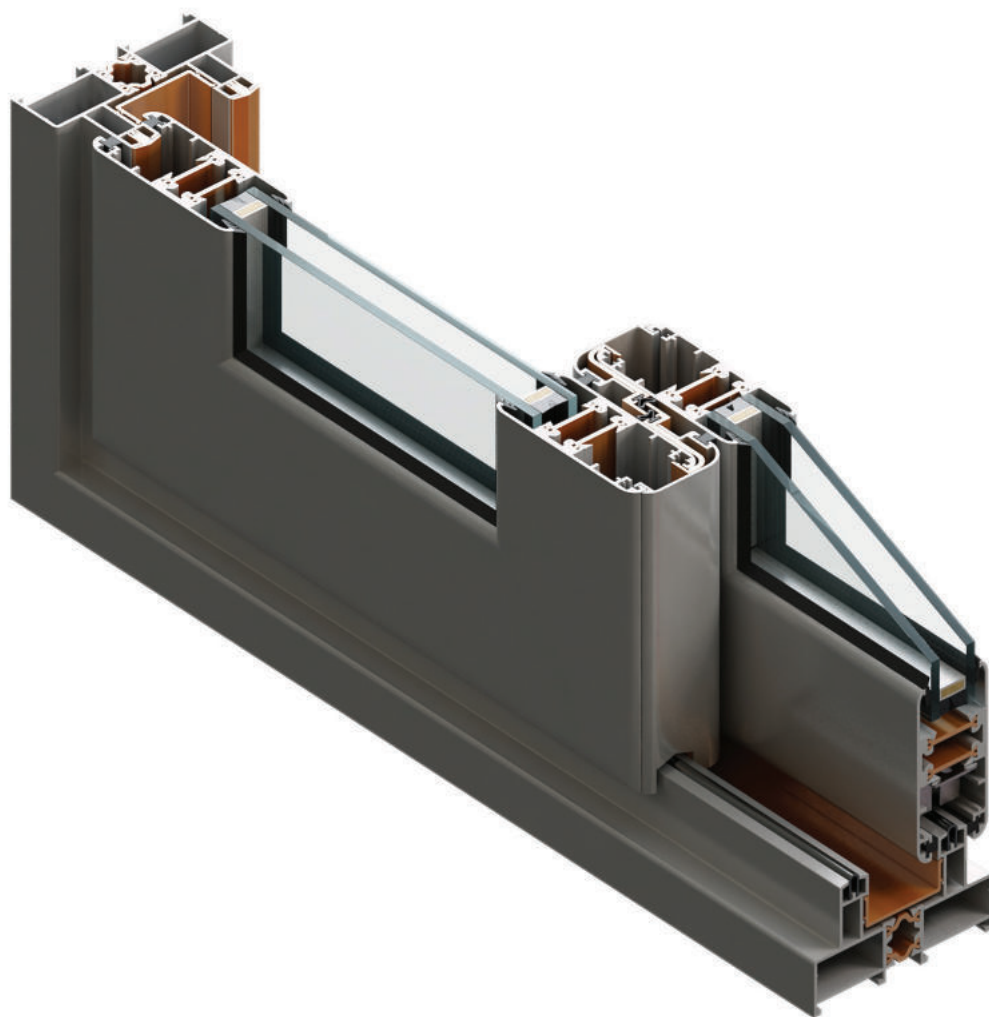


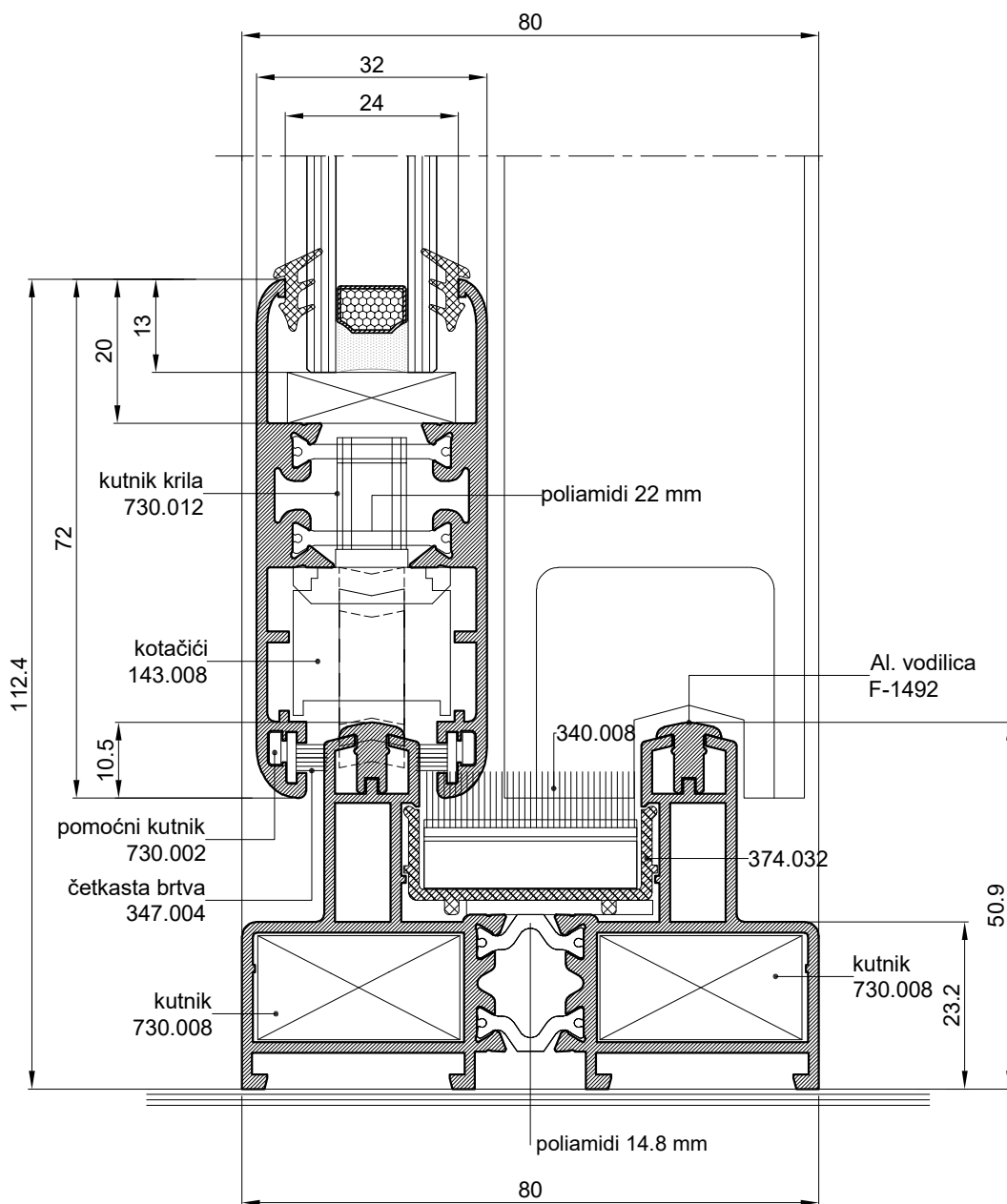
# FEAL



## TERMO 80

KLIZNI PROZORI I VRATA  
*SLIDING WINDOWS AND DOORS*









INSTITUT GRADEVINARSTVA HRVATSKE d.d.  
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Zahtjev za ispitivanje: prihvaćena ponuda ZF 29-20-206388/06  
Nalog za ispitivanje: 258/06

Zagreb, 2006-09-27

## IZVJEŠTAJ O ISPITIVANJU BR. 2920-981/06

Naručitelj: FEAL Hrvatska d.o.o.  
Rudeška cesta 3a  
10000 Zagreb

Radni nalog: 29208804

Proizvođač uzorka: FEAL d.o.o.  
poduzeće za preradu aluminija  
Široki Brijeg

Proizvođač profila: FEAL d.o.o.  
poduzeće za preradu aluminija  
Široki Brijeg

Građevni proizvod: element klizna stijena TERMO 80

Uzorak dostavio: naručitelj ispitivanja

Datum zaprimanja uzorka: 2006-06-28

Mjesto ispitivanja: Institut građevinarstva Hrvatske d.d., Zavod za zgradarstvo, Laboratorij  
građevinske fizike, Janka Rakuše 1, HR-10000 Zagreb

Laboratorijska oznaka uzoraka: LGF 352/06

Ispitana svojstva: A dio: Zrakopropusnost  
B dio: Vodonepropusnost  
C dio: Otpornost na opterećenje vjetrom  
D dio: Zvučna izolacija

Voditelj ispitivanja:

*Tomislav Vučić*  
Tomislav Vučić, dipl. ing. sig.



Voditelj laboratorija:

*Ivica Kušević*  
dr. sc. Ivica Kušević, dipl. ing. fizike

Laboratorij očekuje od naručitelja informaciju o izvještaju (rezultatima) na obrascu "PRIGOVOR-REKLAMACIJA-POHVALA" – [www.igh.hr](http://www.igh.hr)

Laboratorij građevinske fizike Zavoda za zgradarstvo, IGH, Zagreb, akreditiran je od Hrvatske akreditacijske agencije (HAA) prema zahtjevima norme HRN EN ISO/IEC 17025:2004 za ispitivanja toplinsko-izolacijskih proizvoda za primjenu u graditeljstvu, izabranih ispitivanja: građevnih materijala i proizvoda s obzirom na toplinu, vlagu i akustička svojstva, toplinskih značajki zgrada, svojstava prozora i vrata, boja i lakova, te građevnih materijala i elemenata u požaru, prema Prilogu potvrde o akreditaciji br. 1033/06.  
Laboratorij građevinske fizike Zavoda za zgradarstvo, IGH, Zagreb, ovlašten je od Ministarstva zaštite okoliša, prostornog uređenja i graditeljstva Republike Hrvatske za radnje ispitivanja toplinsko-izolacijskih proizvoda, povezanih sustava za vanjsku toplinsku izolaciju (ETICS) i građevnih proizvoda na otpornost prema požaru u poslovima ocjenjivanja sukladnosti građevnih proizvoda, evidencijski broj 1/05.

Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pismenog odobrenja Voditelja laboratorija. Ukupan broj stranica: 11.  
Dokument: I2920\_981\_06.doc

Stranica 1 od 11

Izveštaj broj: 2920-981/06

### Opis ispitnog uzorka:

Ispitan je uzorak element klizne stijene TERMO 80, vanjskih izmjera: 2,00 m x 1,70 m, izradene od aluminijskih profila proizvođača Feal d.o.o. Široki Brijeg, BiH i PVC profila AM 2000 proizvođača Vitez iz BiH. Uzorak je ostakljen IZO-staklom debljine 20 mm (staklo FLOAT 4 mm + 12 mm zrak + LOW-e staklo 4 mm).

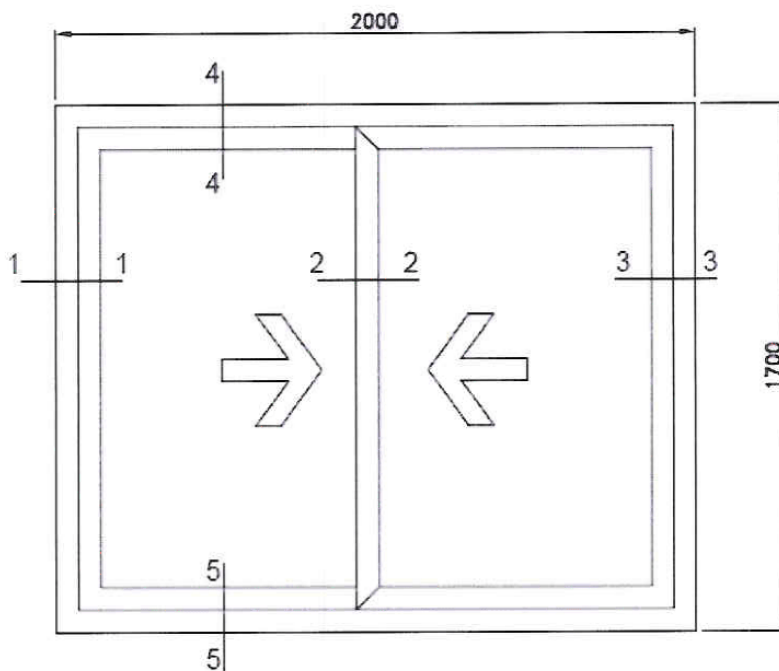
### Korišteni okovi:

- kutnici od al. slitine AlMgSi0.5 – proizvođač FEAL-Široki Brijeg, BiH
- kutnici od al. slitine-*zamak* - proizvođač DITRX-Mostar, BiH
- kutnici od poliamida - proizvođač DITRX-Mostar, BiH
- okov za zatvaranje ručkom - proizvođač MEDAL /Italija/

### Korištene brtve:

- brtve EPDM kvalitete - proizvođač COMPLASTEX, Italija
- poliamidi – proizvođač TECHNOFORM, Njemačka

Skica uzorka s presjecima:





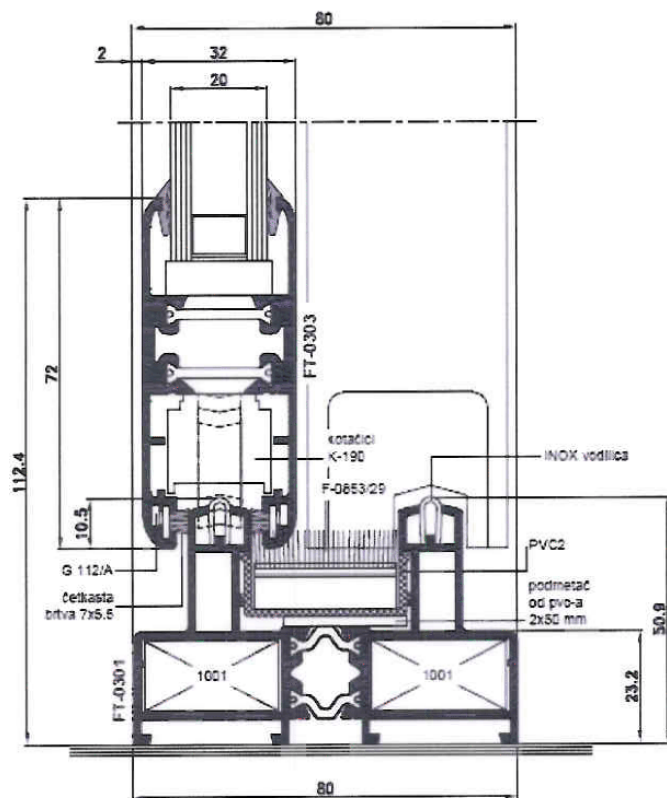
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Izveštaj broj: 2920-981/06



presjek 5-5

## A DIO: ZRAKOPROPUSNOST

(metoda ispitivanja akreditirana od strane HAA)

Zadatak: Ispitati svojstvo zrakopropusnosti ispitnog uzorka LGF 352/06

Ispitano prema normi: HRN EN 1026:2001

Datum ispitivanja: 2006-08-16

Temperatura i relativna vlažnost zraka tijekom ispitivanja: 23 °C i 58 %.

### Mjerna i ispitna oprema:

- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPC", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1679,
- metalni metar.

Ploština ispitnog uzorka:  $A = 3,40 \text{ m}^2$ .

Duljina sljubnica ispitnog uzorka:  $l = 8,67 \text{ m}$ .

Tablica i dijagrami izmjerenih protoka zraka po jedinici duljine sljubnica uzorka i po jedinici ploštine uzorka, kao funkcija razlike tlakova:

Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pismenog odobrenja Voditelja laboratorija.

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Stranica 5 od 11



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Izveštaj broj: 2920-981/06

S obzirom na **zrakopropusnost**, ispitani **element klizne stijene TERMO 80**, ostakljen IZO-staklom debljine 20 mm, proizvođača Feal d.o.o. Široki Brijeg, BiH, može se svrstati u **razred 3**, u skladu s HRN EN 12207:2001.

## B DIO: VODONEPROPUSNOST

(metoda ispitivanja akreditirana od strane HAA)

Zadatak: Ispitati svojstvo vodonepropusnosti ispitnog uzorka LGF 352/06

Ispitano prema normi: HRN EN 1027:2001, Metoda 1A

Datum ispitivanja: 2006-09-14

Temperatura i relativna vlažnost zraka tijekom ispitivanja: 24 °C i 55 %.

### Mjerna i ispitna oprema:

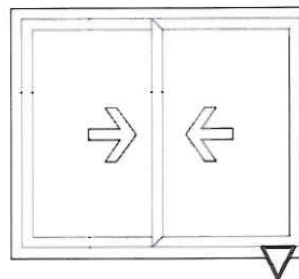
- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPK", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1679,
- metalni metar.

Rezultati ispitivanja prikazani su tablicom:

TLAK $\Delta p$ (Pa)	VRIJEME $\tau$ (min)	LGF 352/06	RAZRED (HRN EN 12208:2001)
0	15	+	1 A
50	5	+	2 A
100	5	∇	3 A
150	5		4 A
200	5		5 A
250	5		6 A
300	5		7 A
450	5		8 A
600	5		9 A

- + ..... Znači da nije došlo do propuštanja vode.
- ∇ ..... Znači da je došlo do propuštanja vode.

Tijekom ispitivanja u skladu s HRN EN 1027:2001, u rasponu natisnog tlaka od 0 Pa do 600 Pa, ispitani uzorak LGF 352/06 je propustio vodu pri natisnom tlaku od 100 Pa, u prvoj minuti ispitivanja. Mjesto procurivanja označeno je na skici znakom "∇".



S obzirom na **vodonepropusnost**, ispitani **element klizne stijene TERMO 80**, ostakljen IZO-staklom debljine 20 mm, proizvođača Feal d.o.o. Široki Brijeg, BiH, može se svrstati u **razred 2A**, u skladu s HRN EN 12208:2001.

Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pismenog odobrenja Voditelja laboratorija.

Dokument: I2920\_981\_06.doc

Stranica 7 od 11



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## C DIO: OTPORNOST NA OPTEREĆENJE VJETROM

(metoda ispitivanja akreditirana od strane HAA)

Zadatak: Ispitati svojstvo otpornosti na opterećenje vjetrom ispitnog uzorka LGF 352/06

Ispitano prema normi: HRN EN 12211:2002

Datum ispitivanja: 2006-09-14

Temperatura i relativna vlažnost zraka tijekom ispitivanja: 24 °C i 55 %.

### Mjerna i ispitna oprema:

- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPC", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1679,
- metalni metar.

### REZULTATI ISPITIVANJA ČEONOG SAVIJANJA

Ispitivanje je provedeno na profilu otvarajućeg dijela klizne stijene gdje postoji najveći razmak između dva susjedna učvršćenja otvarajućeg dijela klizne stijene za okvir.

**B** – mjerno mjesto na sredini između A i C mjesta (oznaka na crtežu),

**A** – mjerno mjesto na spoju gornjeg i bočnog lijevog profila unutarnjeg otvarajućeg dijela klizne stijene gdje ono naliježe na okvir (oznaka na crtežu),

**C** – mjerno mjesto na spoju donjeg i bočnog lijevog profila unutarnjeg otvarajućeg dijela klizne stijene gdje ono naliježe na okvir (oznaka na crtežu),

$A_0, B_0, C_0$  – početno stanje s obzirom na pomak koje je ugođeno tako da pokazuje 0 mm pri  $\Delta p = 0$  (Pa),

$A_P$  – čeonu pomak na mjernom mjestu A pri iskazanoj razlici tlakova  $P_1$ ,

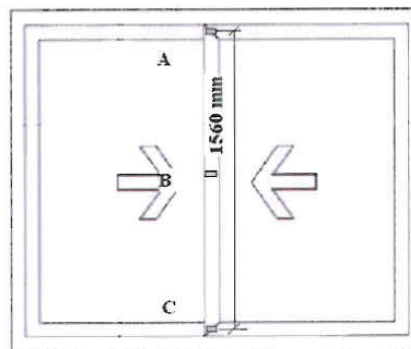
$B_P$  – čeonu pomak na mjernom mjestu B pri iskazanoj razlici tlakova  $P_1$ ,

$C_P$  – čeonu pomak na mjernom mjestu C pri iskazanoj razlici tlakova  $P_1$ ,

$F_P = (B_P) - ((A_P) + (C_P))/2$  - čeono savijanje,

$L = 1,56$  m - razmak između točaka A i C,

$F_{rp} = F_P / L$  - relativno čeono savijanje.



Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pismenog odobrenja Voditelja laboratorija.

Dokument: I2920\_981\_06.doc

Stranica 8 od 11



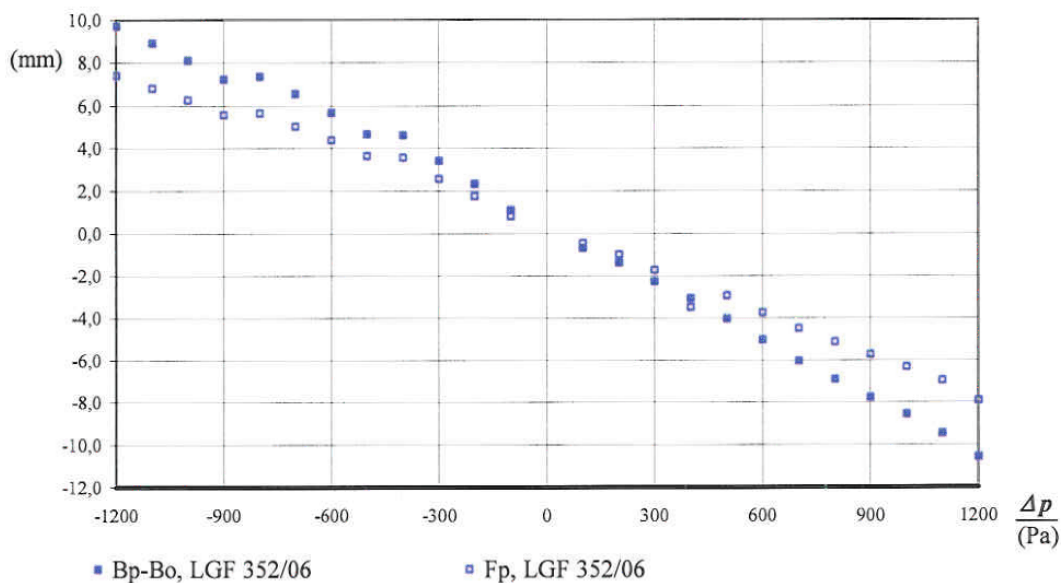
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Izvještaj broj: 2920-981/06

TLAK $\Delta p$ (Pa)	LGF 352/06					TLAK $\Delta p$ (Pa)	LGF 352/06				
	$A_p-A_0$ (mm)	$B_p-B_0$ (mm)	$C_p-C_0$ (mm)	$F_p$ (mm)	$F_{rp}$ ( $\times 10^{-4}$ )		$A_p-A_0$ (mm)	$B_p-B_0$ (mm)	$C_p-C_0$ (mm)	$F_p$ (mm)	$F_{rp}$ ( $\times 10^{-4}$ )
100	-0,4	-0,7	-0,1	-0,45	-2,88	-100	0,4	1,1	0,2	0,80	5,13
200	-0,6	-1,4	-0,2	-1,00	-6,41	-200	0,7	2,3	0,4	1,75	11,22
300	-0,8	-2,3	-0,3	-1,75	-11,22	-300	1,0	3,4	0,7	2,55	16,35
400	1,3	-3,1	-0,5	-3,50	-22,44	-400	1,3	4,6	0,8	3,55	22,76
500	-1,4	-4,1	-0,9	-2,95	-18,91	-500	1,3	4,7	0,8	3,63	23,24
600	-1,7	-5,1	-1,0	-3,75	-24,04	-600	1,6	5,7	1,0	4,38	28,04
700	-2,0	-6,1	-1,2	-4,50	-28,85	-700	1,8	6,6	1,3	5,03	32,21
800	-2,2	-7,0	-1,5	-5,15	-33,01	-800	2,0	7,4	1,5	5,63	36,06
900	-2,4	-7,8	-1,7	-5,75	-36,86	-900	1,9	7,2	1,4	5,55	35,58
1000	-2,6	-8,6	-1,9	-6,35	-40,71	-1000	2,1	8,1	1,6	6,25	40,06
1100	-2,9	-9,5	-2,1	-7,00	-44,87	-1100	2,4	8,9	1,8	6,80	43,59
1200	-3,1	-10,6	-2,2	-7,95	-50,96	-1200	2,6	9,7	2,0	7,40	47,44



S obzirom na relativno čeono savijanje  $F_{rp}$ , ispitani uzorak LGF 352/06, može se svrstati u razred B ( $1/300 < F_{rp} < 1/150$ ), u skladu s HRN EN 12210:2001, budući da je maksimalno relativno čeono savijanje iznosilo 1/196.



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Izveštaj broj: 2920-981/06

## REZULTATI ISPITIVANJA OTPORNOSTI PROMJENJIVIM TLAKOM P2

Ispitivanje je provedeno s 50 impulsa promjenjivog tlaka P2 od  $\pm 600$  Pa, koji iznosi polovicu max. tlaka P1. Nakon provedenog opterećenja na uzorku LGF 352/06 nije bilo vidljivih oštećenja niti promjena u funkcionalnosti elementa klizne stijene.

## REZULTATI SIGURNOSNOG ISPITIVANJA

Ispitivanje sigurnosti je provedeno s jednim impulsom od  $-1800$  Pa i s jednim impulsom od  $+1800$  Pa. Nakon provedenog opterećenja na uzorku LGF 352/06 nije bilo vidljivih napuknuća na bilo kojem dijelu uzorka (staklo, okvir i okovi), niti je došlo do otvaranja elementa klizne stijene.

S obzirom na ispitivanje **otpornosti na opterećenje vjetrom** i ponovljeno ispitivanje zrakopropusnosti nakon ispitivanja otpornosti na opterećenje vjetrom, koje pokazuje da nije došlo do povećanja vrijednosti od 20 % u odnosu na prvo ispitivanje zrakopropusnosti, **ispitani element klizne stijene TERMO 80**, ostakljen IZO-staklom debljine 20 mm, proizvođača Feal d.o.o. Široki Brijeg, BiH., može se svrstati u **razred B3**, u skladu s HRN EN 12210:2001.

## D DIO: ZVUČNA IZOLACIJA

Zadatak: Ispitati izolaciju od zračnog zvuka ispitnog uzorka LGF 352/06

Ispitano prema normi: HRN EN ISO 140-3:1998.

Datum ispitivanja: 2006-08-24

Temperatura i relativna vlažnost zraka tijekom ispitivanja: 22 °C i 62 %.

### Mjerna i ispitna oprema:

- modularni analizator zvuka, tip 2260-IOEC 651, B&K, oznaka mjerila 1974,
  - kalibrator razine zvučnog tlaka, tip 4220, B&K,
  - kondenzatorski mikrofoni, tip 4189, B&K,
  - predpojačala, tip ZC 0026, B&K,
- pojačalo snage, IGH, oznaka mjerila 725,
- zvučnik, tip 4241, B&K, oznaka mjerila 726,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1679.

Indeks zvučne izolacije ispitnog uzorka prikazan je, kao funkcija frekvencije, dijagramom i tablicom.

Pri iskazivanju rezultata ispitivanja rabljene su ove oznake:

$f$  ..... središnja frekvencija terce (Hz),

$R$  ..... indeks zvučne izolacije (dB),

$R_w$  .... vrednovani indeks zvučne izolacije (dB).

Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pismenog odobrenja Voditelja laboratorija.

Dokument: I2920\_981\_06.doc

Stranica 10 od 11

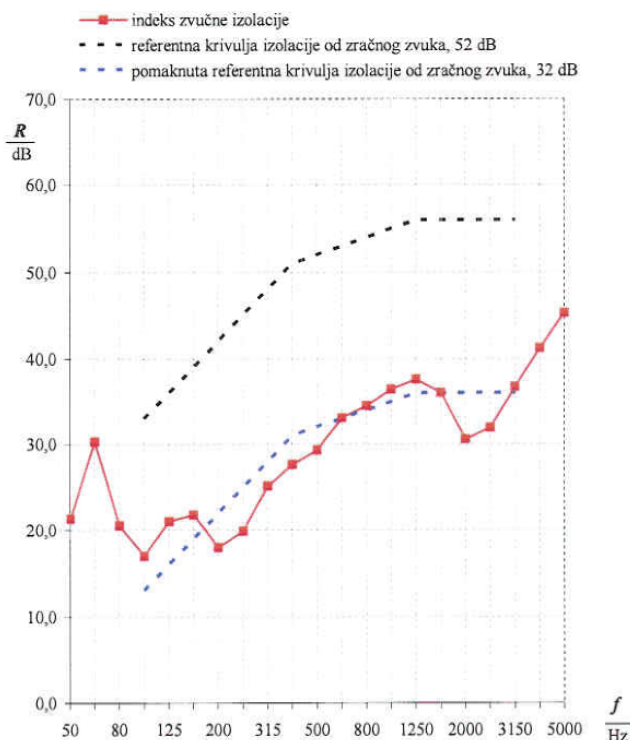
*Prijemna prostorija:* sjeverna prostorija akustičkog laboratorija, obujma 78 m<sup>3</sup>.  
*Predajna prostorija:* južna prostorija akustičkog laboratorija, obujma 78 m<sup>3</sup>.  
*Ispitni uzorak:* element klizne stijene TERMO 80, vanjskih izmjera: 2,00 m x 1,70 m, izrađen od aluminijskih profila proizvođača Feal d.o.o. i PVC profila AM 2000. Uzorak je ostakljen IZO-staklom debljine 20 mm.  
*Ploština ispitnog uzorka:* 3,40 m<sup>2</sup>.

## REZULTATI ISPITIVANJA IZOLACIJE OD ZRAČNOG ZVUKA

Tablica:

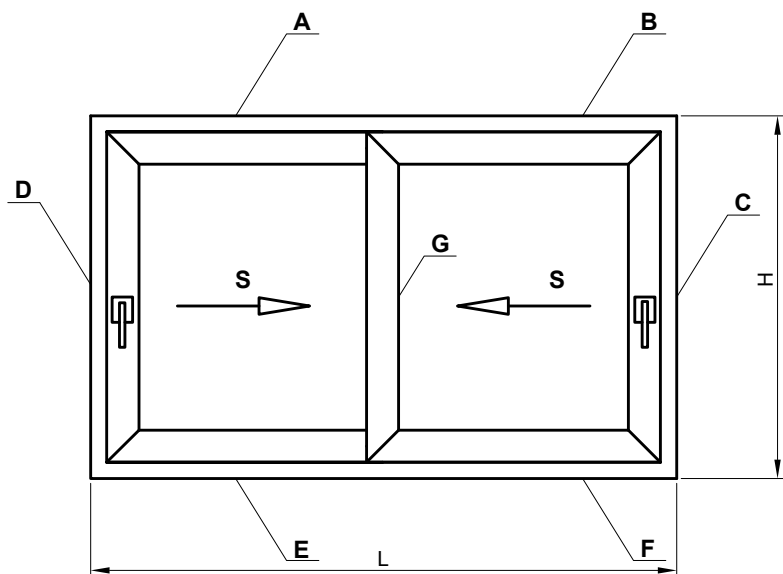
frekvencija $f$ (Hz)	terca $R$ (dB)
50	21,4
63	30,3
80	20,6
100	17,0
125	21,1
160	21,8
200	18,0
250	19,9
315	25,2
400	27,7
500	29,3
630	33,1
800	34,5
1000	36,4
1250	37,6
1600	36,0
2000	30,6
2500	31,9
3150	36,7
4000	41,2
5000	45,2

Dijagram:



Temeljem rezultata ispitivanja, **vrednovani indeks zvučne izolacije** za ispitani **element klizne stijene TERMO 80**, ostakljen IZO-staklom debljine 20 mm, proizvođača Feal d.o.o. Široki Brijeg, BiH (laboratorijska oznaka uzorka LGF 352/06), u skladu s normom HRN EN ISO 717-1:1998., iznosi:

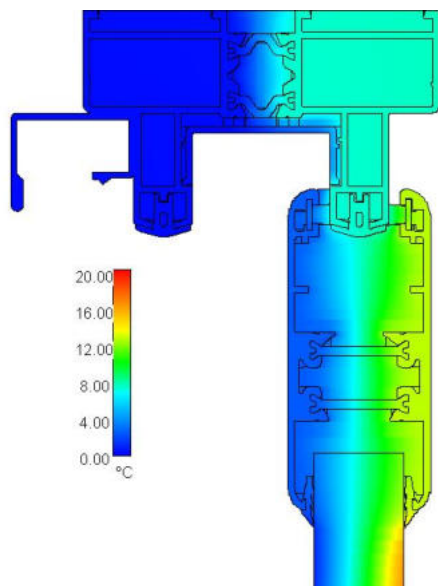
$$R_W (C; C_{tr}; C_{50-5000}; C_{tr,50-5000}) = 32 (-1; -4; 0; -4) \text{ dB.}$$



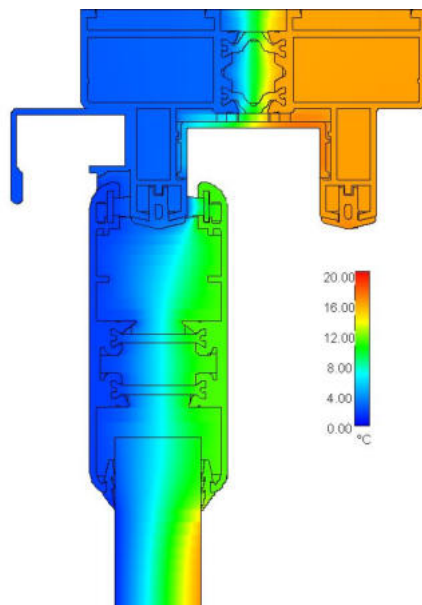
Proračun koeficijenta prolaska topline počiva na dvodimenzionalnoj numeričkoj metodi konačnih elemenata određene prema prEN ISO 10077-2.

DIMENZIJE	L	(m)	2.6
	H	(m)	2.4
A-vodoravnica	$U_A$	(W/m <sup>2</sup> K)	4.1
B-vodoravnica	$U_B$	(W/m <sup>2</sup> K)	4.86
C-okomica	$U_C$	(W/m <sup>2</sup> K)	4.4
D-okomica	$U_D$	(W/m <sup>2</sup> K)	4
E-vodoravnica	$U_E$	(W/m <sup>2</sup> K)	4
F-vodoravnica	$U_F$	(W/m <sup>2</sup> K)	4.4
G-prečka	$U_G$	(W/m <sup>2</sup> K)	5.9
S-staklo	$U_S$	(W/m <sup>2</sup> K)	1.1
Kombinacija stakla i profila	$U_w$	(W/m <sup>2</sup> K)	2

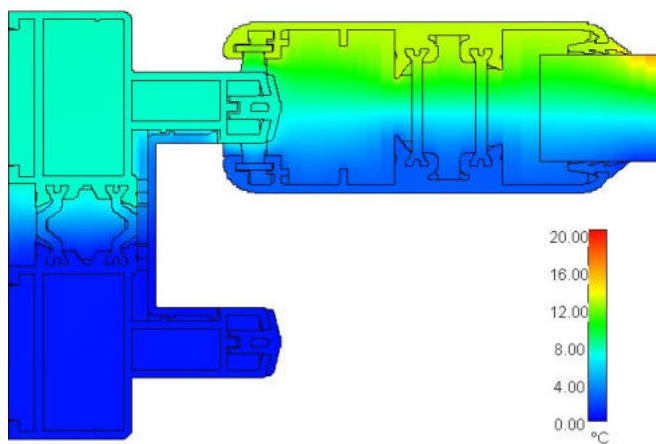
Temperaturni dijagram za A



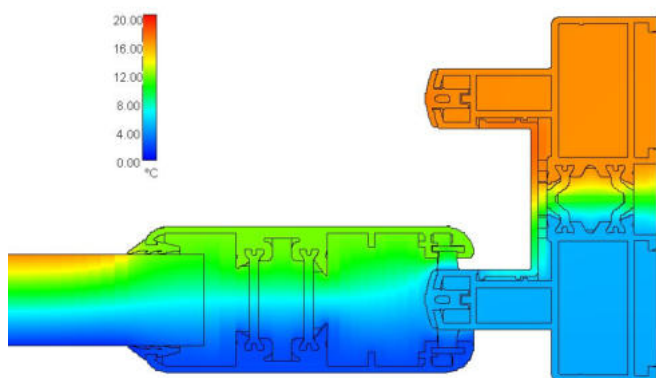
Temperaturni dijagram za B



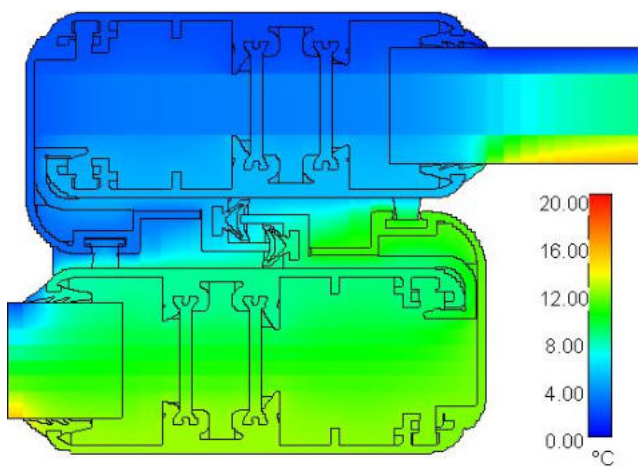
Temperaturni dijagram za D i E

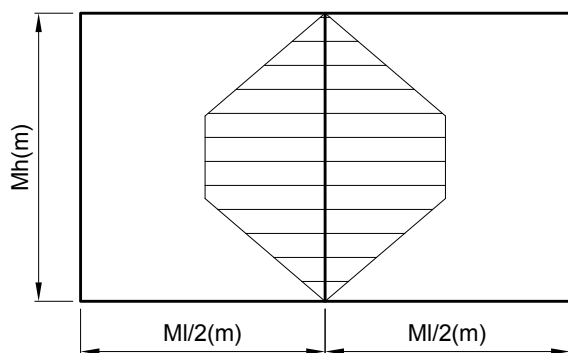


Temperaturni dijagram za C i F

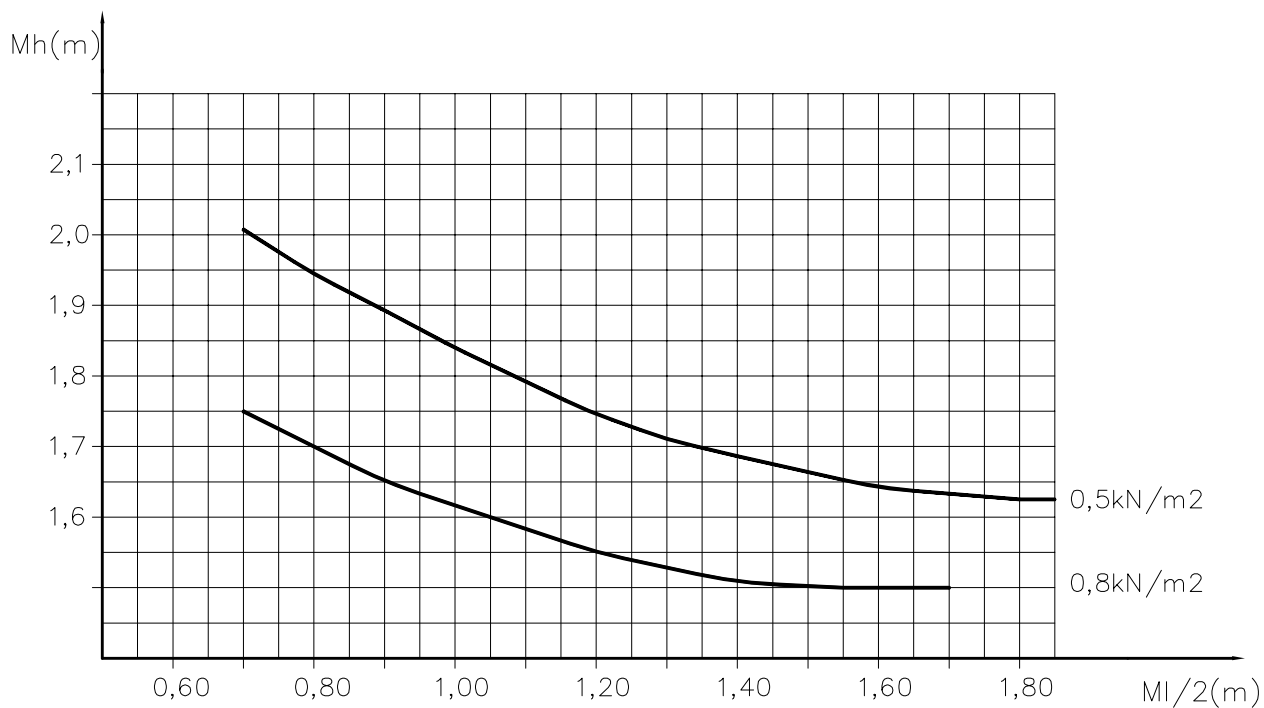
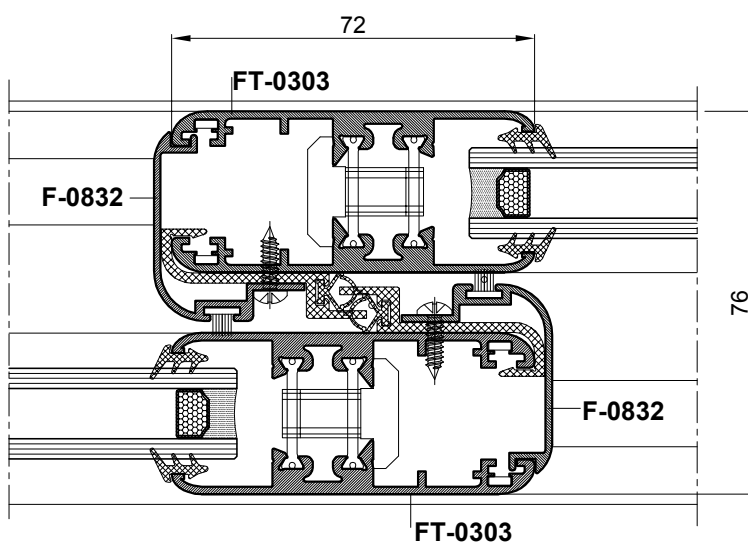


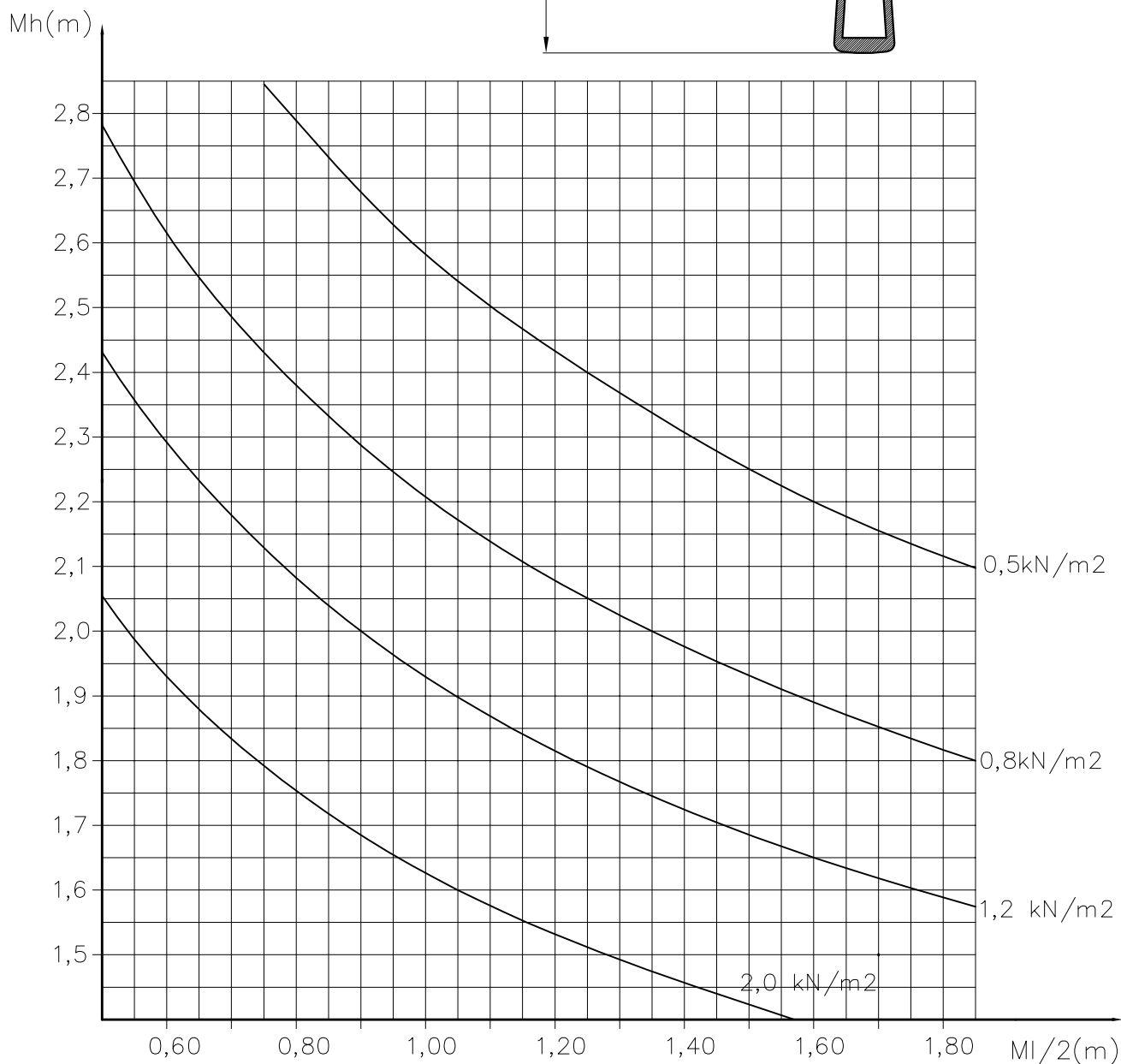
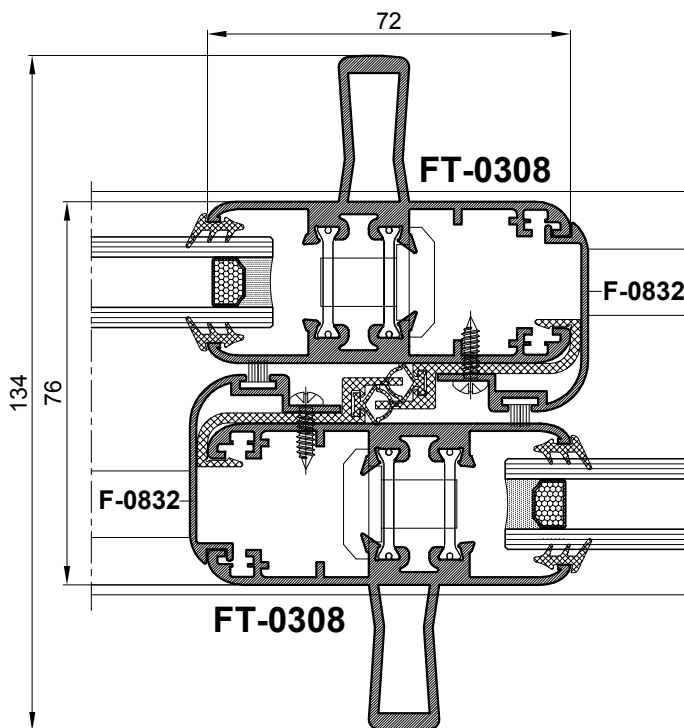
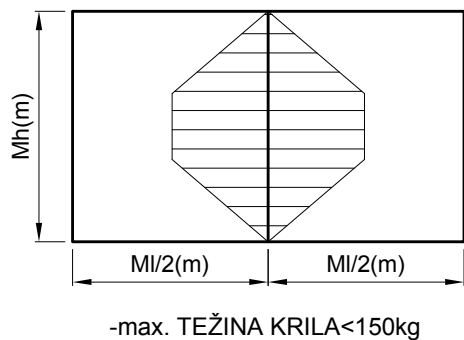
Temperaturni dijagram za G

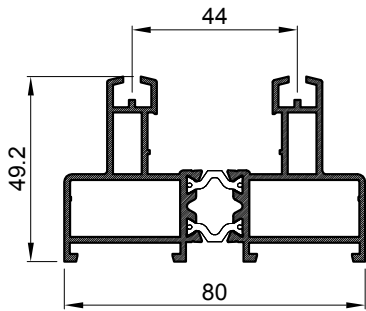




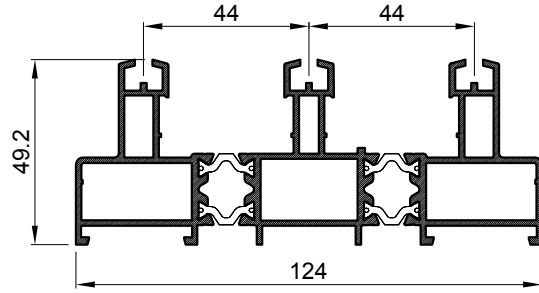
-max. TEŽINA KRILA < 150kg



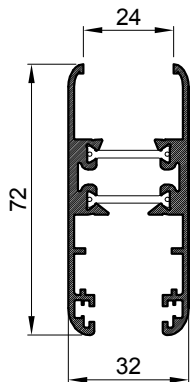




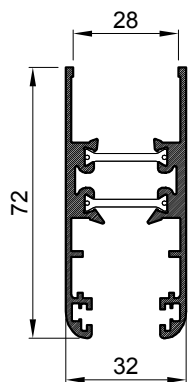
**FT-0301**  
kg/m 1.710



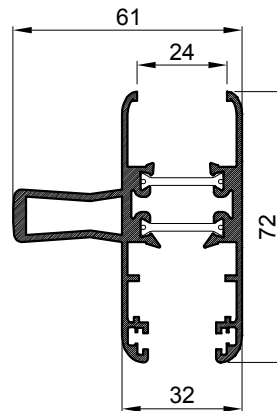
**FT-0302**  
kg/m 2.632



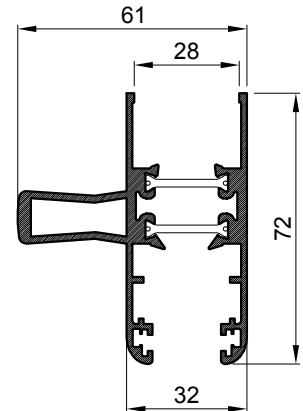
**FT-0303**  
kg/m 1.315



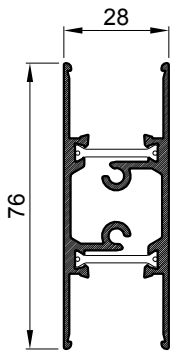
**FT-0309**  
kg/m 1.313



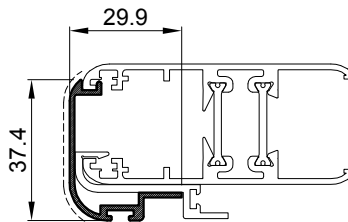
**FT-0308**  
kg/m 1.689



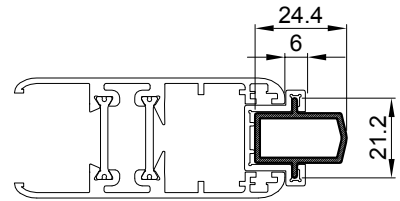
**FT-0310**  
kg/m 1.684



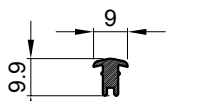
**FT-0307**  
kg/m 1.262



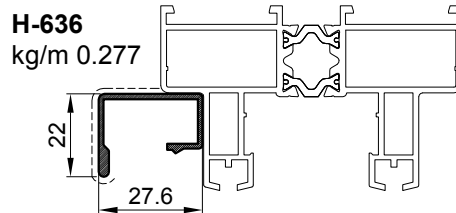
**F-0832**  
kg/m 0.299



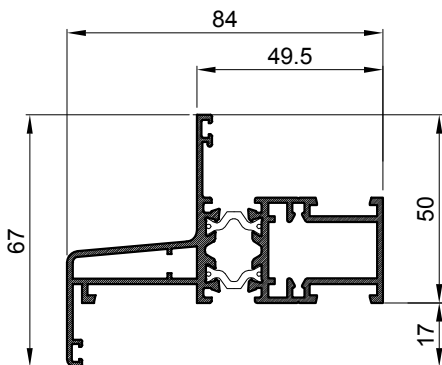
**F-0833**  
kg/m 0.278



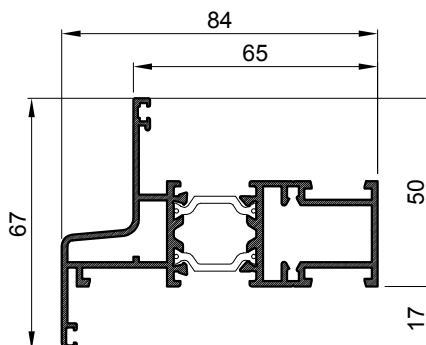
**F-1492**  
kg/m 0.114



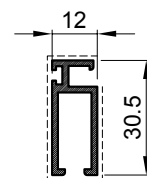
**H-636**  
kg/m 0.277



**FT-0304**  
kg/m 1.567



**FT-0305**  
kg/m 1.558

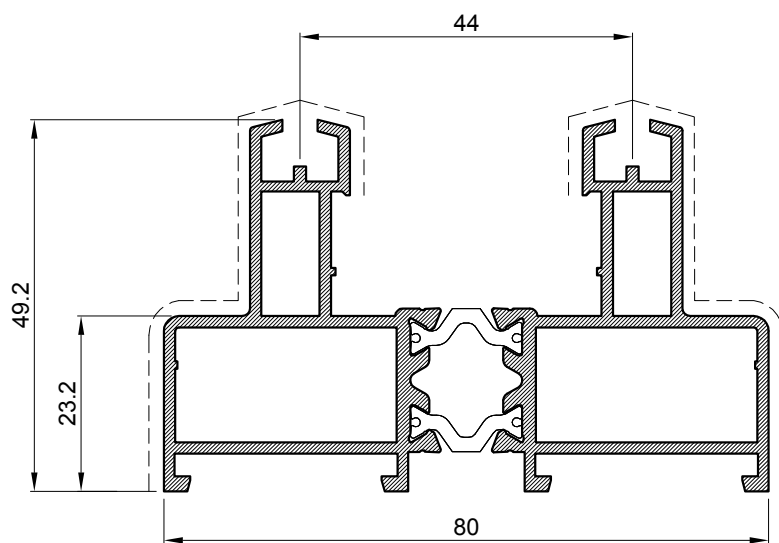


**H-639**  
kg/m 0.323

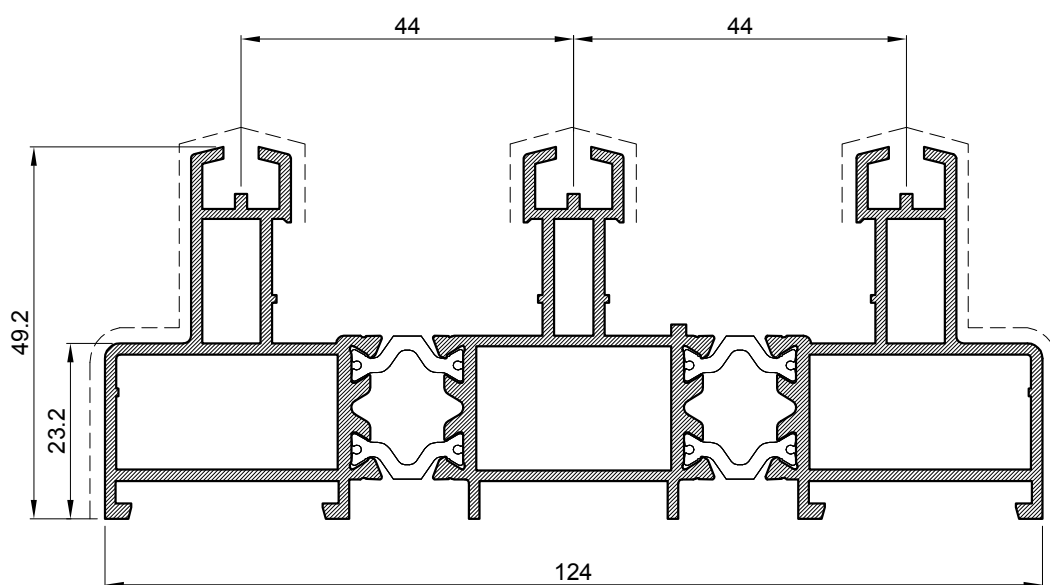


Oznaka		Izgled-presjek	Težina /kg/ml/	Opseg /mm/	$I_x / \text{cm}^4$	$W_x / \text{cm}^3$
					$I_y / \text{cm}^4$	$W_y / \text{cm}^3$
FT-0301			1.710	424	11.61	4.16
					34.39	8.6
FT-0302			2.632	627	17.2	6.19
					123.29	19.87
FT-0303			1.315	402	15.44	4.18
					8.05	5.03
FT-0304			1.567	548	8.23	2.25
					33.85	7.95
FT-0305			1.558	416	8.58	2.39
					37.1	8.46
FT-0307			1.262	298	13.84	3.65
					5.5	3.93
FT-0308			1.689	449	15.93	4.42
					20.86	5.63
FT-0309			1.313	388	15.25	4.11
					8.08	5.05

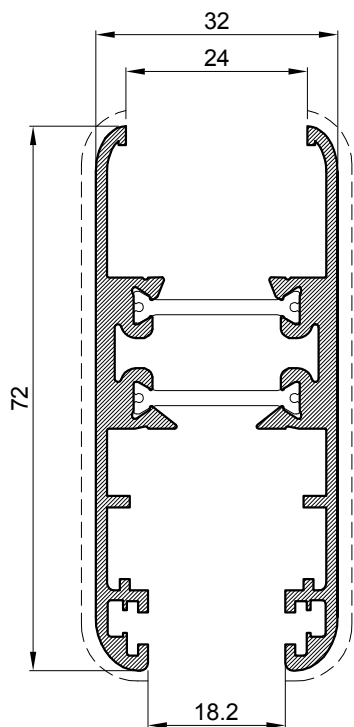
Oznaka		Izgled-presjek	Težina /kg/ml/	Opseg /mm/	$I_x / \text{cm}^4$	$W_x / \text{cm}^3$
					$I_y / \text{cm}^4$	$W_y / \text{cm}^3$
FT-0310			1.684	448	15.77	4.37
					20.88	5.64
F-0832			0.299	164	1.72	0.72
					0.83	0.39
F-0833			0.278	86	0.33	0.31
					0.65	0.51
H-636			0.277	142		
H-639			0.323	80		
F-1492			0.114	41		



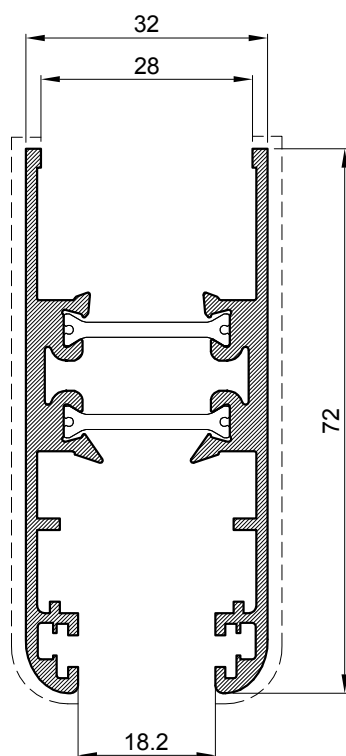
Dvostazni profil rama		
Art.-Br.	<b>FT-0301</b>	
Težina	kg/m	<b>1.710</b>
Opseg	mm	424
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	11.61
	I <sub>y</sub> (cm <sup>4</sup> )	34.39
	W <sub>x</sub> (cm <sup>3</sup> )	4.16
	W <sub>y</sub> (cm <sup>3</sup> )	8.6
Dužina isporuke	mm	6500



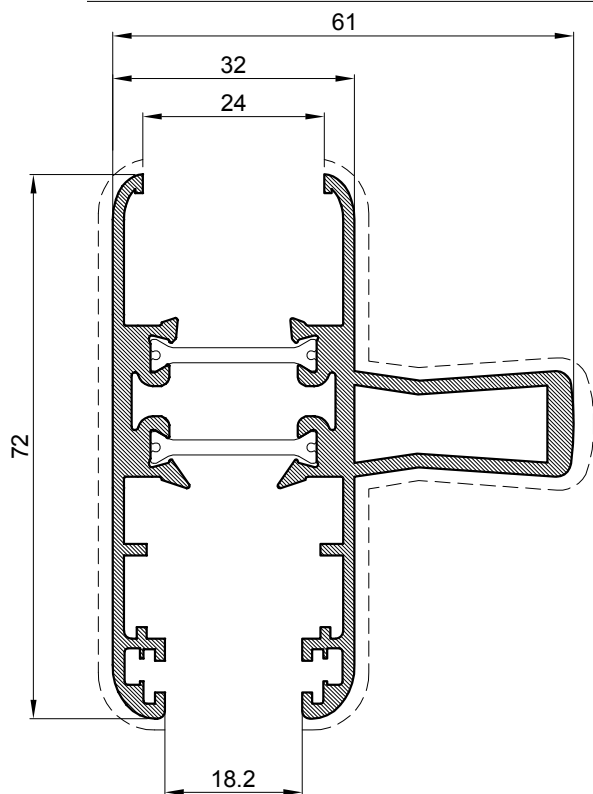
Trostazni profil rama		
Art.-Br.	<b>FT-0302</b>	
Težina	kg/m	<b>2.632</b>
Opseg	mm	627
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	17.2
	I <sub>y</sub> (cm <sup>4</sup> )	123.29
	W <sub>x</sub> (cm <sup>3</sup> )	6.19
	W <sub>y</sub> (cm <sup>3</sup> )	19.87
Dužina isporuke	mm	6500



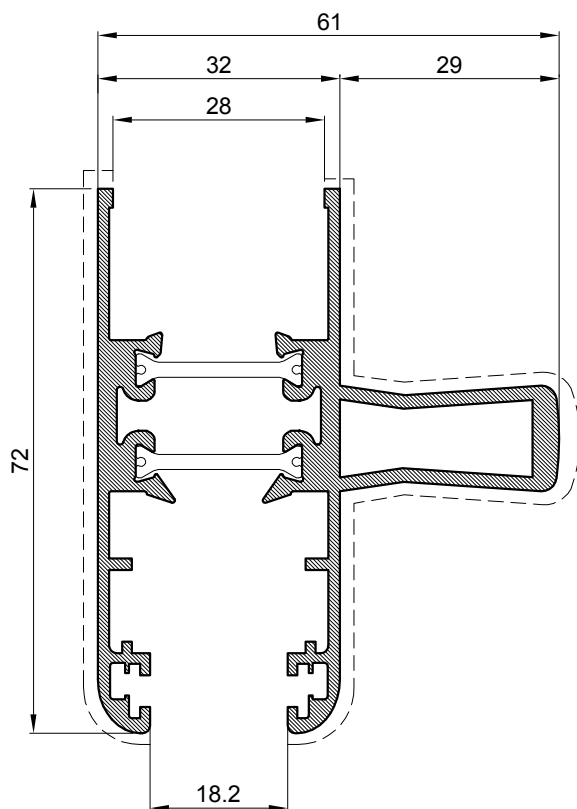
Profil krila		
Art.-Br.	<b>FT-0303</b>	
Težina	kg/m	1.315
Opseg	mm	402
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	15.44
	I <sub>y</sub> (cm <sup>4</sup> )	8.05
	W <sub>x</sub> (cm <sup>3</sup> )	4.18
	W <sub>y</sub> (cm <sup>3</sup> )	5.03
Dužina isporuke	mm	6500



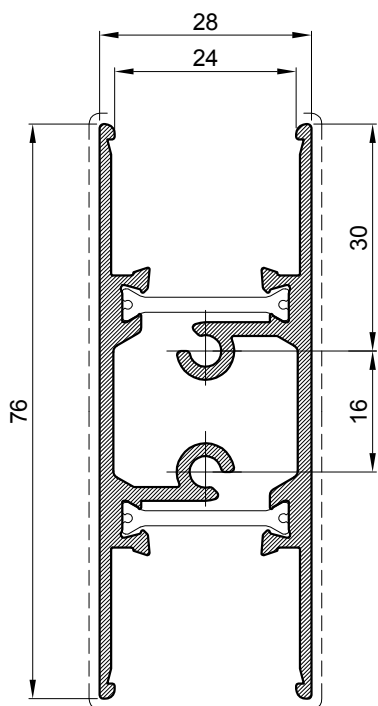
Profil krila		
Art.-Br.	<b>FT-0309</b>	
Težina	kg/m	1.313
Opseg	mm	388
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	15.25
	I <sub>y</sub> (cm <sup>4</sup> )	8.08
	W <sub>x</sub> (cm <sup>3</sup> )	4.11
	W <sub>y</sub> (cm <sup>3</sup> )	5.05
Dužina isporuke	mm	6500



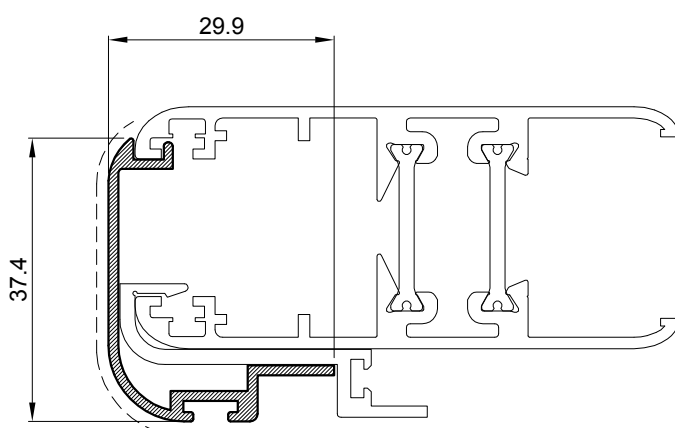
Profil krila-ojačan		
Art.-Br.	<b>FT-0308</b>	
Težina	kg/m	1.689
Opseg	mm	449
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	15.93
	I <sub>y</sub> (cm <sup>4</sup> )	20.86
	W <sub>x</sub> (cm <sup>3</sup> )	4.42
	W <sub>y</sub> (cm <sup>3</sup> )	5.63
Dužina isporuke	mm	6500



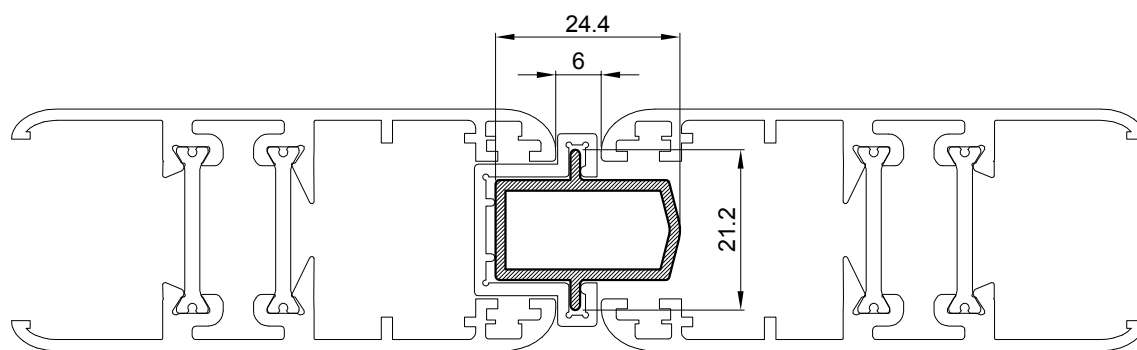
Profil krila-ojačan		
Art.-Br.	<b>FT-0310</b>	
Težina	kg/m	1.684
Opseg	mm	448
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	15.77
	I <sub>y</sub> (cm <sup>4</sup> )	20.88
	W <sub>x</sub> (cm <sup>3</sup> )	4.37
	W <sub>y</sub> (cm <sup>3</sup> )	5.64
Dužina isporuke	mm	6500



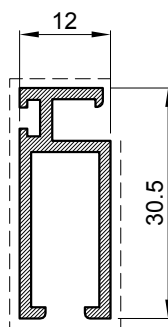
Profil prečke		
Art.-Br.	<b>FT-0307</b>	
Težina	kg/m	1.262
Opseg	mm	298
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	13.84
	I <sub>y</sub> (cm <sup>4</sup> )	5.5
	W <sub>x</sub> (cm <sup>3</sup> )	3.65
	W <sub>y</sub> (cm <sup>3</sup> )	3.93
Dužina isporuke	mm	6500



Profil na spoju krila		
Art.-Br.	<b>F-0832</b>	
Težina	kg/m	0.299
Opseg	mm	164
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	1.72
	I <sub>y</sub> (cm <sup>4</sup> )	0.83
	W <sub>x</sub> (cm <sup>3</sup> )	0.72
	W <sub>y</sub> (cm <sup>3</sup> )	0.39
Dužina isporuke	mm	6500

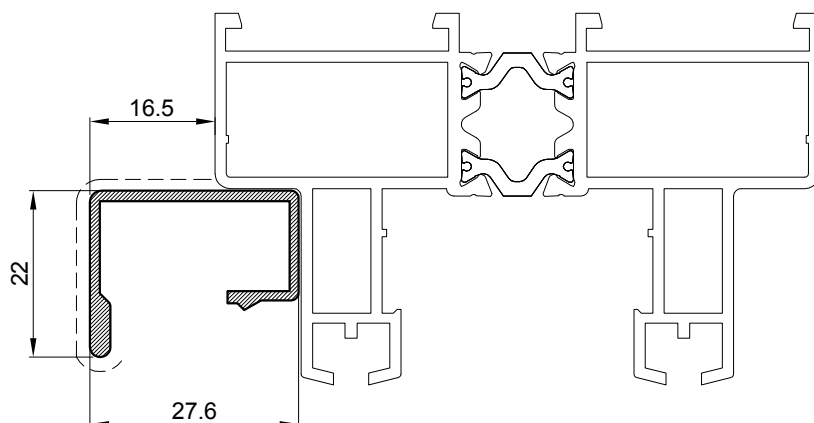


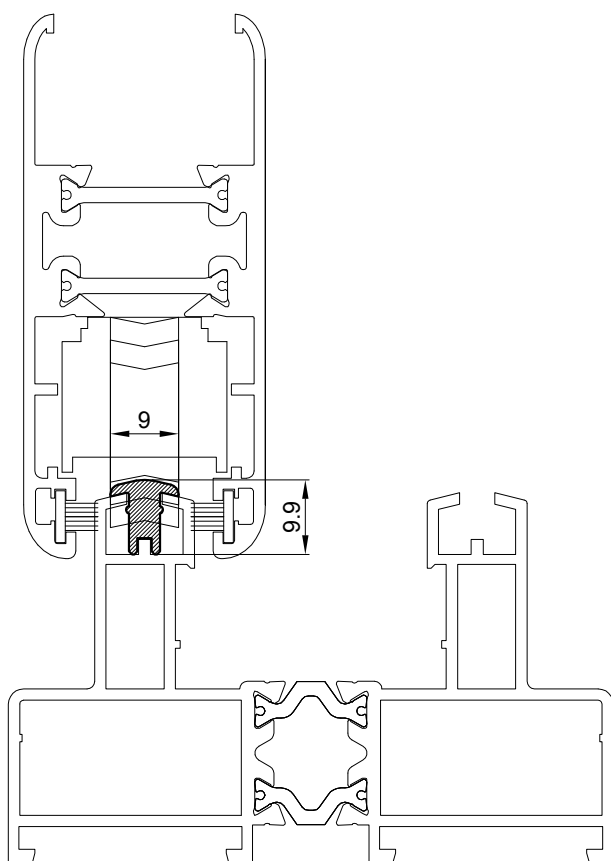
Profil prečke		
Art.-Br.	<b>F-0833</b>	
Težina	kg/m	0.278
Opseg	mm	86
Moment inercije	$I_x$ (cm <sup>4</sup> )	0.33
	$I_y$ (cm <sup>4</sup> )	0.65
	$W_x$ (cm <sup>3</sup> )	0.31
	$W_y$ (cm <sup>3</sup> )	0.51
Dužina isporuke	mm	6500



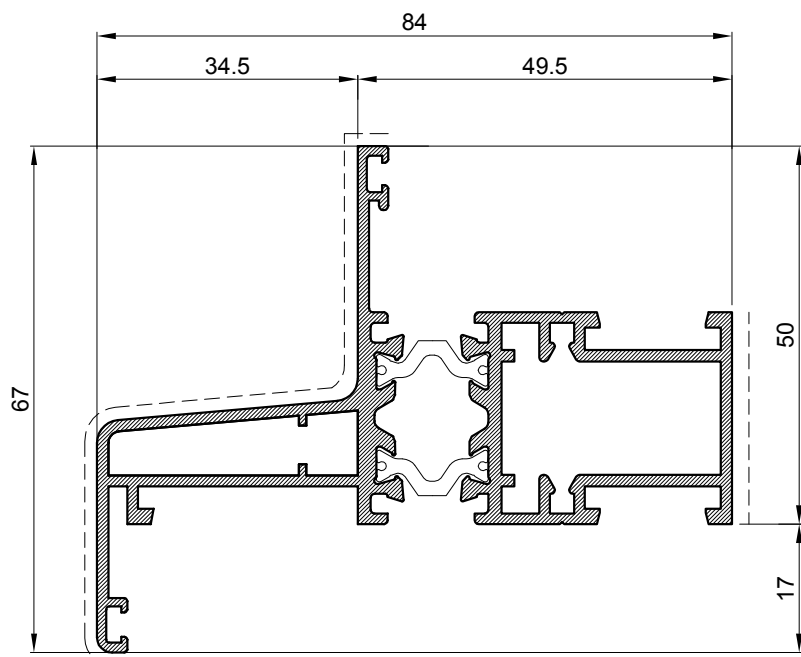
Profil prečke		
Art.-Br.	<b>H-639</b>	
Težina	kg/m	0.323
Opseg	mm	161
Dužina isporuke	mm	6500

Okapnica-vodilica komarica		
Art.-Br.	<b>H-636</b>	
Težina	kg/m	0.277
Opseg	mm	142
Dužina isporuke	mm	6500

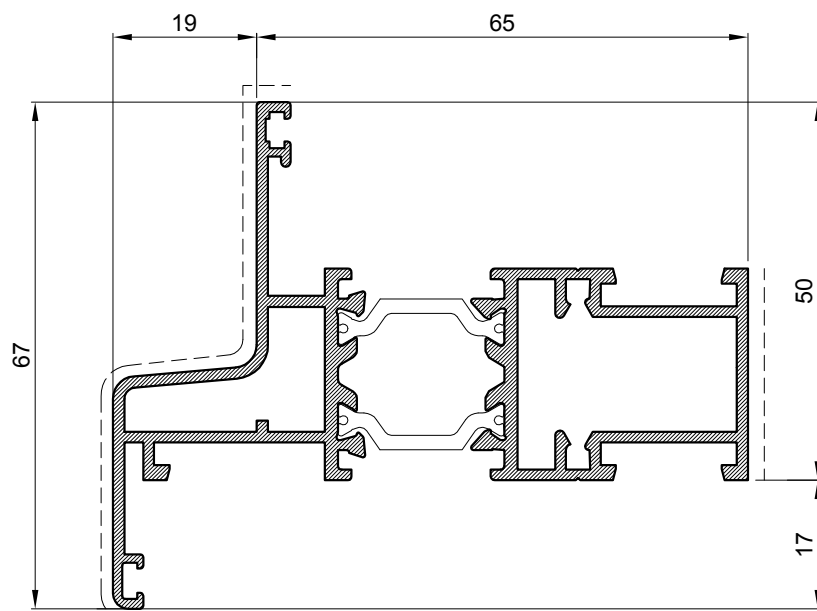




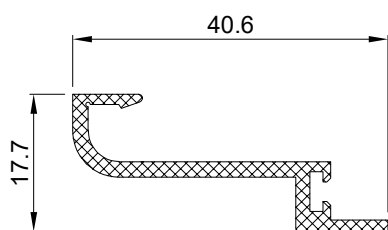
Vodilica kotačica		
Art.-Br.	<b>F-1492</b>	
Težina	kg/m	0.114
Opseg	mm	41
Dužina isporuke	mm	6500



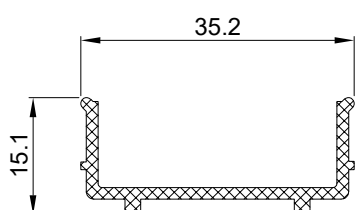
Profil prečke		
Art.-Br.	<b>FT-0304</b>	
Težina	kg/m	1.567
Opseg	mm	548
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	8.23
	I <sub>y</sub> (cm <sup>4</sup> )	33.85
	W <sub>x</sub> (cm <sup>3</sup> )	2.25
	W <sub>y</sub> (cm <sup>3</sup> )	7.95
Dužina isporuke	mm	6500



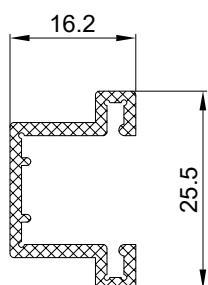
Profil prečke		
Art.-Br.	<b>FT-0305</b>	
Težina	kg/m	1.558
Opseg	mm	416
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	8.58
	I <sub>y</sub> (cm <sup>4</sup> )	37.1
	W <sub>x</sub> (cm <sup>3</sup> )	2.39
	W <sub>y</sub> (cm <sup>3</sup> )	8.46
Dužina isporuke	mm	6500



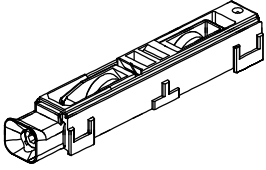
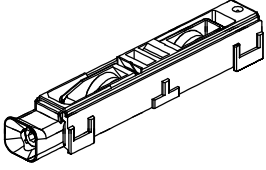
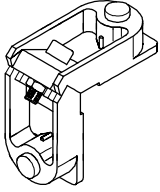
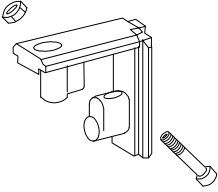
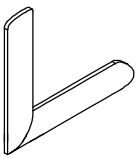
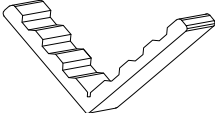
PVC profil		
Art.-Br.	<b>374.031</b> <i>/PVC1/</i>	
Težina	kg/m	
Opseg	mm	137
Dužina isporuke	mm	

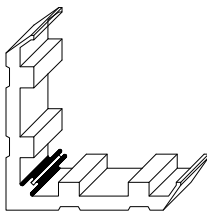
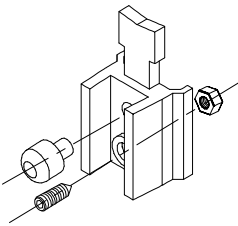
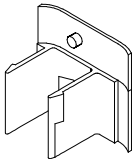
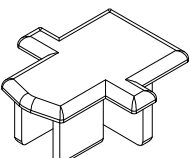
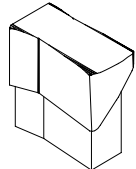
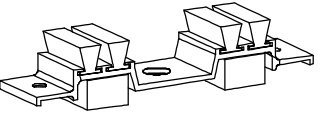


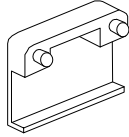
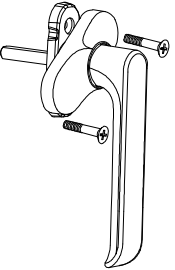
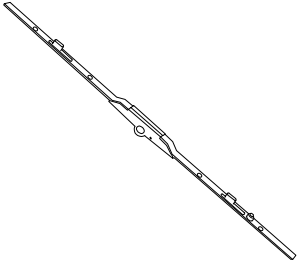
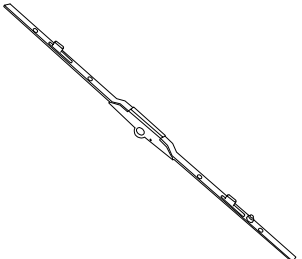
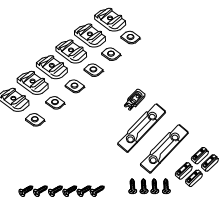
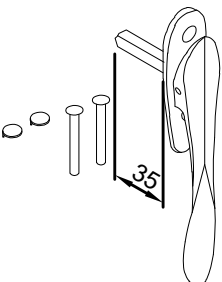
PVC profil		
Art.-Br.	<b>374.032</b> <i>/PVC2/</i>	
Težina	kg/m	
Opseg	mm	119
Dužina isporuke	mm	




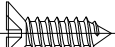
PVC profil		
Art.-Br.	<b>374.033</b> <i>/PVC3/</i>	
Težina	kg/m	
Opseg	mm	140
Dužina isporuke	mm	

CODE	Izgled-presjek	Opis	Materijal	Nap.
140.001		<ul style="list-style-type: none"> <li>- Kotačići-nosivost 100 kg/par</li> <li>- Stara oznaka 0595 RC</li> </ul>		
143.008		<ul style="list-style-type: none"> <li>- Kotačići - nosivost 110 kg/par</li> <li>- Stara oznaka GS 3120</li> </ul>		
730.008		<ul style="list-style-type: none"> <li>- Kutnik okvira</li> <li>- Stara oznaka 1001</li> </ul>		
730.012		<ul style="list-style-type: none"> <li>- Kutnik krila</li> <li>- Stara oznaka KK 80</li> </ul>	PVC	
730.002		<ul style="list-style-type: none"> <li>- Pomoćni kutnik</li> <li>- Stara oznaka G112/A</li> </ul>	Inox	
710.004		<ul style="list-style-type: none"> <li>- Kutnik</li> <li>- Stara znaka K-0272/A</li> </ul>	Al.	

CODE	Izgled-presjek	Opis	Materijal	Nap.
725.004	 <p style="text-align: right;">l=7,3mm</p>	- Kutna spojnica za komoru 16,5x7,6 - Stara oznaka K-0558/F	Al.	
375.011		- Odstojnik i osigurač od vađenja krila - Stara oznaka OD-01	PVC	
375.014.01 02 03		- Umetak za profil F-0832-PAR - Stara oznaka UM-01	PVC	
373.032		-Umetak za profil F-0833 (serija Termo 80)	PVC	
370.008		- Umetak-masku za profil FT-0308 i FT-0310 - Stara oznaka 560GI03		
340.008		- Brtvilo na spoju dva krila - Stara znaka F-0853/29		

CODE	Izgled-presjek	Opis		Nap.
373.003		<ul style="list-style-type: none"> <li>- Maska za drenažni otvor</li> <li>- Stara oznaka 2328</li> </ul>	PVC	
104.016.01 02 03		<ul style="list-style-type: none"> <li>- Ručka za vrata</li> <li>- Oznaka proizvođača Stublina: 1110.00</li> <li>- Boje: 01- bijela; 02 - siva; 03 - crna</li> </ul>		
130.003		<ul style="list-style-type: none"> <li>- Ključanje u dvije točke</li> <li>- Stara oznaka A6392 ključanje FAST LOCK L=1000 mm</li> </ul>	-	
130.006		<ul style="list-style-type: none"> <li>- Ključanje u tri točke</li> <li>- Stara oznaka A6394 ključanje FAST LOCK L=1800 mm</li> </ul>	-	
130.004		<ul style="list-style-type: none"> <li>- Ključanje u više točaka</li> <li>- Stara oznaka A6394.A22 - KIT FAST LOCK</li> <li>- klizno Termo 80</li> </ul>	-	
105.009.01 02 03		<ul style="list-style-type: none"> <li>- Pogonska ručica za bravu crna bijela siva</li> <li>- Stara oznaka art.0249201(Giesse)</li> </ul>		

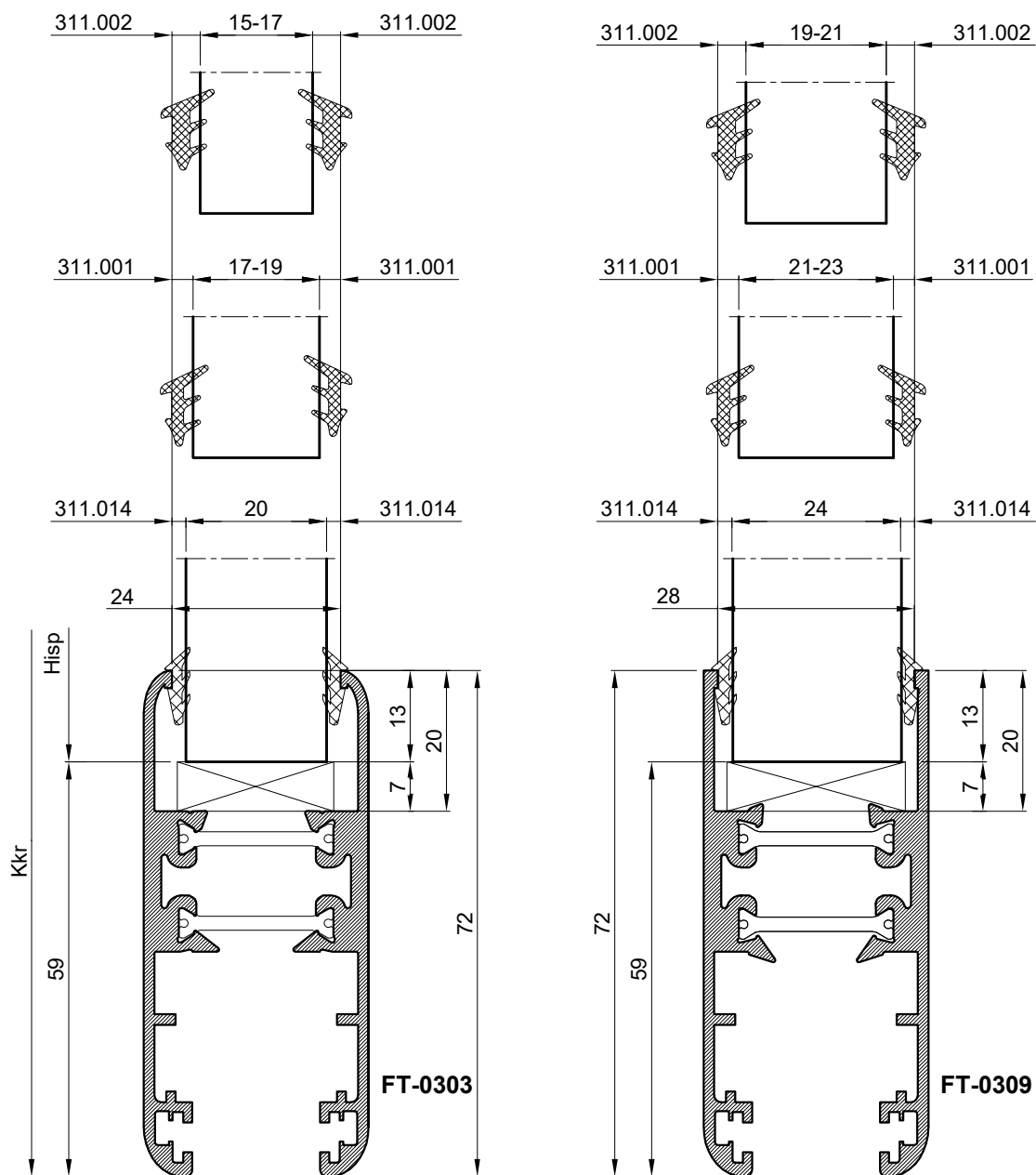
CODE	Izgled-presjek	Opis	Materijal	Nap.
105.001		- Rukohvat za pogon krila - Stara oznaka 3172	-	
105.010		Bravica-jezičak s prihvatnikom Oznaka proizvođača:04902		
105.006.01 02 03		Bravica-pogonski dio Oznaka proizvođača:02988		
140.003		- Bravica-jezičak sa prihvatnikom - Stara oznaka 0995 RC - Lock - tongue with acceptor (panel) - Stara oznaka 0995 RC		
		- Bravica - pogonski dio - Lock - driving part		
370.000 370.001 370.002		- Podmetači za staklo    3 mm    370.000 5 mm    370.001 7 mm    370.002 - Stara oznaka 210001319	PVC	

CODE	Izgled-presjek	Opis	Materijal	Nap.
433.003		- 3.5x13 DIN 7981		
433.116		- 4.2X13DIN 7982		



CODE	Izgled-presjek	Opis	Materijal	Nap.
311.014		-Brtva prema staklu /unutarnja/ - Stare oznake UP-2		
311.001		- Brtva prema staklu /unutarnja/ - Stara oznaka (921)	EPDM	71
311.002		-Brtva prema staklu /unutarnja/ - Stara oznaka (918)	EPDM	71
347.004		- Četkasta brtva 7x5.5 - Stara oznaka PB*HFC		
344.014		- Brtva vertikalnog pojasa krila - Stara oznaka ART-3866	TPE	65
344.052.01 02 03		- Brtva za ramove T-120.Termo 80 - Isporuka u boji (crna, bijela, siva)	ELASTRON G SEBS	

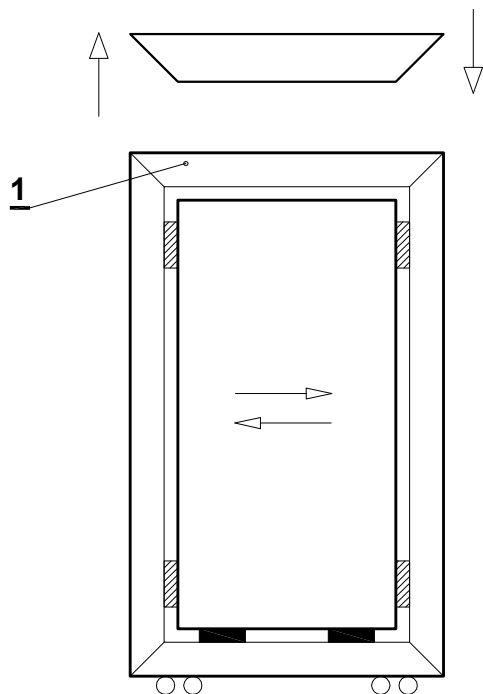
## MJERE ISPUNE I BRTVLJENJE PREMA ISPUNI



## MJERA ISPUNE PREMA PROFILIMA KRILA

- Hisp=Hkr-118
- Lisp=Lkr-118

Za profile krila: FT-0303, FT-0308, FT-0309 i FT-0310



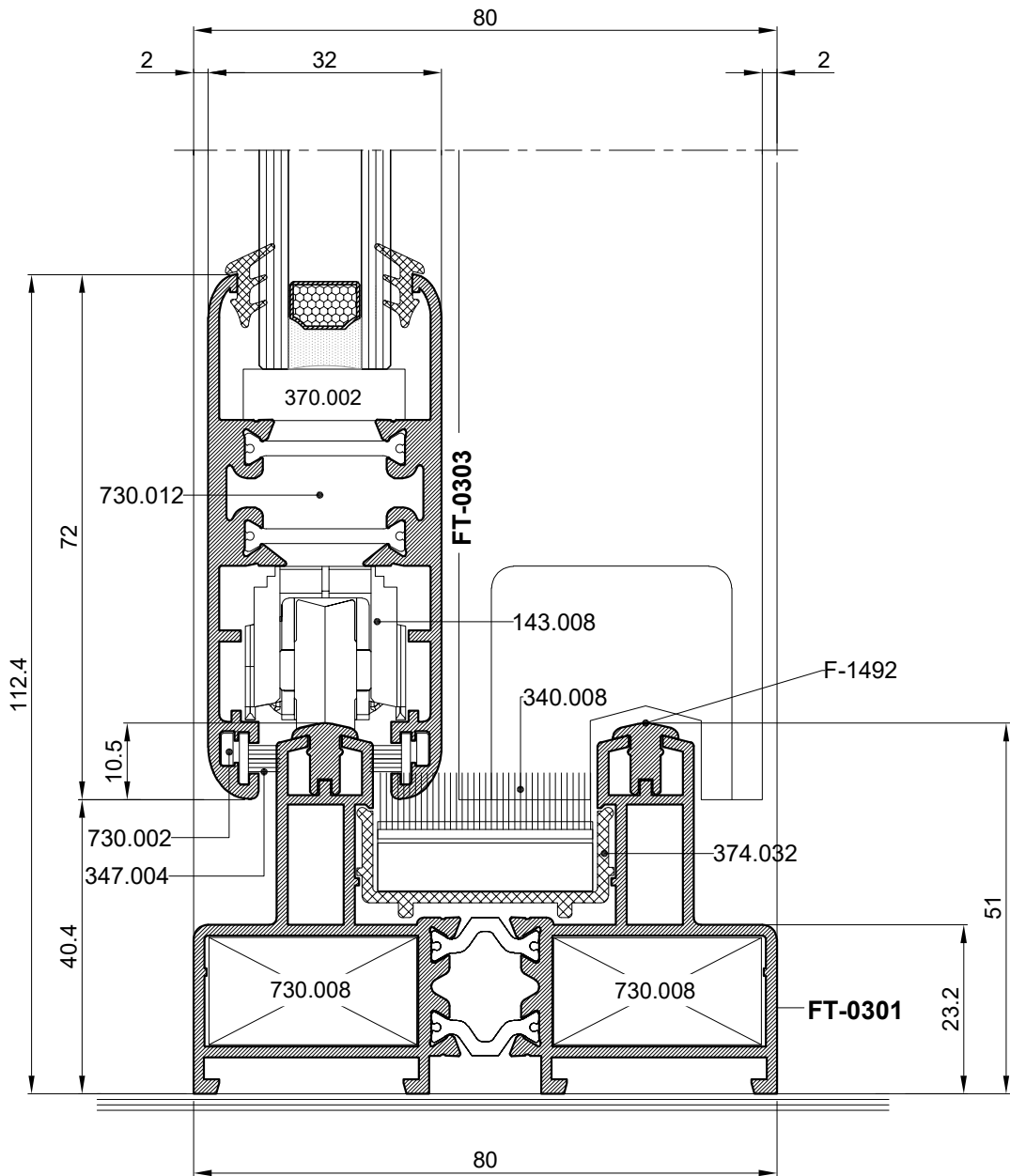
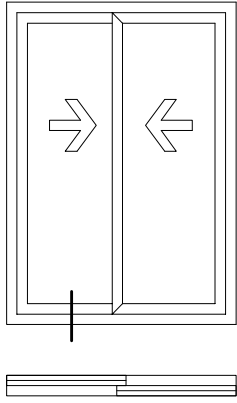
■ nosivi podmetač

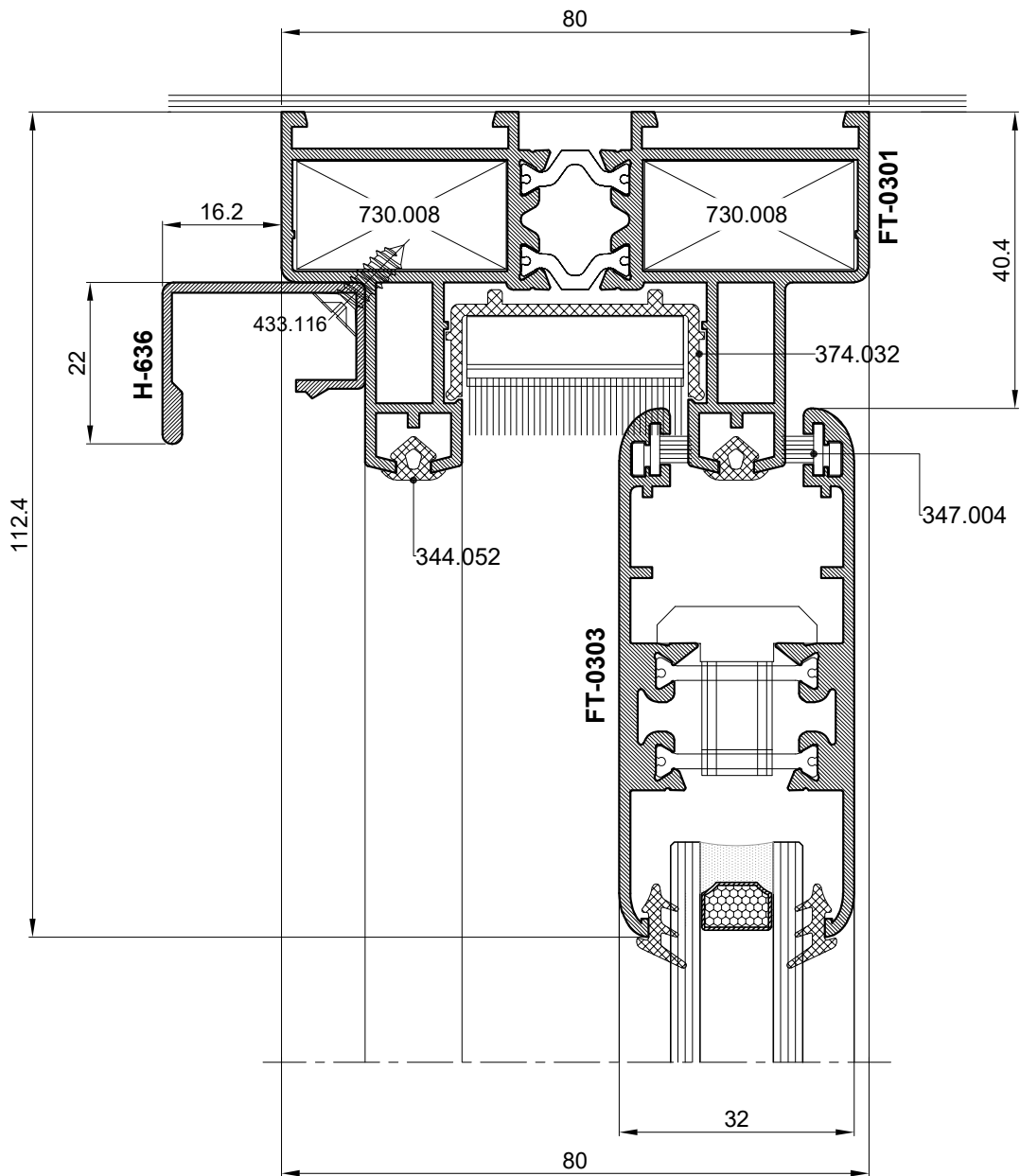
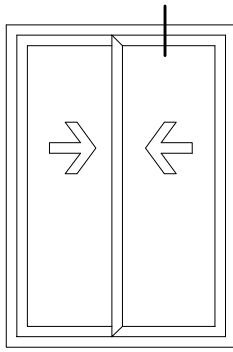
▨ odstojni podmetač

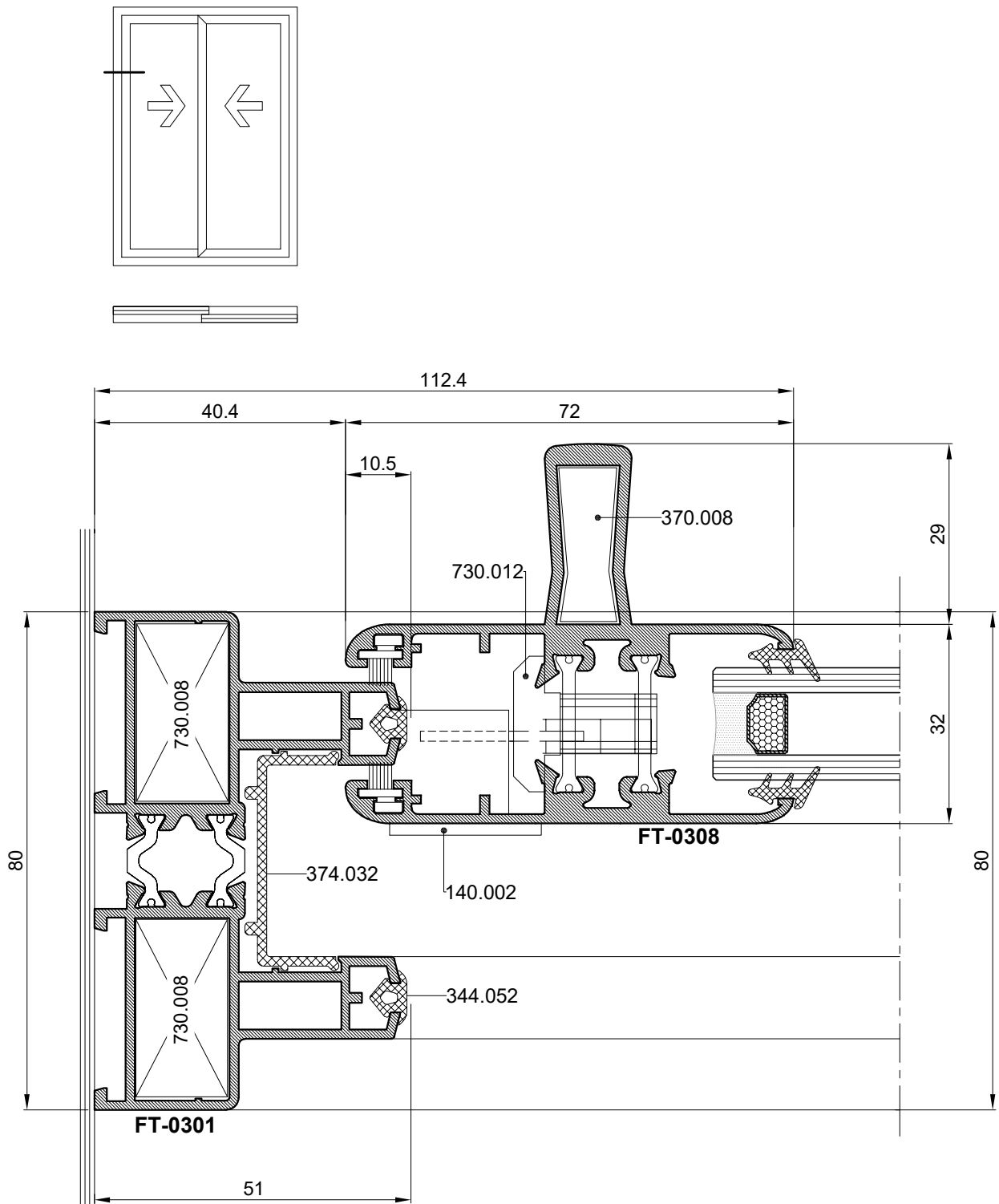
#### UGRADNJA ISPUNE U KRILO

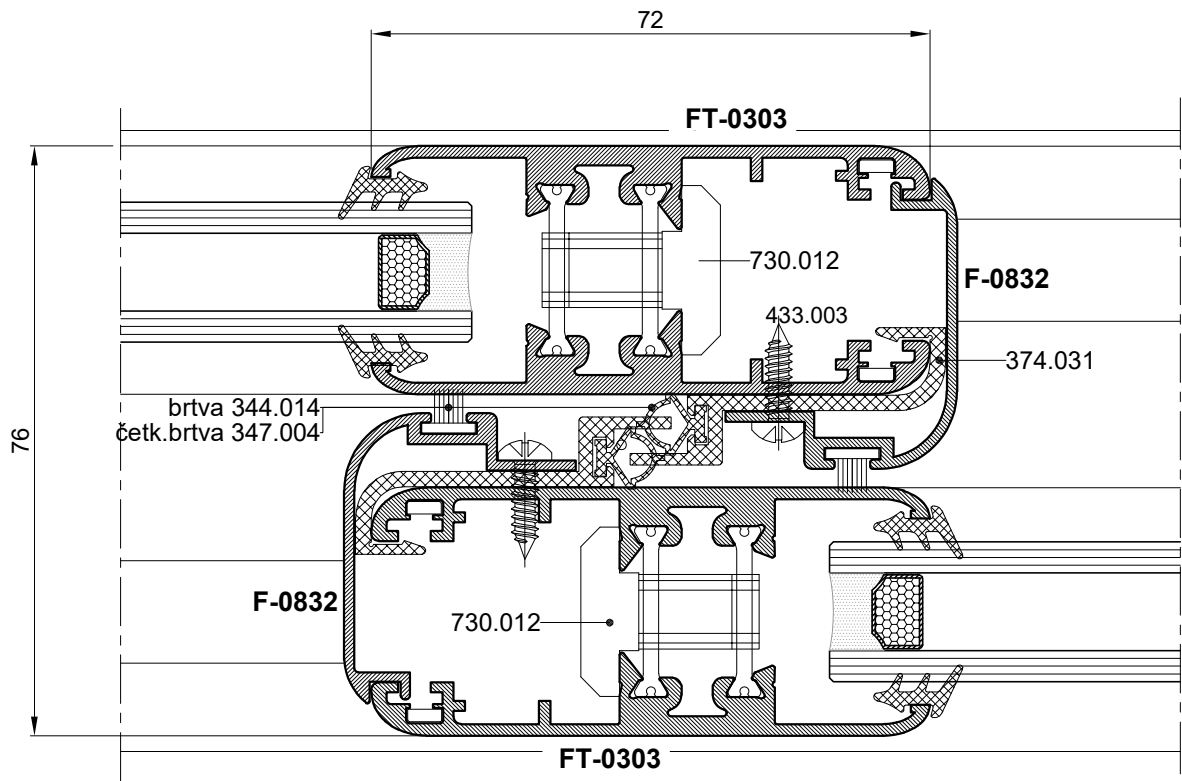
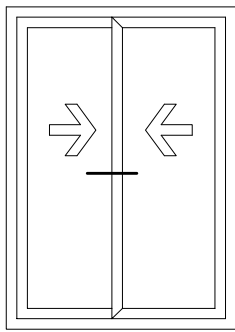
1. gornji vodoravni pojas krila 1 odvojiti od okvira krila
2. umetnuti ispunu u okvir krila s rasporedom podmetača  
-prema skici
3. vratiti vodoravni pojas krila 1 u prvobitno stanje
4. zabrtviti prostor između ispunе i profila EPDM brtvama

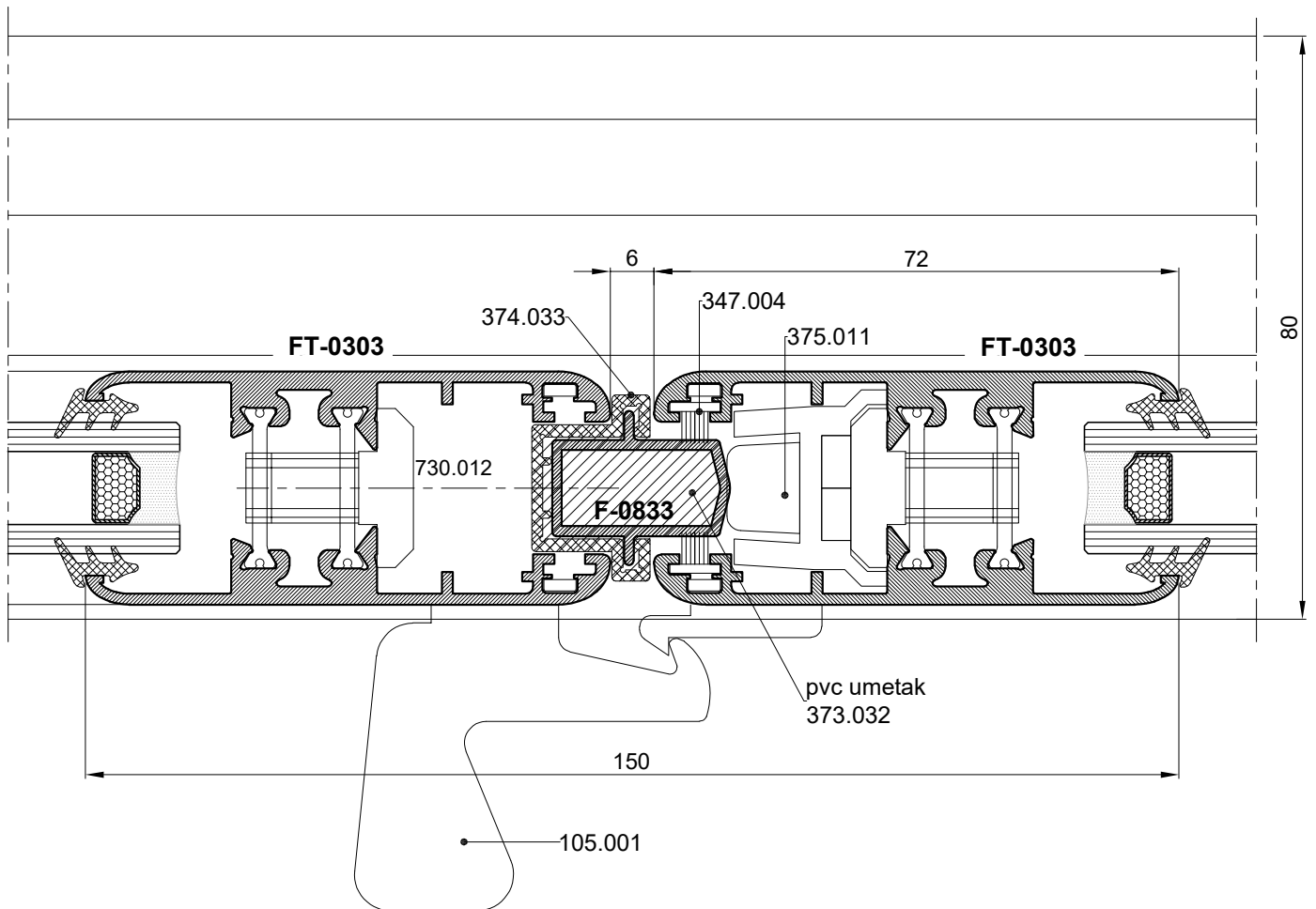
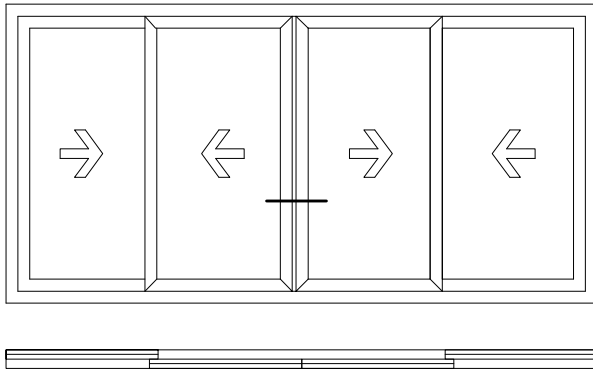


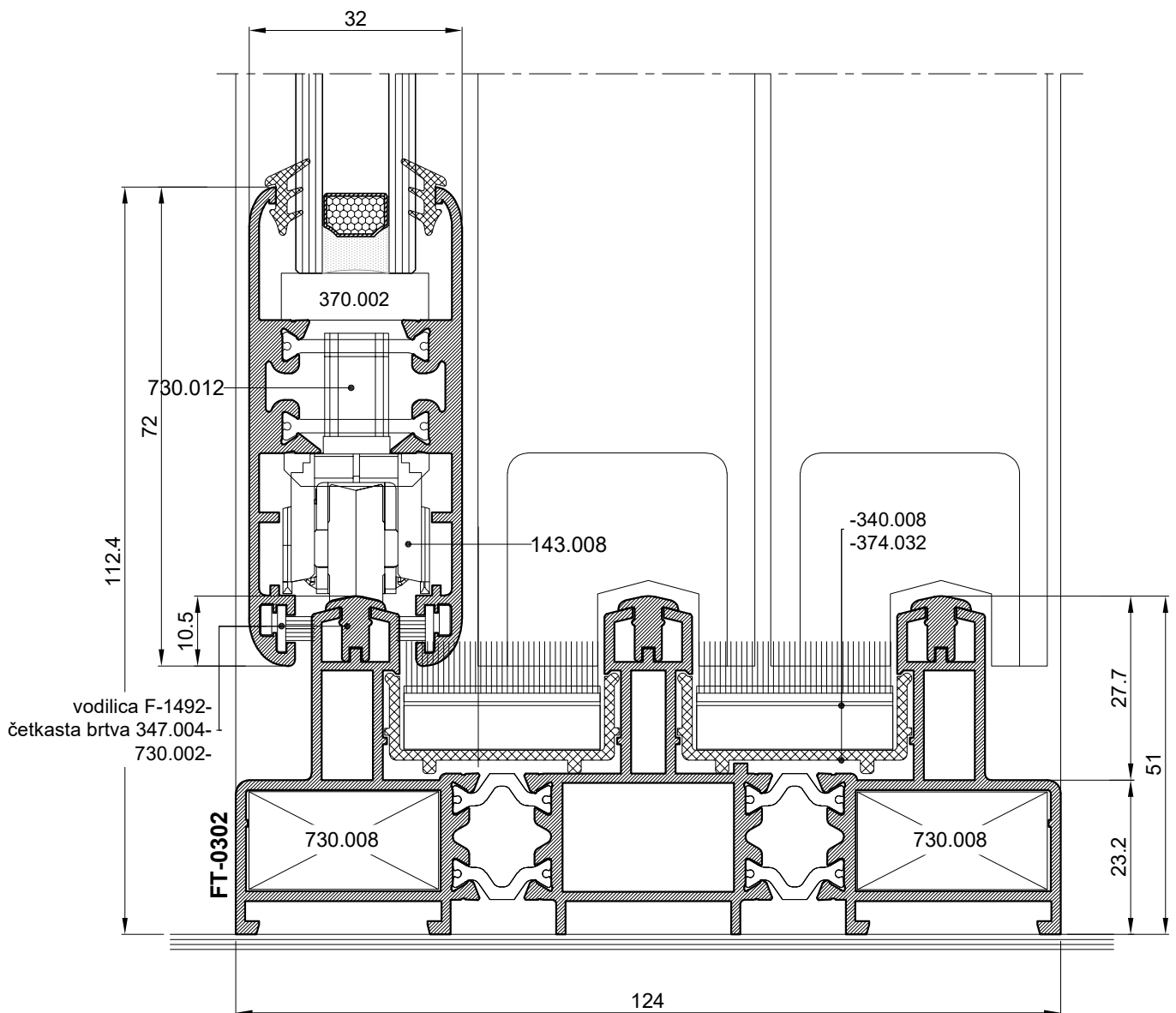
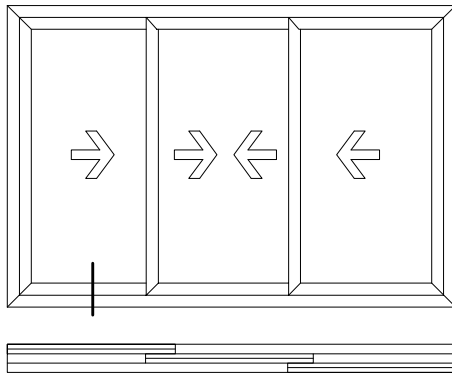


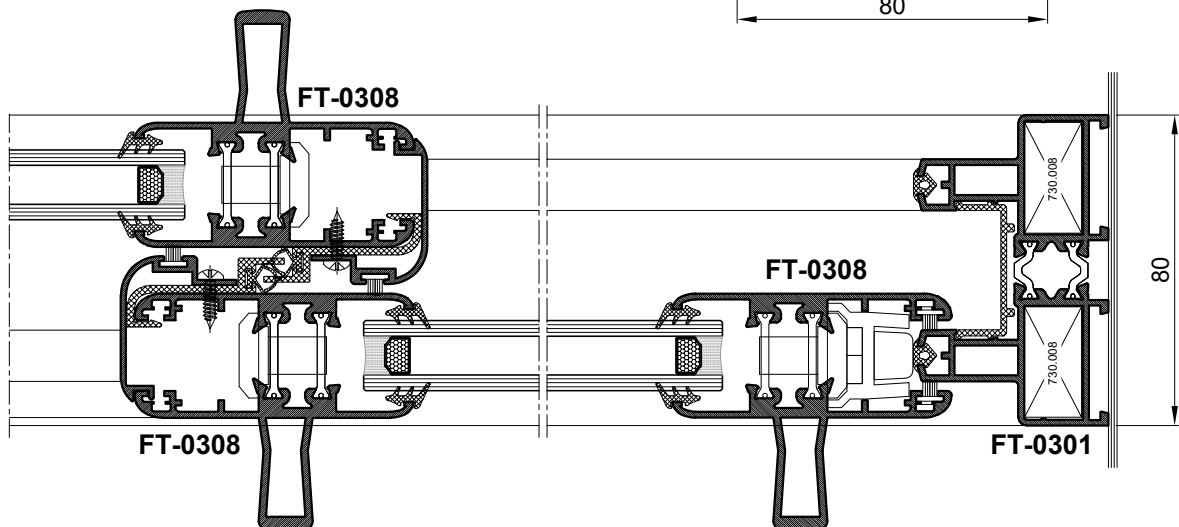
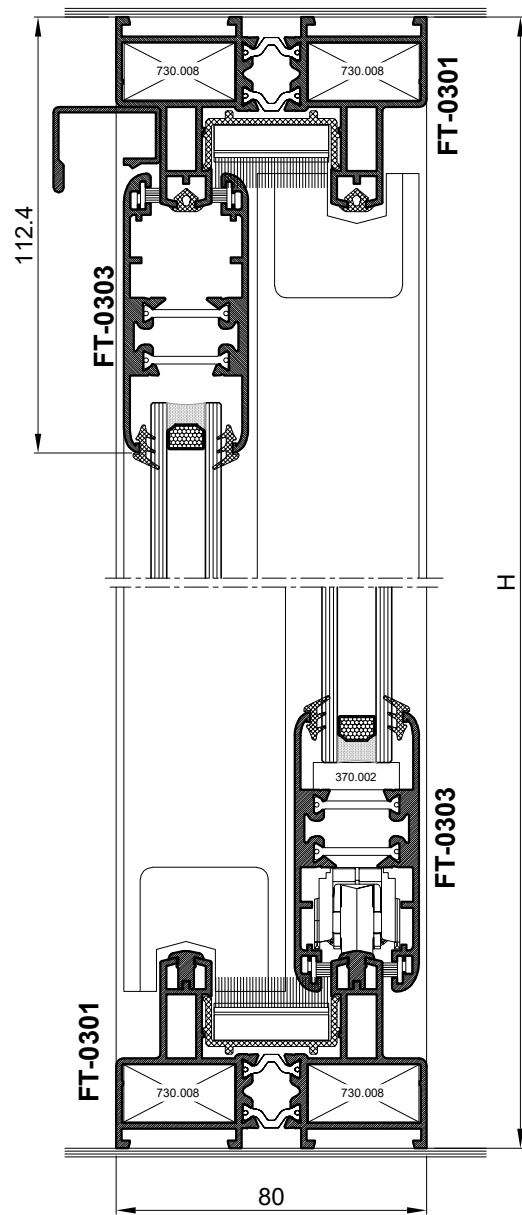
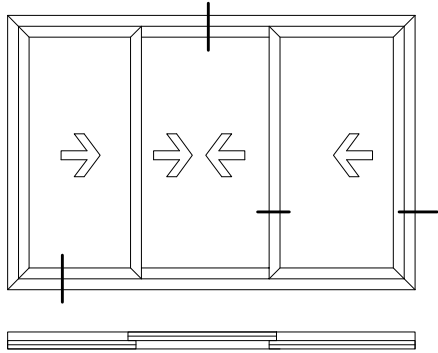




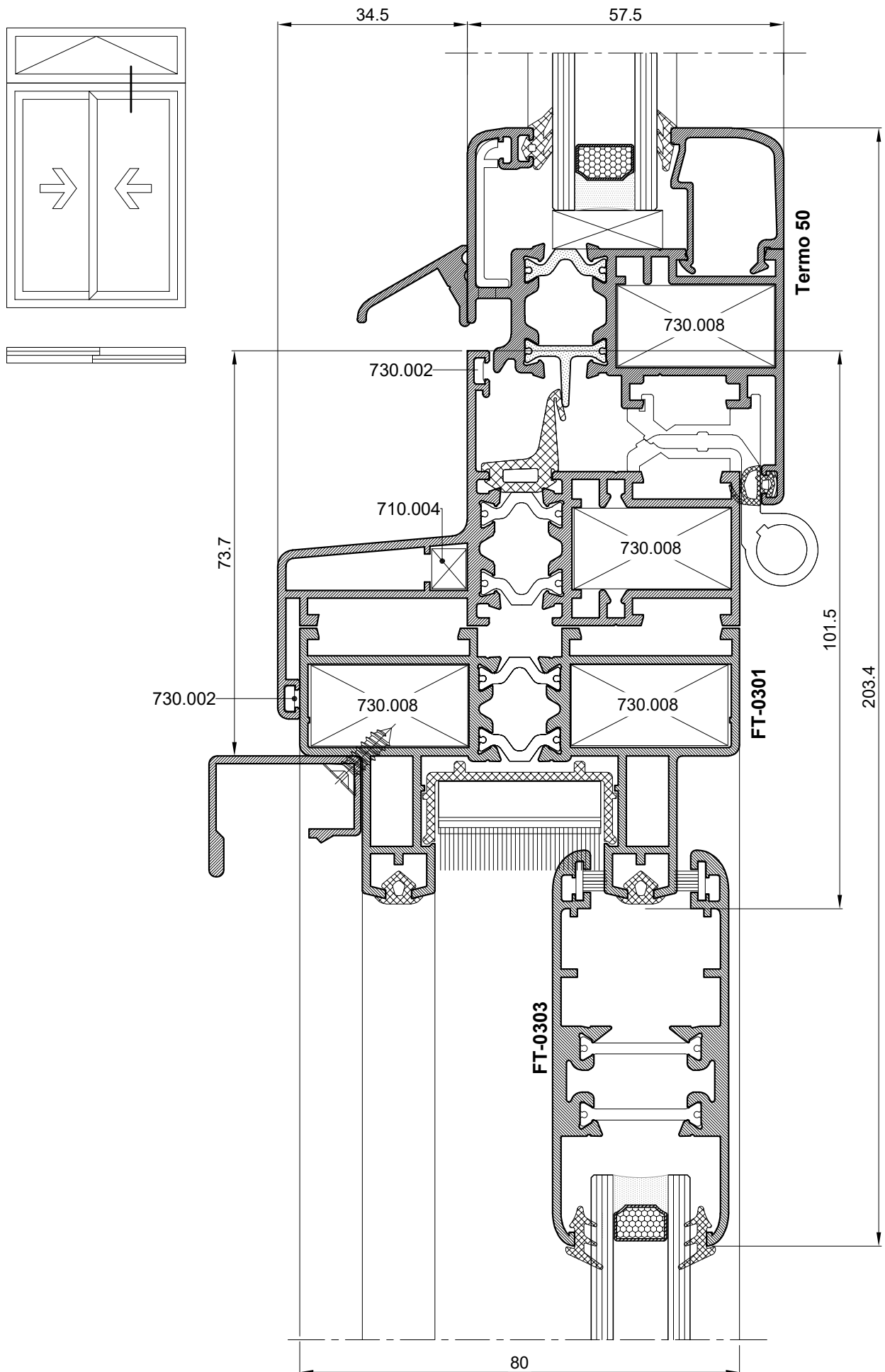






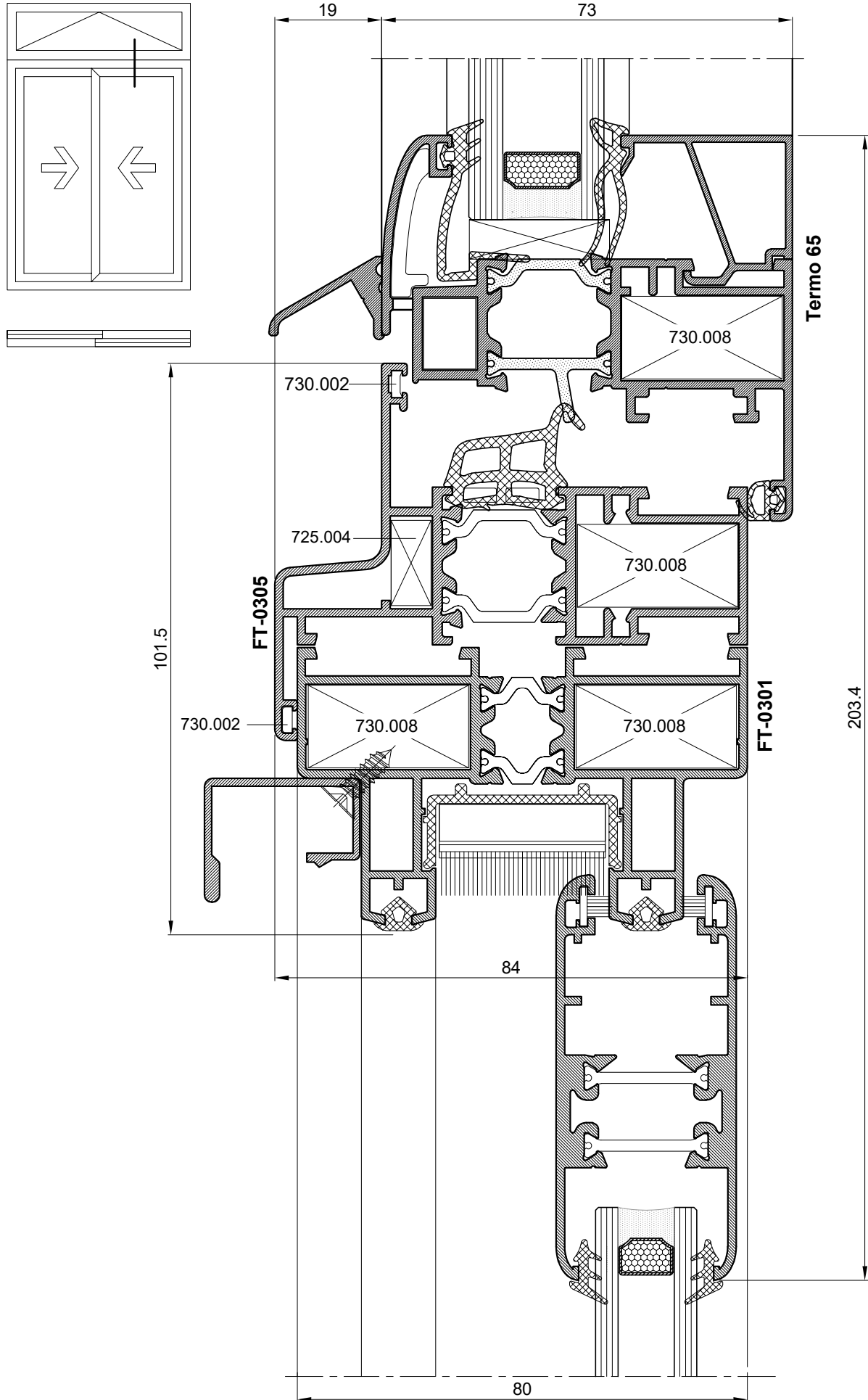


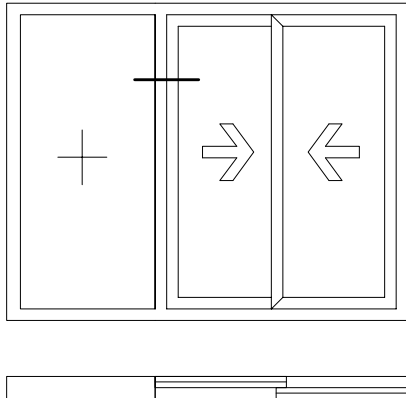
DETALJ SPOJA PREMA SERIJI TERMO 50



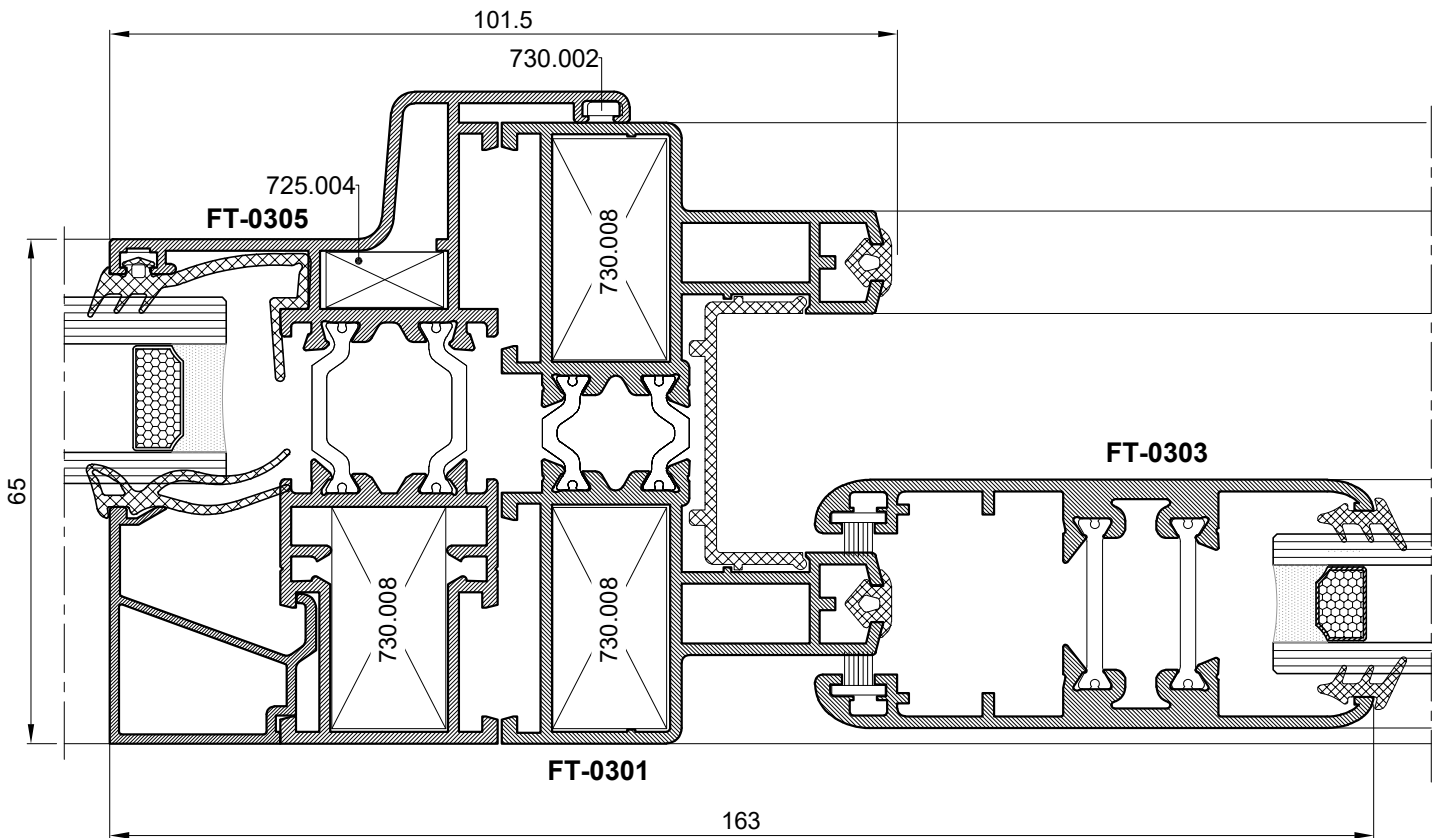


DETALJ SPOJA PREMA SERIJI TERMO 65

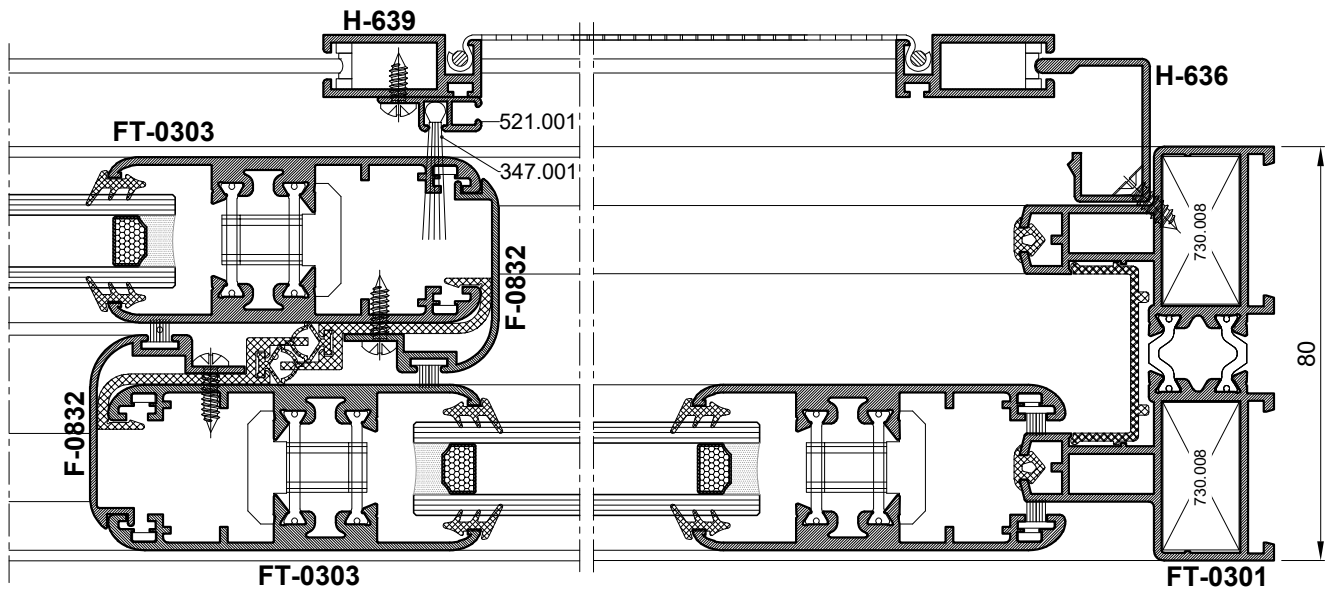
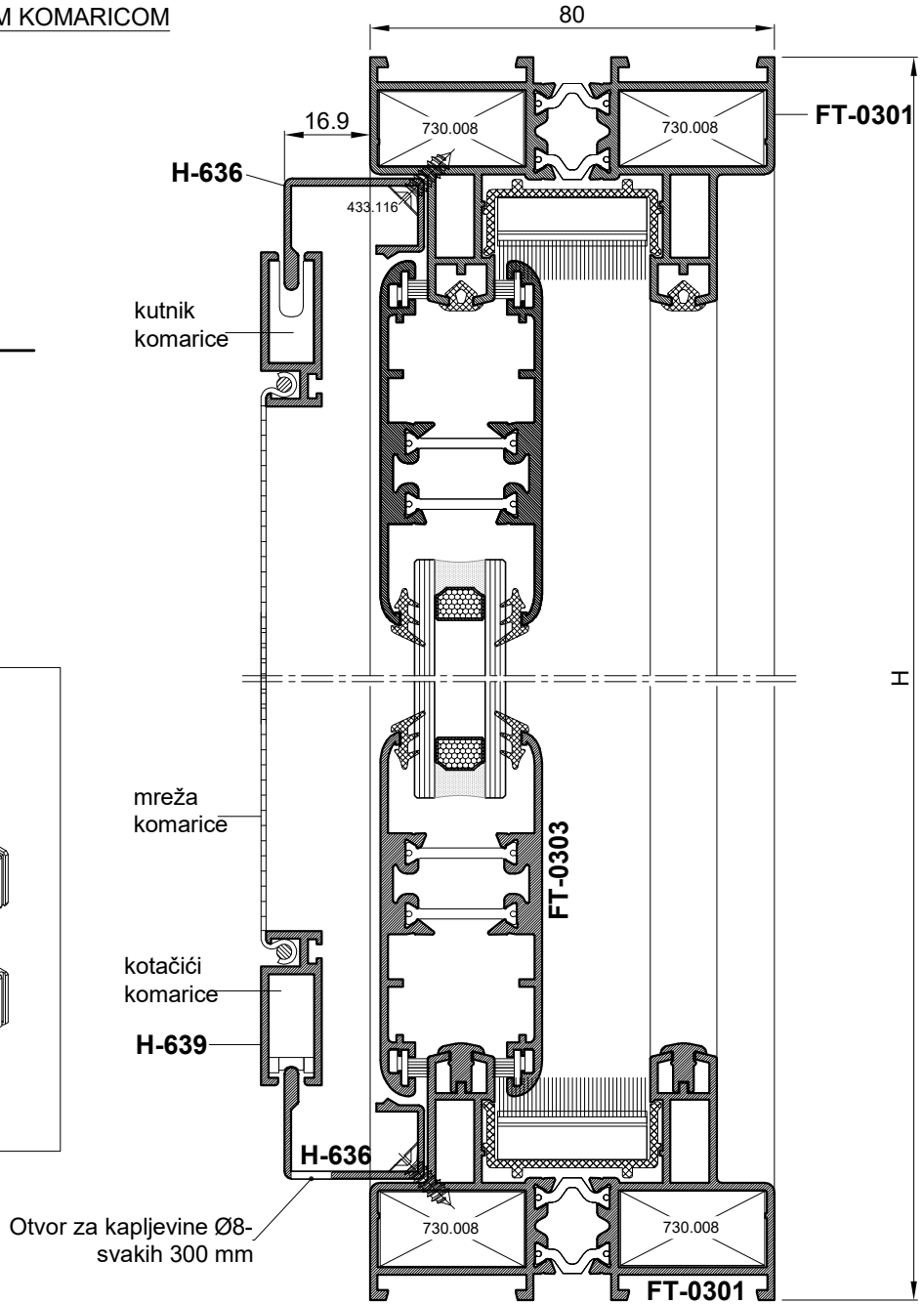
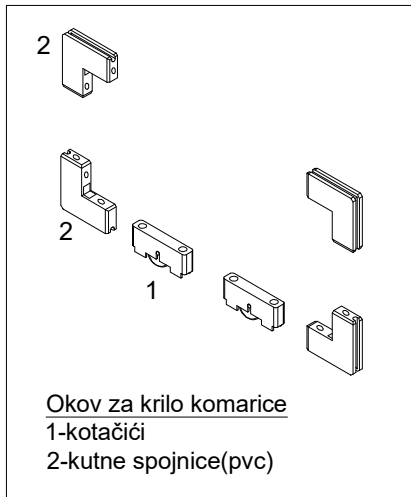
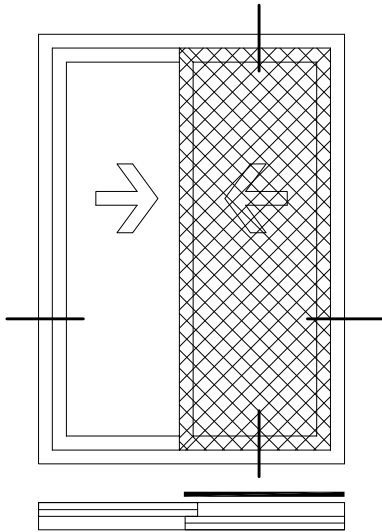




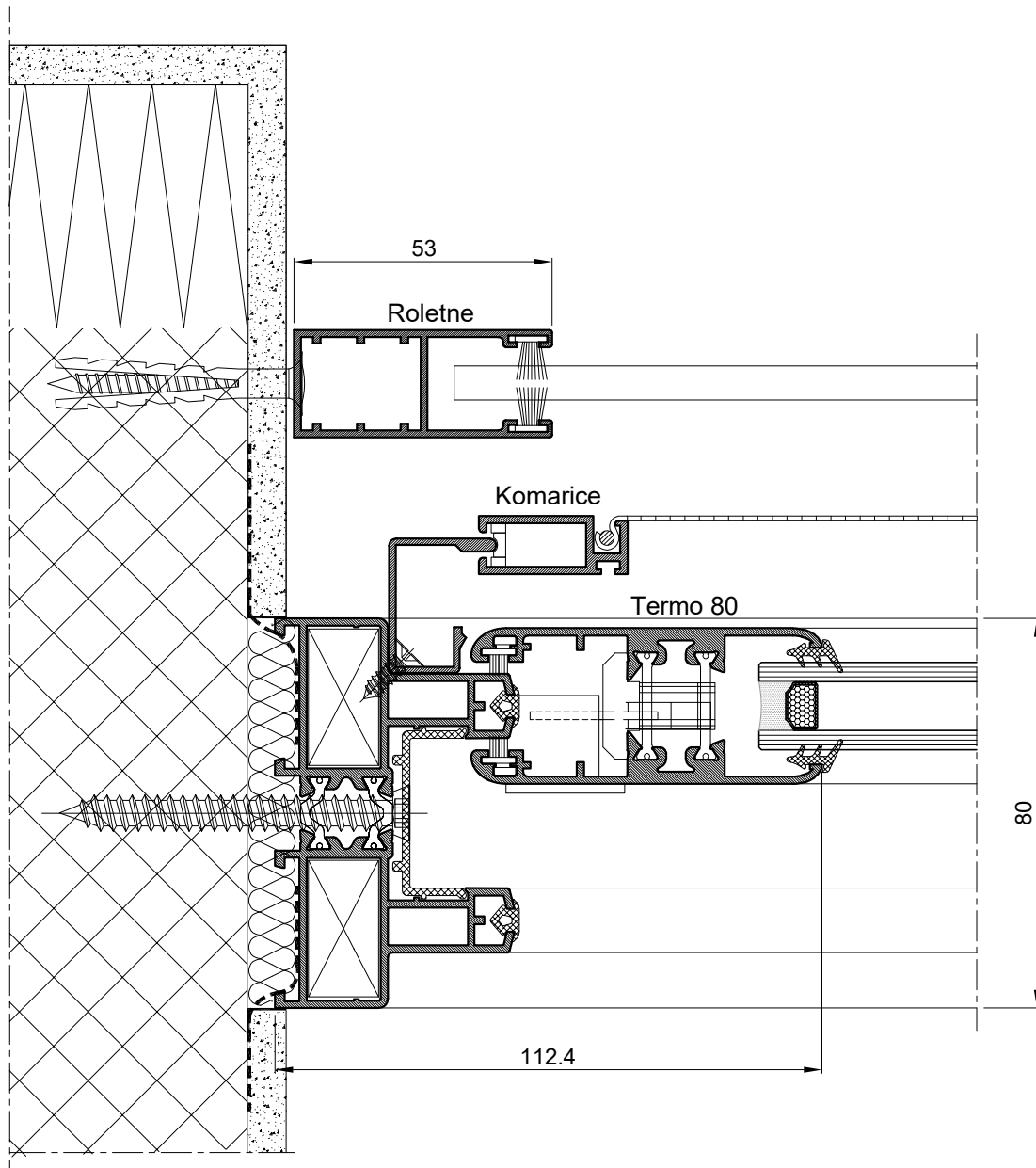
DETALJ SPOJA PREMA SERIJI TERMO 65



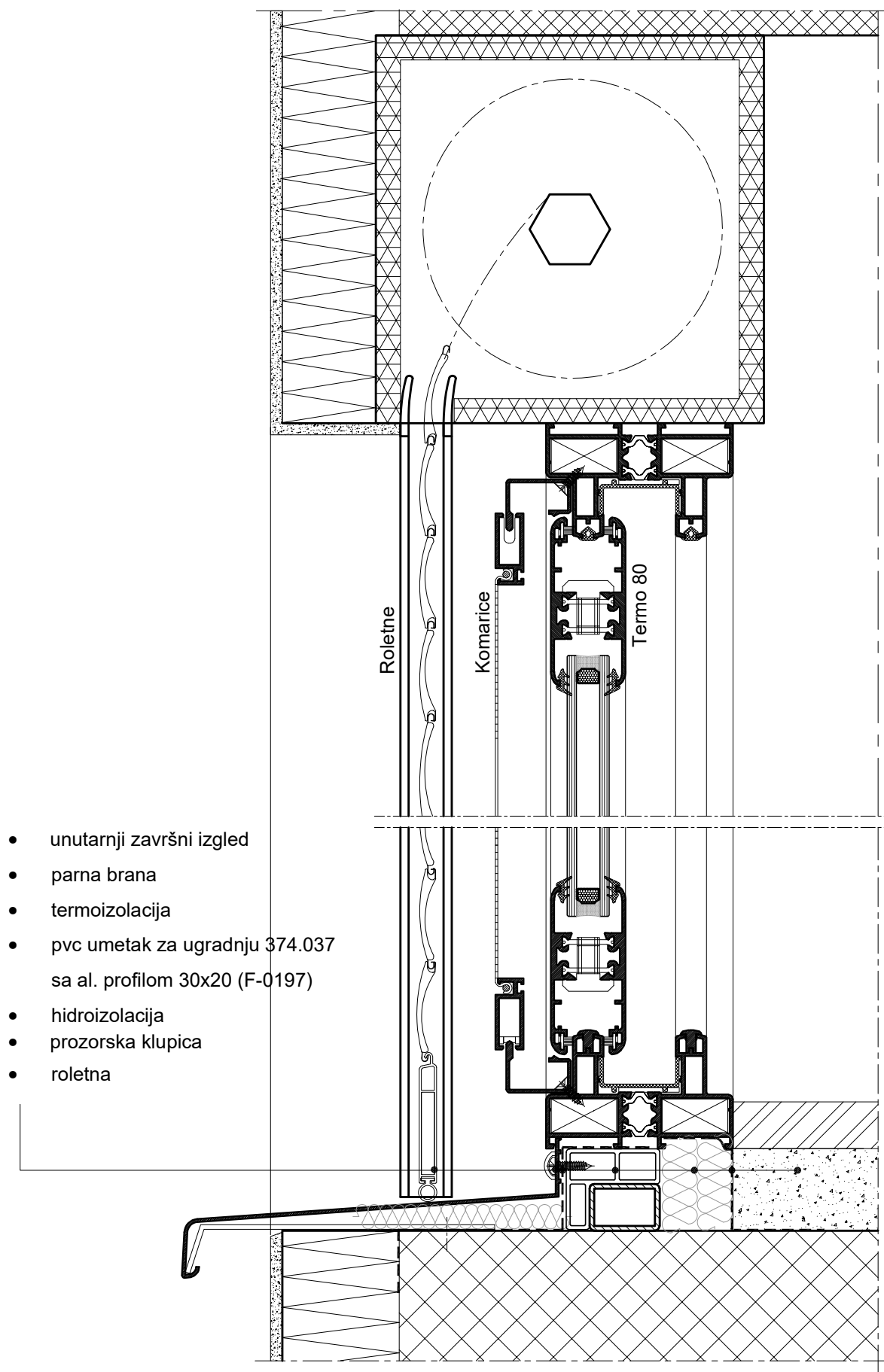
DETALJ S KLIZNOM KOMARICOM

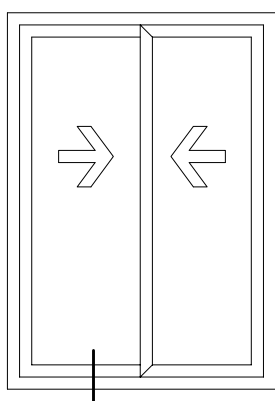


DETALJ UGRADNJE KOMARICA I ROLETNI U SERIJI TERMO 80

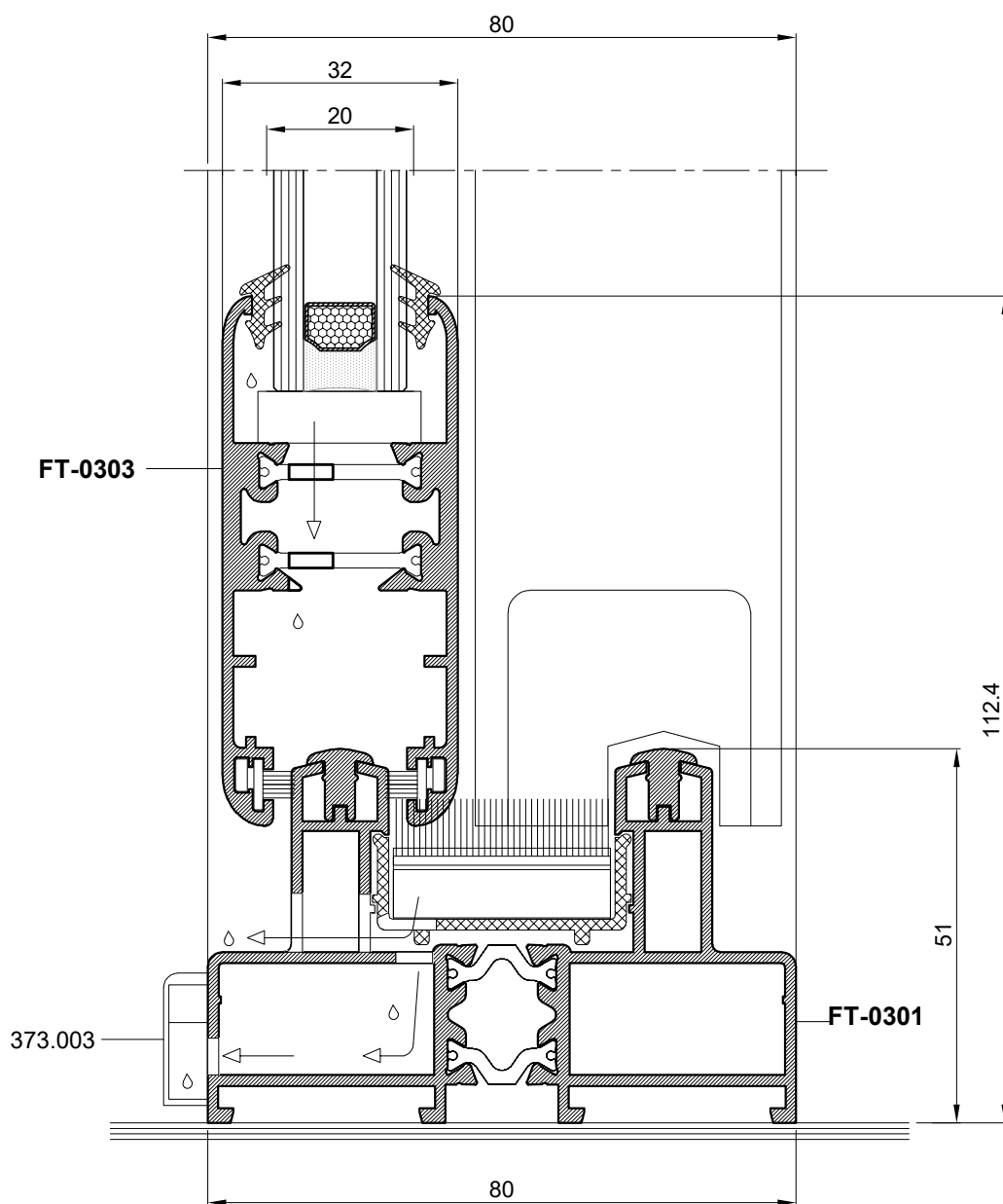


## DETALJ UGRADNJE KOMARICA I ROLETNI U SERIJI TERMO 80

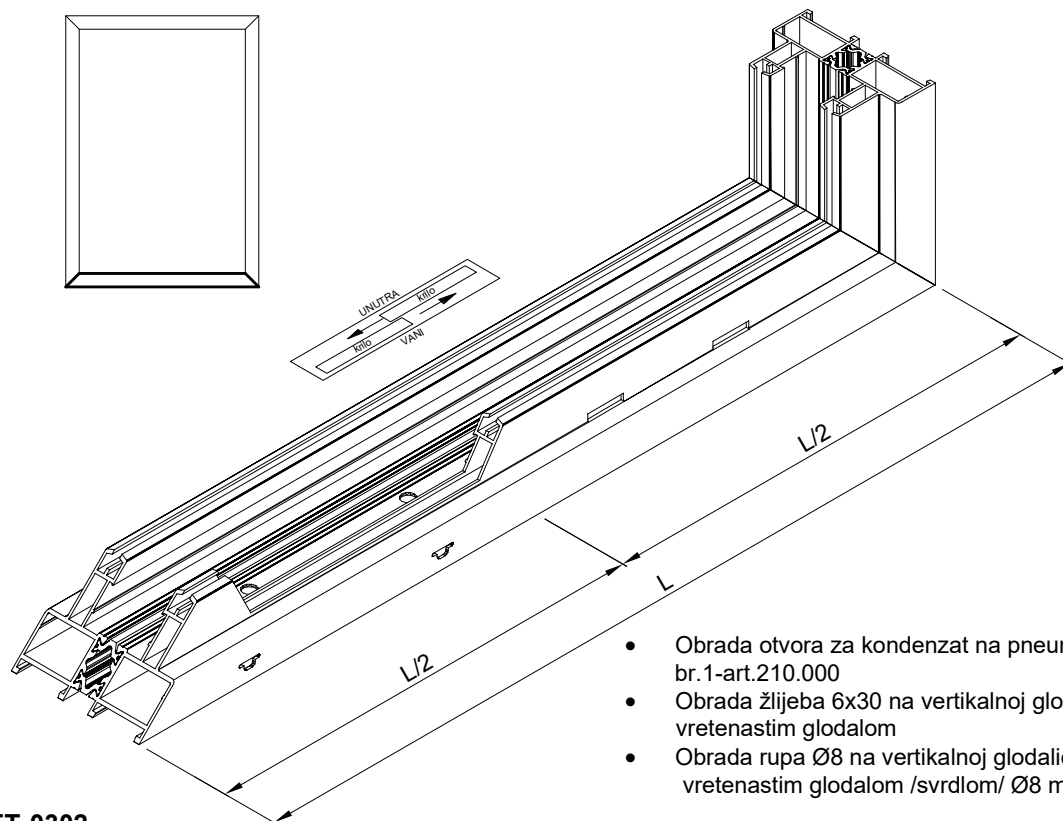
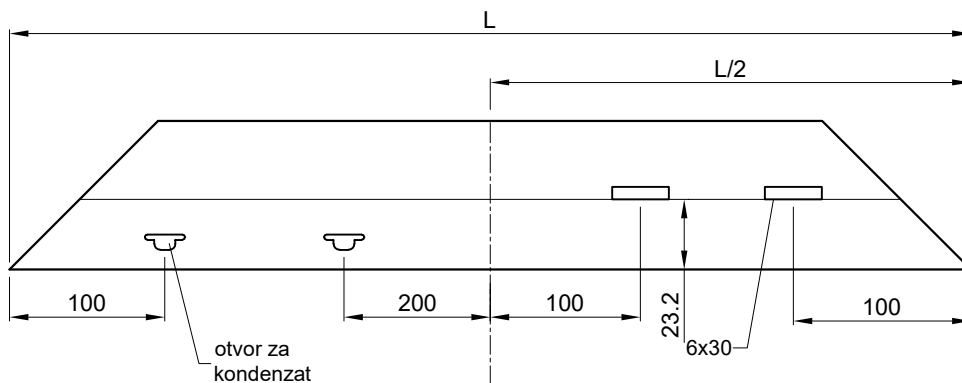
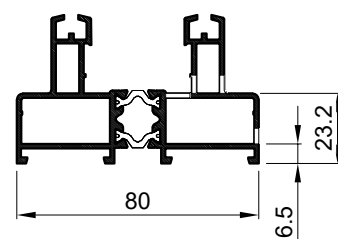
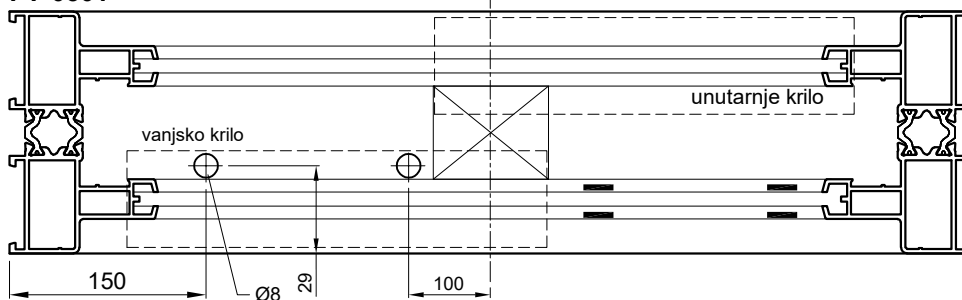


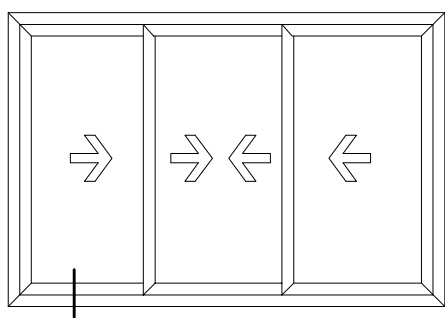


IZVOD VODE IZ KRILA FT-0303 I  
DVOSTAZNOG PROFILA RAMA-FT-0301

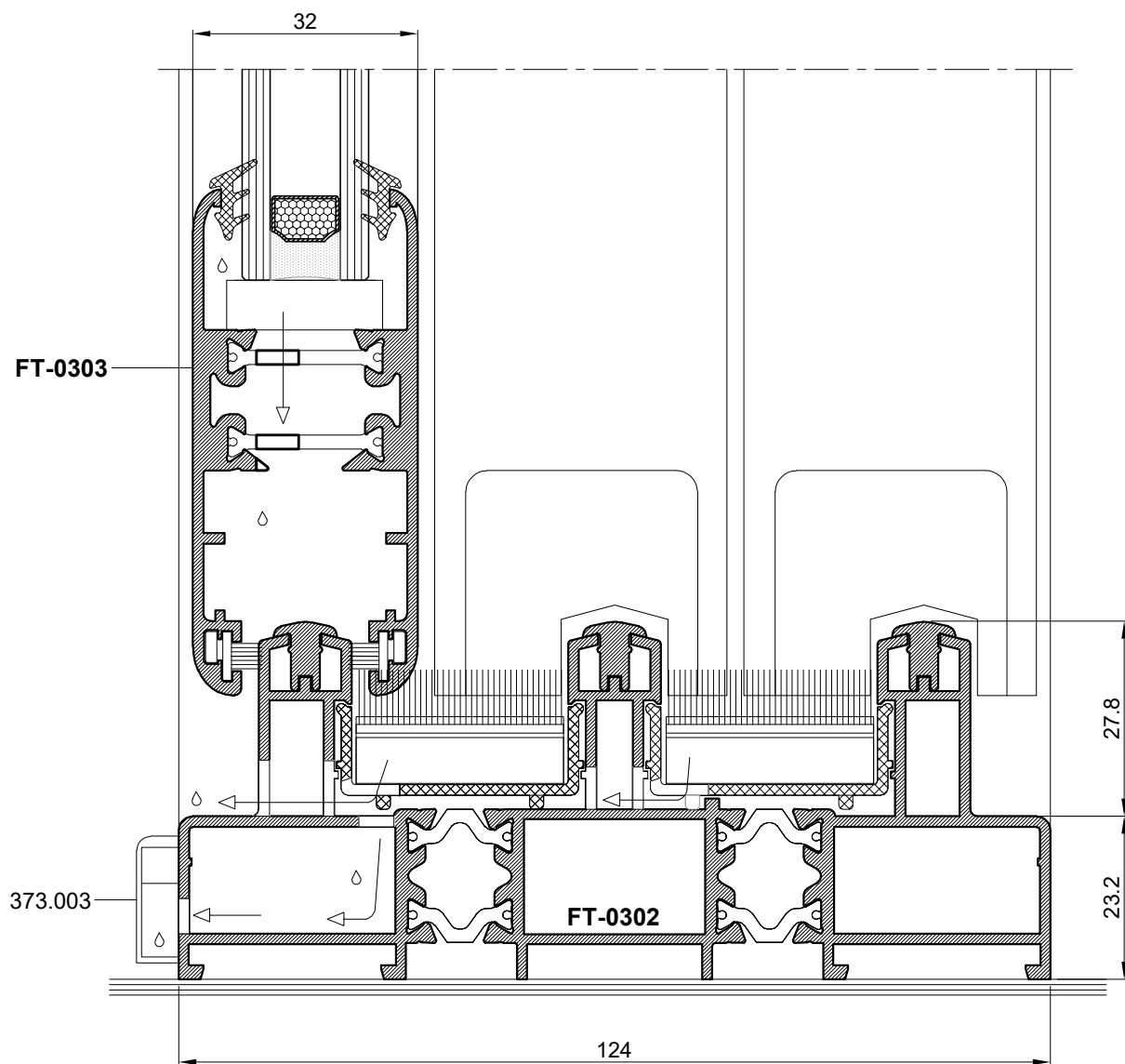


## OBRADA DONJEG POJASA RAMA FT-0301 - ZA ODVOD KAPLJEVINA

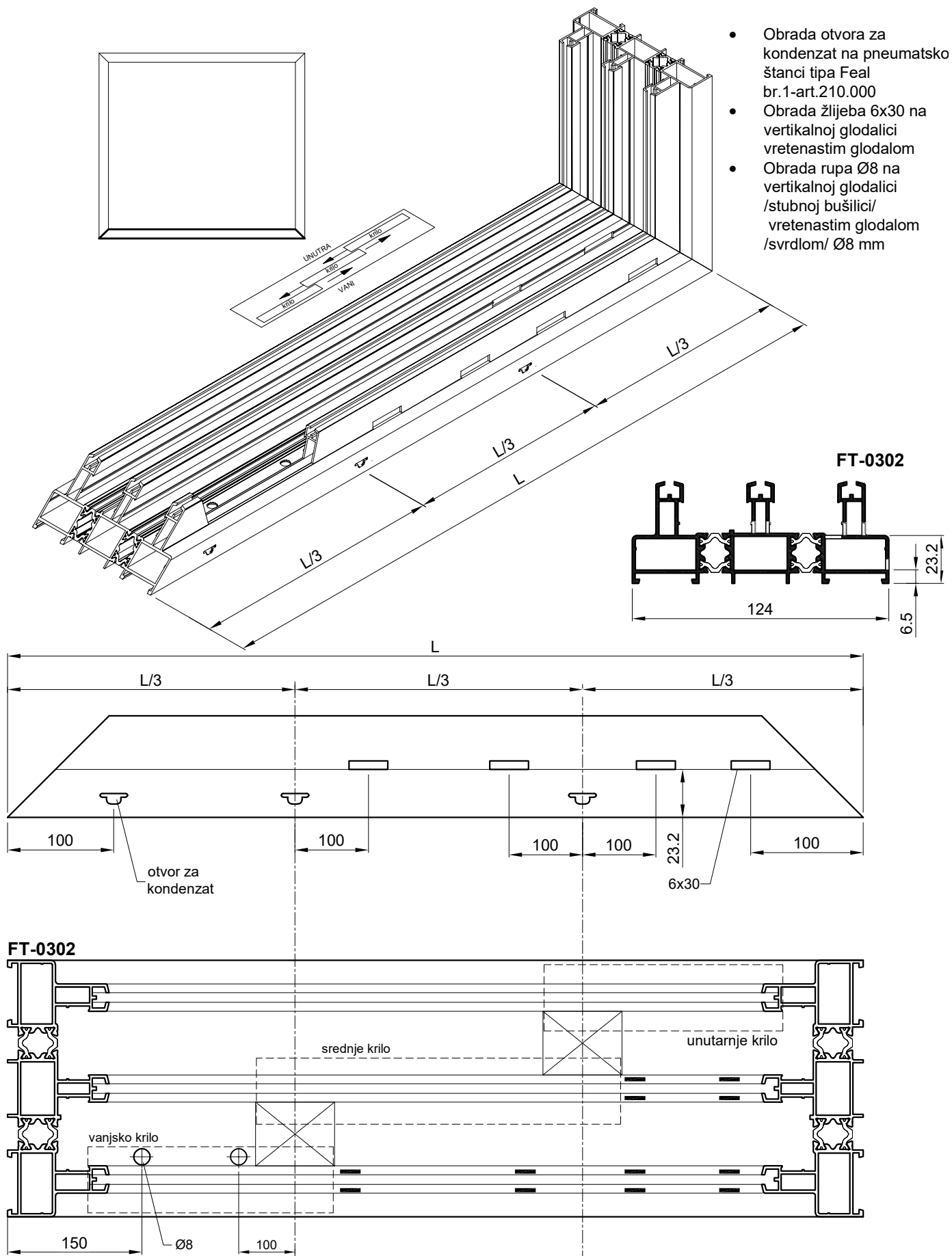

**FT-0302**

**FT-0301**

**FT-0301**




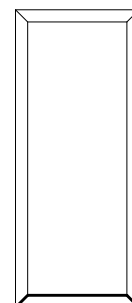
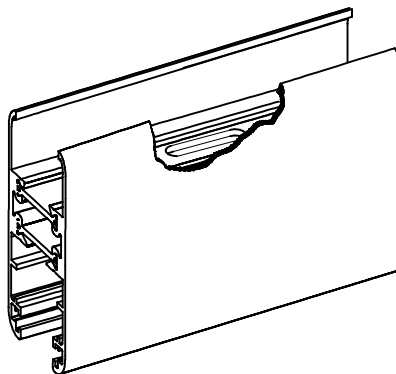
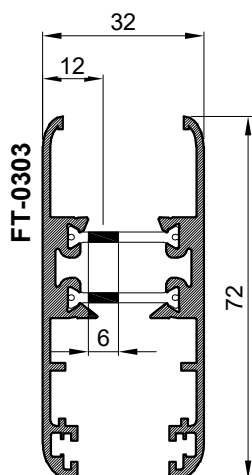
IZVOD VODE IZ KRILA FT-0303 I  
TROSTAZNOG PROFILA RAMA -FT-0301



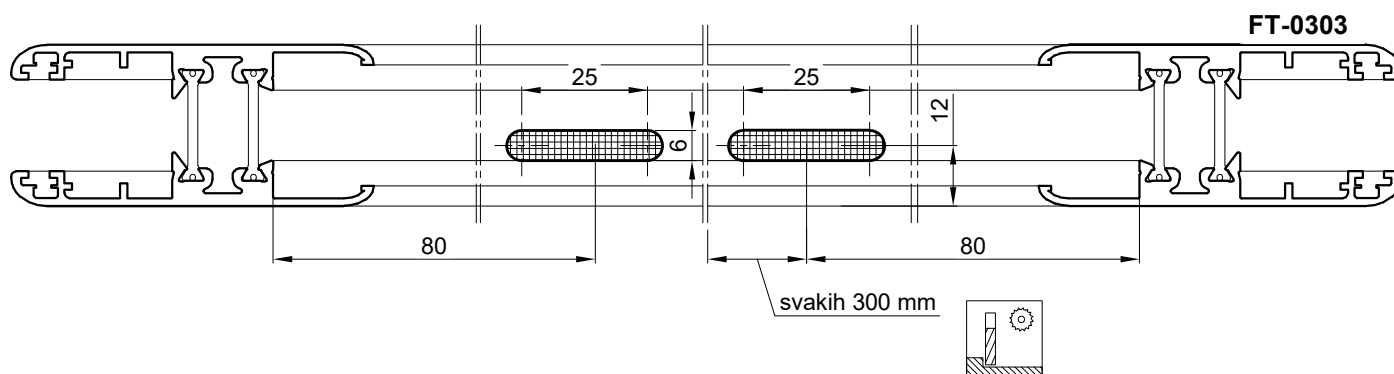
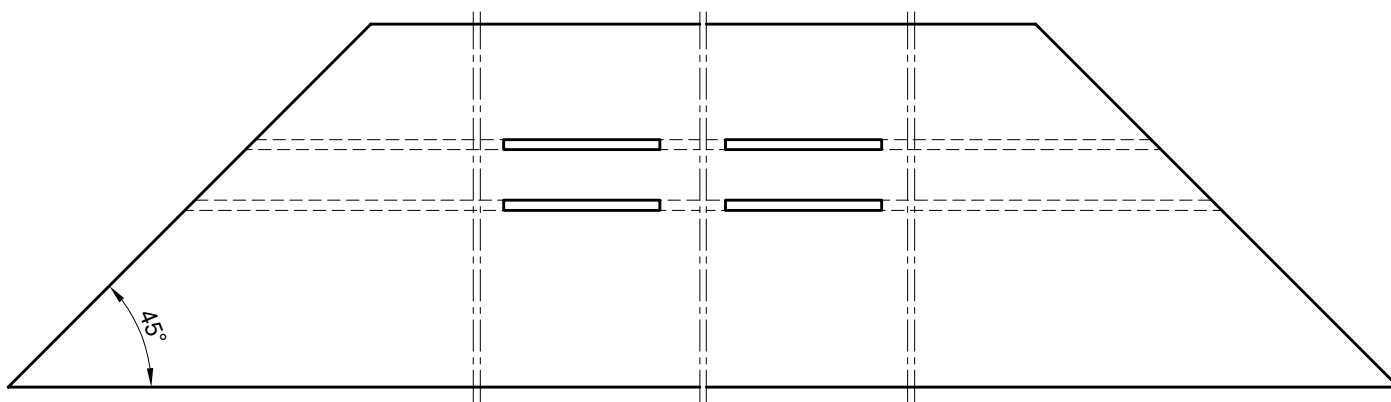
## OBRADA DONJEG POJASA RAMA FT-0302 - ZA ODVOD KAPLJEVINA



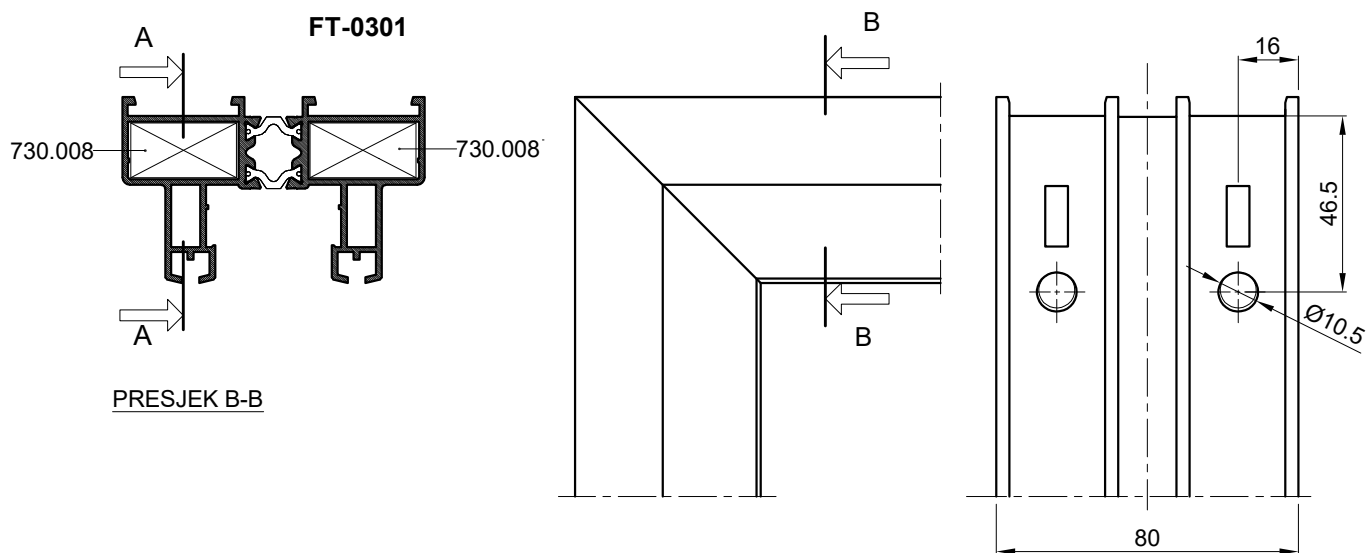
## OBRADA DONJEG POJASA KRILA FT-0303-ZA ODVOD KAPLJEVINA



- Obrada žlijeba 6x25 na vertikalnoj glodalici vretenastim glodalom

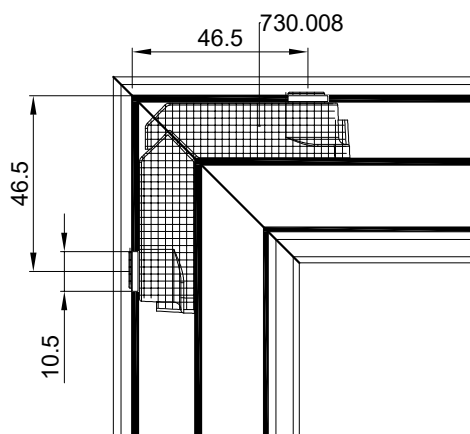


## SPAJANJE PROFILA FT-0301 KUTNICIMA 730.008

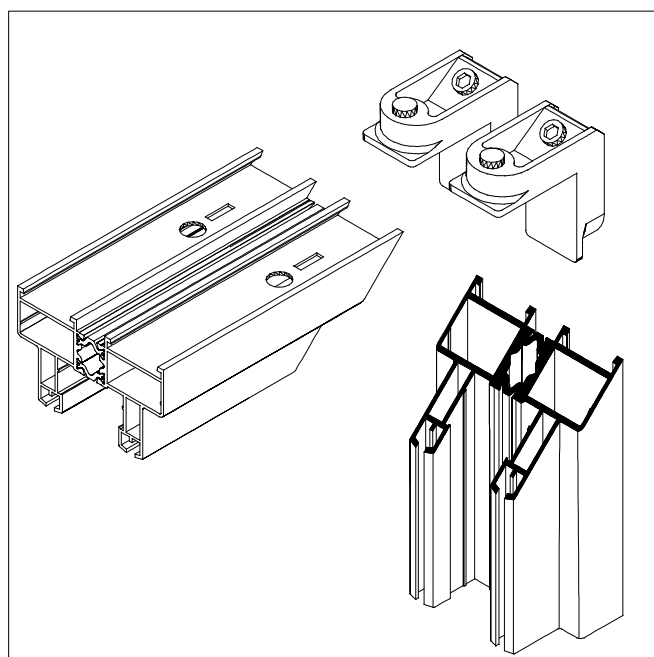


PRESJEK B-B

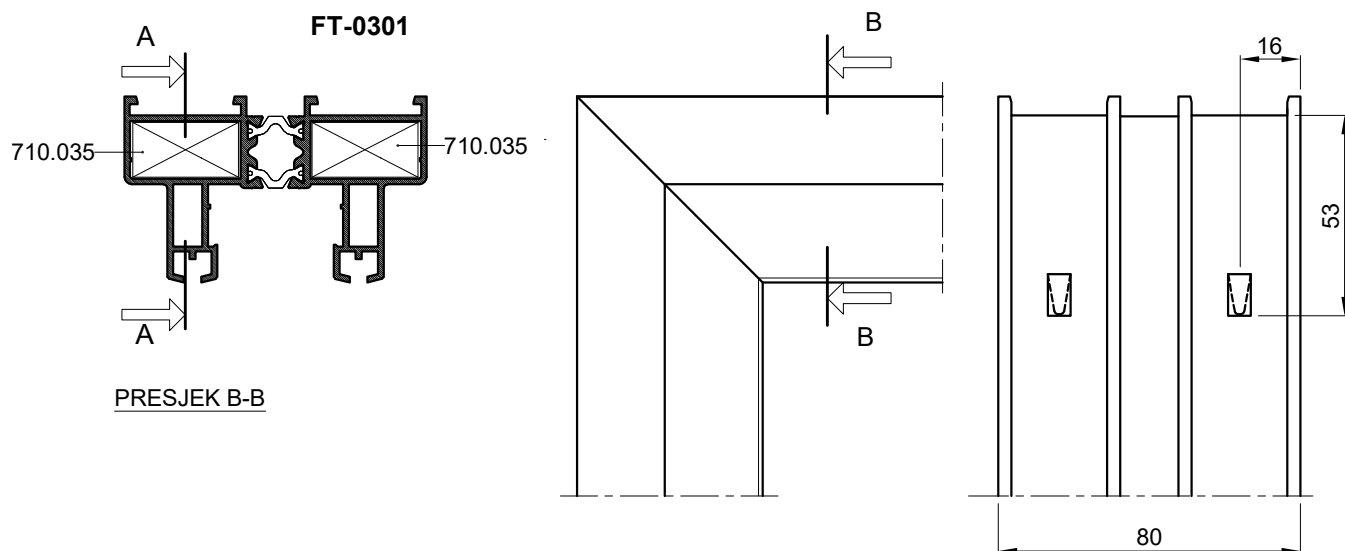
- Spajanje kutnikom 730.008 s predobradom štancanja
- Obrada na pneumatskoj štanci tipa Feal br.2-art.210.003



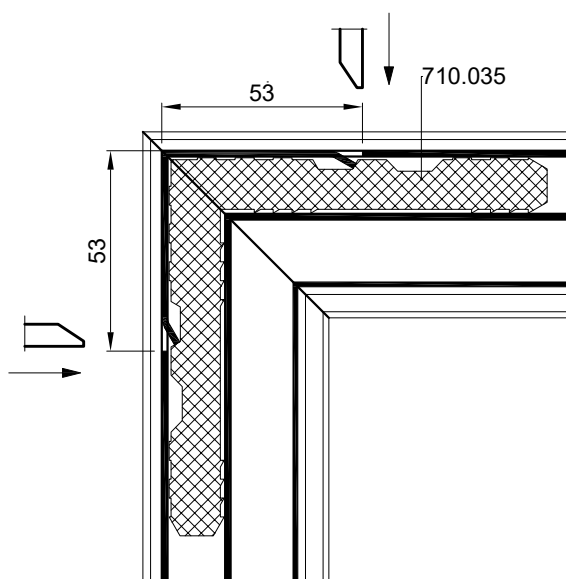
PRESJEK A-A



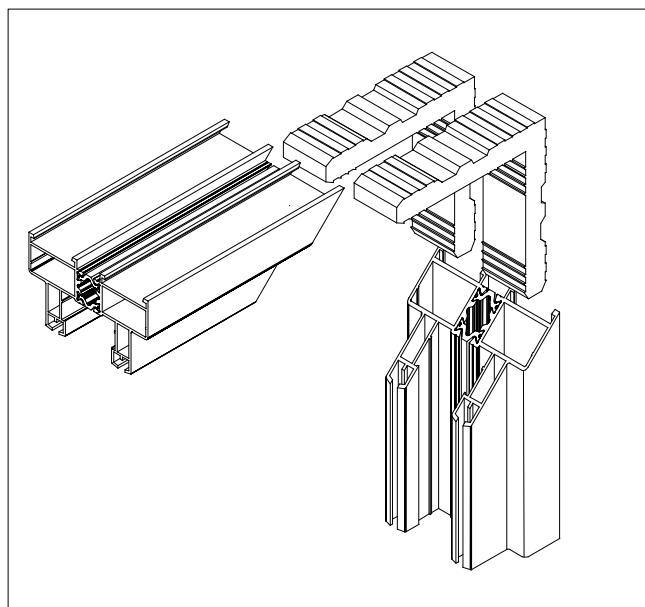
## SPAJANJE PROFILA FT-0301 KUTNICIMA 710.035



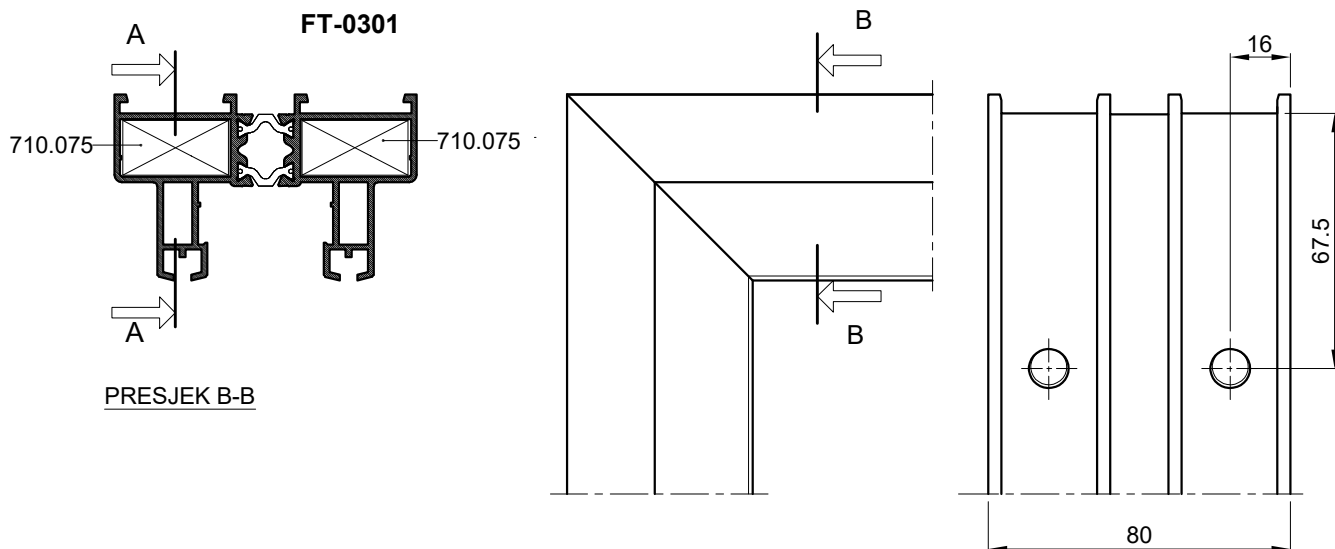
- Spajanje kutnikom 710.035 uprešavanjem stijenke profila u kutnik
- Uprešavanje klijestima za kutne spojnice art. 210.001 ili strojno uprešavanje



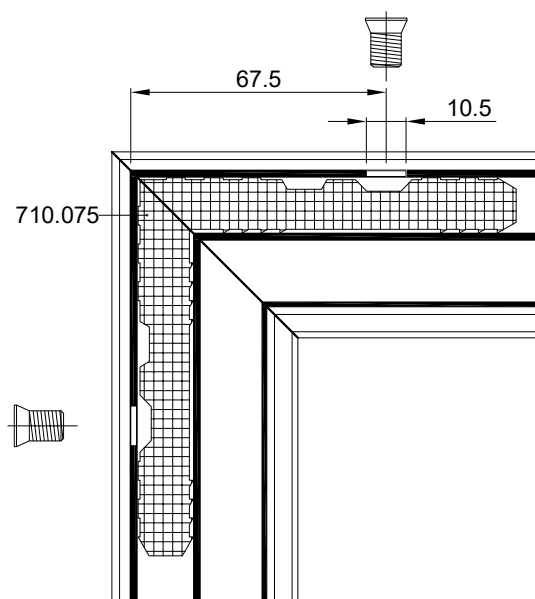
PRESJEK A-A



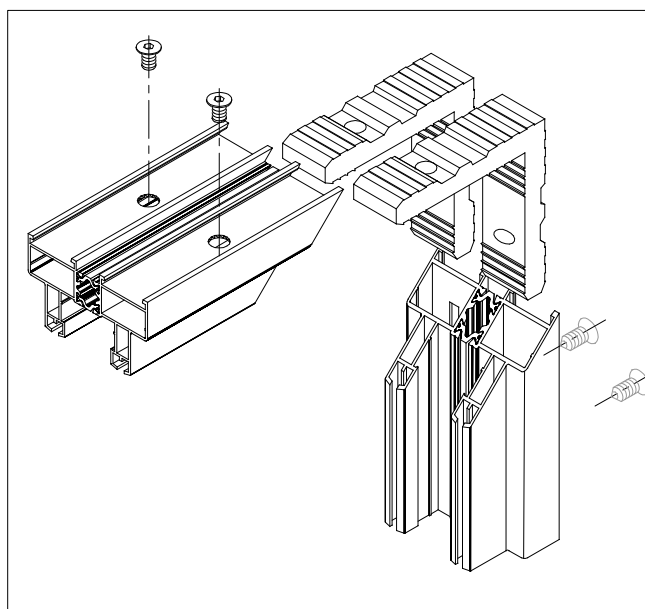
## SPAJANJE PROFILA FT-0301 KUTNICIMA 710.075



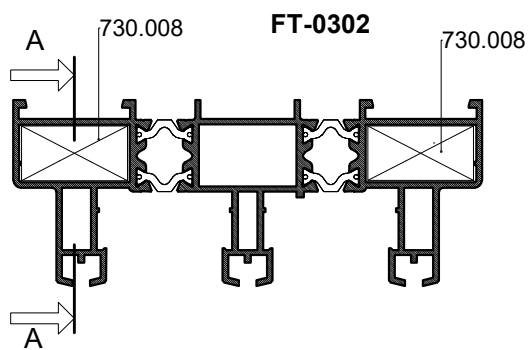
- Spajanje kutnikom 710.075 vijcima M5x3-tip Feal
- Obrada rupa na vertikalnoj glodalici /stubnoj bušilici/ vretenastim glodalom /svrdlom/ Ø10.5



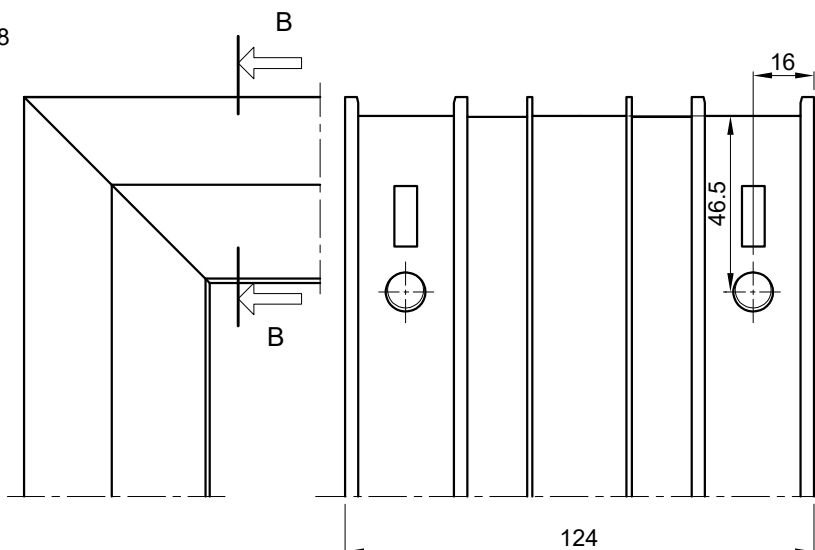
PRESJEK A-A



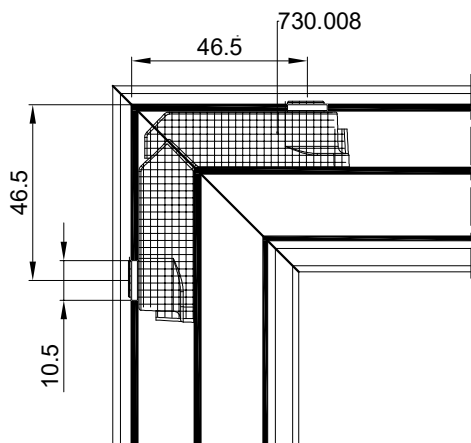
## SPAJANJE PROFILA FT-0301 KUTNICIMA 730.008



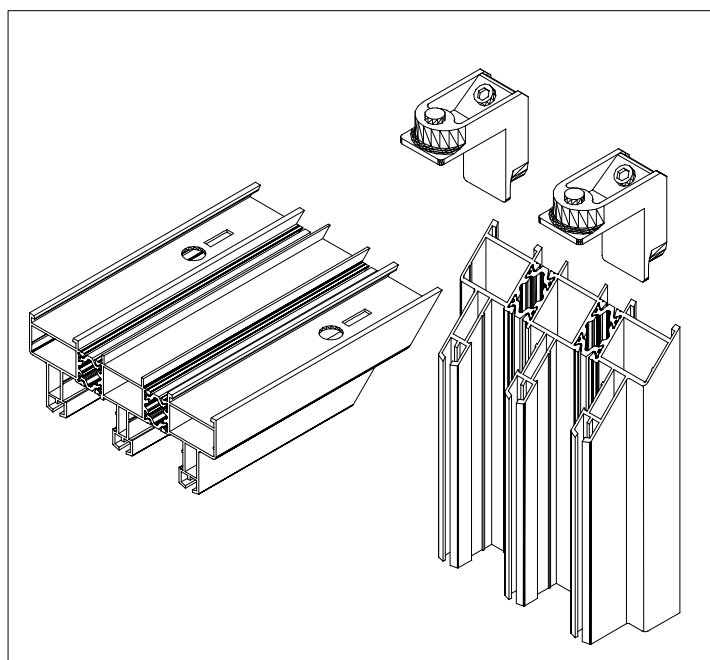
PRESJEK B-B



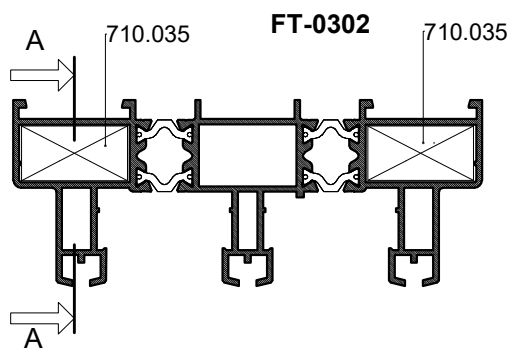
- Spajanje kutnikom 730.008 s predobradom štancanja
- Obrada na pneumatskoj štanci tipa Feal br.2-art.210.003



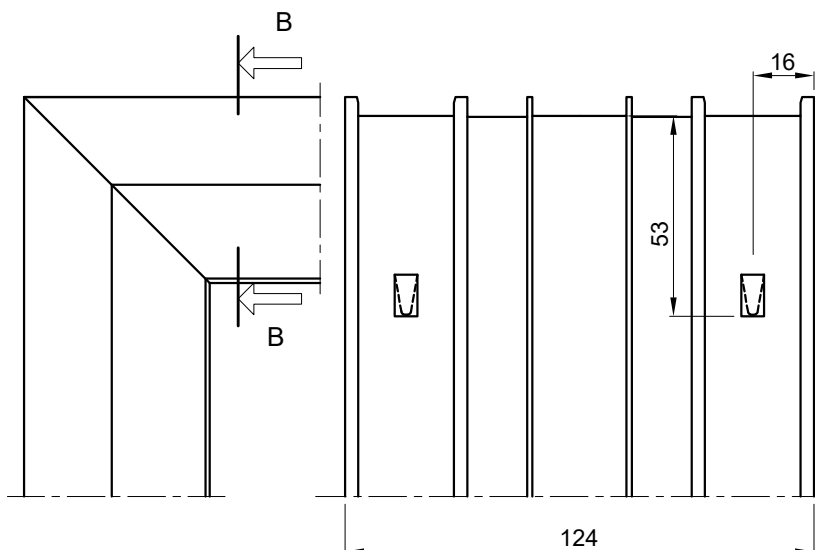
PRESJEK A-A



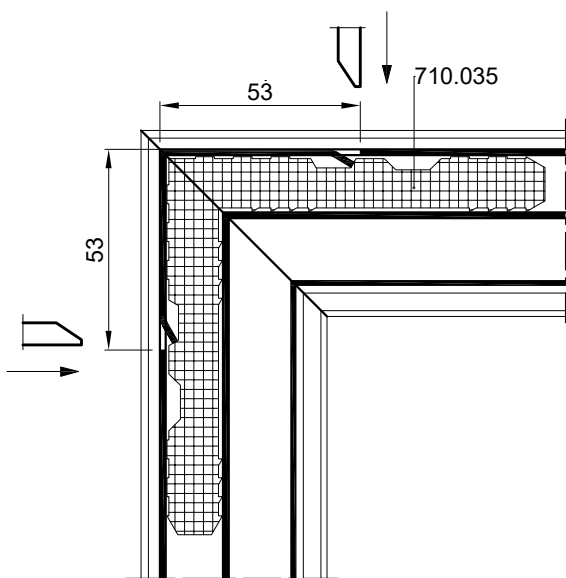
## SPAJANJE PROFILA FT-0301 KUTNICIMA 710.035



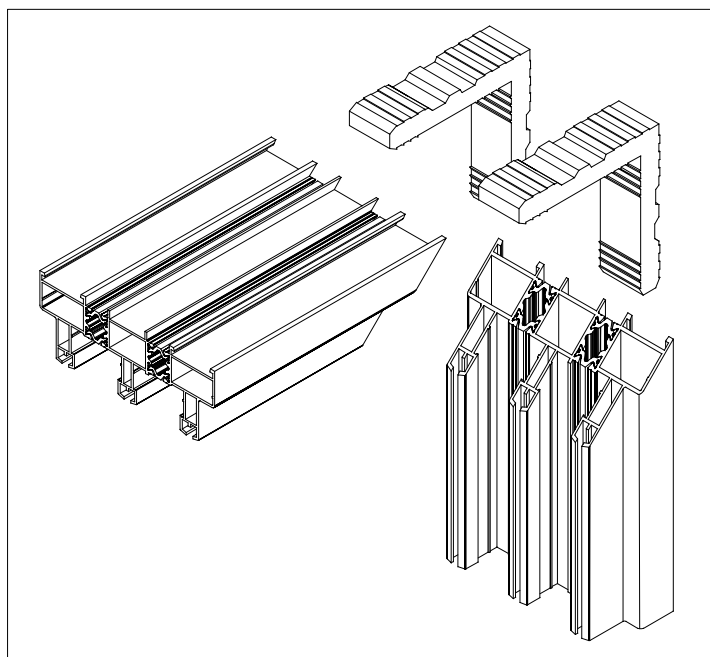
PRESJEK B-B



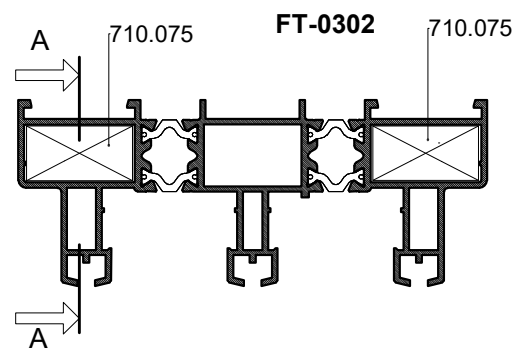
- Spajanje kutnikom 710.035 uprešavanjem stijenke profila u kutnik
- Uprešavanje kliještima za kutne spojnice art. 210.001 ili strojno uprešavanje



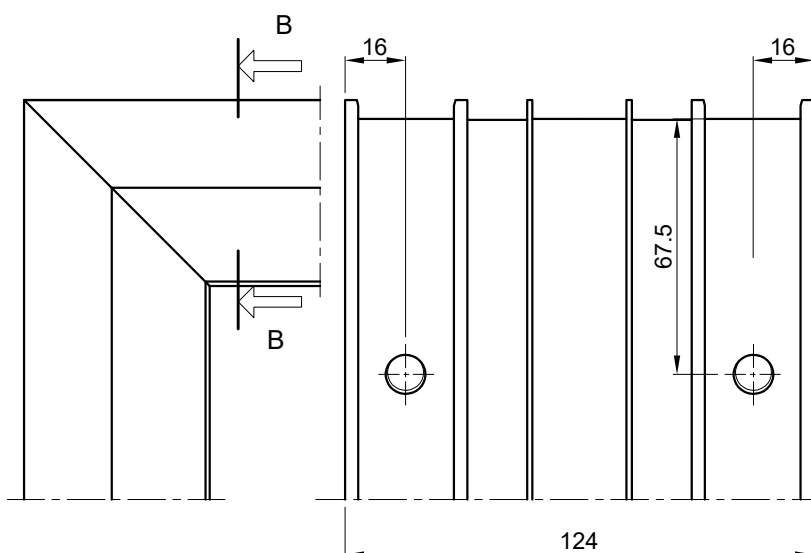
PRESJEK A-A



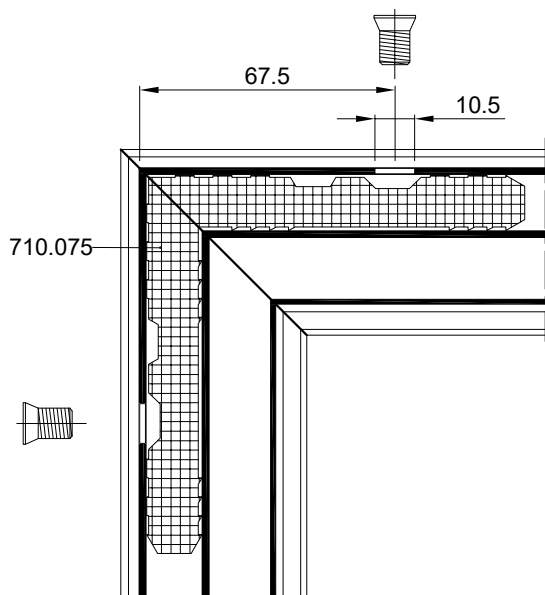
## SPAJANJE PROFILA FT-0301 KUTNICIMA 710.075



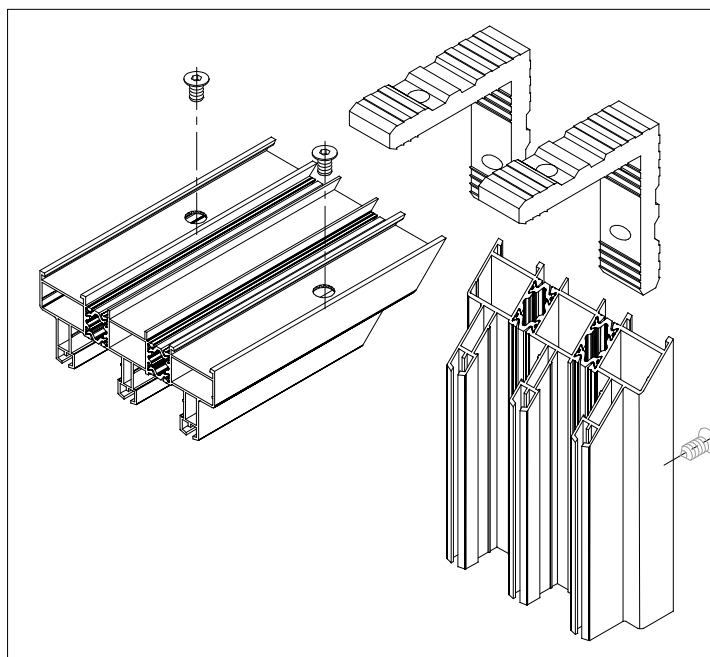
PRESJEK B-B



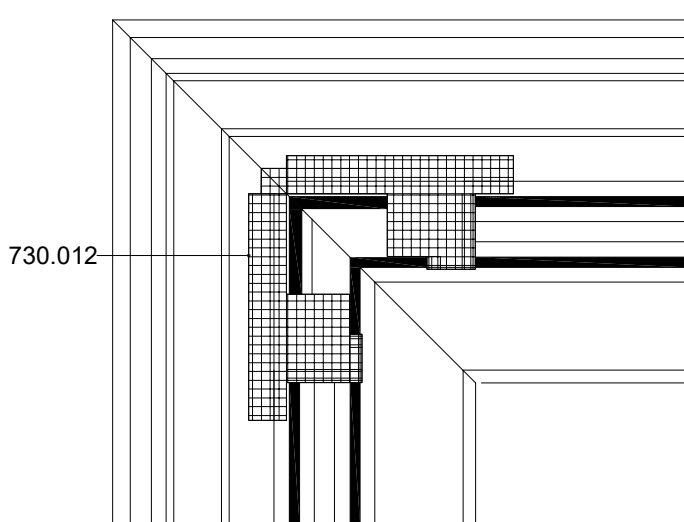
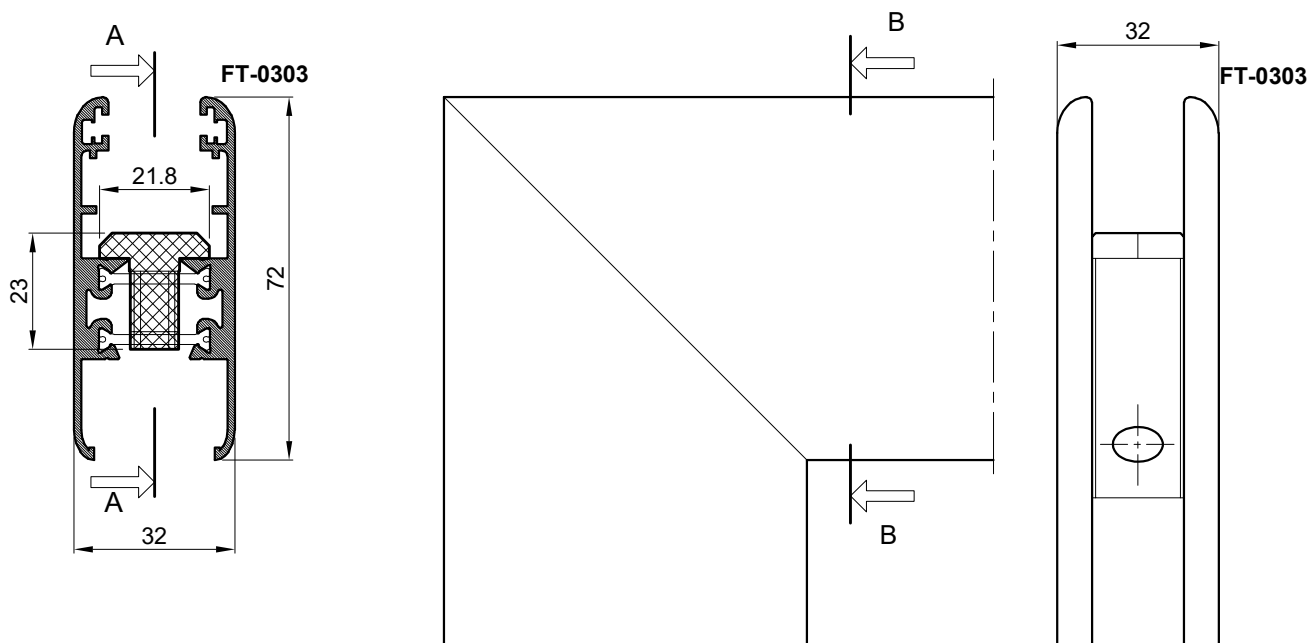
- Spajanje kutnikom 710.075 vijcima M5x3-tip Feal
- Obrada rupa na vertikalnoj glodalici /stubnoj bušilici/ vretenastim glodalom /svrdlom/  $\varnothing 10.5$



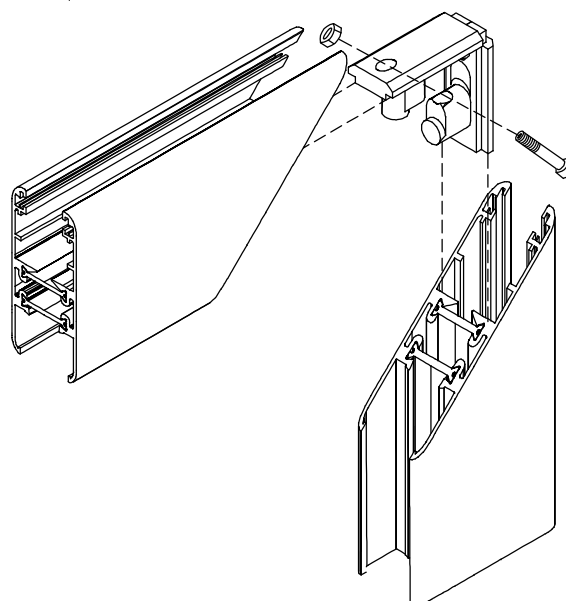
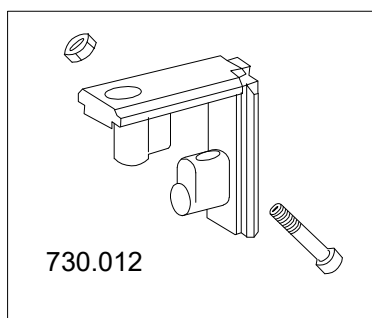
PRESJEK A-A

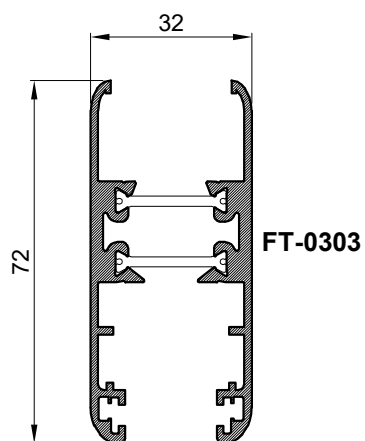


## SPAJANJE PROFILA FT-0303 KUTNICIMA 730.012

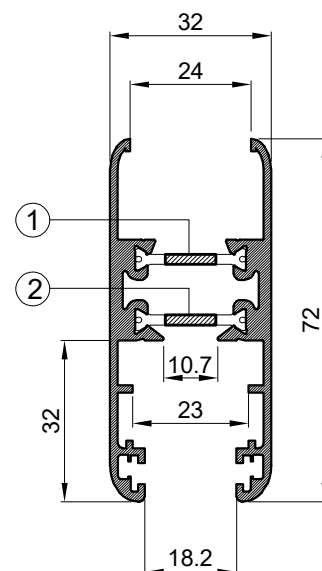
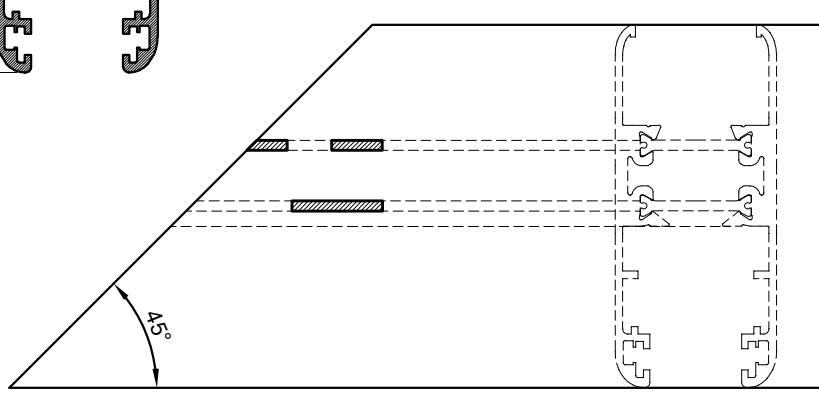


- Spajanje kutnikom 730.012 s predobradom štancanja
- Kutnik 730.012 je iz dva dijela  
-dio za vijak  
-dio za šesterostranu maticu

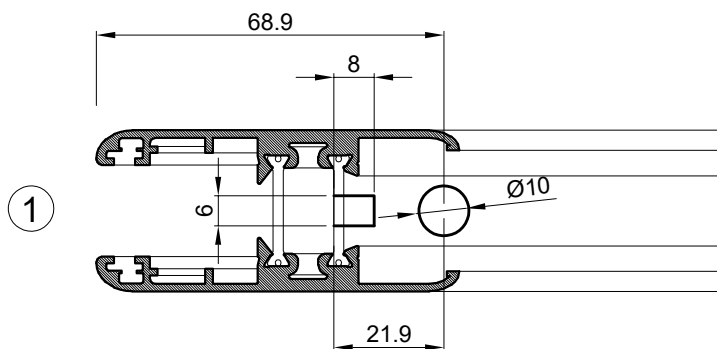




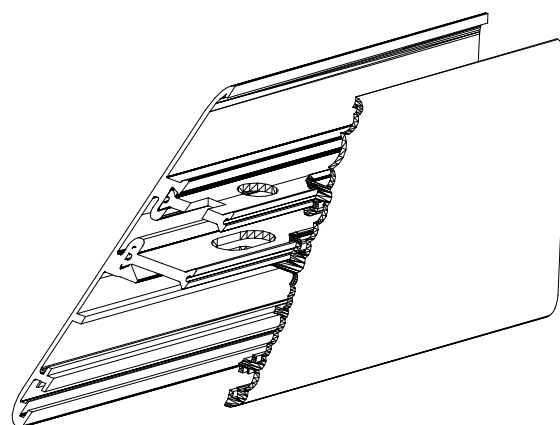
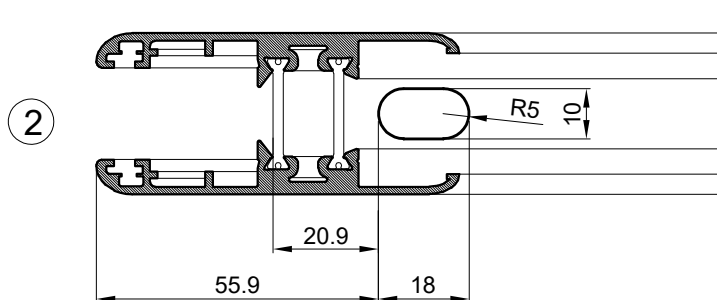
OBRADA PROFILA KRILA FT-0303 ZA SMJEŠTAJ KUTNIKA 730.012



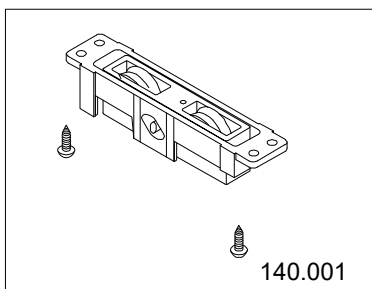
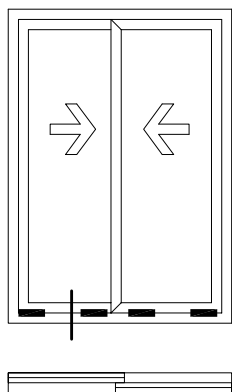
OBRADA NA GORNJEM POLIAMIDU



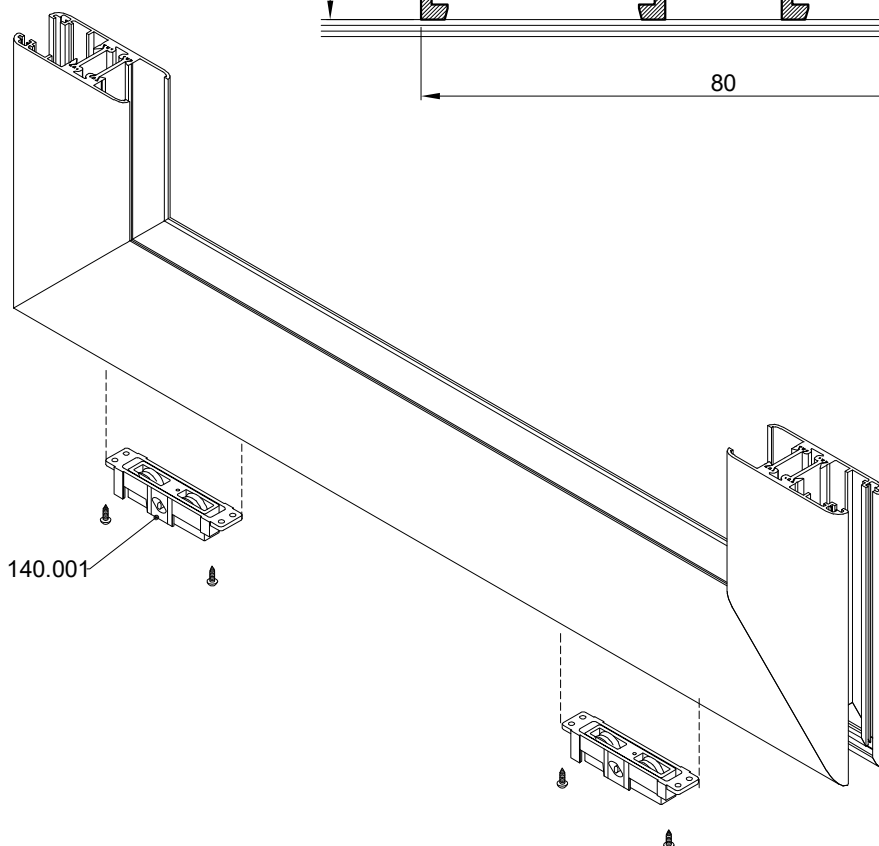
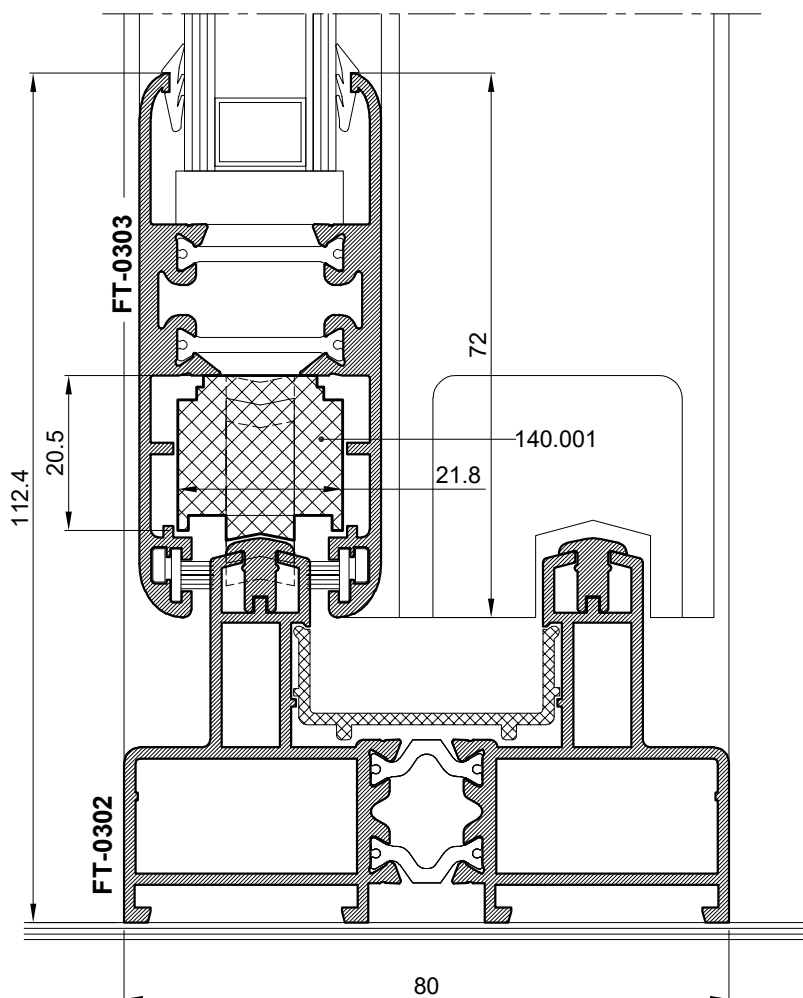
OBRADA NA DONJEM POLIAMIDU

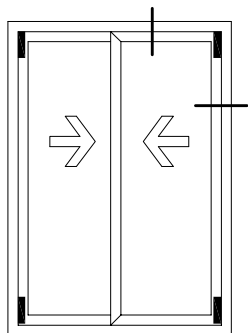


- Spajanje kutnikom 730.012 s predobradom štancanja
- Obrada na pneumatskoj štanci tipa Feal br.2-art.210.003



- dva kotačića po krilu
- regulacija položaja krila po visini - namještanjem kotačića imbus vijkom

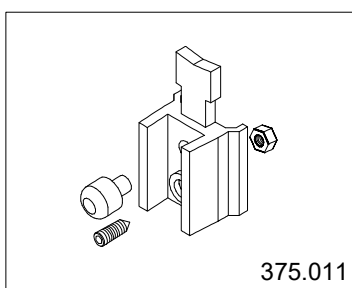
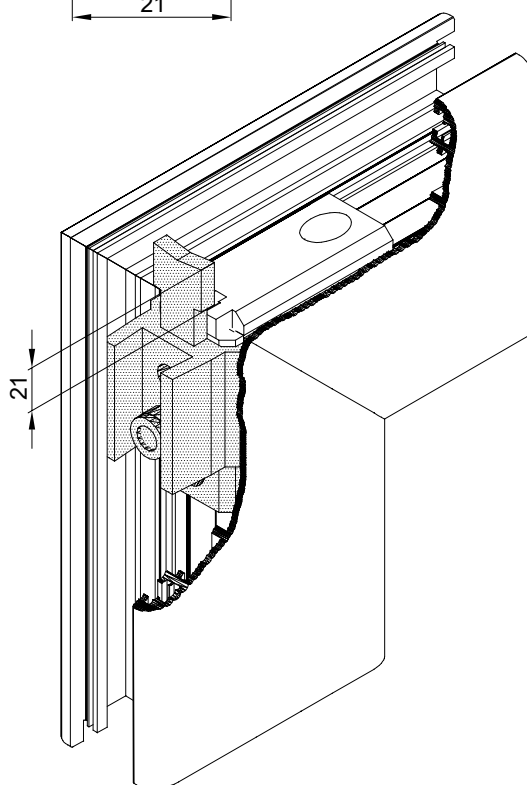
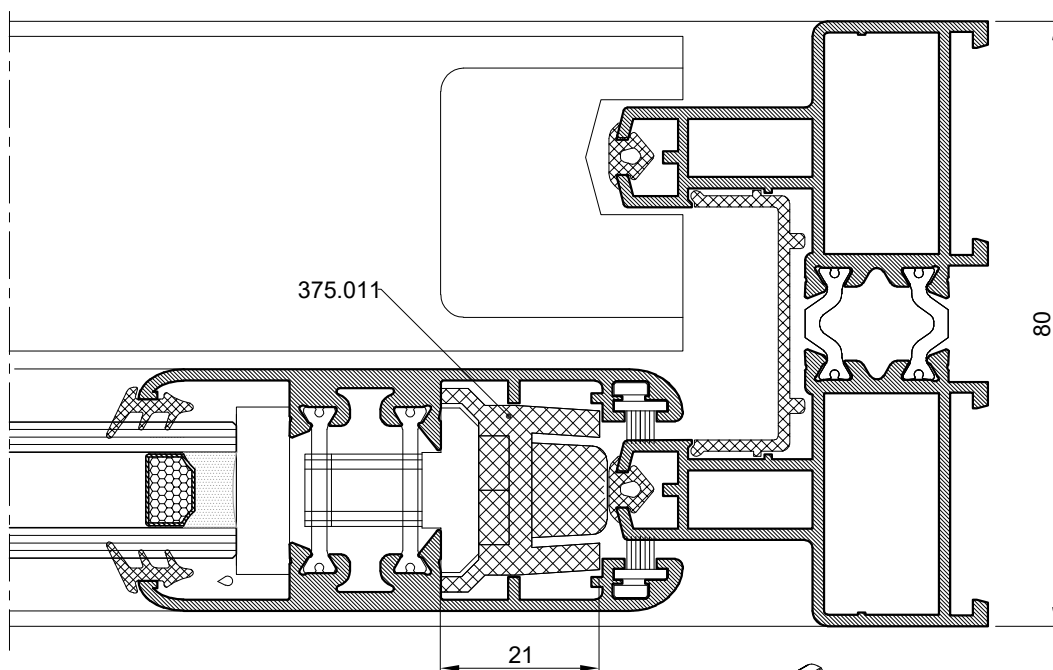




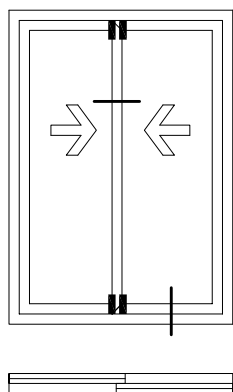
**UPORABA ODSTOJNIKA 375.011**

Koristi se kao:

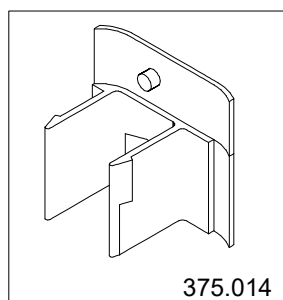
- ublaživač udarca krila u ram
- osigurač od vađenja krila



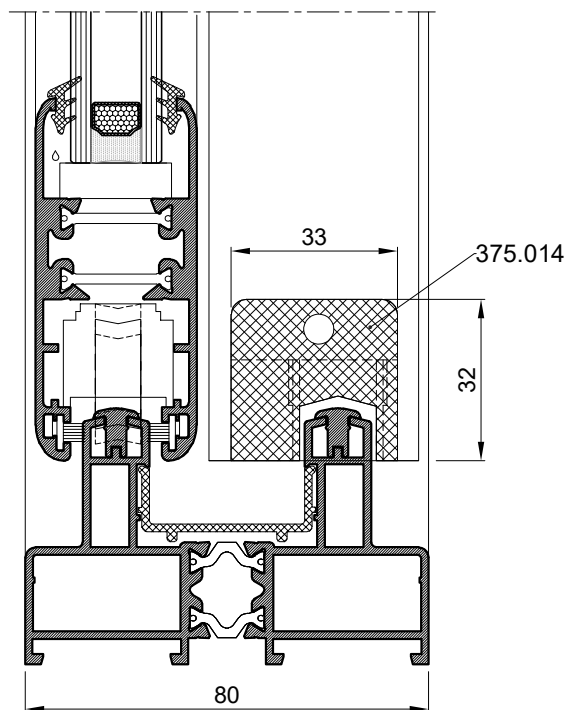
UMETAK 375.014



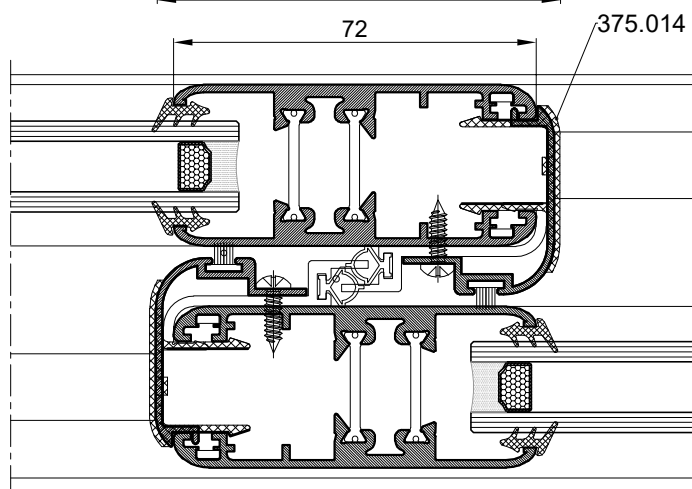
- maskira prostor nalijeganja krila na kliznu stazu
- donji i gornji umetak
- obrada profila F-0832 i 374.031



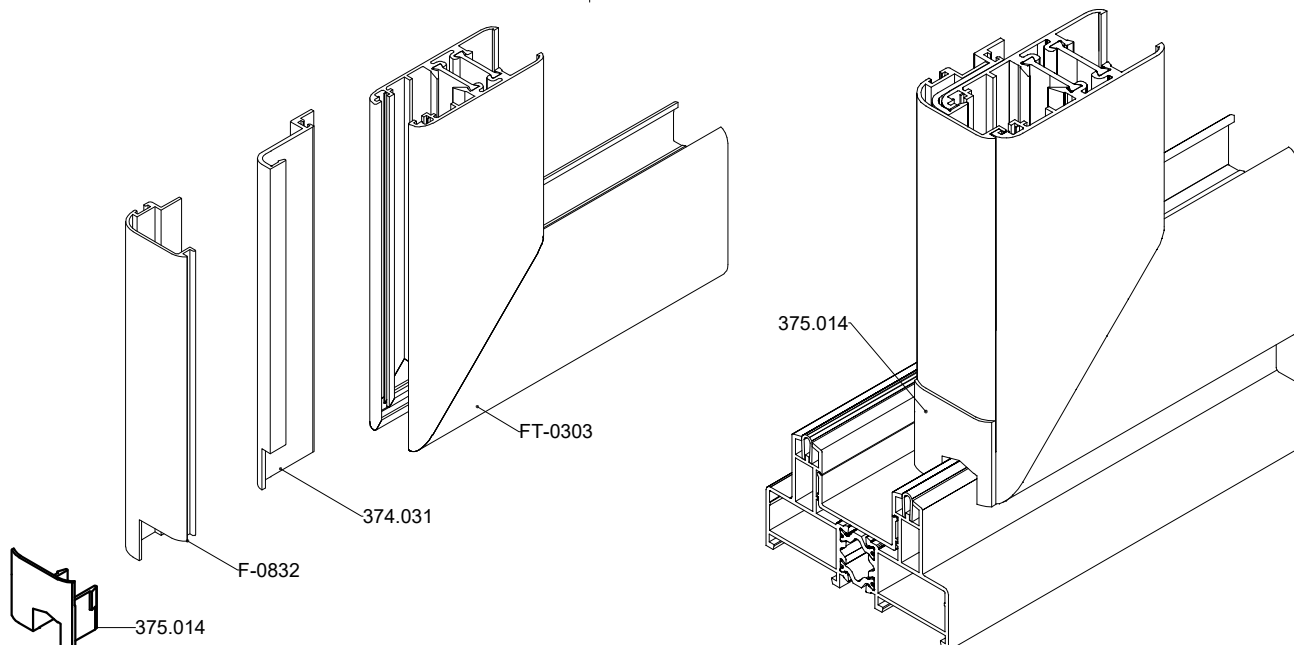
375.014



375.014



375.014



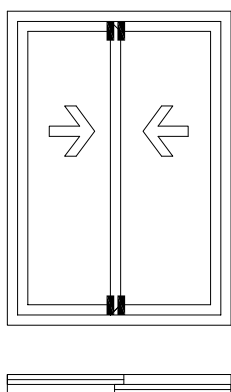
FT-0303

374.031

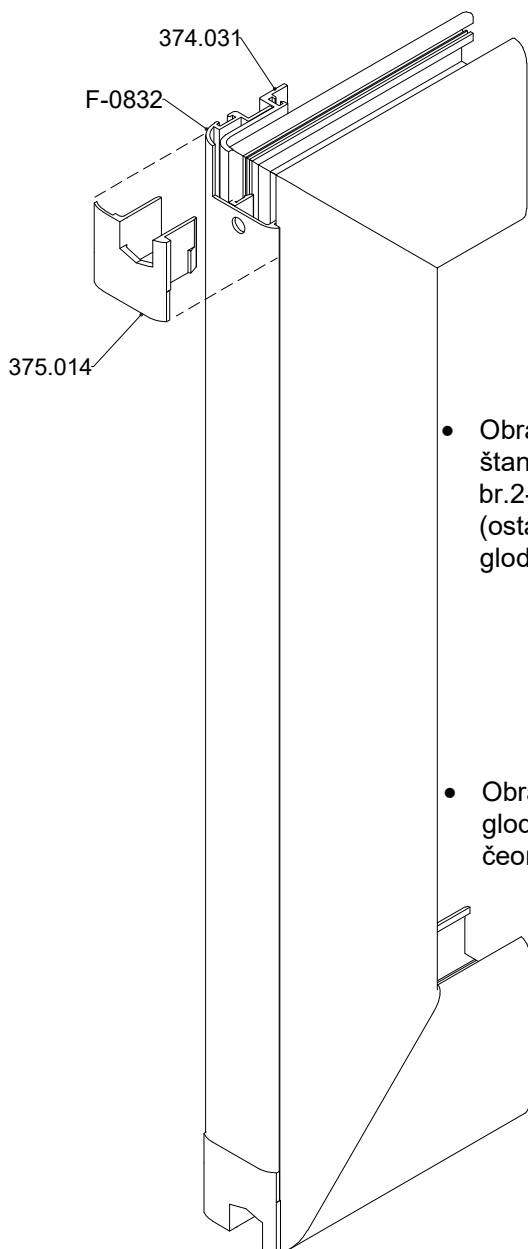
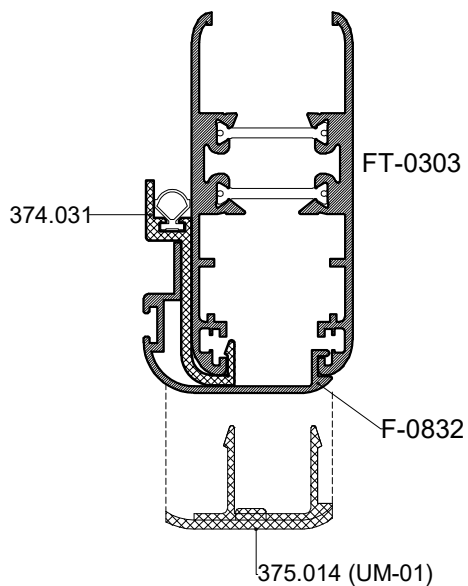
F-0832

375.014

375.014

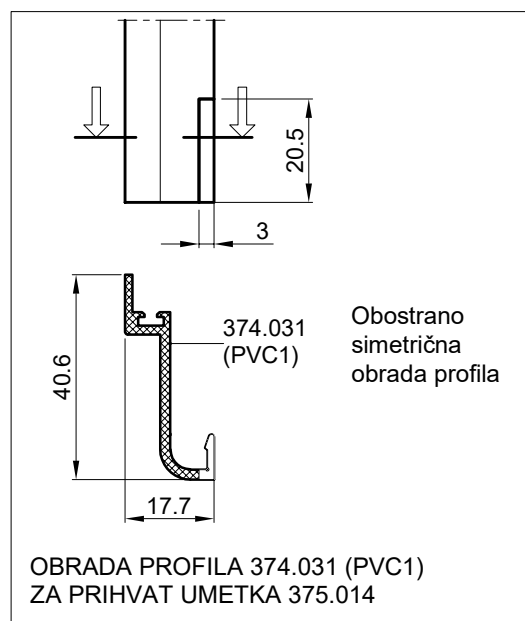
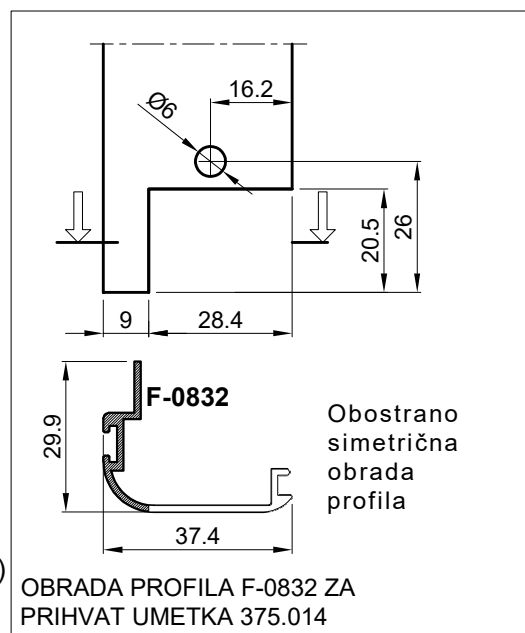


OBRADA AL.PROFILA I PVC KOMADA  
ZA PRIHVAT UMETKA **375.014**

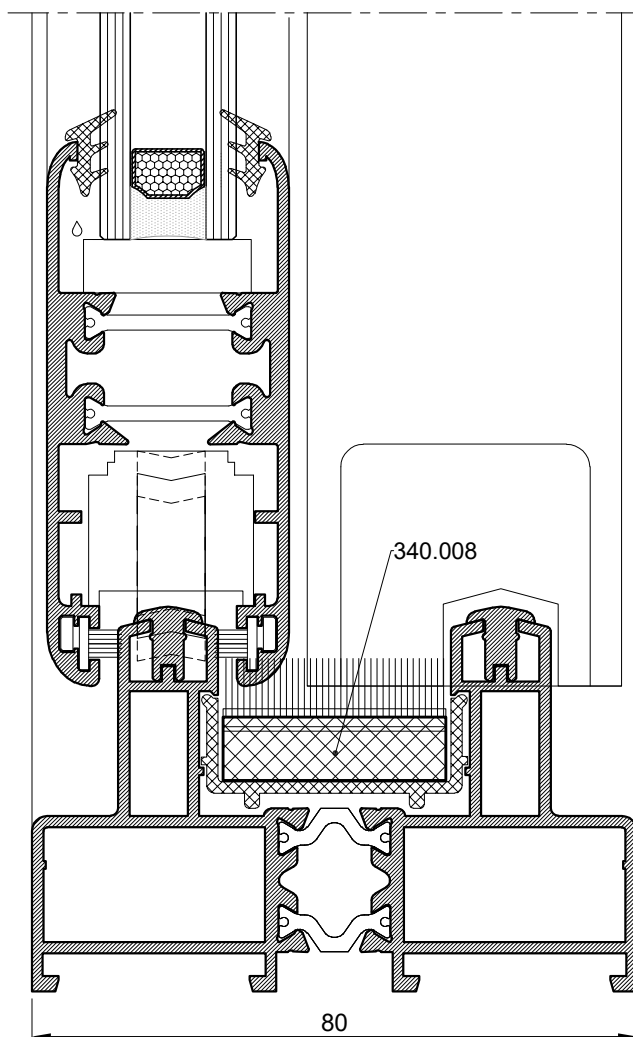
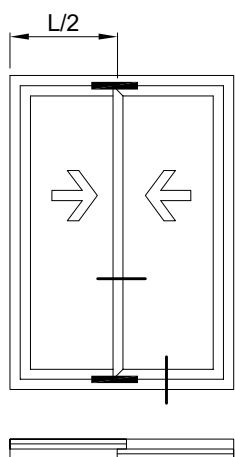


- Obrada na pneumatskoj štanci tipa Feal br.2-art.210.003 (ostatak skinuti na vert. glodalici vreten. glodalom)

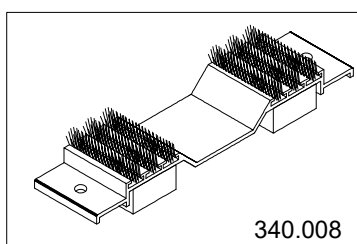
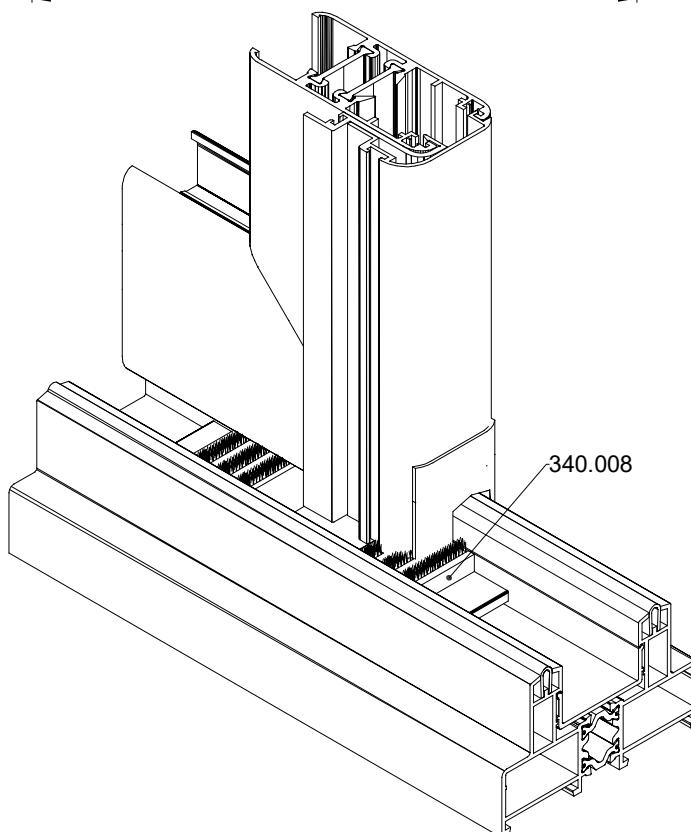
- Obrada na vertikalnoj glodalici čeonim glodalom

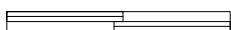
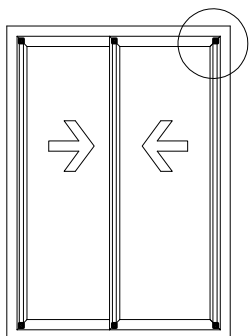


## BRTVILO NA SPOJU KRILA 340.008



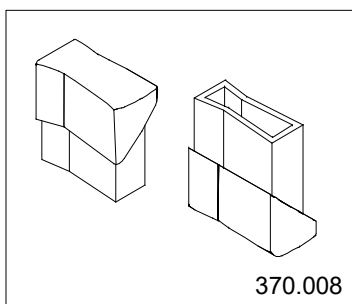
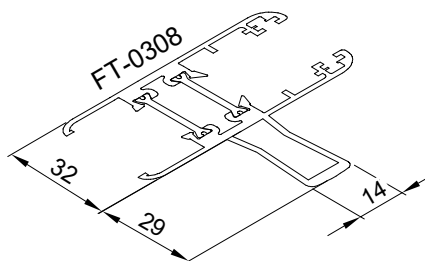
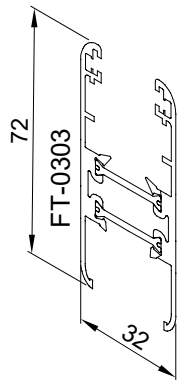
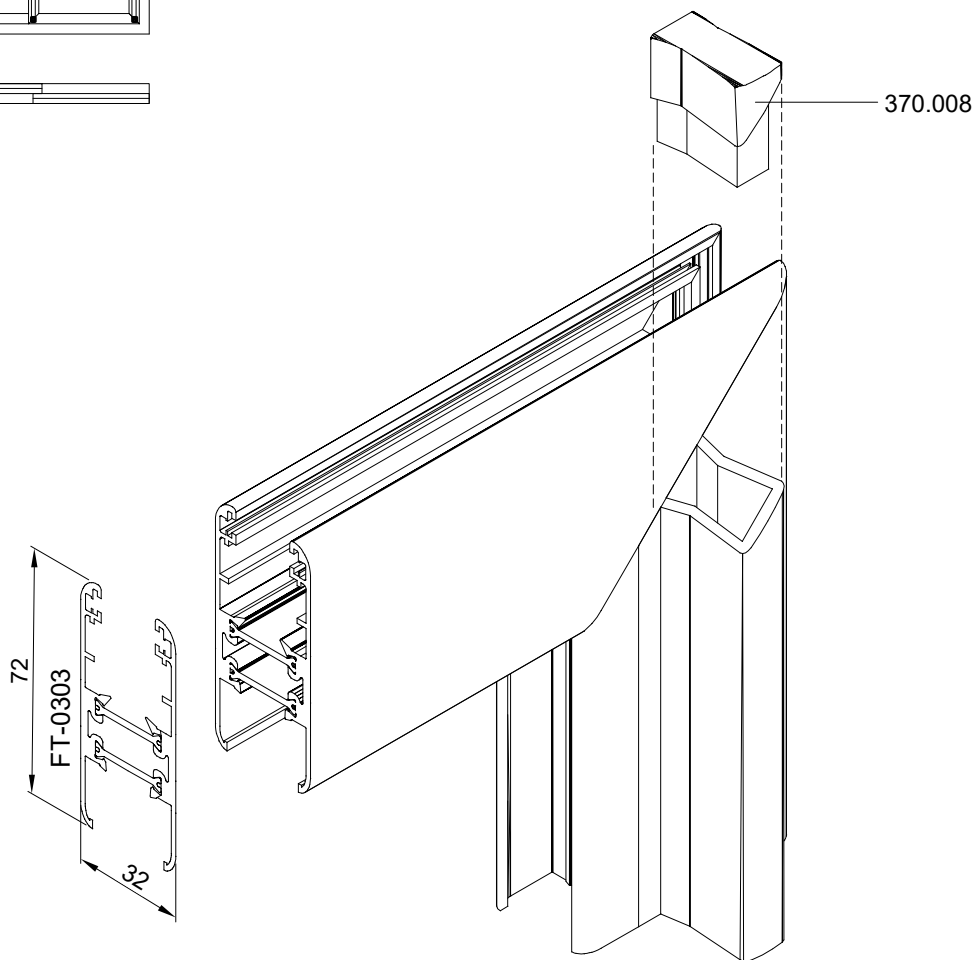
- zaptiva prostor između krila i rama u zatvorenom položaju
- sprječava prodor vode iz vanjskog u unutarnji prostor klizne staze
- ugradnja na sredini spoja dvaju krila - gore i dolje



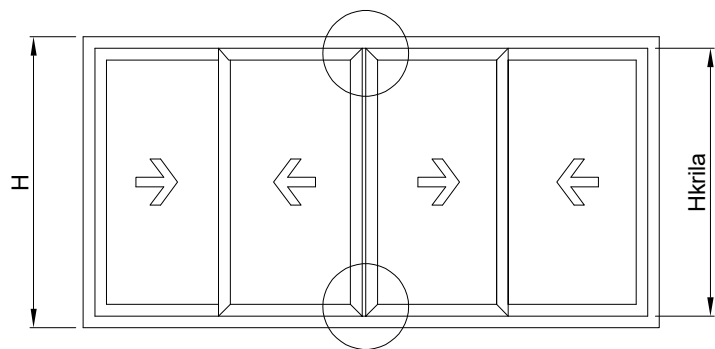


UGRADNJA ČEPA 370.008 U PROFIL OJAČANOG KRILA FT-0308

- simetrični čepovi, gornji i donji

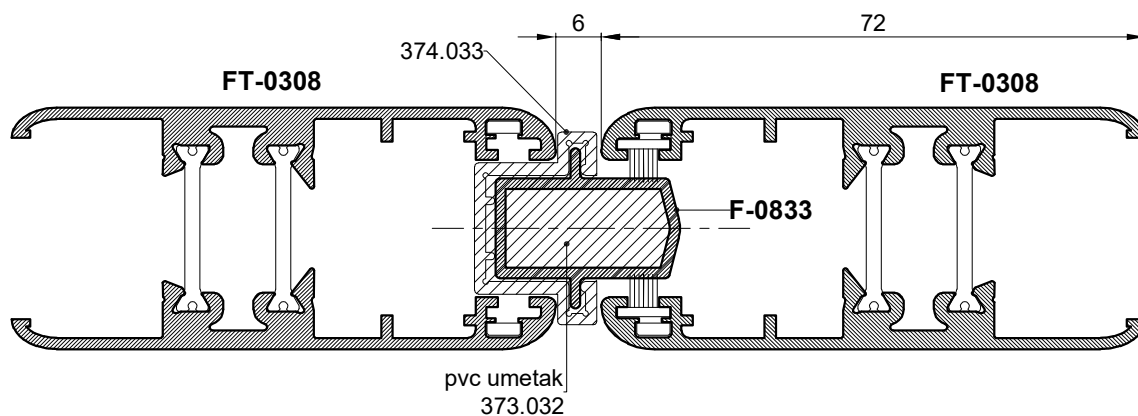
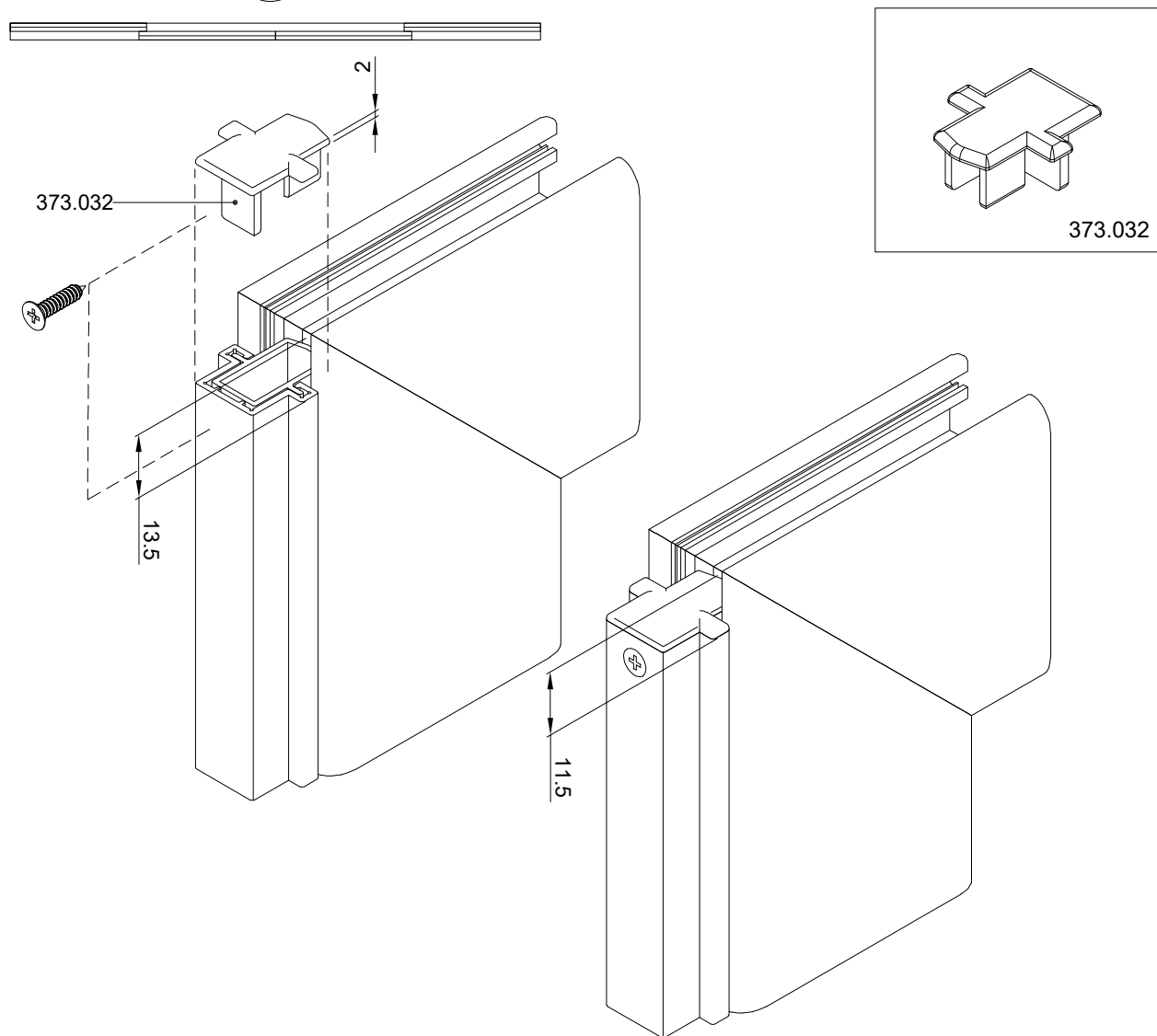


370.008

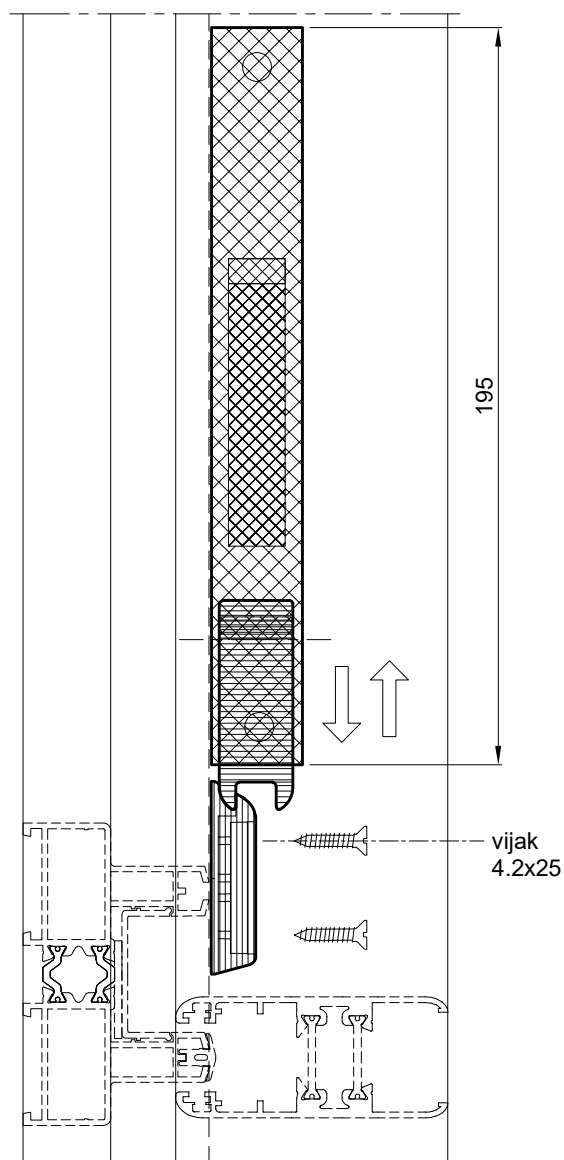
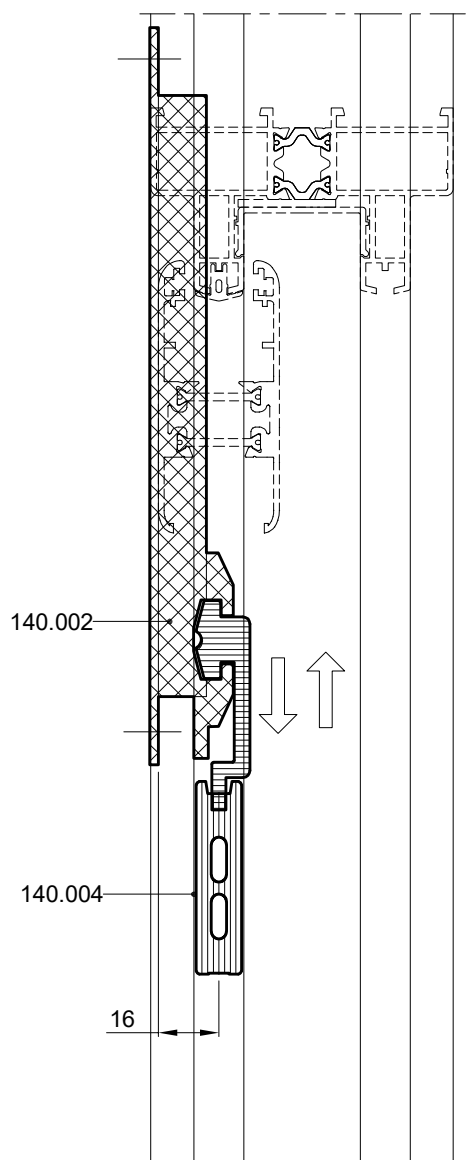
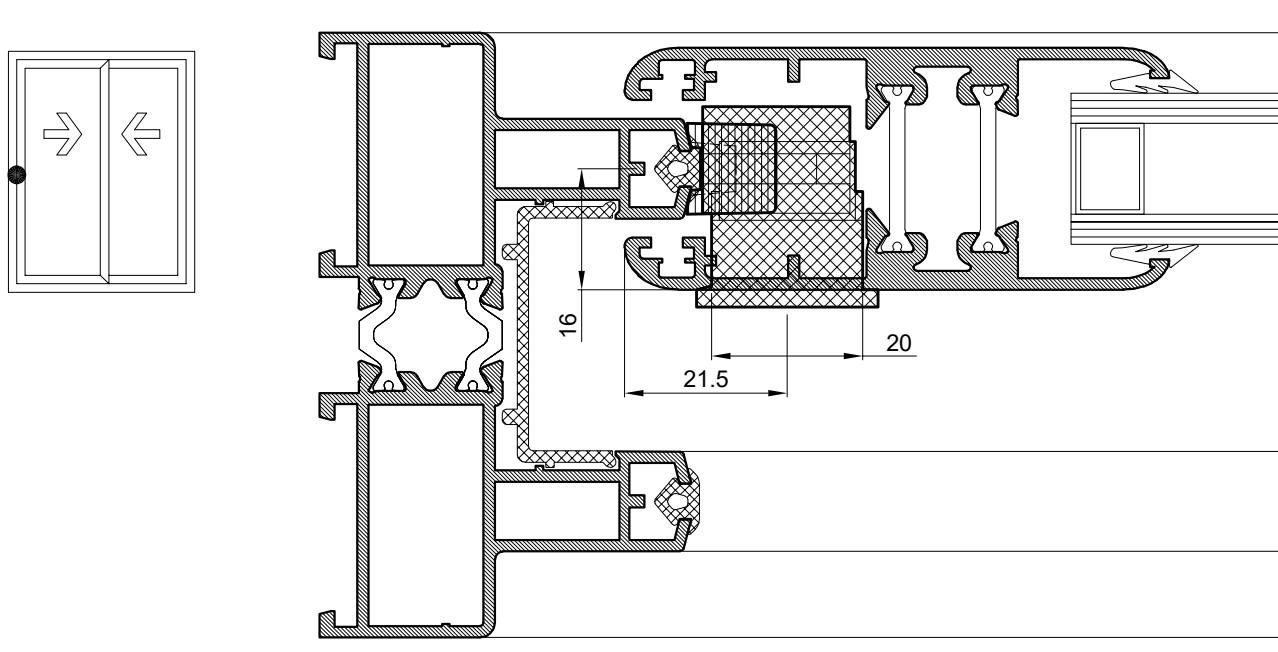


Ugradnja umetka u profil F-0833

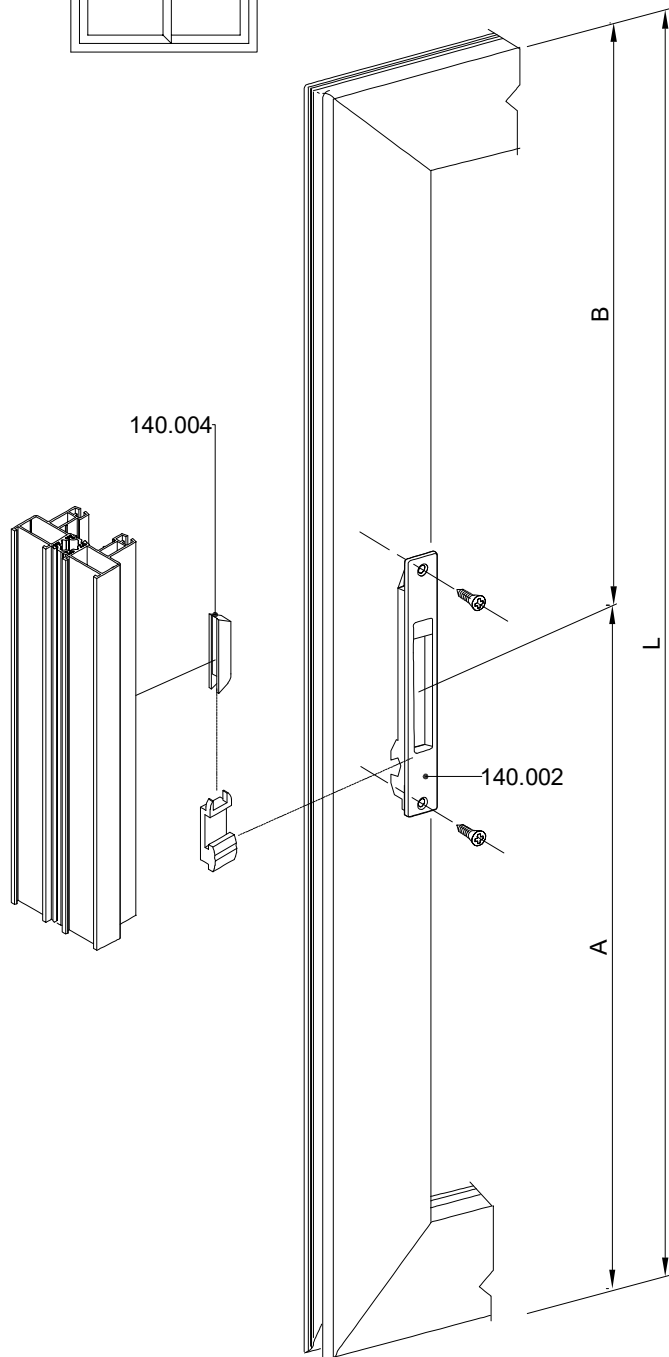
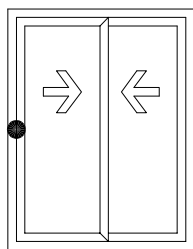
- mjera pilanja profila F-0833 i pvc profila 374.033 je  
 $H_{\text{profila}} = H_{\text{krila}} - 27$  ili  
 $H_{\text{profila}} = H - 108$



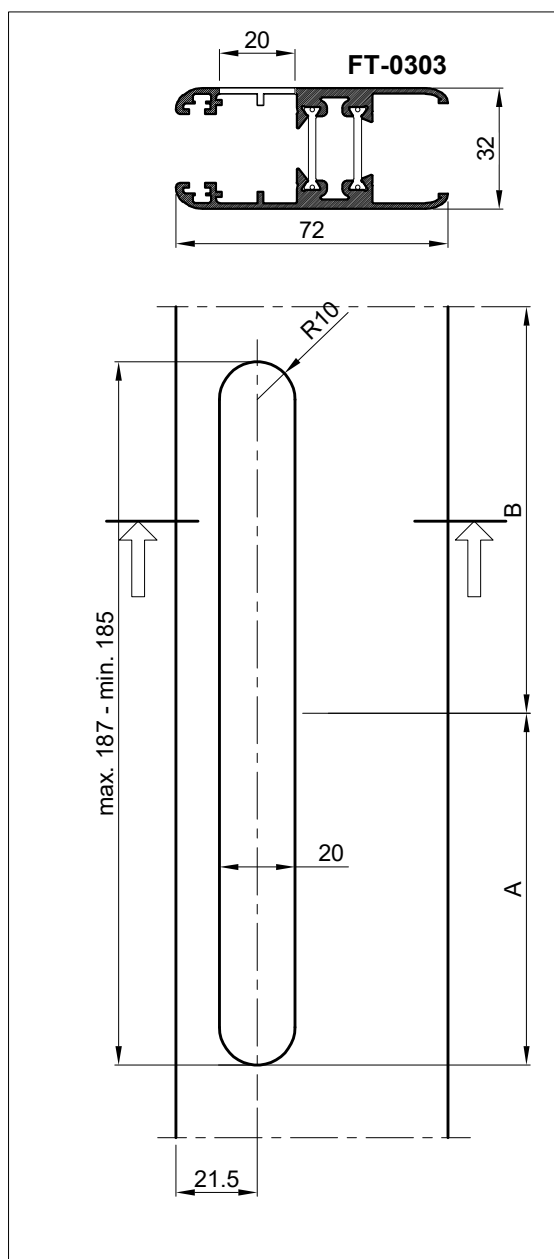
OKOV ZA KLJUČANJE U JEDNOJ TOČKI - 140.002 I 140.004 (Medal)



OKOV ZA KLJUČANJE U JEDNOJ TOČKI - 140.002 I 140.004 (Medal)

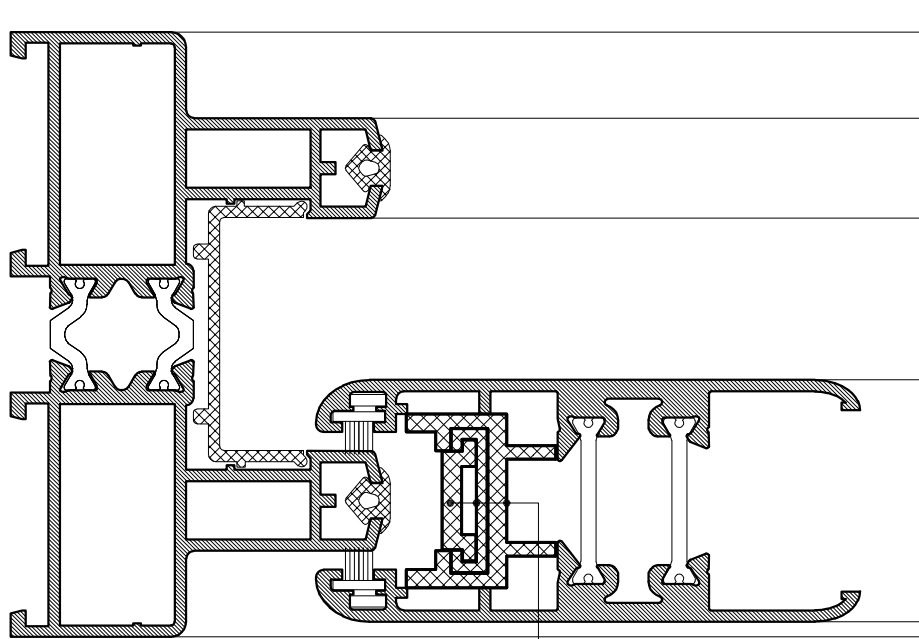
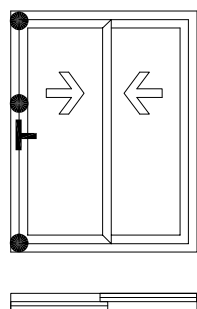


OBRADA PROFILA KRILA FT-0303-  
ZA PRIHVAT BRAVICE



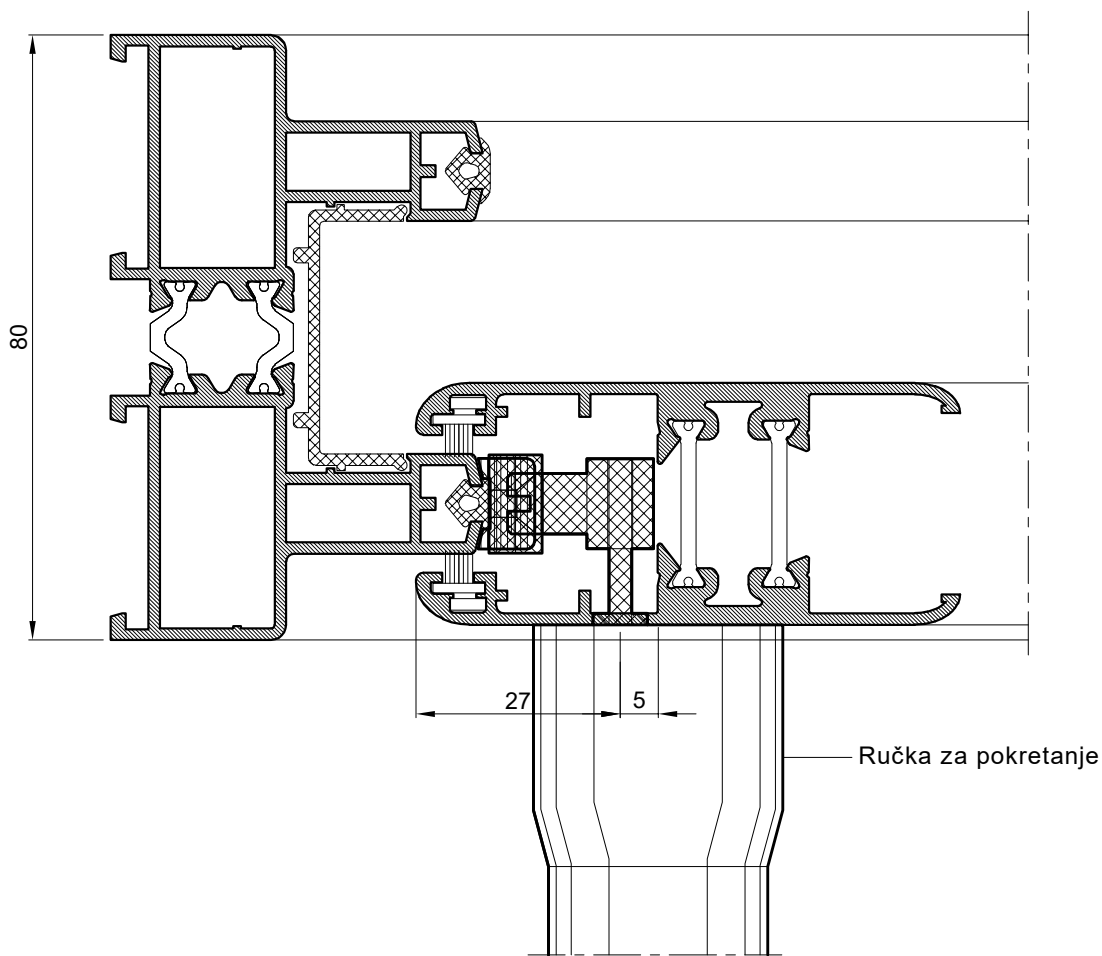
- Obrada na vertikalnoj glodalici vretenastim glodalom Ø10

OKOV ZA KLJUČANJE U VIŠE TOČAKA - 130.000 (Medal)

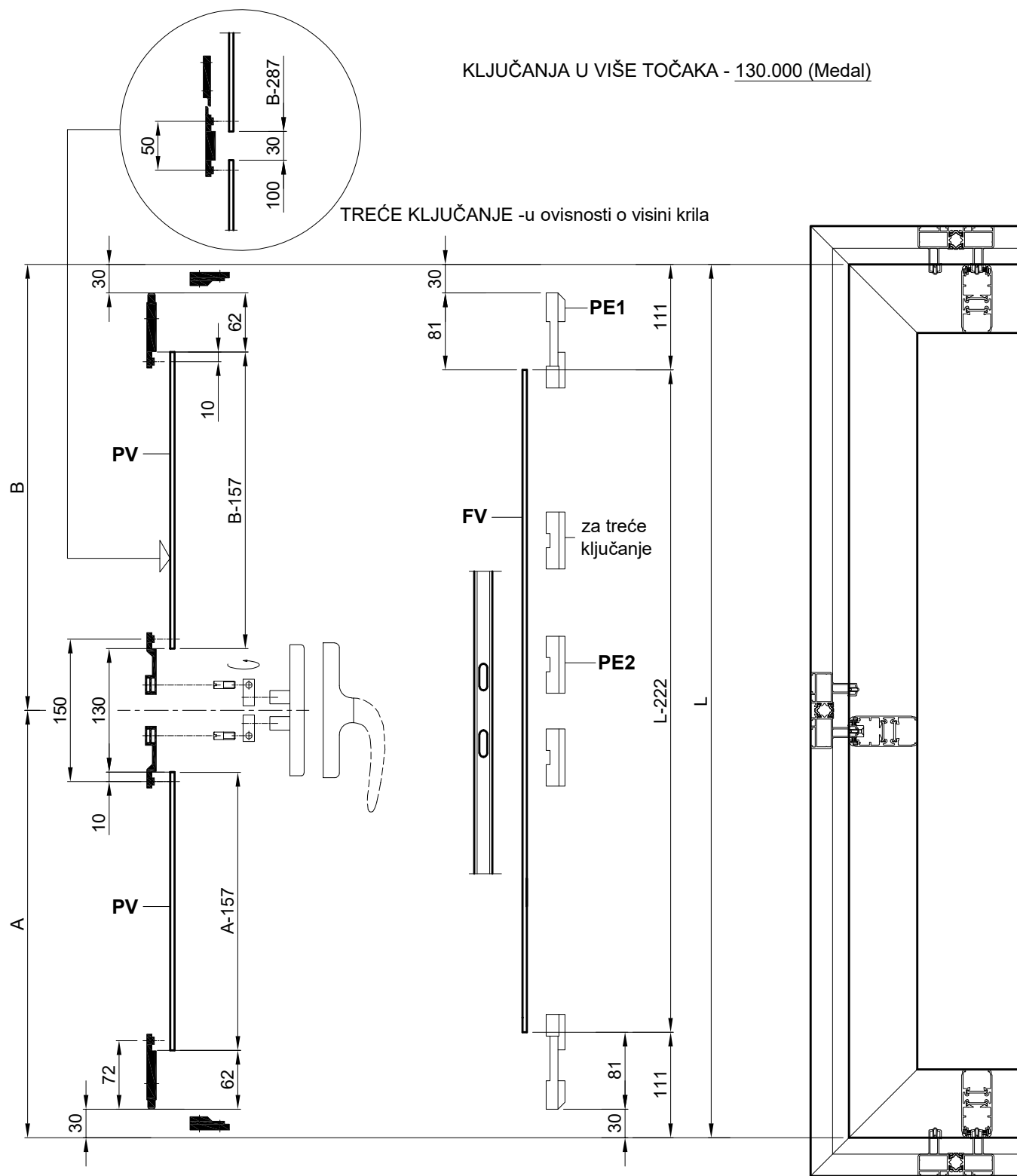


VOĐENJE ELEMENETA ZA KLJUČANJE

- vodilica pokretna PV
- vodilica fiksna FV
- prihvatni elementi PE1, PE2 /pvc/



## KLJUČANJA U VIŠE TOČAKA - 130.000 (Medal)



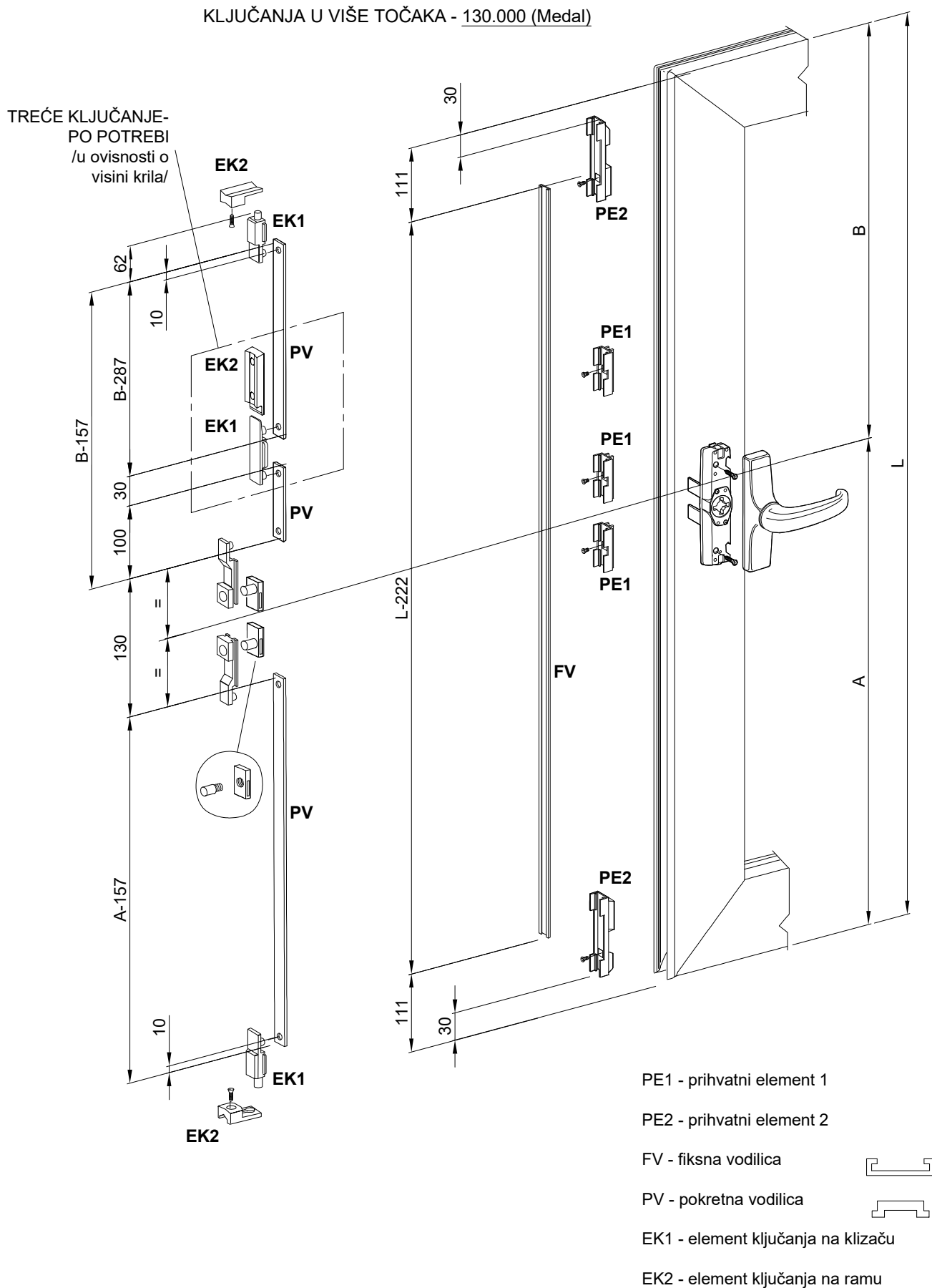
**FV** - vodilica fiksna

**PV** - vodilica pokretna

**PE1** - prihvatni element 1

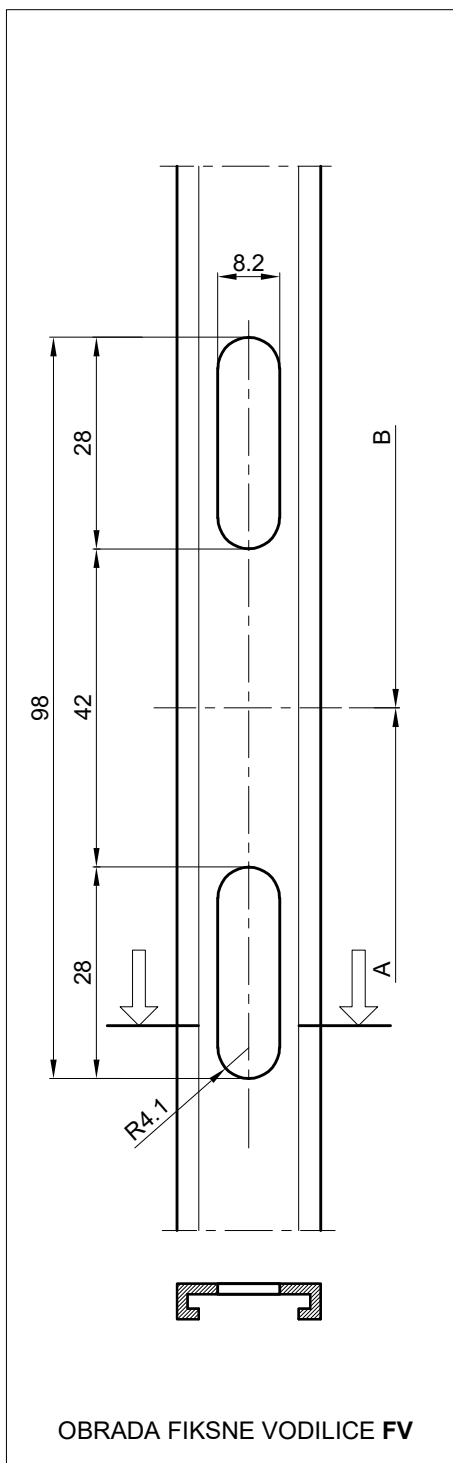
**PE2** - prihvatni element 2

## KLJUČANJA U VIŠE TOČAKA - 130.000 (Medal)

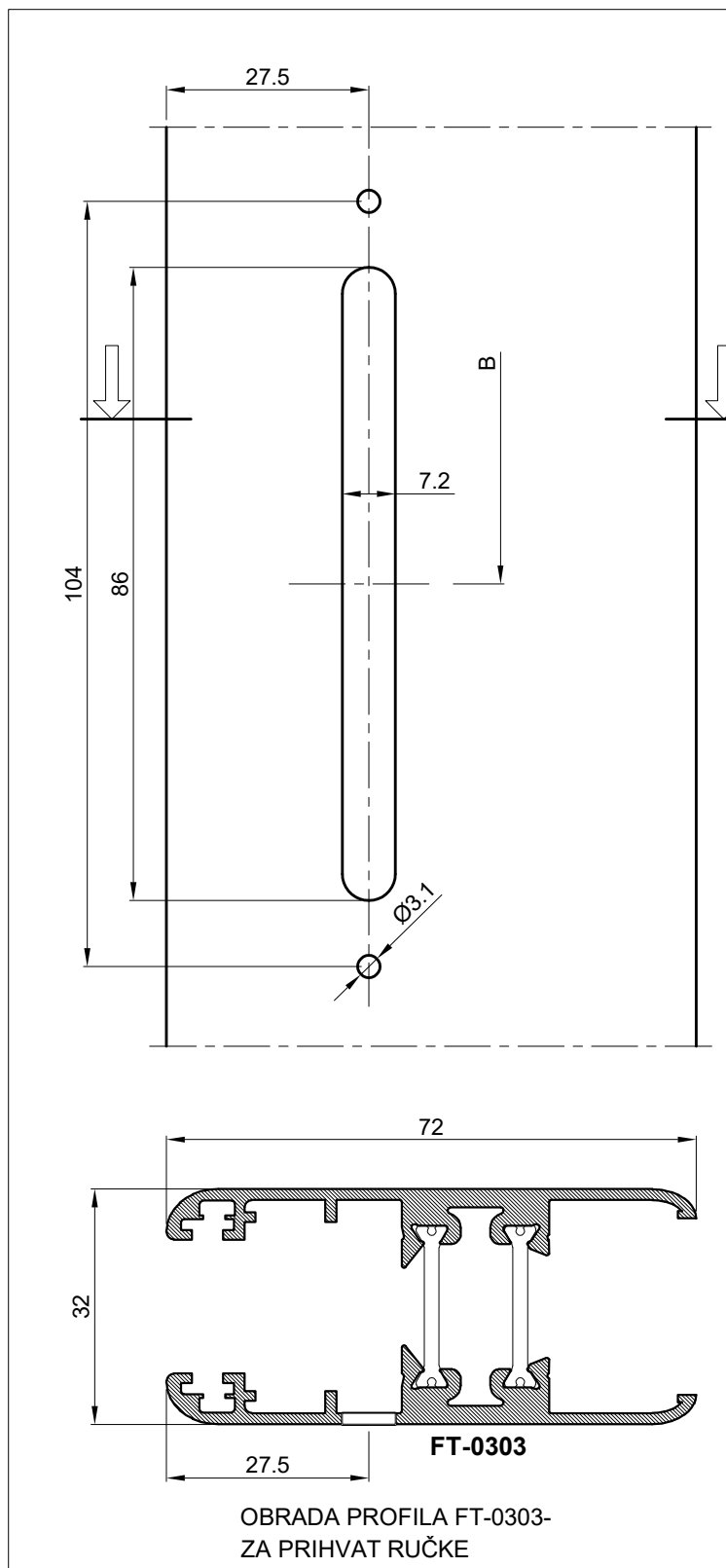


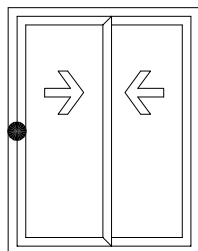
## OBRADA PROFILA KRILA FT-0303 ZA OKOV 130.000 (Medal)

- Obrada na vertikalnoj glodalici vretenastim glodalom

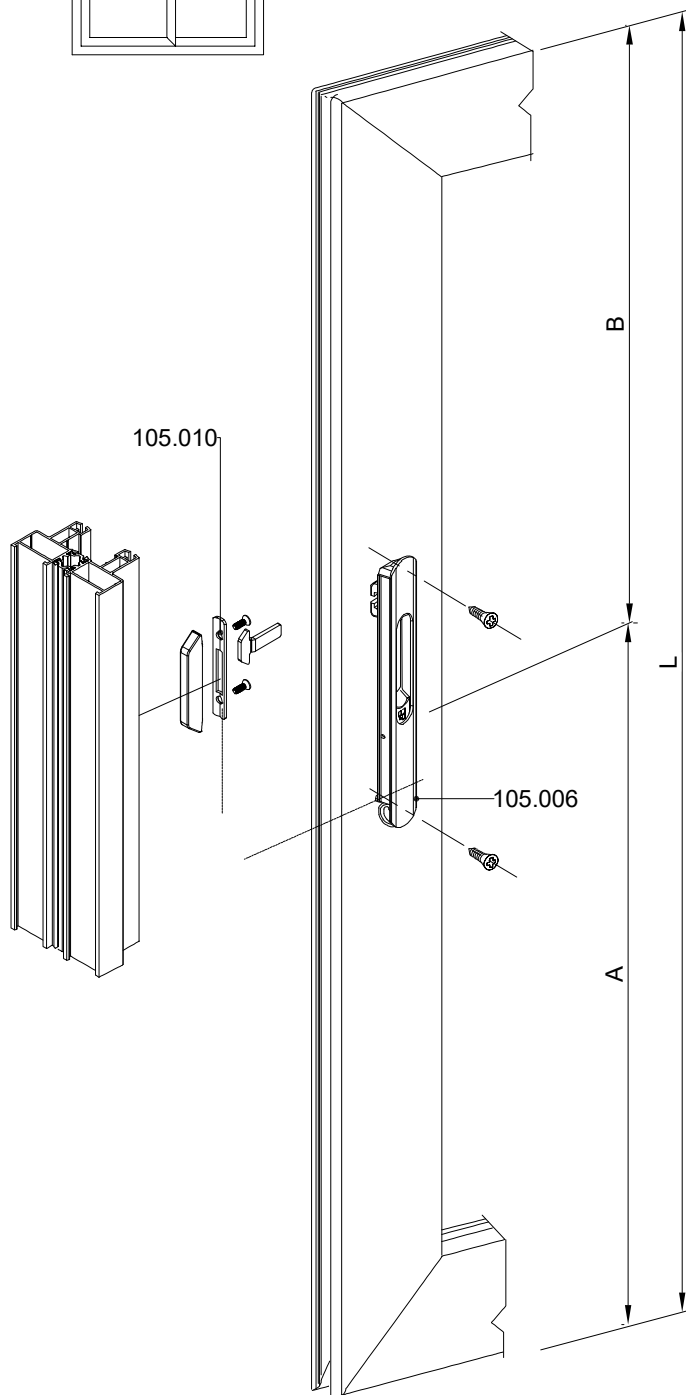


- Obrada na vertikalnoj glodalici vretenastim glodalom

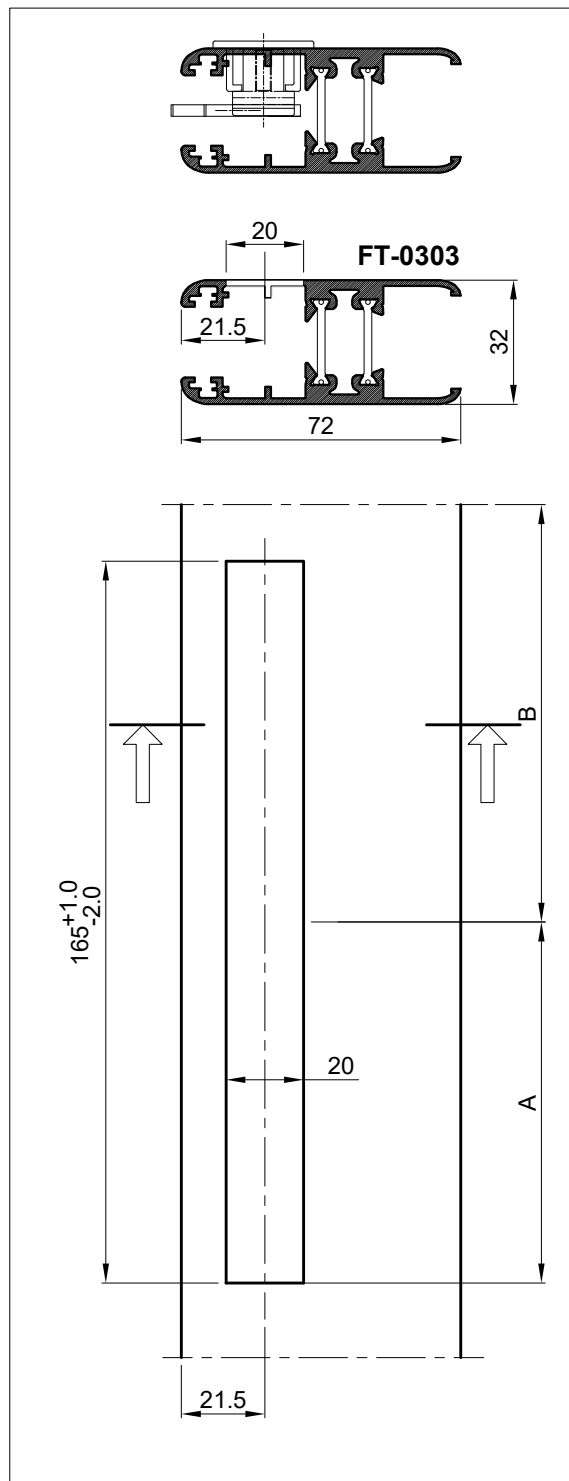


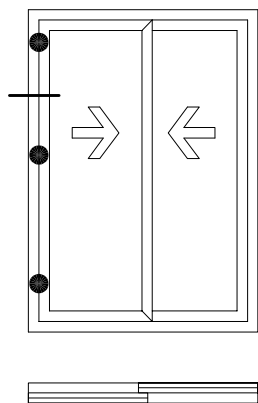


## OKOV ZA KLJUČANJE U JEDNOJ TOČKI - 105.006 Giese



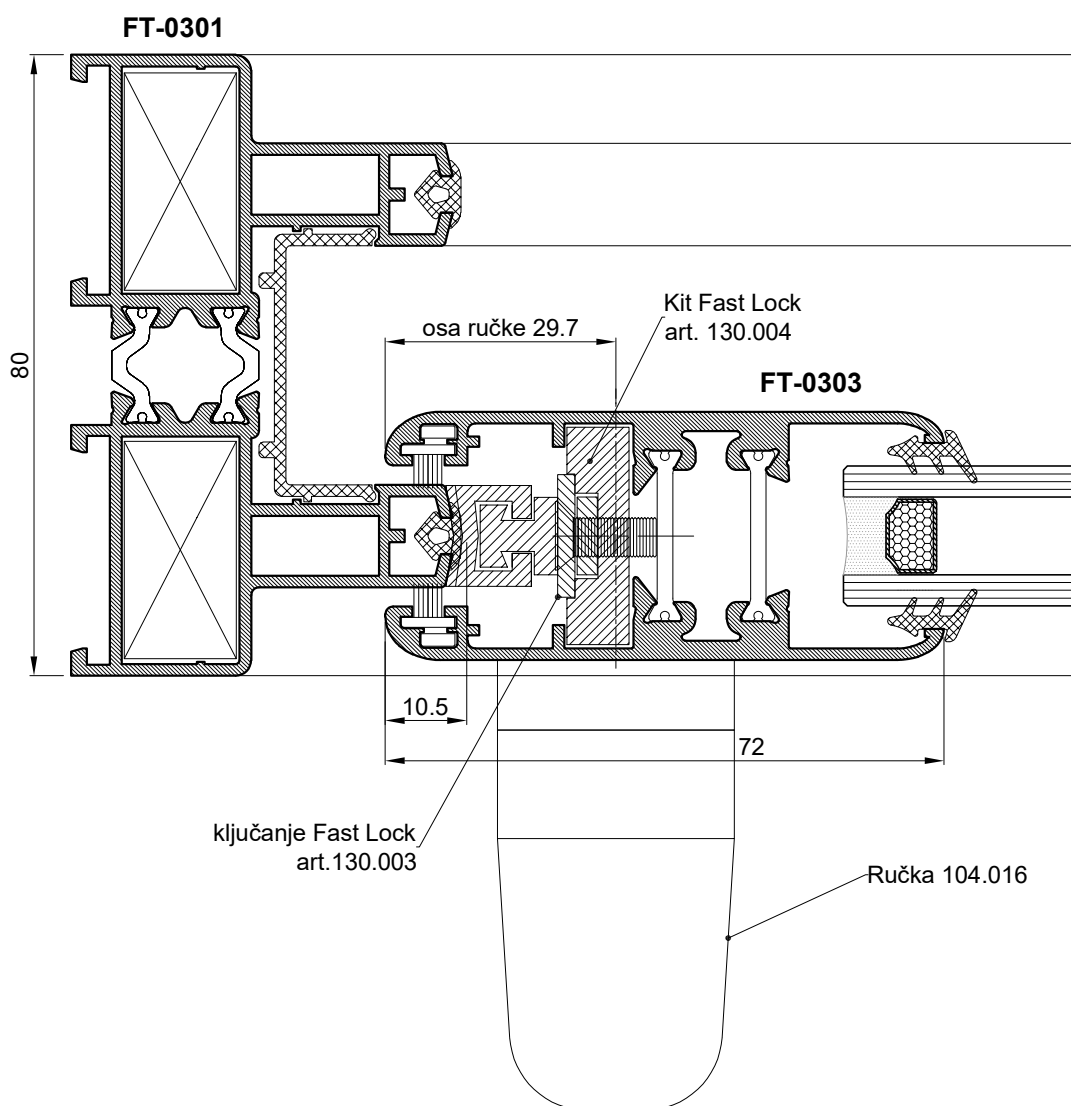
- Obrada na vertikalnoj glodalici vretenastim glodalom  $\varnothing 10$

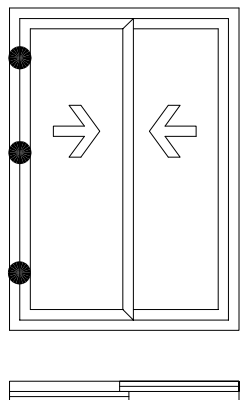
 OBRADA PROFILA KRILA FT-0303-  
ZA PRIHVAT BRAVICE




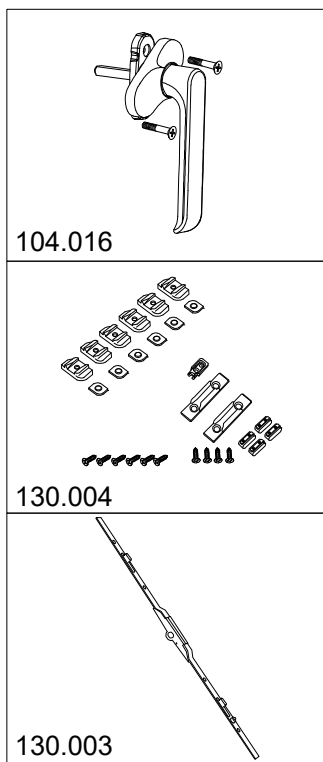
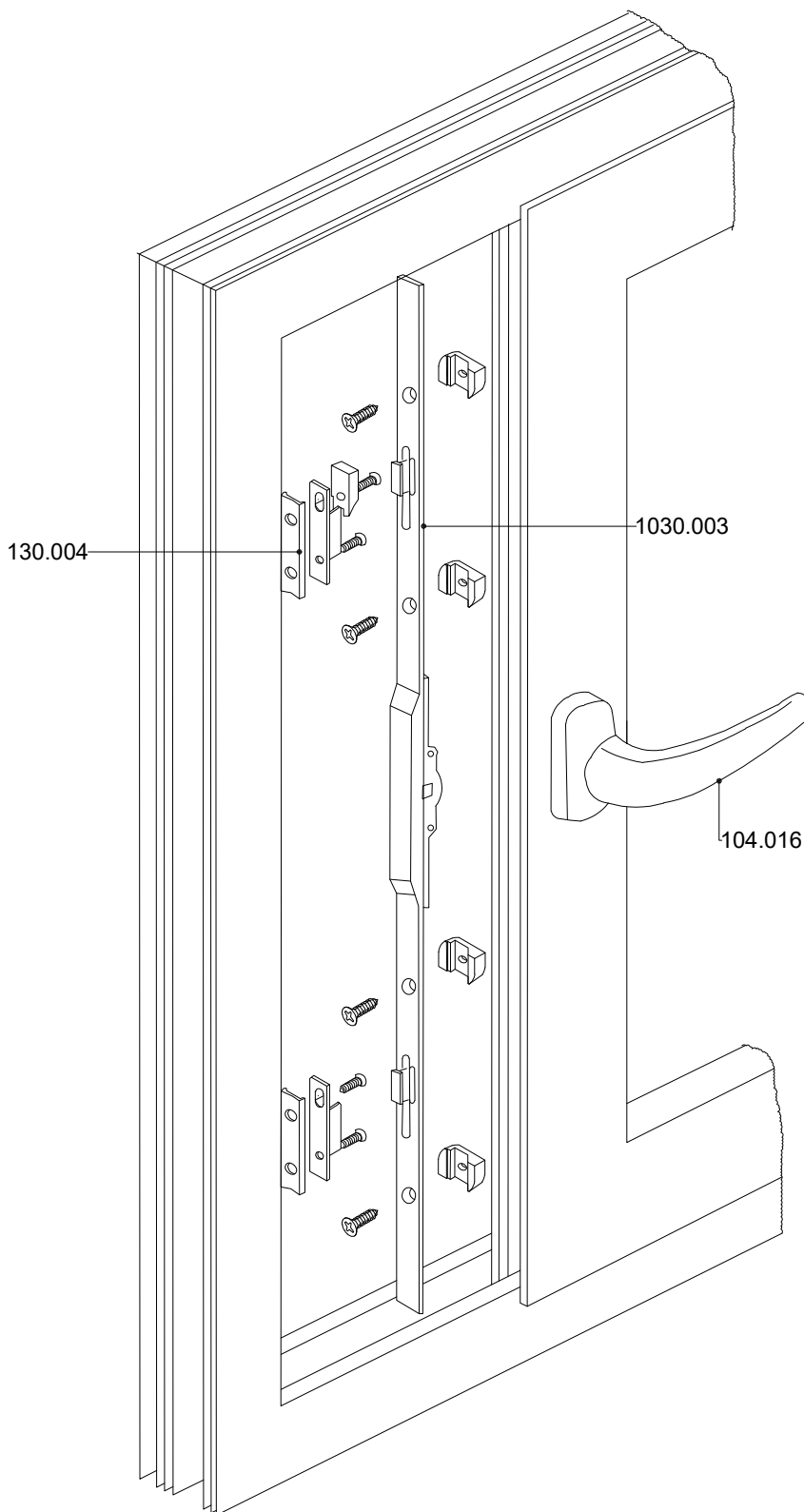
Okov za ključanje u više točaka ( Fast Lock-Master)

1. Okov za ključanje u dvije točke - art.130.003 i art.130.004
2. Okov za ključanje u tri točke - art.130.006 i art.130.004
3. Ručka 104.016

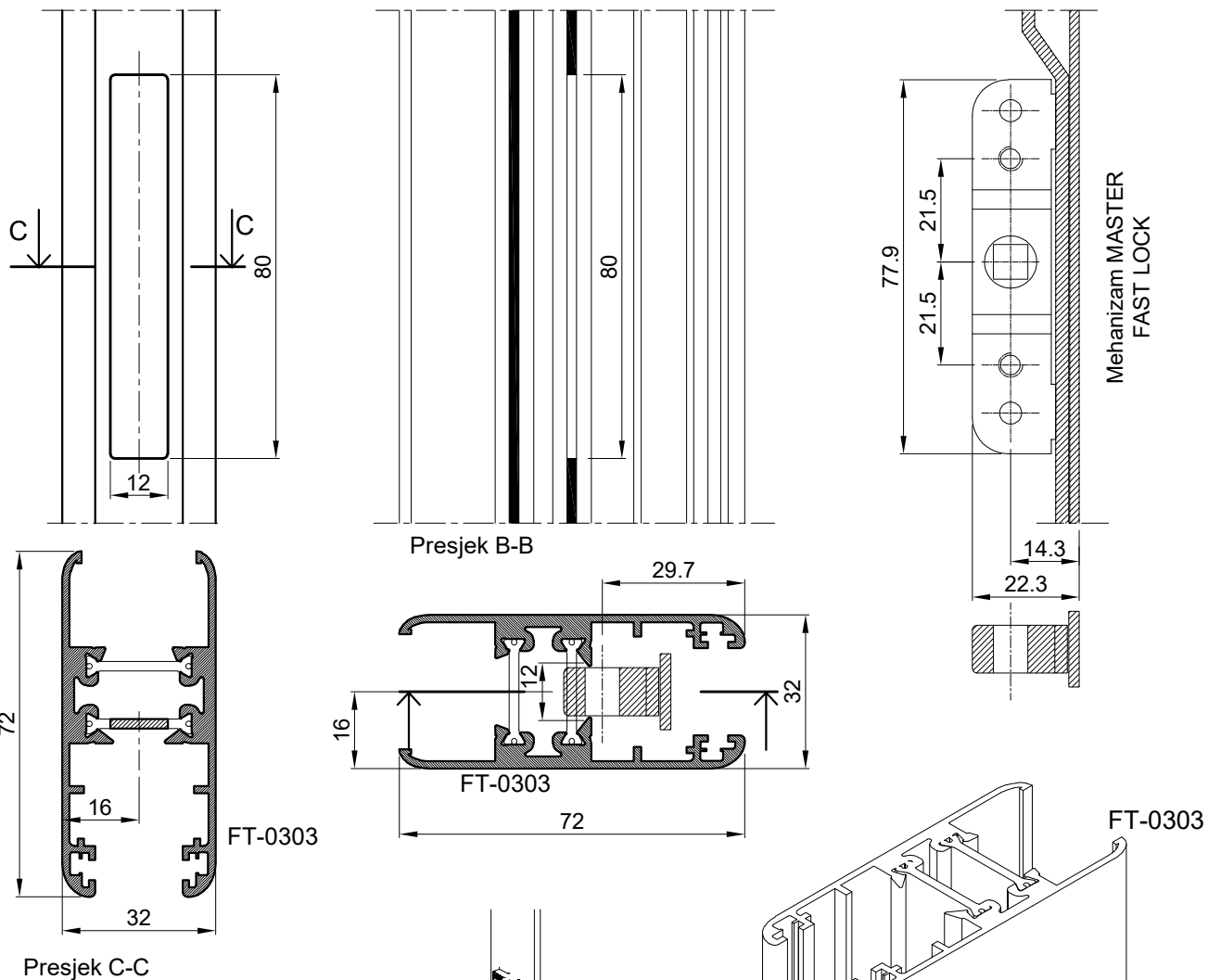




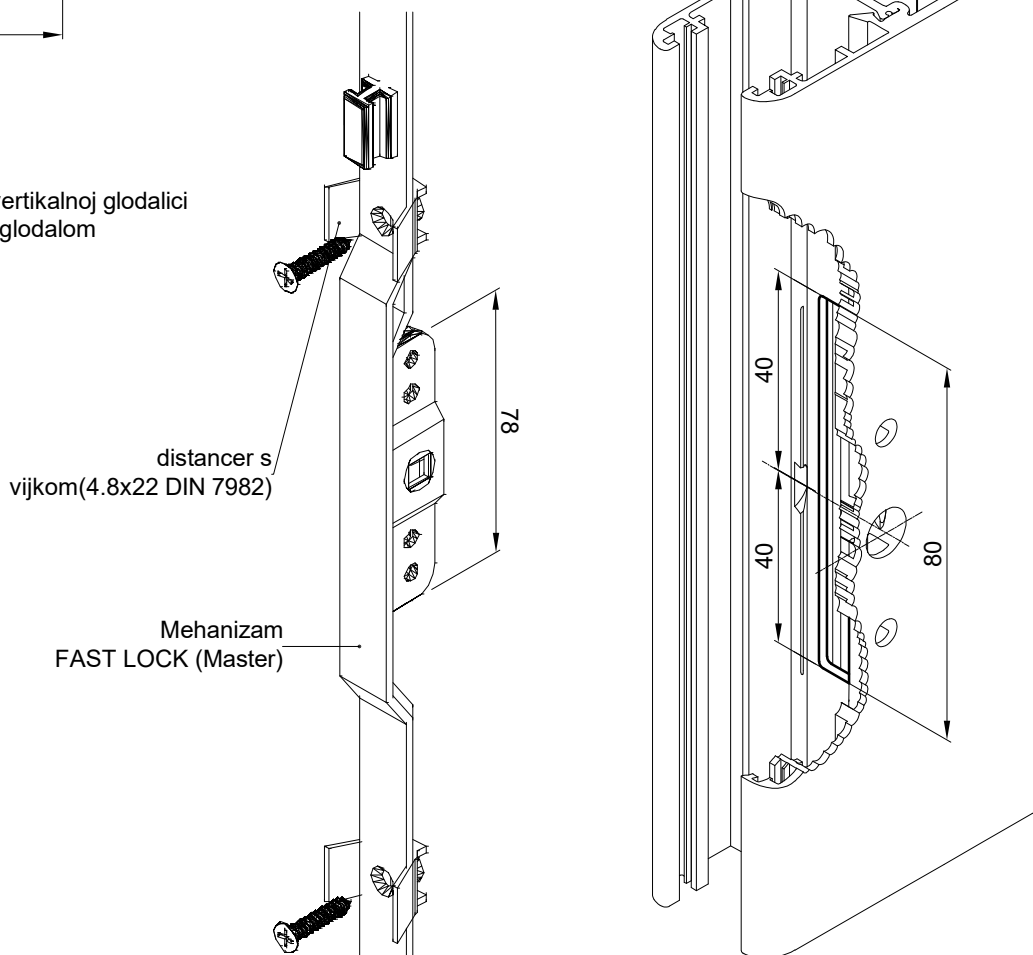
Okov za ključanje u više točaka- Fast Lock(Master)



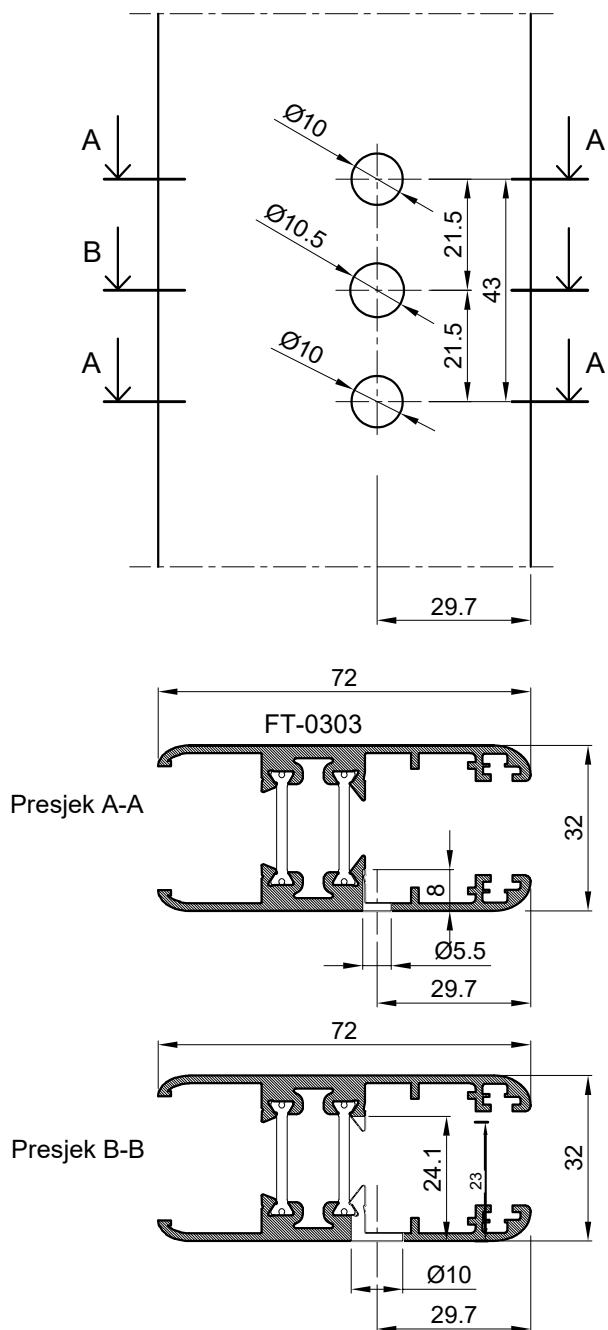
-Obrada profila FT-0303 za ugradnju mehanizma Fast Lock (130.003 i 130.006)



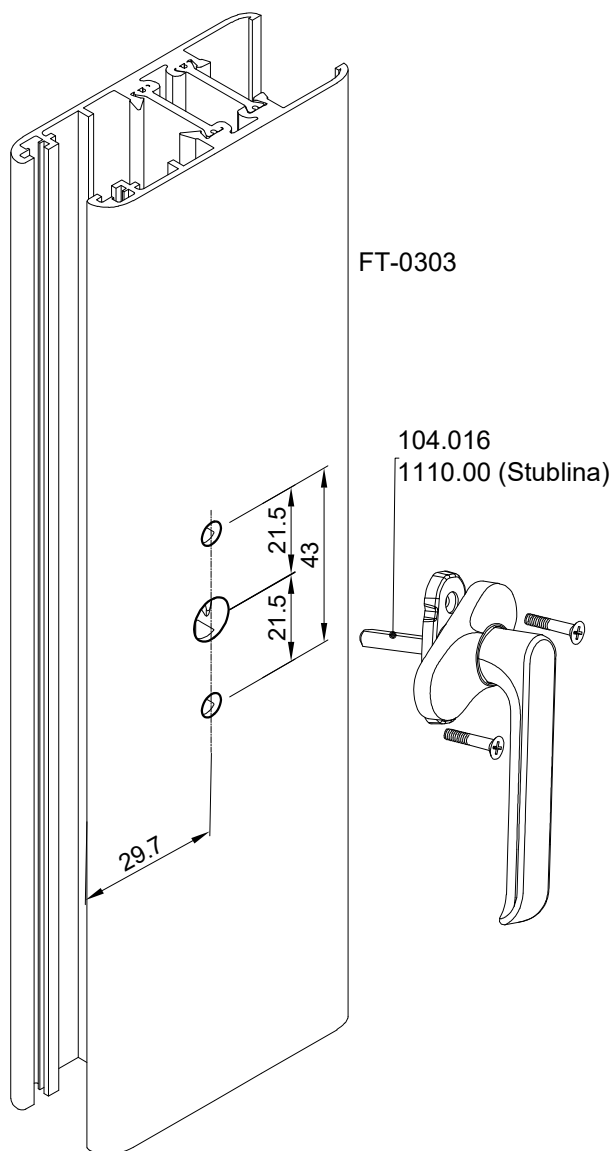
- Obrada na vertikalnoj glodalici vretenastim glodalom



- Obrada krila FT-0303 za ugradnja ručke 104.016 (art.1110.00-Stublina)

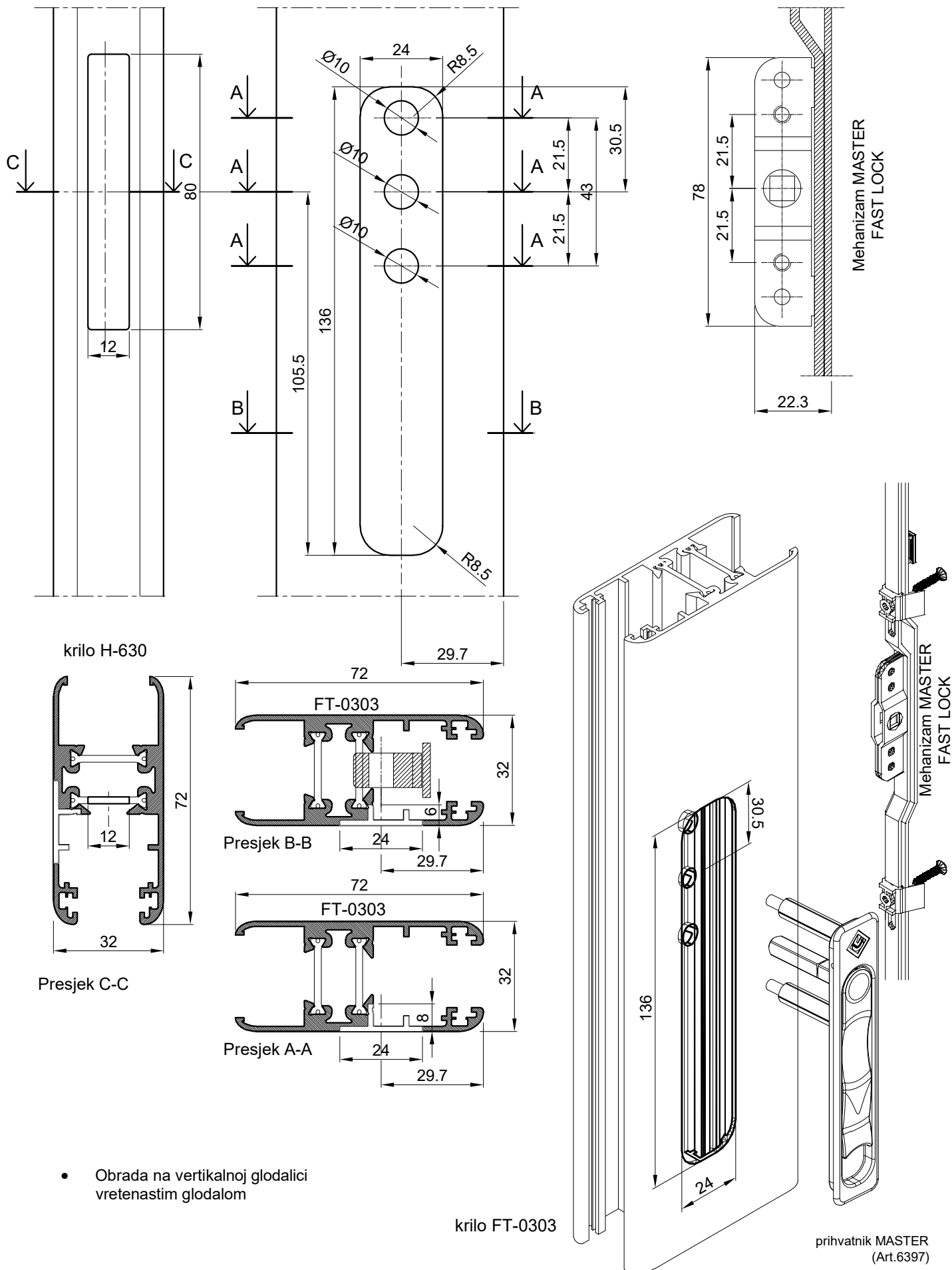


- Obrada rupa na vertikalnoj glodalici /stubnoj bušilici/ vretenastim glodalom /svrdlom/



- Obrada na vertikalnoj glodalici vretenastim glodalom

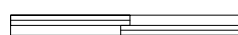
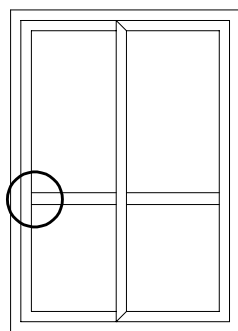
- Obrada krila FT-0303 za ugradnja mehanizma art.130.003(130.006) i pogonske ručice 107.004 (art. 6397-Master)



- Obrada na vertikalnoj glodalici vretenastim glodalom

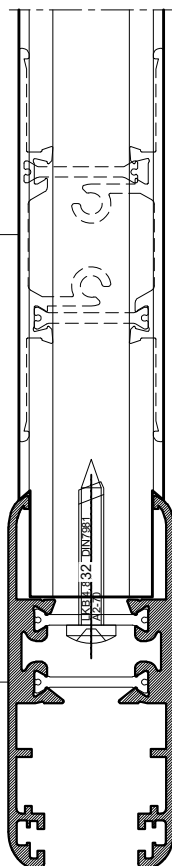
Spajanje profila prečke

- Spoj profila prečke FT-0307 i profila rama FT-0303
- Obrada prečke FT-0307



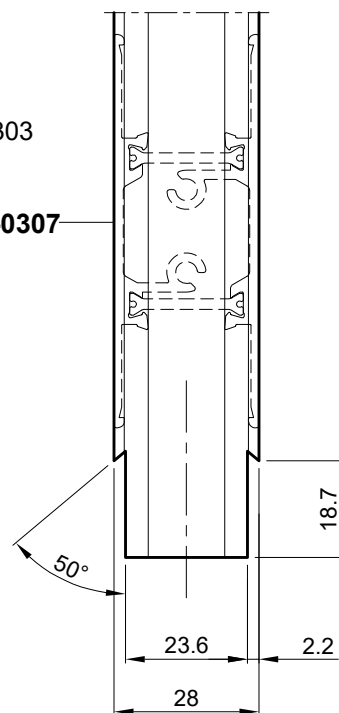
FT-0307

FT-0303



FT-0307

FT-0303

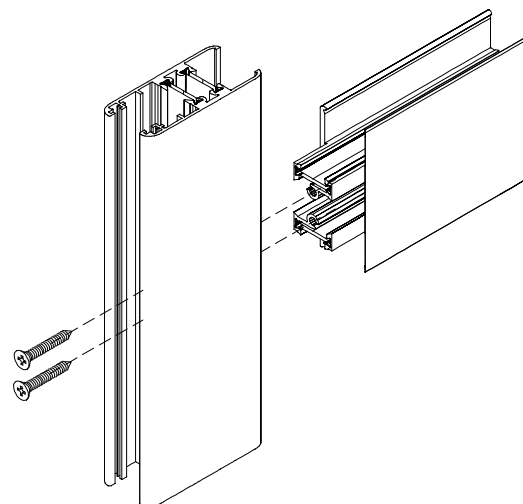
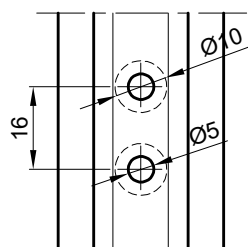
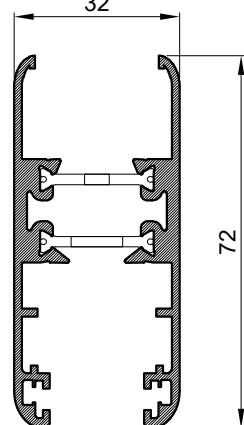


vijak 4.8x32  
/DIN 7981/

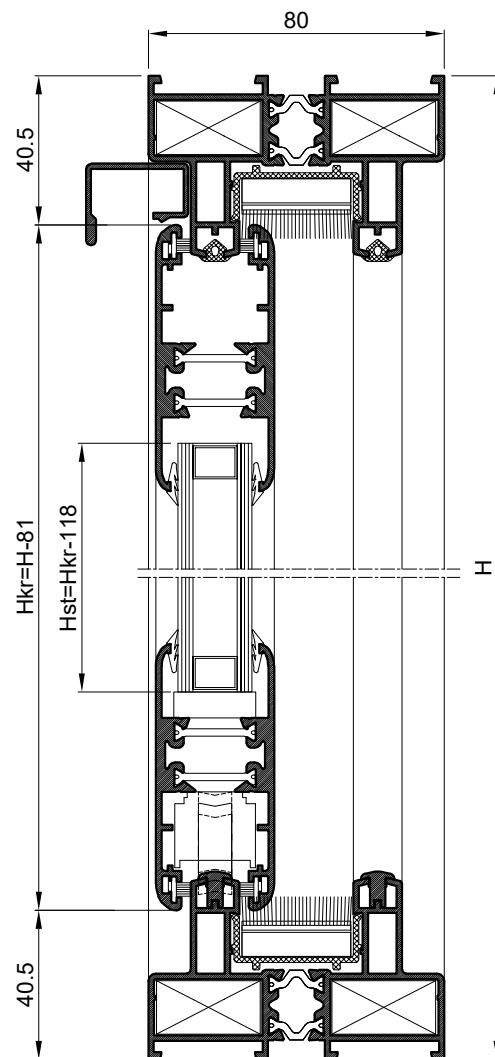
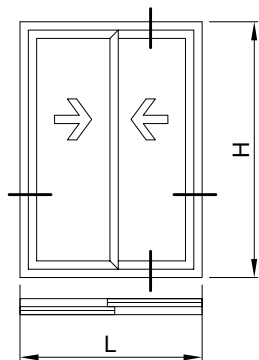
čep maska za Ø10 mm  
370.023



Obrada FT-0303-za vezu vijcima  
32





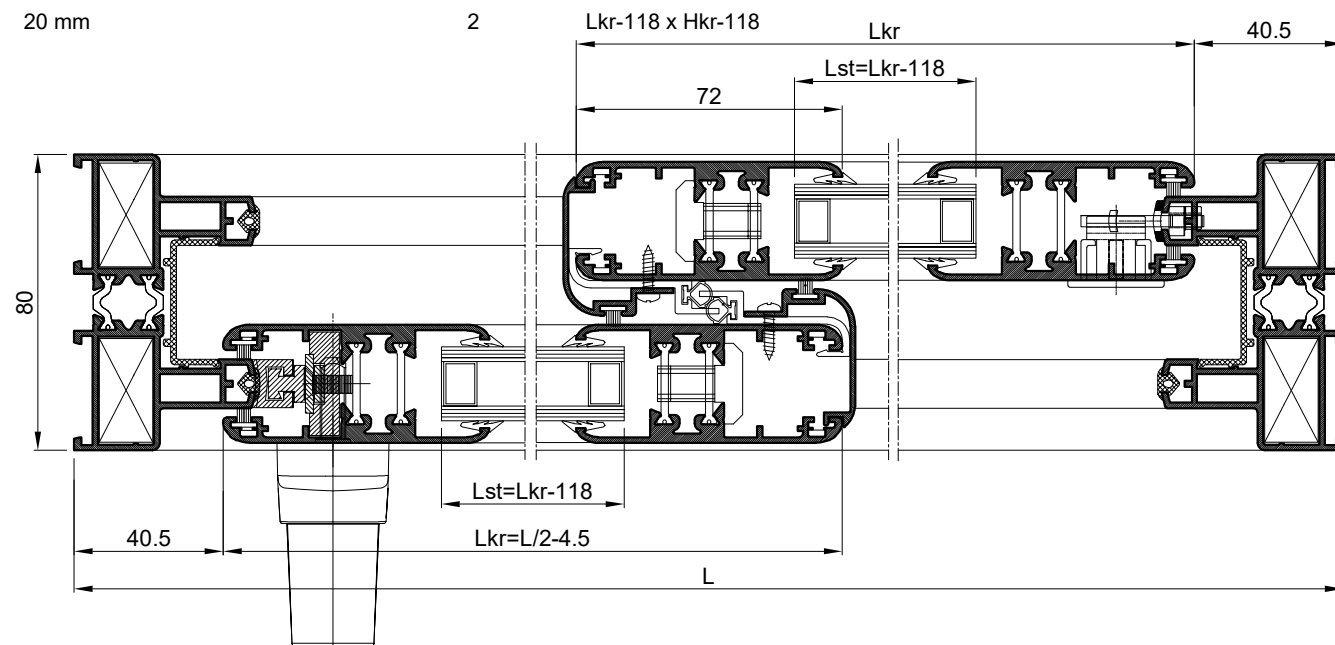


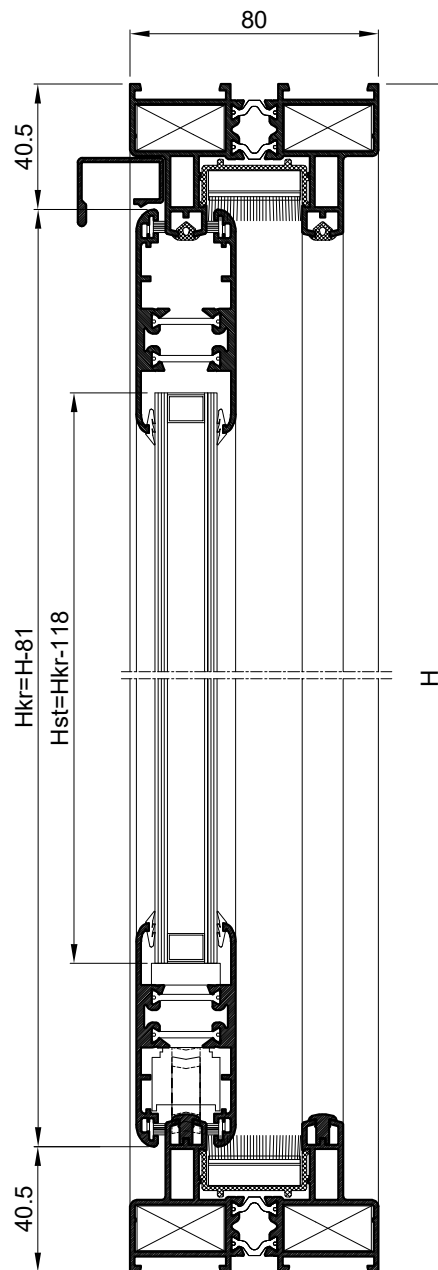
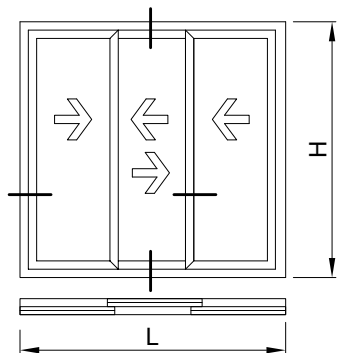
PROFILI		kom	mjera	pilanje
FT-0301	vodoravnica okvira	2	L	45-45
FT-0301	okomica okvira	2	H	45-45
FT-0303	vodoravnica krila	4	$L_{kr}=L/2-4.5$	45-45
FT-0303	okomica krila	4	$H_{kr}=H-81$	45-45
F-0832	završni profil	2	H-81	90-90
H-636	okapnica	1	L-47	90-90

OKOVI		kom	
730.008	kutnik okvira	8	
730.012	kutnik krila	8	
730.002	pomoćni kutnik krila	16	
140.001	kotačići-komplet	2	
375.011	odstojnik i osigurač	4	
340.008	brtvilo komplet	1	
375.014	umetak za profil F-0832	4	
130.003	ključanje u više točaka (brava FAST LOCK Master)	1	
130.004	ključanje u više točaka (prihvatnici FAST LOCK /Master)	1	
104.016	ručka za vrata	1	
105.006	bravica-pogonski dio	1	
105.010	bravica-jezičak s prihvatnikom	1	
BRTVE		kom	mjera

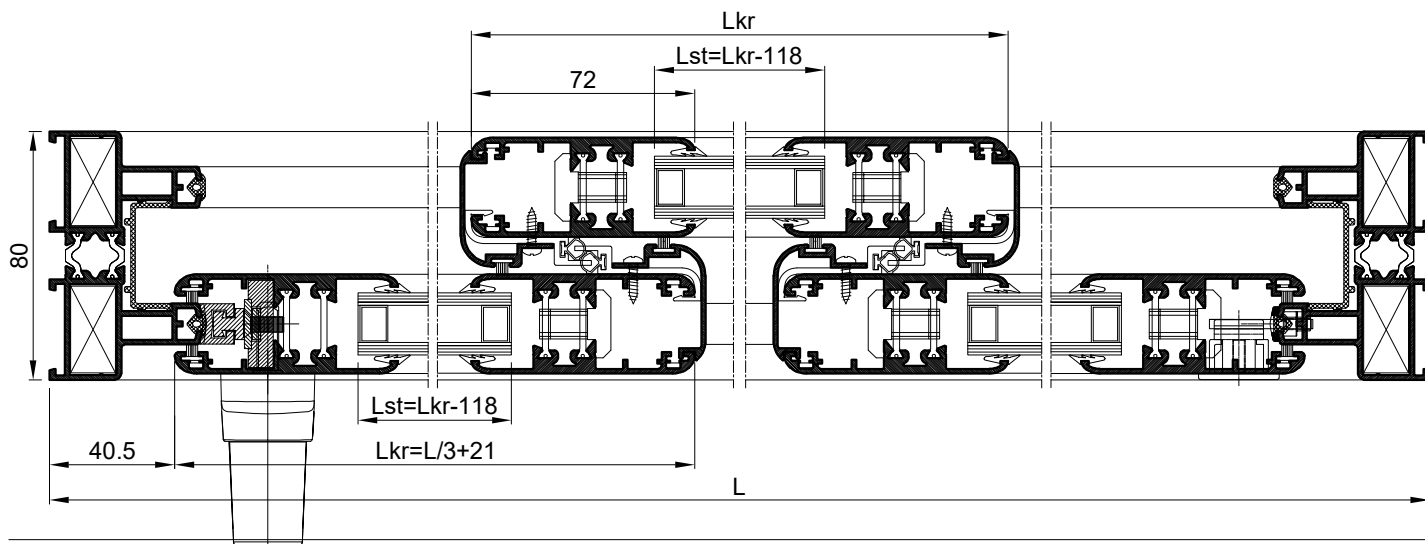
311.014	brtva prema staklu		4L+8H
347.014	četkasta brtva		4L+6H
344.014	brtva na spoju krila		2H
374.034	poliamid profil		4L+4H
374.031	pvc profil	2	H-81
374.032	pvc profil		pila se skupa s al.profilom

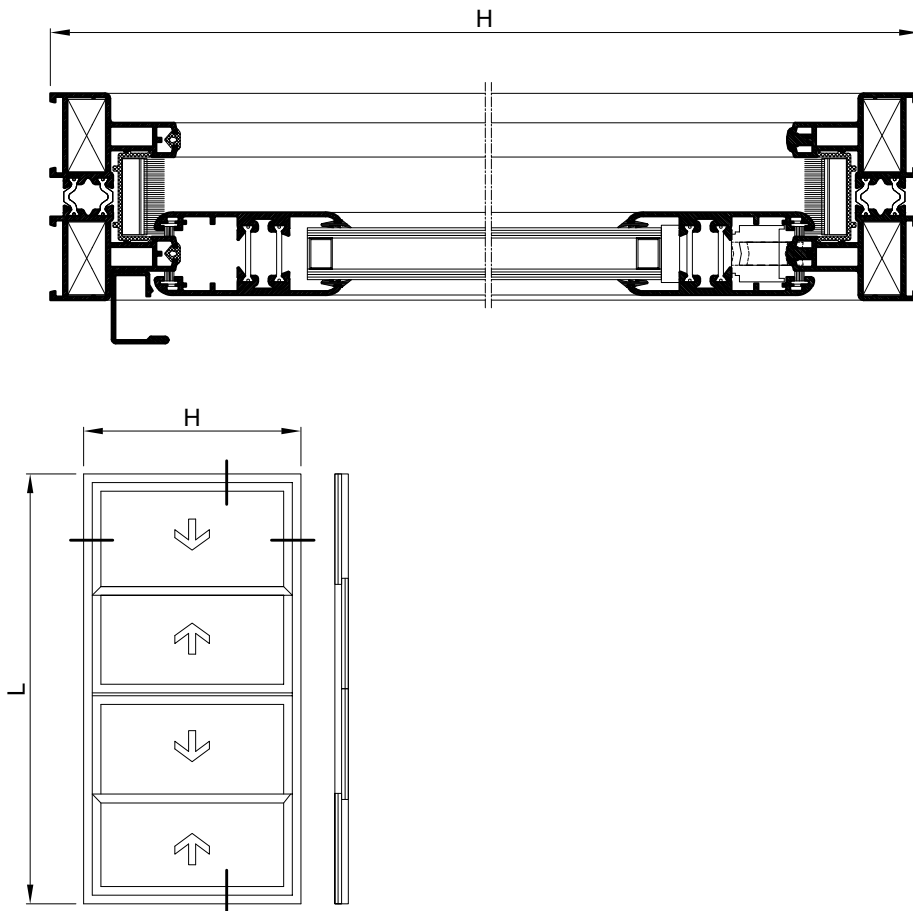
STAKLO	kom	mjera
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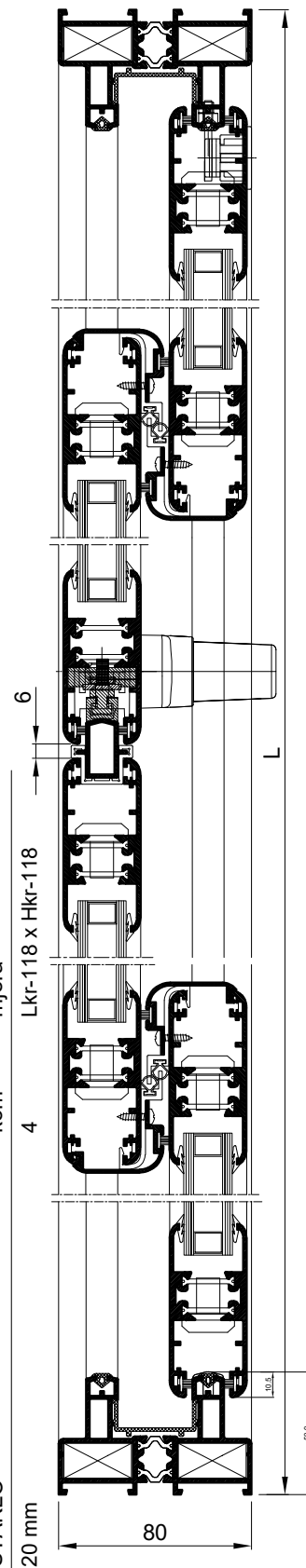
PROFILI		kom	mjera	pilanje
FT-0301	vodoravnica okvira	2	L	45-45
FT-0301	okomica okvira	2	H	45-45
FT-0303	vodoravnica krila	6	$Lkr=L/3+21$	45-45
FT-0303	okomica krila	6	$Hkr=H-81$	45-45
F-0832	završni profil	4	H-81	90-90
H-636	okapnica	1	L-47	90-90
<b>OKOVI</b>		kom		
730.008	kutnik okvira	8		
730.012	kutnik krila	12		
730.002	pomoćni kutnik krila	24		
140.001	kotačići-komplet	3		
375.011	odstojnik i osigurač	4		
340.008	brtvilo komplet	2		
375.014	umetak za profil F-0832	8		
130.003	ključanje u više točaka (brava FAST LOCK /Master)	1		
130.004	ključanje u više točaka (prihvatnici FAST LOCK /Master)	1		
104.016	ručka za vrata	1		
105.006	bravica-pogonski dio	1		
105.010	bravica-prihvatnik s jezičkom	1		
<b>BRTVE</b>		kom	mjera	
311.014	brtva prema staklu		4L+12H	
347.004	četkasta brtva		4L+8H	
344.014	brtva na spoju krila		4H	
374.034	poliamid profil		4L+4H	
374.031	pvc profil	2	H-81	
374.032	pvc profil		pila se skupa s al.profilom	
<b>STAKLO</b>		kom	mjera	
20 mm		3	$Lkr-118 \times Hkr-118$	

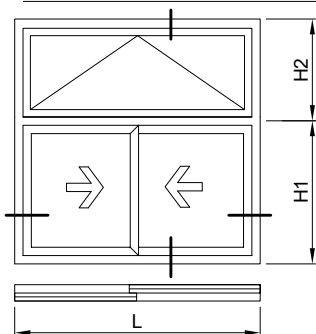




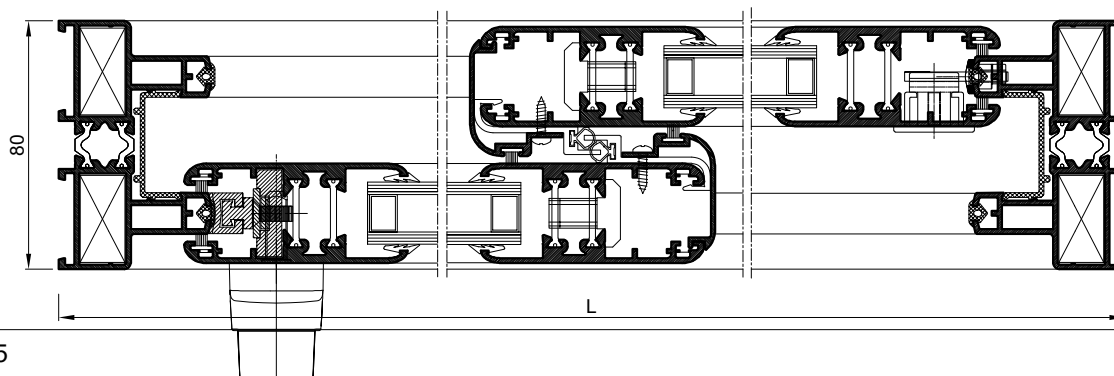
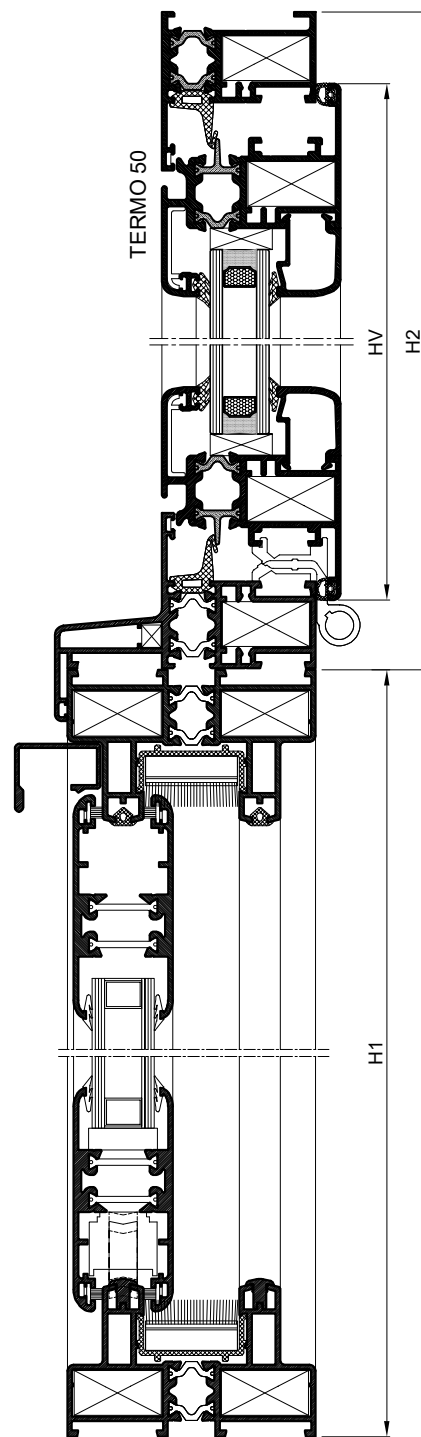
PROFILI	kom	mjera	pilanje
FT-0301	2	L	45-45
FT-0301	2	H	45-45
FT-0303	8	L/4+14,3	45-45
FT-0303	8	H-81	45-45
F-0832	4	H-81	90-90
F-0833	1	H-104	90-90
H-636	1	L-47	90-90
<b>OKOVI</b>	kom		
730.008	8		
730.012	16		
730.002	32		
140.001	4		
375.011	8		
340.008	2		
375.014	8		
130.003	1		
130.004	1		
104.016	1		
105.006	2		
105.010	2		
<b>BRTVE</b>	kom	mjera	

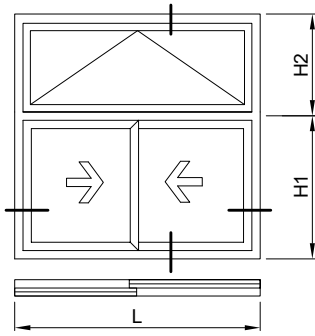
311.014	brtva prema staklu	4L+16H
347.004	četkasta brtva	4L+10H
344.014	brtva na spoju krila	4H
374.034	poliamid profil	4L+4H
374.031	pvc profil	H-81
374.032	pvc profil	pila se skupa s al.profilom
374.033	pvc profil	H-103
<b>STAKLO</b>	kom	mjera
20 mm	4	Lkr-118 x Hkr-118



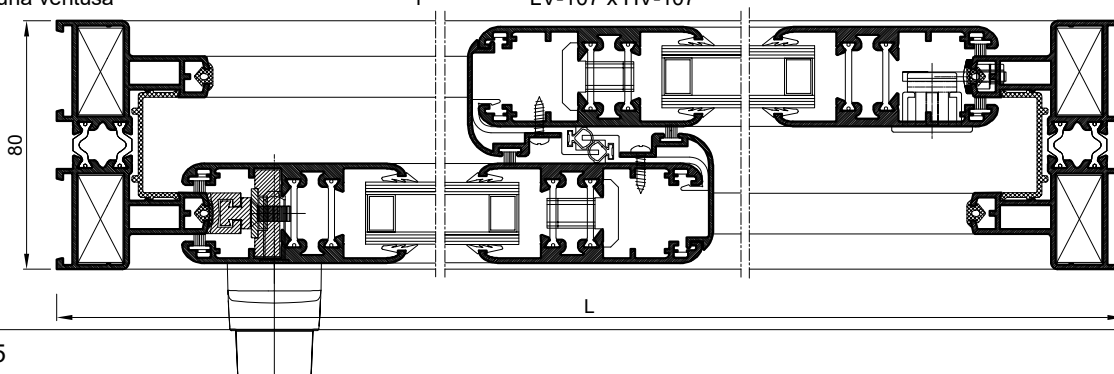
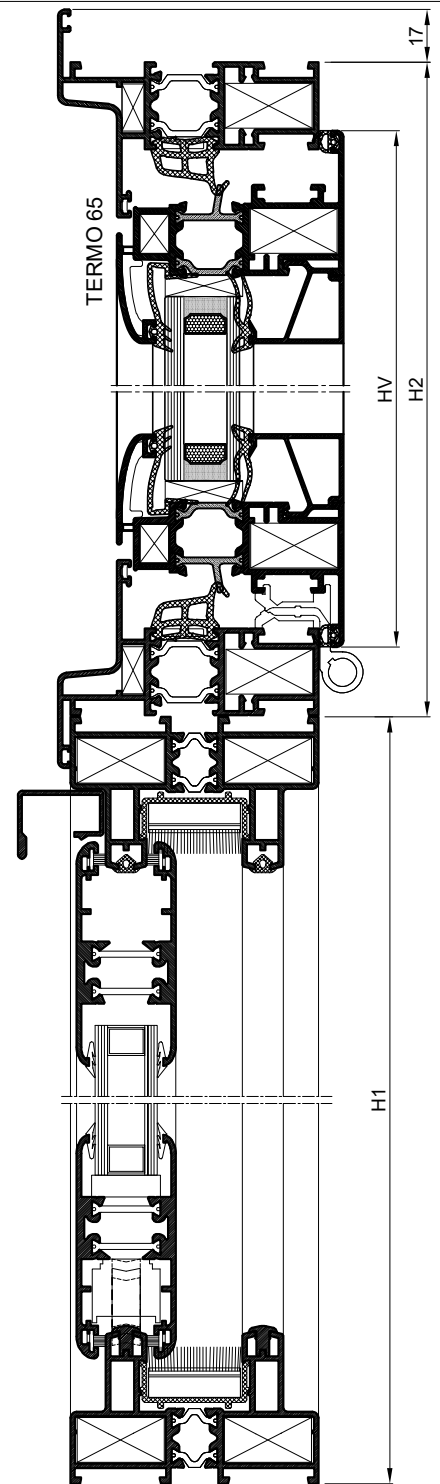


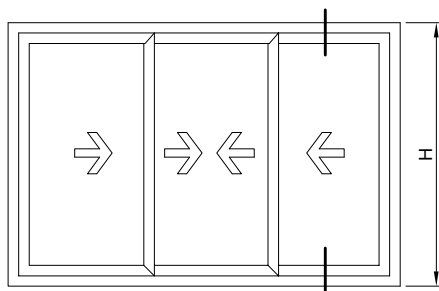
PROFILI		kom	mjera	pilanje
FT-0301	vodoravnica okvira	2	L	45-45
FT-0301	okomica okvira	2	H1	45-45
FT-0303	vodoravnica krila	4	Lkr=L/2-4.5	45-45
FT-0303	okomica krila	4	Hkr=H1-81	45-45
F-0832	završni profil	2	H-81	90-90
H-636	okapnica	1	L-47	90-90
FT-0100	vodoravnica okvira	1	L	45-45
FT-0304	vodoravnica okvira	1	L+34	45-45
FT-0100	okomica okvira	2	H2	45-45
FT-0102	vodoravnica krila	2	LV=L-46	45-45
FT-0102	okomica krila	2	HV=H2-46	45-45
Vodoravna staklolajsna		2	LV-53	90-90
Okomita staklolajsna		2	HV-137	90-90
<b>OKOVI</b>		kom		
730.008	kutnik okvira	8		
730.012	kutnik krila	8		
730.002	pomoćni kutnik krila	16		
140.001	kotačići-komplet	2		
375.011	odstojnik i osigurač	4		
340.008	brtvilo komplet	1		
375.014	umetak za profil F-0832	4		
730.008	kutnik središnji	8		
730.010	pomoćni kutnik	4		
730.001	pomoćni kutnik	4		
730.002	pomoćni kutnik	4		
111.004	šarka ventusa	2		
131.002	škare ventusa	2		
130.003	ključanje u više točaka (brava FAST LOCK /Master)	1		
130.004	ključanje u više točaka (prihvatnici FAST LOCK /Master)	1		
104.016	ručka za vrata	1		
105.006	bravica-pogonski dio	1		
105.010	bravica-jezičak s prihvatnikom	1		
<b>BRTVE</b>		kom	mjera	
311.014	brtva prema staklu		4L+8H	
347.014	četkasta brtva		4L+6H	
344.014	brtva na spoju krila		2H	
374.034	poliamid profil		4L+4H	
374.031	pvc profil	2	H-81	
374.032	pvc profil		pila se skupa s al.profilom	
331.005	središnja brtva		2L+2H	
321.001	brtva u krilu		2L+2H	
345.004	kutni umetak brtve	4		
<b>STAKLO</b>		kom	mjera	
20 mm		2	Lkr-118 x Hkr-118	
ispuna ventusa		1	LV-107 x HV-107	





PROFILI		kom	mjera	pilanje
FT-0301		2	L	45-45
FT-0301	vodoravnica okvira	2	H1	45-45
FT-0303	okomica okvira	4	Lkr=L/2-4.5	45-45
FT-0303	vodoravnica krila	4	Hkr=H1-81	45-45
FT-0303	okomica krila	4	Hkr=H1-81	45-45
F-0832	završni profil	2	H-81	90-90
H-636	okapnica	1	L-47	90-90
FT-0305	vodoravnica okvira	2	L+34	45-45
FT-0305	okomica okvira	2	H2+34	45-45
FT-0203	vodoravnica krila	2	LV=L-44	45-45
FT-0203	okomica krila	2	HV=H2-44	45-45
	Vodoravna staklolajsna	2	LV-53	90-90
	Okomita staklolajsna	2	HV-137	90-90
<b>OKOVI</b>		kom		
730.008	kutnik okvira	8		
730.012	kutnik krila	8		
730.002	pomoćni kutnik krila	16		
140.001	kotačići-komplet	2		
375.011	odstojnik i osigurač	4		
340.008	brtvilo komplet	1		
375.014	umetak za profil F-0832	4		
730.008	kutnik središnji	8		
730.005	pomoćni kutnik	4		
710.026	pomoćni kutnik krila	4		
710.037	pomoćni kutnik rama	4		
730.001	pomoćni kutnik krila	4		
730.002	pomoćni kutnik rama	4		
111.004	šarka ventusa	2		
131.002	škare ventusa	2		
130.003	ključanje u više točaka (brava FAST LOCK /Master)	1		
130.004	ključanje u više točaka (prihvatnici FAST LOCK /Master)	1		
104.016	ručka za vrata	1		
105.006	bravica-pogonski dio	1		
105.010	bravica-jezičak s prihvatnikom	1		
<b>BRTVE</b>		kom	mjera	
311.014	brtva prema staklu		4L+8H	
347.014	četkasta brtva		4L+6H	
344.014	brtva na spoju krila		2H	
374.034	poliamid profil		4L+4H	
374.031	pvc profil	2	H-81	
374.032	pvc profil		pila se skupa s al.profilom	
331.001	središnja brtva		2L+2H	
321.001	brtva u krilu		2L+2H	
345.001	kutni umetak brtve	4		
<b>STAKLO</b>		kom	mjera	
20 mm	ispuna ventusa	2	Lkr-118 x Hkr-118	
		1	LV-107 x HV-107	



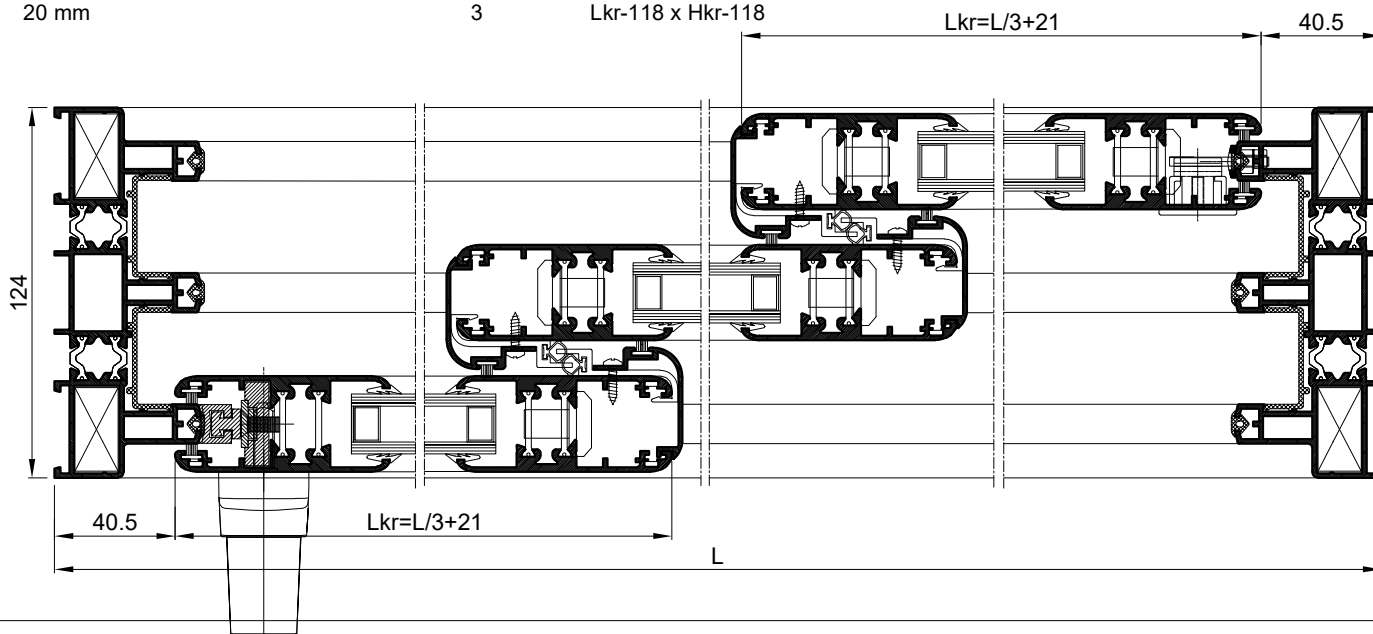
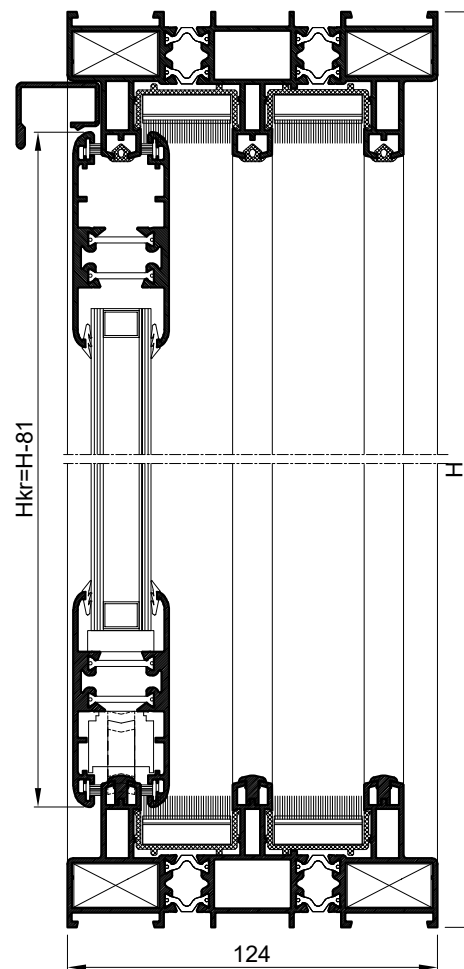


PROFILI		kom	mjera	pilanje
FT-0302	vodoravnica okvira	2	L	45-45
FT-0302	okomica okvira	2	H	45-45
FT-0303	vodoravnica krila	6	$Lkr=L/3+21$	45-45
FT-0303	okomica krila	6	$Hkr=H-81$	45-45
F-0832	završni profil	4	H-81	90-90
H-636	okapnica	1	L-47	90-90

OKOVI		kom	
730.008	kutnik okvira	8	
730.012	kutnik krila	12	
730.002	pomoćni kutnik krila	24	
140.001	kotačići-komplet	3	
375.011	odstojnik i osigurač	4	
340.008	brtvilo komplet	2	
375.014	umetak za profil F-0832	8	
130.003	ključanje u više točaka (brava FAST LOCK /Master)	1	
130.004	ključanje u više točaka (prijvatnici FAST LOCK /Master)	1	
104.016	ručka za vrata	1	
105.006	bravica-pogonski dio	1	
105.010	bravica-jezičak s prihvatnikom	1	

BRTVE		kom	mjera
311.001	brtva prema staklu		4L+12H
Četkasta brtva 347.004			4L+8H
344.014	brtva na spoju krila		4H
374.034	poliamid profil		6L+6H
374.031	pvc profil	4	H-81
374.032	pvc profil	pila se skupa s al.profilom	

STAKLO		kom	mjera
20 mm		3	$Lkr=L/3+21$ x $Hkr=H-81$





# FEAL



Skenirajte QR kod i registrirajte se na [partner.feal.ba](http://partner.feal.ba)

*Scan the QR code and register on [partner.feal.ba](http://partner.feal.ba)*

## TERMO 80

Studeni 2016. / *November 2016*

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