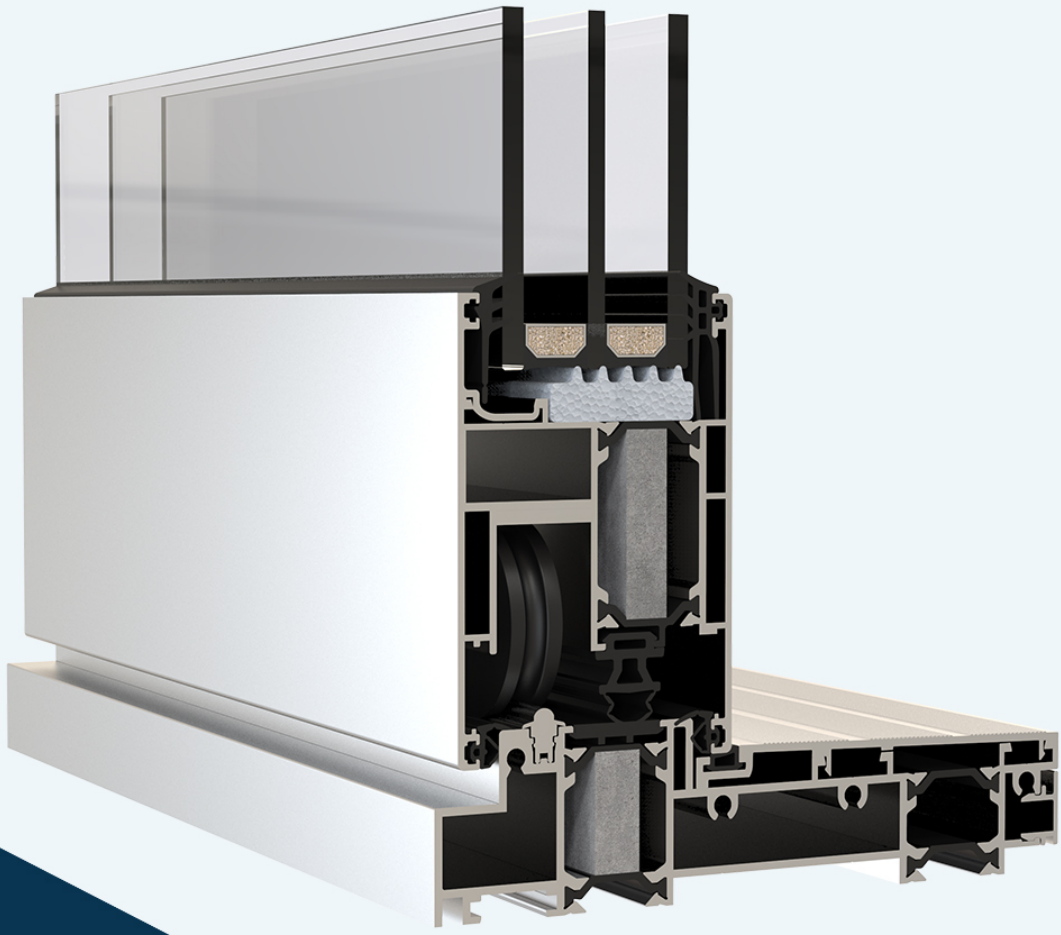
EMERUS
ALUMINIUM EXTRUSION



PK150tt

Podizno klizna vrata

TEHNIČKI KATALOG

17025·HAA
1043
TEST

INSTITUT IGH, d.d.
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RN 62570888 Zagreb, 2021-05-03

IZVJEŠTAJ O ISPITIVANJU I OCJENI SVOJSTAVA NA TEMELJU ISPITIVANJA BR. 72570/050/21-089/21

(utemeljeno na uzorkovanju koje je proveo proizvođač)

Naručitelj:	EMERUS d.o.o. Knešpolje bb BA-88220 Široki Brijeg, BiH
Ugovor/narudžba:	prihvaćena ponuda broj 72570-0-0345/21 od 2021-04-19
Građevni proizvod:	aluminijska klizna stijena sustav PK150tt ostakljena dvostrukim IZO staklom debljine 30 mm
Proizvođač:	EMERUS d.o.o. Knešpolje bb BA-88220 Široki Brijeg, BiH
Datum zaprimanja uzorka:	2021-04-08
Mjesto ispitivanja:	INSTITUT IGH, d.d., Zavod za materijale i konstrukcije, Laboratorij IGH, Laboratorij za građevinsku fiziku, Janka Rakuše 1, HR-10000 Zagreb
Laboratorijska oznaka uzorka:	LGF 126/21
Ispitana svojstva:	A dio: propusnost zraka B dio: vodonepropusnost C dio: otpornost na opterećenje vjetrom D dio: ocjena svojstava građevnog proizvoda

Odgovorna osoba: Voditelja Laboratorija za građevinsku fiziku:

Institut IGH, dioničko društvo za istraživanje i razvoj u graditeljstvu, Zagreb 18

Tomislav Vuić, univ. spec. aedif. dr. sc. Mladen Bezjak, dipl. ing. stroj.

Institut IGH d.d. je prijavljeno tijelo (notified body) pri Europskoj komisiji za radnje ispitivanja svojstava prozora i vrata koji se koriste u graditeljstvu s brojem NB 2477 u NANDO bazi.

Rezultati ispitivanja odnose se samo na ispitane uzorke. Djelomično umnožavanje ovog izvještaja nije dopušteno bez pisanog odobrenja Voditelja laboratorija. Ukupan broj stranica 14, uključujući 0 dodataka.

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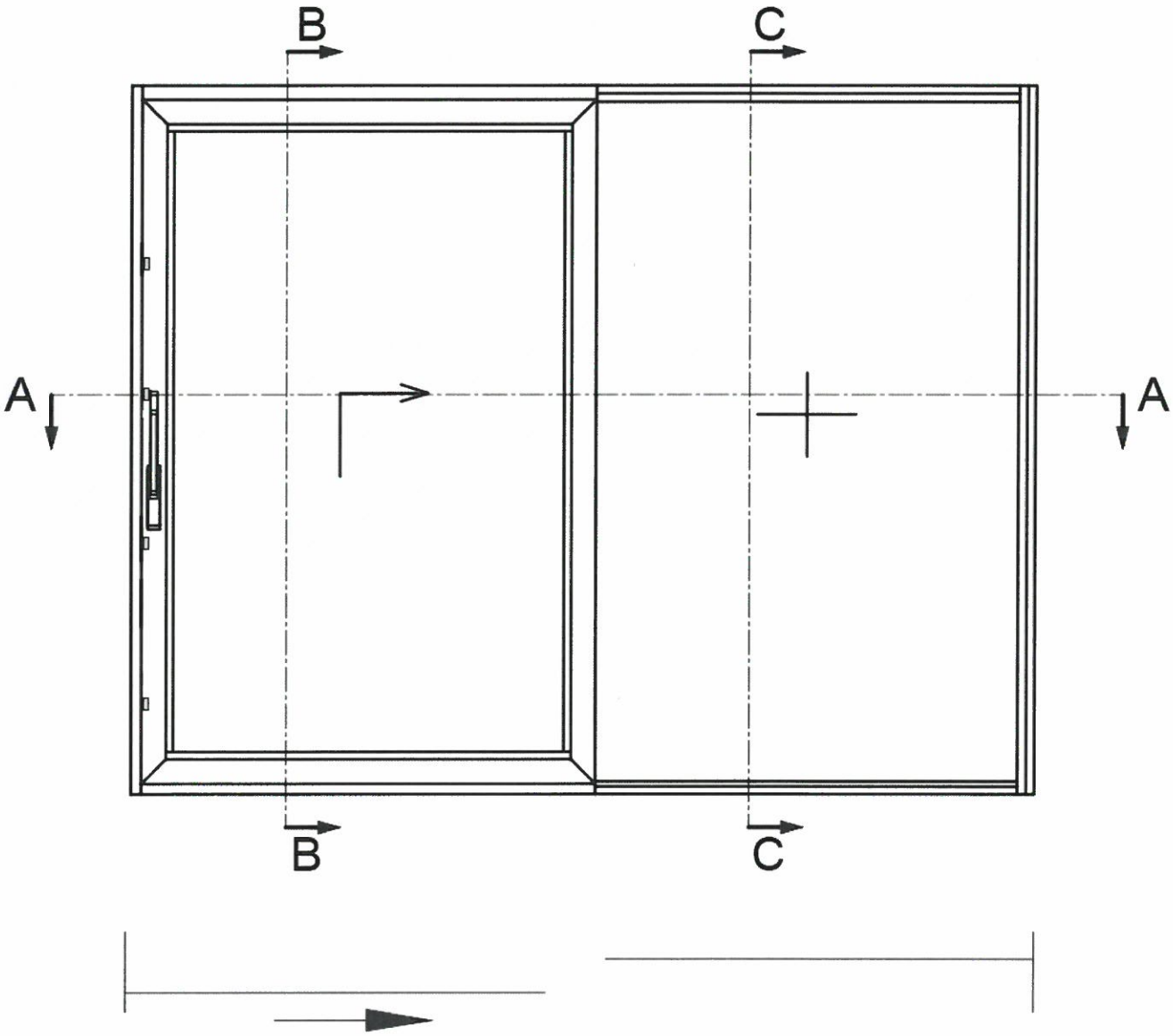
OPĆI DIO
(podatci dostavljeni od naručitelja)

Opis ispitnog uzorka:

Ispitivanja propusnosti zraka, vodonepropusnosti i otpornosti na opterećenje vjetrom provedena su na uzorku aluminijske klizne stijene sustav PK150tt (klizno krilo i fiksni dio) ostakljenom dvostrukim IZO staklom debljine 30 mm (6/18/6), laboratorijske oznake LGF 126/21.
Vanjske izmjere klizne stijene: 2,61 m x 2,22 m.

Skica dostavljenog uzorka s mjestima učvršćenja, presjecima i popisom uporabljenih dijelova:



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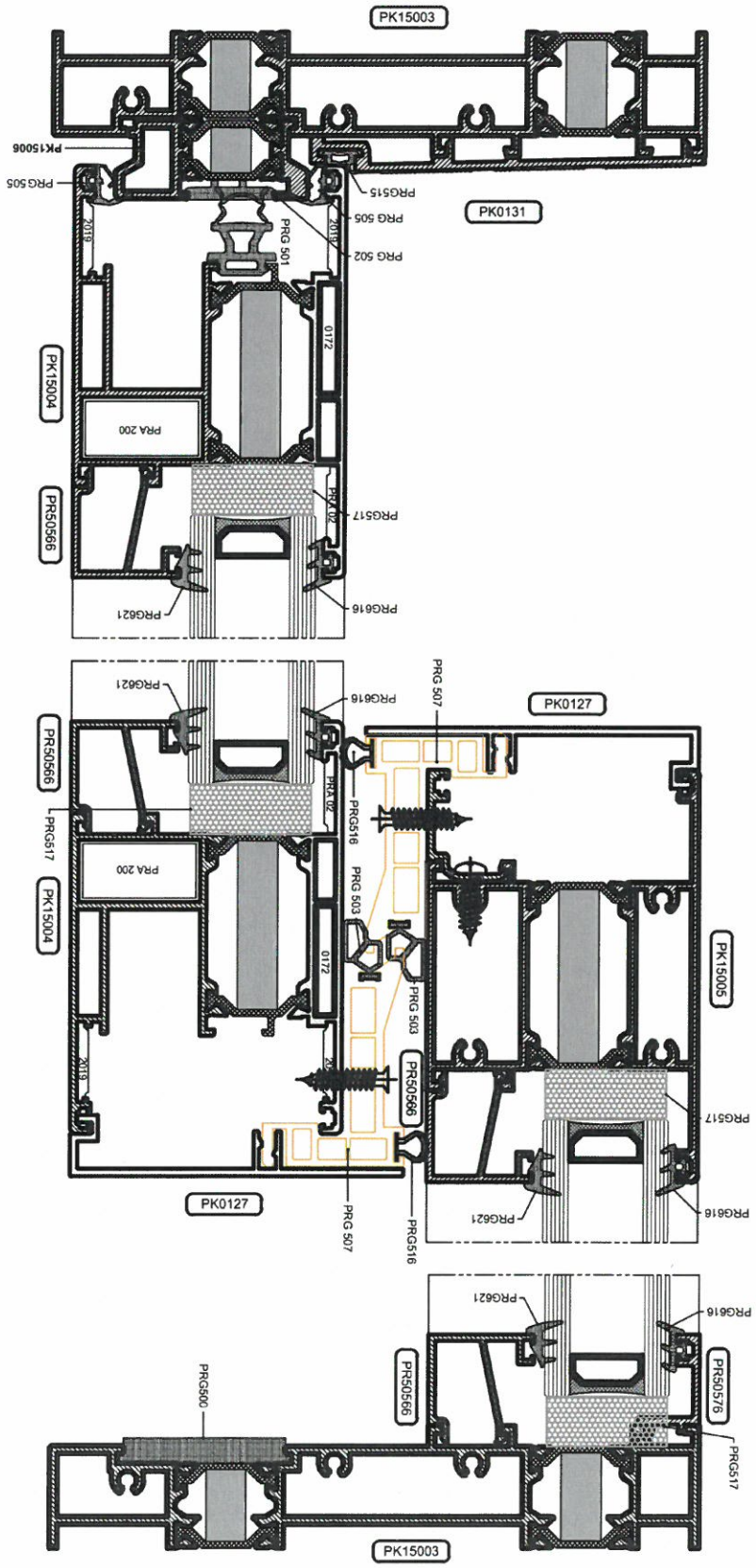
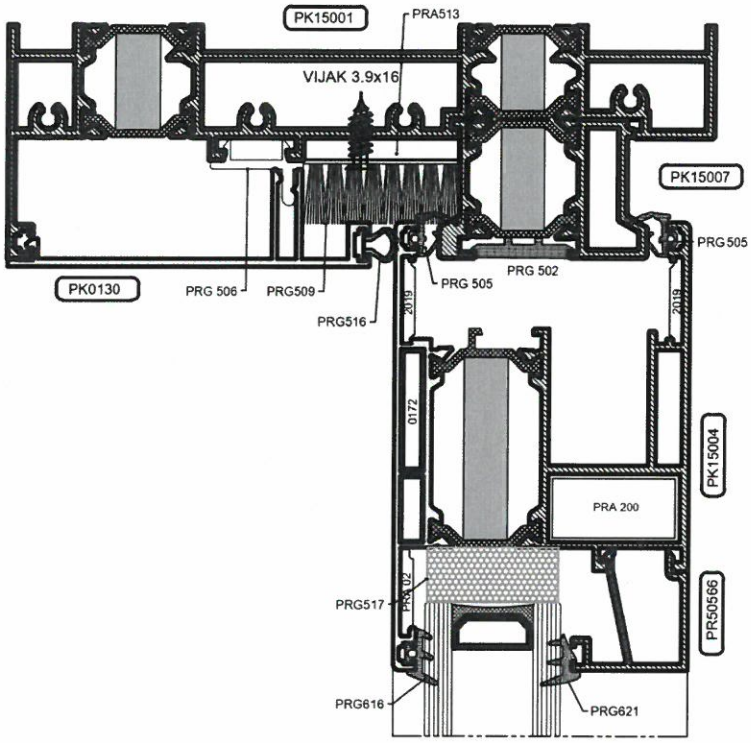
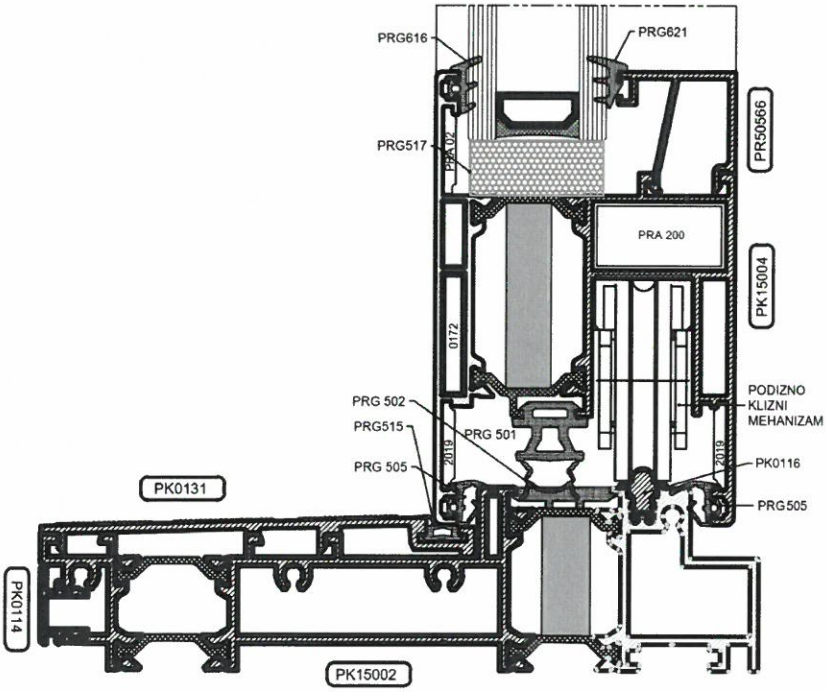
presjek A-A




PK15001
PRA513
VIJAK 3.9x16
PK15007
PRG 505
PRG 502
PRG 505
PK0130
PRG 506
PRG509
PRG516
2019
2019
0172
PK15004
PRA 200
PRG517
PRA 102
PR50566
PRG616
PRG621

presjek B-B


PRG616
PRG621
PR50566
PRG517
PRA 102
PRA 200
PK15004
0172
PODIZNO
KLIZNI
MEHANIZAM
PRG 502
PRG515
PRG 501
PRG 505
2019
2019
PK0116
PK0131
PRG505
PK0114
PK15002

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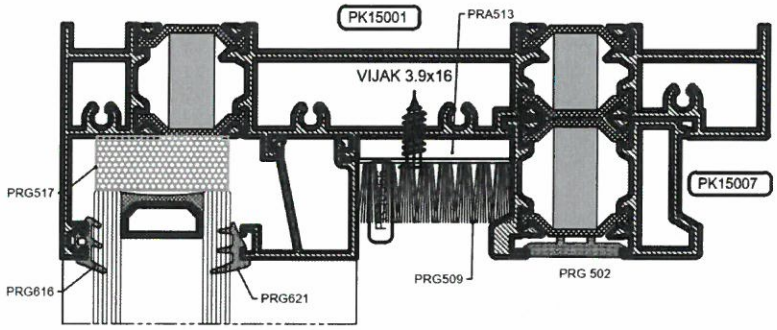
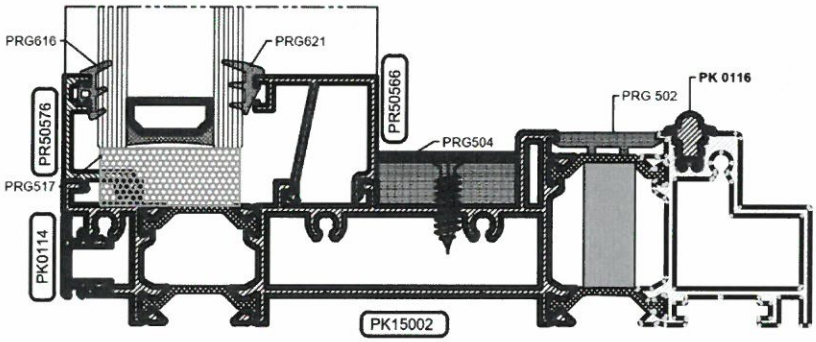
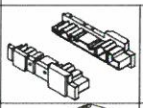
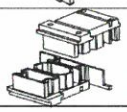
presjek C-C





KOD	OPIS		Komada po pakovanju	MATERIJAL
PRG500		Brtva okvira		EPDM PK150m
PRG501		Centralna brtva		EPDM PK150m
PRG502		Brtva okvira		EPDM PK150m
PRG503		Brtva spoja		EPDM PK150m
PRG504	30, 9	Brtva spoja(110mm)		EPDM PK150m
PRG505		Brtva krila		EPDM PK150m
PRG621		UNUTARNJA EPDM BRTVA ZA STAKLO, 2-3 mm		EPDM PK150m
PRG616		VANJSKA BRTVA ZA STAKLO 2-3mm		EPDM PK150m

KOD	OPIS		Komada po pakovanju	MATERIJAL
PRG515		Donja brtva lajsne		EPDM PK150m
PRG516		Četkasta brtva		EPDM PK150m
PRG517		Ispuna		XPS PK150m
PRG506		Plastika		PVC PK150m
PRG507		Plastika		PVC PK150m
PRG508		Čep za lajsnu PK0127		PVC PK150m
PRG509		Četkica na srednjem spoju(110mm)		Polipropilen PK150m
PRG510		Gornji čep		EPDM PK150m

KOD	OPIS		Komada po pakovanju	MATERIJAL
PRG511		Donji čep	PK150tt	EPDM
PRG512		Srednji čep	PK150tt	EPDM
PRA513		Plastika za četkicu PRG509	PK150tt	PVC
PRA02		Kutnik poravnanja 2200 4.8mm x 17.4 mm.	PK150tt	Aluminijski odlivak
0092		Bolcna za spajanje kutnika 0172.	PK150tt	Aluminijski odlivak
2019		Pomoćni kutnik krila 2019.	PK150tt	Aluminijski odlivak
5011		Glavni kutnik krila 5011 28.5 x 14.5 mm	PK150tt	Aluminijski odlivak
0172		Pomoćni kutnik krila	PK150tt	Aluminijski odlivak

Tehnički opis ispitnog uzorka dostavljen od naručitelja ispitivanja:

Proizvod	aluminijska klizna stijena sustav PK150tt ostakljena dvostrukim IZO staklom debljine 30 mm
Proizvođač	Emerus d.o.o
Datum proizvodnje	17.04.2021
Sustav profila	PK150tt
Materijal	Aluminij
Tip otvaranja / Smjer otvaranja	Tipologija A-fiks+klizno
Dimenzije doprozornika (šxv)	2600 mm x 2200 mm
Dimenzije krila (šxv)	1173 mm x 2125 mm
Doprozornik	
Presjek profila (šxd)	155 mm x 40 mm,155 mm x 52 mm,155 mm x 53 mm
Oznaka profila	PK15001,PK15002,PK15003
Kutni spoj (metoda spajanja, detalji)	Spajanje pod 90° s EPDM čepovima i vijcima
Otvori za odvodnju vode	5

Krilo/a	
Presjek profila (šxd)	65 mm x 99 mm
Oznaka profila	PK15004
Kutni spoj (metoda spajanja, detalji)	Spajanje pod kutom 45 ° s kutnicima
Težina krila/aktivnog krila	105,2 kg
Letvica krila	
Presjek profila (šxd)	25.5 mm x 22 mm
Oznaka profila	PR50566
Kutni spoj	Spajanje pod kutom 90 ° i brtvljenje spoja
Metoda učvršćenja	Mehanički na klik
Sustav brtvljenja – krilo, dovratnik	
Vanjsko brtvljenje – dovratnik	
Proizvođač, šifra	PRG505
Materijal	EPDM
Kutna konfiguracija/spoj	Spajanje pod 45° i brvljenje spoja
Unutarnje, središnje brtvljenje – krilo	
Proizvođač, šifra	PRG501
Materijal	EPDM
Kutna konfiguracija/spoj	Spajanje pod 90 ° i brtvljenje spoja
Ispuna krila – staklo	
Proizvođač	Kristal
Sastav	6 mm + 18 mm + 6 mm
Brtvljenje stakla – Izvana	
Proizvođač, šifra	PRG616
Materijal	EPDM
Kutna konfiguracija/spoj	Spajanje pod 90 ° i brvljenje spoja
Brtvljenje stakla – Iznutra	
Proizvođač, šifra	PRG621
Materijal	EPDM
Kutna konfiguracija/spoj	Spajanje pod 45° i brvljenje spoja
Otvori za ventilaciju i odvodnju kondenzata	-
Okov	
Proizvođač, tip	Siegenia - podizno klizni
Broj spojnica (šarki)	-
Broj upadnica/pločica	4
Maksimalni razmak učvrsnih točaka	500 mm

Redoslijed ispitivanja uzorka:

1. ispitivanje propusnosti zraka ispitnog uzorka do maksimalne razlike tlaka od 600 Pa (pozitivno i negativno opterećenje na tlak),
2. Ispitivanje vodonepropusnosti ispitnog uzorka do maksimalne razlike tlaka od 600 Pa,
3. ispitivanje otpornosti na opterećenje vjetrom ispitnog uzorka

   - čeono savijanje (pozitivno i negativno opterećenje na tlak) pri P1 = 1200 Pa,

   - ispitivanje otpornosti promjenjivim tlakom pri P2 = 600 Pa (0,5 · P1),
4. ispitivanje propusnosti zraka ispitnog uzorka do maksimalne razlike tlaka od 600 Pa nakon ispitivanja otpornosti na opterećenje vjetrom (pozitivno i negativno opterećenje na tlak),
5. ispitivanje otpornosti na opterećenje vjetrom ispitnog uzorka

   - sigurnosno ispitivanje (pozitivno i negativno opterećenje na tlak) pri

   P3 = 1800 Pa (1,5 · P1).

A DIO: PROPUSNOST ZRAKA

Zadatak: Ispitati svojstvo propusnosti zraka ispitnog uzorka LGF 126/21 (aluminijska klizna stijena sustav PK150tt, klizno krilo i fiksni dio, ostakljena dvostrukim IZO staklom debljine 30 mm).
Vanjske izmjere prozora: 2,61 m x 2,22 m.

Norma ispitivanja: HRN EN 1026:2016 Prozori i vrata -- Propusnost zraka -- Metoda ispitivanja (EN 1026:2016)

Datum ispitivanja: 2021-04-27

Mjerna i ispitna oprema:
- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPC", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1680,
- barometar, Präzisions-Barometer No 98895, oznaka mjerila 1135,
- metalni metar, oznaka mjerila 622.

Temperatura, relativna vlažnost i tlak zraka tijekom ispitivanja: 24,2 °C 35,5 % rH 1002 hPa.

REZULTATI ISPITIVANJA PROPUSNOSTI ZRAKA

Ploština ispitanog uzorka: A = 5,79 m^2.

Duljina sljubnica ispitanog uzorka: l = 6,62 m.

Prozor je ispitan u neutralnom položaju zaključavanja (4 točaka učvršćenja).
Vanjska strana klizne stijene okrenuta je prema komori.

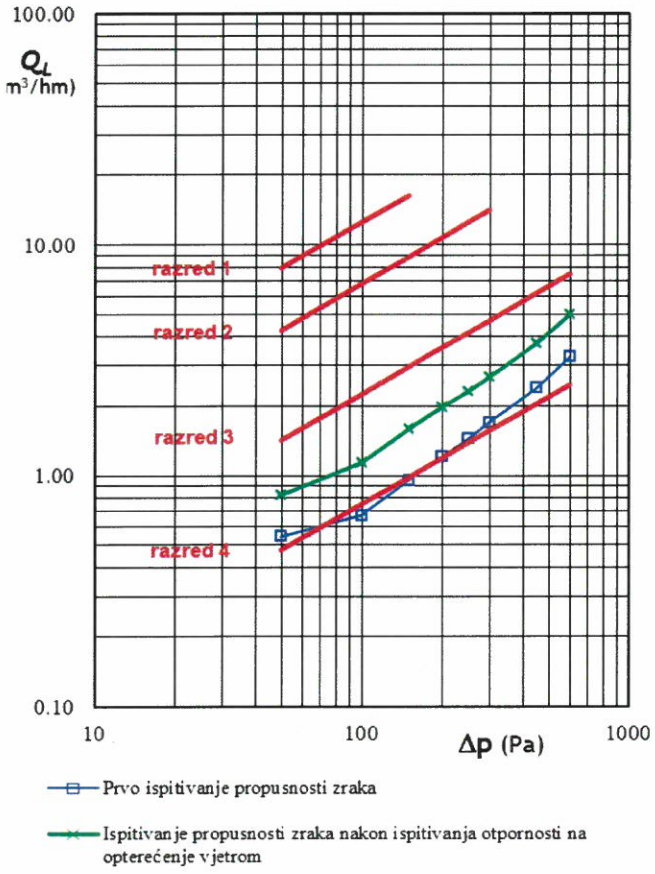
Protok zraka kroz uzorak Q_0 (srednja vrijednost pozitivnog i negativnog opterećenja na tlak), te protok zraka po jedinici duljine sljubnica Q_L i po jedinici ploštine otvarajućeg dijela uzorka Q_A prikazani su, kao funkcija razlike tlakova, tablicama i dijagramima.

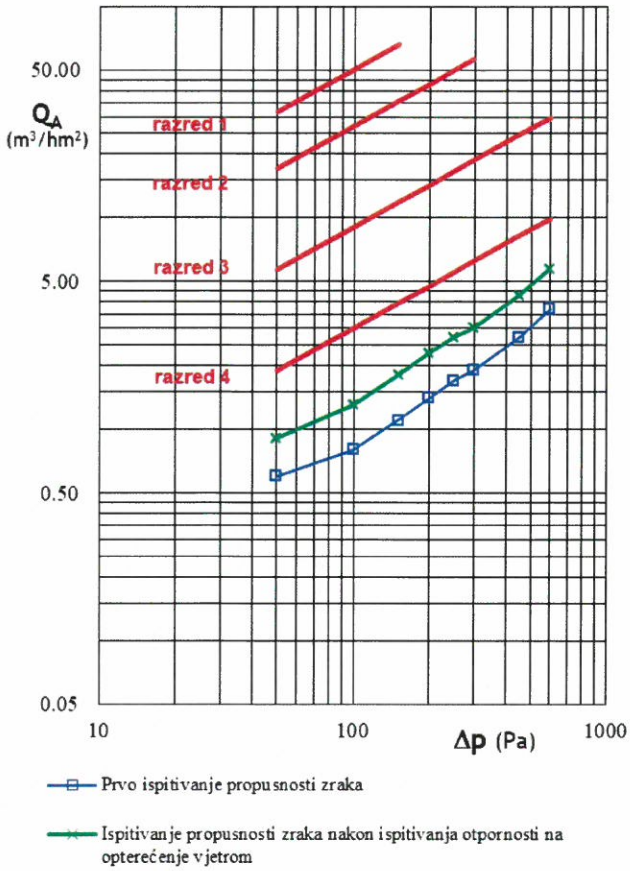
Tablica 1: rezultati ispitivanja propusnosti zraka, uzorak LGF 126/21:

Δp (Pa)	Q_0	Q_L					Q_A				
	(m^3/h)	(m^3/hm)	razred (prema HRN EN 12207:2017)				(m^3/hm^2)	razred (prema HRN EN 12207:2017)			
			1	2	3	4		1	2	3	4
50	**3.6**	**0.55**	7,87	4,25	1,42	0,47	**0.6**	31,5	17,0	5,7	1,9
100	**4.4**	**0.67**	12,50	6,75	2,25	0,75	**0.8**	50,0	27,0	9,0	3,0
150	**6.3**	**0.95**	16,38	8,85	2,95	0,98	**1.1**	65,5	35,4	11,8	3,9
200	**7.9**	**1.20**		10,71	3,57	1,19	**1.4**		42,9	14,3	4,8
250	**9.6**	**1.44**		12,43	4,14	1,38	**1.7**		49,7	16,6	5,5
300	**11.2**	**1.69**		14,04	4,68	1,56	**1.9**		56,2	18,7	6,2
450	**15.8**	**2.39**			6,13	2,04	**2.7**			24,5	8,2
600	**21.6**	**3.27**			7,43	2,48	**3.7**			29,7	9,9

Tablica 2: rezultati ispitivanja propusnosti zraka nakon ispitivanja otpornosti na opterećenje vjetrom, uzorak LGF 126/21:

Δp (Pa)	Q_0	Q_L					Q_A				
	(m^3/h)	(m^3/hm)	razred (prema HRN EN 12207:2017)				(m^3/hm^2)	razred (prema HRN EN 12207:2017)			
			1	2	3	4		1	2	3	4
50	**5.5**	**0.82**	7,87	4,25	1,42	0,47	**0.9**	31,5	17,0	5,7	1,9
100	**7.5**	**1.13**	12,50	6,75	2,25	0,75	**1.3**	50,0	27,0	9,0	3,0
150	**10.5**	**1.59**	16,38	8,85	2,95	0,98	**1.8**	65,5	35,4	11,8	3,9
200	**13.1**	**1.98**		10,71	3,57	1,19	**2.3**		42,9	14,3	4,8
250	**15.4**	**2.32**		12,43	4,14	1,38	**2.7**		49,7	16,6	5,5
300	**17.6**	**2.66**		14,04	4,68	1,56	**3.0**		56,2	18,7	6,2
450	**24.8**	**3.74**			6,13	2,04	**4.3**			24,5	8,2
600	**32.9**	**4.97**			7,43	2,48	**5.7**			29,7	9,9





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B DIO: VODONEPROPUSNOST

Zadatak: Ispitati svojstvo vodonepropusnosti ispitnog uzorka LGF 126/21 (aluminijska klizna stijena sustav PK150tt, klizno krilo i fiksni dio, ostakljena dvostrukim IZO staklom debljine 30 mm).
Vanjske izmjere prozora: 2,61 m x 2,22 m.

Norma ispitivanja: HRN EN 1027:2016 Prozori i vrata -- Vodonepropusnost -- Metoda ispitivanja, Metoda 1A

Datum ispitivanja: 2021-04-27

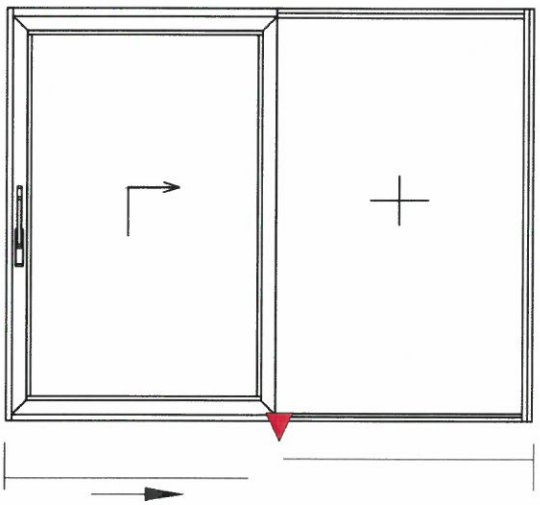
Mjerna i ispitna oprema:
- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPC", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1680,
- barometar, Präzisions-Barometer No 98895, oznaka mjerila 1135,
- metalni metar, oznaka mjerila 622.

Temperatura, relativna vlažnost i tlak zraka tijekom ispitivanja: 24,2 °C 35,5 % rH 1002 hPa.

Rezultati ispitivanja vodonepropusnosti prikazani su tablicom 3.
Oznaka „+" označuje da nije došlo do propuštanja vode pri navedenoj razlici tlaka, oznaka „∇" označuje propuštanje vode pri navedenoj razlici tlaka (mjesto propuštanja označeno crvenim trokutom na skici), a oznaka „-" označuje da pri navedenoj razlici tlaka nije provedeno ispitivanje.

Tablica 3: rezultati ispitivanja vodonepropusnosti, uzorak LGF 126/21:

tlak Δp (Pa)	vrijeme τ (min)	ispitni rezultat	razred (prema 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



Skica ispitnog uzorka s mjestom propuštanja vode (označeno crveno)

Tijekom ispitivanja u skladu s HRN EN 1027:2016, u rasponu natisnog tlaka od 0 Pa do 600 Pa (pozitivno opterećenje), aluminijska klizna stijena sustav PK150tt, klizno krilo i fiksni dio, ostakljena dvostrukim IZO staklom debljine 30 mm je propustila vodu u drugoj minuti pri natisnom tlaku od 450 Pa.

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C DIO: OTPORNOST NA OPTEREĆENJE VJETROM

Zadatak: Ispitati svojstvo otpornosti na opterećenje vjetrom ispitnog uzorka LGF 126/21 (aluminijska klizna stijena sustav PK150tt, klizno krilo i fiksni dio, ostakljena dvostrukim IZO staklom debljine 30 mm).
Vanjske izmjere prozora: 2,61 m x 2,22 m.

Norma ispitivanja: HRN EN 12211:2016 Prozori i vrata -- Otpornost na opterećenje vjetrom -- Metoda ispitivanja (EN 12211:2016)

Datum ispitivanja: 2021-04-27

Mjerna i ispitna oprema:
- uređaj za ispitivanje prozora proizvođača HOLTEN, tip "Type VAEPC", oznaka mjerila 1674,
- termohigrometar, ROTRONIC, tip Hygroclip S, oznaka mjerila 1680,
- barometar, Präzisions-Barometer No 98895, oznaka mjerila 1135,
- metalni metar, oznaka mjerila 622.

Temperatura, relativna vlažnost i tlak zraka tijekom ispitivanja: 24,2 °C 35,5 % rH 1002 hPa.

Klizna stijena je ispitan u neutralnom položaju zaključavanja (4 točaka učvršćenja).
Vanjska strana klizne stijene okrenuta je prema komori.

C1. REZULTATI ISPITIVANJA ČEONOG SAVIJANJA

Ispitivanje čeonog savijanja provedeno je na mjestima kako je prikazano skicom.

A, B i C – mjerna mjesta,

A_0, B_0 i C_0, – početna stanja s obzirom na pomak, koja su ugođena da pokazuju 0 mm pri Δp = 0 Pa,

A_P – čeoni pomak na mjestu A pri razlici tlakova P1,

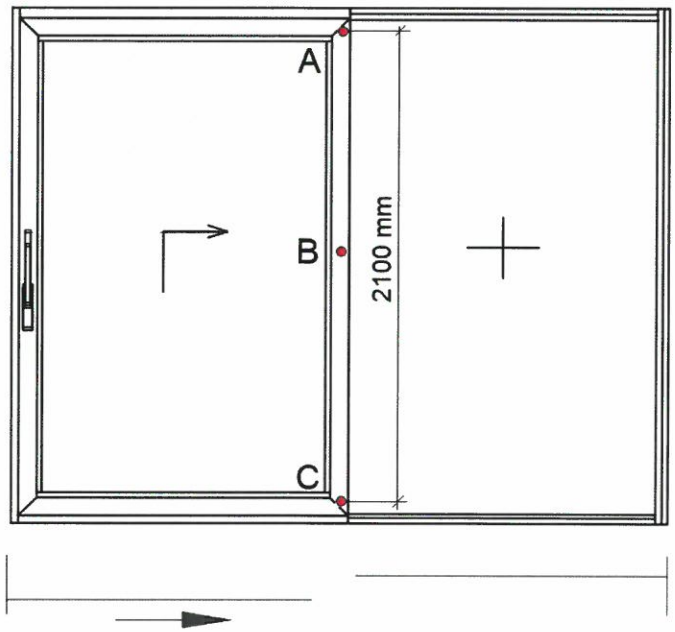
B_P – čeoni pomak na mjestu B pri razlici tlakova P1,

C_P – čeoni pomak na mjestu C pri razlici tlakova P1,

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

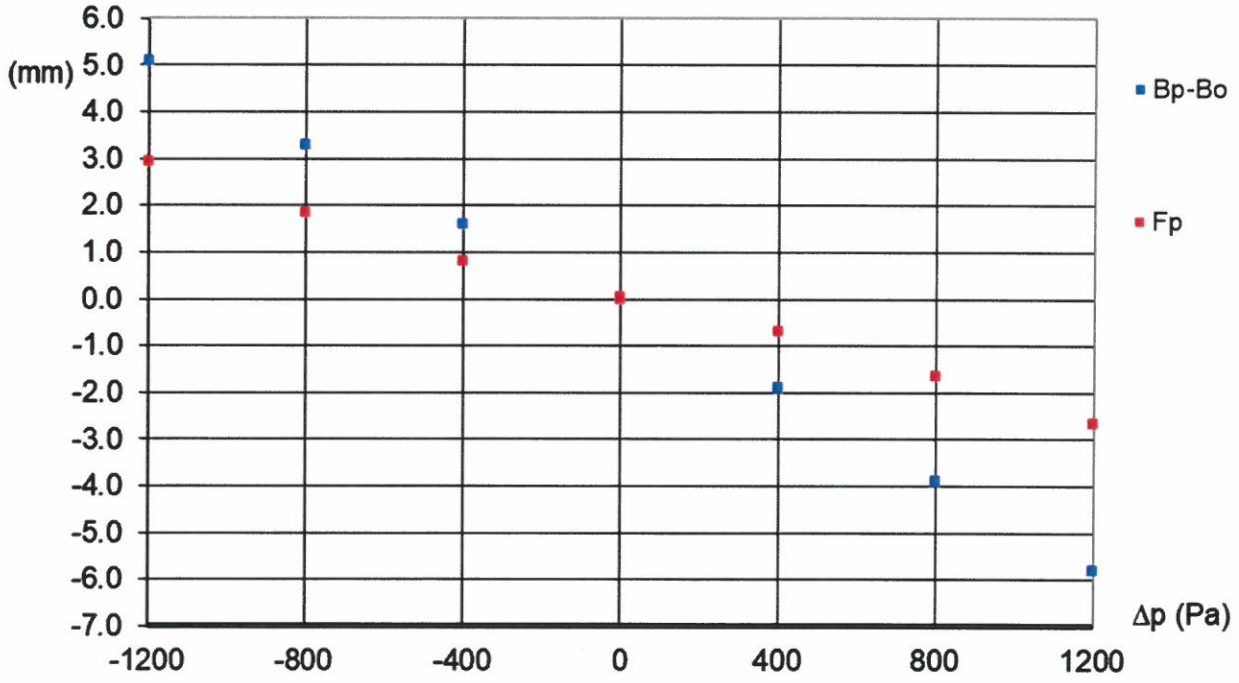
L = 2,100 m - razmak između točaka **A** i **C**,

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



Tablica 4: rezultati ispitivanja čeonog savijanja, uzorak LGF 126/21.

tlak Δp (Pa)	*ispitni rezultat* A_P-A_0 (mm)	B_P-B_0 (mm)	C_P-C_0 (mm)	F_P (mm)	F_{rp} ($\times 10^{-4}$)	
-1200,0	2.3	5.1	2.0	2.95	14.05	F_{rpmax} = 1/710
-800,0	1.5	3.3	1.4	1.85	8.81	
-400,0	0.8	1.6	0.8	0.80	3.81	
400,0	-1.7	-1.9	-0.7	-0.70	-3.33	
800,0	-3.0	-3.9	-1.5	-1.65	-7.86	
1200,0	-4.2	-5.8	-2.1	-2.65	-12.62	



C2. REZULTATI ISPITIVANJA OTPORNOSTI PROMJENJIVIM TLAKOM P2

Ispitivanje je provedeno s 50 impulsa promjenjivog tlaka P2 od ± 600 Pa, koji iznosi polovicu maksimalnog tlaka P1 = 1200 Pa kod ispitivanja čeonog savijanja.

Nakon provedenog opterećenja na uzorku LGF 126/21 nije bilo vidljivih oštećenja niti promjena u funkcionalnosti uzorka.

C3. REZULTATI SIGURNOSNOG ISPITIVANJA

Ispitivanje sigurnosti je provedeno s po jednim impulsom od - 1800 Pa i + 1800 Pa (1,5 x P1).

Nakon provedenog opterećenja na uzorku LGF 126/21 nije bilo vidljivih napuknuća na bilo kojem dijelu uzorka (staklo, okvir i okovi), niti je došlo do otvaranja krila.

C4. REZULTATI ISPITIVANJA ZRAKOPROPUSNOSTI NAKON ISPITIVANJA OTPORNOSTI NA OPTEREĆENJE VJETROM

Ponovljeno ispitivanje zrakopropusnosti nakon ispitivanja otpornosti na opterećenje vjetrom uzorka LGF 126/21 (Tablica 2 - A dio izvještaja) pokazuje da nije došlo do povećanja vrijednosti zrakopropusnosti većeg od 20 % u odnosu na granične vrijednosti dobivenog razreda nakon prvog ispitivanja zrakopropusnosti.

D DIO: OCJENA SVOJSTAVA GRAĐEVNOG PROIZVODA

S obzirom na rezultate ispitivanja propusnosti zraka (A dio ovog izvještaja), vodonepropusnosti (B dio ovog izvještaja) i otpornosti na opterećenje vjetrom (C dio ovog izvještaja), ispitani proizvod:

Građevni proizvod:	aluminijska klizna stijena sustav PK150tt, klizno krilo i fiksni dio, ostakljena dvostrukim IZO staklom debljine 30 mm (vanjske izmjere prozora: 2,61 m x 2,22 m)
Proizvođač:	EMERUS d.o.o., Knešpolje bb, BA-88220 Široki Brijeg, BiH

ima razredbu prema navedenim normama:

HRN EN 12207:2017 Prozori i vrata -- Propusnost zraka -- Razredba (EN 12207:2016)	**4**
HRN EN 12208:2001 Prozori i vrata -- Vodonepropusnost -- Razredba (EN 12208:1999)	**7A**
HRN EN 12210:2016 Prozori i vrata -- Otpornost na opterećenje vjetrom -- Razredba (EN 12210:2016)	**C3**

IZVJEŠTAJ O PRORAČUNU KOEFICIJENTA PROLASKA TOPLINE (U VRIJEDNOST)

Broj izvještaja: **017-00-20**	Datum izdavanja izvještaja:**17.12.2020**

Mjesto ispitivanja:

EMERUS

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Addiko Bank | SWIFT: HAABBA22 | IBAN CODE: BA 39 3060 0028 0674 6186
Sberbank BH | SWIFT: SABRBA22 | IBAN CODE: BA39 1402 0112 0050 9522

Emerus d.o.o. | Knešpolje b.b. | 88220 Široki Brijeg | Bosnia & Herzegovina

OPĆI PODATCI:	
Podnositelj zahtjeva	**EMERUS d.o.o. Knešpolje bb 88220 Široki Brijeg**
Naziv proizvoda / tip:	**Aluminijski prozor 2,8 x 2,2 m PK150**
Proizvođač:	**EMERUS d.o.o. Knešpolje bb 88220 Široki Brijeg**
Podrijetlo proizvoda:	**Bosna i Hercegovina**

REZULTAT:

HRN EN ISO 10077-1:2017 Toplinska svojstva prozora,vrata i zaslona – Proračun koeficijenta prolaska topline – 1 dio: Općenito (ISO 10077-1:2017, ispravljena verzija 2020-02; EN ISO 10077-1:2017)

$$\mathbf{1,0}\left[\frac{W}{m^2K}\right]$$

1 Zahtjevi ispitivanja prema hrvatskim normama

Tvrtka **EMERUS d.o.o. Knešpolje,** postavila je zahtjev za ispitivanje proizvoda prema hrvatskoj normi kako slijedi:

HRN EN ISO 10077-1:2017 Toplinska svojstva prozora, vrata i zaslona – Proračun koeficijenta prolaska topline – 1. dio: Općenito (ISO 10077-1:2017, ispravljena verzija 2020-02; EN ISO 10077-1:2017)

2 Opći podatci o referentnom uzorku

Oznaka referentnog uzorka:	**017-00-20**
Datum Izračuna:	**17.12.2020**

3 Opis ispitnog uzorka

Proizvod je izrađen od aluminijskog profila s toplinskim prekidom, ostakljen troslojnim staklom debljine 48 [mm]; 4 [mm] low-e – 16 [mm] – 4 [mm] float – 14 [m] – ESG 6 [mm] low-e + Arg. Čije je brtvljenje na unutarnjoj strani krila ostvareno pomoću trajno elastične brtve smještene u utoru spojnih letvica, dok su na vanjskoj strani krila rubovi brtvljeni trajno elastičnom brtvom smještenom u profilu krila.

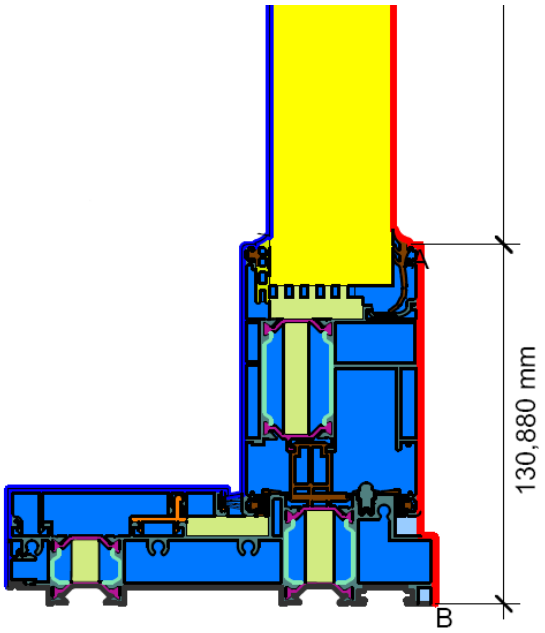
Sustav profila:PK150TT, aluminijski profili s toplinskim mostom

Proizvođač profila: EMERUS d.o.o. Knešpolje, Bosna i Hercegovina

Profil doprozornika, oznaka:	PK15002
Brtva doprozornik, vanjska:	EPDM, espanso
Brtva doprozornika, središnja:	EPDM
Profil krila, oznaka:	PK15004
Brtva stakla, unutarnja, vanjska:	EPDM, espanso
Brtva krila, unutarnja:	EPDM
Profil prečke, oznaka:	PK15005
Brtva stakla, unutarnja, vanjska:	EPDM, espanso
Brtva prečke, unutarnja:	EPDM

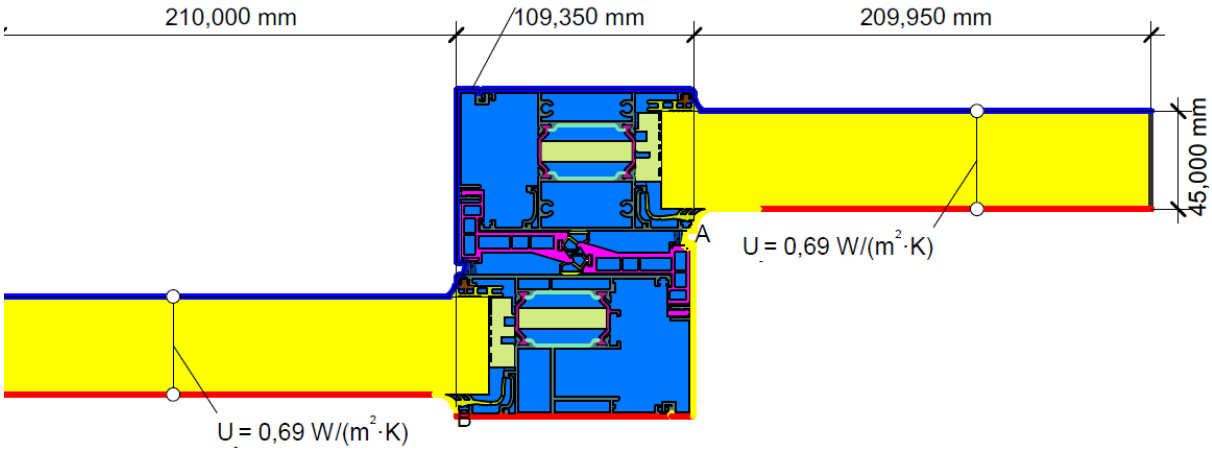
Okov – tip, proizvođač: EMERUS d.o.o. Knešpolje, Bosna i Hercegovina

Skice karakterističnih presjeka uzorka:



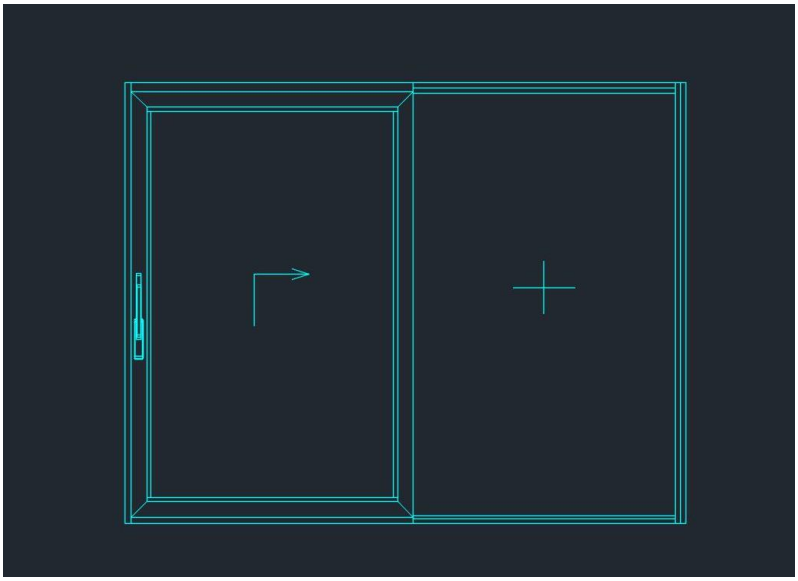
$$U_{f\,A,B} = \frac{\frac{\Phi}{\Delta T} - U_p \cdot b_p}{b_f} = \frac{\frac{8,262}{20,000} - 0,687 \cdot 0,235}{0.131} = 1,9\ W/(m^2 \cdot K)$$

Presjek dovratnika i krila serije PK150tt



$$U_{f\,A,B} = \frac{\frac{\Phi}{\Delta T} - U_{p1} \cdot b_{p1} - U_{p2} \cdot b_{p2}}{b_f} = \frac{\frac{12,160}{20,000} - 0,687 \cdot 0,210 - 0,687 \cdot 0,210}{0,109} = 2,9\ W/(m^2 \cdot K)$$

Presjek prečke i krila serije PK150tt



Nacrt karakterističnog prozora

4 Rezultat

4.1 Aluminijska stijena:

Širina proizvoda [m]:	2,800
Visina proizvoda [m]:	2,200
Širina doprozornika i krila [m]:	0,130
Širina prečke i krila [m]:	0,109

4.2 Površine elemenata sustava

Ukupna površina [m^2]:	**6,160**
Površina stakla [m^2]:	**4,716**
Opseg stakla [m]:	**12,622**
Površina profila [m^2]:	**1,444**

4.3 Toplinske prohodnosti elemenata sustava

Toplinska prohodnost stakla Ug [W/m^2K] (EN 673)	0,6
Toplinska prohodnost profila Uf [W/m^2K]: doprozornik i krilo	1,9

Toplinska prohodnost profila Uf [W/m^{2}K]: Prečka i krilo Prema dostavljenom izvještaju o proračunu IFT Rosenheim br.19-004254-PR01,od 08.10.2019.	2,9
Linearni prolaz topline za niskoemisijski distancer [W/mK] (HRN EN ISO 10077-1:2017)	0,04

5 ZAKLJUČAK

Toplinska prohodnost aluminijske stijene Uw [W/m^{2}K]	**1,02**

Potpis ovlaštenog inženjera:

EMERUS d.o.o.
Široki Brijeg

_____

Zertifikat / *Certificate*

Zertifikatsnr. / *Certificate No.*: 588-9027637-1-2

ift ROSENHEIM

ift-zertifizierter Fachbetrieb zur Berechnung von Wärmedurchgangskoeffizienten

ift-certified company for calculation of thermal transmittance

Gegenstand
building product

Erstellung von Dokumenten zu wärmetechnischen Berechnungen von Außenbauteilen auf Grundlage der EN ISO 10211 und EN ISO 10077 *Preparation of documents for thermal calculations of external building components based on EN ISO 10211 and EN ISO 10077*

Rechnende Stelle
calculating body

EMERUS d.o.o.

Knespolje bb, BA 88220 Siroki Brijeg

Mit diesem Zertifikat wird bescheinigt, dass die benannte rechnende Stelle den Anforderungen des zugrundeliegenden ift-Zertifizierungsprogramms in der aktuellen Fassung entspricht.

Die rechnende Stelle ist in der Lage, Dokumente und Berechnungen auf Grundlage der EN ISO 10211 und EN ISO 10077 durch die in Anlage 1 aufgeführten Personen durchzuführen. Diese können vom ift Rosenheim als Grundlage für ihre wärmetechnischen Berechnungen von Außenbauteilen verwendet werden.

Das Zertifikat darf nicht in Verbindung mit Hersteller eigenen Berechnungen verwendet werden.

Dieses Zertifikat wurde erstmals am 17.09.2019 ausgestellt. Die aktuelle Version gilt bis zum 08.12.2025, wenn sich zwischenzeitlich die Festlegungen in der oben angeführten technischen Spezifikation oder die personellen Voraussetzungen nicht wesentlich verändert haben.

Das Zertifikat darf nur unverändert vervielfältigt werden. Alle Änderungen der Voraussetzungen für die Zertifizierung sind dem ift-Zert mit den erforderlichen Nachweisen unverzüglich schriftlich anzuzeigen.

Das Unternehmen ist berechtigt, gemäß der ift-Zeichensatzung das „ift-zertifiziert"-Zeichen zu nutzen.

Dieses Zertifikat enthält 2 Anlagen.

This certificate attests that the calculating body mentioned fulfils the requirements of the underlying ift-certification scheme in its current version.

The calculating body is able to calculate windows and curtain wall profiles as per EN ISO 10077-2:2017 under supervision of ift Rosenheim.

The certificate may only be used in combination with an ift-protocol "calculation of the thermal transmittance coefficient" issued and released by ift Rosenheim.

This certificate was first issued on 17.09.2019. The current version is valid until 08.12.2025, as long as neither the conditions laid down in the technical specification listed above nor the personnel prerequisites are modified significantly.

The reproduction of the certificate without any change from the original is permitted. Any changes to the prerequisites applicable to certification shall be immediately communicated in writing to ift-Zert accompanied by the necessary evidence.

The company is authorized to use the "ift-certified"-mark according to the ift-rules for use of the "ift-certified"-mark.

This certificate contains 2 annexes.

ift Rosenheim akkreditierte Produktzertifizierungsstelle PZ EN 17065

ift Rosenheim
09.12.2022

Christian Kehrer
Leiter der ift-Zertifizierungs- und Überwachungsstelle
Head of ift Certification and Surveillance Body

Gültig bis /
Valid until: **08.12.2025**

Vertragsnr. /
Contract No. **588 9027637**

Grundlage(n) /
Basis:

ift-Zertifizierungsprogramm „ift-zertifizierter Fachbetrieb zur Berechnung des Wärmedurchgangskoeffizienten"
ift-certification scheme "ift-certified company for calculation of thermal transmittance"
ift-Zertifizierungs QM339:2020-07

Validierte Rechenverfahren
validated calculation method

ift ZERTIFIZIERT CERTIFIED

Identitäts-Check
Identity check

www.ift-rosenheim.de/ift-zertifiziert
ID: CA7-48B66

Ve-Zer-5218-de / 01.05.2022

Zertifikatsnr. / *Certificate No.*: 588-9027637-1-2

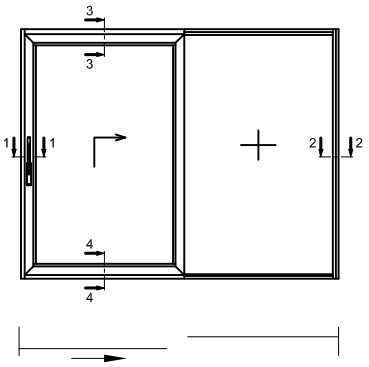
Rechnende Personen, die für die Erstellung von Grundlagendokumenten zu wärmetechnischen Berechnungen von Außenbauteilen auf Grundlage der EN ISO 10211 und EN ISO 10077 im Rahmen dieses Zertifizierungsprogramms qualifiziert sind und diese durchführen dürfen.

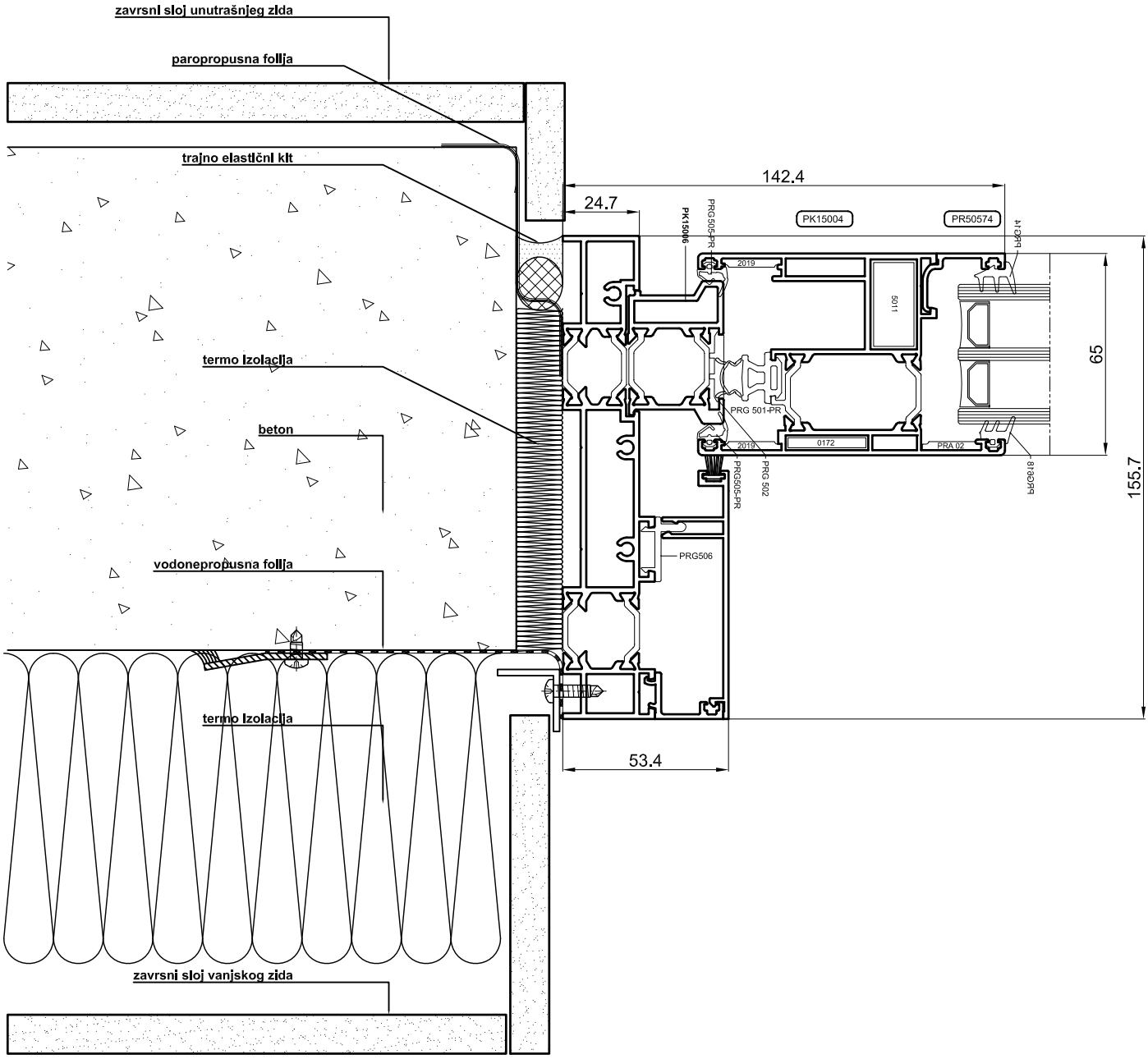
Invoicing persons who are qualified to prepare basic documents on thermal calculations of external building components on the basis of EN ISO 10211 and EN ISO 10077 within the scope of this certification programme and who are allowed to perform such calculations.

Nr. *No.*	**Name** *Name*	**Firma** *Company*
1.	Ivan Bosnjak	EMERUS d.o.o.

Ve-Zer-5218-de / 01.05.2022

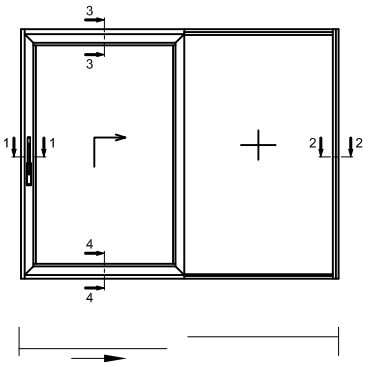
Detalji ugradnje: presjek 1-1

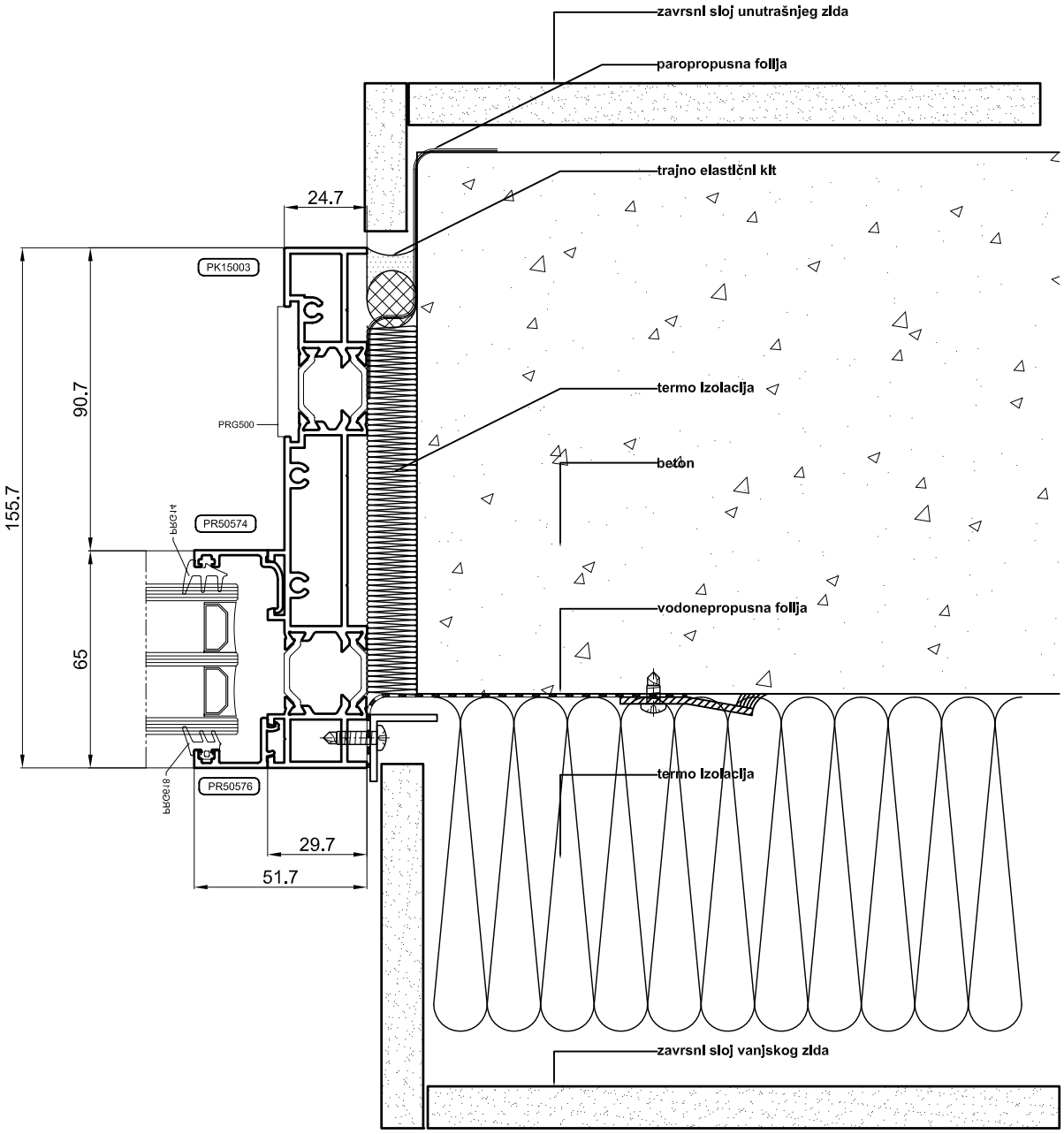




PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

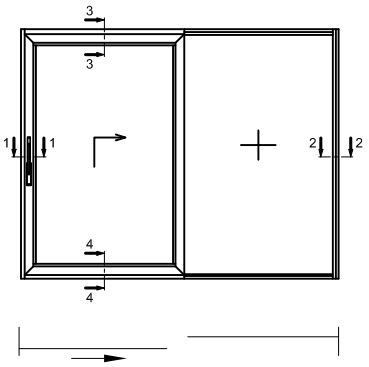
Detalji ugradnje: presjek 2-2

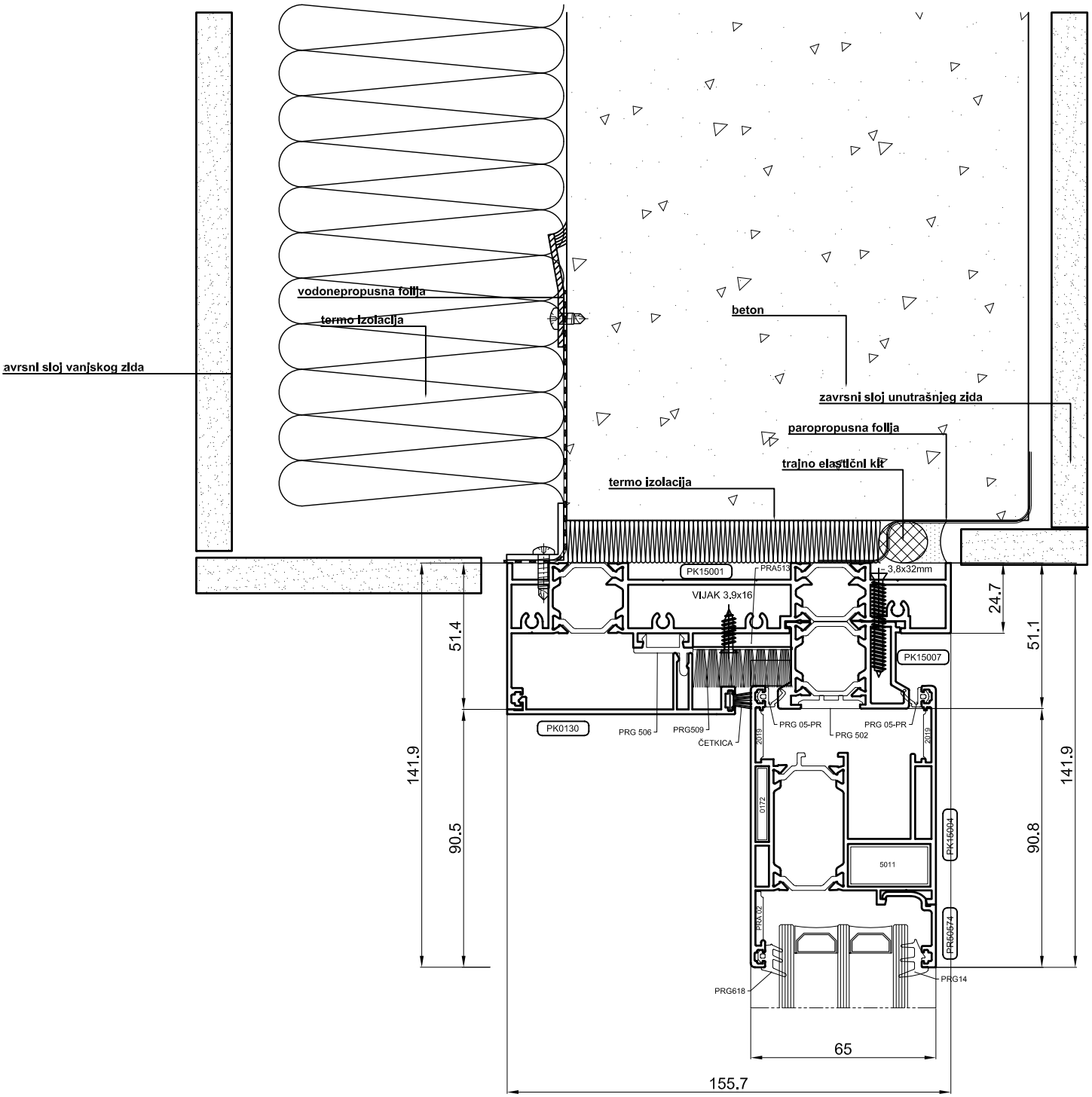




PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

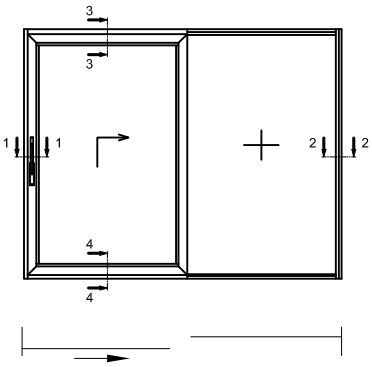
Detalji ugradnje: presjek 3-3

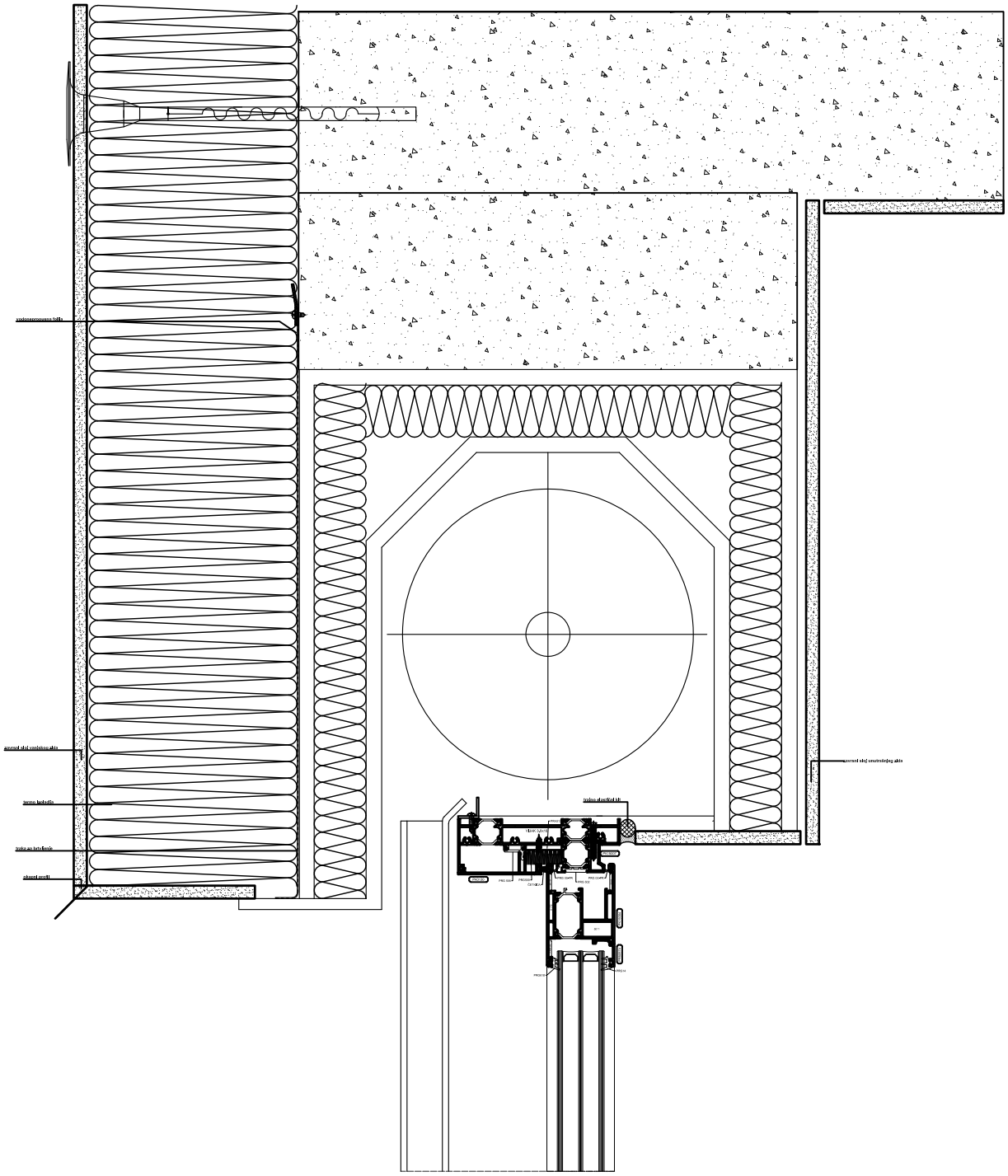




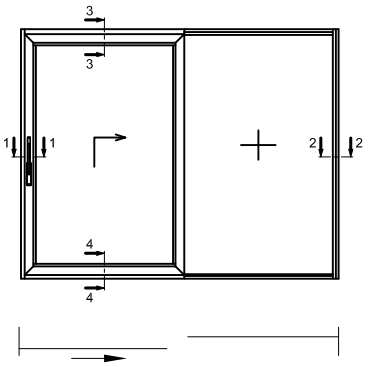
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

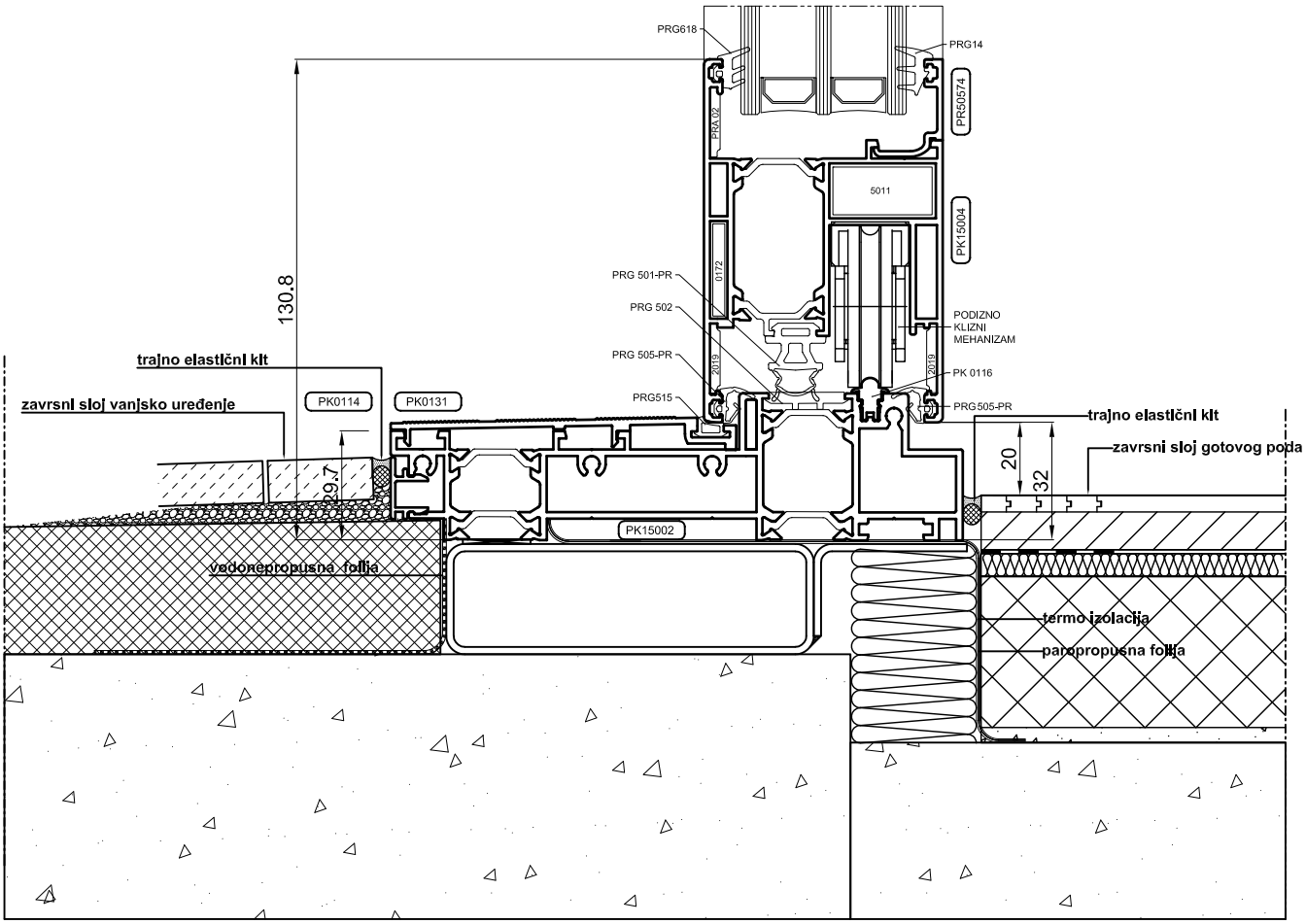
Detalji ugradnje: presjek 3-3





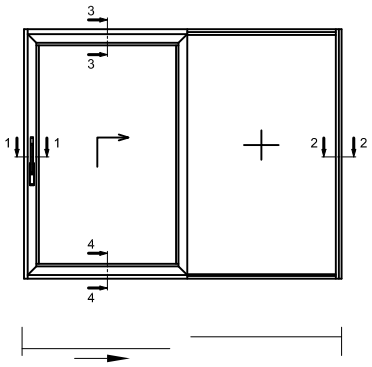
Detalji ugradnje: presjek 4-4

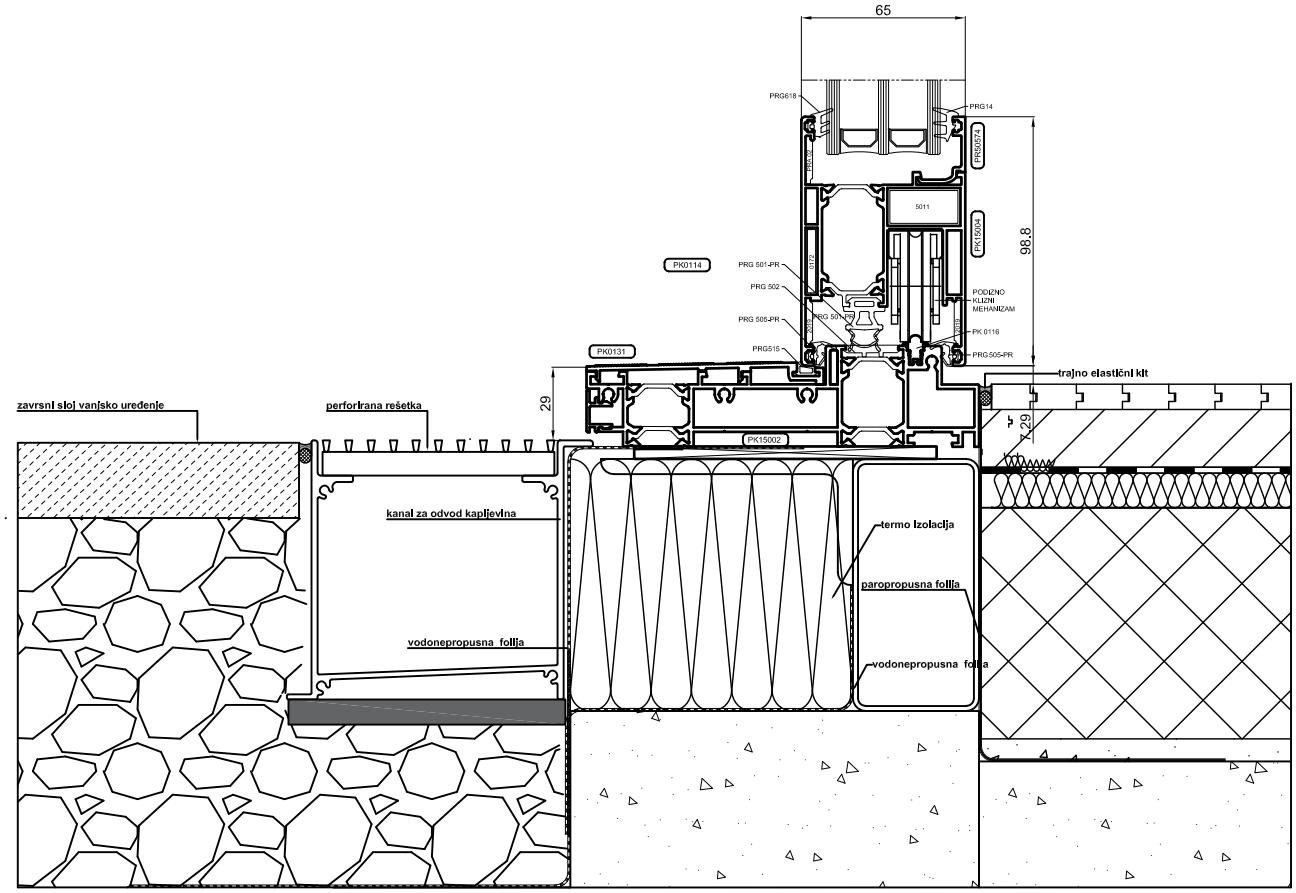




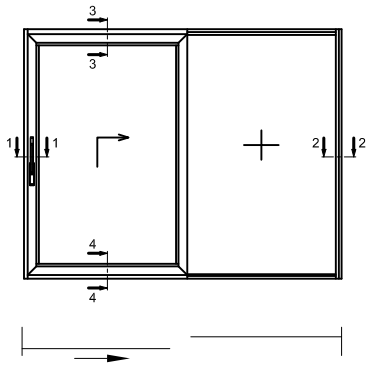
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

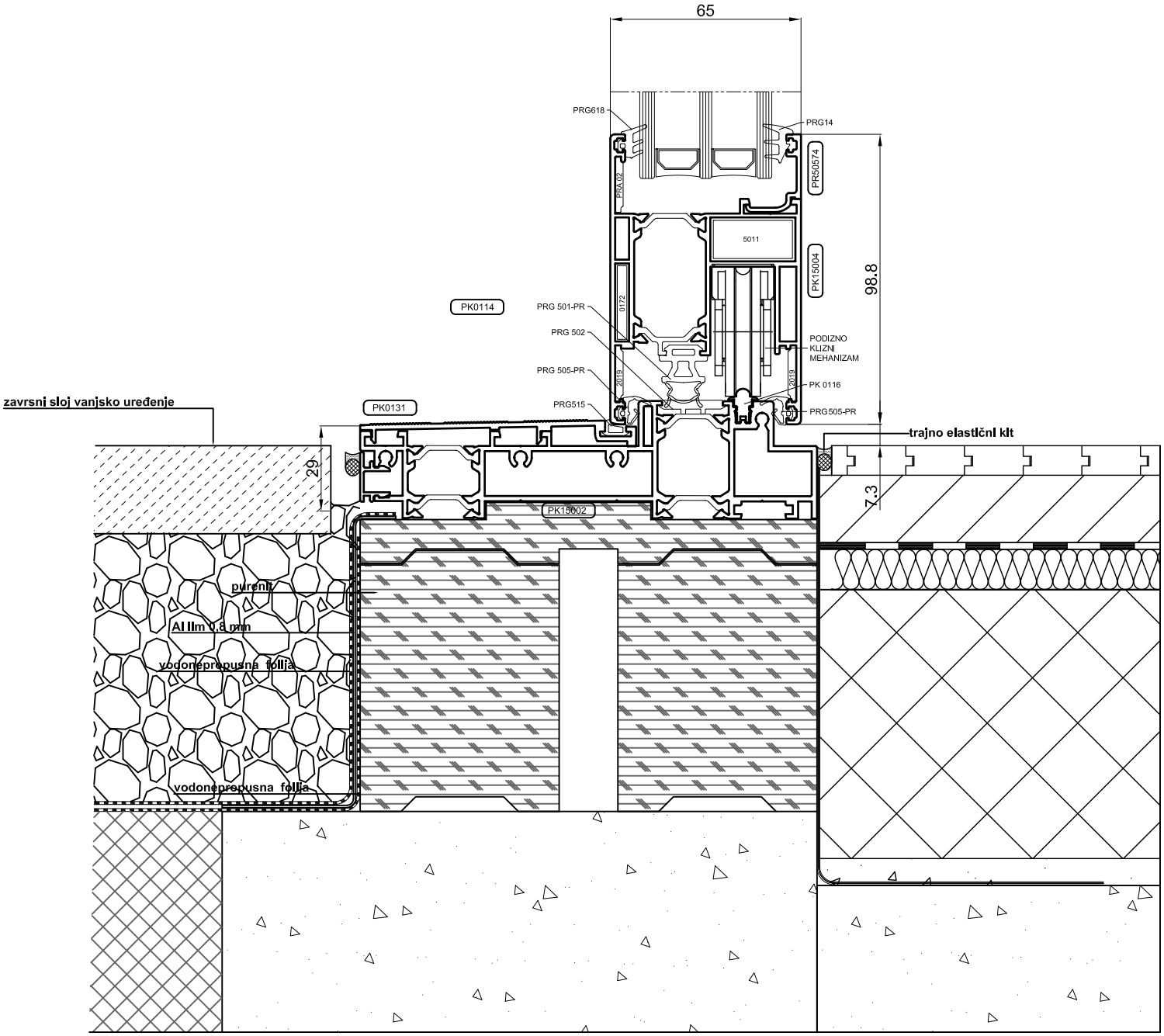
Detalji ugradnje: presjek 4-4



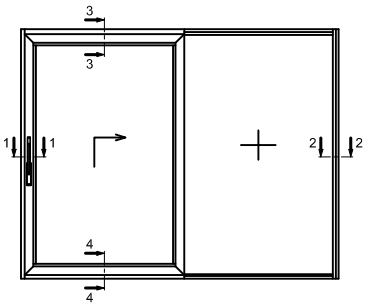


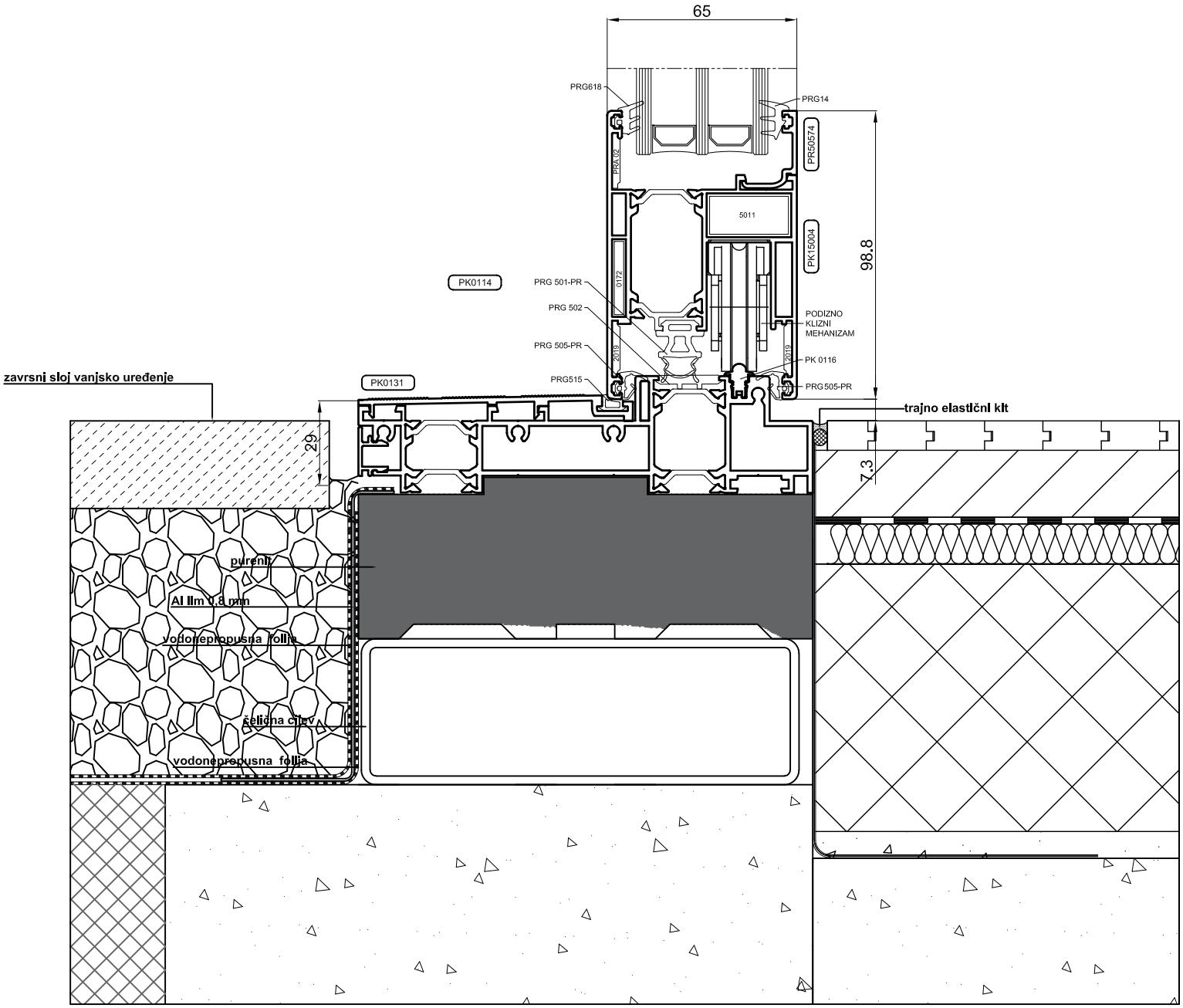
Detalji ugradnje: presjek 4-4





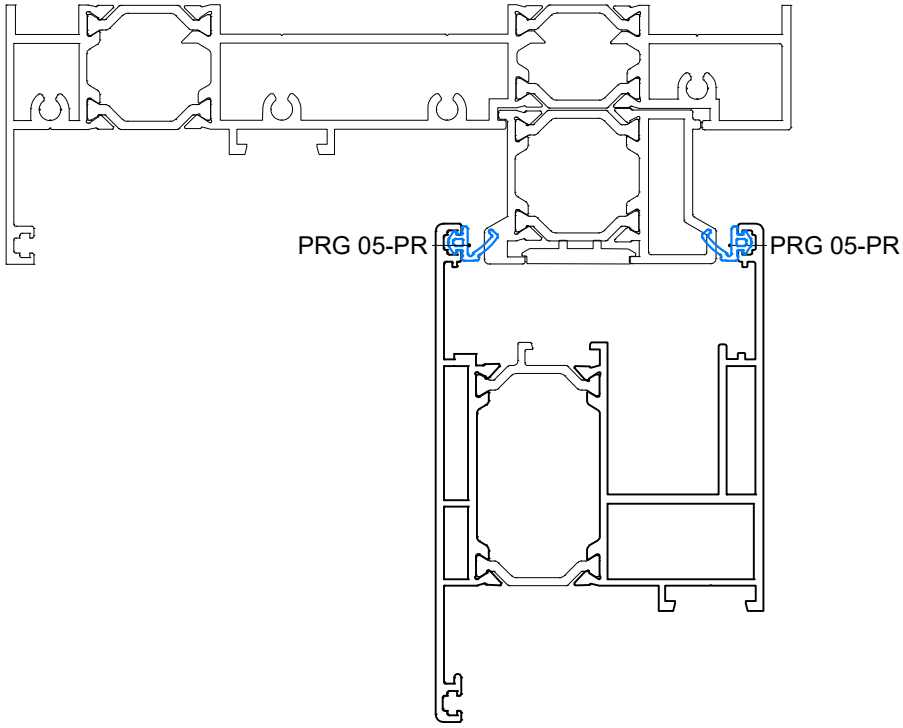
Detalji ugradnje: presjek 4-4

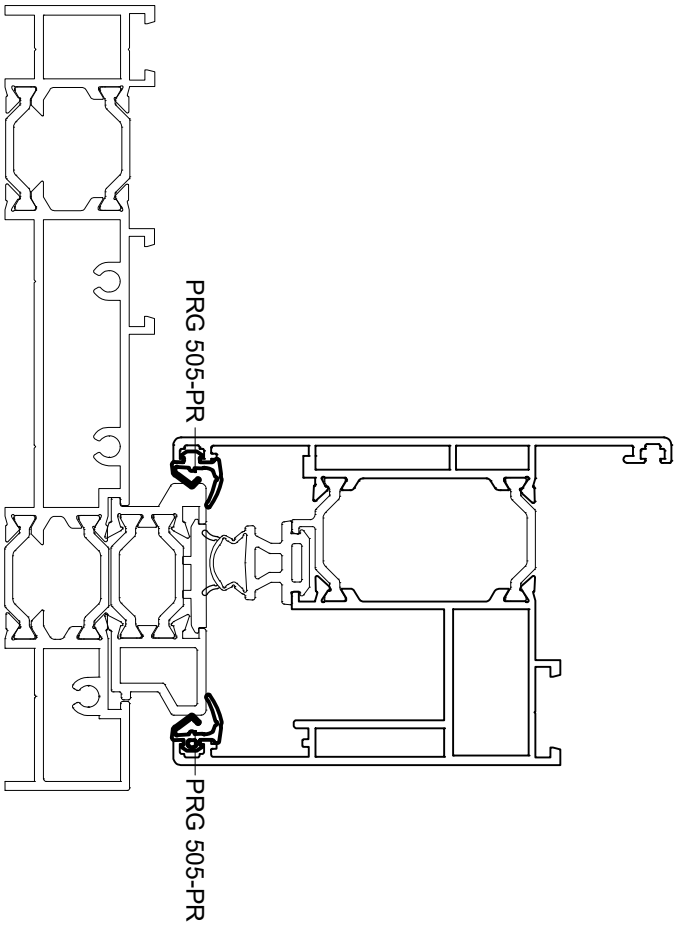


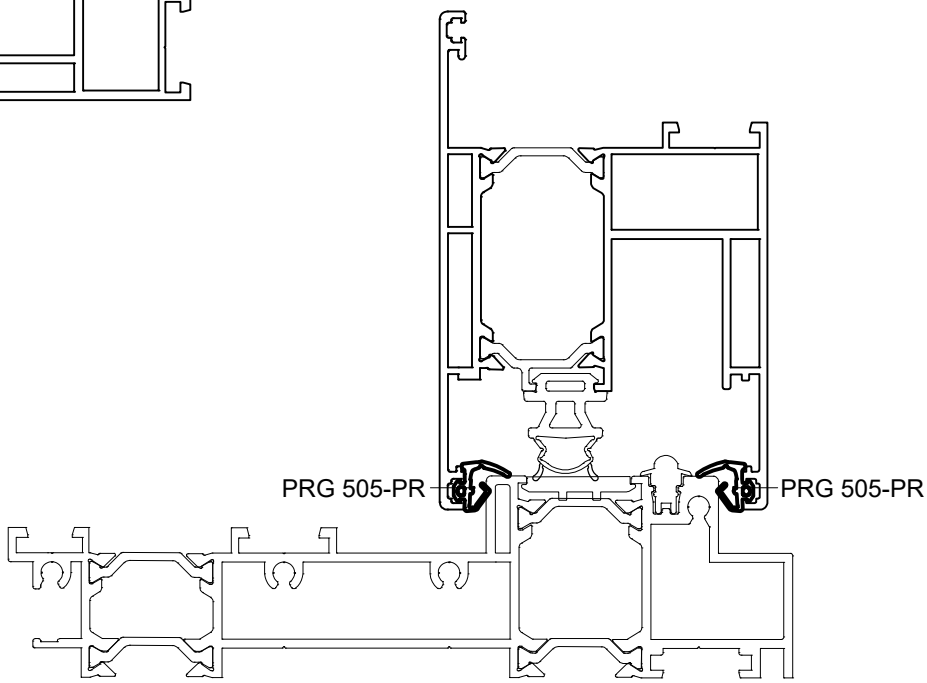


PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

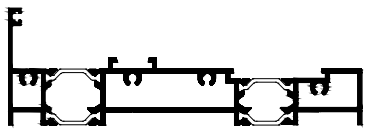
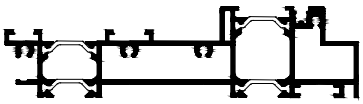
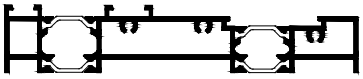
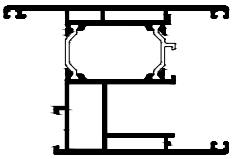
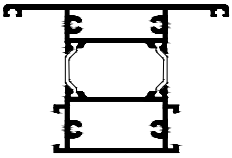
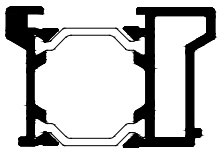
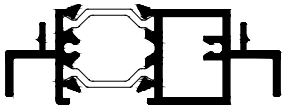
Pozicioniranje brtvi **PRG505-PR** i **PRG05-PR** unutar krila



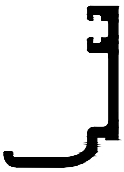




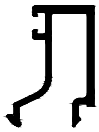
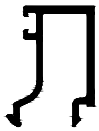
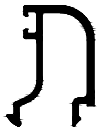
Profili

Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PK15001	 PK0105 PK0101 PK0102	2.723	420.1	98.63	11.67	3.21	270.50	32.36
PK15002	 PK0113 PK0112 PK0111	2.942	385.2	136.41	16.87	7.88	260.47	31.23
PK15003	 PK0100 PK0101 PK0102	2.615	359.8	71.43	7.97	4.92	248.12	30.71
PK15004	 PK0122 PK0123	2.112	359.8	188.86	48.81	13.48	42.52	8.34
PK15005	 PK0128 PK0129	1.988	359.8	161.52	40.01	10.93	38.05	7.70
PK15006	PK0117 PK0118	0.758	126.1	44.60	1.19	1.21	6.56	2.70
PK15007	 PK0119 PK0120	0.951	151.4	90.82	4.49	2.84	8.11	3.42
PK15008	 PK0124 PK0125	1.192	173.4	64.22	2.92	2.21	19.52	5.26

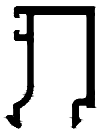
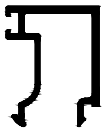
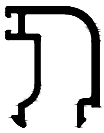
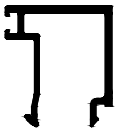
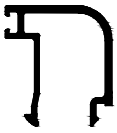
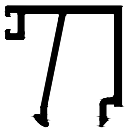
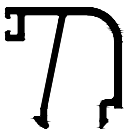
Profili

Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PK15009	PK0134 PK0133	1.967	383.95	155.70	185.72	21.10	5.63	3.63
PK0114		0.134	77.9	17.4				
PK0116		0.143	44.7	14.9				
PK0121		0.607	287.2	92.4				
PK0127		0.558	239.8	79.9				
PK0130		0.581	278.6	79.9				
PK0131		0.597	249.3	95.3				
PR50574		0.211	104.5	26.6				

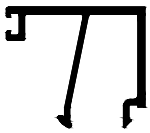
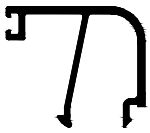
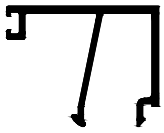
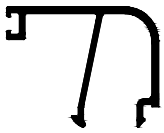
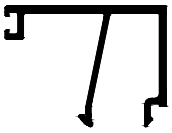
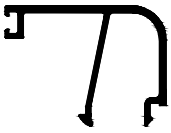
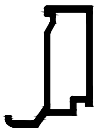
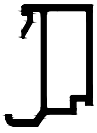
Profili

Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PR50553		0.258	151.12	31.1				
PR50554		0.260	151.84	32.1				
PR50555		0.248	146.01	28.8				
PR50556		0.266	154.02	35.1				
PR50557		0.255	148.35	31.88				
PR50558		0.271	155.47	37.1				
PR50559		0.259	149.81	33.88				

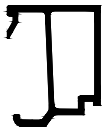
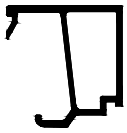
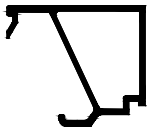
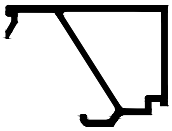
Profili

Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PR50560		0.275	156.92	39.1				
PR50561		0.263	151.26	35.88				
PR50562		0.298	170.22	42.1				
PR50563		0.287	164.55	38.88				
PR50564		0.306	173.09	45.1				
PR50565		0.294	167.42	41.88				
PR50566		0.322	182.16	47.1				
PR50567		0.301	176.49	43.88				

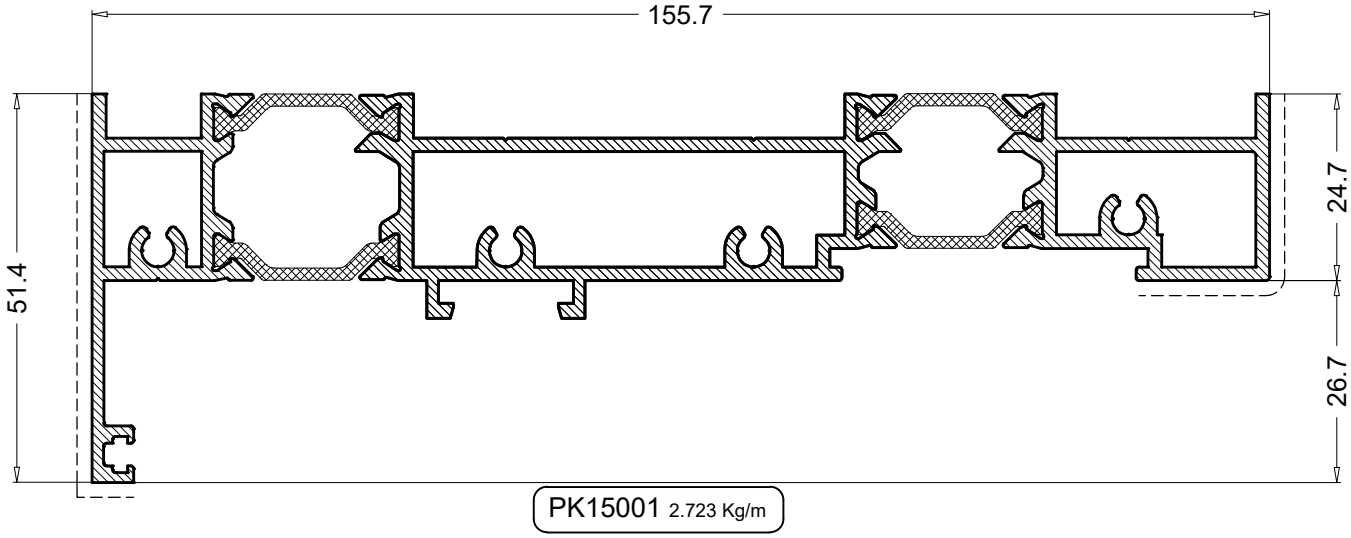
Profili

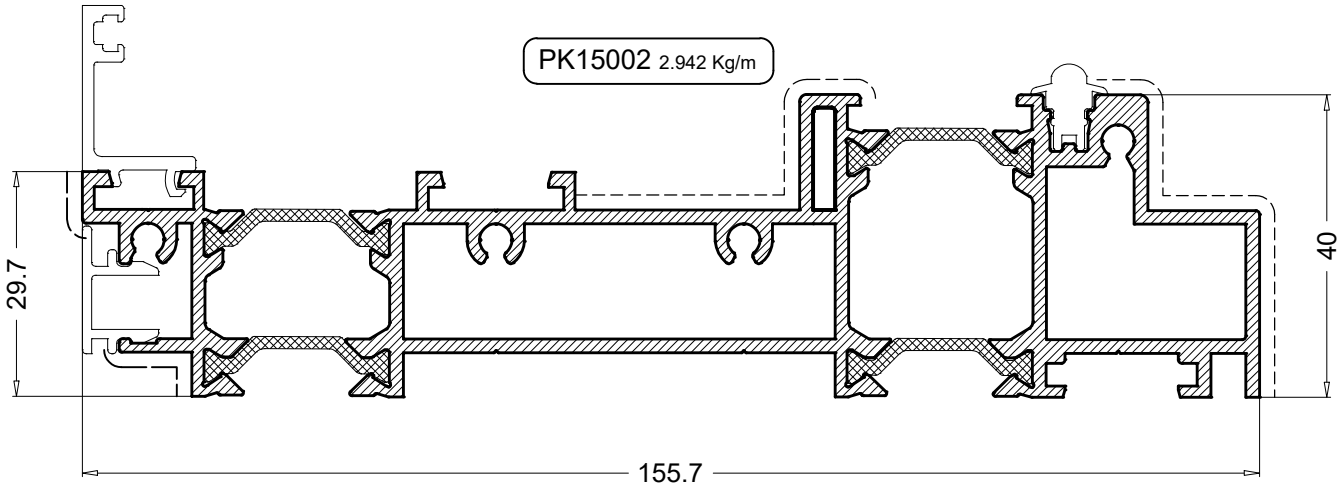
Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PR50568		0.342	192.16	52.1				
PR50569		0.330	176.49	48.88				
PR50570		0.354	198.16	55.1				
PR50571		0.341	192.49	51.88				
PR50572		0.362	202.16	57.1				
PR50573		0.350	196.49	53.88				
PR60554		0.250	92.55	32.78				
PR60558		0.275	111.38	37.78				

Profili

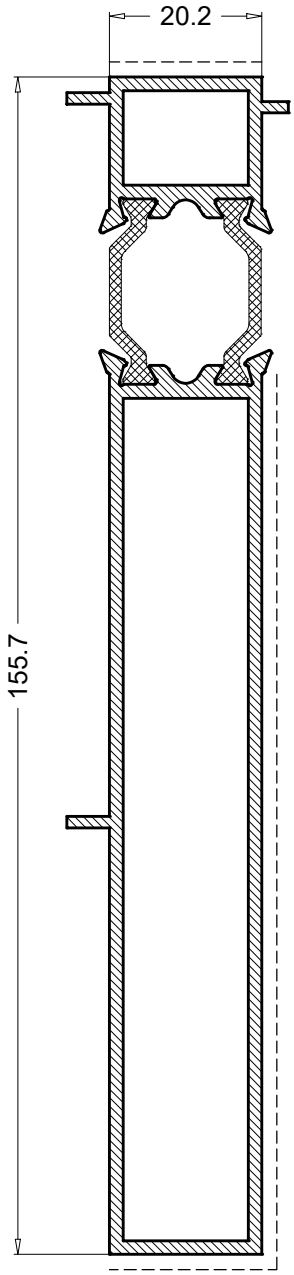
Kod Codice *Code*	Presjek Sezione *Cross Section*	Težina Peso *Weight* *Kg/m*	Perimetar Perimetro Perimeter mm	Vidljiva površina Sup. in Vista Exposed surface *mm*	Jx *cm^4*	Wx *cm^3*	Jy *cm^4*	Wy *cm^3*
PR60562		0.293	120.50	42.78				
PR60566		0.311	129.21	47.78				
PR60568		0.331	133.75	52.78				
PR60572		0.353	141.83	57.78				

PROFILI OKVIRA - gornji i donji presjek

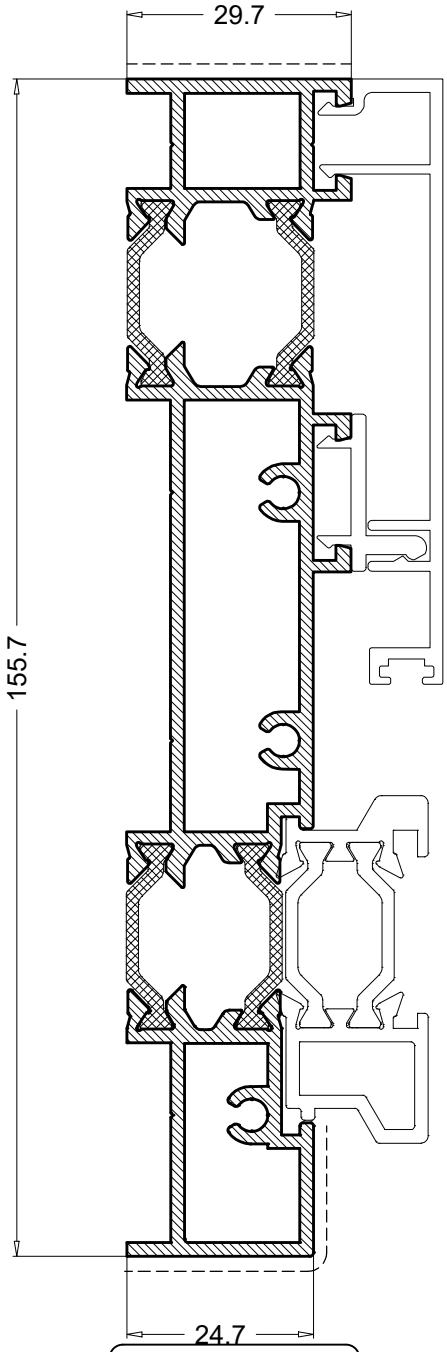




PROFILI OKVIRA - bočni presjek i spoj dva okvira

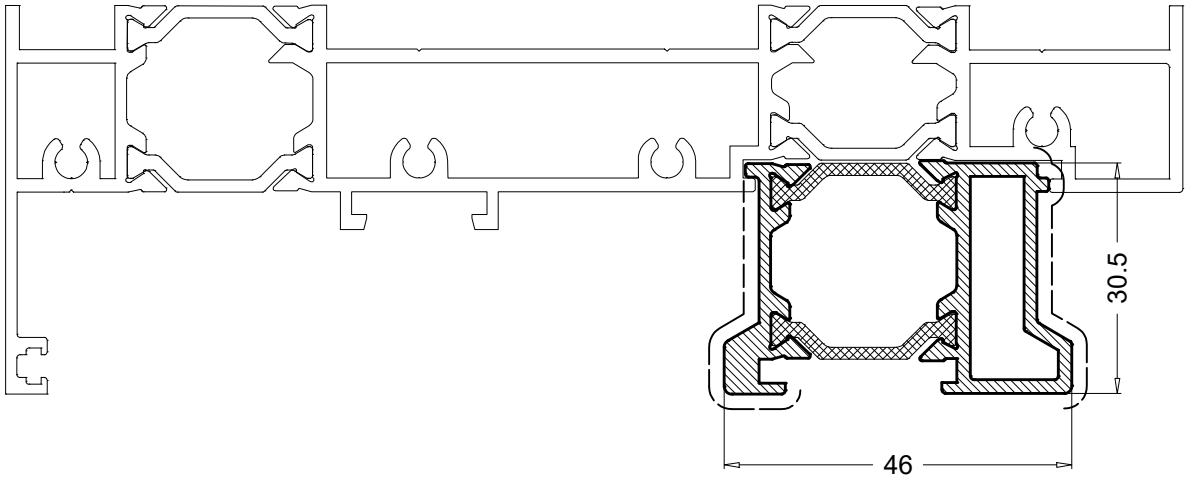


PK15009 1.967 Kg/m

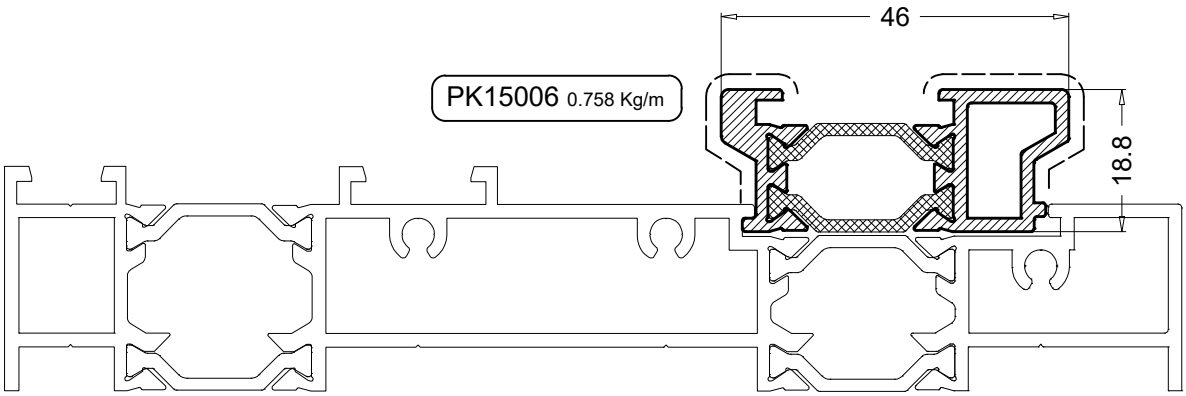


PK15003 2.615 Kg/m

Dodatni profili okvira

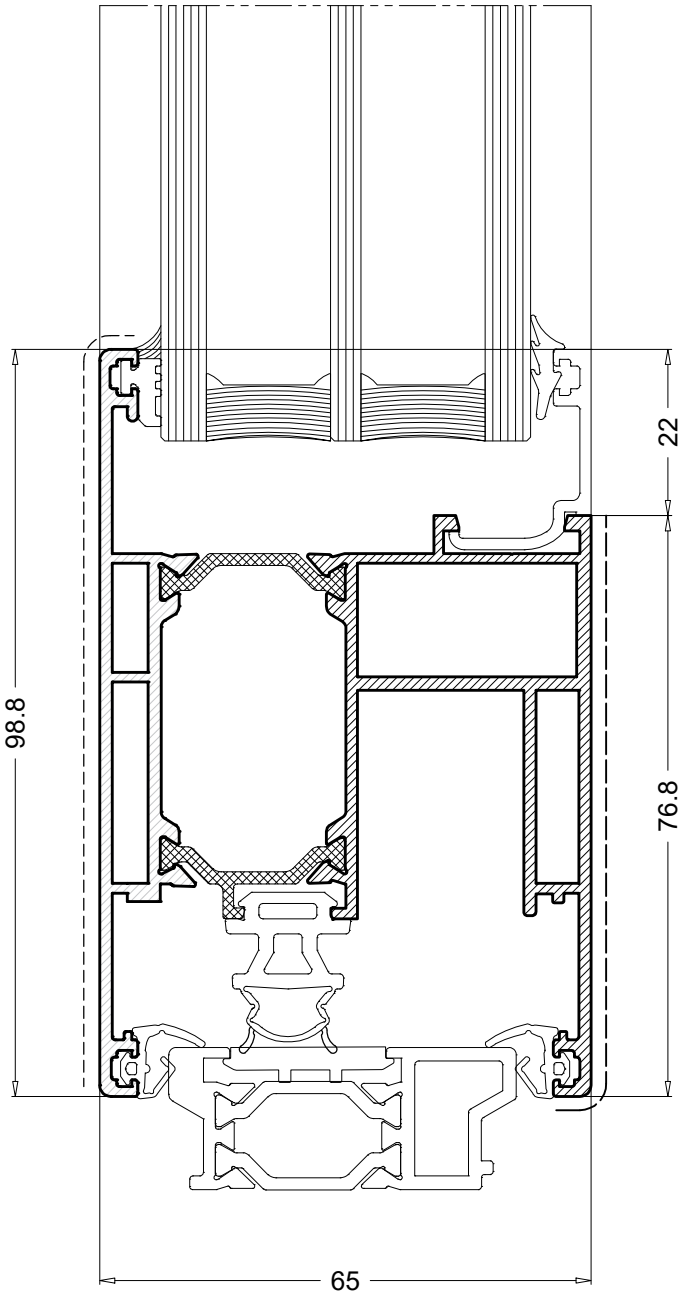


PK15007 0.951 Kg/m



PK15006 0.758 Kg/m

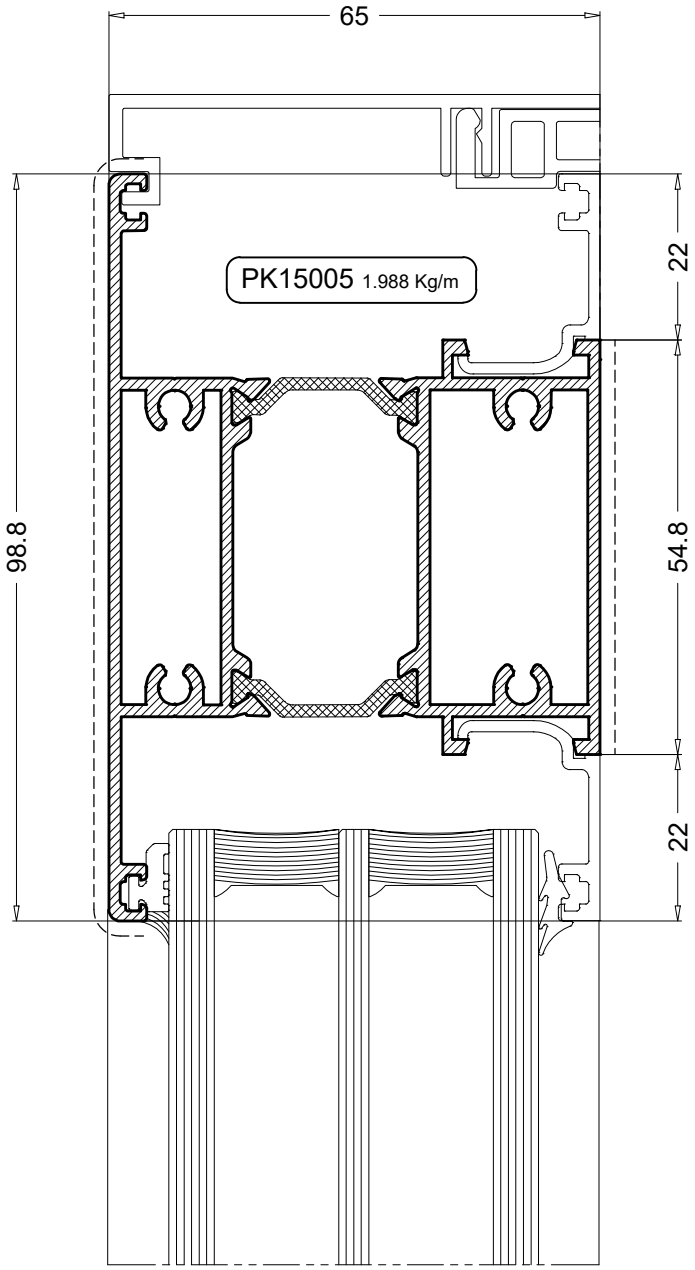
Profil krila



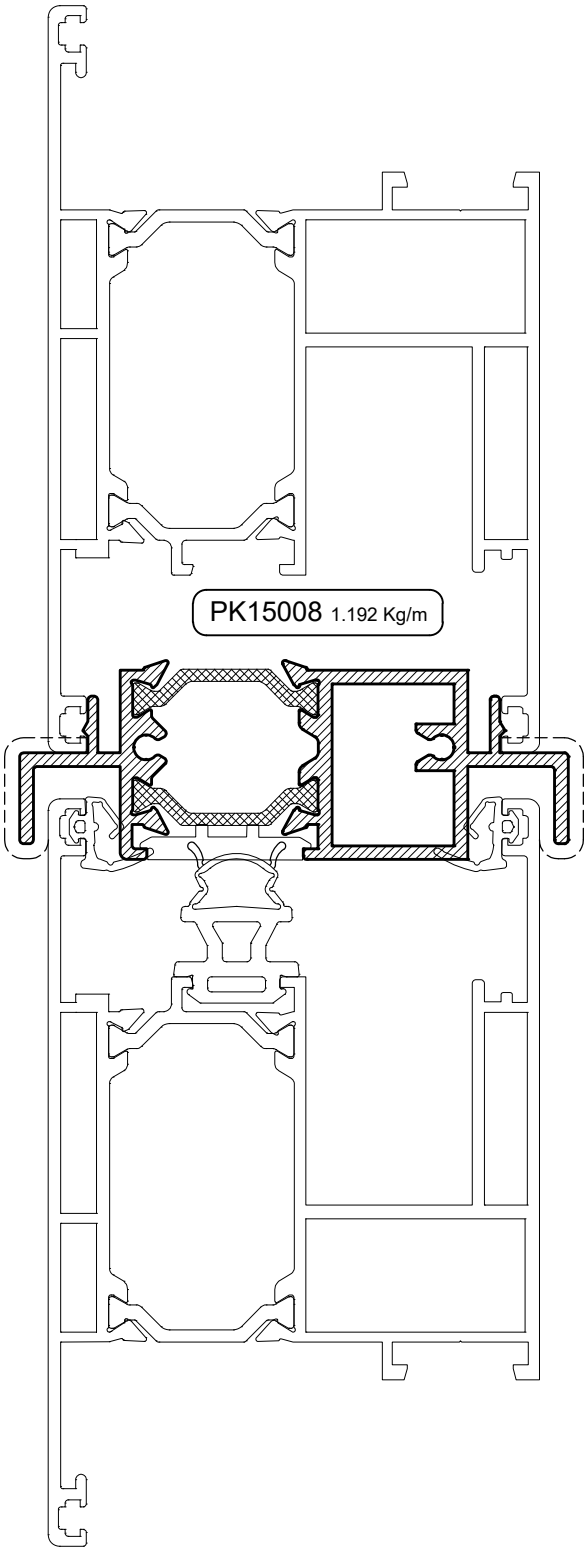
PK15004 2.112 Kg/m

PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

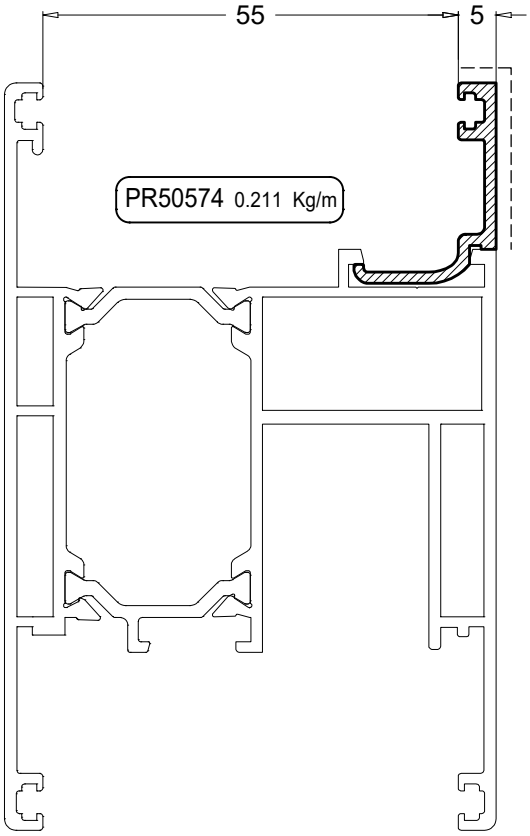
Profil prečke

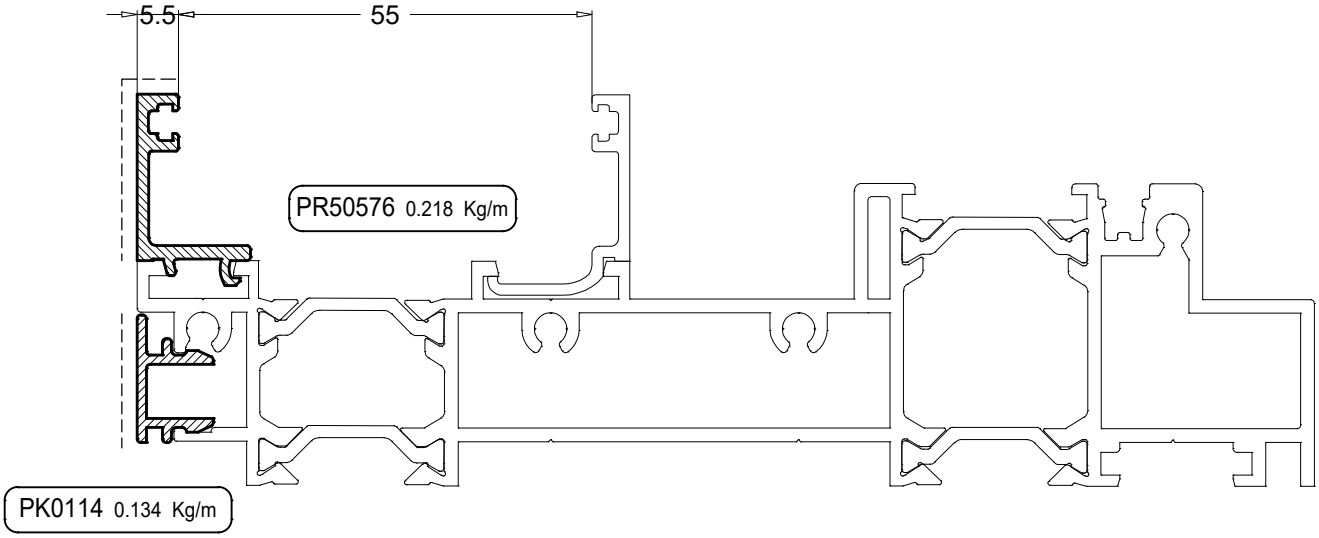


Centralni profil



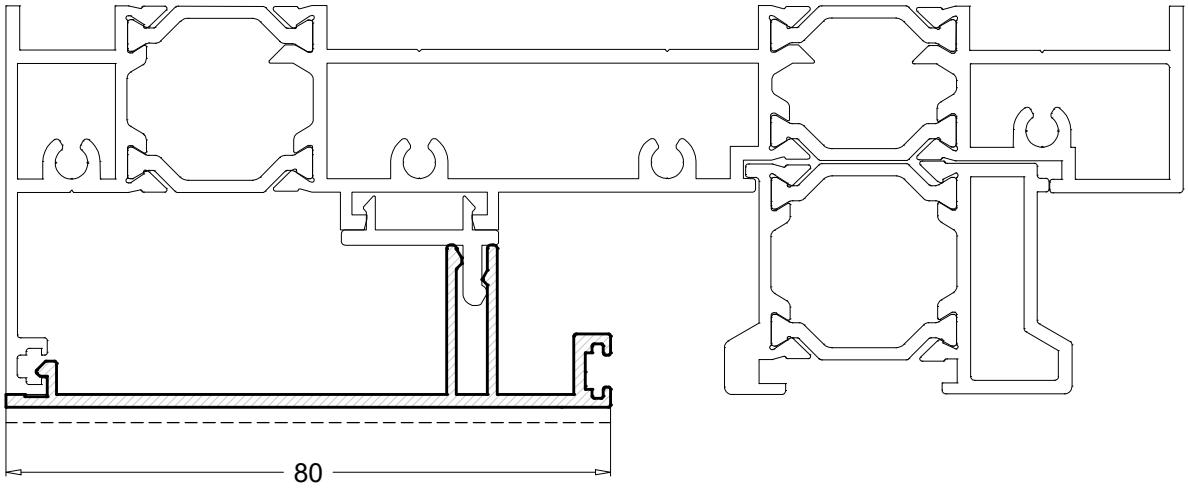
Profili lajsne



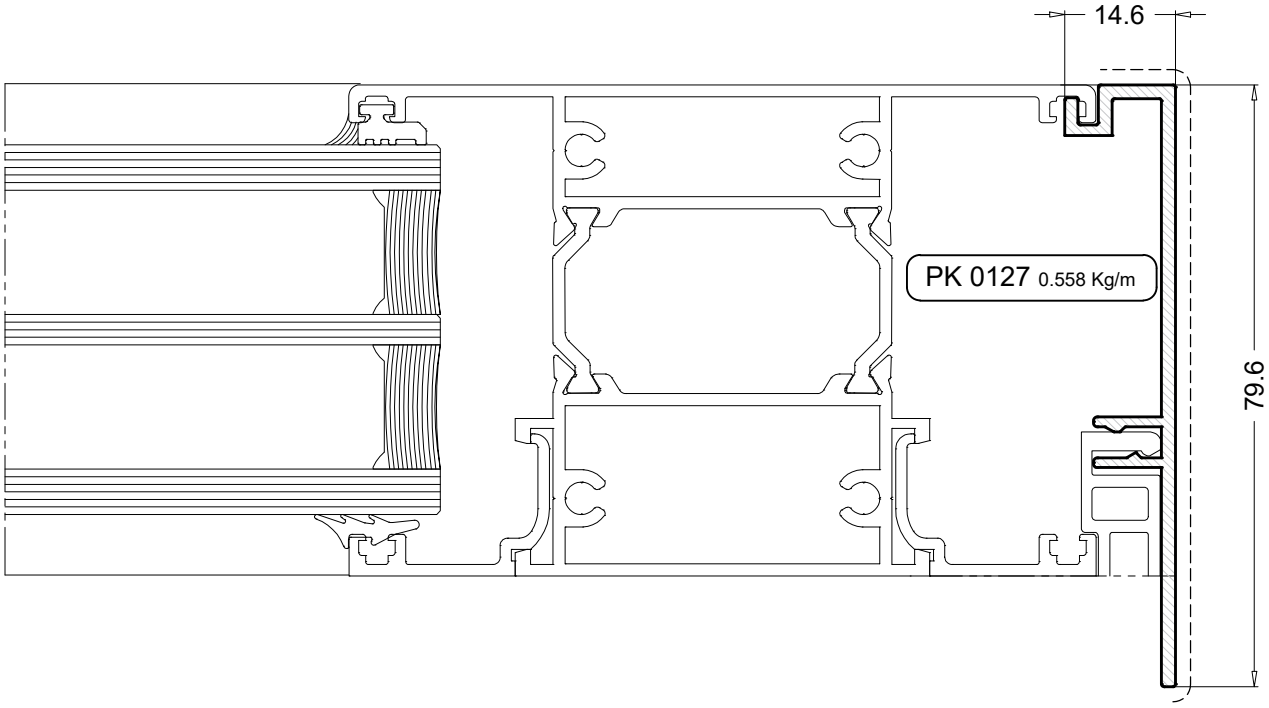


PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

Profil poklopne lajsne



PK 0130 0.581 Kg/m



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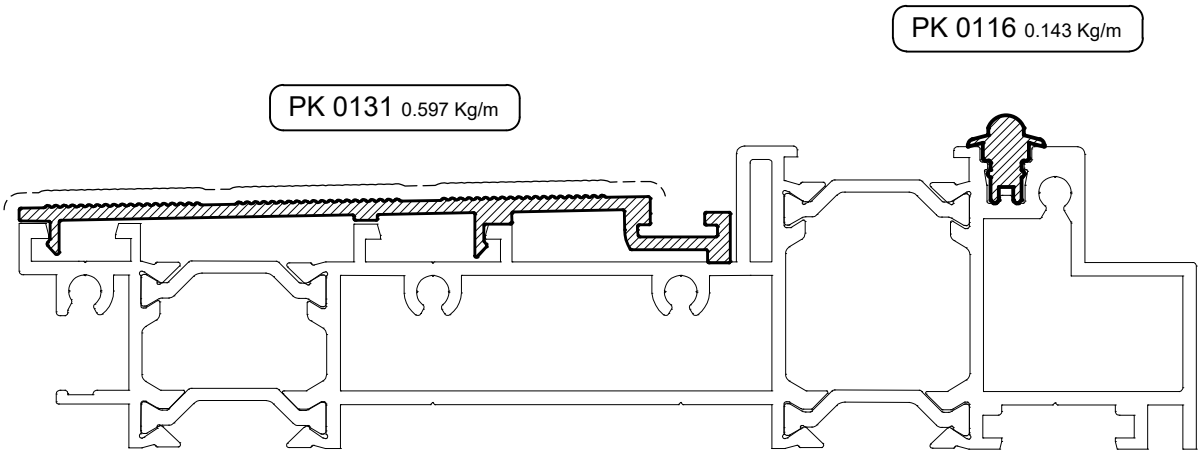
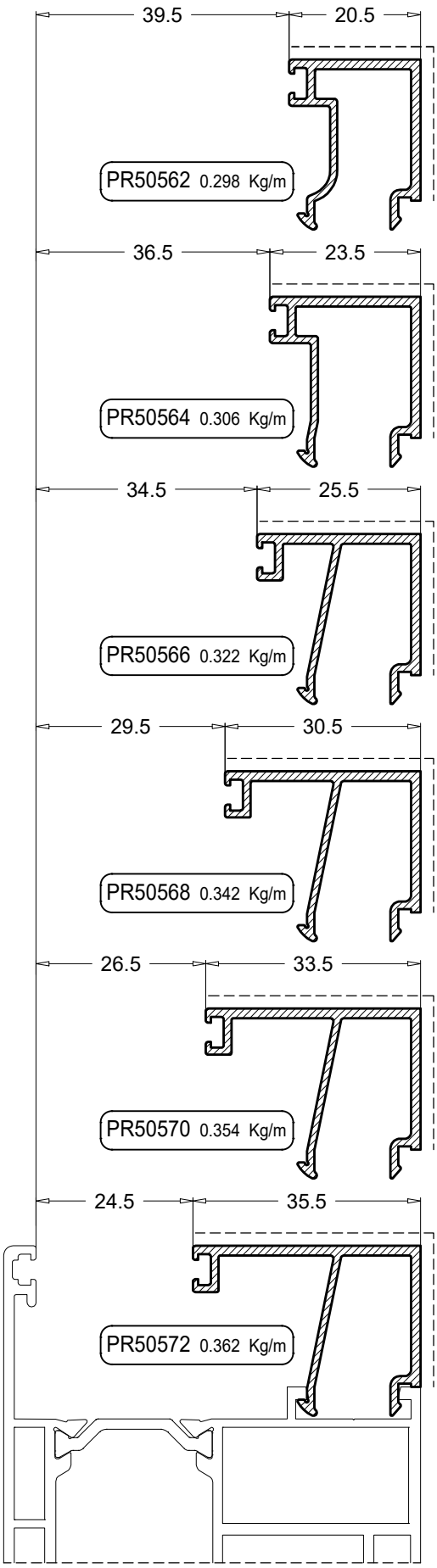
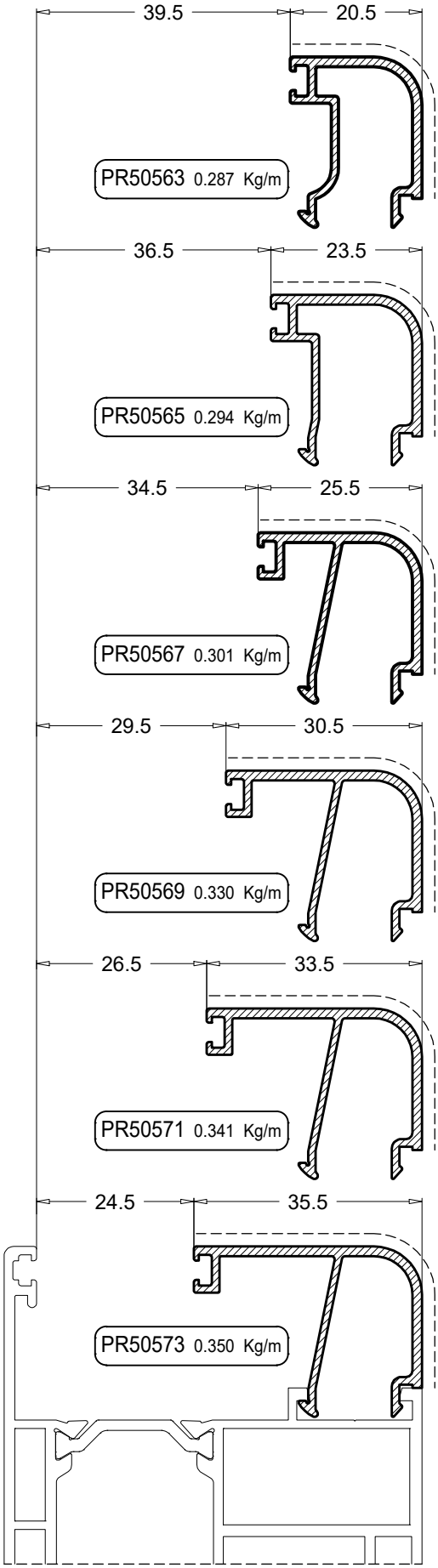
Profil vodilice i poklopne lajsne



PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

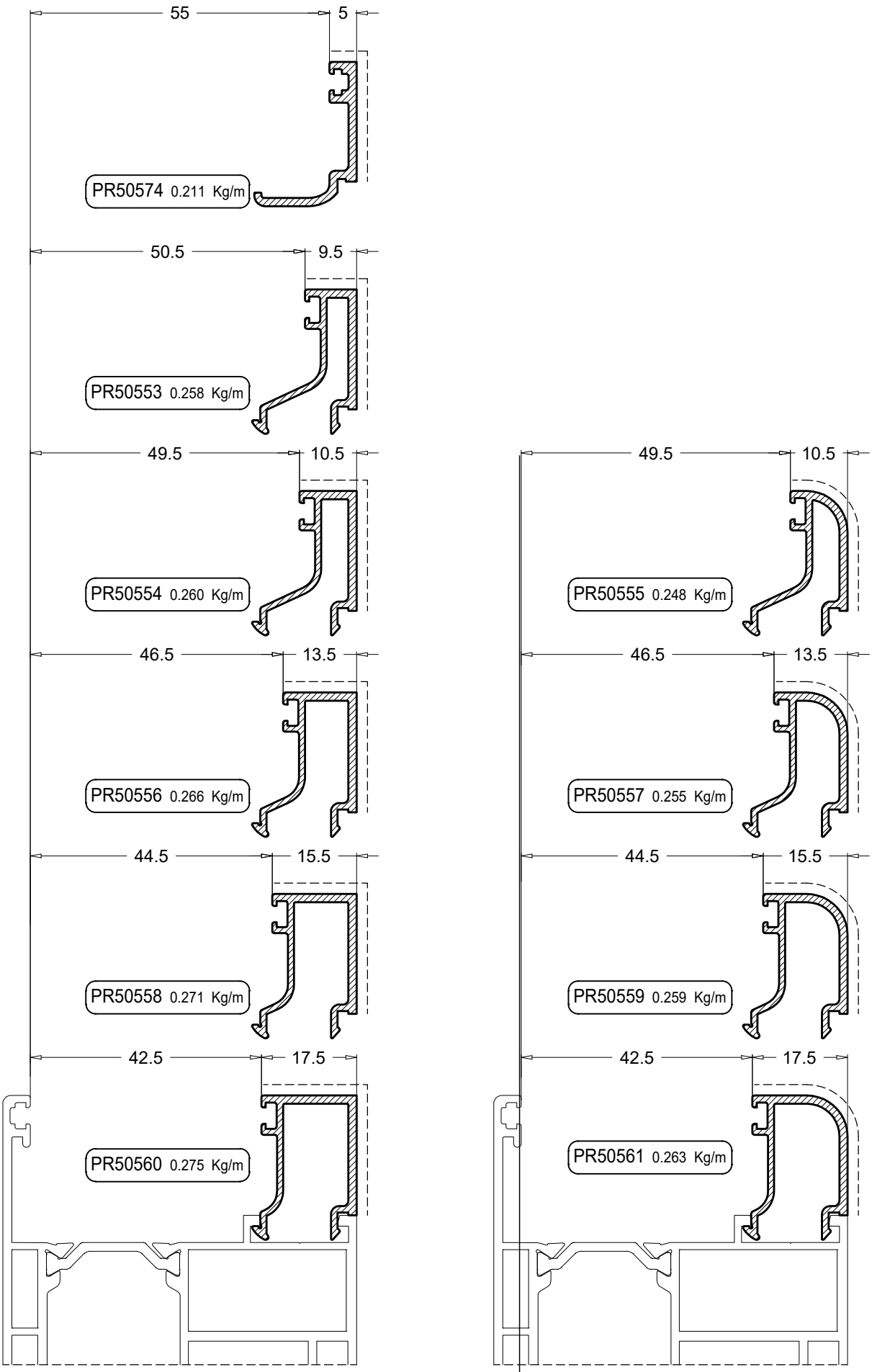
Profili lajsne





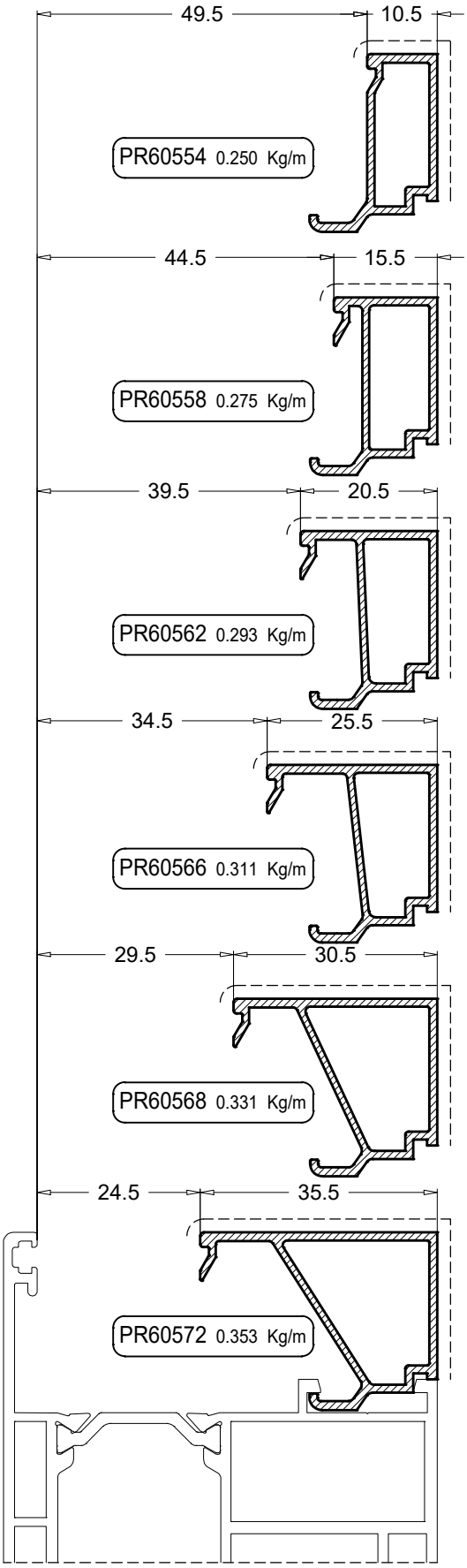
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

Profili lajsne



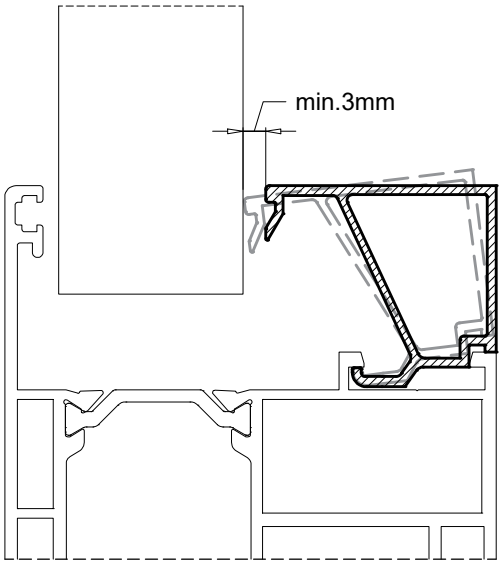
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

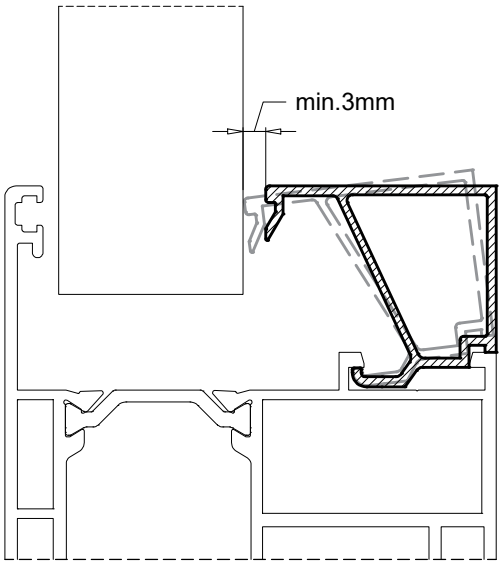
Profili sigurnosne lajsne



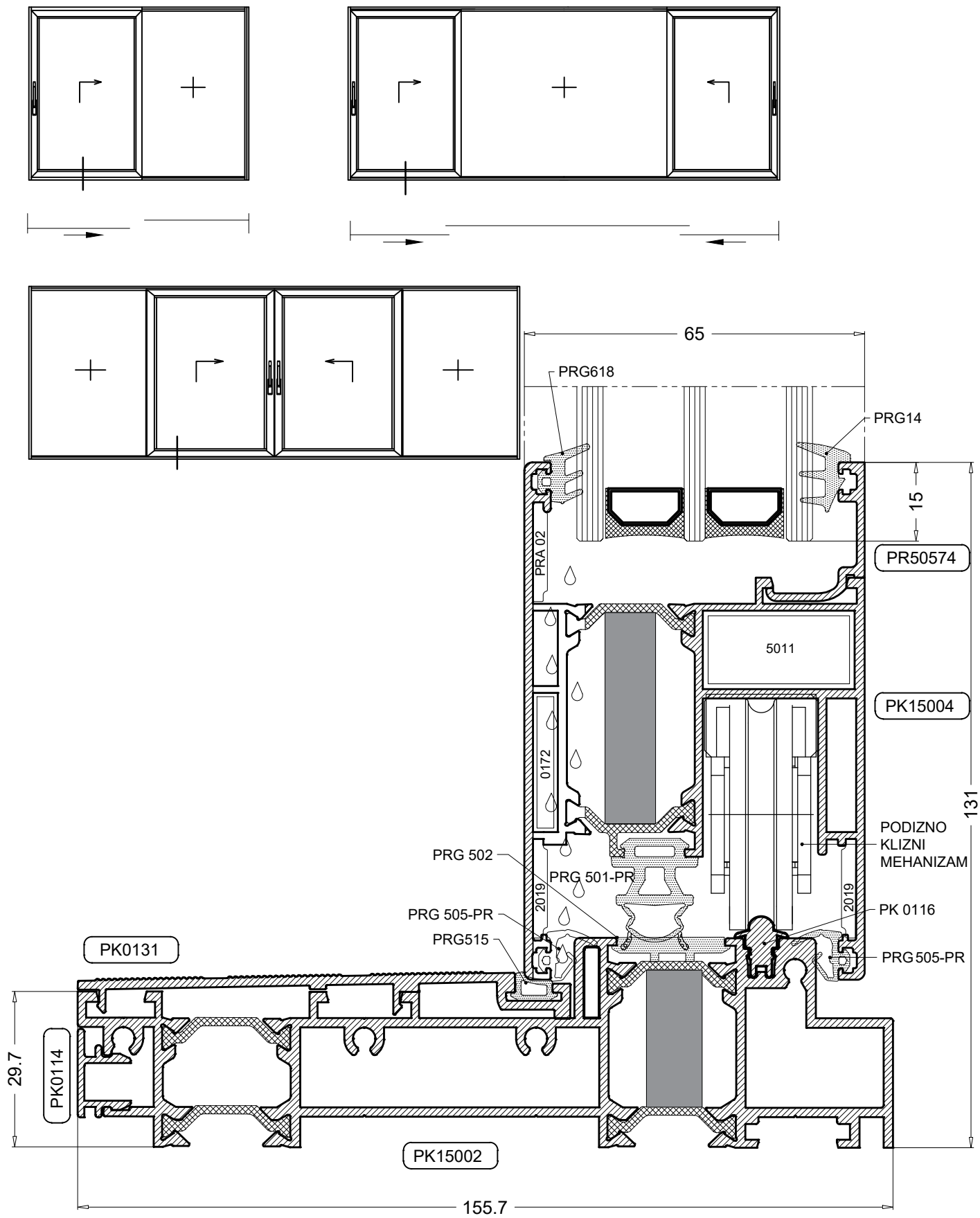
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

* NAPOMENA: Minimalan zazor između ispune i sigurnosne lajsne potreban za ugradnju sigurnosne lajsne je 3mm !

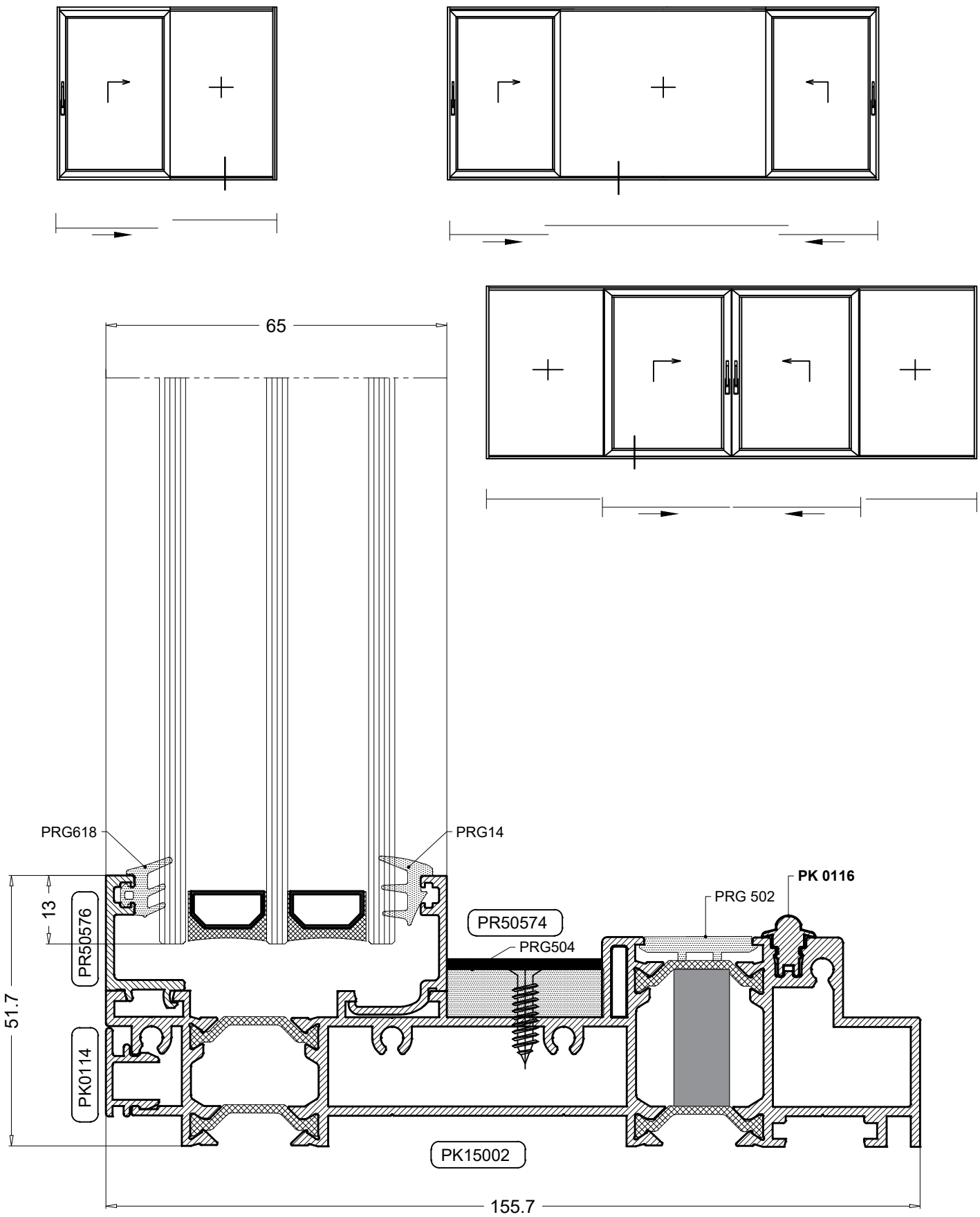




Donji presjek pokretnog krila



Donji presjek fiksnog dijela



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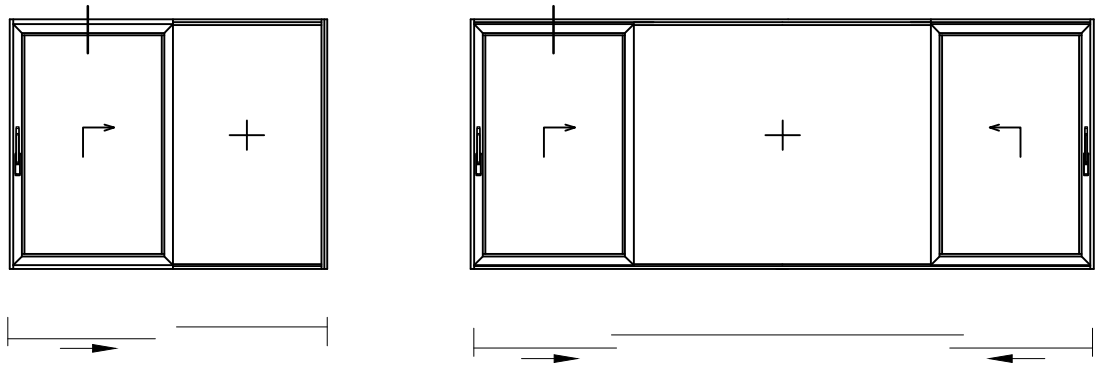
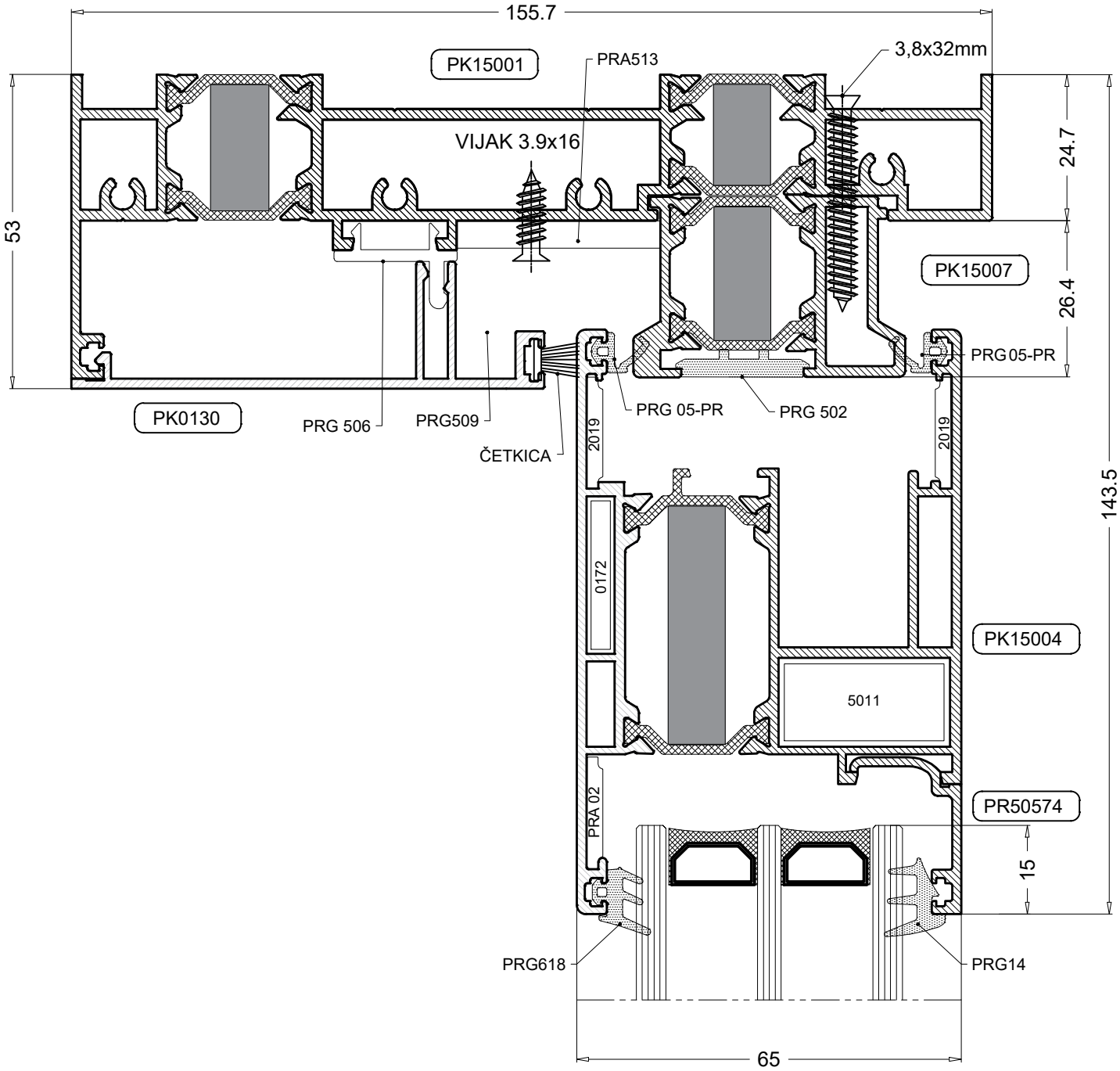
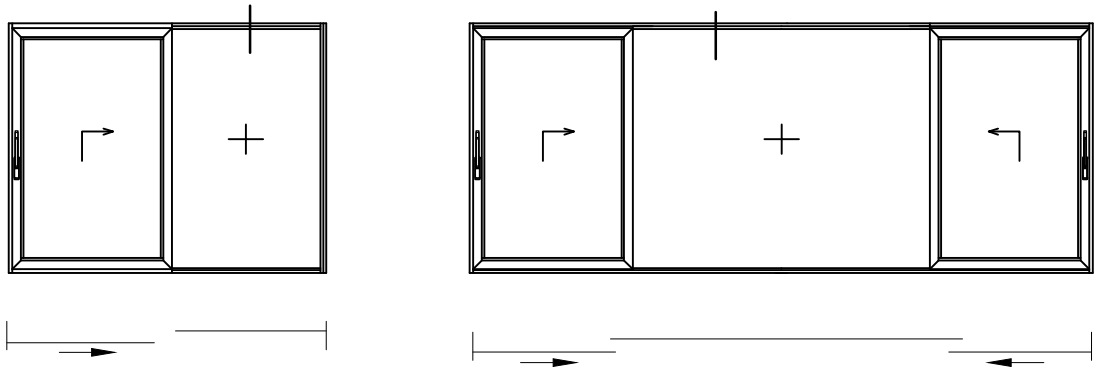
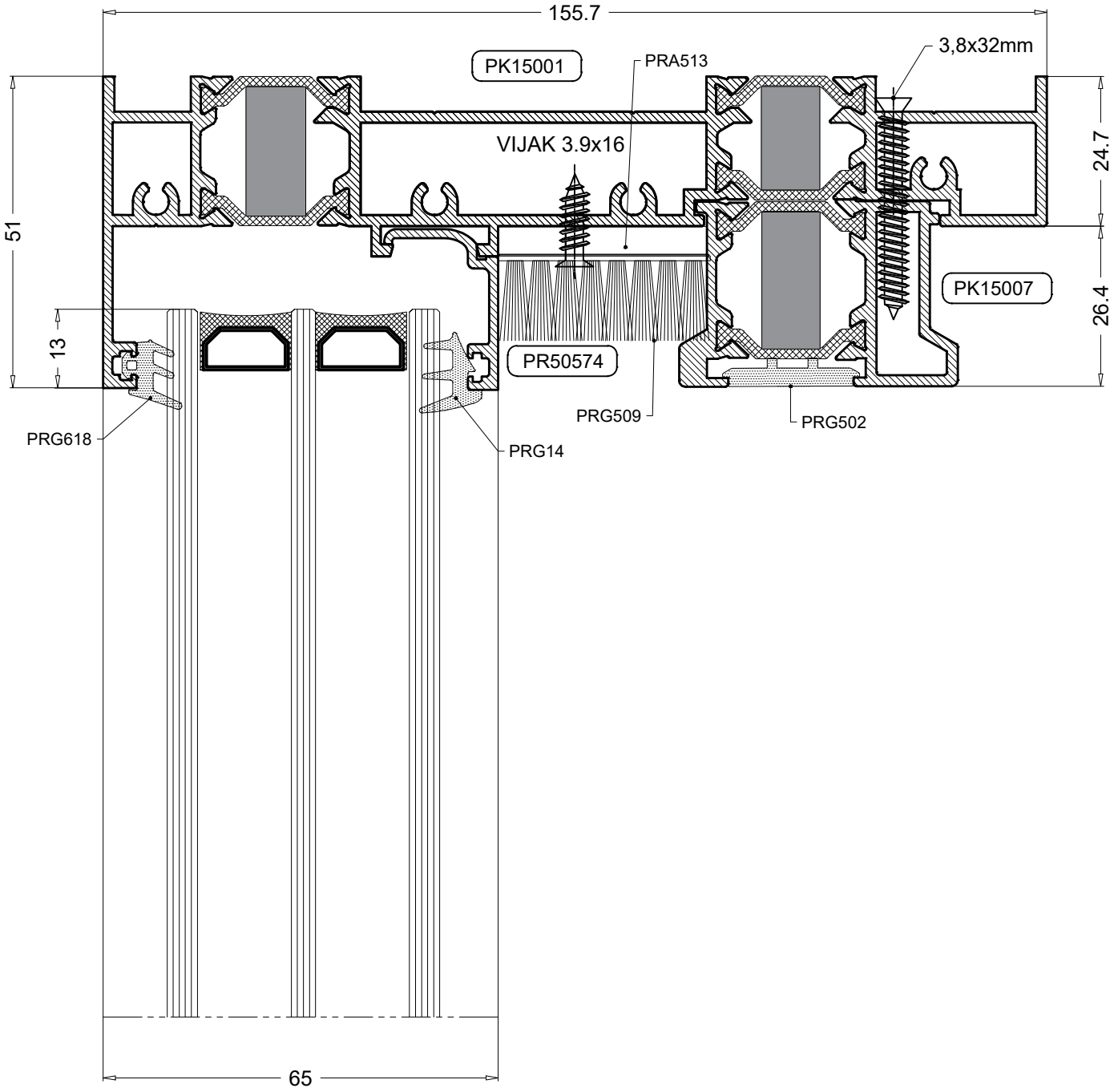


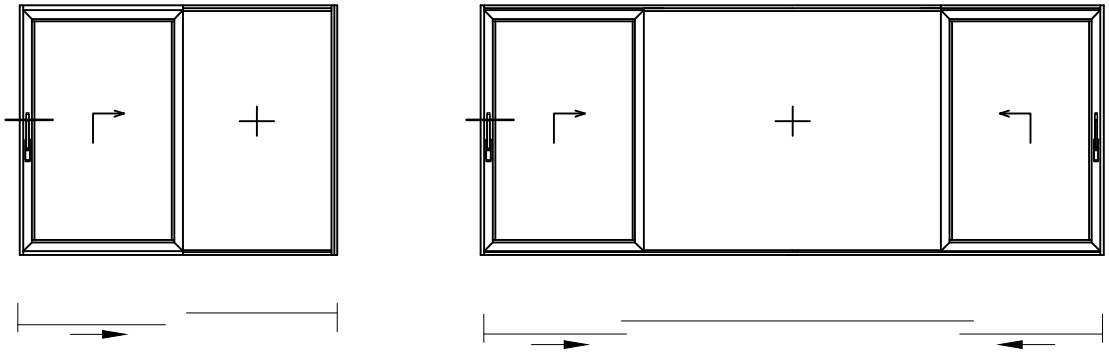


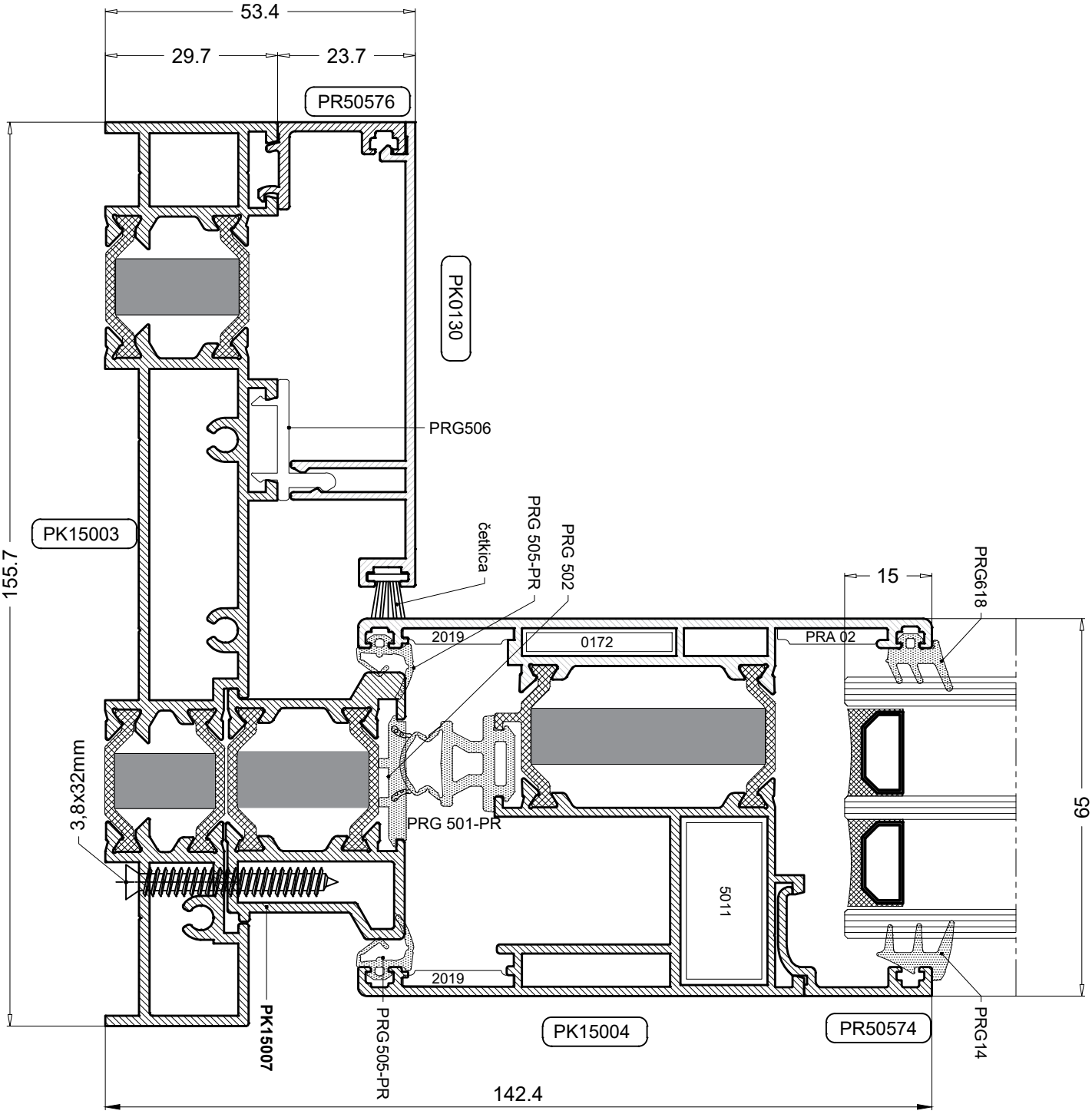
Gornji presjek fiksnog dijela



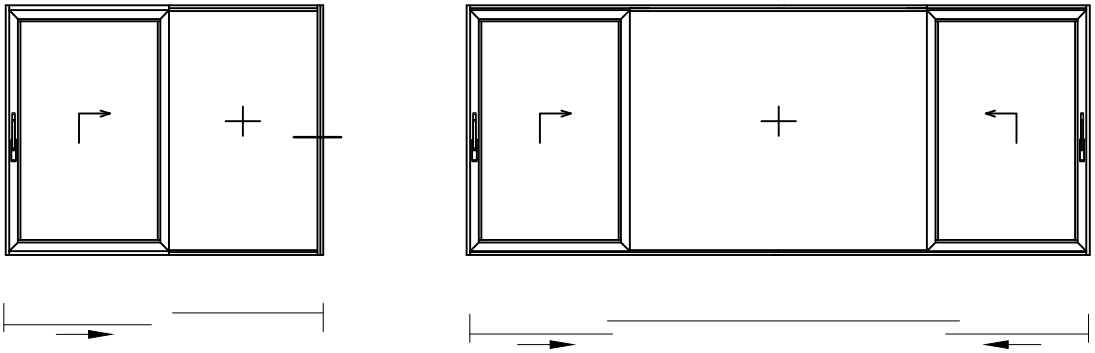


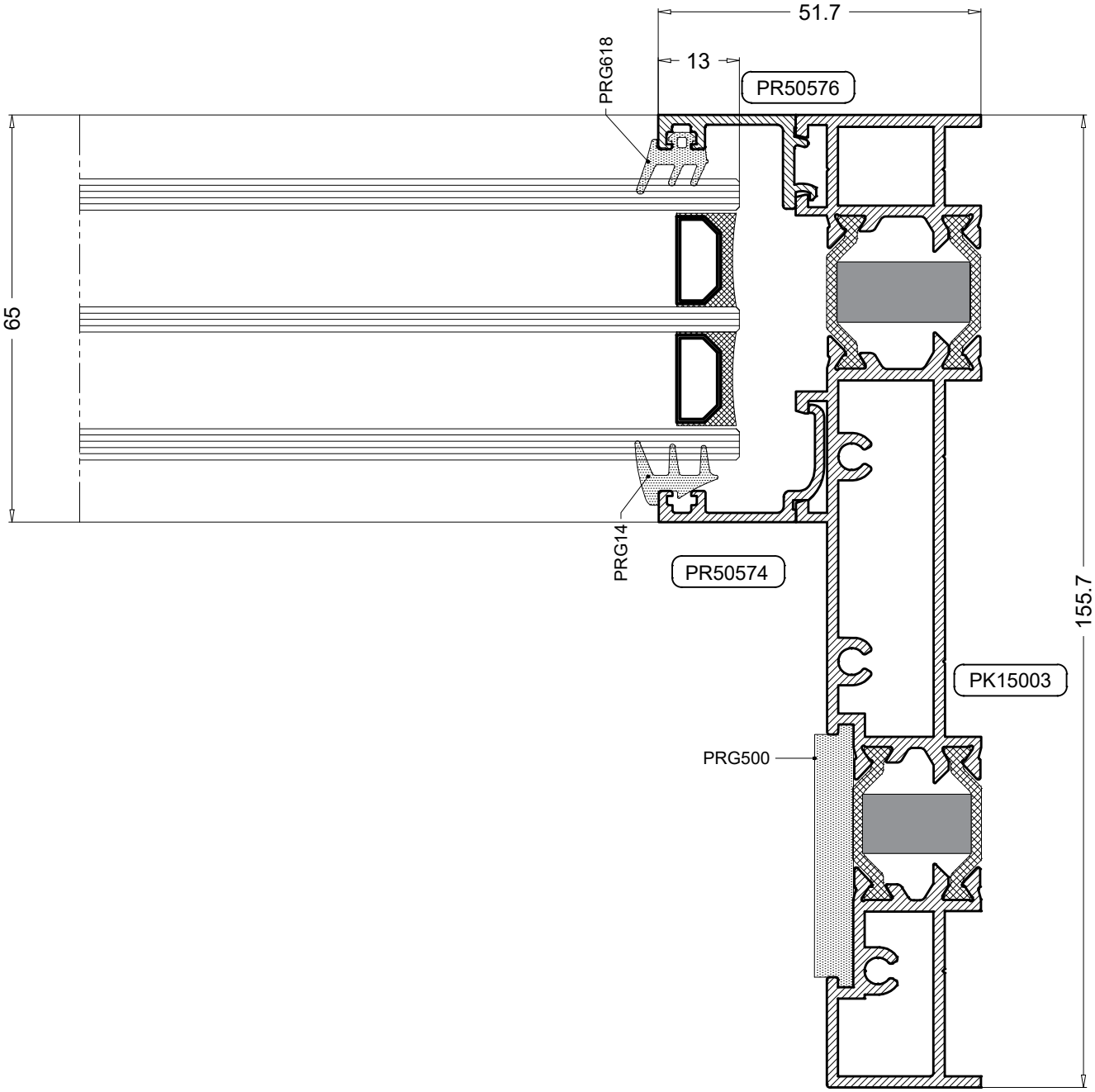
Bočni presjek pokretnog krila - presjek sa roletom



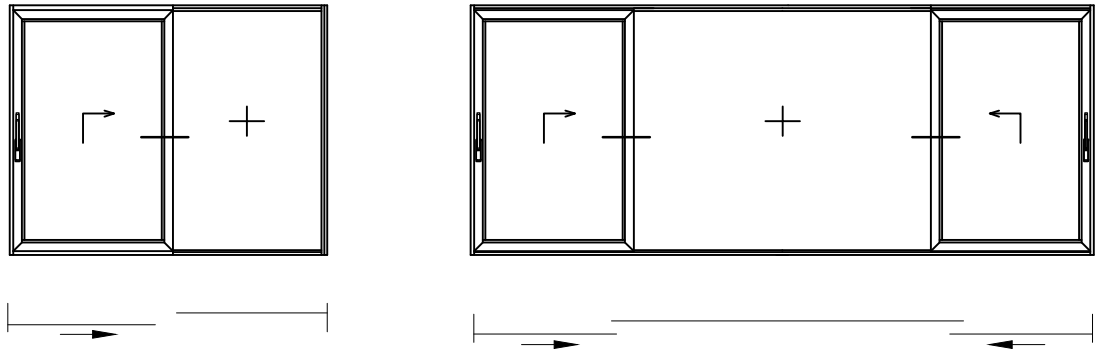


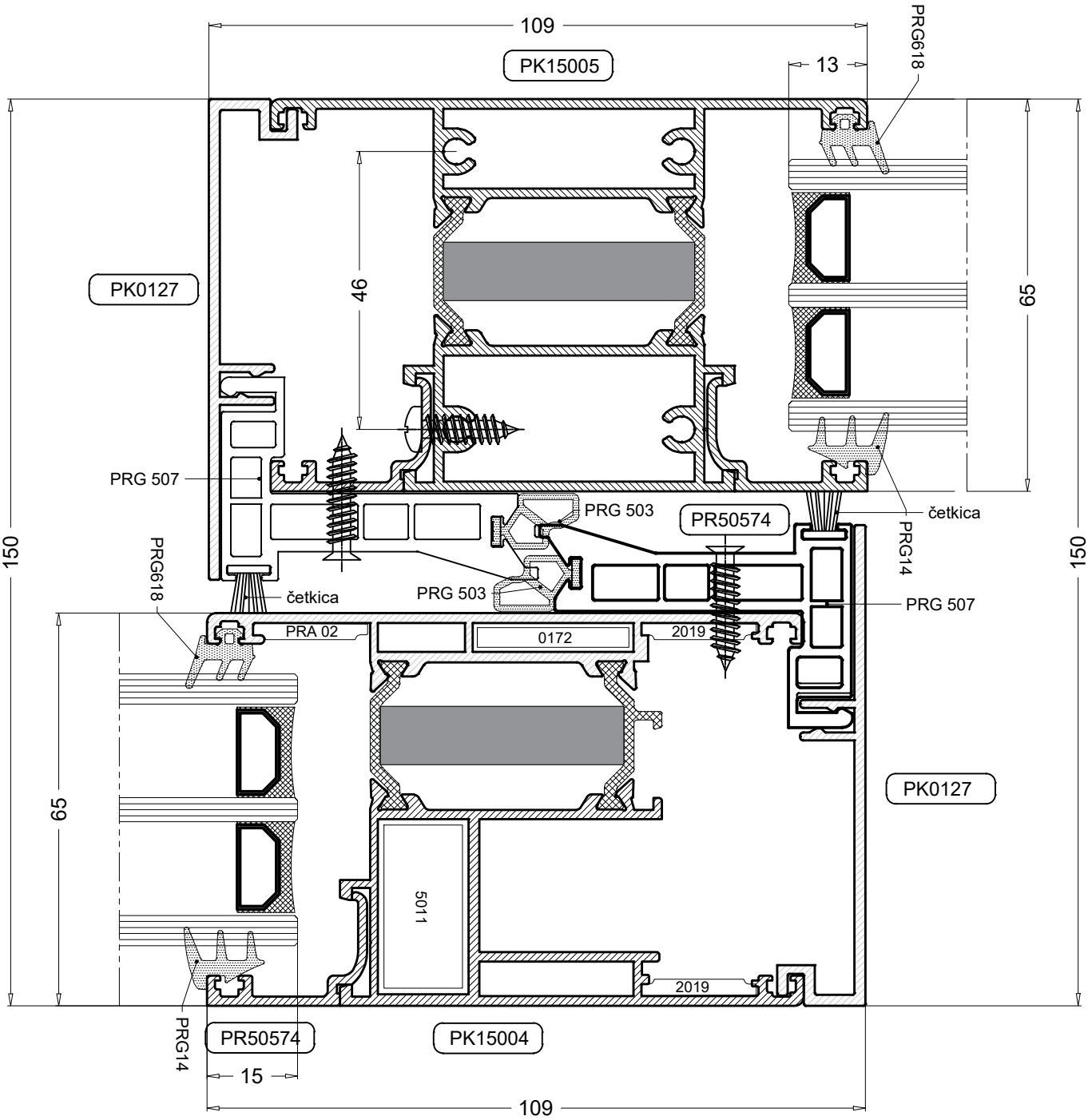
Bočni presjek fiksnog dijela



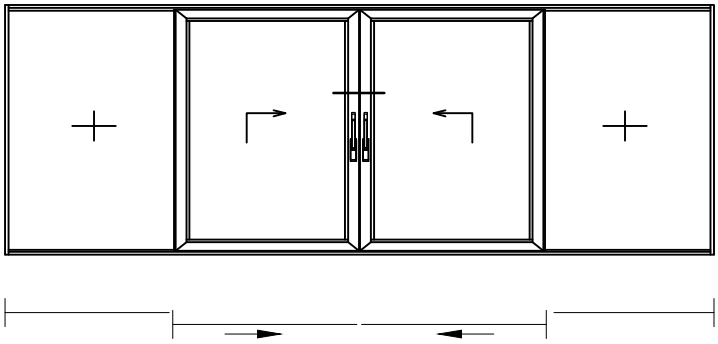


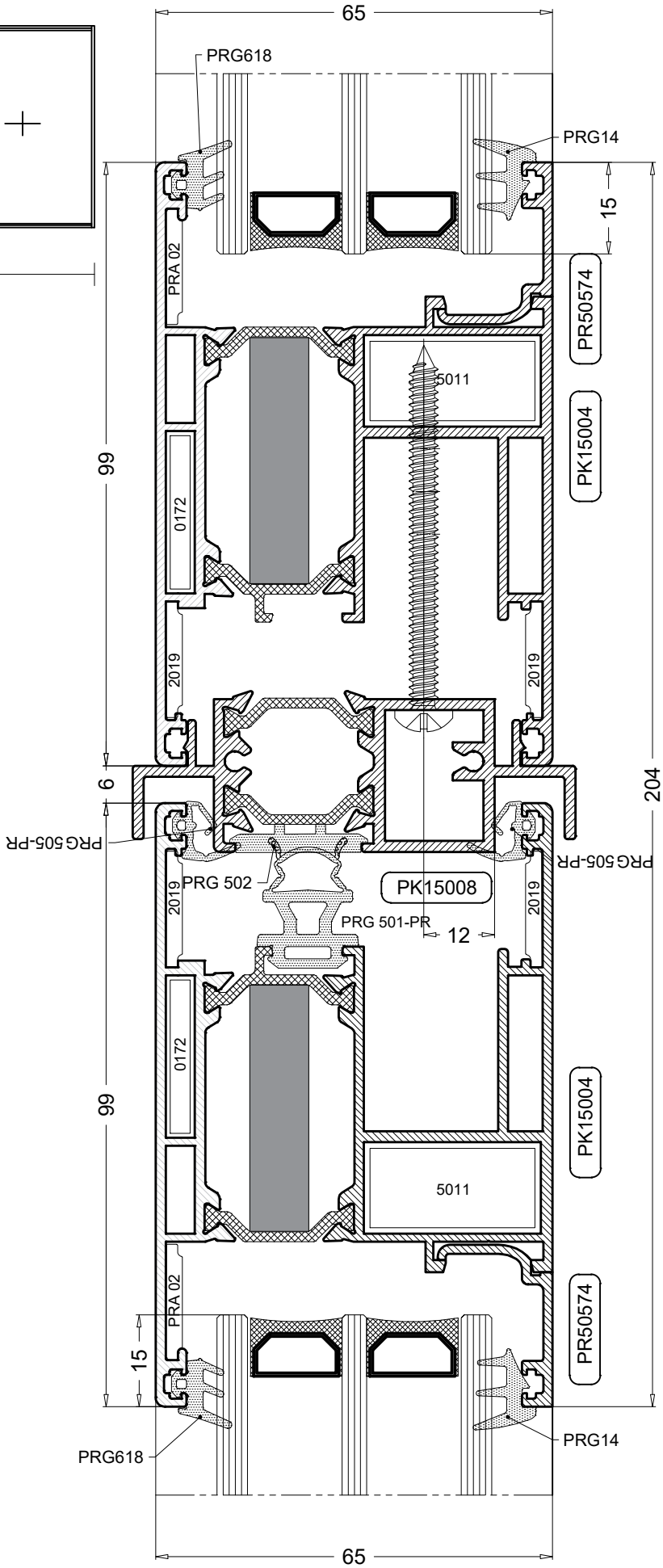
Centralni presjek prečke i krila



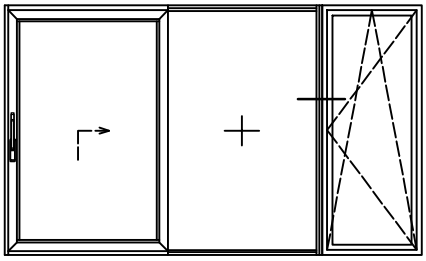


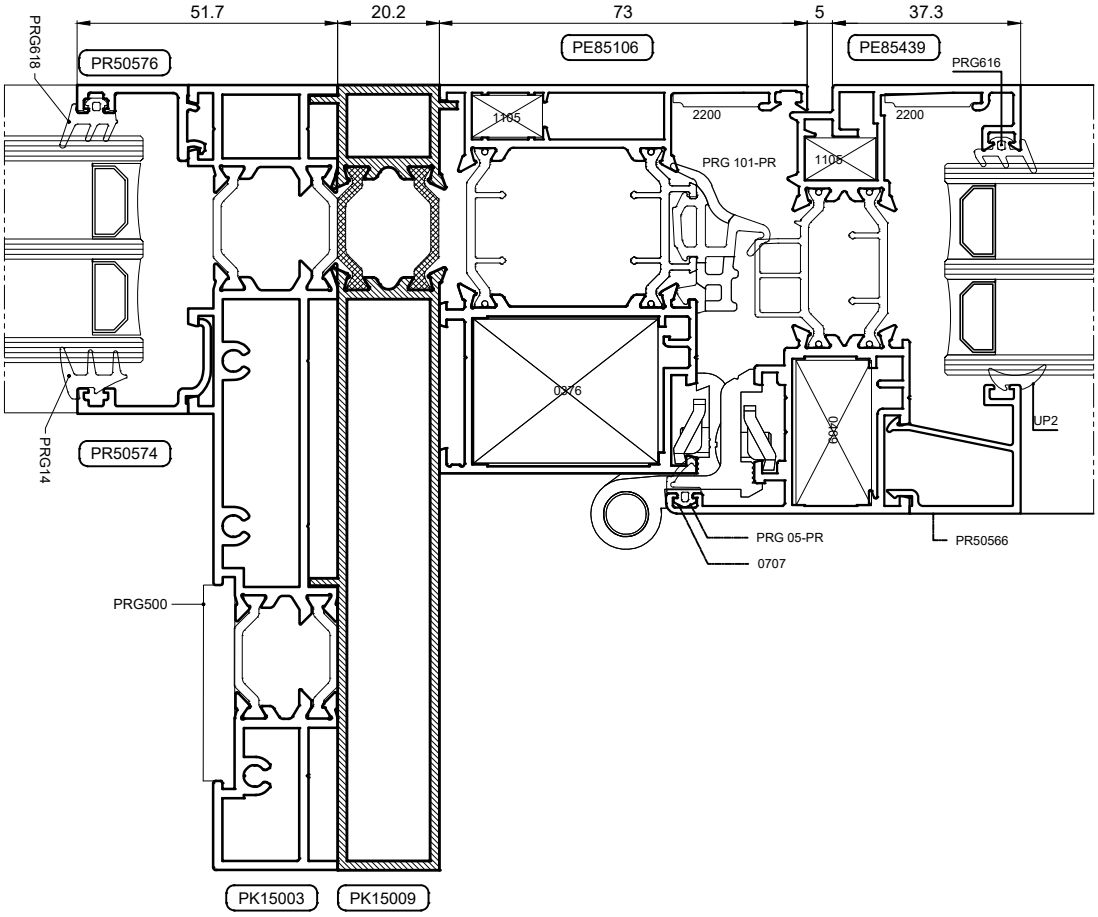
Centralni presjek na spoju dva krila



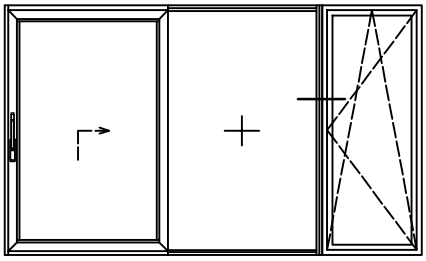


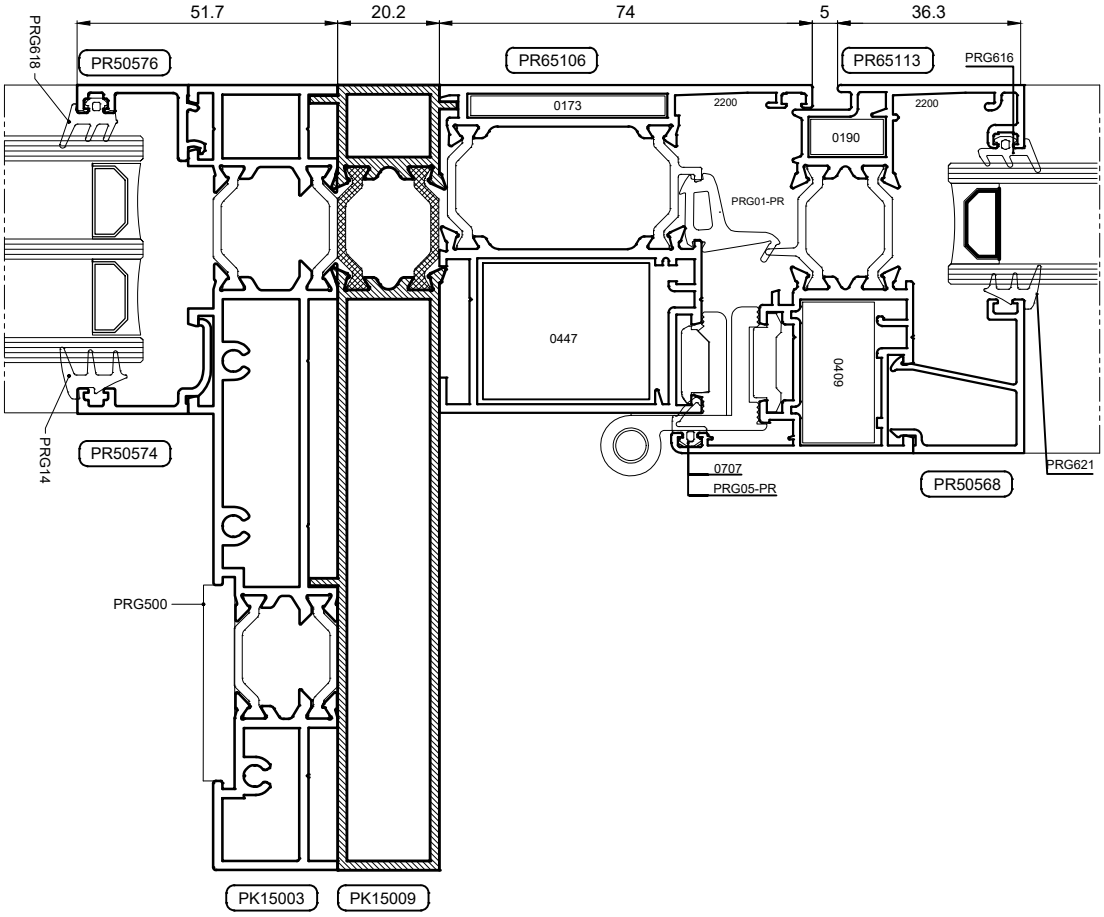
Presjeci - spoj serija PK150tt i PE85tt



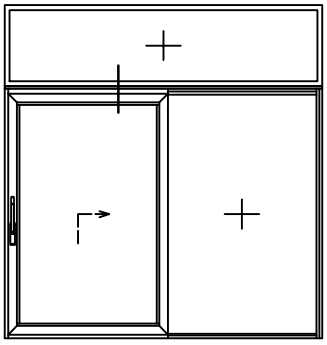


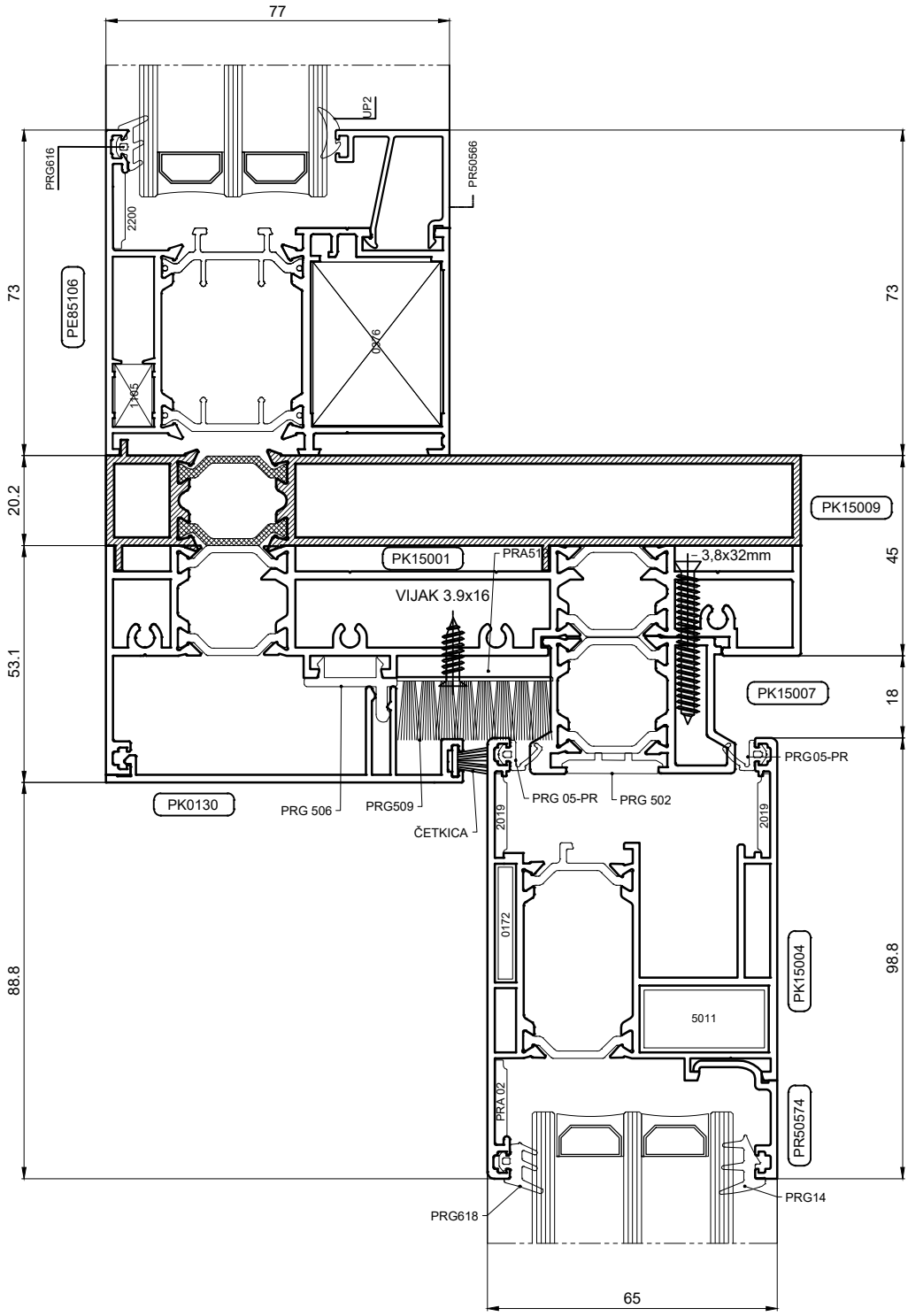
Presjeci - spoj serija PK150tt i PR65tt



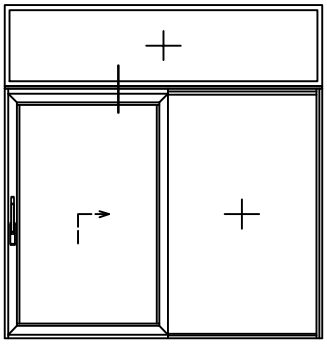


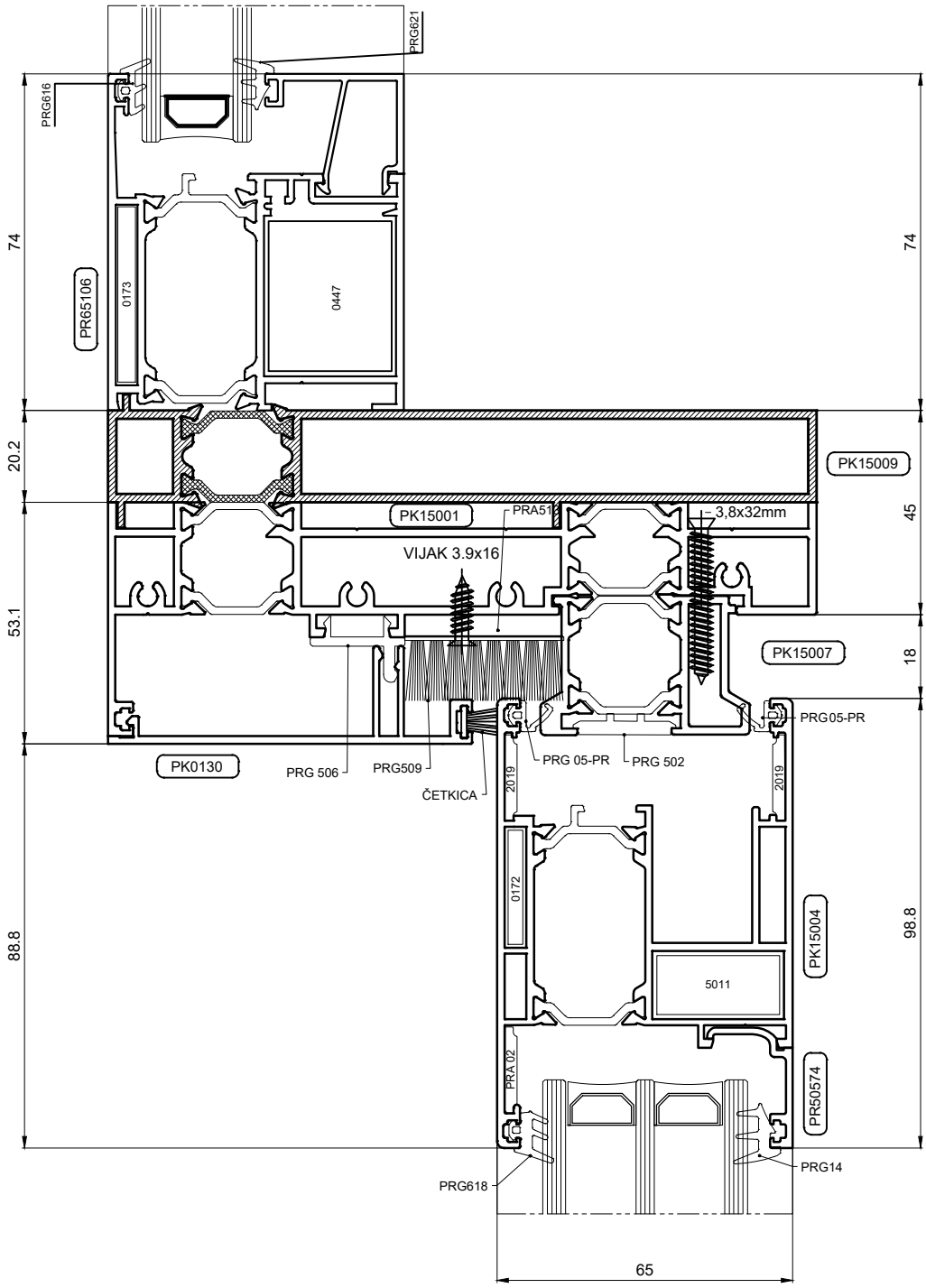
Presjeci - spoj serija PK150tt i PE85tt





Presjeci - spoj serija PK150tt i PR65tt





REZNE LISTE - FIKSNO + KLIZNO

KOD	PROFIL	BR. KOM	REZANJE
PK 15003	OKOMICA OKVIRA	2	H
PK 15001	GORNJA VODORAVNICA OKVIRA	1	L-65,5
PK 15002	DONJA VODORAVNICA OKVIRA	1	L-65,5
PK 15004	OKOMICA KRILA	2	Hkr=H-75
PK 15004	VODORAVNICA KRILA	2	Lkr=L1-4.7
PK 15005	CENTRALNI "T" PROFIL	1	H-65,5
PK 15007	BOČNI DODATAK OKVIRA	1	H-65
PK 15007	GORNJI DODATAK OKVIRA	1	L-76,7
PK 0114	LAJSNA DONJA	1	L-65,5
PK 0116	VODILICA	1	L-85
PK 0131	DONJA POKLOPNA LAJSNA (VODORAVNA)	1	L1-113
PK0130 PR50576	POKLOPNA LAJSNA (OKOMITA)+PROTUPROV.	1	H-81
PK 0127	POKLOPNA LAJSNA NA KRILU	1	Hkr
PK 0127	POKLOPNA LAJSNA NA PREČKI	1	H-59.5
PK 0130	POKLOPNA LAJSNA (GORNJA HORIZONTALNA)	1	L1-113
PR 505--	VODORAVNA LAJSNA (KRILO)	2	Lkr-154
PR 505--	OKOMITA LAJSNA (KRILO)	2	Hkr-198
PR 50576	OKOMITA PROTUPROVALNA LAJSNA (FIKSNO)	1	H-81
PR 50574	OKOMITA LAJSNA (FIKSNO) ZA PRG507	1	H-59.5
PR 505--	OKOMITA LAJSNA (FIKSNO)	2	H-103.2
PR 50576	VODORAVNA PROTUPROVALNA LAJSNA (FIKSNO)	1	L2-101
PR 505--	VODORAVNA LAJSNA (FIKSNO)	2	L2-57
PRG 506	PLASTIKA ZA POKLOPNU LAJSNU	2	1x(L1-113) + 1x(H-81)

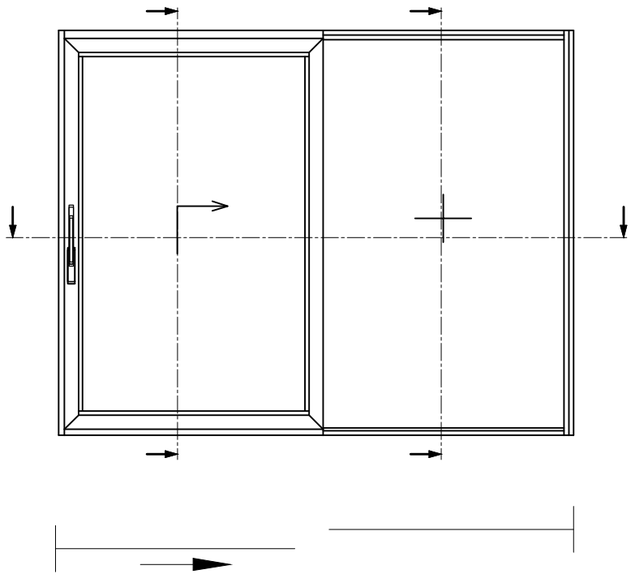
STAKLO FIKSNO		STAKLO KLIZNO	
(H-77) x (L2-75)	1	(Hkr-167.5) x (Lkr-167.5)	1

KOD	OKOVI	BR. KOM	NOTE
0172	KUTNIK PORAVNANJA KRILA	4	
0092	BOLCNA ZA SPAJANJE 0172	8	
PRA 02	KUTNIK PORAVNANJA KRILA	4	
TONALE 5011	KUTNIK KRILA	4	
VILM	VIJAK ZA KUTNIK 5011	8	
2019	KUTNIK PORAVNANJA KRILA	8	
PRG 500	BRTVA OKVIRA	1	H
PRG 501 -PR	CENTRALNA BRTVA	2	L/2 + H
PRG 505 -PR	BRTVA KRILA	-	L + 2H
PRG 05 -PR	BRTVA KRILA - gornja	-	L
PRG 502	BRTVA OKVIRA	3	2L + H
PRG 503	BRTVA SPOJA	2	2H
PRG -	VANJSKA BRTVA STAKLA	6	2L + 4H
PRG -	UNUTARNJA BRTVA STAKLA	6	2L + 4H
ČETKICA	ČETKICA	4	3H + L
PRG 507	PLASTIKA SREDNJA	2	Hkr
PRG 506	PLASTIKA ZA POKLOPNU LAJSNU	2	L+H
PRG 510	GORNJI ČEP	1	-
PRG 511	DONJI ČEP	1	-
PRG 512	SREDNJI ČEP	1	-
PRG 504	BRTVA SPOJA(110mm)	1	-
PRG-508	ČEP ZA POKLOPNU LAJSNU PK0127	1	-
PRG 509	ČETKICA NA SPOJU(110mm)	1	-
PRA 513	PLASTIKA ZA PRG509	1	-
PRA 514	PVC KONDENZ	-	-

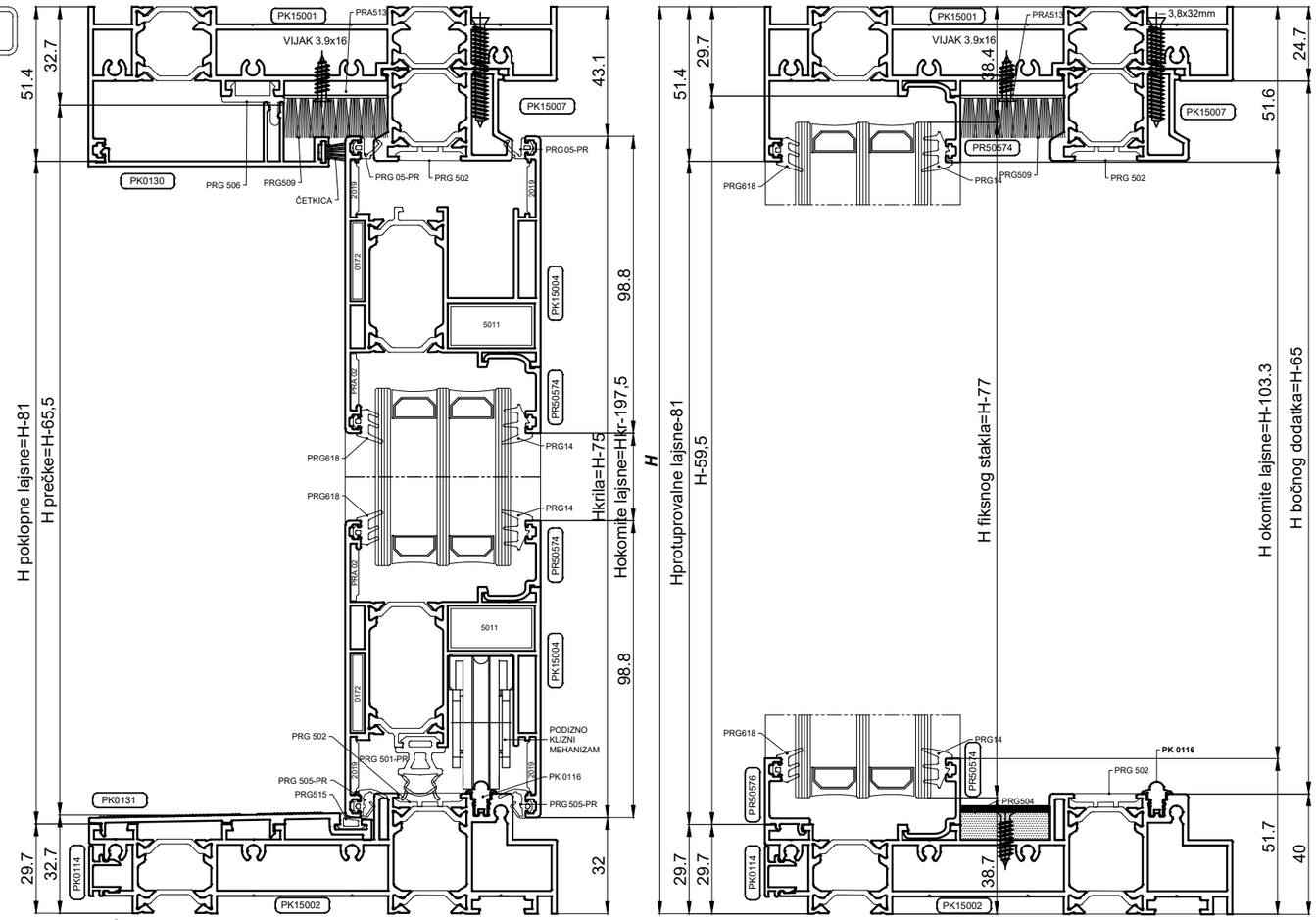
EMERUS

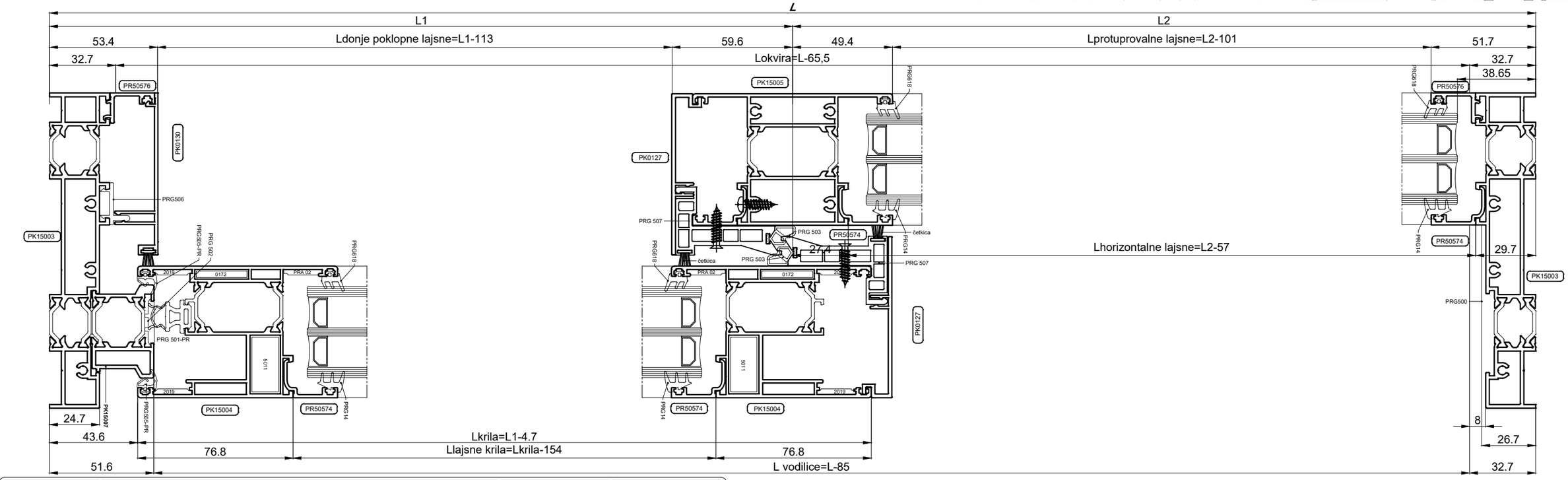
PK150tt

REZNE LISTE - FIKSNO + KLIZNO



L1=L2





PK150tt	PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.	R01	30/04/2024

REZNE LISTE - KLIZNO + FIKSNO + KLIZNO

KOD	PROFIL	BR. KOM	REZANJE
PK 15003	OKOMICA OKVIRA	2	H
PK 15001	GORNJA VODORAVNICA OKVIRA	1	L-65,5
PK 15002	DONJA VODORAVNICA OKVIRA	1	L-65,5
PK 15004	OKOMICA KRILA	4	Hkr=H-75
PK 15004	VODORAVNICA KRILA	4	Lkr=L1-4,7
PK 15005	CENTRALNI "T" PROFIL	2	H-65,5
PK 15007	BOČNI DODATAK OKVIRA	2	H-65
PK 15007	GORNJI DODATAK OKVIRA	1	L-102
PK 0114	LAJSNA DONJA	1	L-65,5
PK 0116	VODILICA	1	L-102
PK 0131	DONJA POKLOPNA LAJSNA (VODORAVNA)	2	L1-113
PK0130 PR50576	POKLOPNA LAJSNA (OKOMITA)+PROTUPROV.	2	H-81
PK 0127	POKLOPNA LAJSNA NA KRILU	2	Hkr
PK 0127	POKLOPNA LAJSNA NA PREČKI	2	H-59.5
PK 0130	POKLOPNA LAJSNA (GORNJA HORIZONTALNA)	2	L1-113
PR 505--	VODORAVNA LAJSNA (KRILO)	4	Lkr-154
PR 505--	OKOMITA LAJSNA (KRILO)	4	Hkr-198
PR 50574	OKOMITA LAJSNA (FIKSNO) ZA PRG507	2	H-59.5
PR 50576	VODORAVNA PROTUPROVALNA LAJSNA (FIKSNO)	1	L3-99
PR 505--	VODORAVNA LAJSNA (FIKSNO)	2	L3-55
PR 505--	OKOMITA LAJSNA (FIKSNO)	2	H-103.3
PRG 507	PLASTIKA SREDNJA	4	2x(H-59.5) 2xHkr
PRG 506	PLASTIKA ZA POKLOPNU LAJSNU	4	2x(L1-113) + 2x(H-81)

KOD	OKOVI	BR. KOM	NOTE
0172	KUTNIK PORAVNANJA KRILA	8	
2200	KUTNIK PORAVNANJA KRILA PRA02	8	
5011 ili 0409	KUTNIK KRILA	8	
2019	KUTNIK PORAVNANJA KRILA	16	

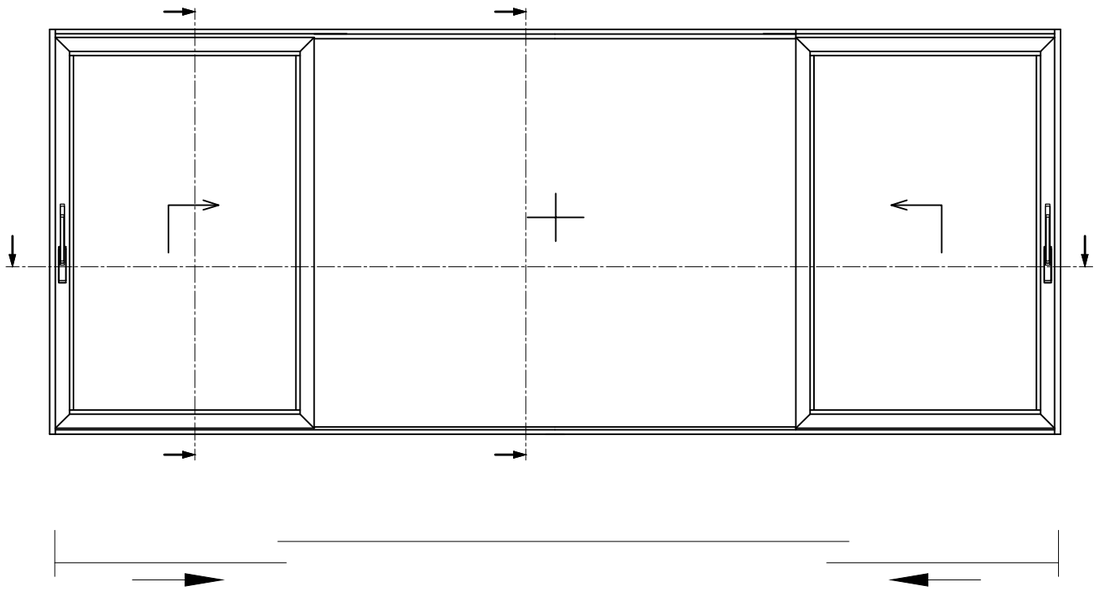
KOD	BRTVE/ČEPOVI	BR. KOM	NOTE
PRG 501 -PR	CENTRALNA BRTVA	3	L+2H
PRG 505 -PR	BRTVA KRILA	-	4L1+4H
PRG 05 -PR	BRTVA KRILA - gornja	-	4L1
PRG 502	BRTVA OKVIRA	4	1.5L+2H
PRG 503	BRTVA SPOJA	4	4H
PRG 515	BRTVA POKLOPNE LAJSNE	1	L3
PRG -	VANJSKA BRTVA STAKLA	8	2L+6H
PRG -	UNUTARNJA BRTVA STAKLA	8	2L+6H
ČETKICA	ČETKICA	8	1.5L+6H
PRG 507	PLASTIKA SREDNJA	4	4H
PRG 510	GORNJI ČEP	1	-
PRG 511	DONJI ČEP	1	-
PRG 512	SREDNJI ČEP	2	-
PRG 504	BRTVA SPOJA(110mm	2	-
PRG-508	ČEP ZA POKLOPNU LAJSNU PK0127	1	-
PRG 509	ČETKICA NA SPOJU(110mm)	2	-

STAKLO FIKSNO		STAKLO KLIZNO	
(H-77,5) x (L3-73)	1	(Hkr-167.5) x (Lkr-167.5)	2

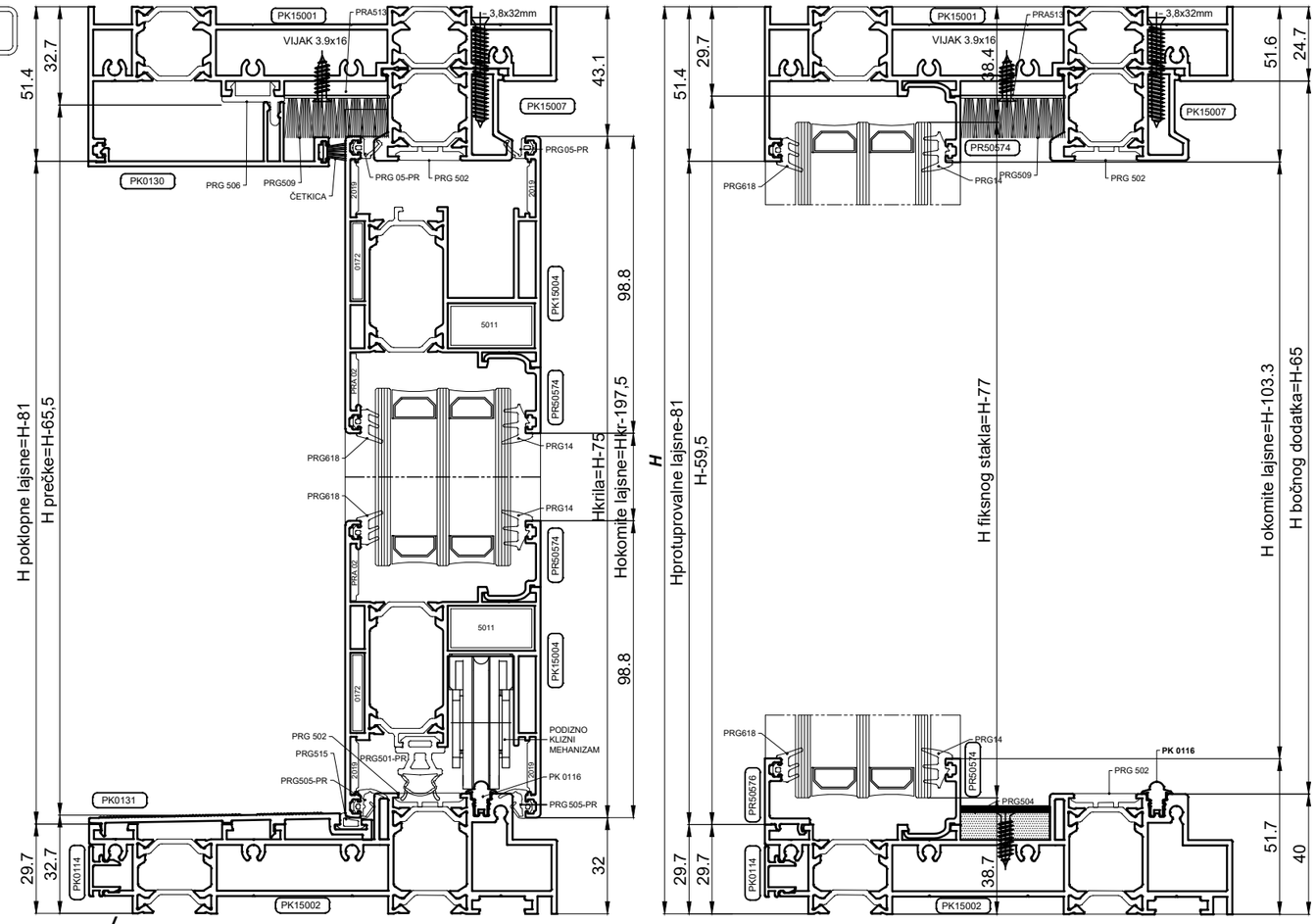
EMERUS

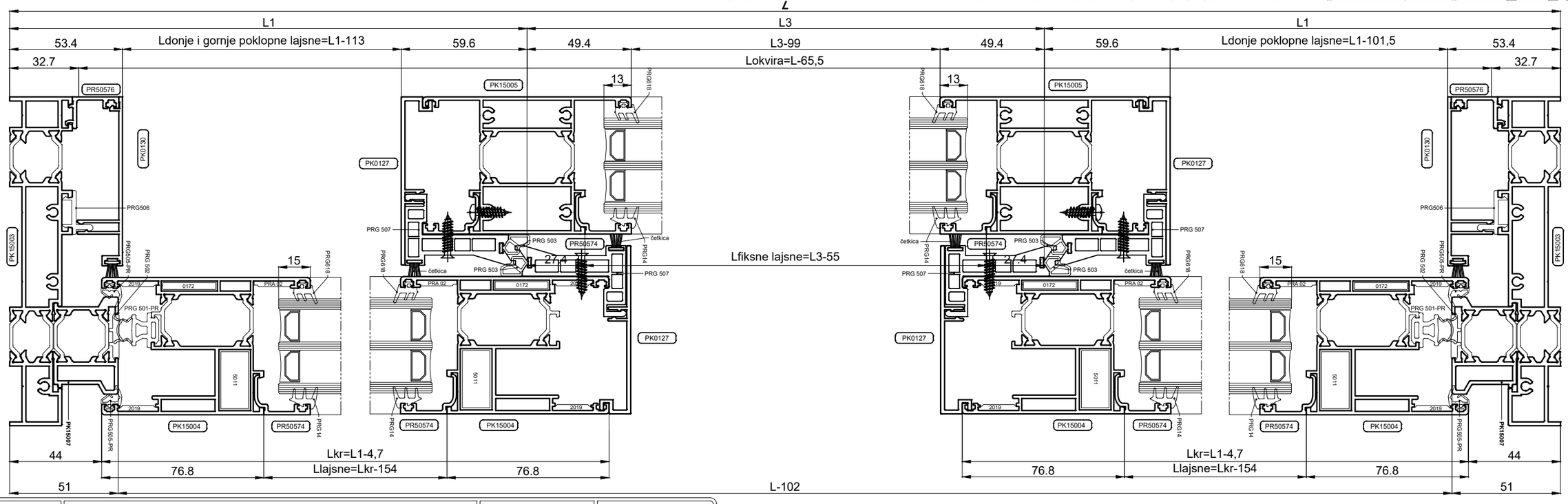
PK150tt

REZNE LISTE - KLIZNO + FIKSNO + KLIZNO



L1=(L/4)+62.5
L=2*L1+L3





PK150tt	PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.	R02	30/04/2024

REZNE LISTE - FIKSNO + KLIZNO + KLIZNO + FIKSNO

KOD	PROFIL	BR. KOM	REZANJE
PK 15003	OKOMICA OKVIRA	2	H
PK 15001	GORNJA VODORAVNICA OKVIRA	1	L-65,5
PK 15002	DONJA VODORAVNICA OKVIRA	1	L-65,5
PK 15004	OKOMICA KRILA	4	Hkr=H-75
PK 15004	VODORAVNICA KRILA	4	Lkr=L/4+59.5
PK 15005	CENTRALNI "T" PROFIL	2	H-65,5
PK 15007	GORNJI DODATAK OKVIRA	1	L-49.5
PK 15008	CENTRALNI PROFIL	1	H-75
PK 0114	LAJSNA DONJA	1	L-65,5
PK 0116	VODILICA	1	L-65,5
PK 0131	DONJA POKLOPNA LAJSNA (VODORAVNA)	1	L3-119
PK 0127	POKLOPNA LAJSNA NA KRILU	2	Hkr
PK 0127	POKLOPNA LAJSNA NA PREČKI	2	H-59.5
PK 0130	POKLOPNA LAJSNA (GORNJA HORIZONTALNA)	1	L3-119
PR 505--	VODORAVNA LAJSNA (KRILO)	4	Lkr-154
PR 505--	OKOMITA LAJSNA (KRILO)	4	Hkr-198
PR 50576	OKOMITA PROTUPROVALNA LAJSNA (FIKSNO)	2	H-81
PR 50574	OKOMITA LAJSNA (FIKSNO) ZA PRG507	2	H-59.5
PR 50574	OKOMITA LAJSNA (FIKSNO)	4	H-103.3
PR 50576	VODORAVNA PROTUPROVALNA LAJSNA (FIKSNO)	2	L1-101
PR 505--	VODORAVNA LAJSNA (FIKSNO)	4	L1-57
PRG 506	PLASTIKA ZA POKLOPNU LAJSNU	1	L3-119

STAKLO FIKSNO		STAKLO KLIZNO	
(H-77,5) x (L1-75)	2	(Hkr-167.5) x (Lkr-167.5)	2

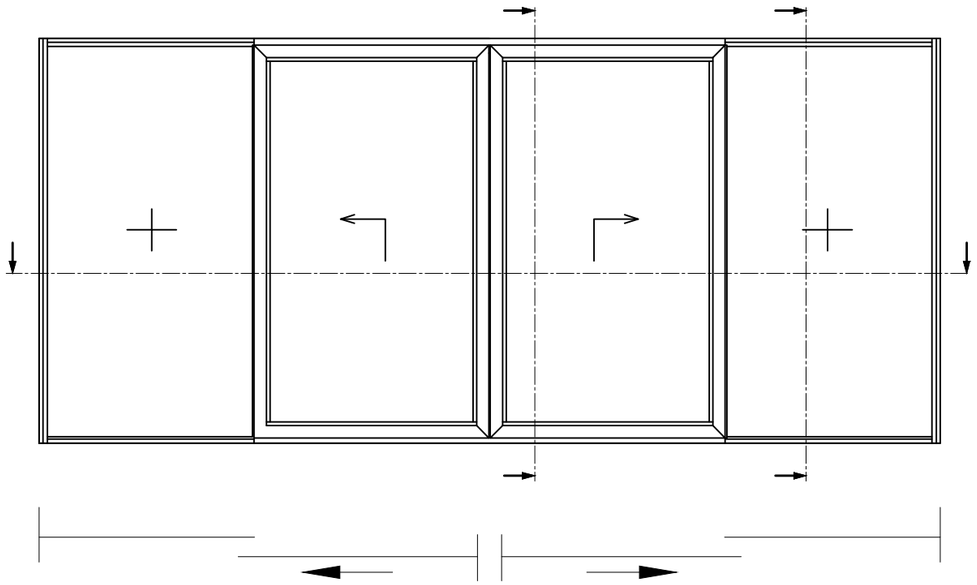
KOD	OKOVI	BR. KOM	NOTE
0172	KUTNIK PORAVNANJA KRILA	8	
0092	BOLCNA ZA SPAJANJE 0172	16	
PRA 02	KUTNIK PORAVNANJA KRILA	8	
TONALE 5011	KUTNIK KRILA	8	
VILM	VIJAK ZA KUTNIK 5011	16	
2019	KUTNIK PORAVNANJA KRILA	16	
PRG 500	BRTVA OKVIRA	2	H
PRG 501 -PR	CENTRALNA BRTVA	1	L/2+H
PRG 505 -PR	BRTVA KRILA	-	L + 2H
PRG 05 -PR	BRTVA KRILA - gornja	-	L
PRG 502	BRTVA OKVIRA	3	2L+H
PRG 503	BRTVA SPOJA	4	4H
PRG 515	BRTVA DONJE LAJSNE	1	L3
PRG -	VANJSKA BRTVA STAKLA	10	2L + 8H
PRG -	UNUTARNJA BRTVA STAKLA	10	2L + 8H
ČETKICA	ČETKICA	5	4H + L
PRG 507	PLASTIKA SREDNJA	4	Hkr
PRG 510	GORNJI ČEP	1	-
PRG 511	DONJI ČEP	1	-
PRG 512	SREDNJI ČEP	2	-
PRG 504	BRTVENI BLOK(110mm)	2	-
PRG-508	ČEP ZA POKLOPNU LAJSNU PK0127	2	-
PRG 509	ČETKICA NA SPOJU(110mm)	2	-
PRA 513	PLASTIKA ZA PRG 509	2	-
PRA 514	PVC KONDENZ	-	

PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

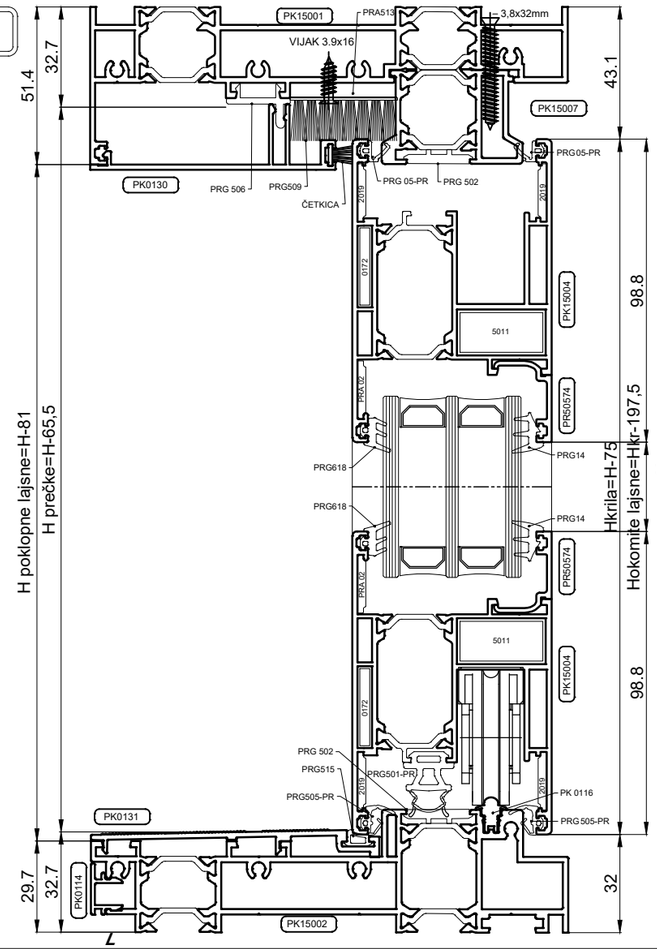
EMERUS

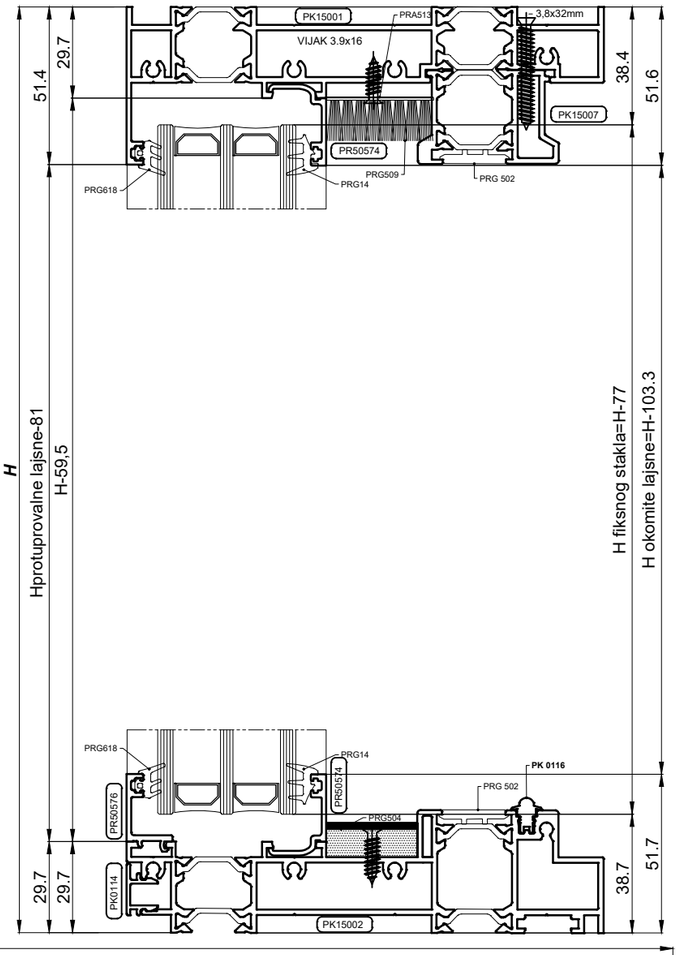
PK150tt

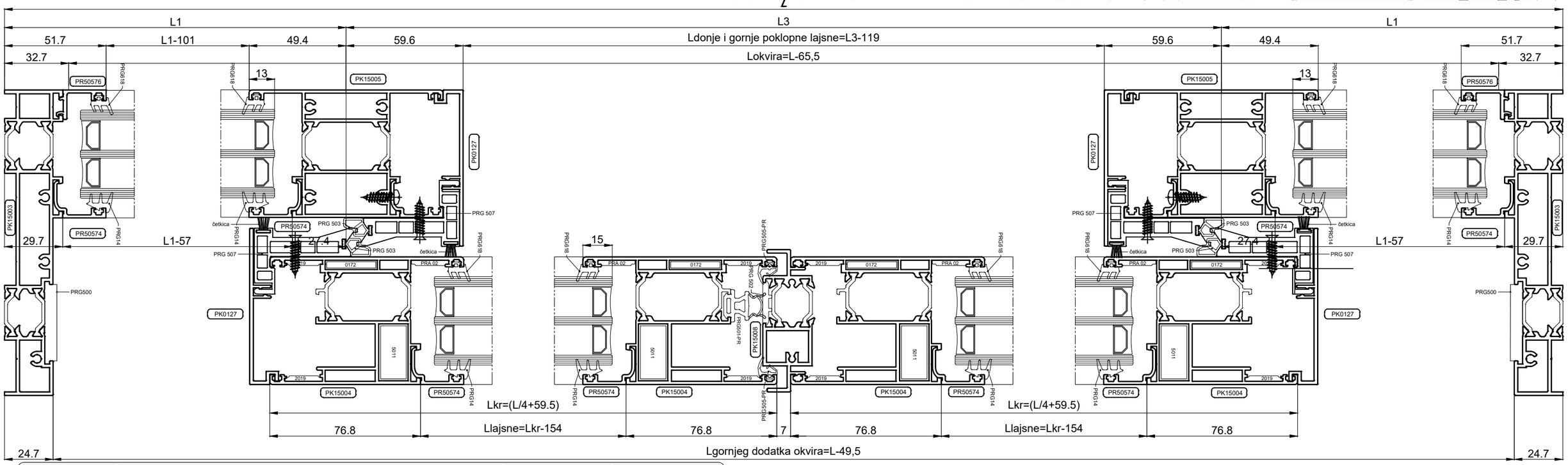
REZNE LISTE - FIKSNO+KLIZNO+KLIZNO+FIKSNO



L1=(L/4)-24.5
L3=(L/2)+49
2*L1+L3=L

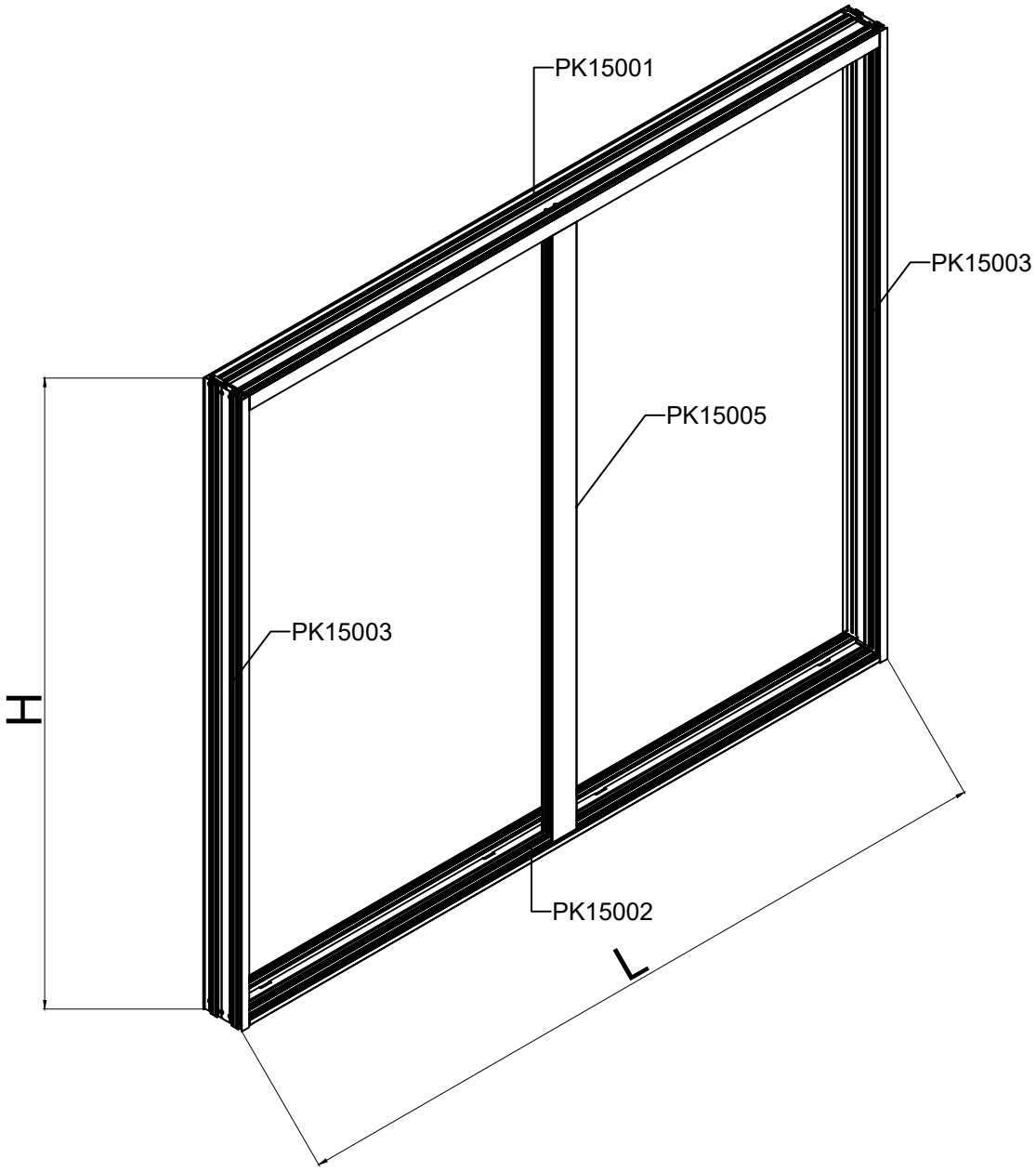




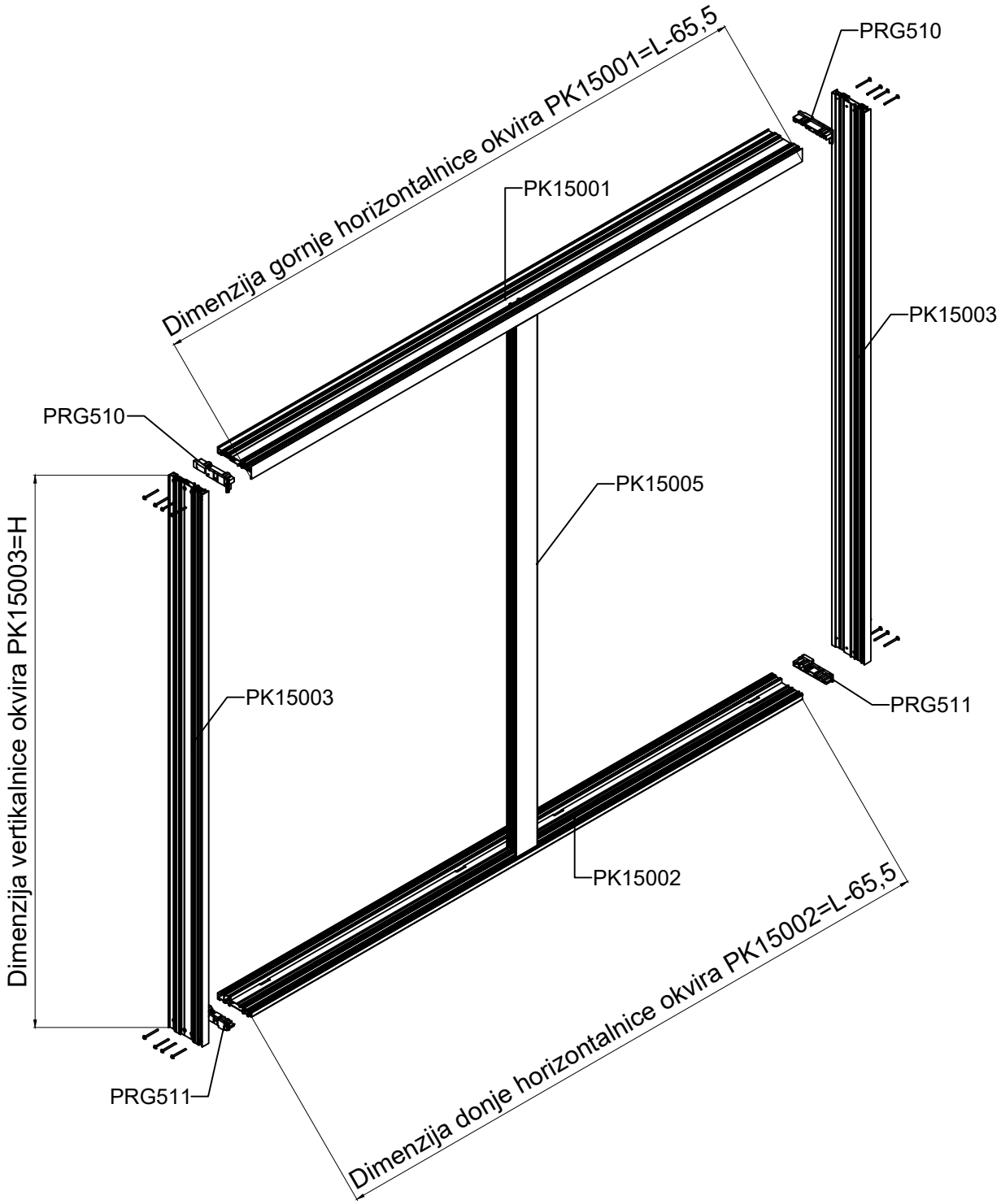


PK150tt	PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.	R03	30/04/2024

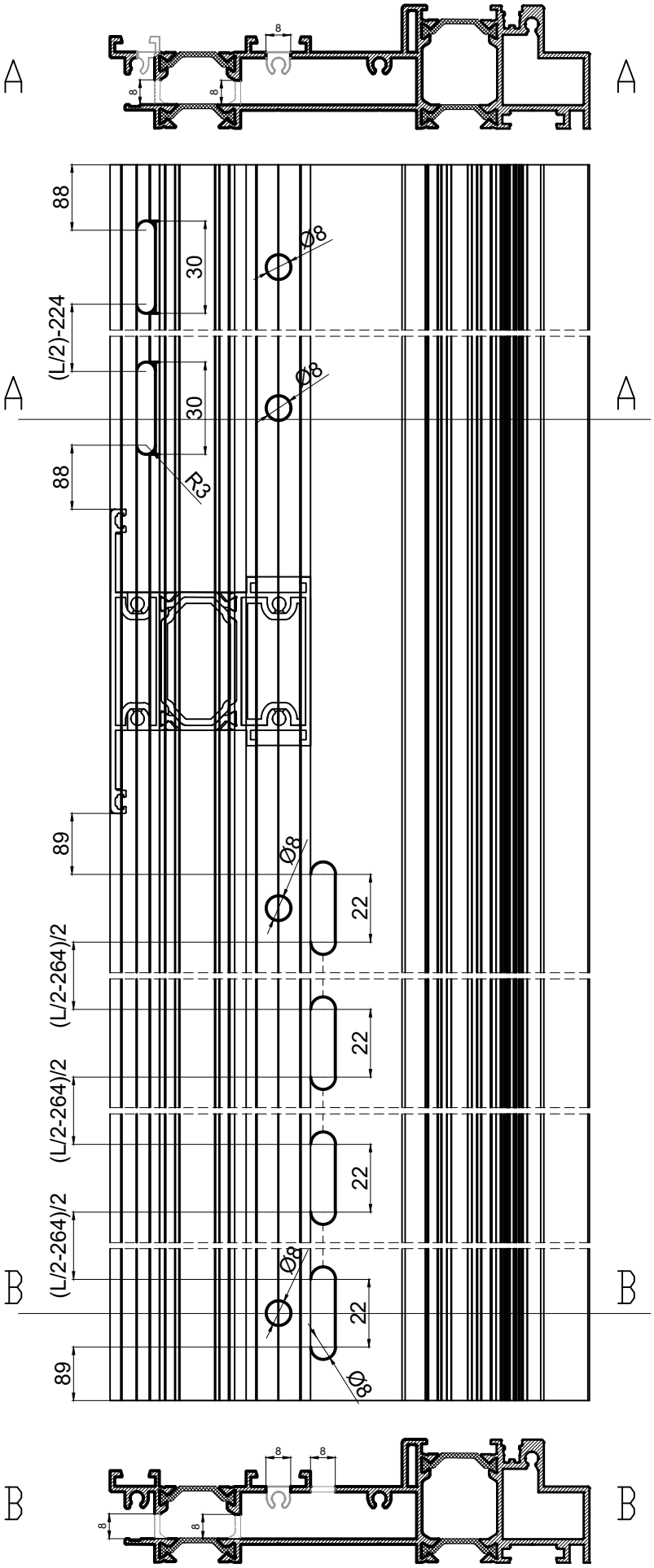
Model okvira sistema PK150tt



Dimenzija pilanja vertikalnice okvira PK15003 i horizontalnica okvira PK15001 i PK15002



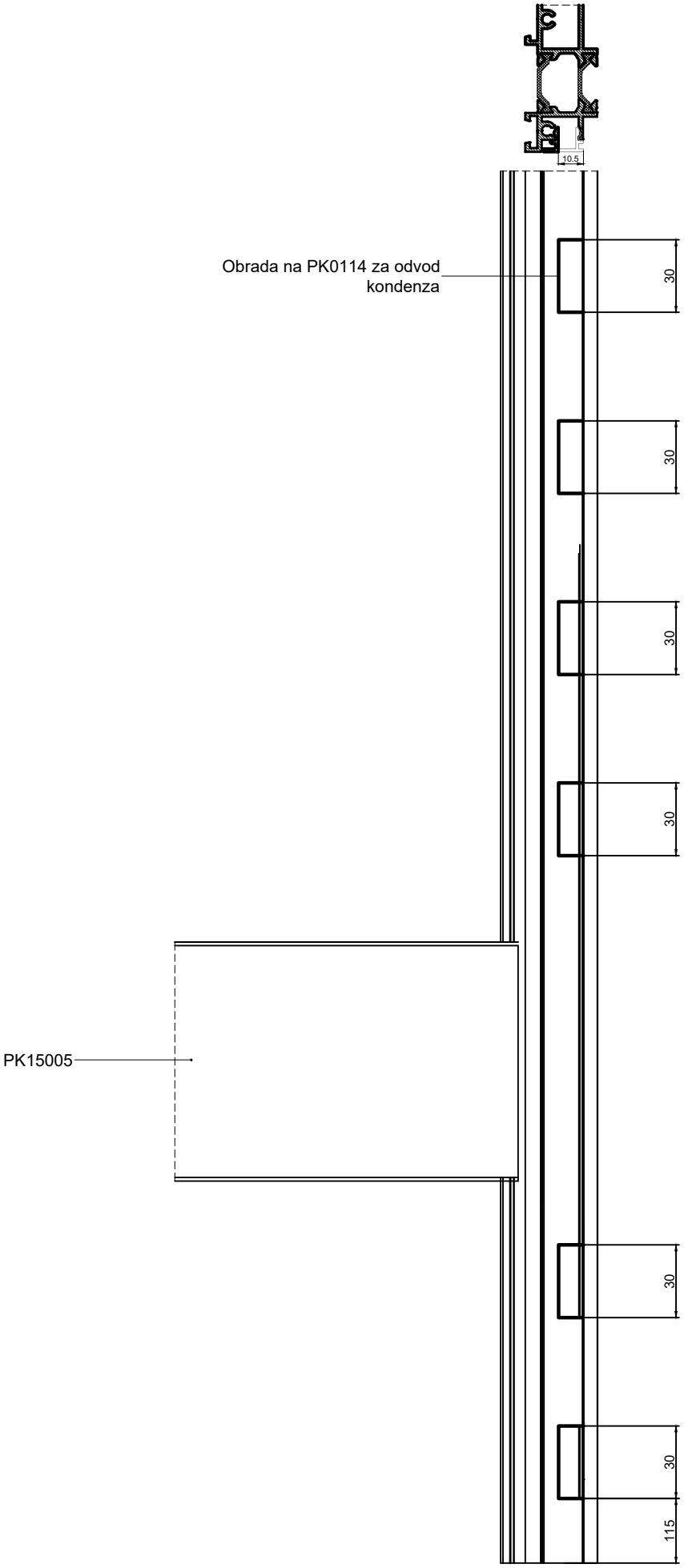
Obrada na profilu donje horizontalnice PK15002 za odvod kondenza



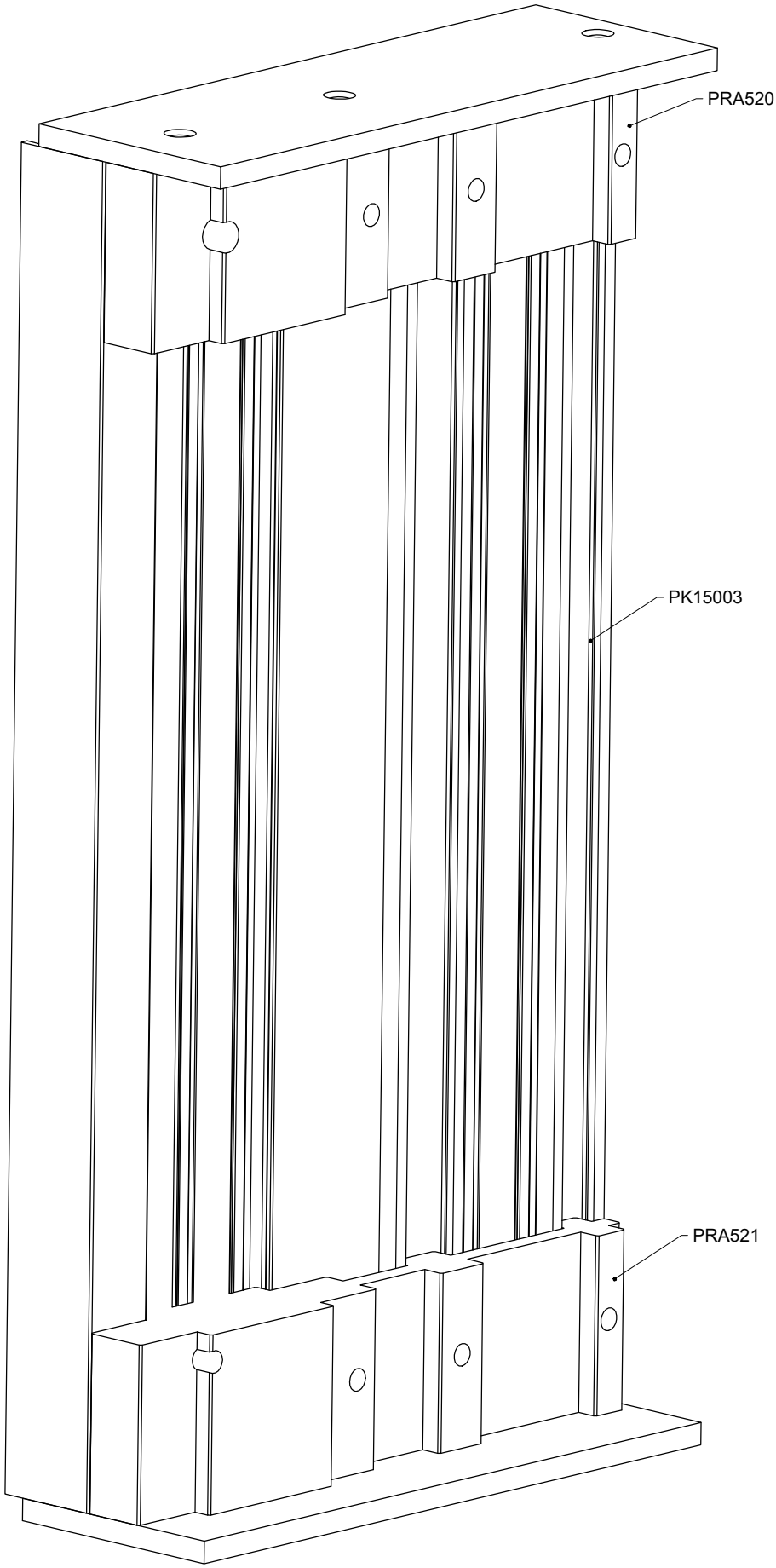
Presjek A-A - Fiksni dio

Presjek B-B - Klizni dio

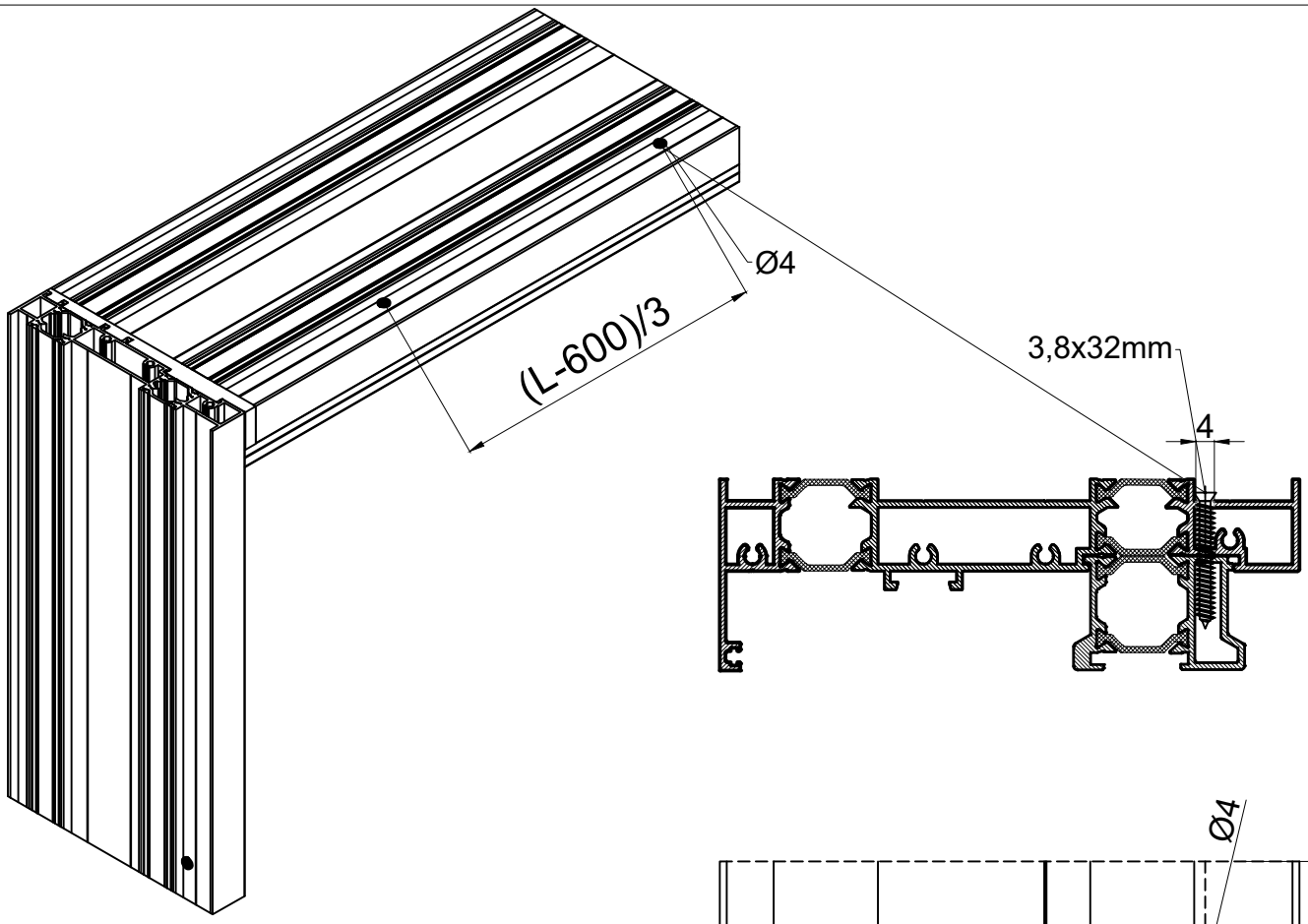
Obrada profila PK0114 za odvod kondenza

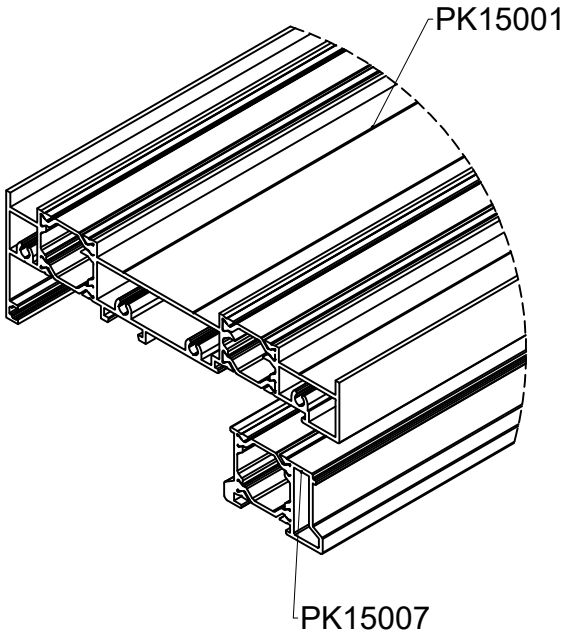


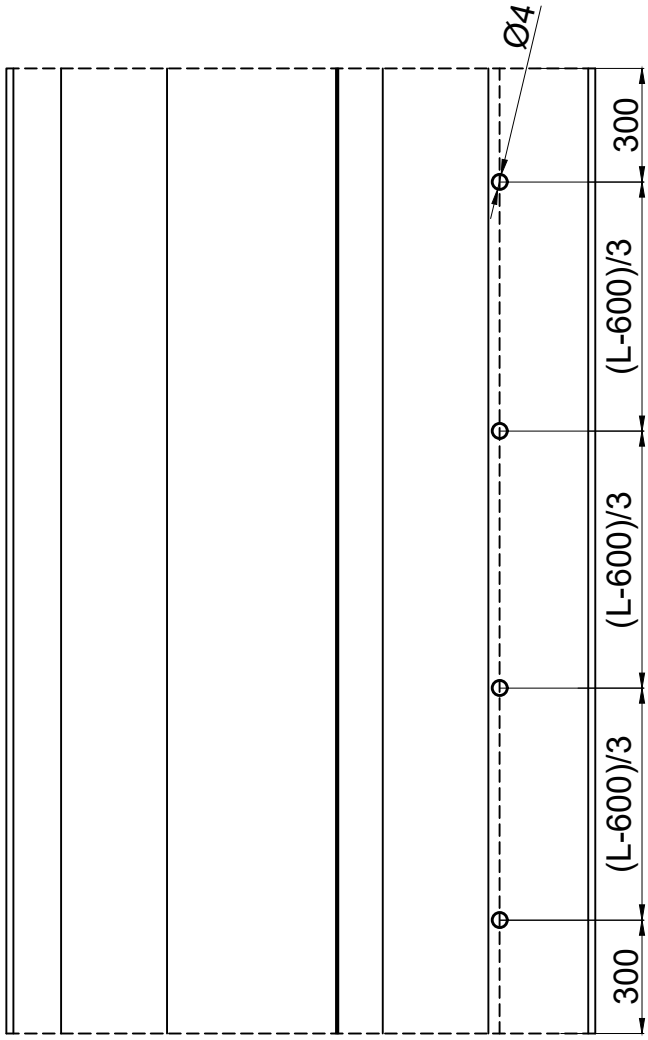
Gornji (PRA520) i donji kalup (PRA521) za spajanje okvira



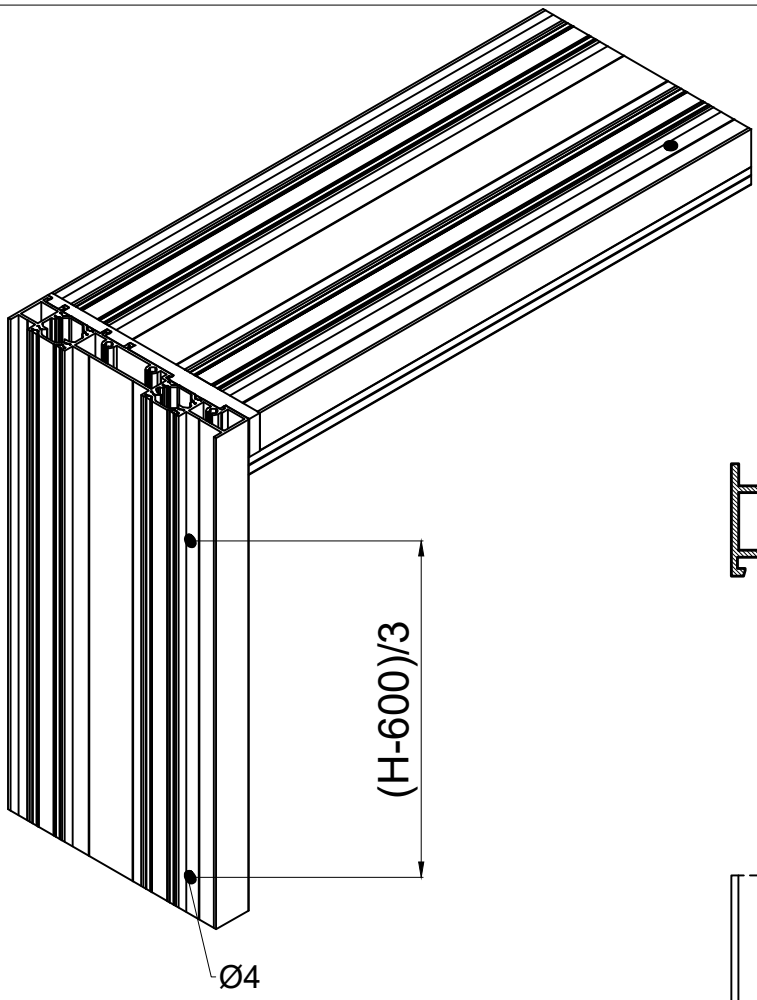
Obrada profila gornje horizontalnice okvira PK15001 za spajanje sa profilom PK15007

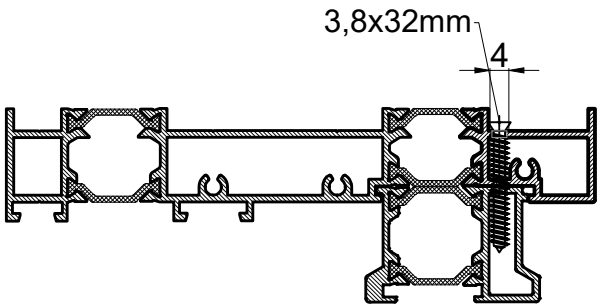


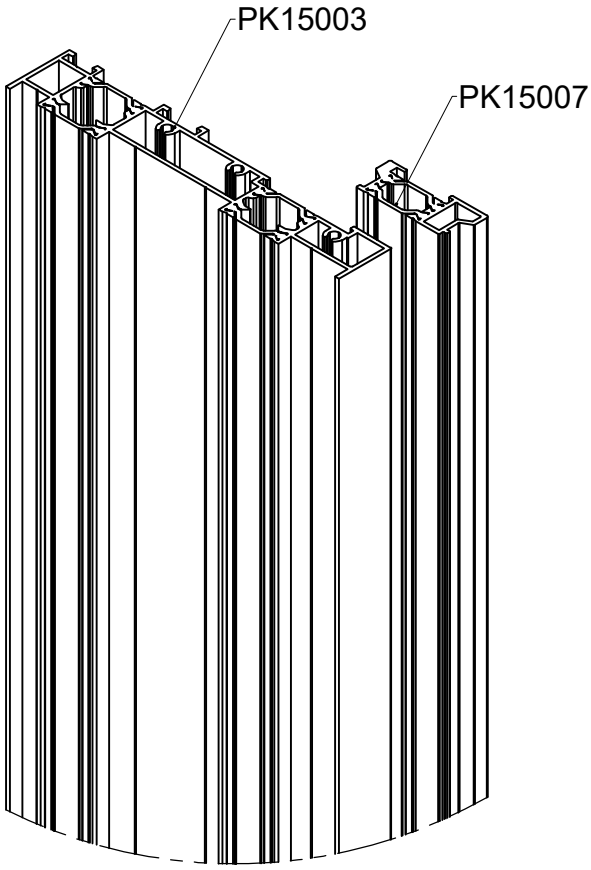


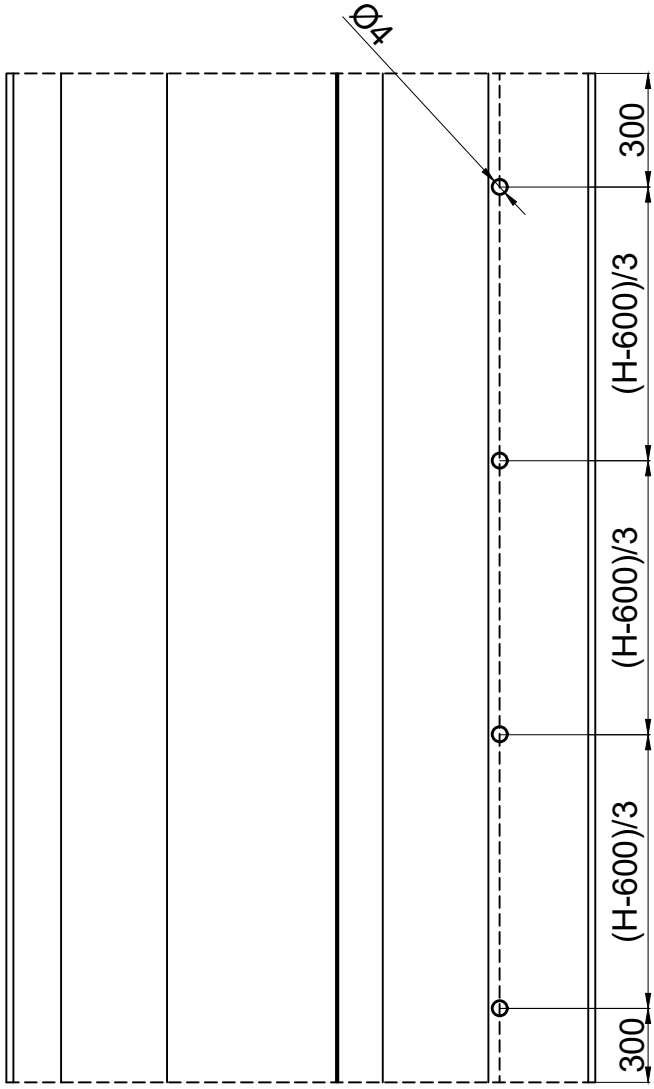


Obrada profila vertikalnice PK15003 za spajanje sa profilom PK15007



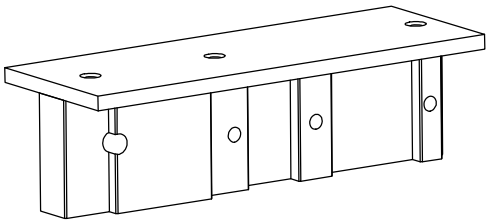


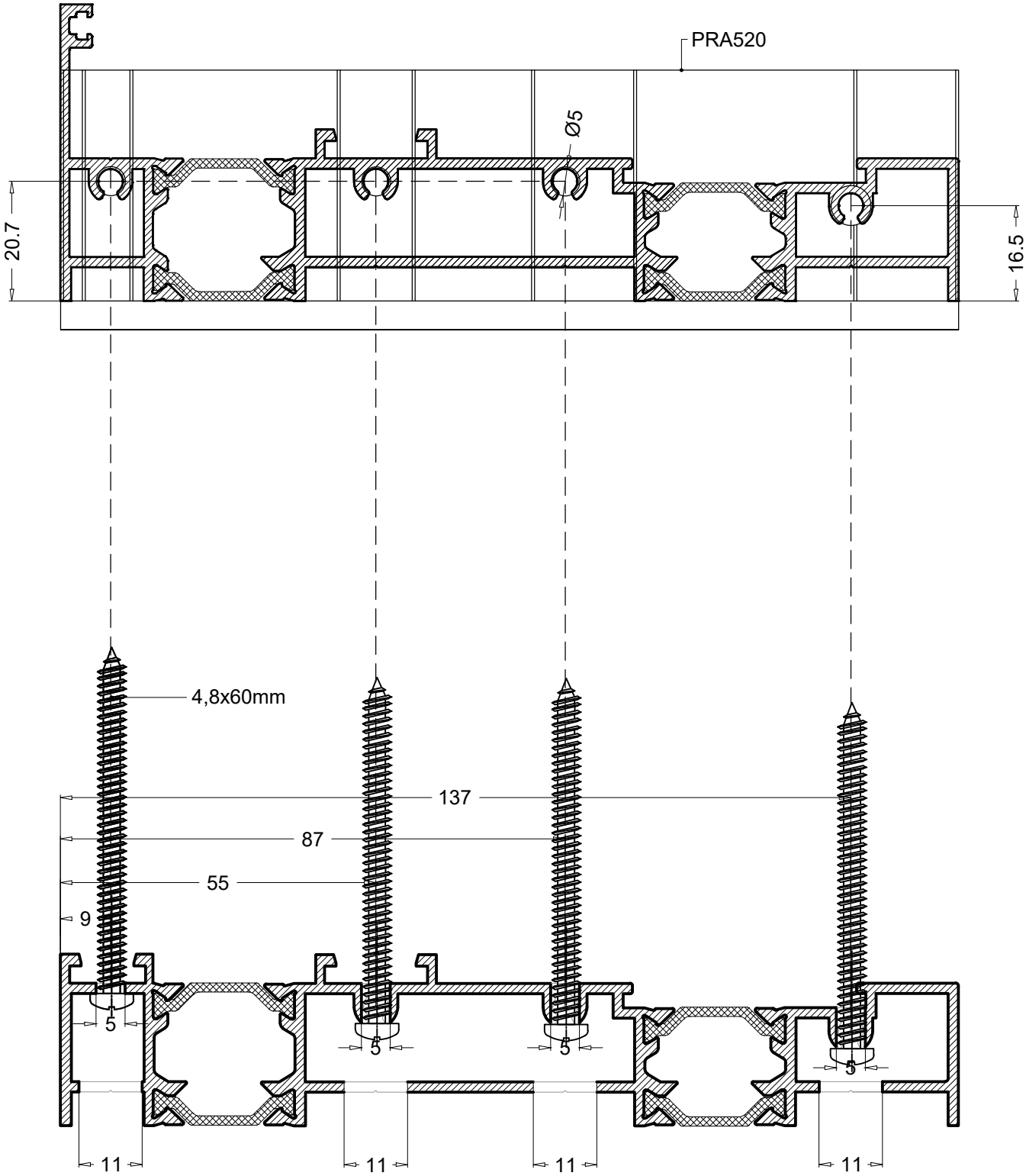




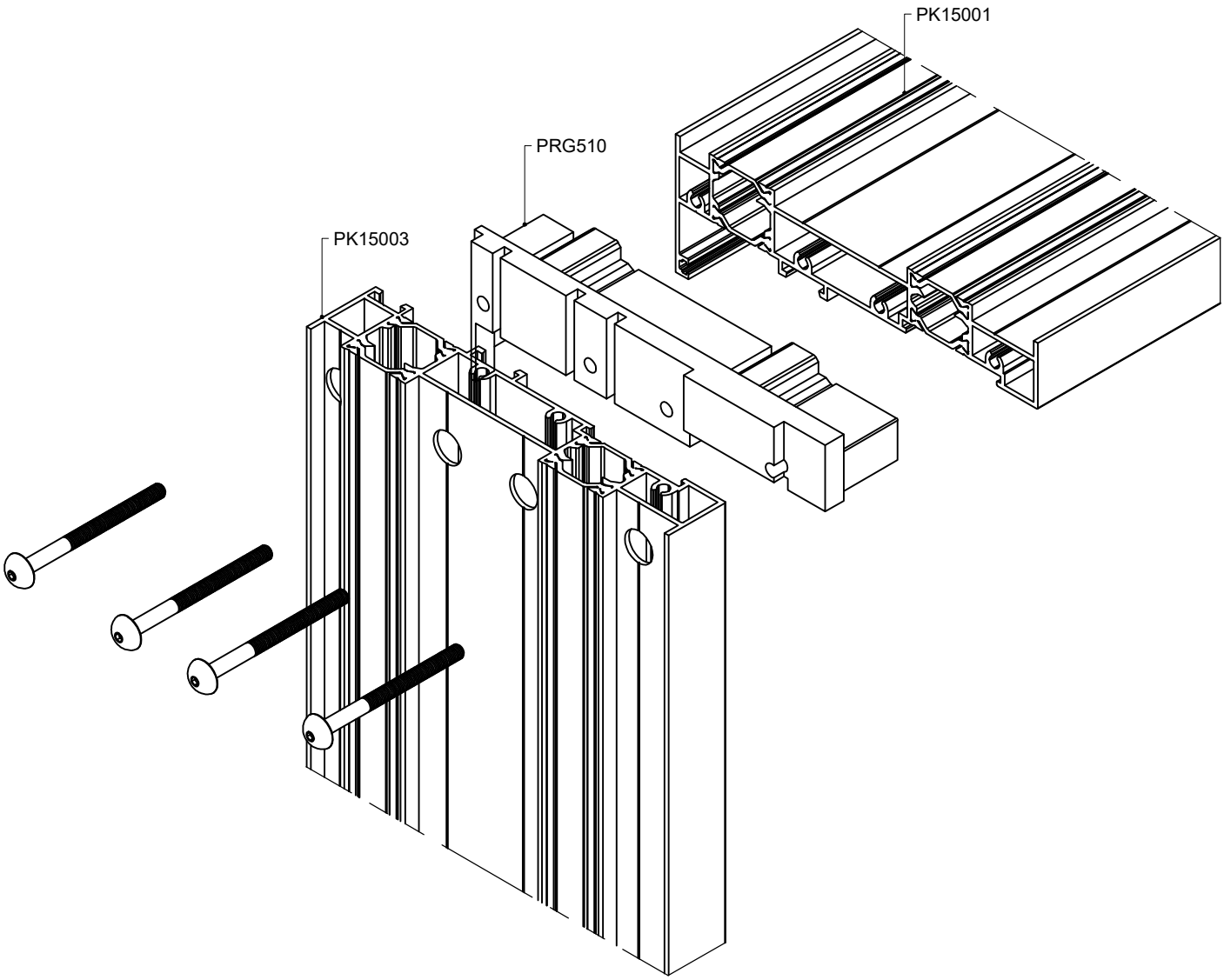
Obrada na profilu vertikalnice PK15003 za spajanje s gornjim okvirom PK15001

Gornji sklop



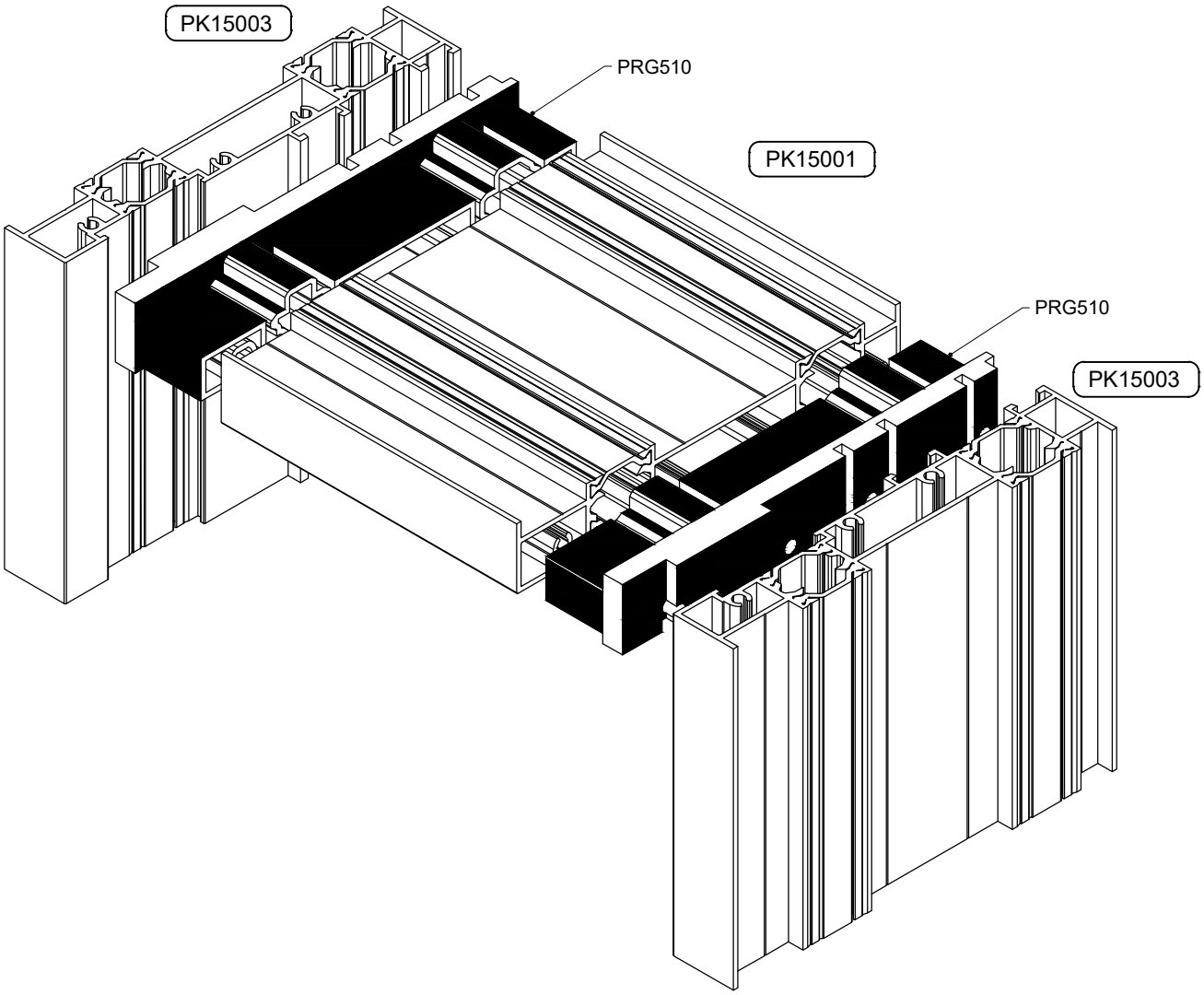


Spajanje vertikalnice PK15003 i gornjeg horizontalnog okvira PK15001 čepovima PRG510



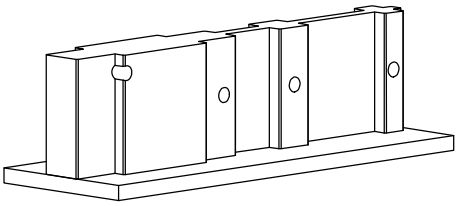
Gornji sklop okvira

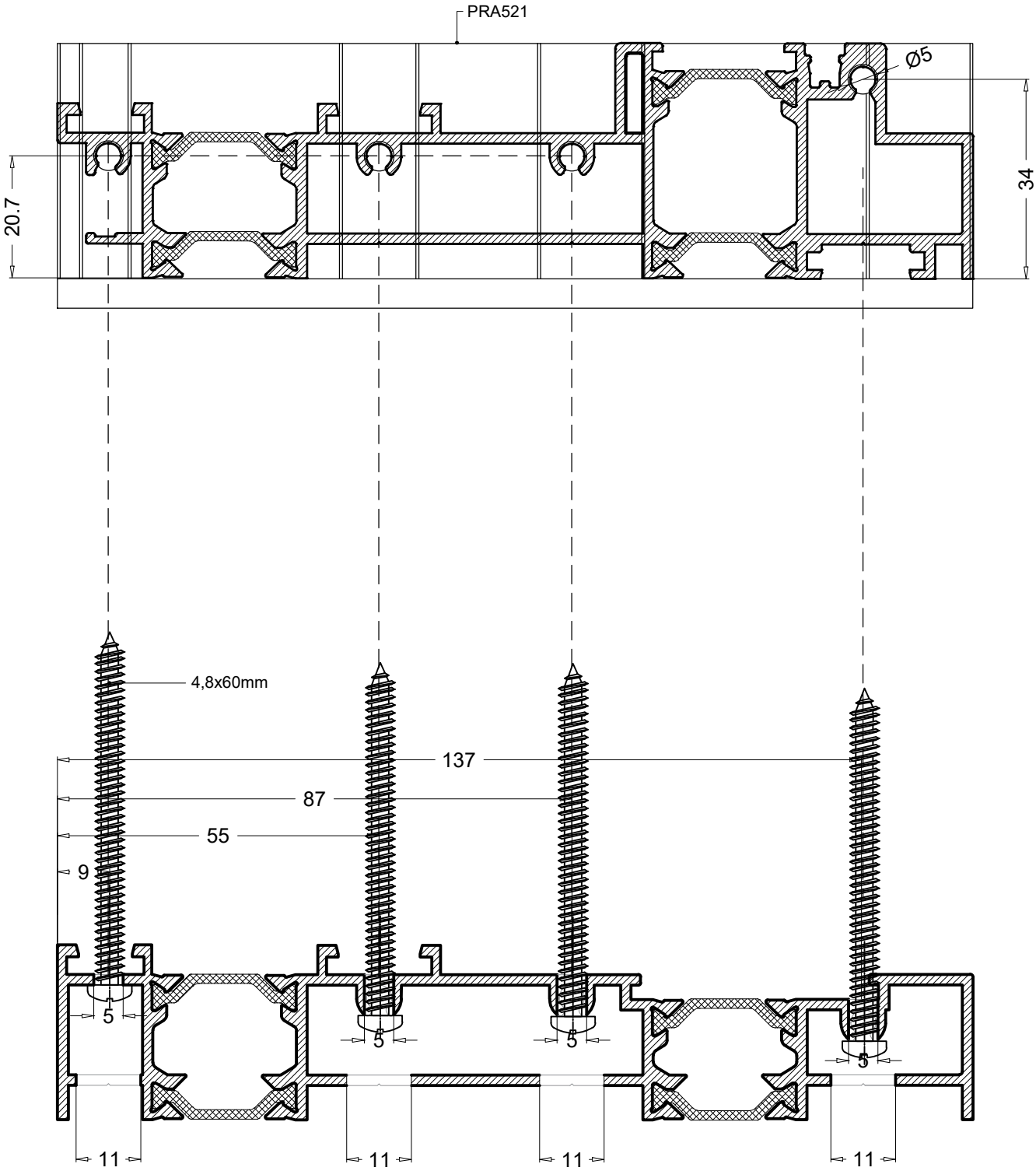
SVI ČEPOVI MORAJU BITI ZABRTVLJENI
MASOM ZA BRTVLJENJE - SIKA FLEX 221



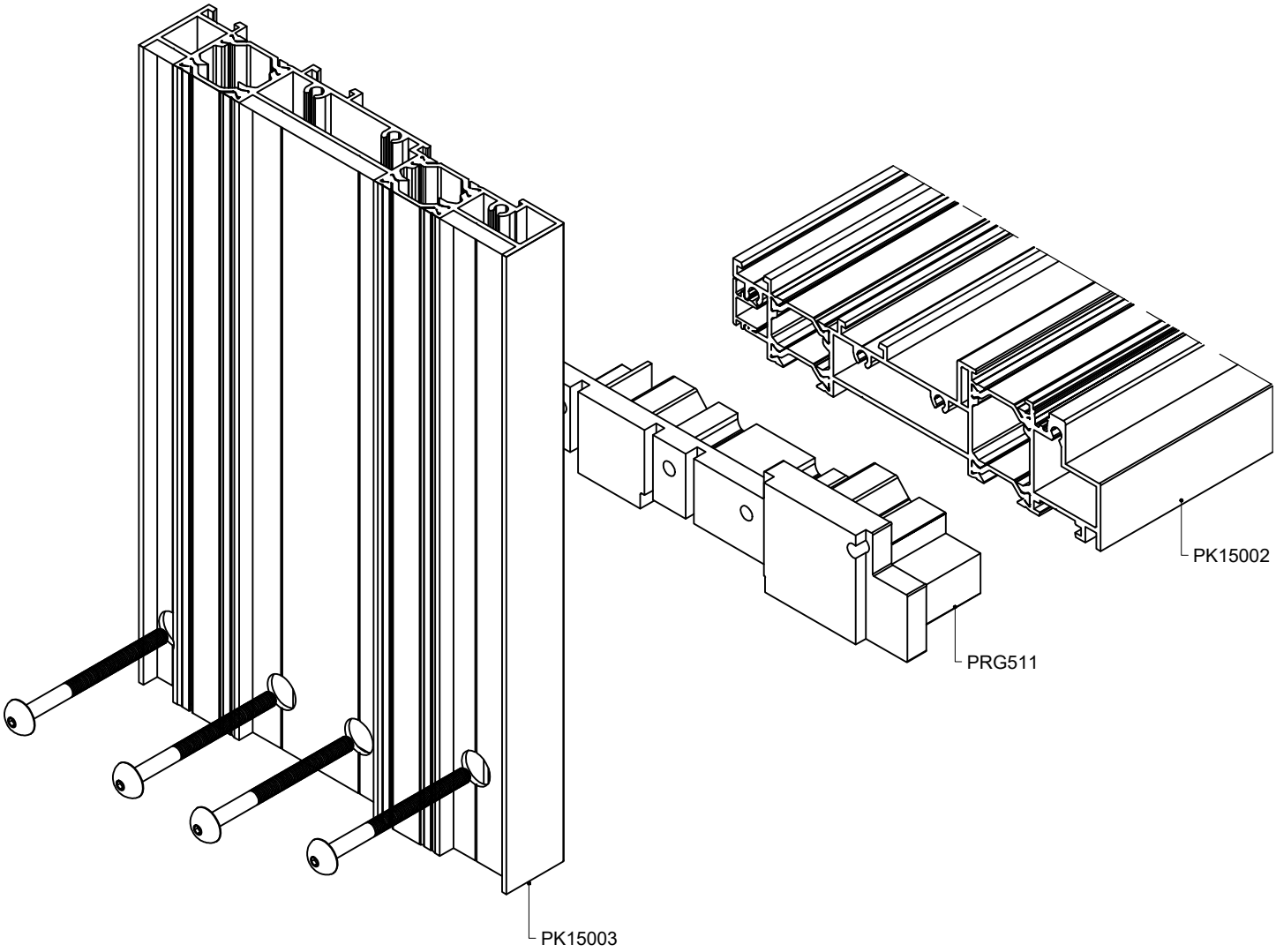
Obrada na profilu vertikalnice PK15003 za spajanje s donjim okvirom PK15002

Donji sklop



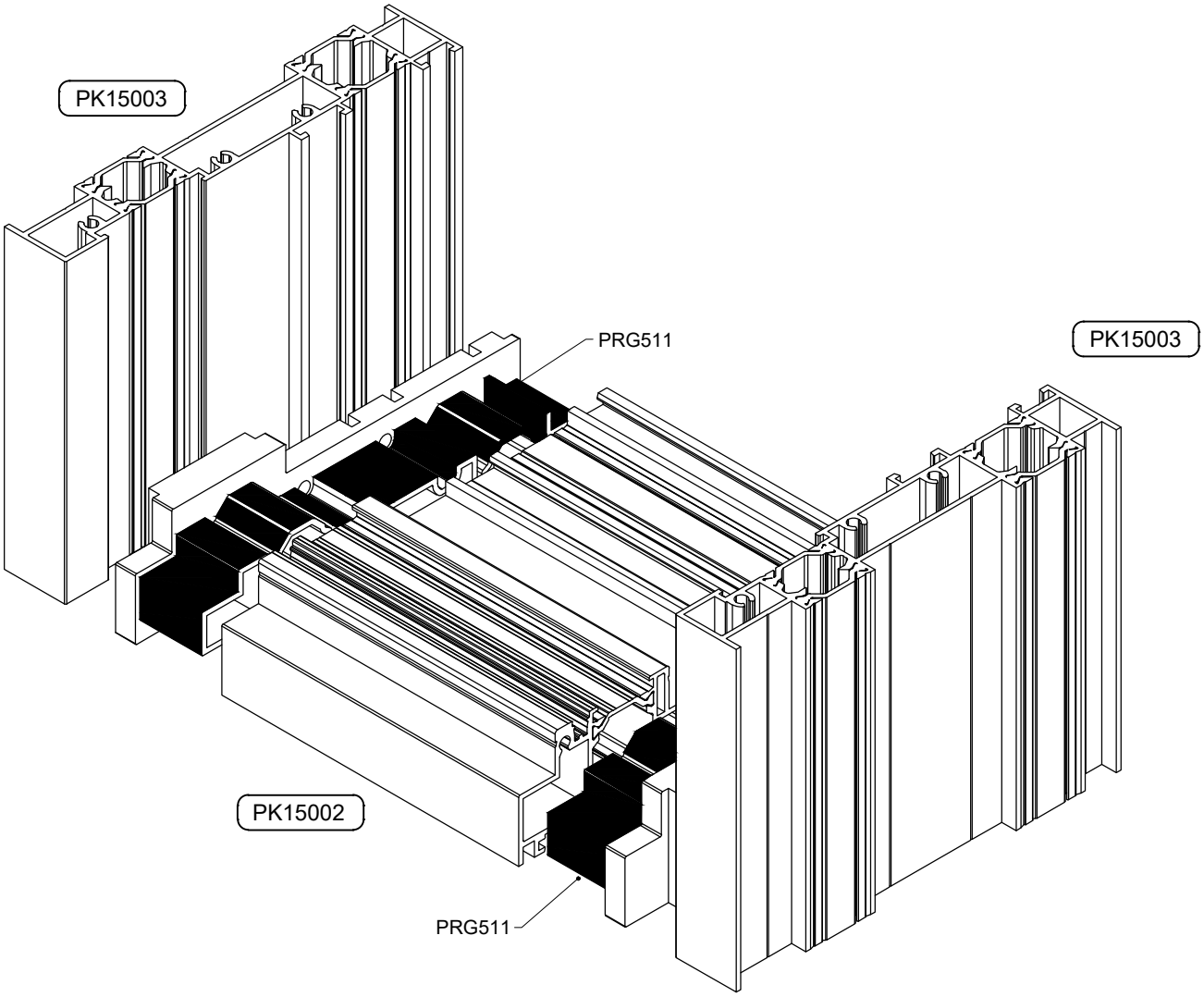


Spajanje vertikalnice PK15003 i donjeg horizontalnog okvira PK15002 čepovima PRG511



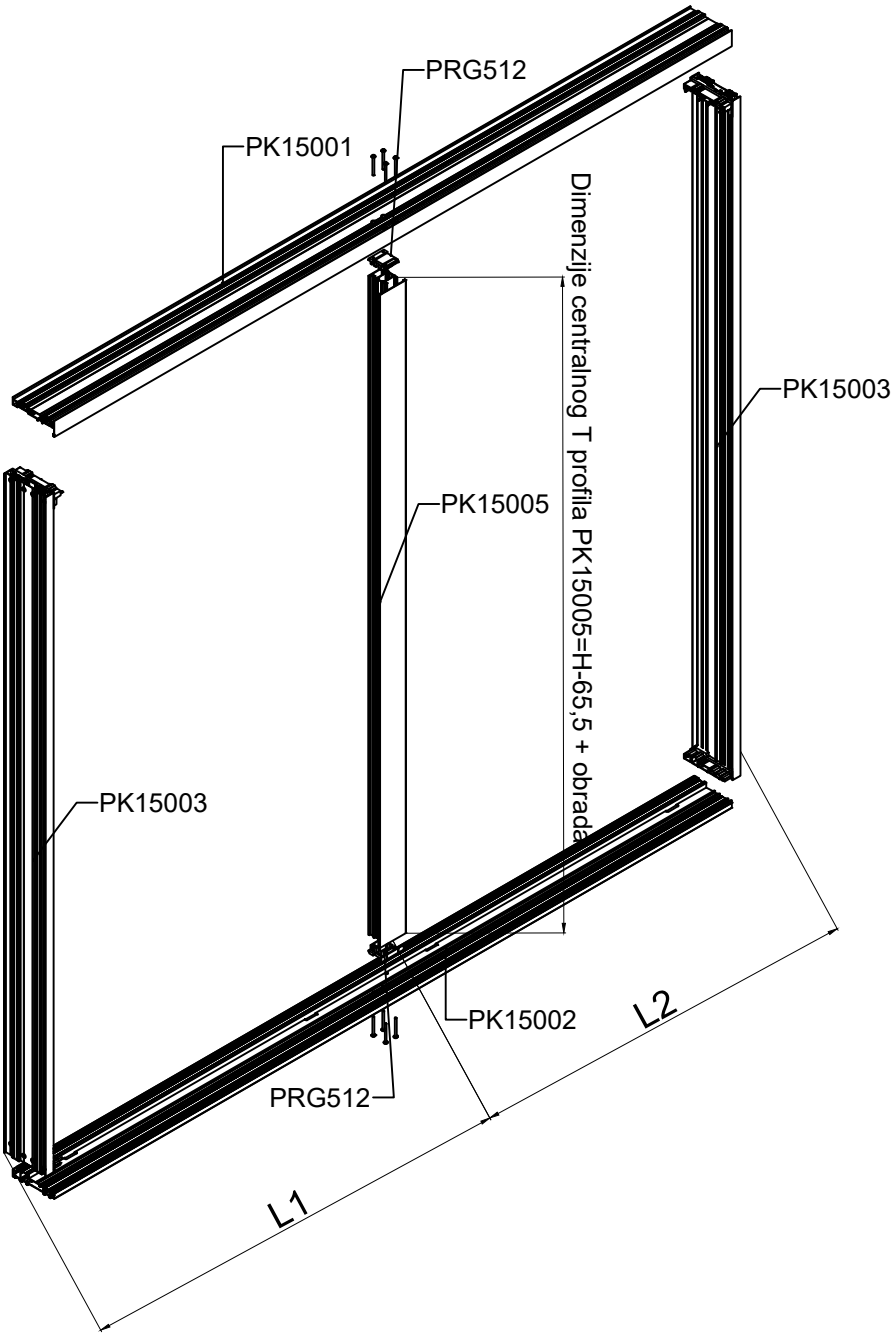
Donji sklop okvira

SVI ČEPOVI MORAJU BITI ZABRTVLJENI
MASOM ZA BRTVLJENJE - SIKA FLEX 221

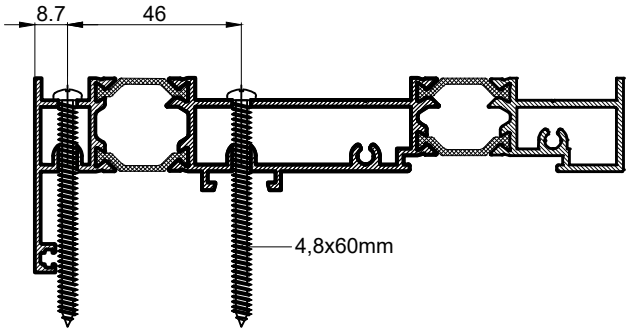


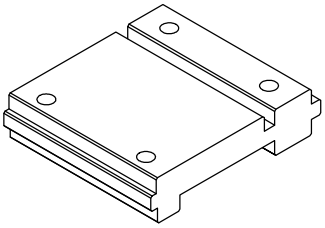
Dimenzija pilanja centralnog profila prečke PK15005

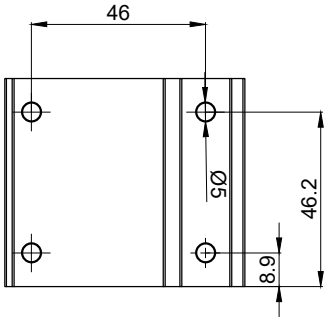
L1=L2

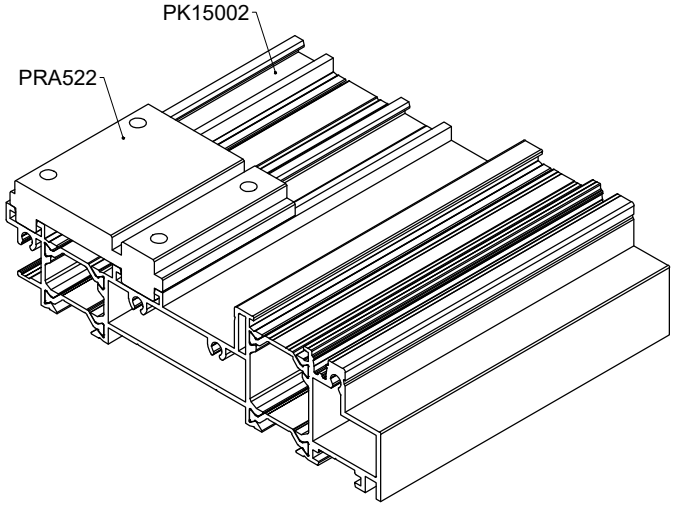


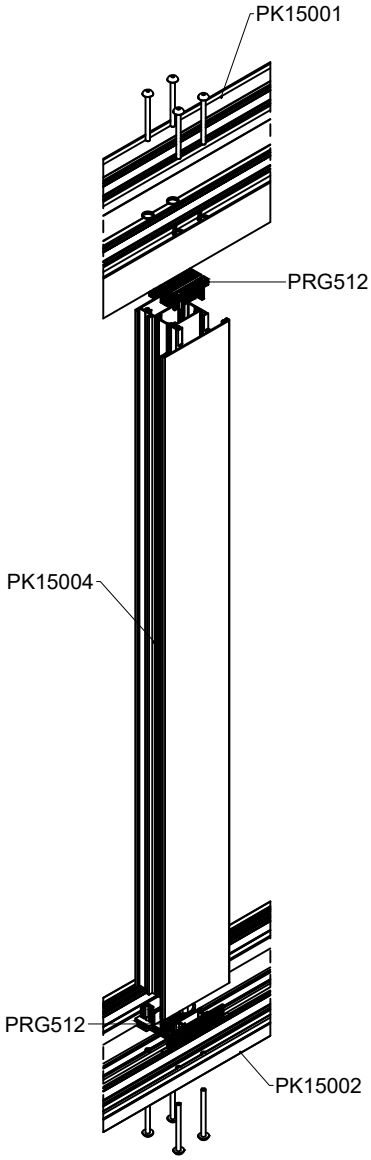
Obrada profila PK15001 i PK15002 kroz kalup za spajanje sa prečkom PK15005

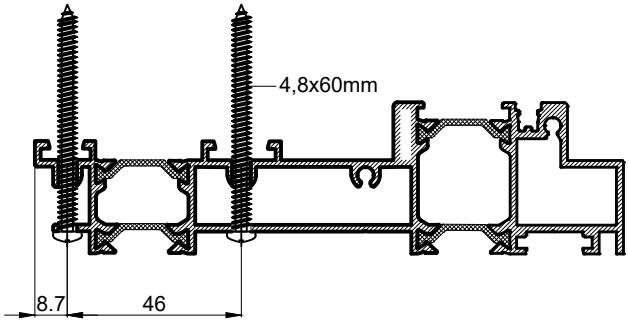




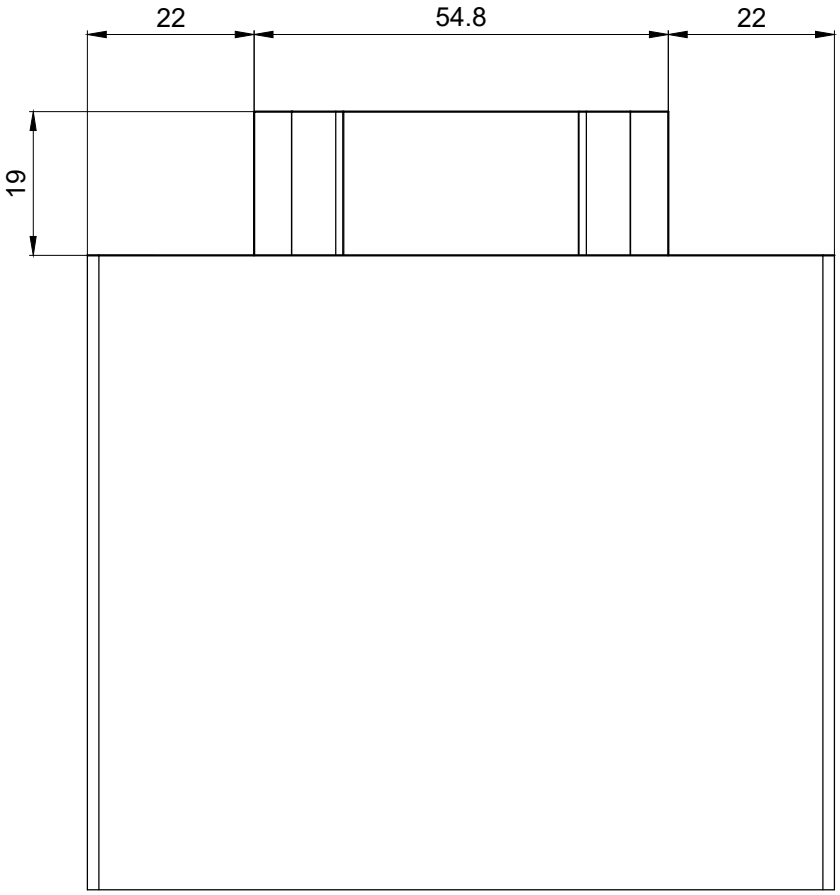


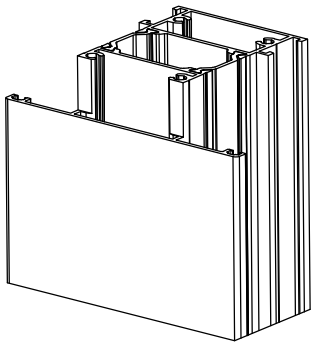


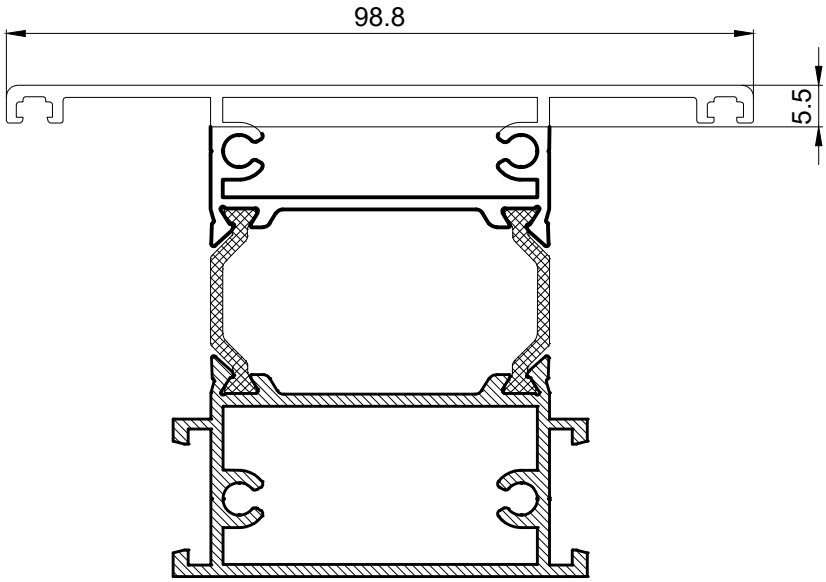




Obrada na profilu prečke PK15005 za spajanje na gornji okvir PK15001

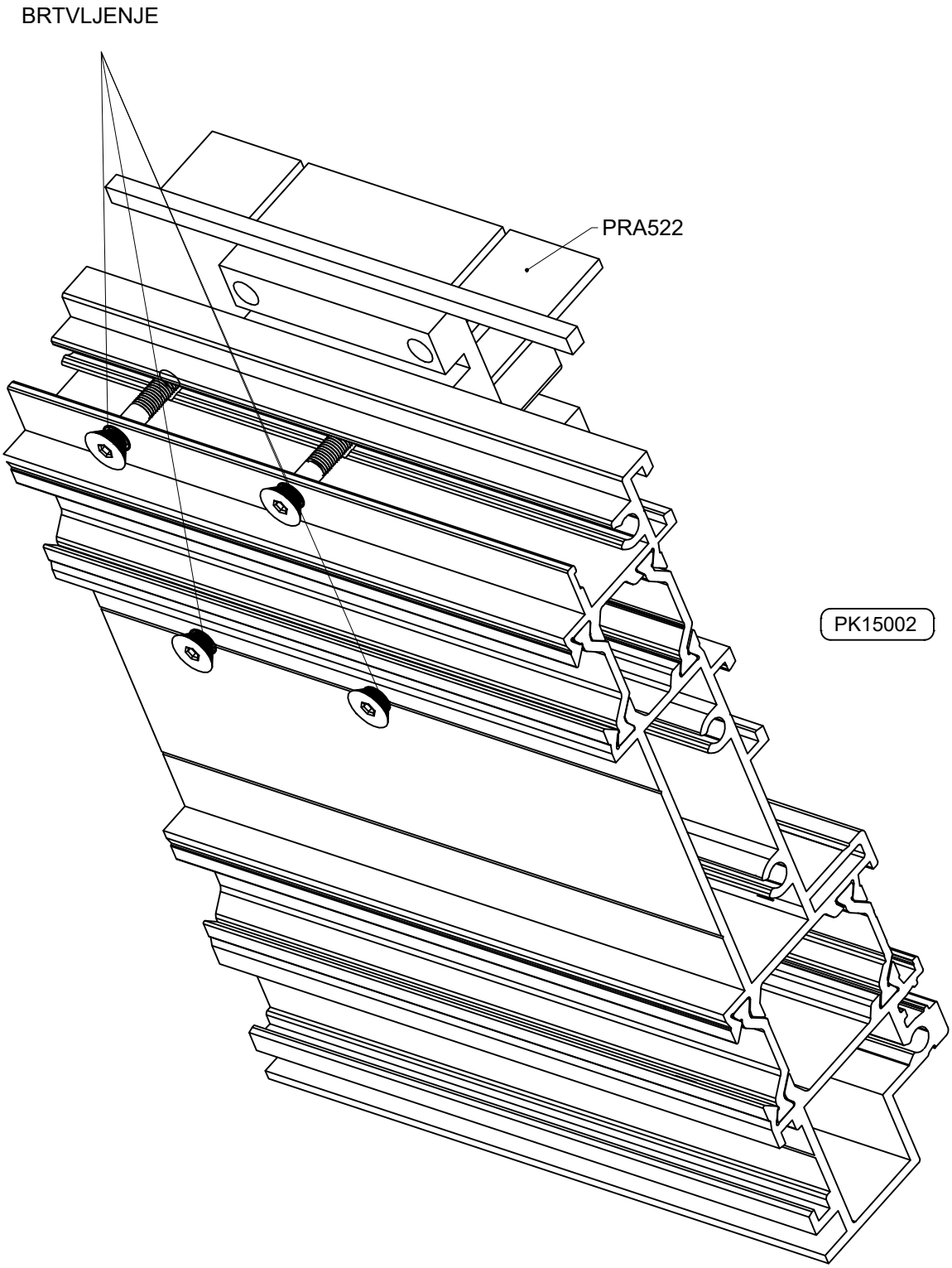






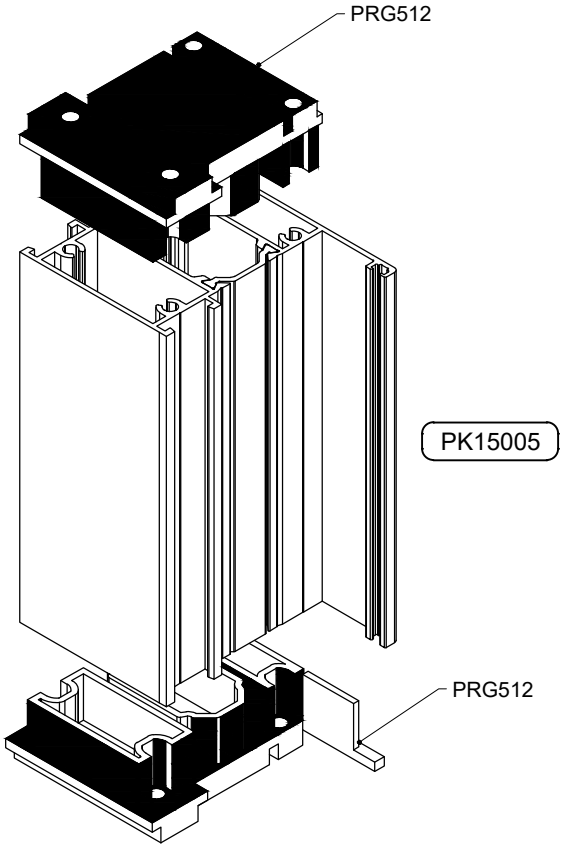
PK15005

Spajanje T profila PK15005 za donju horizontalnicu okvira PK15002

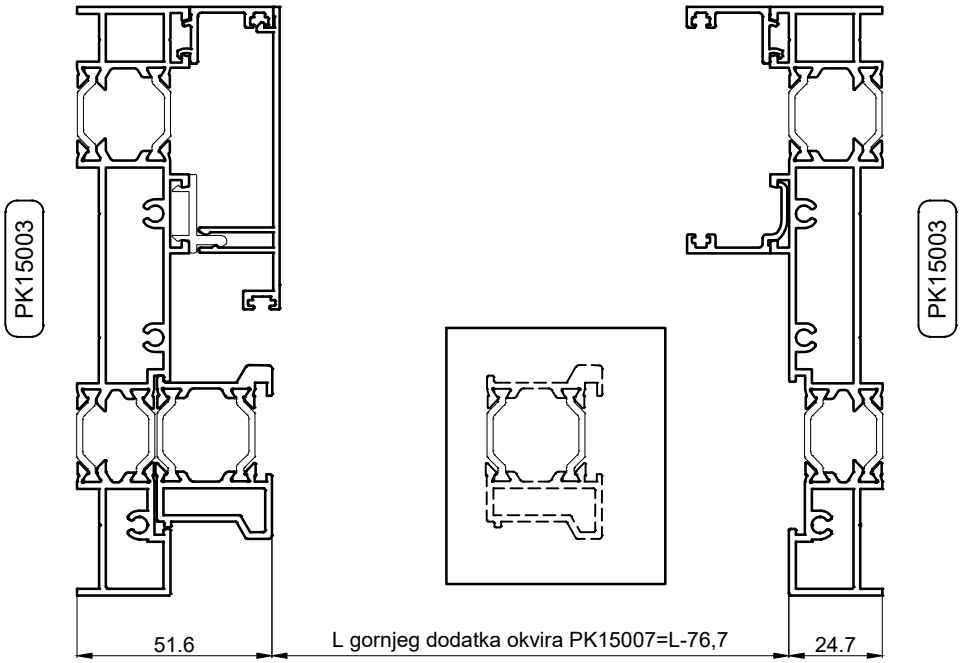


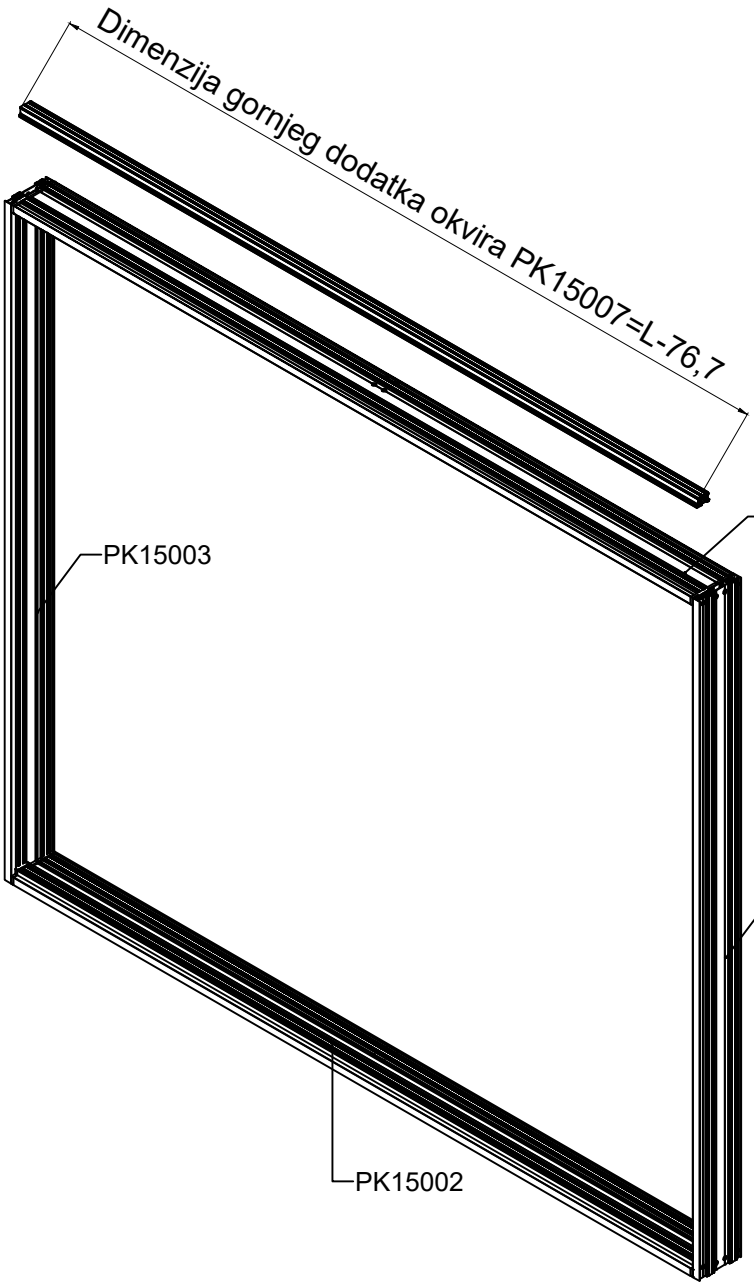
Srednji sklop okvira

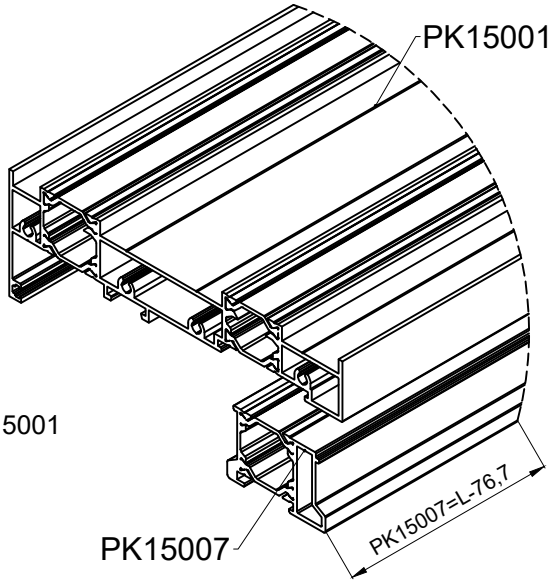
SVI ČEPOVI MORAJU BITI ZABRTVLJENI
MASOM ZA BRTVLJENJE - SIKA FLEX 221



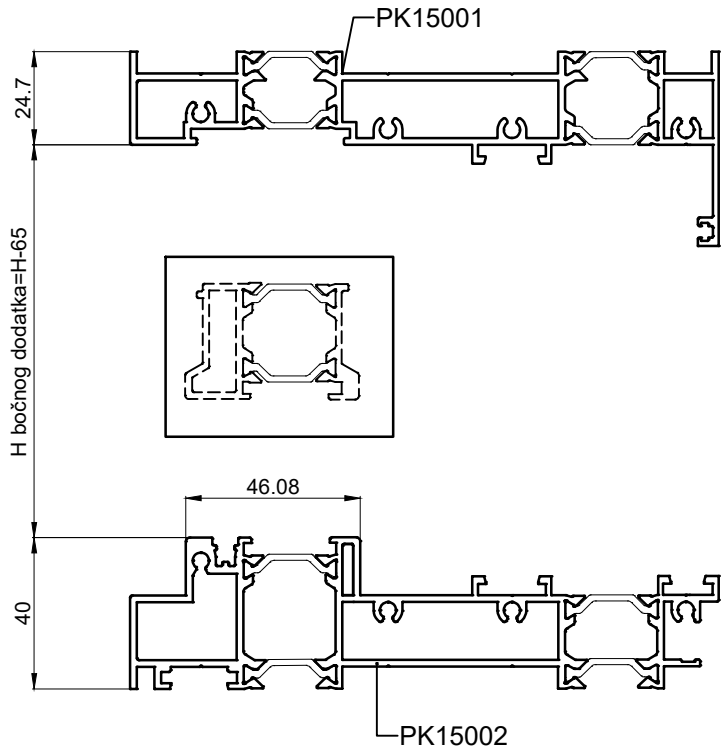
Dimenzija pilanja gornjeg dodatka okvira PK15007

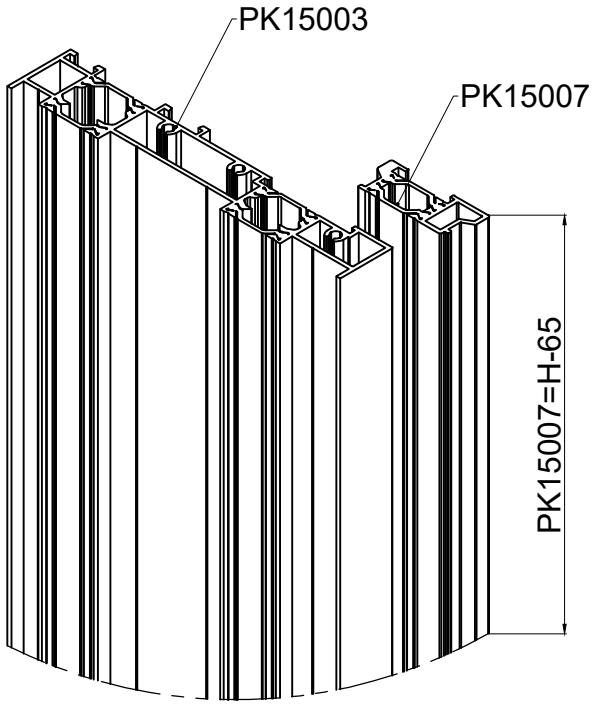


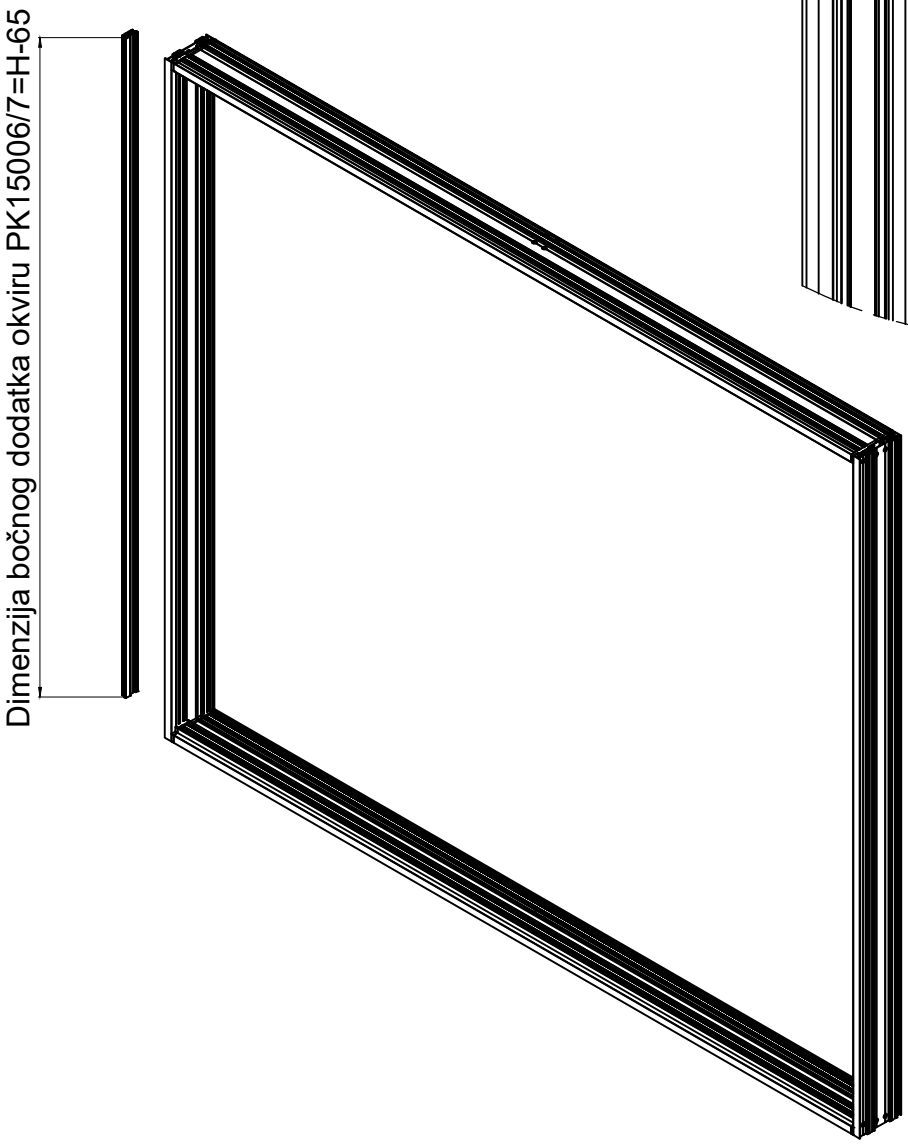




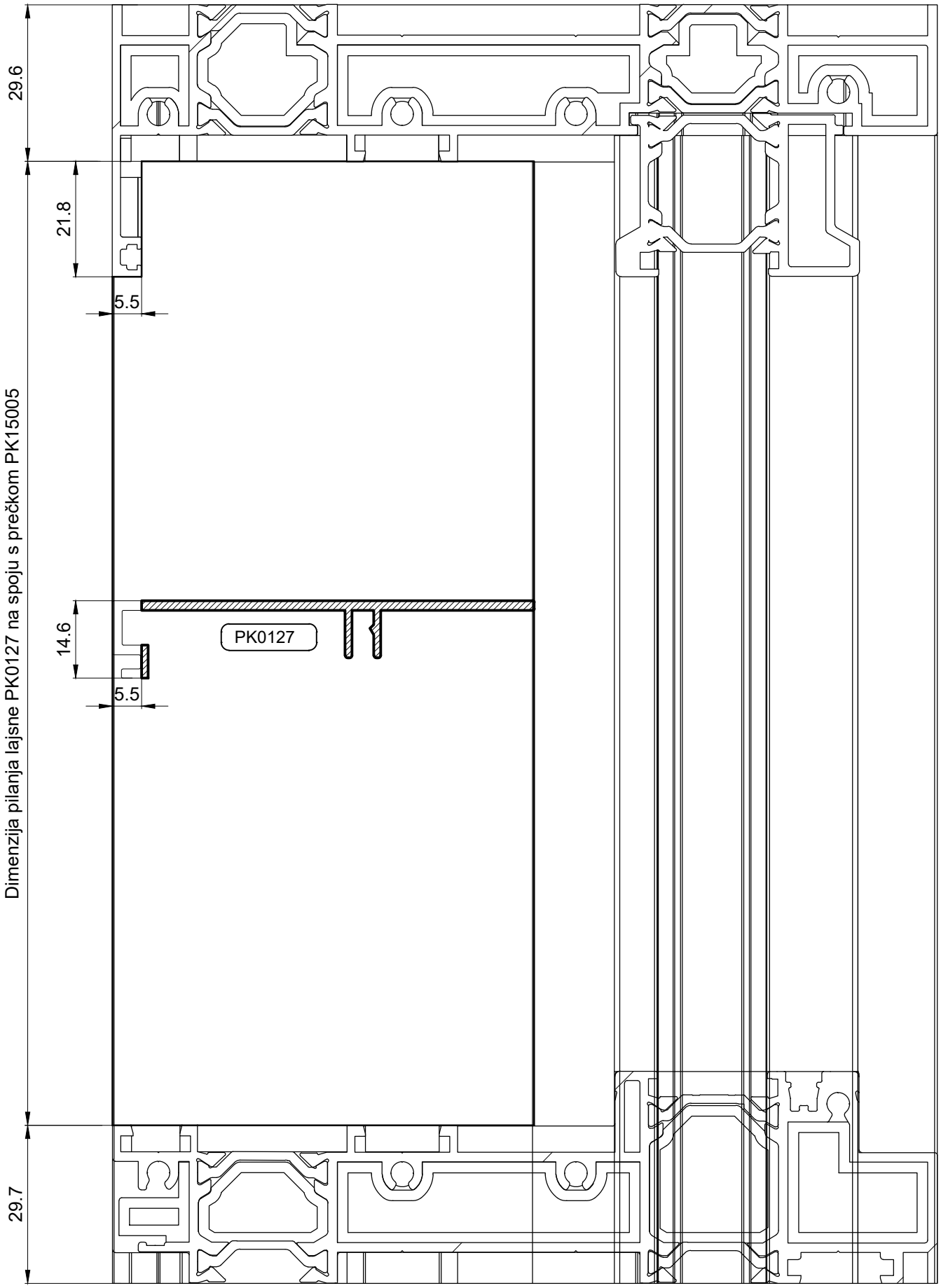
Dimenzija pilanja bočnog dodatka okvira PK15007





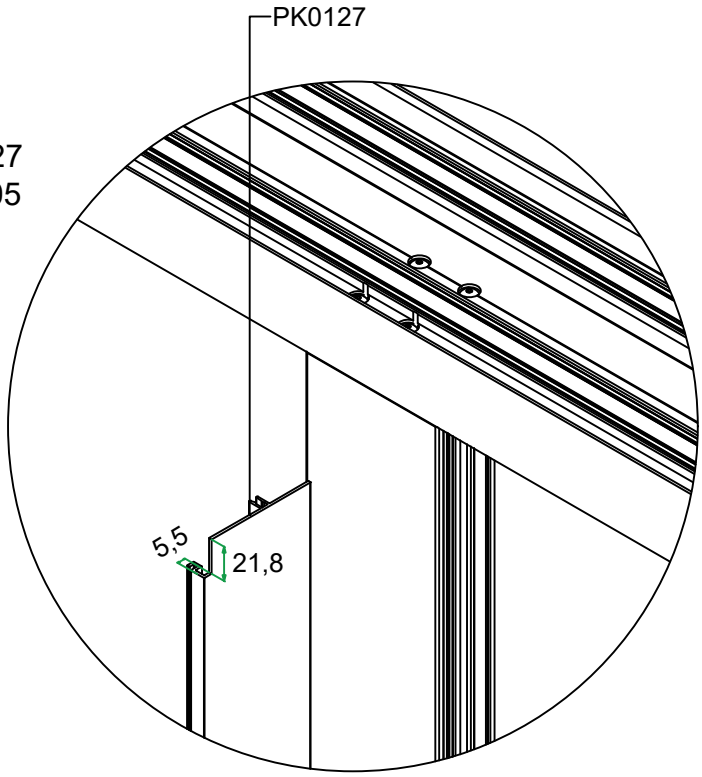


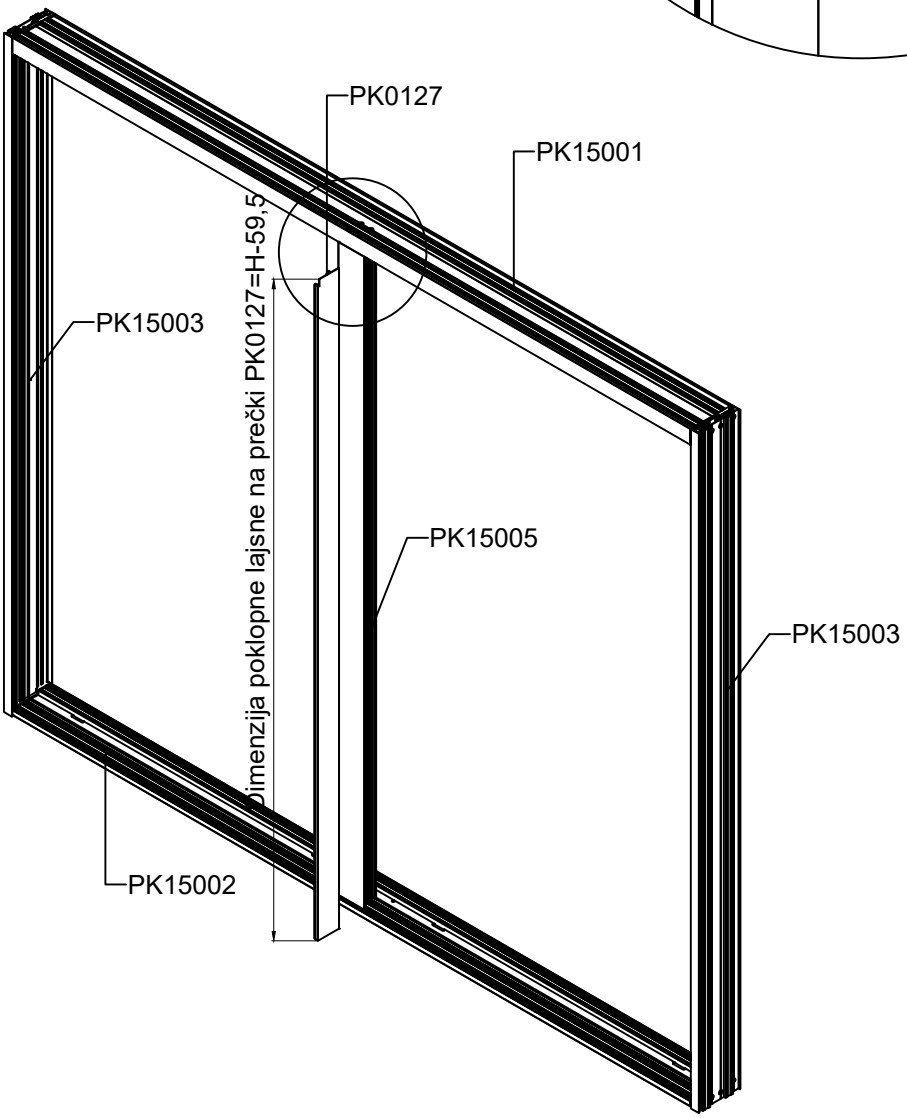
Obrada na profilu lajsne PK0127 za spajanje sa prečkom PK15005



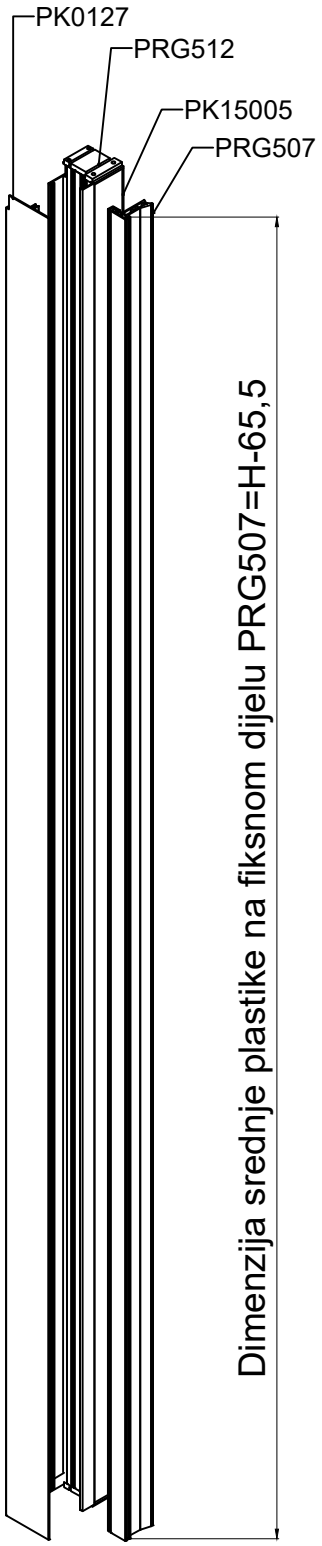
Dimenzija pilanja poklopne lajsne PK0127 za spajanje s prečkom PK15005

Obrada na profilu lajsne PK0127
za spajanje s prečkom PK15005

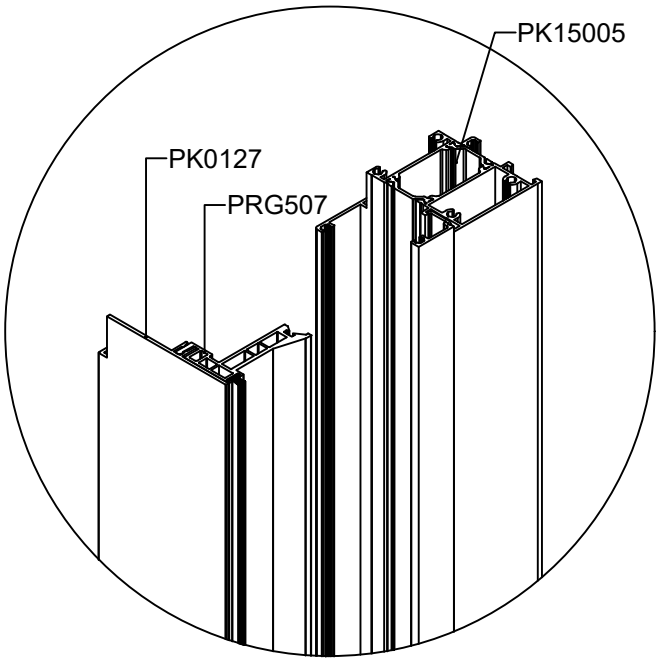


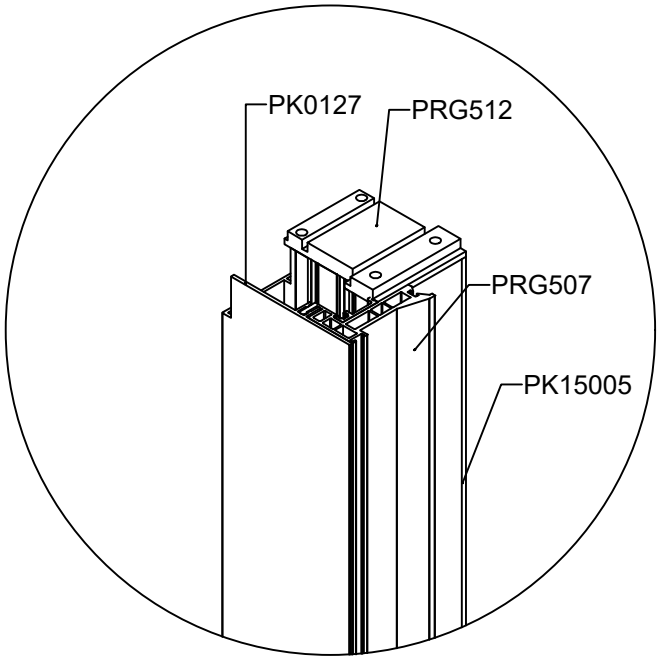


Dimenzija pilanja PVC profila PRG507 za spajanje s lajsnom PK0127 na prečki

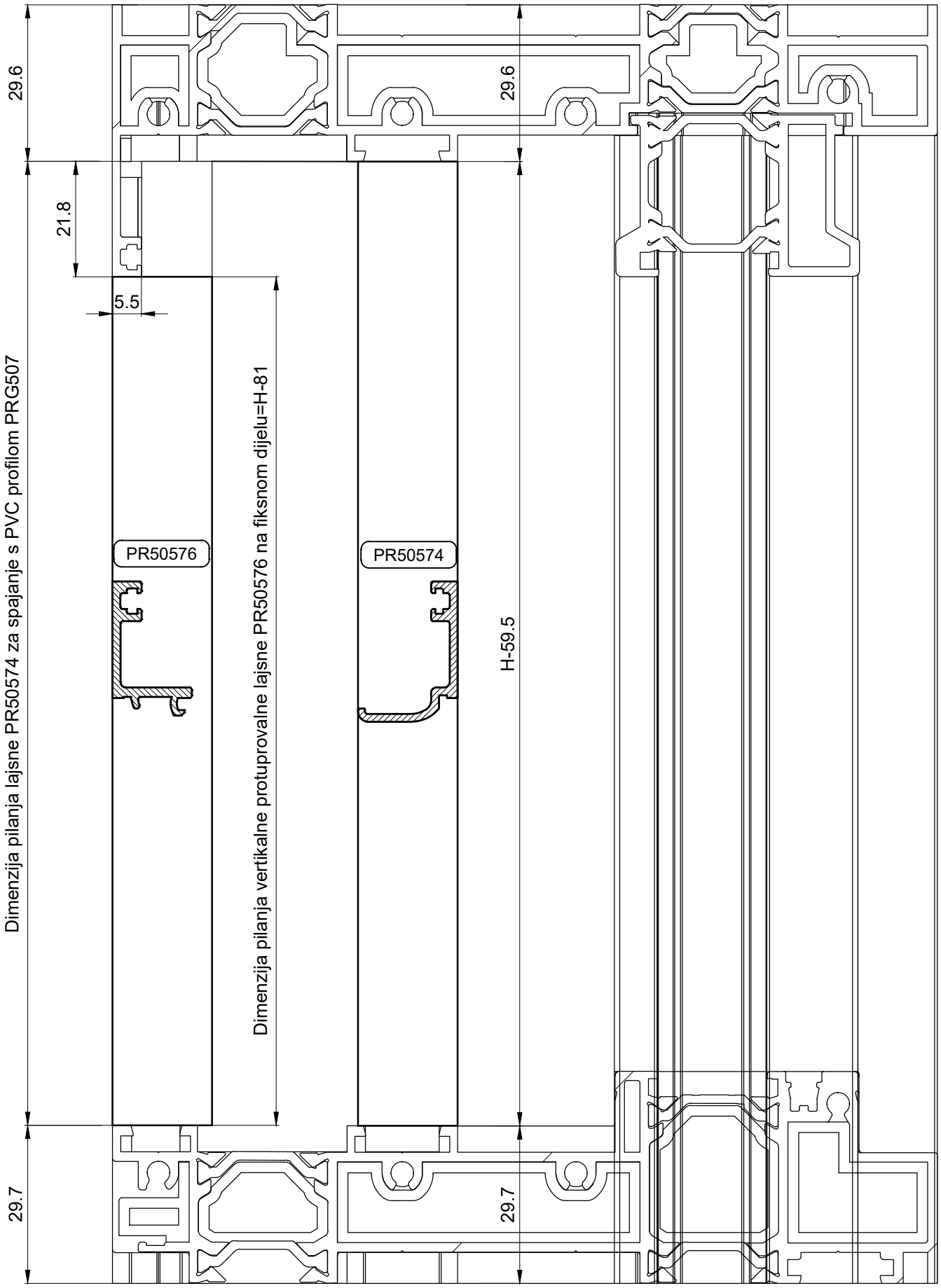


Središnji sklop profila - spajanje lajsne PK0127 i PVC profila PRG507 sa centralnom prečkom PK15005

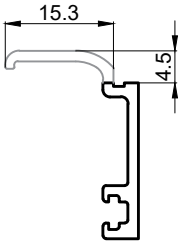


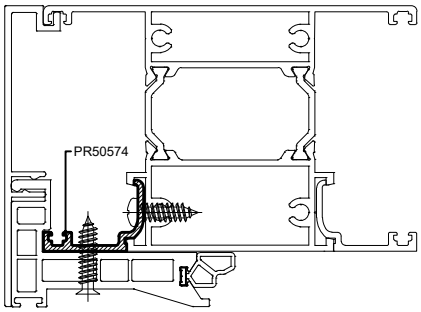


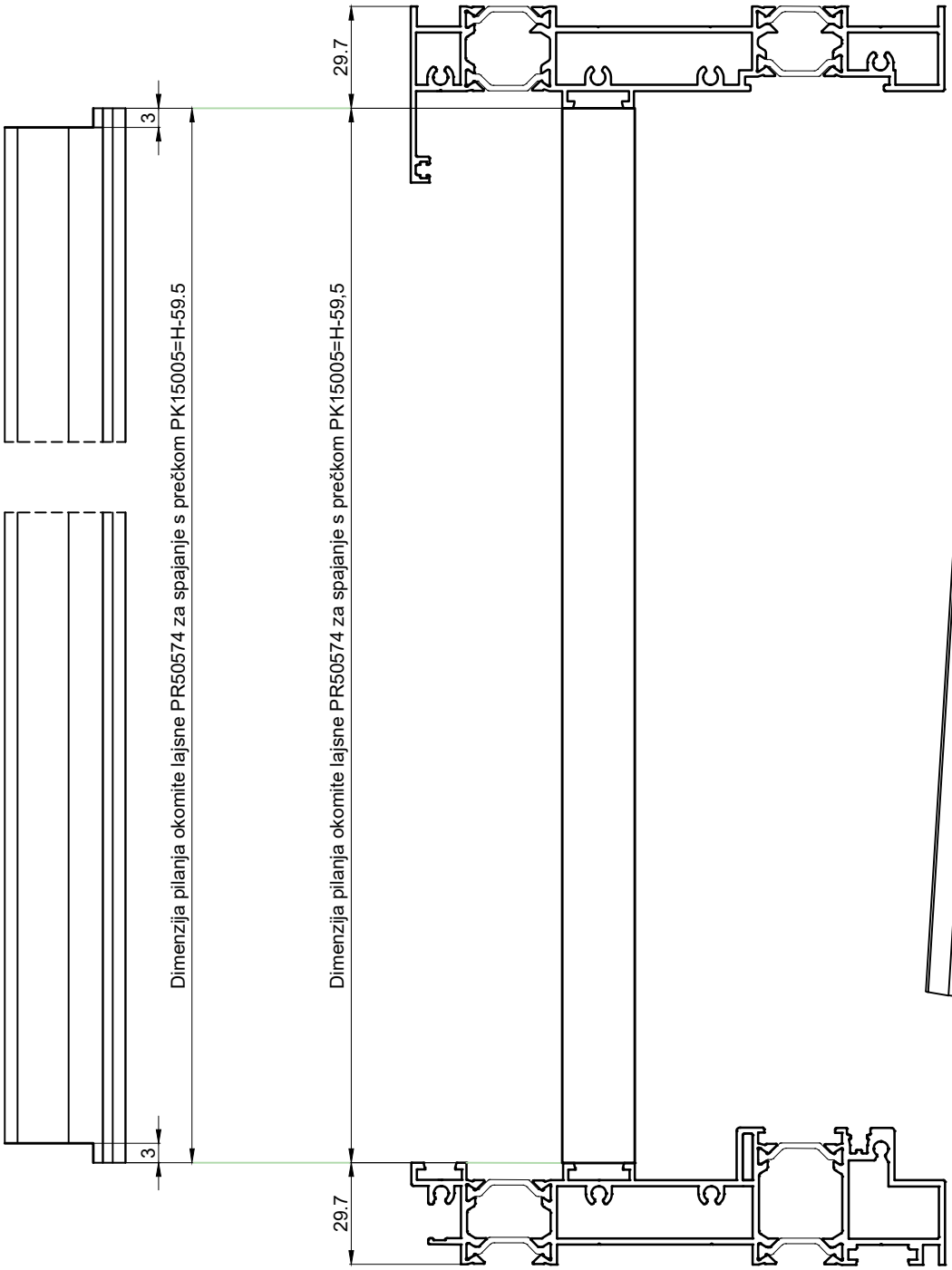
Dimenzija pilanja vertikalnih lajsni PR50574 i PR50576 na fiksnom dijelu



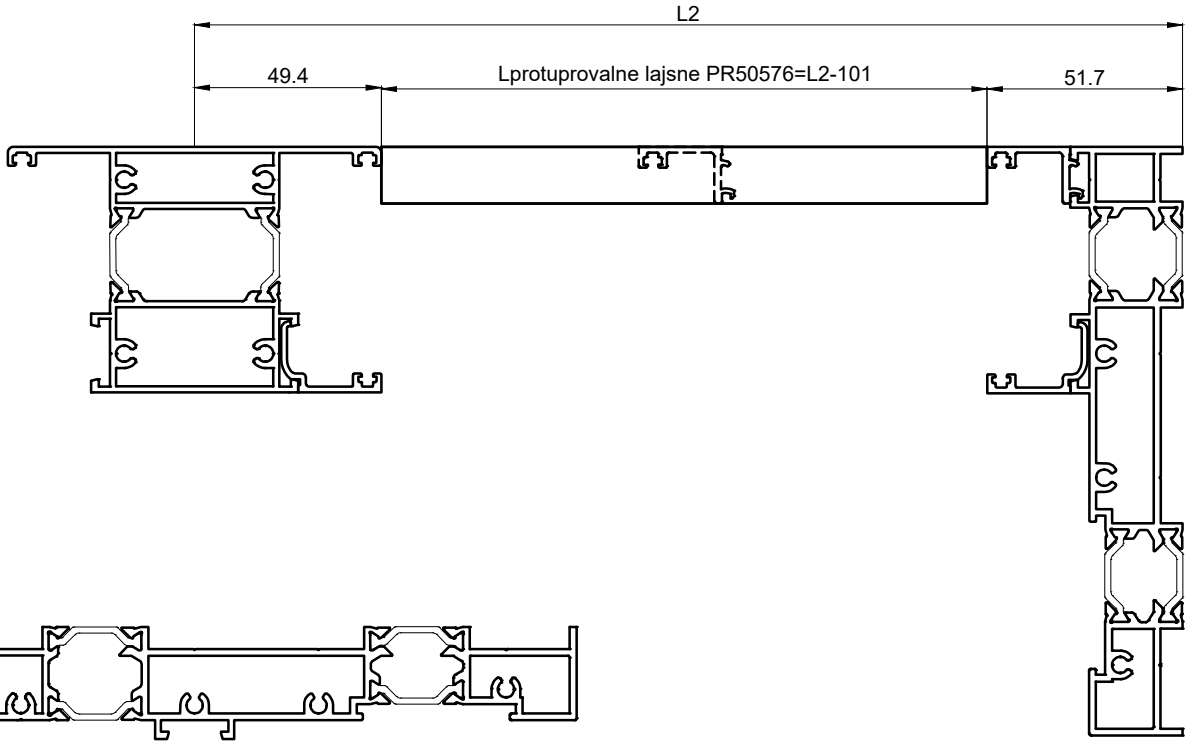
Obrada na profilu lajsne PR50574 za spajanje s PVC profilom PRG507 i prečkom PK15005

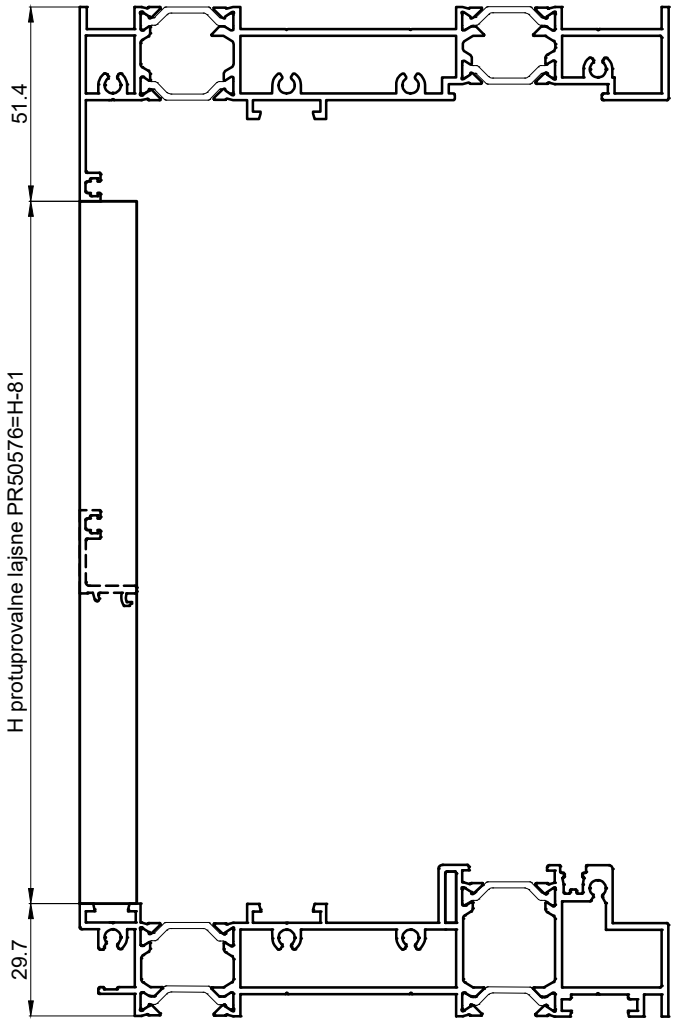


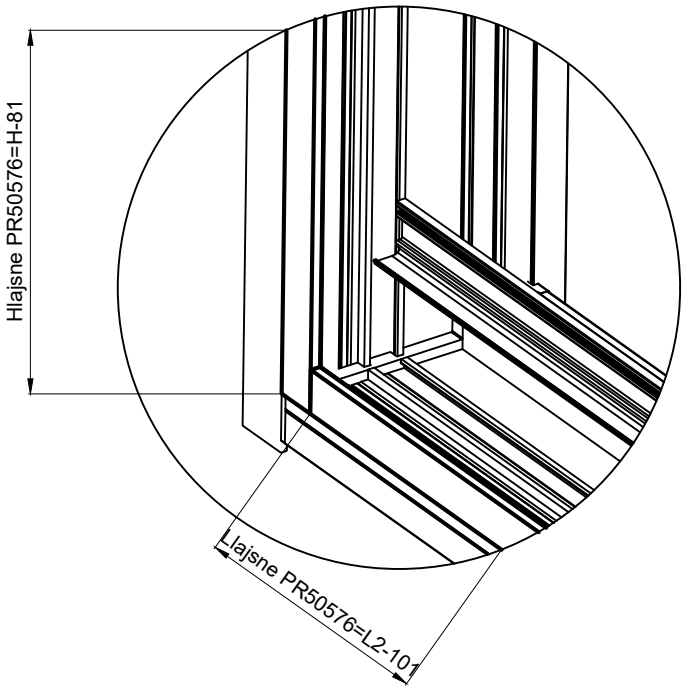




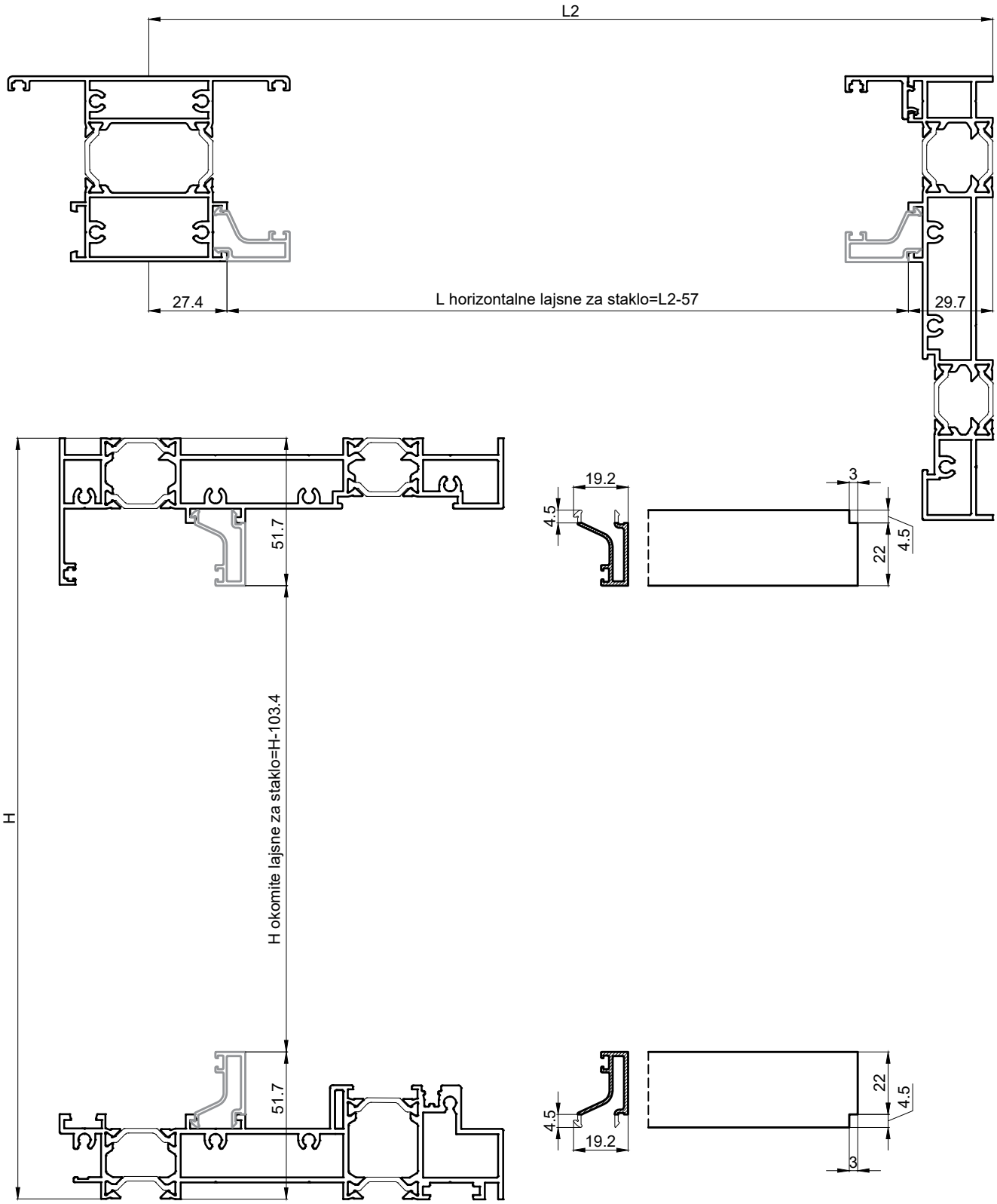
Dimenzija pilanja protuprovalne horizontalne lajsne PR50576 na fiksnom dijelu



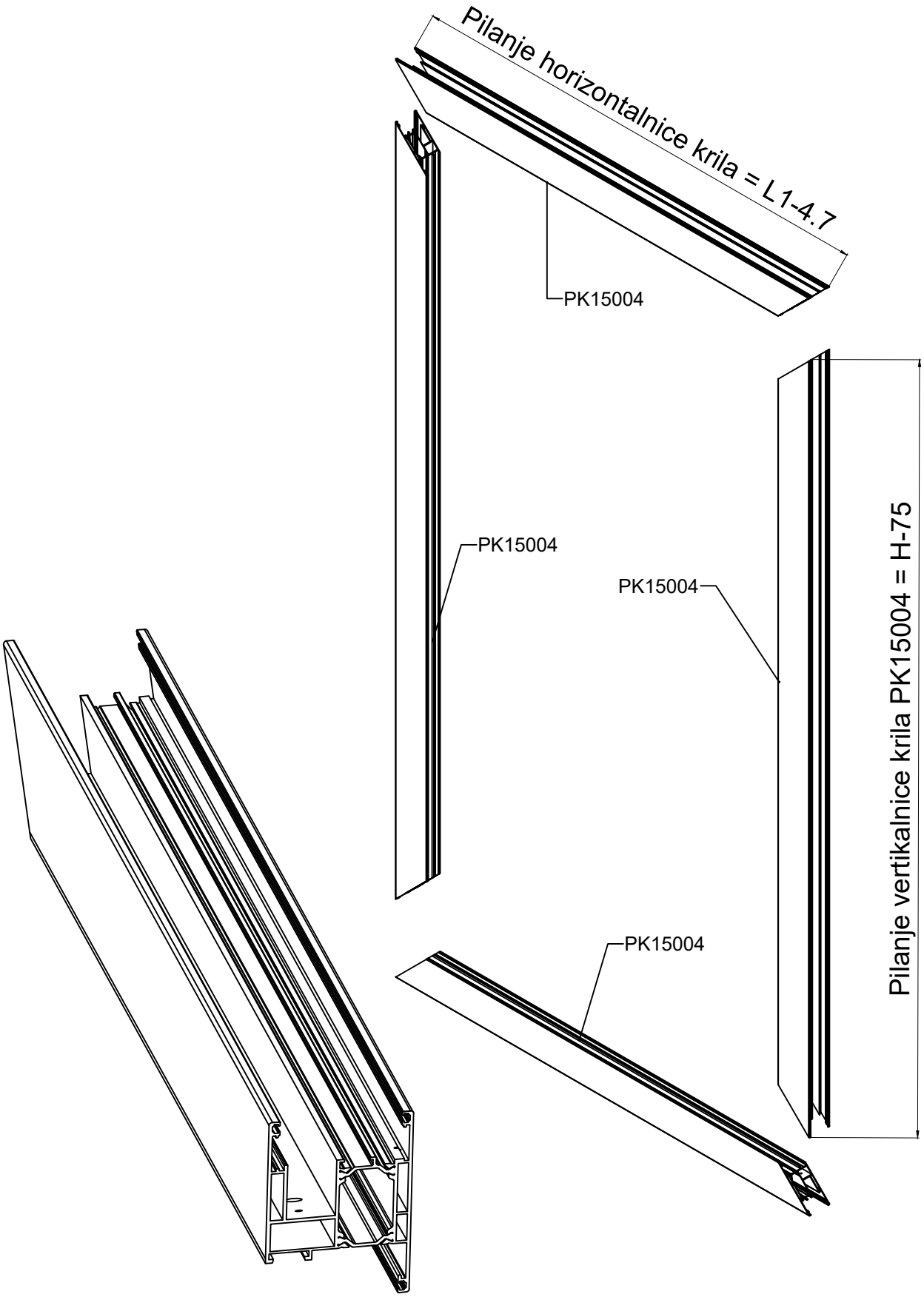




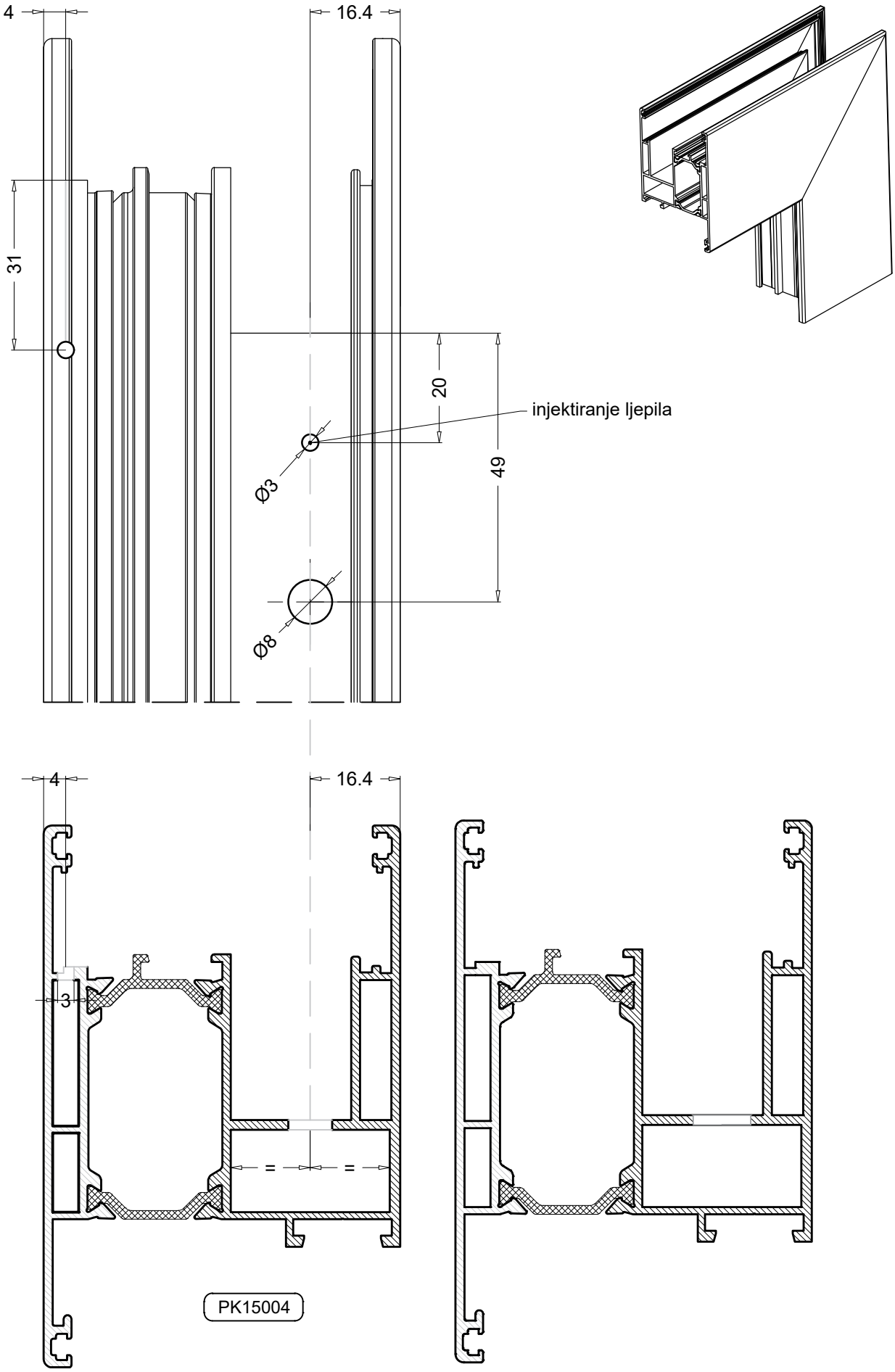
Dimenzija pilanja lajsni za staklo na fiksnom dijelu



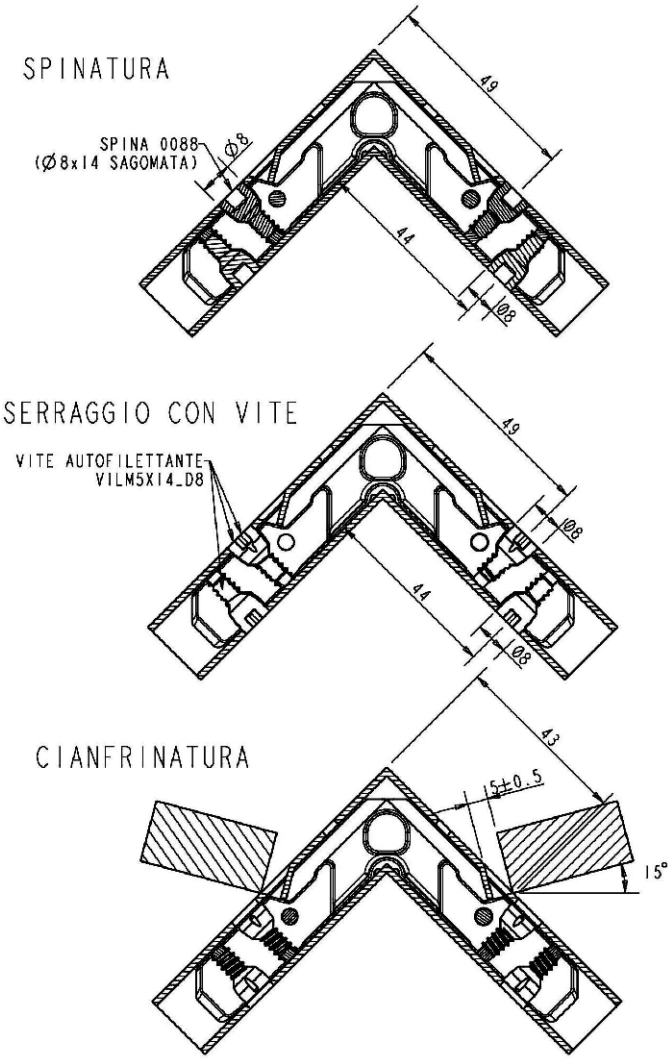
Dimenzije pilanja kliznog krila PK15004 za tipologiju fiks + klizno

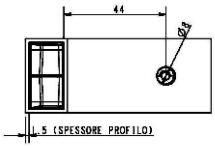


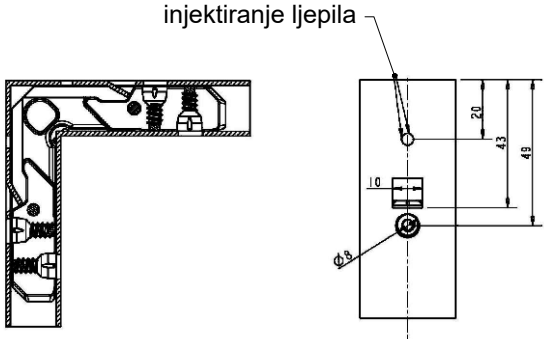
Obrada na profilu krila PK15004 za spajanje kutnicima tonale 5011 i 0172



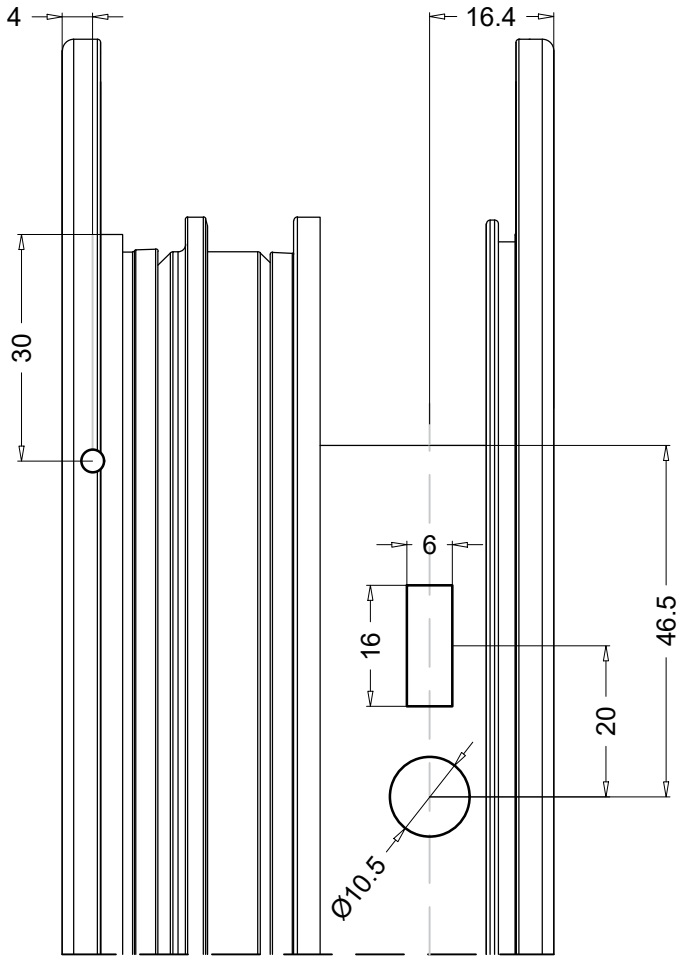
Tehnički list za glavni kutnik krila 5011

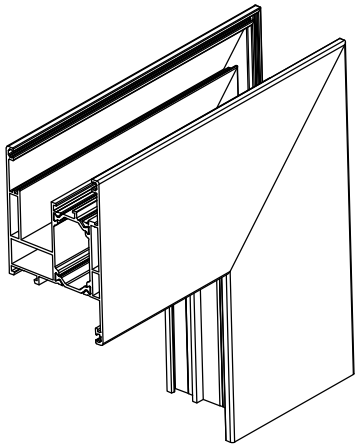


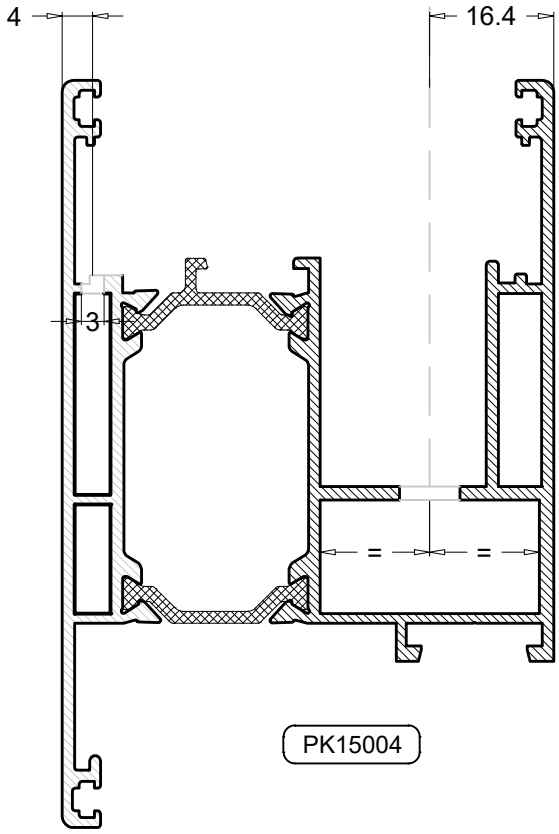




Obrada na profilu krila PK15004 za spajanje kutnicima tonale 0409(PRA200) i 0172





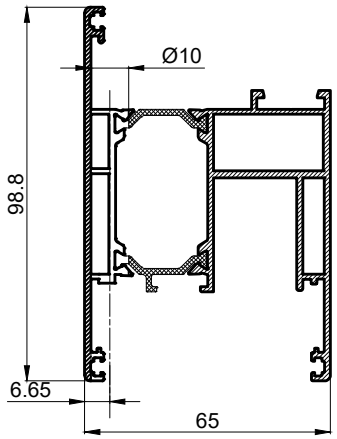


PK15004

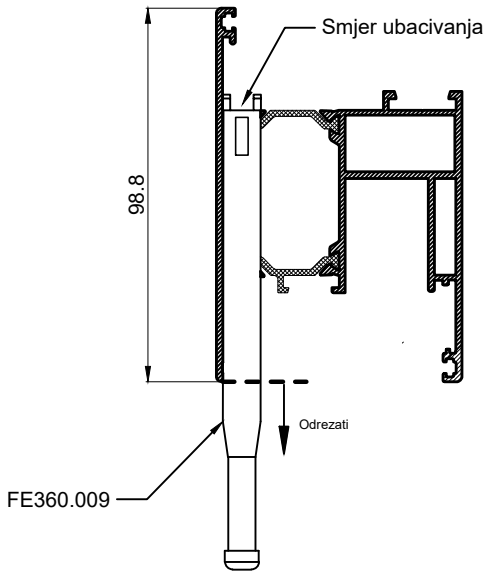
Obrada na profilu PK15004 za skriveni odvod kapljevina

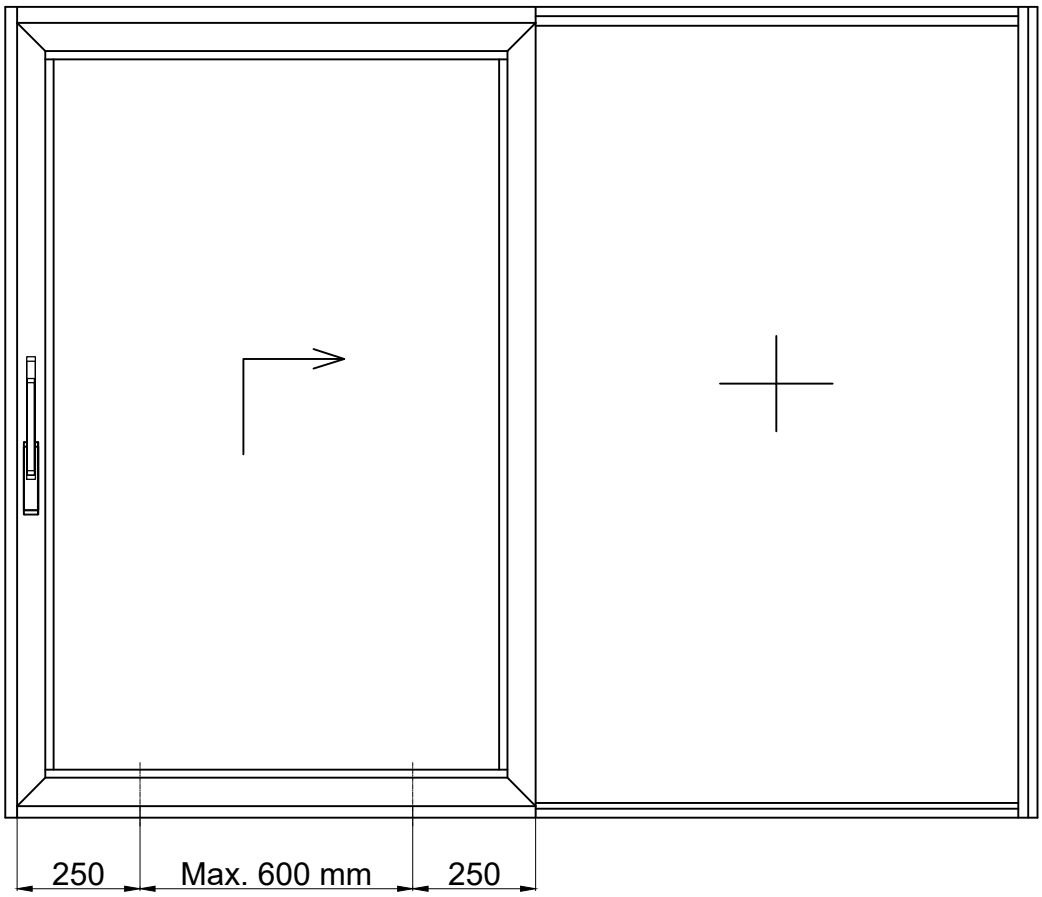
Obrada profila krila PK150tt za skriveni odvod kapljevina

-obradu profila raditi glodalom ili svrdlom Ø10



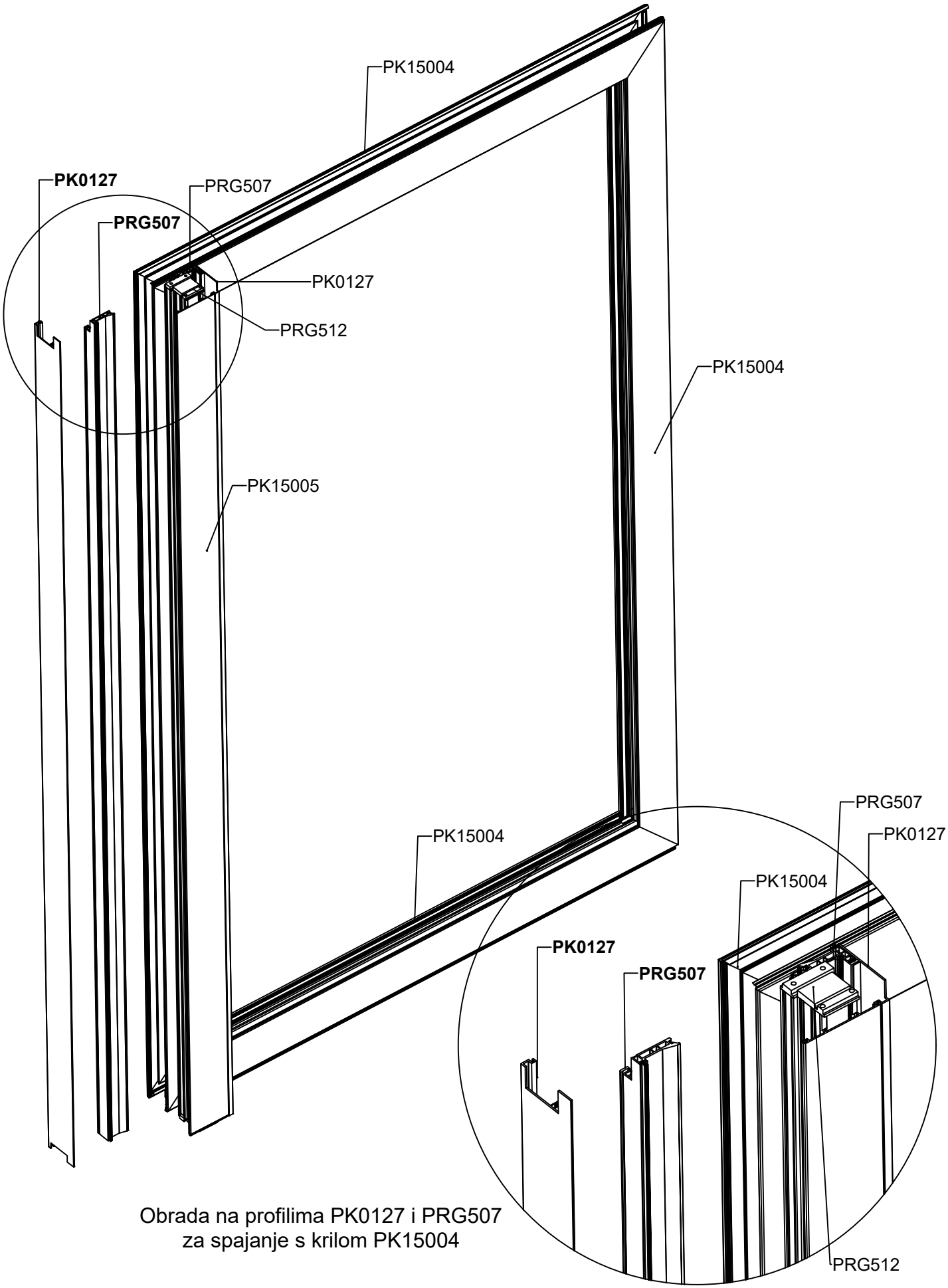
Ugradnja monodrain cjevčice





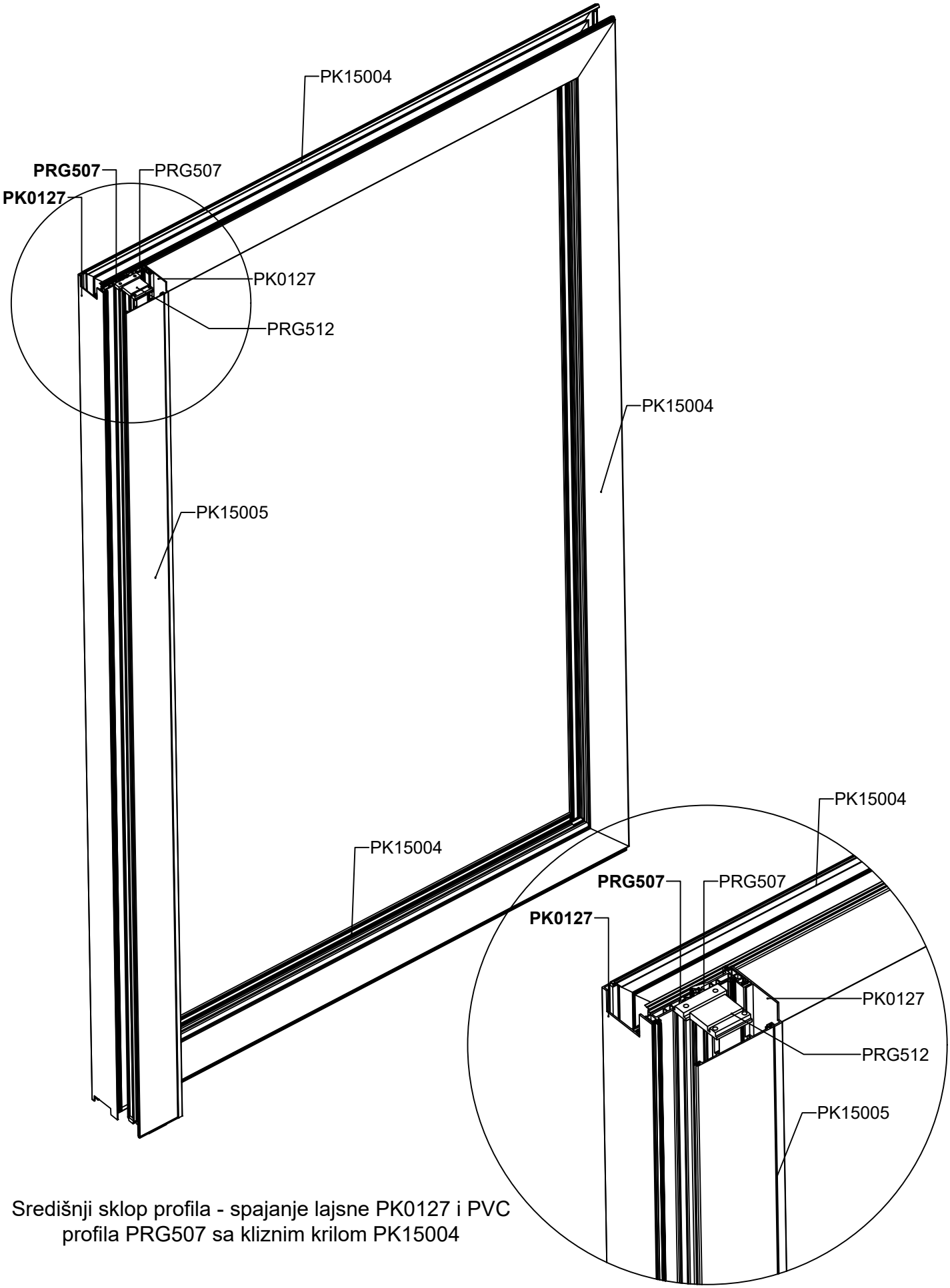
Obradu profila raditi svakih 600 mm, 250 mm od krajeva profila

Detalji spoja i obrade profila lajsne PK0127 i PVC profila PRG507 za spajanje s krilom PK15004



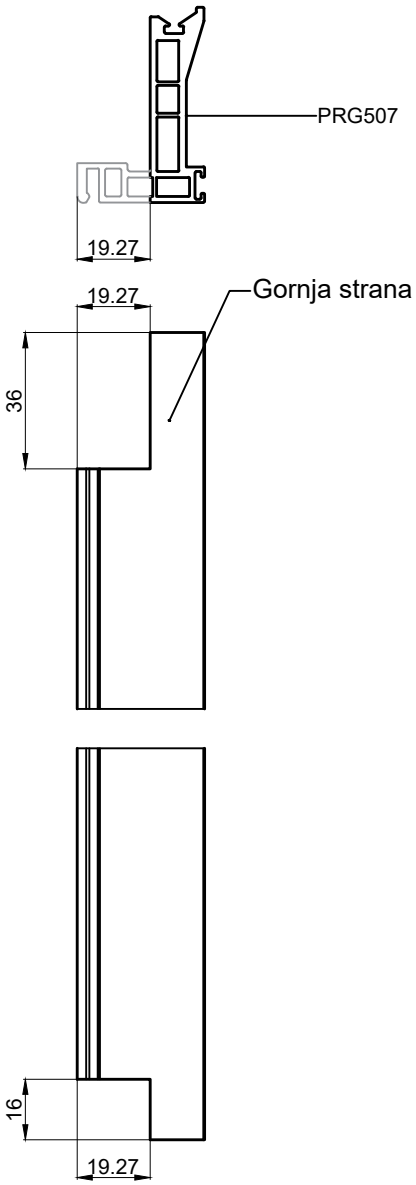
Obrada na profilima PK0127 i PRG507
za spajanje s krilom PK15004

Detalj središnjeg presjeka - spajanje profila PK0127 i PRG507 sa profilom krila PK15004

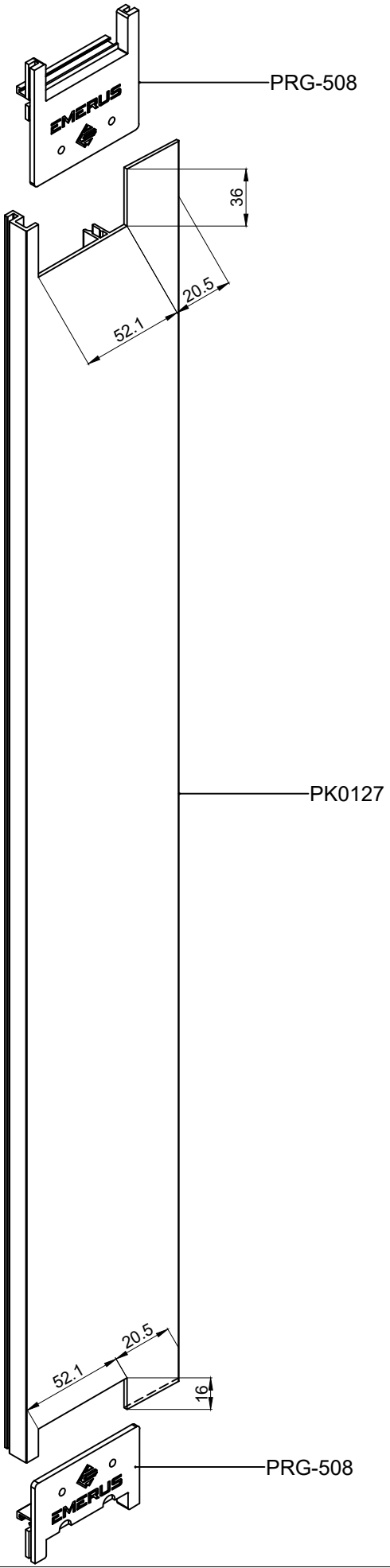


Središnji sklop profila - spajanje lajsne PK0127 i PVC profila PRG507 sa kliznim krilom PK15004

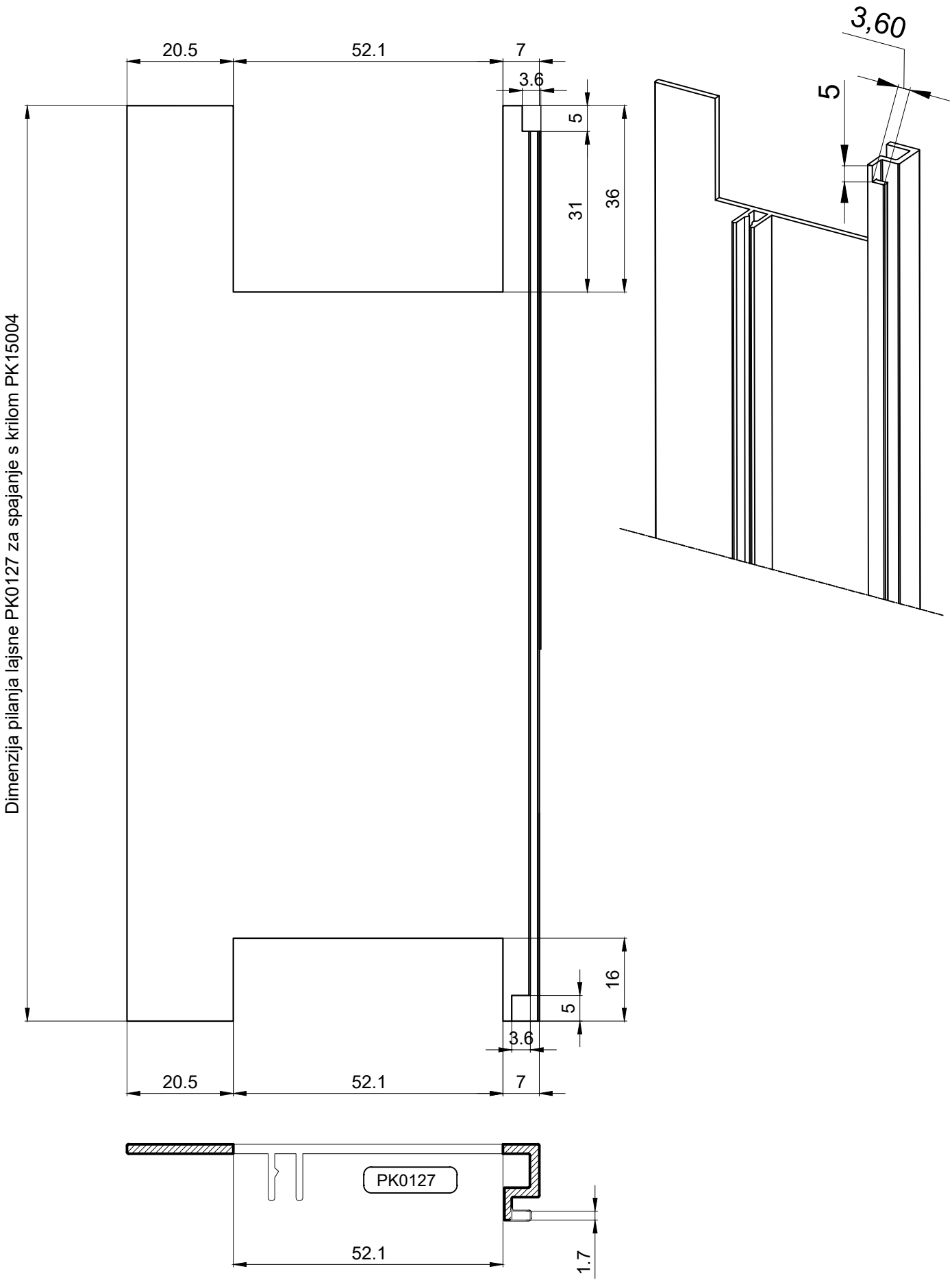
Obrada na PVC profilu PRG507 za spajanje s poklopnom lajsnom PK0127 na krilu



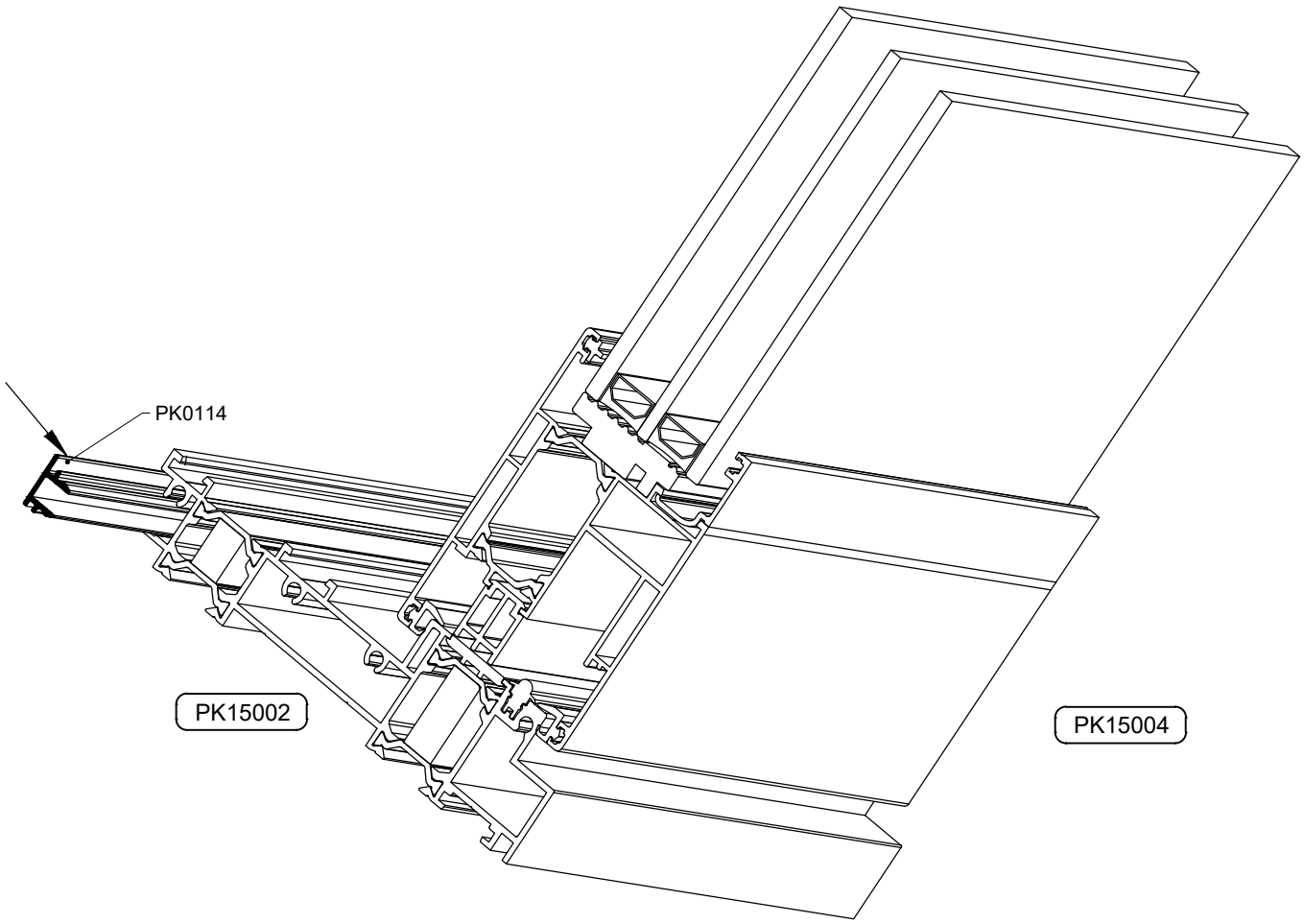
Obrada na profilu PK0127 za spajanje s krilom i umetanje čepa PRG-508



Obrada na profilu lajsne PK0127 za spajanje sa krilom PK15004 i umetanje čepa PRG-508

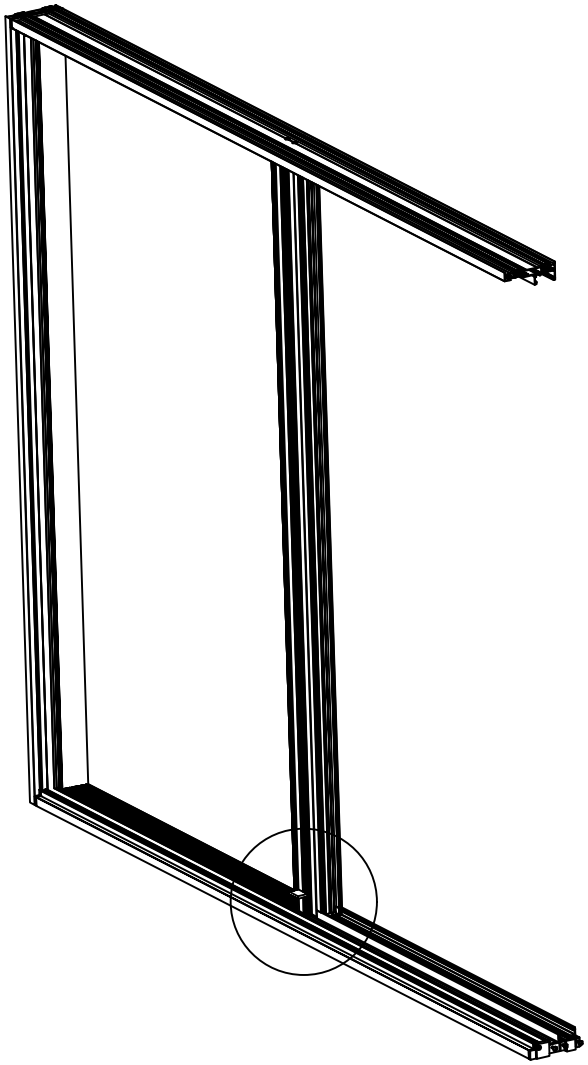


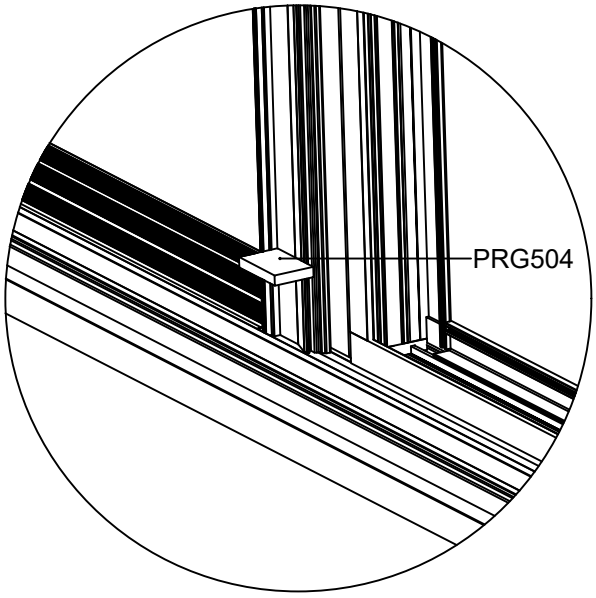
Montaža profila PK0114 na okvir PK15002

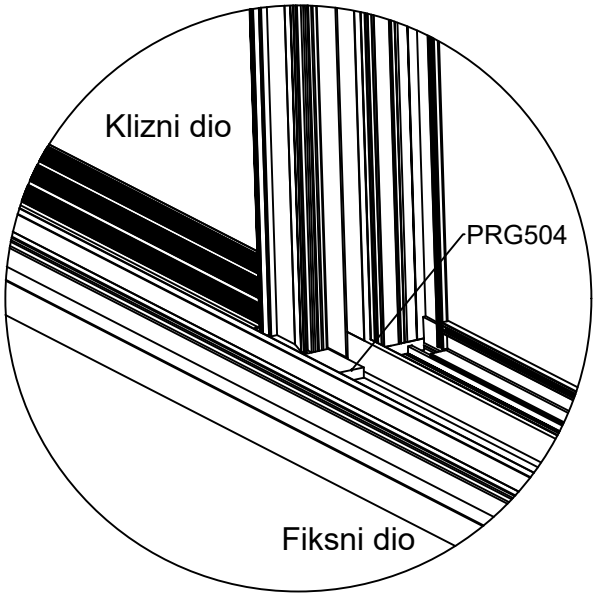


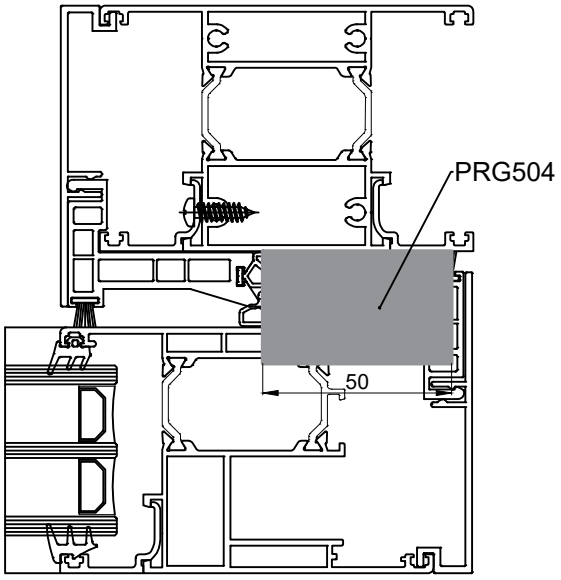
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

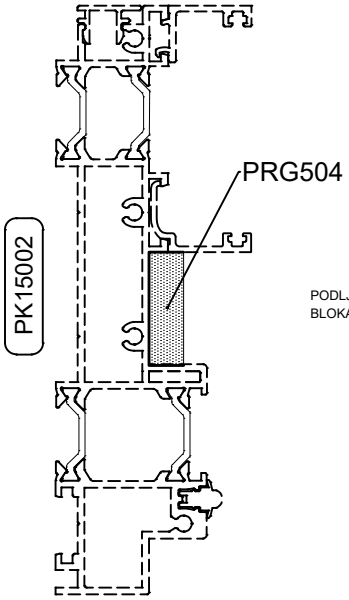
Pozicioniranje brtvenog bloka PRG504 između T profila PK15005 i profila krila PK15004





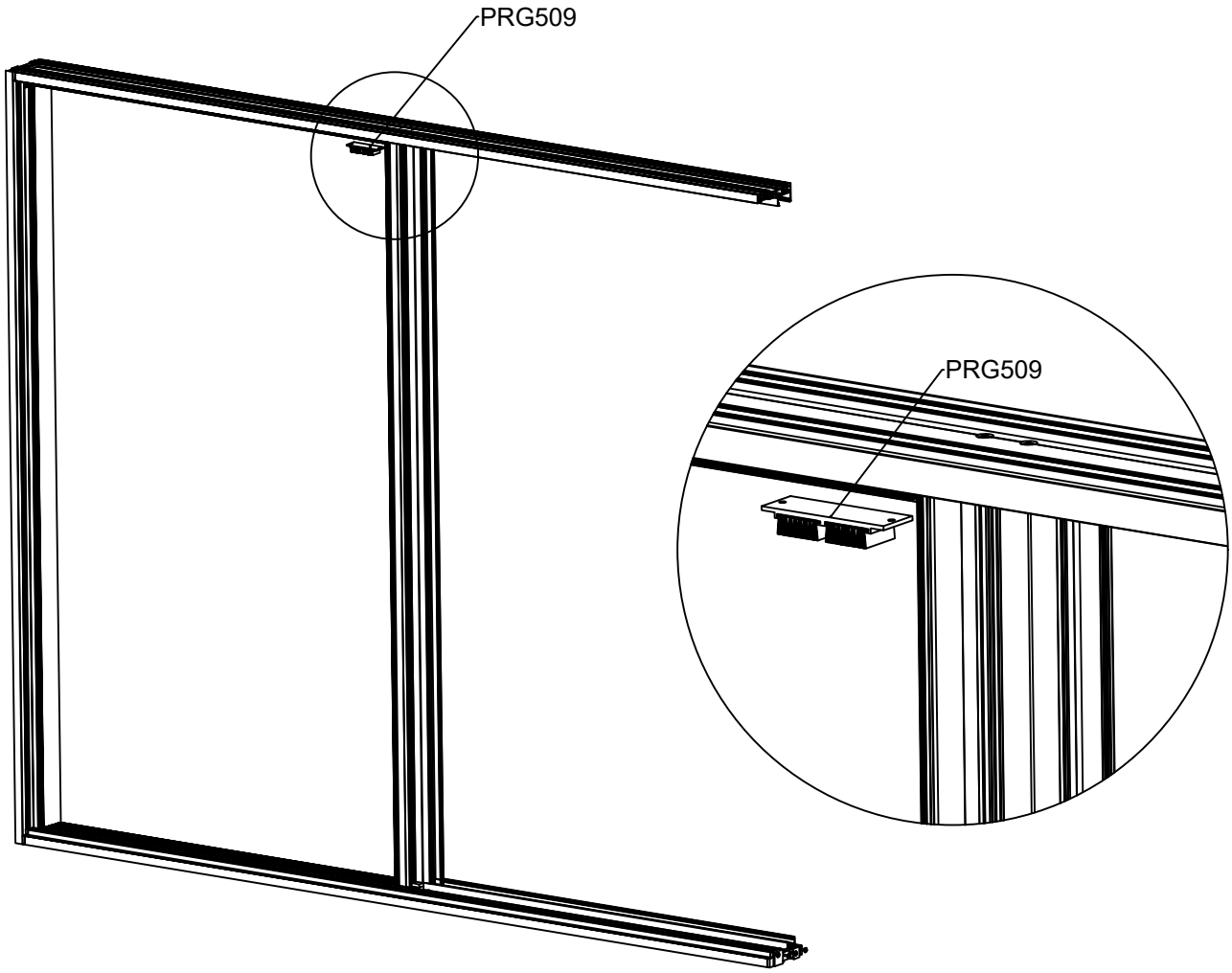


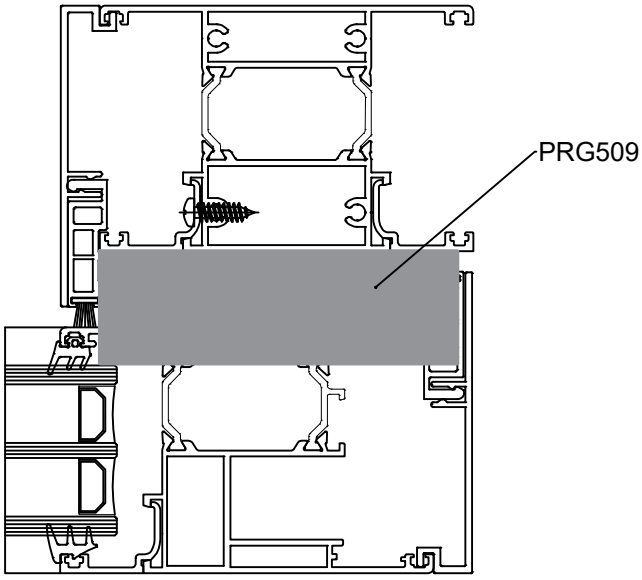


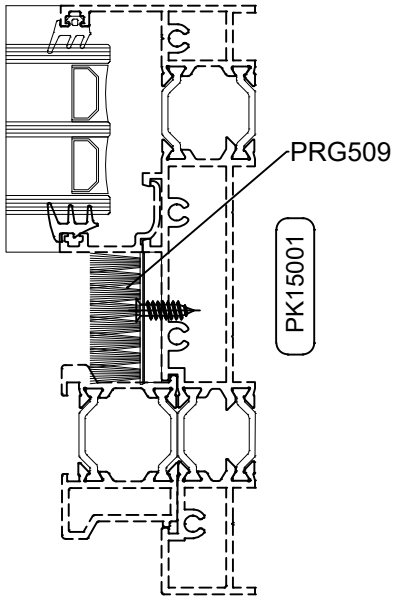


PODLJEVANJE I LJEPLJENJE BRTVENOG BLOKA PRG504 SA SIKAFLEX 221 ILI SLIČNO.

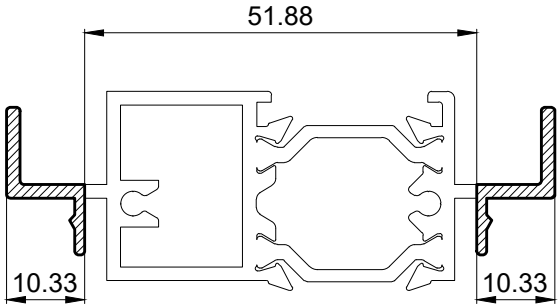
Pozicioniranje četkastog bloka PRG509 između T profila PK15005 i profila krila PK15004

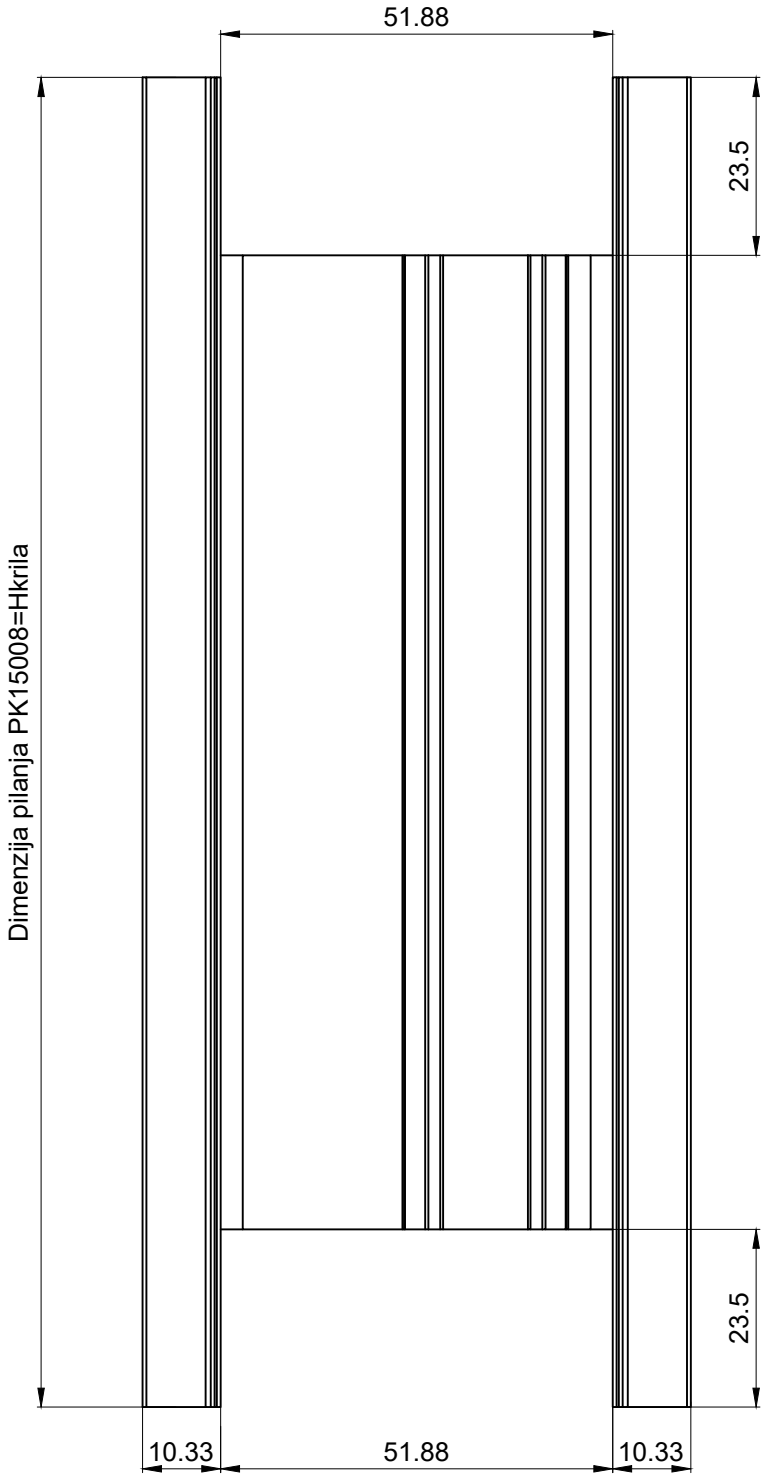


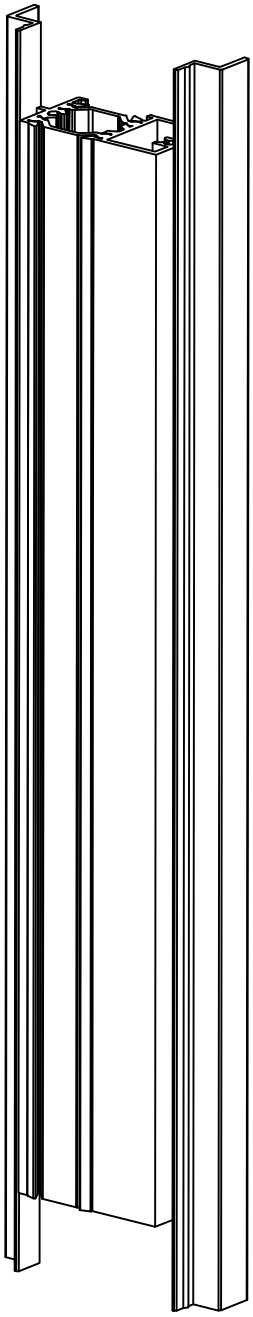




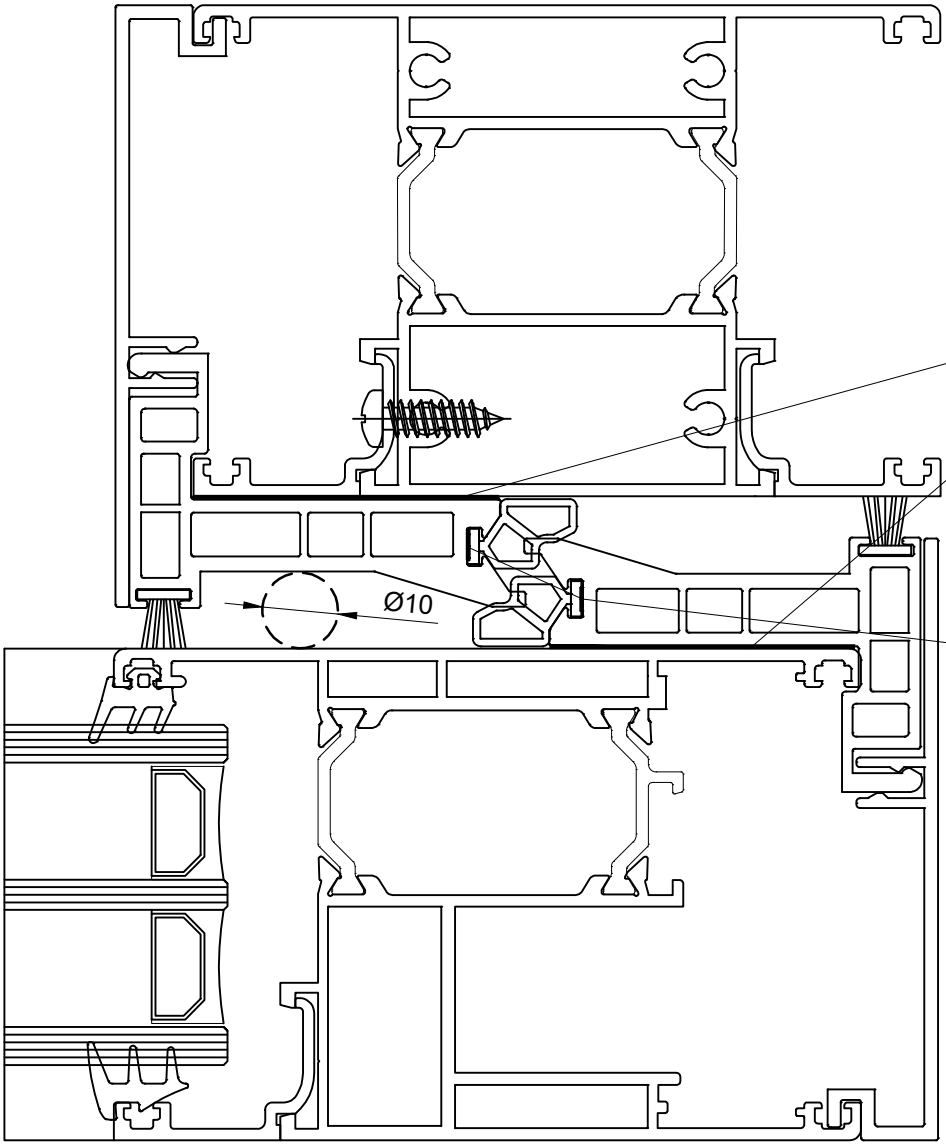
Obrada na profilu štulpa PK15008







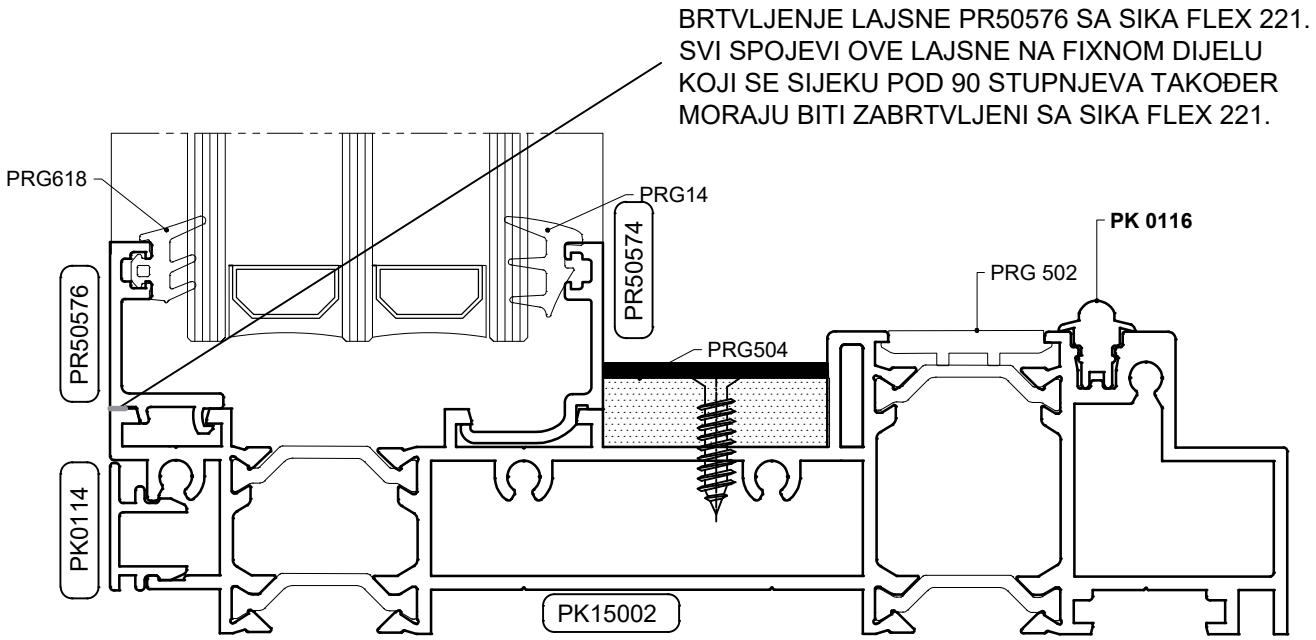
Silikoniranje brtve PRG503 i PVC profila PRG507 za prečku/krilo



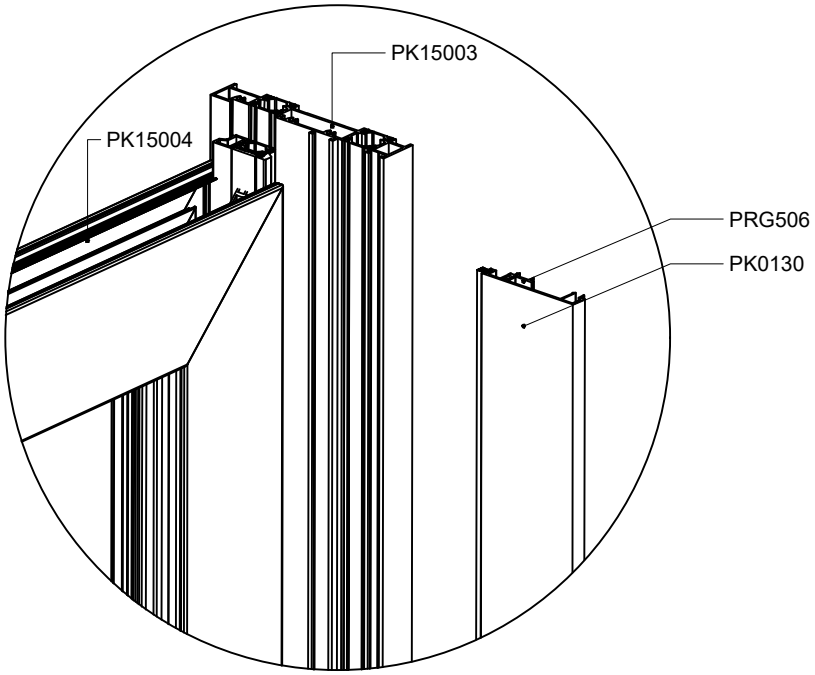
BRTVLJENJE PRG507 SA SIKAFLEX 221 ILI JEDNAKOVRIJEDNO NA POZICIJI SA SLIKE PO CIJELOJ VISINI PRG507

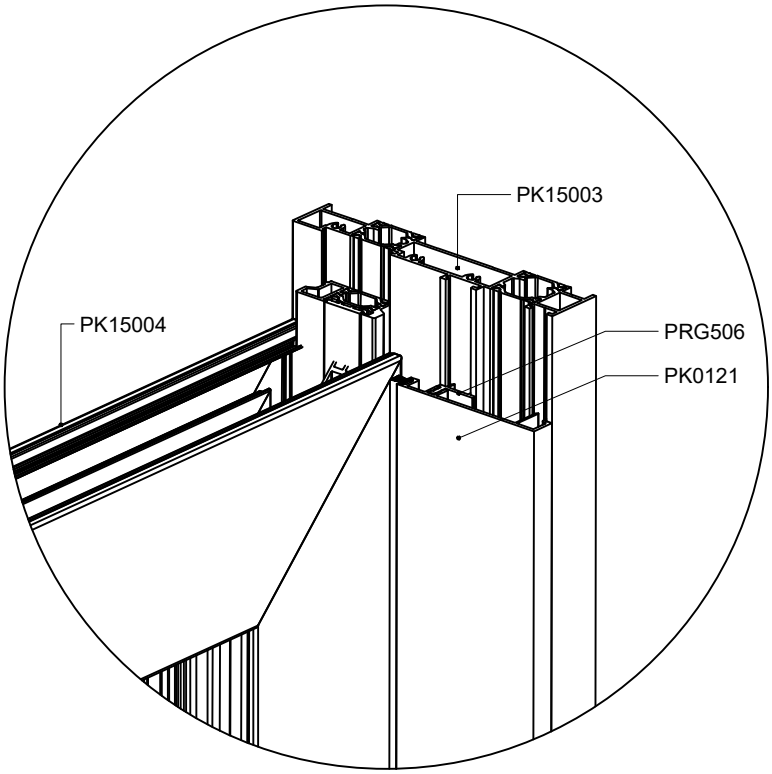
LJEPLJENJE PRG503 SA SIKA BOND TF PLUS N (ILI SLIČNO) NA POZICIJI SA SLIKE NA DUŽINI OD 100mm OD VRHA I DNA

Silikoniranje protuprovalne lajsne PR50576 na fiksnom dijelu

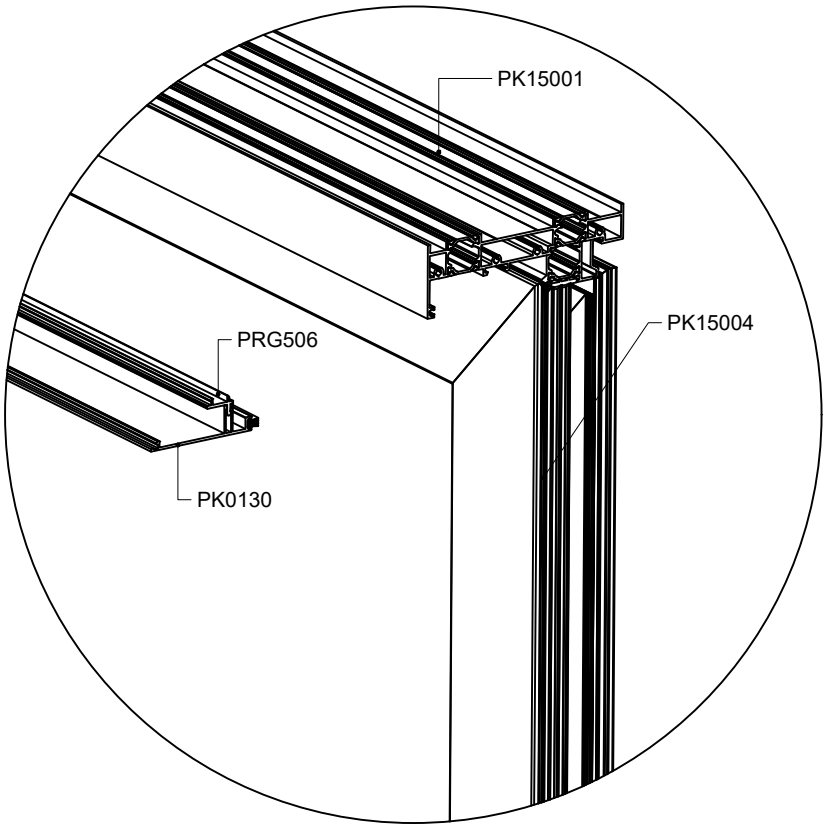


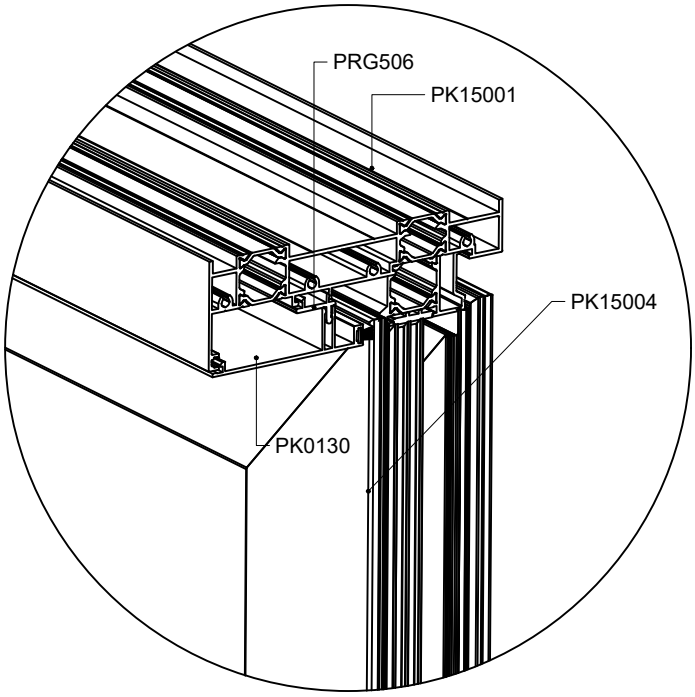
Montaža bočne lajsne PK0130 i PVC profila PRG506 na okvir PK15003



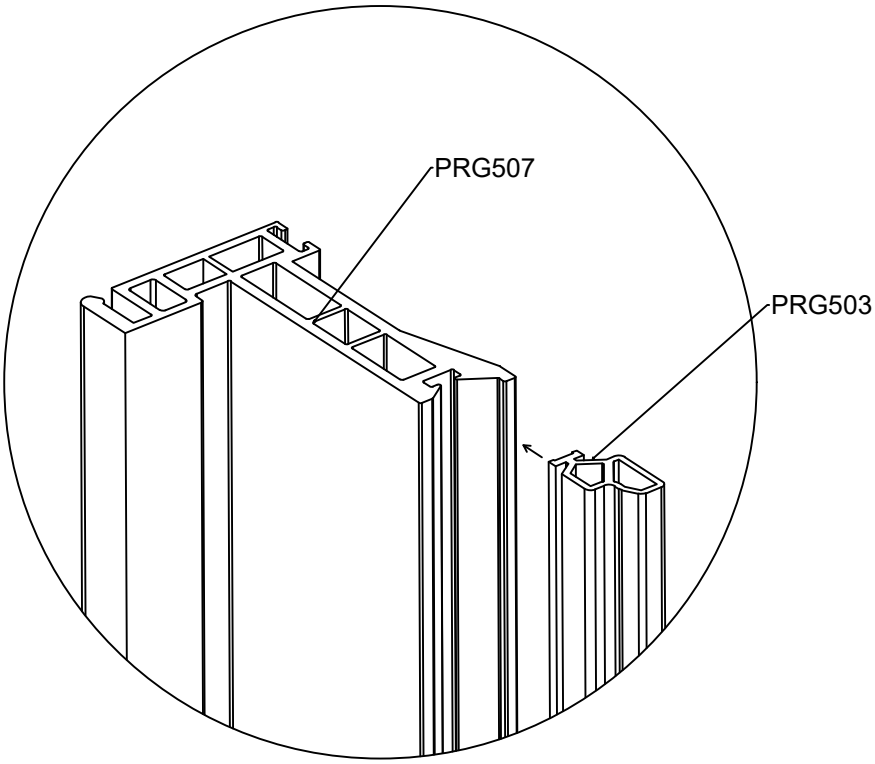


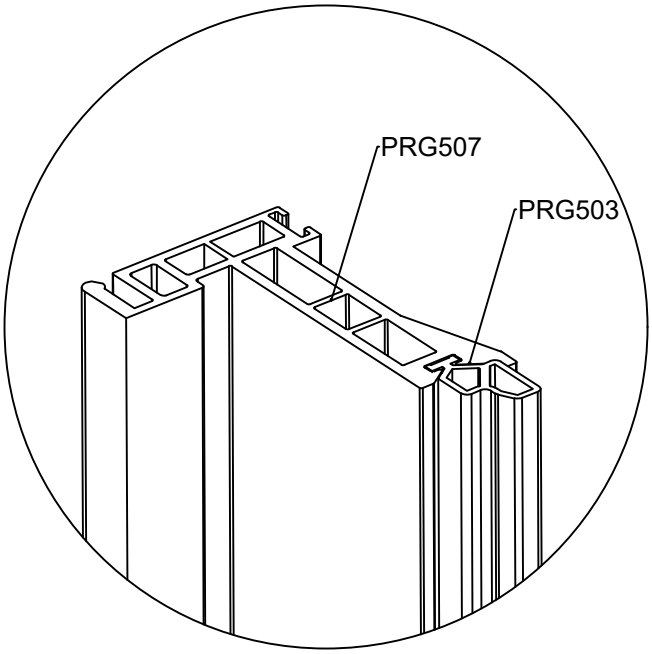
Montaža gornje lajsne PK0130 i PVC profila PRG506 na okvir PK15001



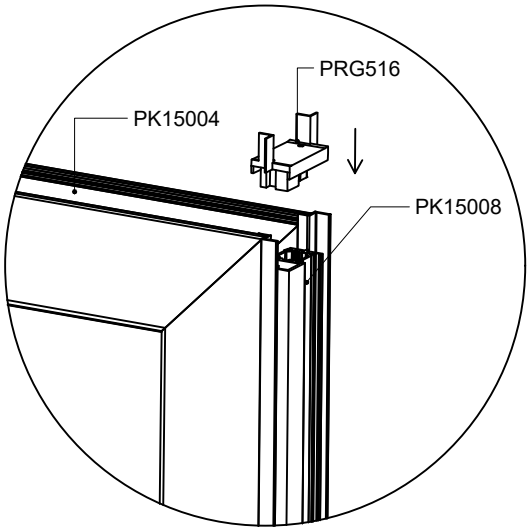


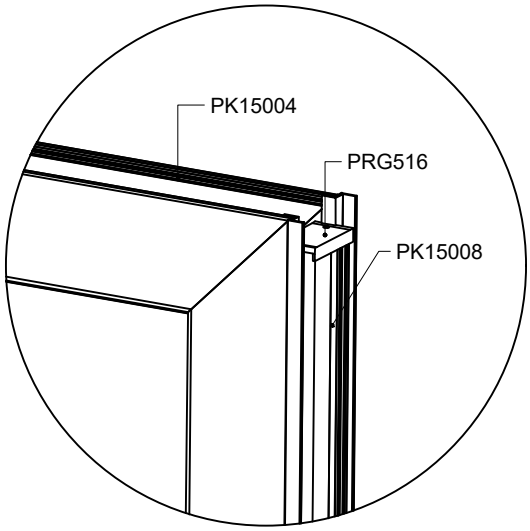
Montaža brtve PRG503 na PVC profil PRG507



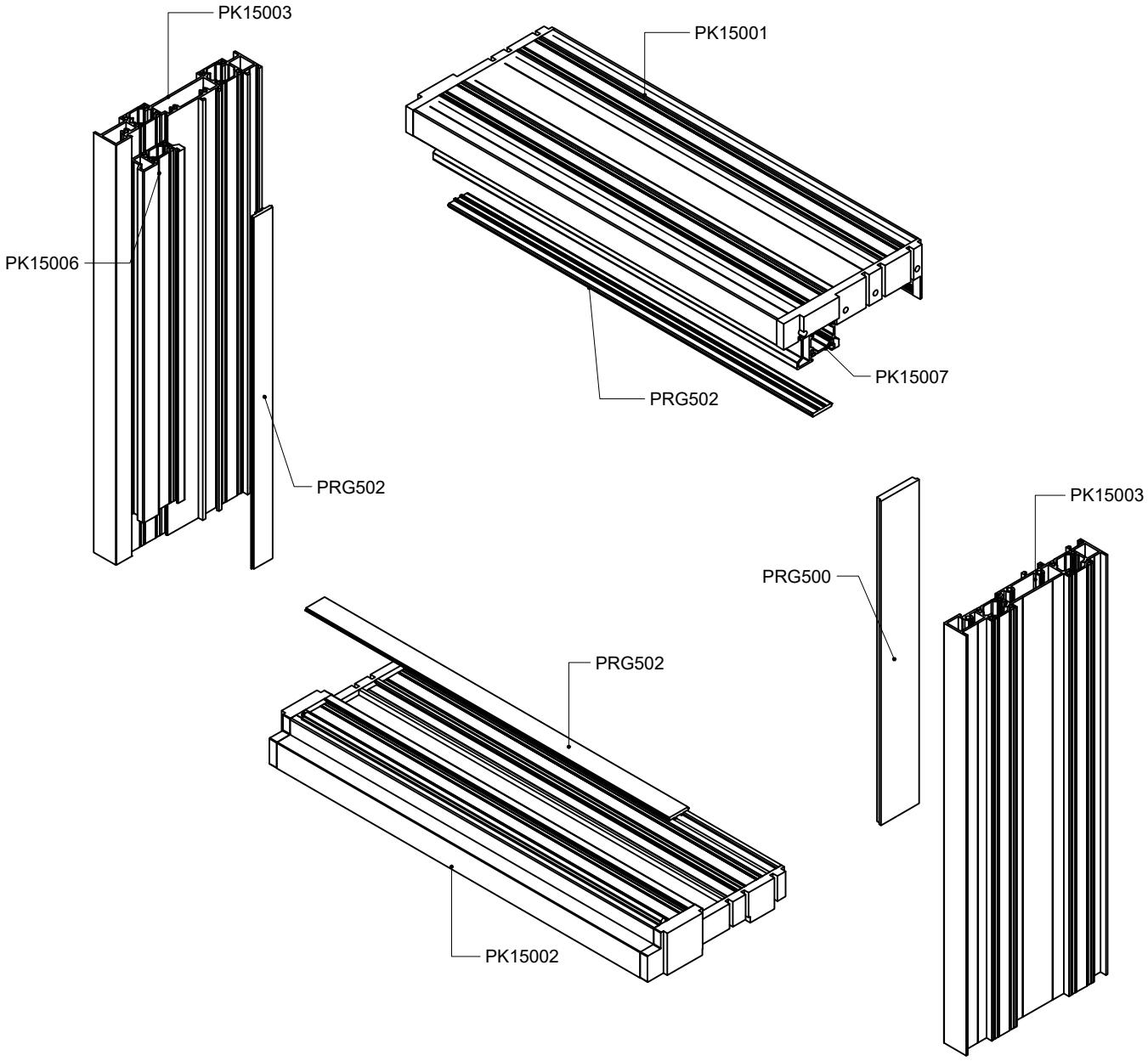


Montaža centralnog čepa PRG50X na profil štulpa PK15008

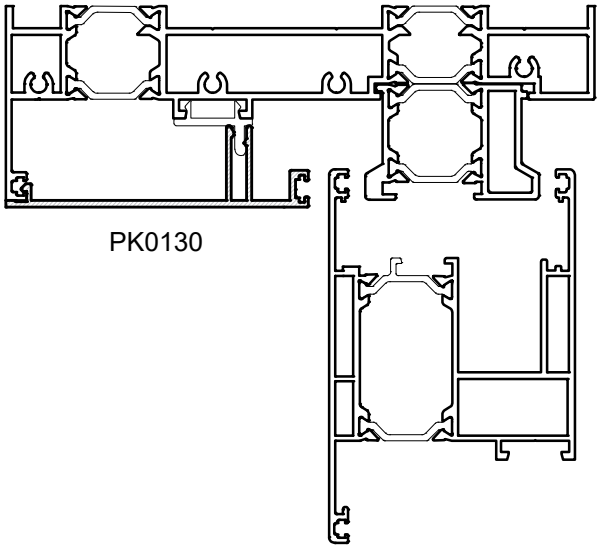


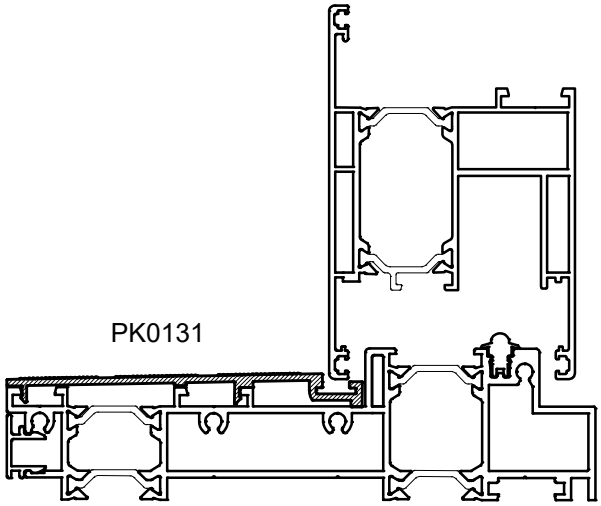


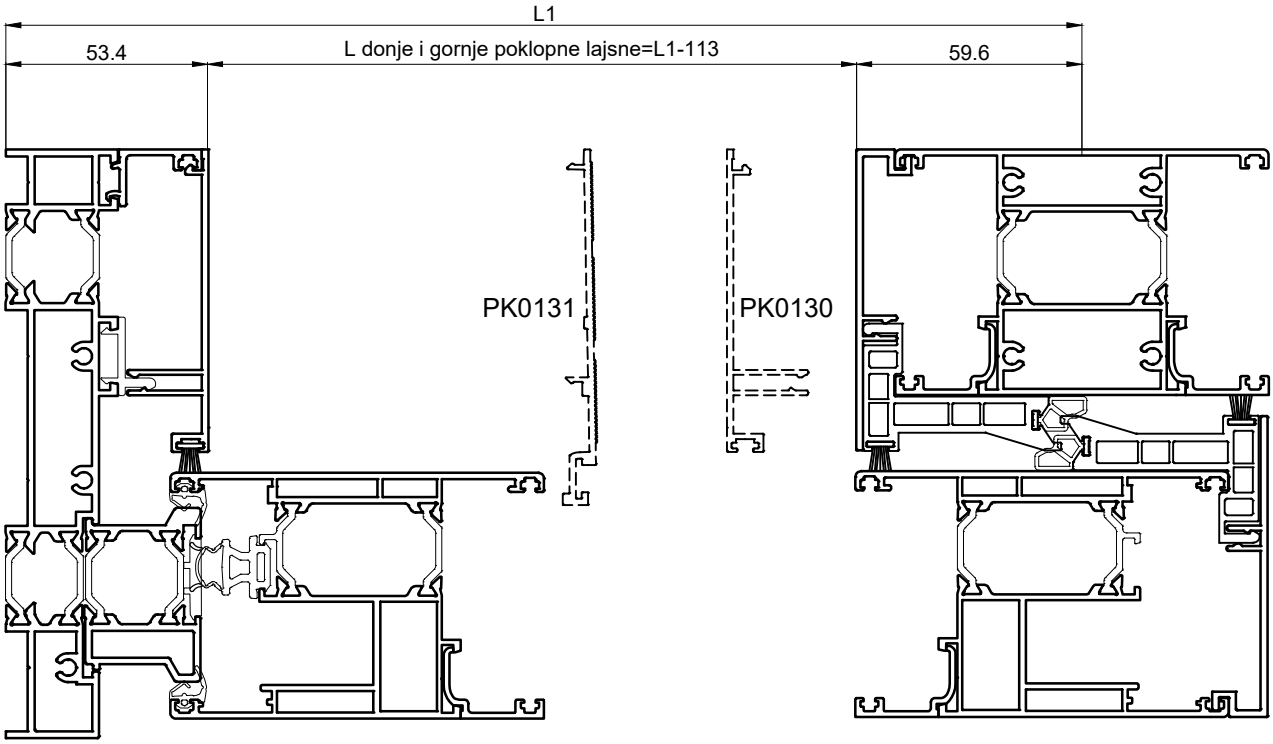
Montaža brtvi PRG500 i PRG502 na profile okvira



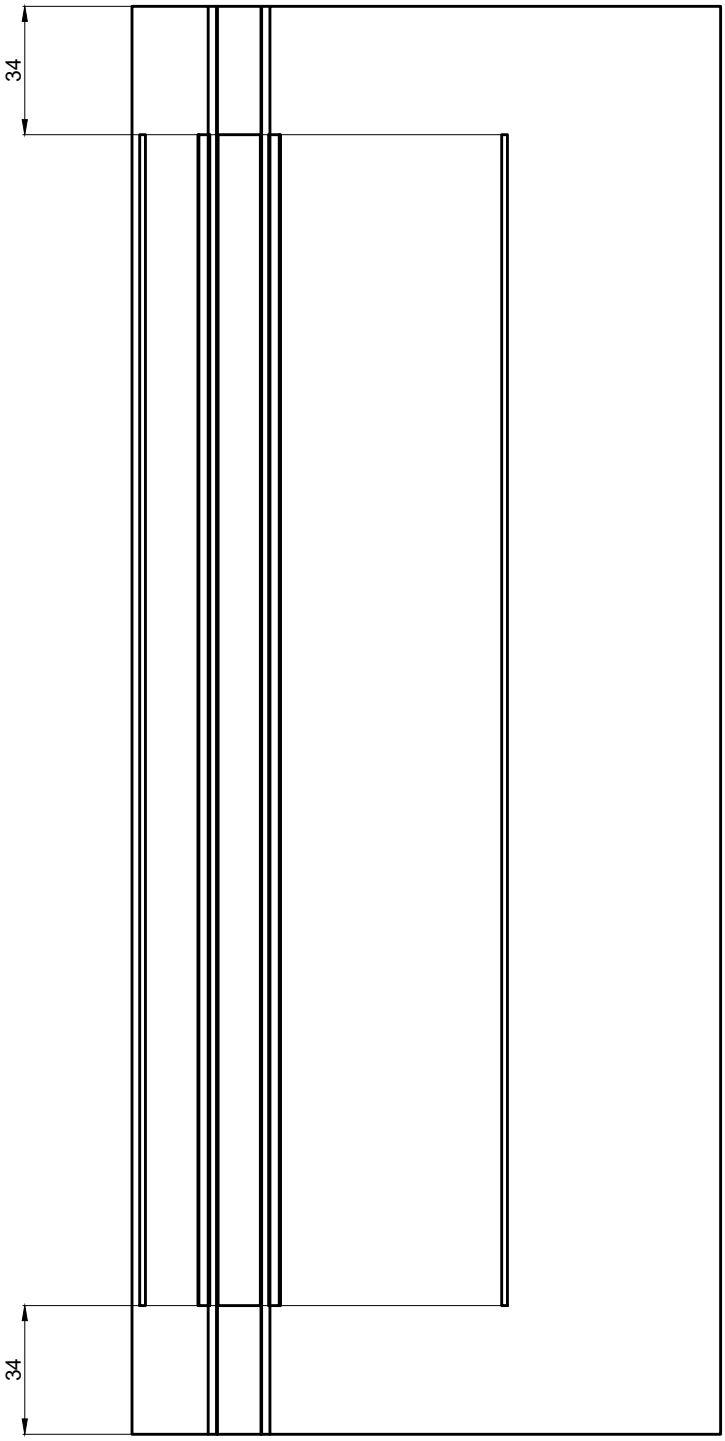
Dimenzija pilanja gornje/PK0130 i donje/PK0131 poklopne lajsne

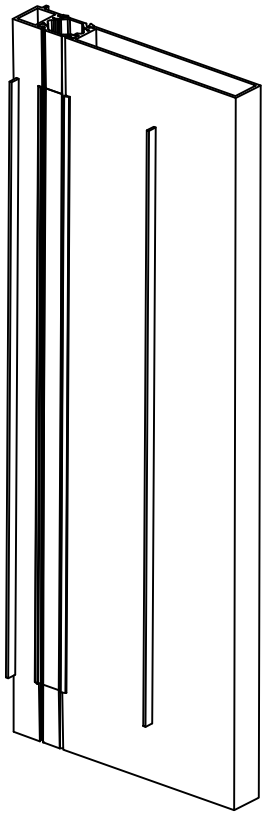




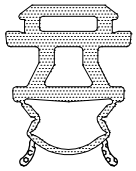
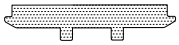
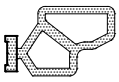
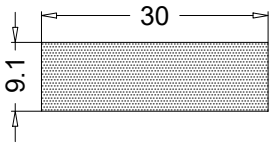


Obrada na prijelaznom profilu okvira PK15009 za spajanje sa serijama PE85tt i PR65tt



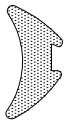
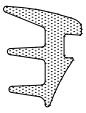
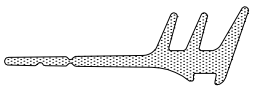
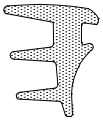
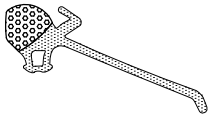


OKOV

KOD	OPIS		Komada po pakovanju	MATERIJAL
PRG500		Brtva okvira		EPDM
				PK150tt
PRG501 -PR		Centralna brtva		EPDM
				PK150tt
PRG502		Brtva okvira		EPDM
				PK150tt
PRG503		Brtva spoja		EPDM
				PK150tt
PRG504		Brtva spoja(110mm)		EPDM
				PK150tt
PRG505 -PR		Brtva krila		EPDM
				PK150tt
UP2		UNUTARNJA EPDM BRTVA ZA STAKLO, 2 mm		EPDM
			E50 / E50tt / PR65tt / PE85tt / PK150tt	
PRG621		UNUTARNJA EPDM BRTVA ZA STAKLO, 2-3 mm		EPDM
			E50 / E50tt / PR65tt / PE85tt / PK150tt	

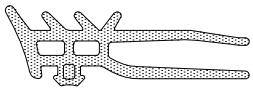
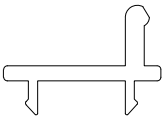
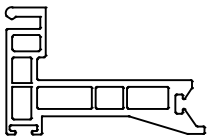
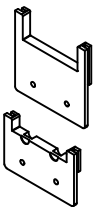
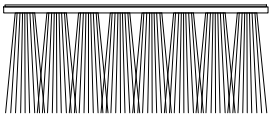
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

OKOV

KOD	OPIS		Komada po pakovanju	MATERIJAL				
UP4		UNUTARNJA BRTVA ZA STAKLO 4mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG14		UNUTARNJA EPDM BRTVA ZA STAKLO, 4-5 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG705		UNUTARNJA EPDM BRTVA S PEROM ZA STAKLO, 4-5 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG17		UNUTARNJA EPDM BRTVA ZA STAKLO, 6-7 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG602		VANJSKA KOEKSTRTUDIRANA BRTVA ZA STAKLO, 2 mm		EPDM+ ESPANSO				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG603		VANJSKA KOEKSTRTUDIRANA GUMA ZA STAKLO, 3 mm		EPDM+ ESPANSO				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG604		VANJSKA KOEKSTRTUDIRANA BRTVA ZA STAKLO, 3 mm		EPDM+ ESPANSO				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG610		VANJSKA KOEKSTRUDIRANA BRTVA S PEROM ZA STAKLO, 3 mm		EPDM+ ESPANSO				
				E50	E50tt	PR65tt	PE85tt	PK150tt

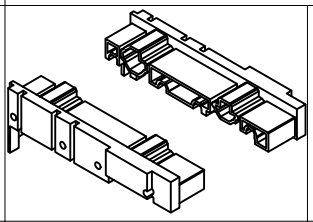
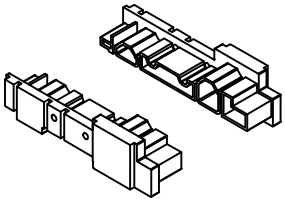
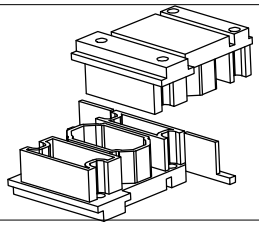
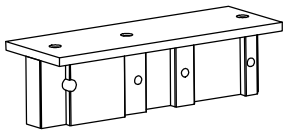
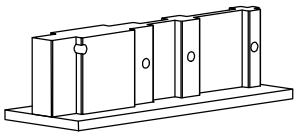
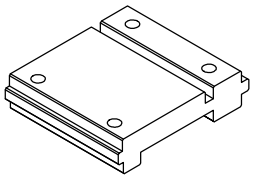
PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

OKOV

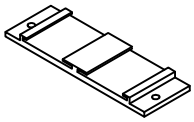
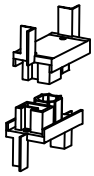
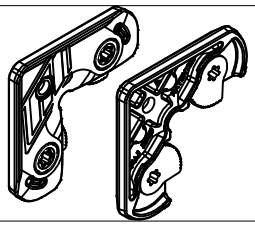
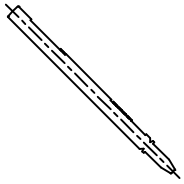
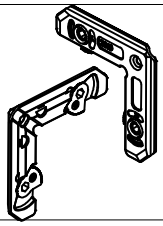
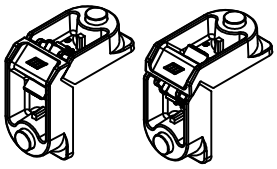
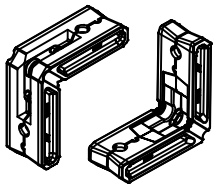
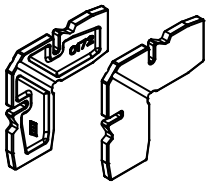
KOD	OPIS		Komada po pakovanju	MATERIJAL				
PRG616		VANJSKA BRTVA ZA STAKLO 2-3mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG617		VANJSKA EPDM BRTVA ZA STAKLO, 3-4 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG618		VANJSKA EPDM BRTVA ZA STAKLO, 4-5 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG620		VANJSKA EPDM BRTVA SA USNAMA ZA STAKLO, 5 mm		EPDM				
				E50	E50tt	PR65tt	PE85tt	PK150tt
PRG506		Plastika		PVC				
								PK150tt
PRG507		Plastika		PVC				
								PK150tt
PRG-508		Čep za lajsnu PK0127		PVC				
								PK150tt
PRG509		Četkica na srednjem spoju(110mm)		Polipropilen				
								PK150tt

PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

OKOV

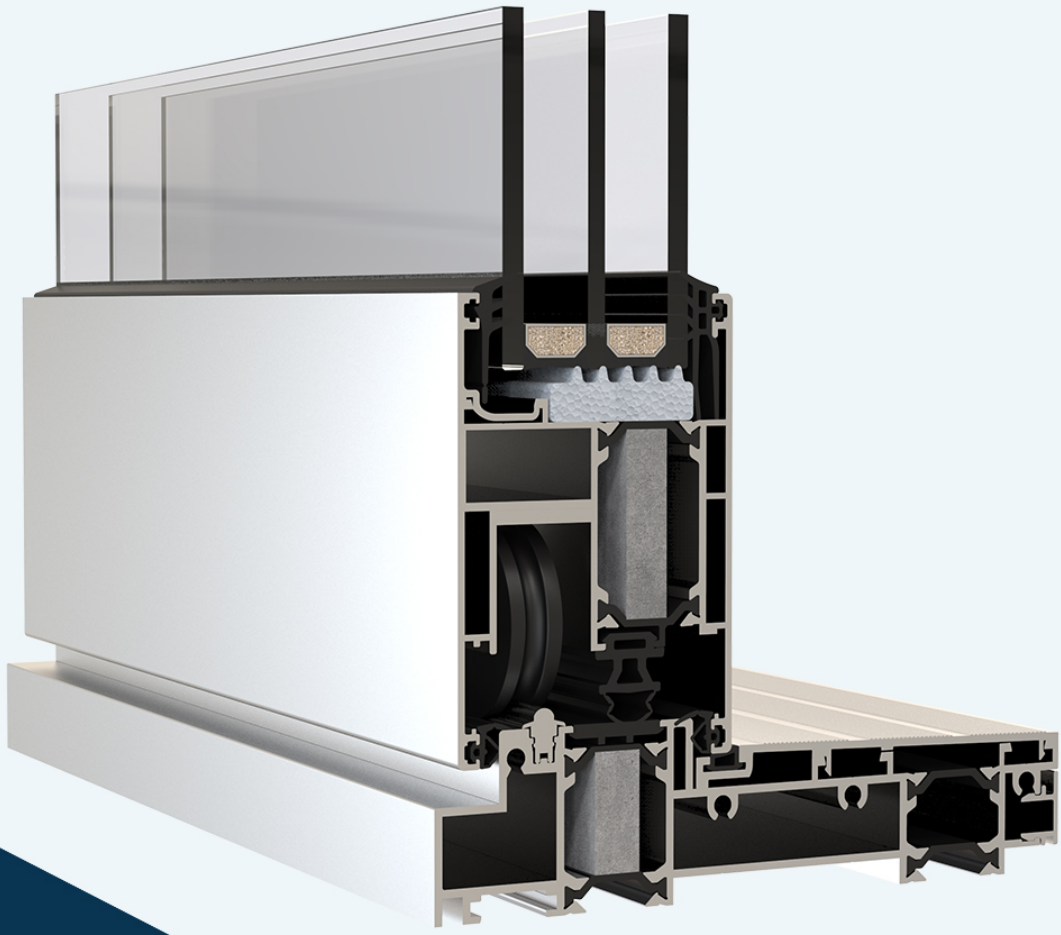
KOD	OPIS		Komada po pakovanju	MATERIJAL
PRG510		Gornji čep		EPDM
				PK150tt
PRG511		Donji čep		EPDM
				PK150tt
PRG512		Srednji čep		EPDM
				PK150tt
24.049. 050		Četkica		
				PK150tt
PRG515		Brtva donje poklopne lajsne		
				PK150tt
PRA520		Gornji kalup za spajanje okvira		ČELIK
				PK150tt
PRA521		Donji kalup za spajanje okvira		ČELIK
				PK150tt
PRA522		Srednji kalup za spajanje okvira i prečke		ČELIK
				PK150tt

OKOV

KOD	OPIS		Komada po pakovanju	MATERIJAL
PRA513		Plastika za četkicu PRG509		PVC
				PK150tt
PRG516		Čep centralnog profila PK15008		TPU
				PK150tt
2200		Kutnik poravnanja **PRA02** 4.8mm x 17.4 mm.		Aluminijski odlivak
				PK150tt
0092		Bolcna za spajanje kutnika 0172.		Aluminijski odlivak
				PK150tt
2019		Pomoćni kutnik krila 2019.		Aluminijski odlivak
				PK150tt
0409		Glavni kutnik krila **PRA200** 28.5 x 14.5 mm		Aluminijski odlivak
				PK150tt
5011		Glavni kutnik krila 5011 28.5 x 14.5 mm		Aluminijski odlivak
				PK150tt
0172		Pomoćni kutnik krila		Aluminijski odlivak
				PK150tt

NAPOMENE

EMERUS
ALUMINIUM EXTRUSION

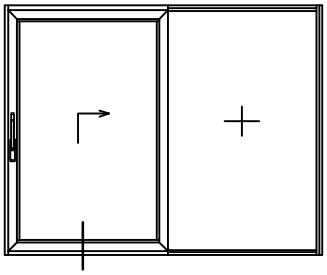


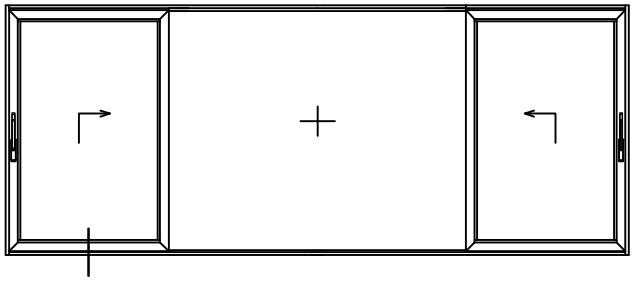
PK150tt

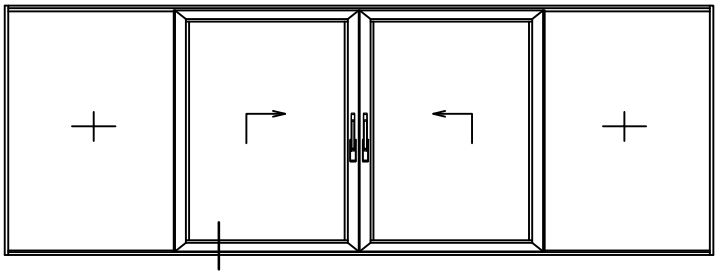
Podizno klizna vrata

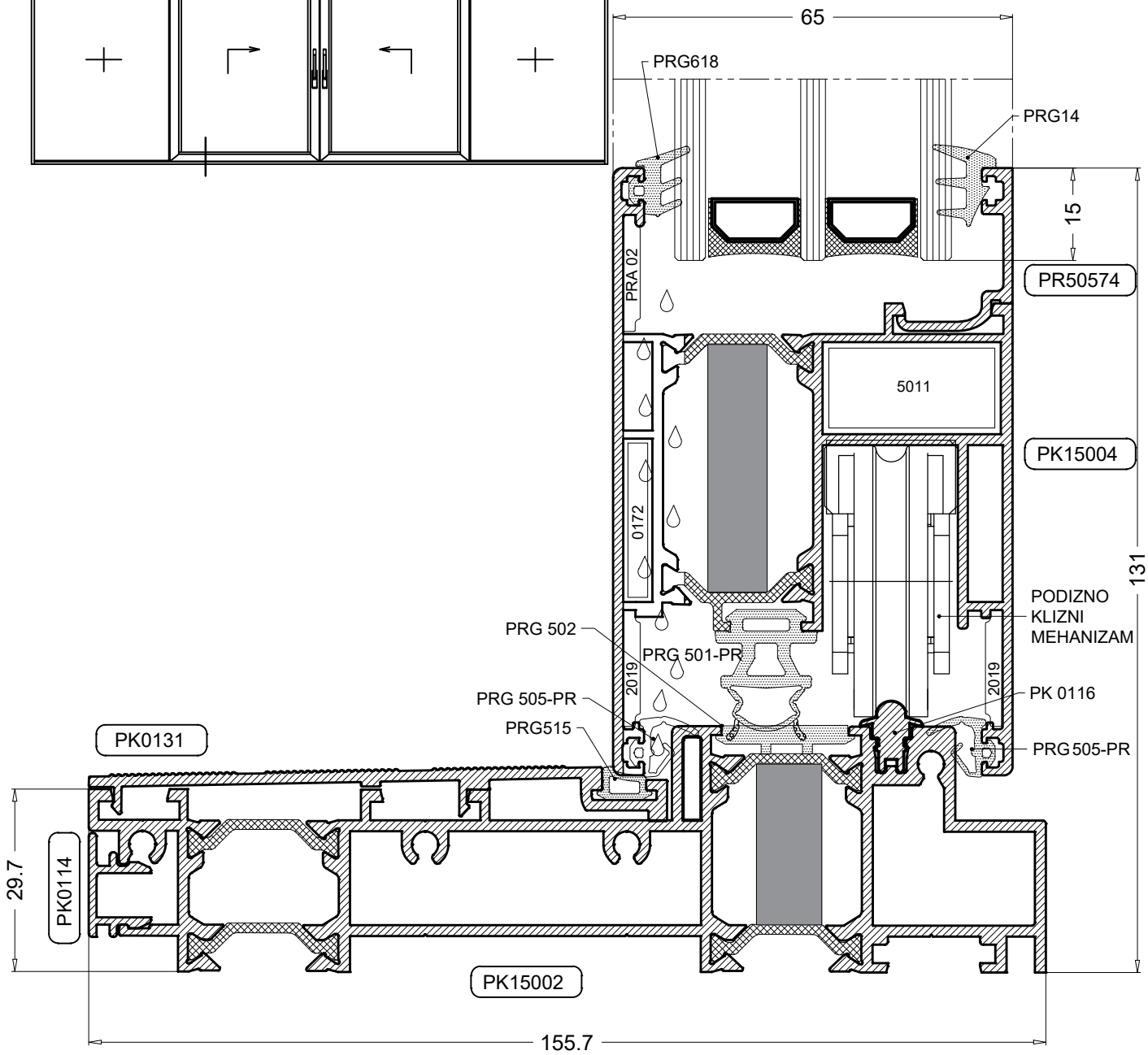
TEHNIČKI KATALOG

Donji presjek pokretnog krila





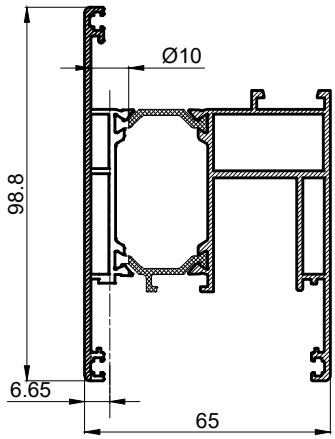




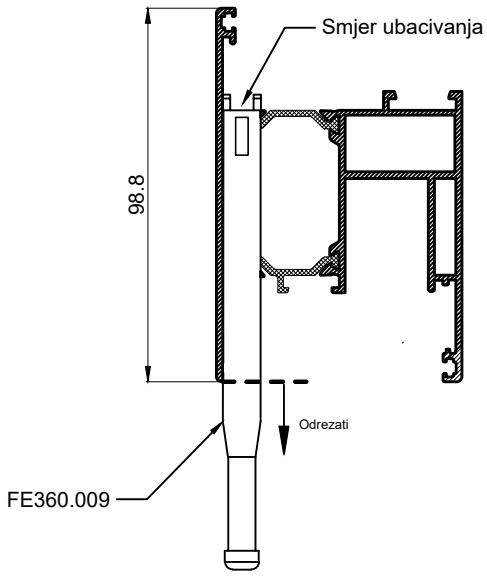
Obrada na profilu PK15004 za skriveni odvod kapljevina

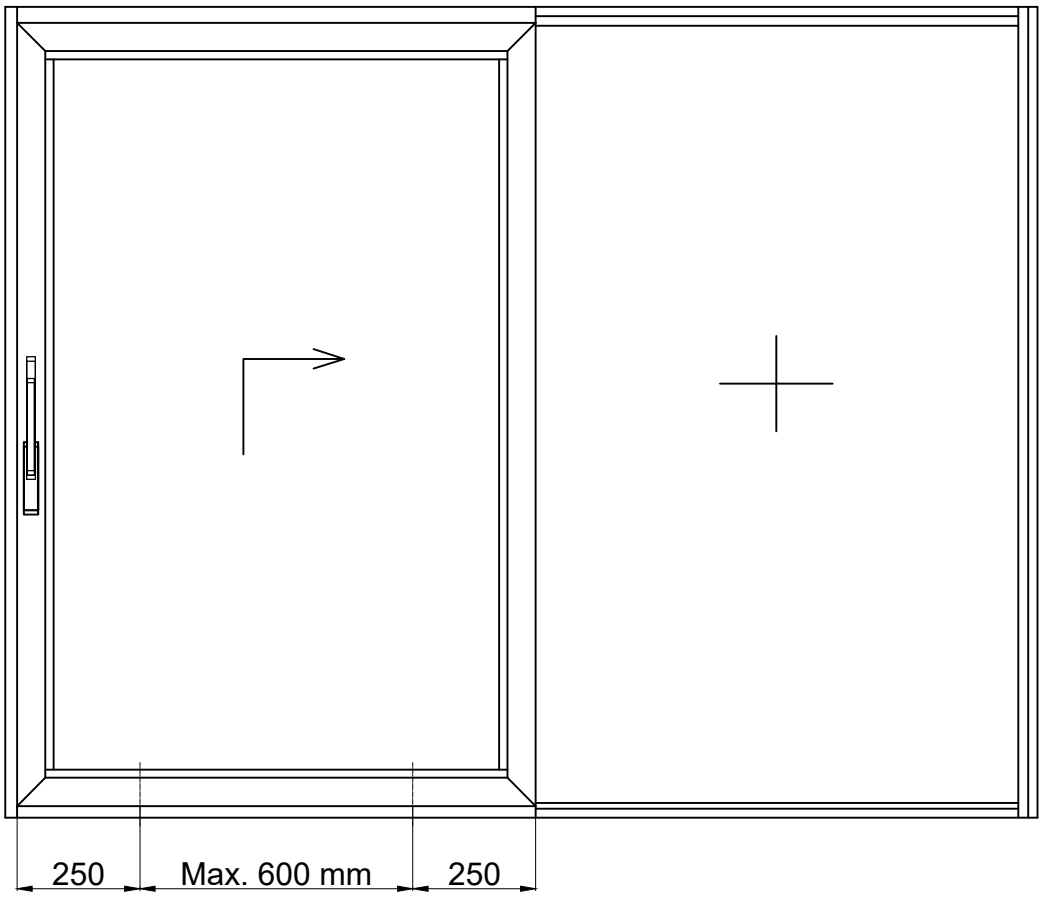
Obrada profila krila PK150tt za skriveni odvod kapljevina

-obradu profila raditi glodalom ili svrdlom Ø10



Ugradnja monodrain cjevčice

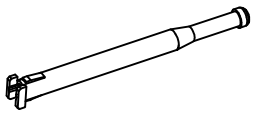




Obradu profila raditi svakih 600 mm, 250 mm od krajeva profila

PODACI O OVOME KATALOGU ČISTO SU INDIKATIVNI.FIRMA ZADRŽAVA PRAVO IZMJENA TEHNIČKE PRIRODE BEZ PRETHODNOG OBAVJEŠTENJA.

OKOV

KOD	OPIS		Komada u pakiranju	MATERIJAL
FE 360.009		CJEVČICA GUMENA ZA ODVOD VODE		PK150tt

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