

# FEAL



**FR 18**

STAKLENA KLIZNA STIJENA  
*SLIDING GLASS WALL*



**SADRŽAJ CONTENT**

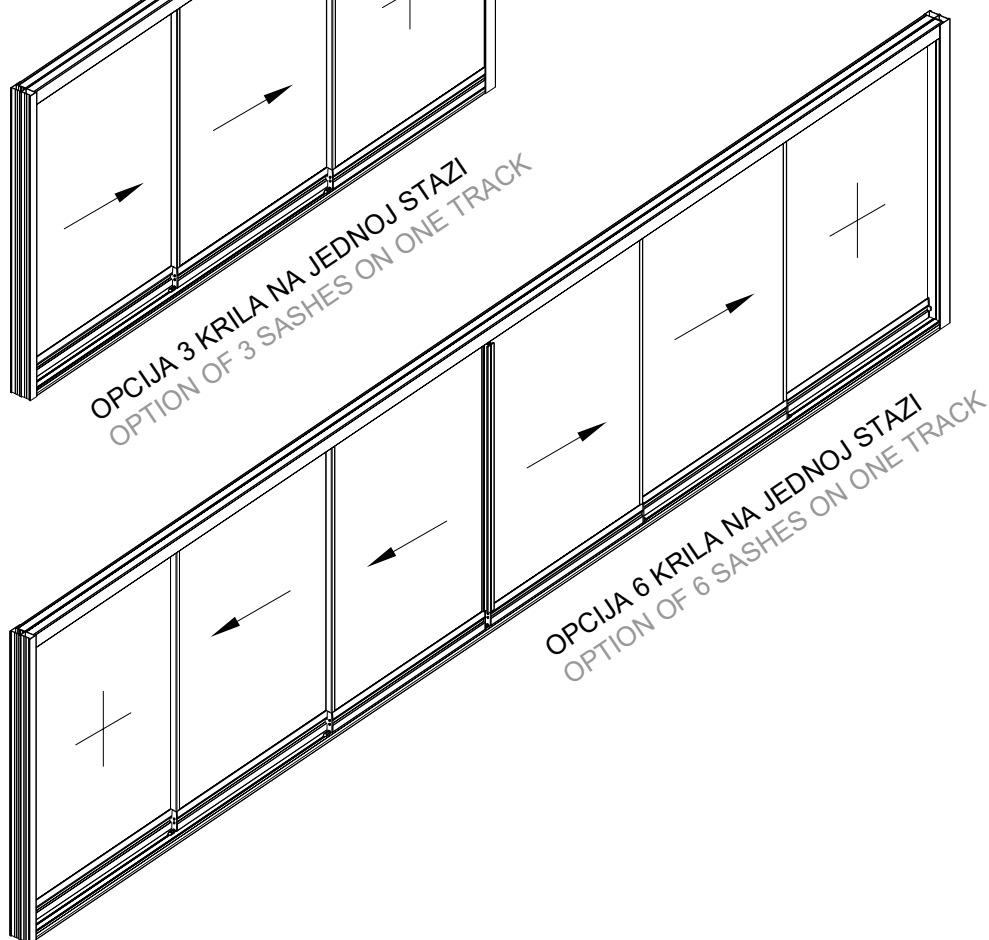
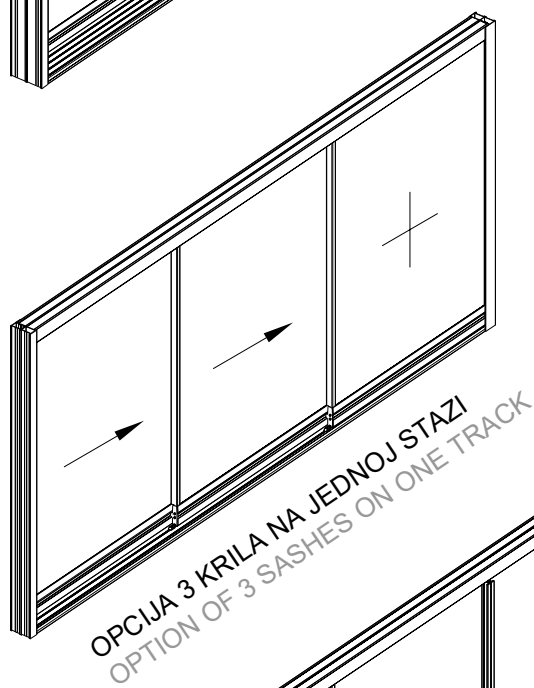
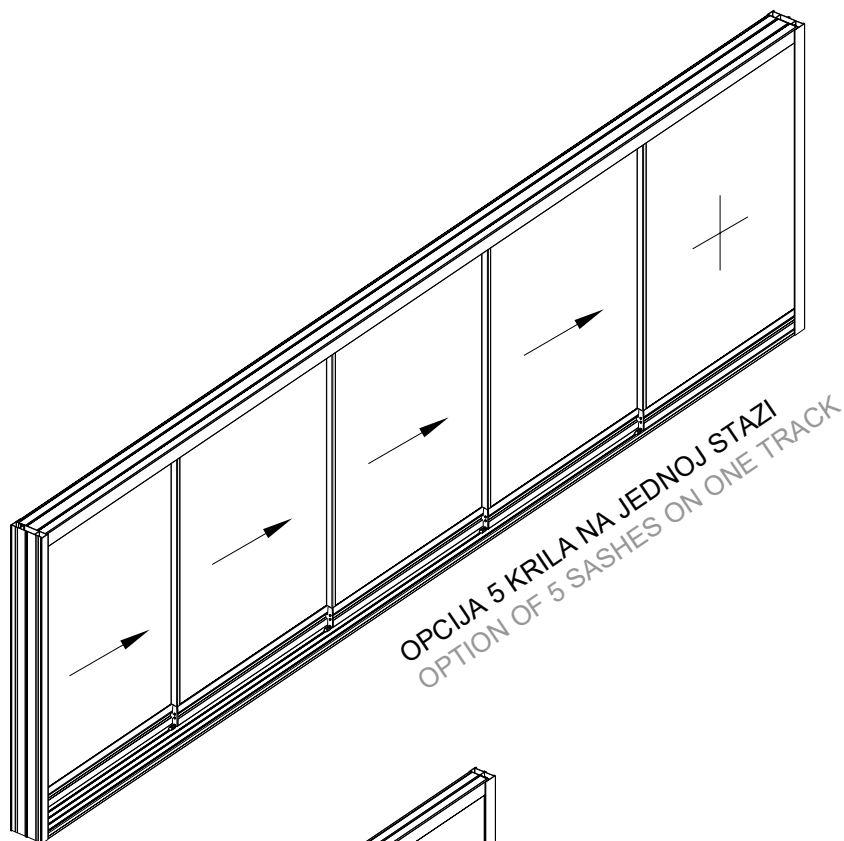
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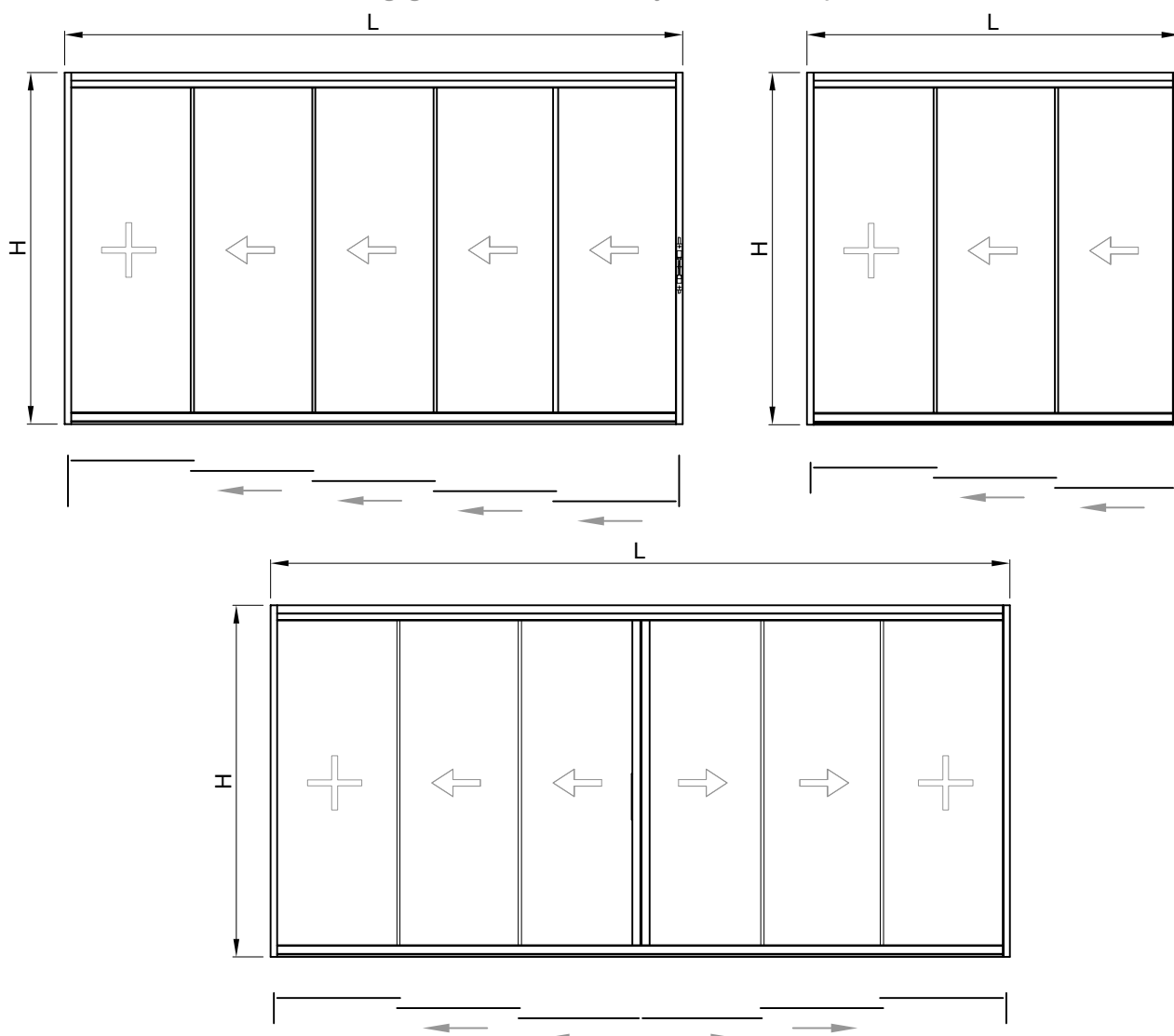
# Značajke sistema

## System characteristics





Opis sistema kliznih staklenih stijena **FR-18**  
Sliding glass wall **FR-18** system description



Seriya je namijenjena za izradu kliznih staklenih stijena na objektima gdje se ne traži visok stupanj toplinske izolacije, odnosno za ostakljenje balkona, terasa, natkrivenih bazena itd., sa mogućnošću otvaranja prema unutra i prema vani.

Odlikuje se jednostavnošću, raznovrsnim tipologijama izrade te je estetski prihvatljiva sa modernim linijama profila.

Nadopunjuje se na FEAL serije fiksnih i pokretnih pergola.

**Tehničke karakteristike:**

- Dubina okvira: 120 mm (5 staza) / 77 mm (3 staze)
- Dubina krila: 18 mm
- Dubina ispune: 8 - 10 mm

Series is intended to be used in production sliding glass walls on facilities which do not require high level of thermal insulation, i.e. for glazing balconies, terraces, covered swimming pools, etc., with the possibility of opening on the inside and on the outside.

It is characterized with simplicity, variety of production typology and it is aesthetically pleasing with modern profile contours.

It complements the FEAL series of fixed and movable pergolas.

**Technical features:**

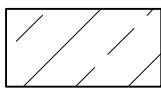
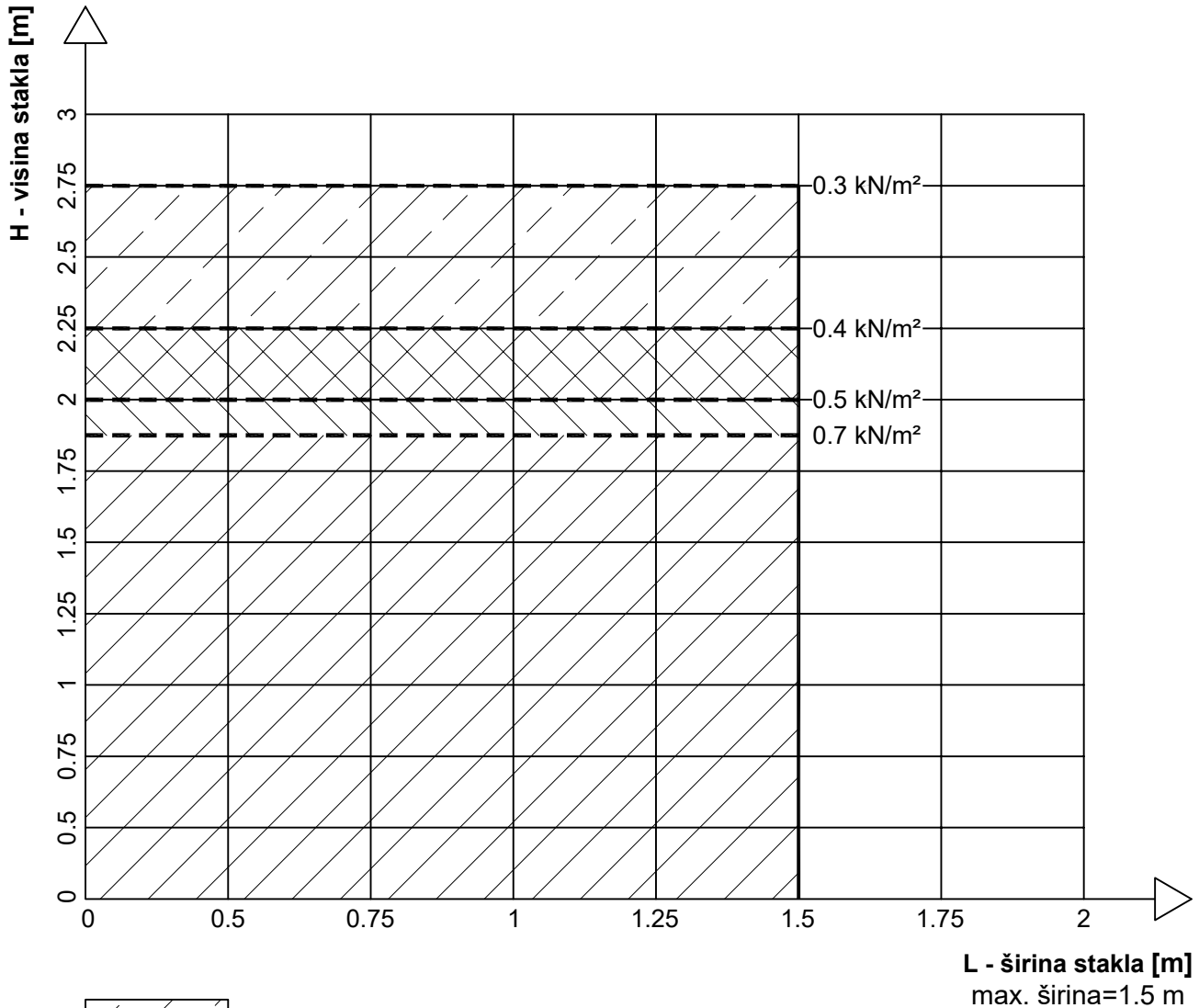
- Frame depth: 120 mm (5 tracks or rails) / 77mm (3 tracks or rails)
- Sash/wing depth: 18 mm
- Infill depth: 8 - 10 mm

# Ispitivanja i certifikati

## Testing and certificates



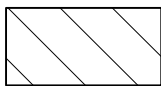
**- Dijagram dopuštene visine stakla na osnovu opterećenja vjetrom**  
**-Diagram of recommended glass height based on wind load**



Max. visina stakla za opterećenje vjetrom od 300 Pa



Max. visina stakla za opterećenje vjetrom od 400 Pa



Max. visina stakla za opterećenje vjetrom od 500 Pa



Max. visina stakla za opterećenje vjetrom od 700 Pa

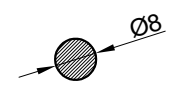
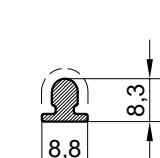
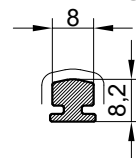
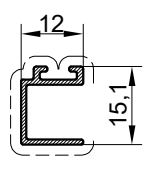
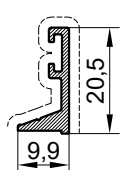
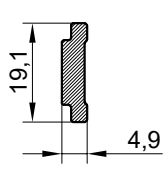
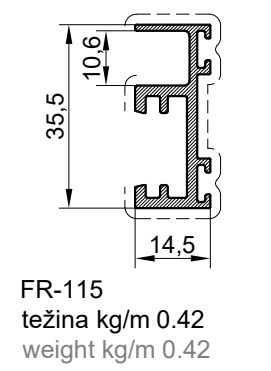
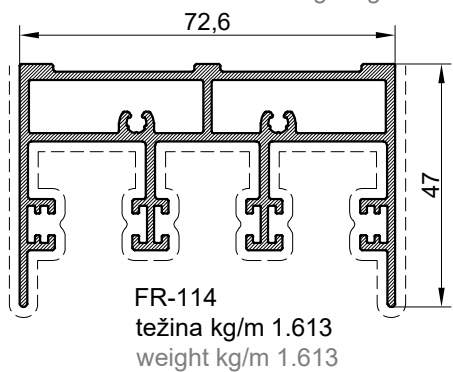
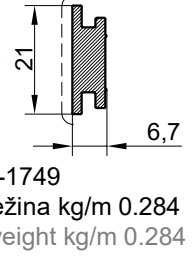
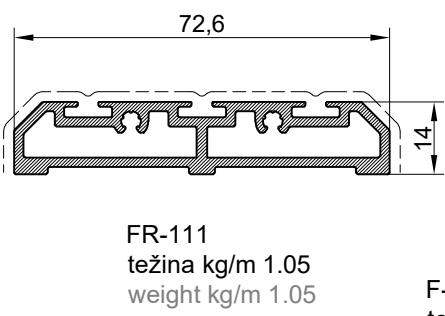
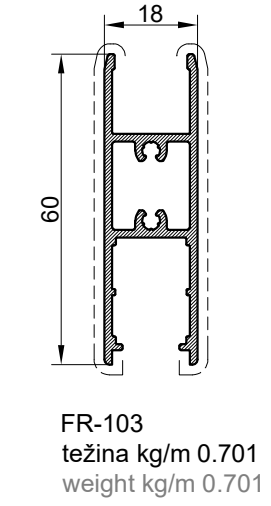
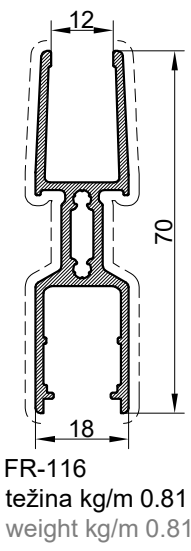
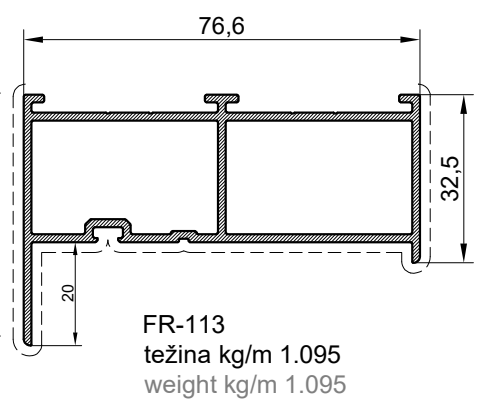
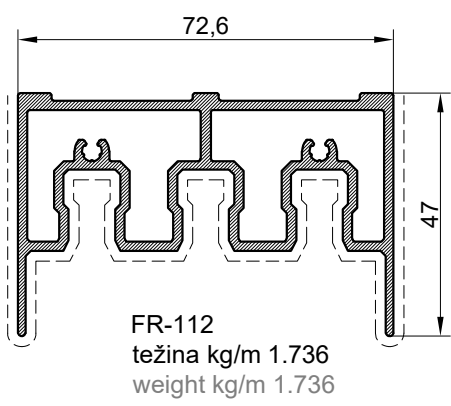
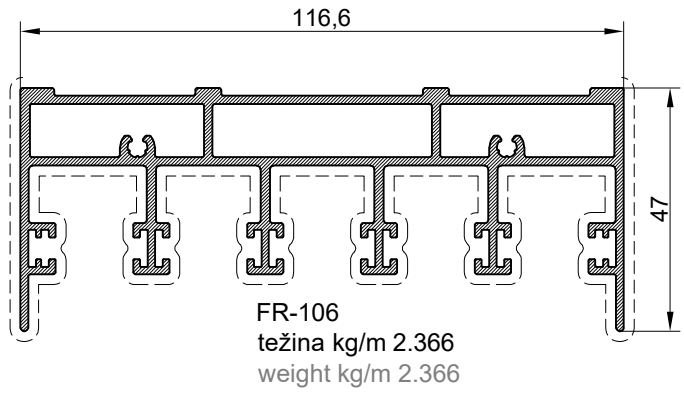
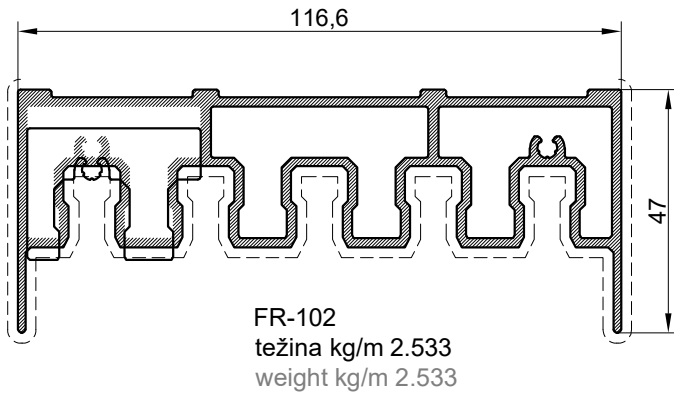
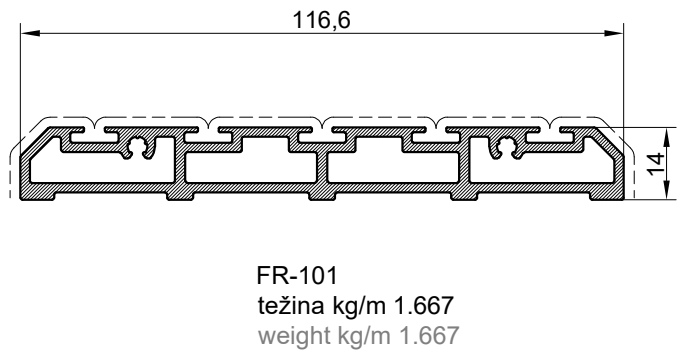
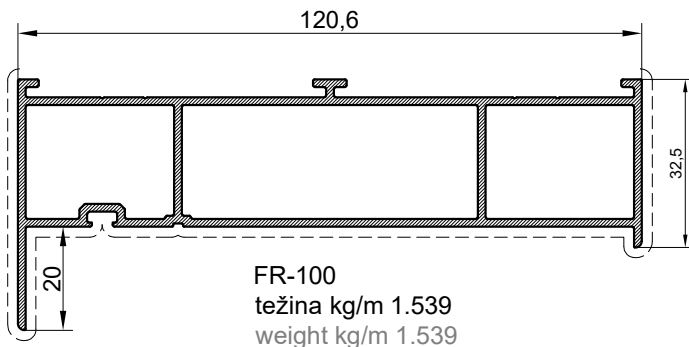
Max. omjer visine i širine stakla  
**H:L ≤ 2.5**  
Max. glass height to glass ratio  
H:L ≤ 2.5

Pa(N/m <sup>2</sup> )	300	400	500	700
kPa(kN/m <sup>2</sup> )	0.3	0.4	0.5	0.7
km/h	79.6	89.6	100.1	118.5
m/s	22.1	24.9	27.8	32.9

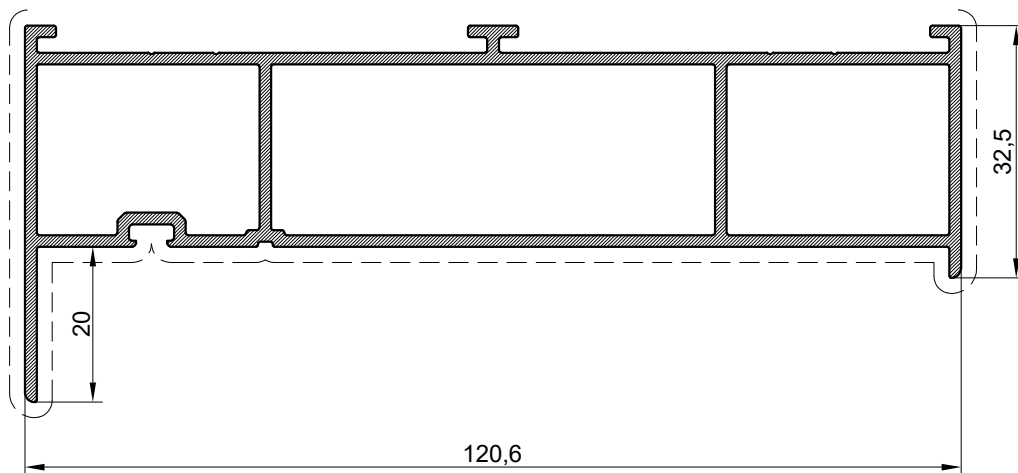


**Profili**  
Profiles

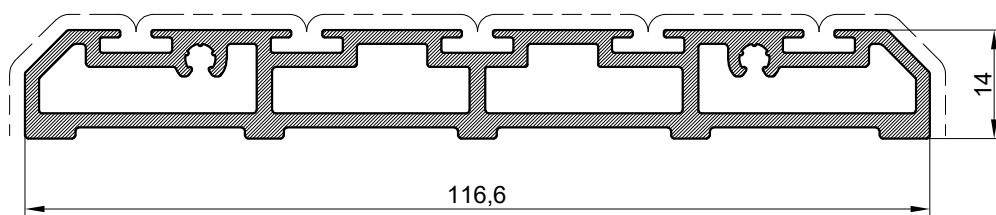




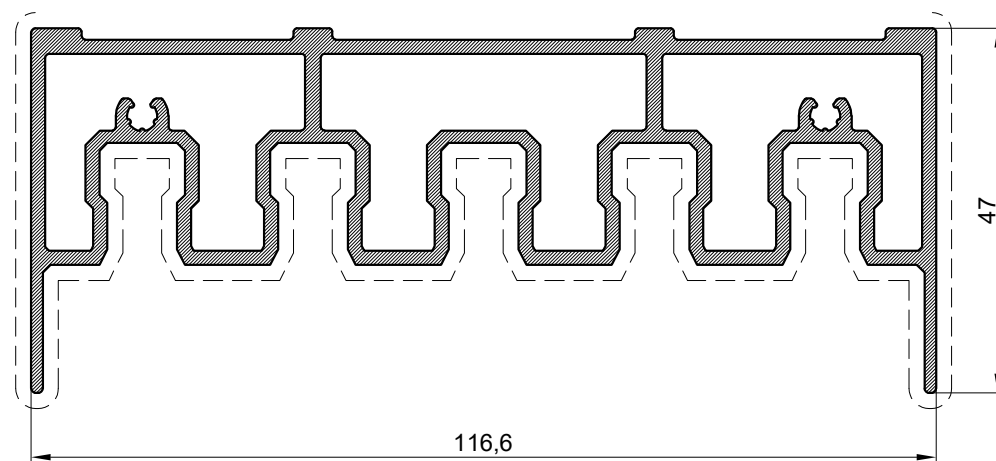




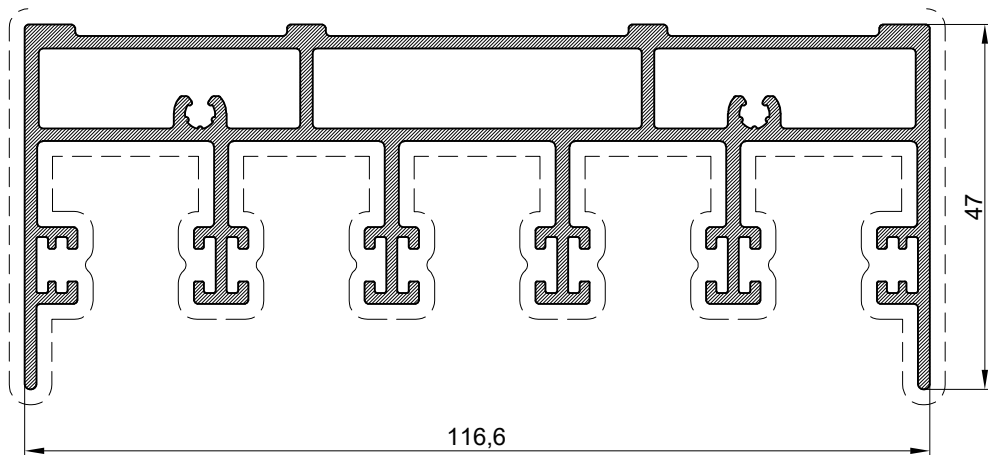
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-100</b>	
Težina Weight	kg/m'	<b>1.539</b>
Opseg Perimeter	mm	<b>386.35</b>
Moment inercije	Ix (cm4)	<b>7.9303</b>
	Iy (cm4)	<b>92.936</b>
Moments of inertia	Wx (cm3)	<b>2.4915</b>
	Wy (cm3)	<b>14.619</b>
L	mm	<b>6500</b>



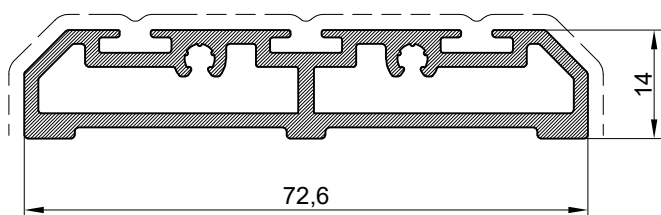
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-101</b>	
Težina Weight	kg/m'	<b>1.667</b>
Opseg Perimeter	mm	<b>340.96</b>
Moment inercije	Ix (cm4)	<b>1.3627</b>
	Iy (cm4)	<b>73.401</b>
Moments of inertia	Wx (cm3)	<b>1.8847</b>
	Wy (cm3)	<b>12.590</b>
L	mm	<b>6500</b>



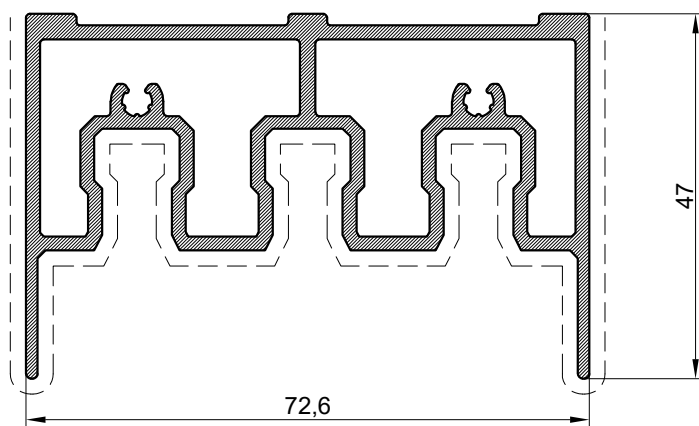
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-102</b>	
Težina Weight	kg/m'	<b>2.533</b>
Opseg Perimeter	mm	<b>522.15</b>
Moment inercije	Ix (cm4)	<b>11.701</b>
	Iy (cm4)	<b>136.059</b>
Moments of inertia	Wx (cm3)	<b>3.8040</b>
	Wy (cm3)	<b>23.3376</b>
L	mm	<b>6500</b>



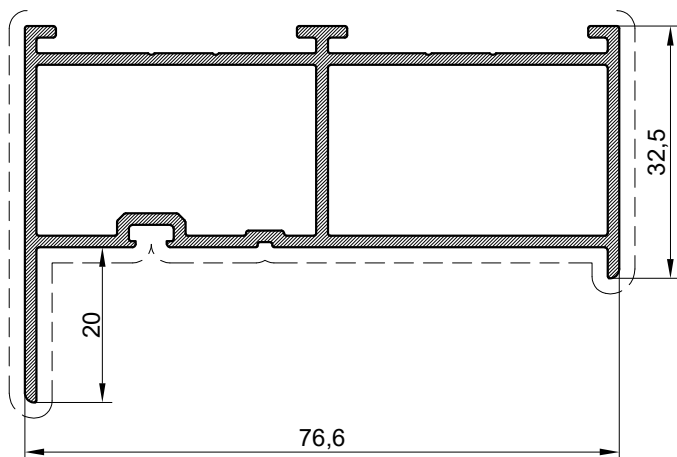
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-106</b>	
Težina Weight	kg/m'	<b>2.366</b>
Opseg Perimeter	mm	<b>748.46</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>12.6515</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>125.2443</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>4.1671</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>21.4827</b>
L	mm	<b>6500</b>



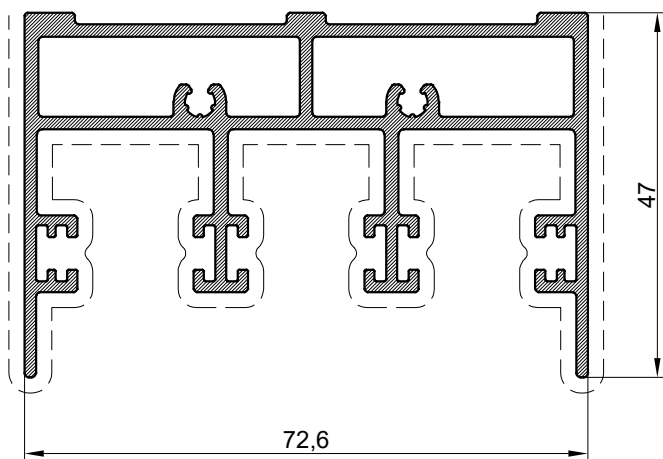
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-111</b>	
Težina Weight	kg/m'	<b>1.05</b>
Opseg Perimeter	mm	<b>217.42</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>0.8449</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>18.1101</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>1.1686</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>0.8449</b>
L	mm	<b>6500</b>



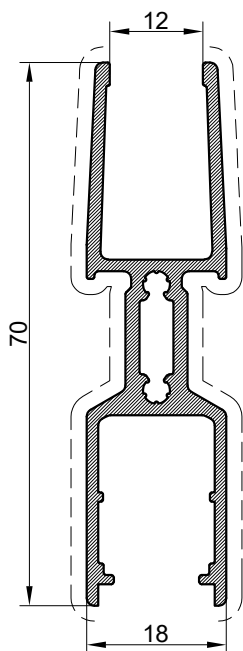
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-112</b>	
Težina Weight	kg/m'	<b>1.736</b>
Opseg Perimeter	mm	<b>368.78</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>8.5783</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>38.7632</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>2.8329</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>10.6785</b>
L	mm	<b>6500</b>



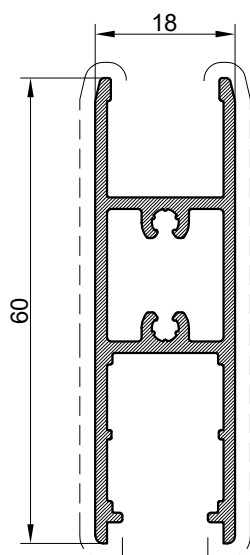
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Art.Br. Art.Nr.	<b>FR-113</b>	
Težina Weight	kg/m'	<b>1.095</b>
Opseg Perimeter	mm	<b>298.35</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>5.9701</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>28.1191</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>1.8922</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>6.8499</b>
L	mm	<b>6500</b>



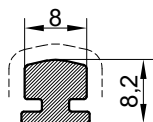
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-114</b>	
Težina Weight	kg/m'	<b>1.613</b>
Opseg Perimeter	mm	<b>512.94</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>9.1028</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>35.6994</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>3.0362</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>9.8345</b>
L	mm	<b>6500</b>



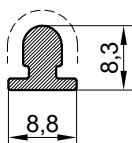
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-116</b>	
Težina Weight	kg/m'	<b>0.81</b>
Opseg Perimeter	mm	<b>301.47</b>
Moment inerције Moments of inertia	I <sub>x</sub> (cm <sup>4</sup> )	<b>10.22</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>1.26</b>
	W <sub>x</sub> (cm <sup>3</sup> )	<b>2.89</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>1.40</b>
L	mm	<b>6500</b>



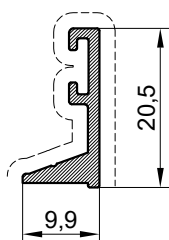
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-103</b>	
Težina Weight	kg/m'	<b>0.701</b>
Opseg Perimeter	mm	<b>243.39</b>
Moment inercije Moments of inertia	I <sub>x</sub> (cm <sup>4</sup> )	<b>6.5716</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>1.3696</b>
	W <sub>x</sub> (cm <sup>3</sup> )	<b>2.1532</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>1.5218</b>
L	mm	<b>6500</b>



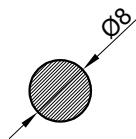
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-104</b>	
Težina Weight	kg/m'	<b>0.154</b>
Opseg Perimeter	mm	<b>40.11</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>0.0316</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>0.0282</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>0.0765</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>0.0703</b>
L	mm	<b>6500</b>



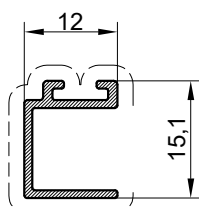
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Art.Br. Art.Nr.	<b>FR-108</b>	
Težina Weight	kg/m'	<b>0.114</b>
Opseg Perimeter	mm	<b>33.78</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>0.0246</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>0.0133</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>0.0519</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>0.0302</b>
L	mm	<b>6500</b>



Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-105</b>	
Težina Weight	kg/m'	<b>0.142</b>
Opseg Perimeter	mm	<b>72.85</b>
Moment inercije	I <sub>x</sub> (cm <sup>4</sup> )	<b>0.2615</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>0.0320</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>0.2119</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>0.0431</b>
L	mm	<b>6500</b>



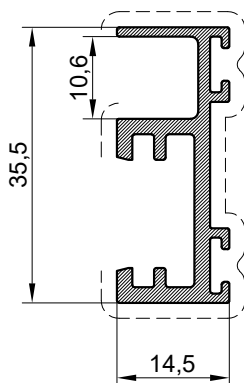
Al profil Al profile		
Art.Br. Art.Nr.	<b>F-0022</b>	
Težina Weight	kg/m'	<b>0.135</b>
Opseg Perimeter	mm	<b>25.132</b>
L	mm	<b>6000</b>



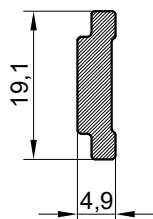
Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-107</b>	
Težina Weight	kg/m'	<b>0.180</b>
Opseg Perimeter	mm	<b>84.71</b>
L	mm	<b>6500</b>

**NAPOMENA:**  
-Profil se eloxira  
-Ukoliko se profil plastificira potrebno je zaštititi utor za staklo

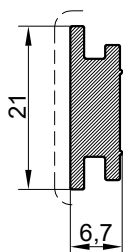
**REMARK:**  
-Profile-finish treatment will be elox  
-If the profile is for plastification it is necessary to protect the glass slot



Al profil Al profile		
Art.Br. Art.Nr.	<b>FR-115</b>	
Težina Weight	kg/m'	<b>0.42</b>
Opseg Perimeter	mm	<b>185.15</b>
Moment inerције	I <sub>x</sub> (cm <sup>4</sup> )	<b>2.14</b>
	I <sub>y</sub> (cm <sup>4</sup> )	<b>0.27</b>
Moments of inertia	W <sub>x</sub> (cm <sup>3</sup> )	<b>1.13</b>
	W <sub>y</sub> (cm <sup>3</sup> )	<b>0.32</b>
L	mm	<b>6500</b>



Profil Profile		
Art.Br. Art.No.	<b>F-1743</b>	
Težina Weight	kg/m'	<b>0.204</b>
Opseg Perimeter	mm	<b>47.00</b>
Moment inercije	$I_x$ (cm <sup>4</sup> )	<b>0.20</b>
	$I_y$ (cm <sup>4</sup> )	<b>0.01</b>
Moments of inertia	$W_x$ (cm <sup>3</sup> )	<b>0.21</b>
	$W_y$ (cm <sup>3</sup> )	<b>0.05</b>
L	mm	<b>6500</b>



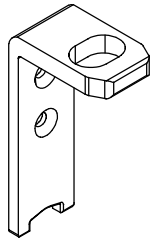
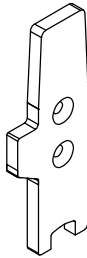
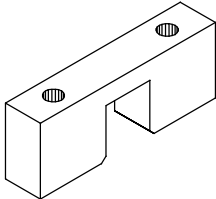
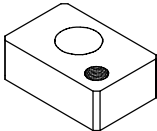
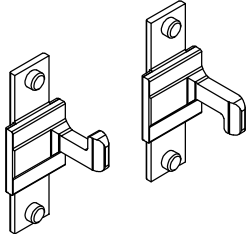
Profil Profile		
Art.Br. Art.No.	<b>F-1749</b>	
Težina Weight	kg/m'	<b>0.284</b>
Opseg Perimeter	mm	<b>65.00</b>
Moment inercije	$I_x$ (cm <sup>4</sup> )	<b>0.27</b>
	$I_y$ (cm <sup>4</sup> )	<b>0.04</b>
Moments of inertia	$W_x$ (cm <sup>3</sup> )	<b>0.25</b>
	$W_y$ (cm <sup>3</sup> )	<b>0.11</b>
L	mm	<b>6500</b>



# Vezni elementi

## Connection elements



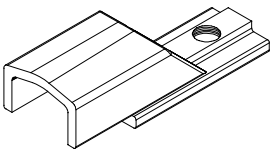
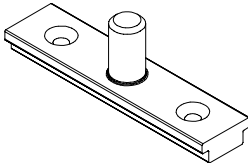
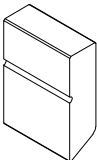
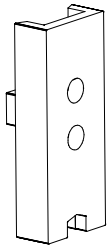
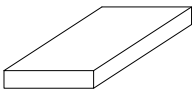
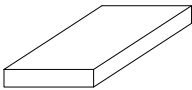
Oznaka Code	Izgled-presjek View-cross section	Opis Description	Materijal Material	Napomena Remark
370.060		- Bočni čep krila na poziciji ključanja - Side stopper of sash on locking position	Inox	
391.290		- Bočni čep krila sa prihvatom krila - Side sash cap with sash acceptor	Al.	
521.145		- Umetak za fiksiranje fiksnog krila - Insert for fixed sash	Al.	
521.146		- Umetak za usmjerivanje osovine za ključanje - Insert for routing shaft for lock	Al	
390.038		- Zapinjač za ključanje dvaju krila - Elements for locking two sash	Inox	



# PVC elementi

## PVC elements



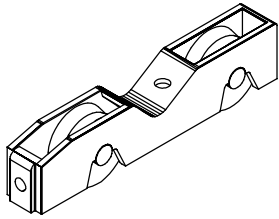
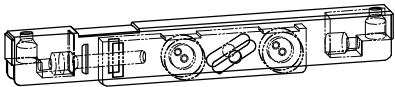
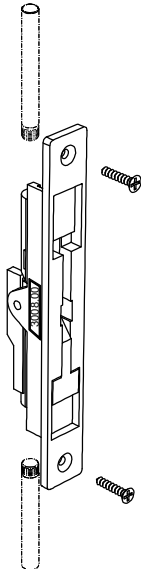
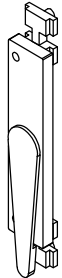
Oznaka Code	Izgled-presjek View-cross section	Opis Description	Materijal Material	Napomena Remark
370.058		- Čep vodilice praga - Treshold guide cap	POLIAMID PA6	
370.056		- Usmjerivač krila - Sash router	POLIAMID PA6	
364.024		-Odbojnik krila -Sash bumper	Tvrda guma	
370.061		- Bočni čep krila sa prihvatom krila - Side sash cap with sash acceptor  * Opcija korištenja na za profil FR-103 * Option of use on FR-103 profile	POLIAMID PA6	
374.042		- PVC podmetači za staklo 100 x 20 x 1 mm - PVC pads for glass 100 x 20 x 1 mm  - Kod proizvođača BO 51 220 01	PVC	
374.045		- PVC podmetači za staklo 100 x 30 x 2 mm - PVC pads for glass 100 x 30 x 2 mm  - Kod proizvođača BO 51 230 02	PVC	



# Mehanizmi

## Mechanisms

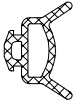



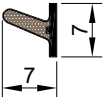


Oznaka Code	Izgled-presjek View-cross section	Opis Description	Materijal Material	Napomena Remark
521.143		<ul style="list-style-type: none"> <li>- Kotačiči Giesse (120 kg)</li> <li>- Oznaka proizvođača E365</li> <li>- Bogie Giesse (120 kg)</li> <li>- Manufacturer code E365</li> </ul>		
140.064		<ul style="list-style-type: none"> <li>- Kotačiči Roto (120 kg)</li> <li>- Oznaka proizvođača 615951</li> <li>- Bogie Roto (120 kg)</li> <li>- Manufacturer code 615951</li> <li>* Opcija korištenja na vodilicu FR-108</li> <li>* Option of use on FR-108 guide</li> </ul>		
124.006		<ul style="list-style-type: none"> <li>- Preklopni zapinjač-zasun (bravica za zaključavanje) /Stublina/ <b>3008.00</b></li> <li>- Bi-fold door latch /Stublina/ <b>3008.00</b></li> </ul>	Zn	
101.017		<ul style="list-style-type: none"> <li>- Ručica Notter za ključanje dva krila</li> <li>- Two-sash locking handle Notter</li> </ul>		



# Brtvila Gaskets

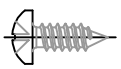
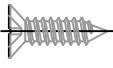


Oznaka Code	Izgled-presjek View- cross section	Opis Description	Materijal Material	Tvrdoća Hardness (ShA)
340.053		- Brtva u vertikalnom pojasu rama - Gasket in vertical frame zone	Elastron	
340.054		- Brtva prema staklu krila - Gasket to the sash glass  * Opcija korištenja brtve * Using a gasket (options)	Elastron	
340.055		- Brtva praga - Threshold gasket	Elastron	
347.004		- Četkasta brtva 7x5.5 - Stara oznaka PB*HFC - Brush gasket 7x5.5 - Former code PB*HFC	PP	
347.011		- *Brtva (7 mm) - *Gasket (7 mm)  * Opcija korištenja brtve * Using a gasket (options)		



**Dodaci**  
Accessories



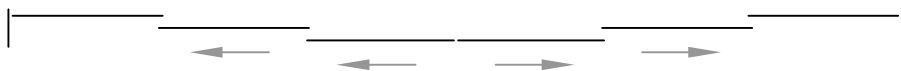
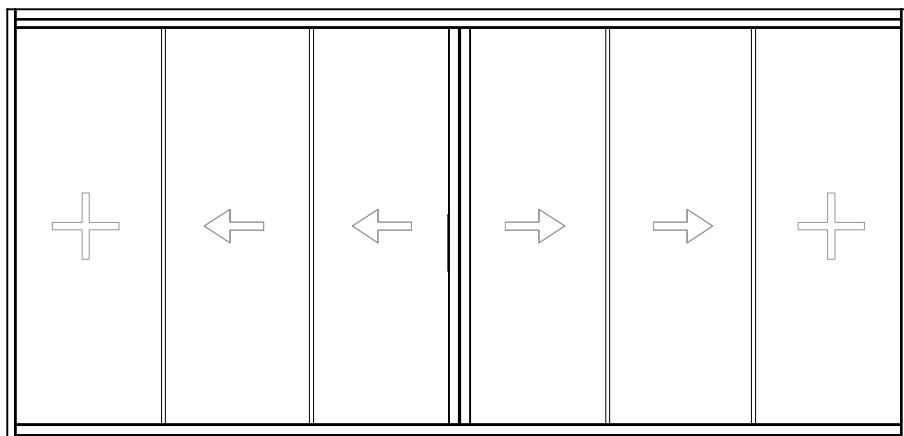
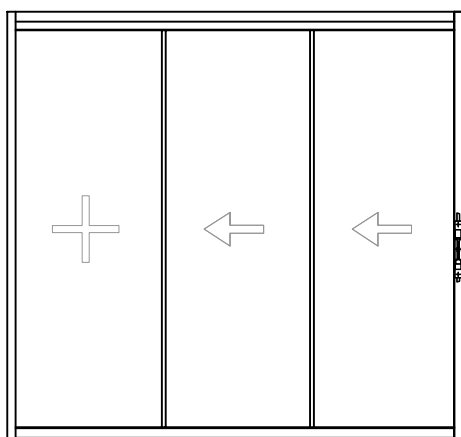
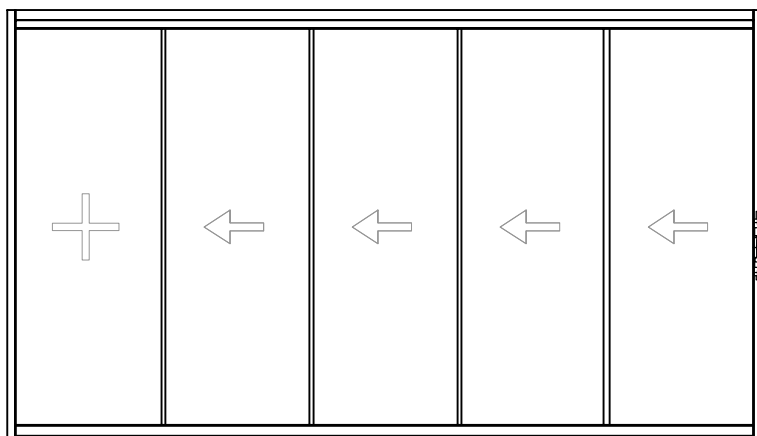
Oznaka Code	Opis Description	Izgled-presjek View-cross section	Materijal Material	Napomena Remark
433.020	3.9x25 DIN 7981			
433.021	3.9x32 DIN 7981			
433.090	3.5x9.5 DIN 7982			
433.091	3.5x13 DIN 7982			
433.097	3.5x38 DIN 7982			
433.104	3.9x13 DIN 7982			
433.105	3.9x16 DIN 7982			

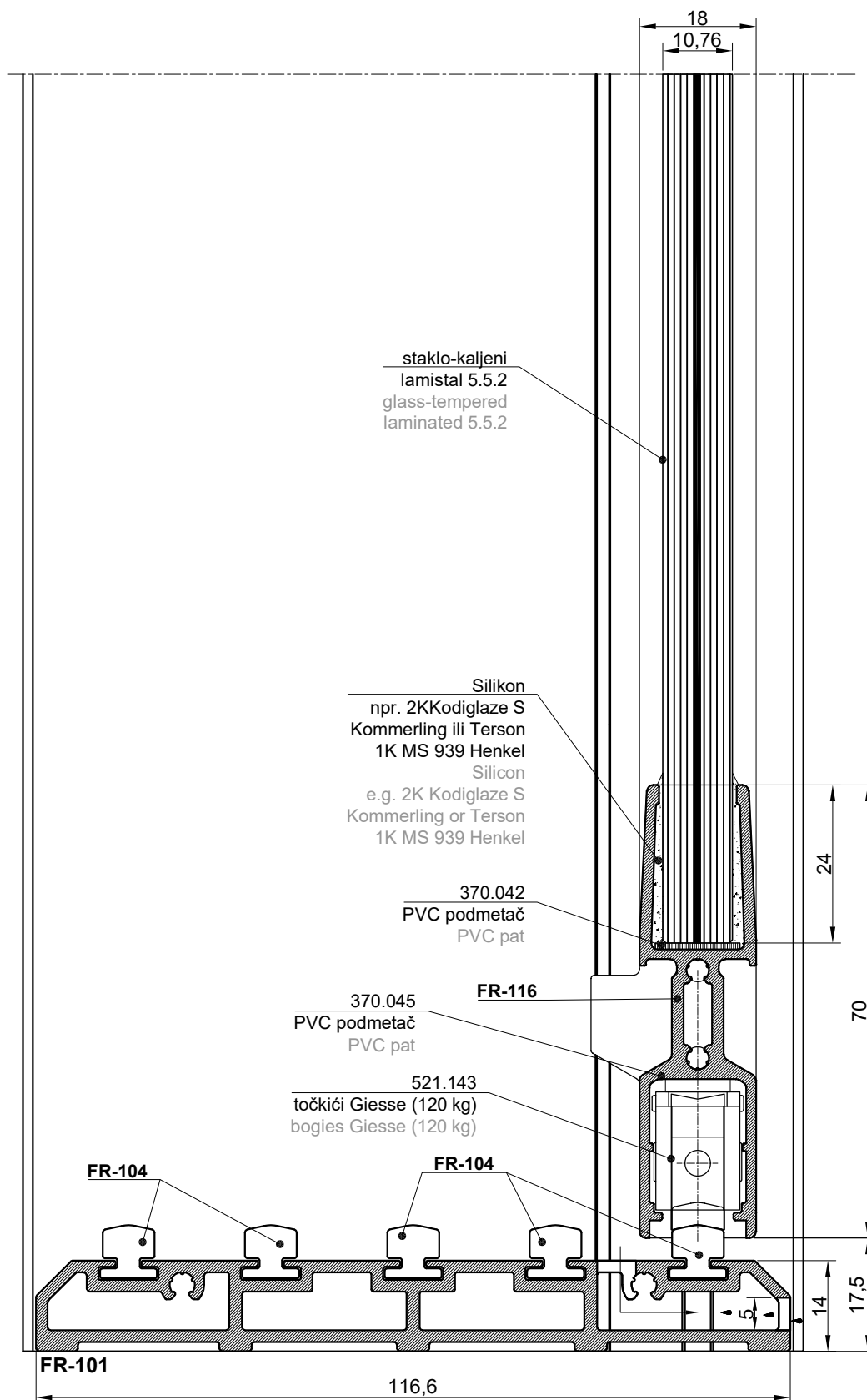
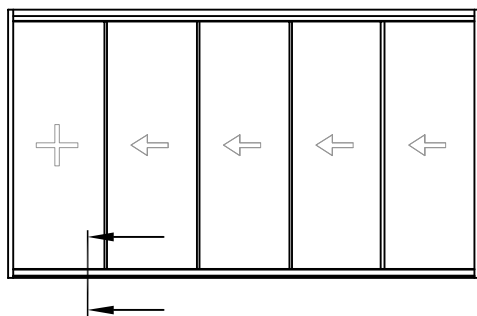


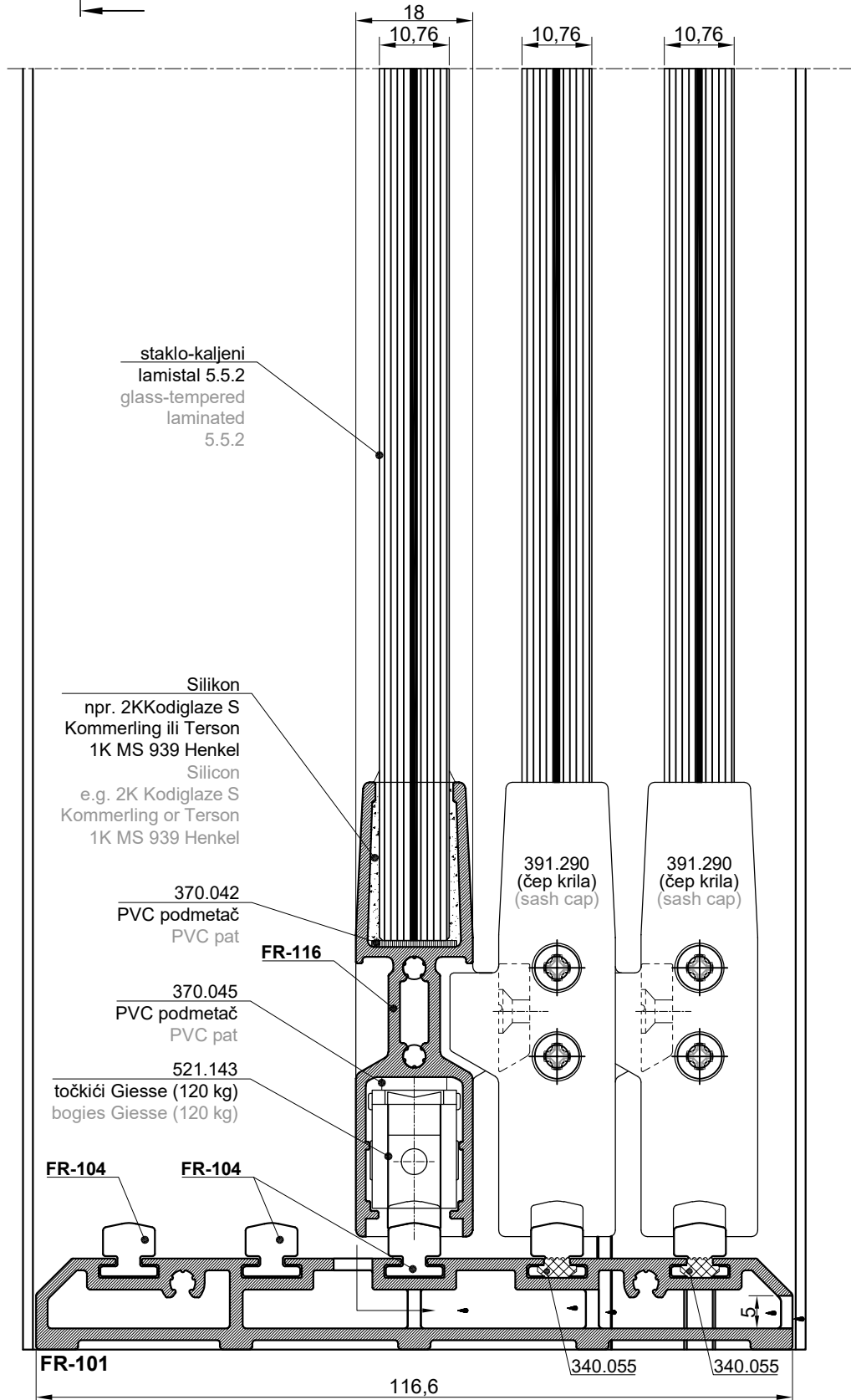
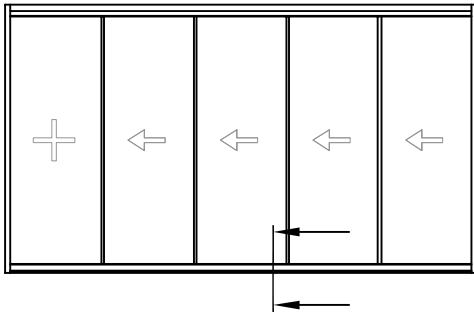
**Presjeci**  
Cross sections

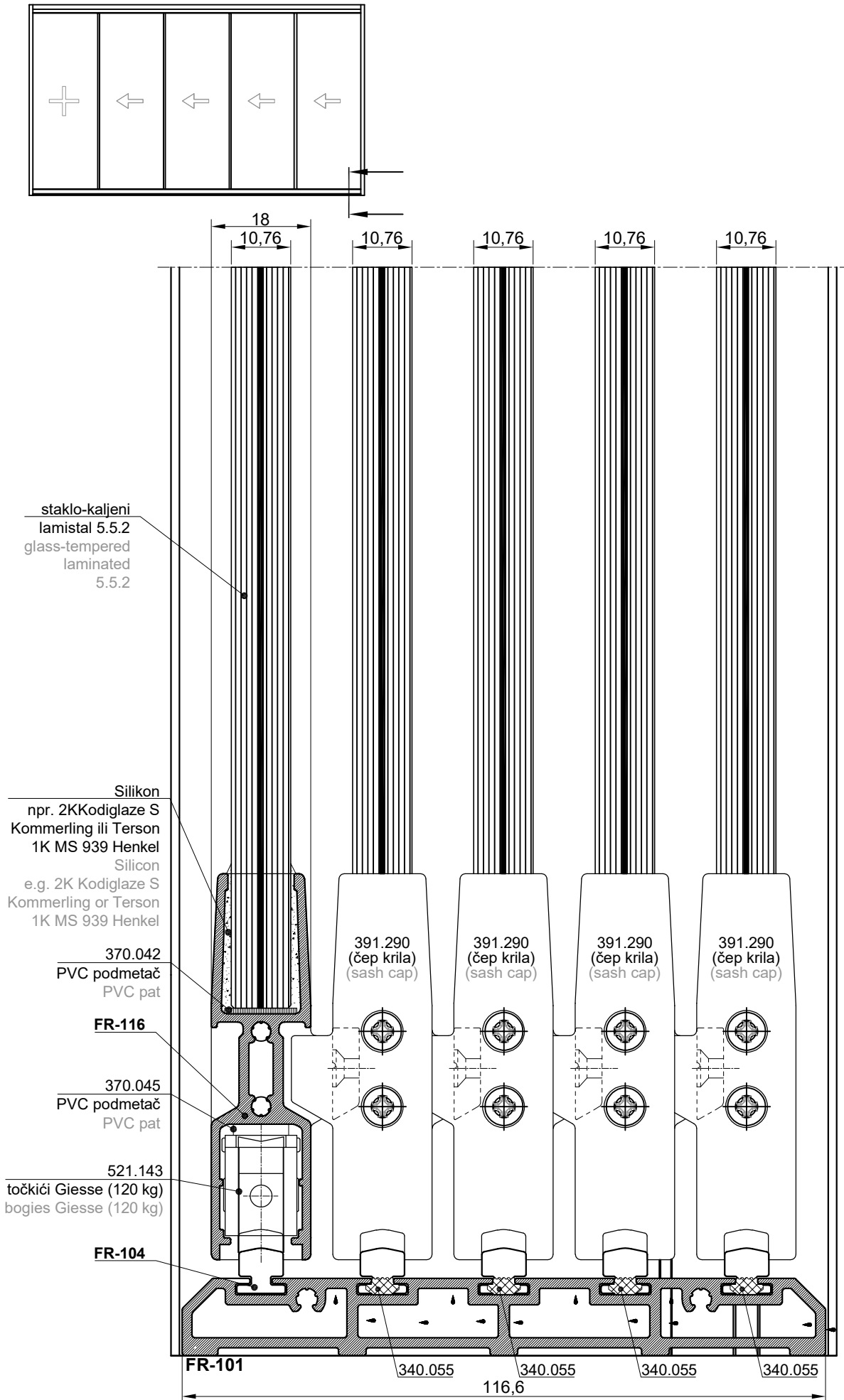


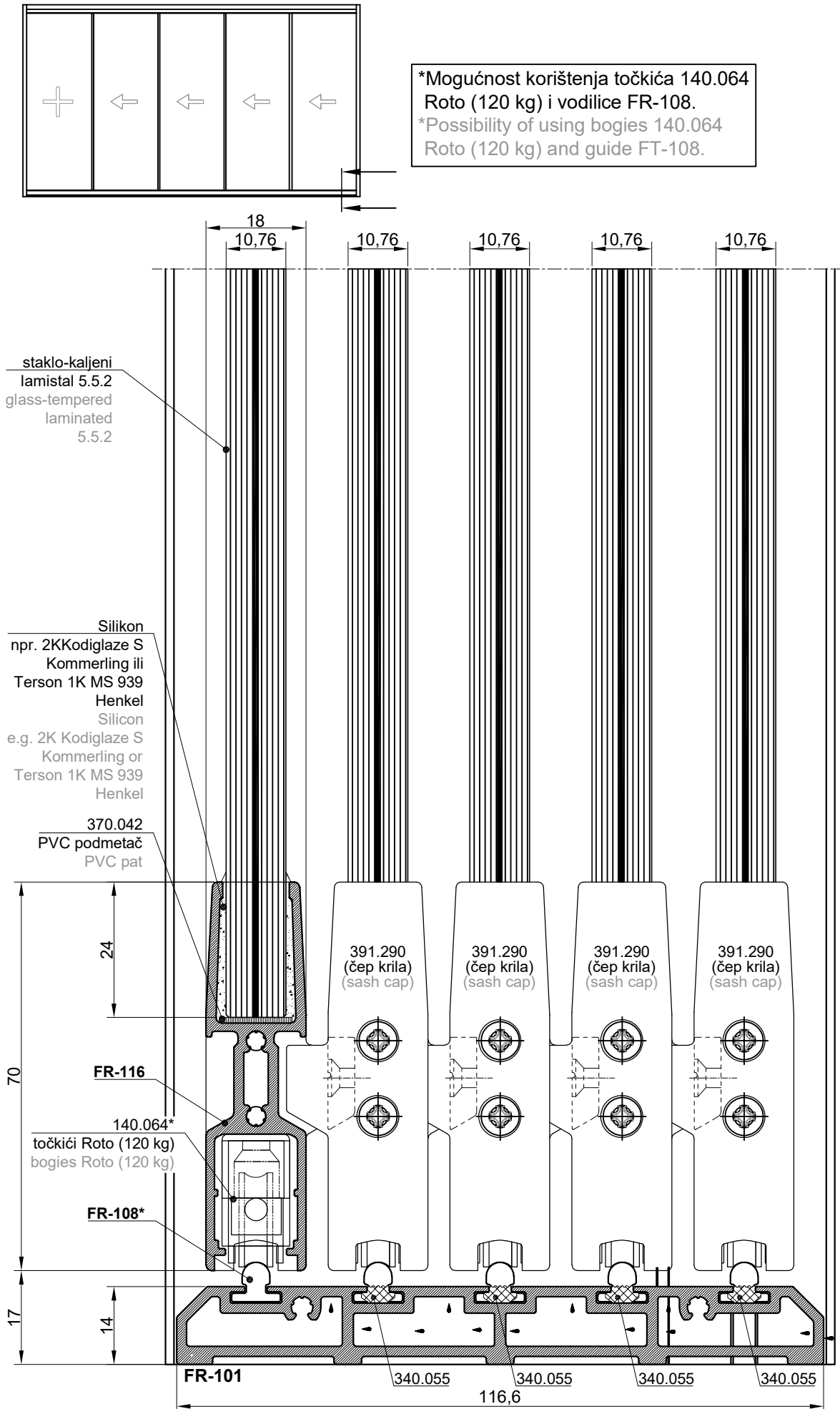
TIPOLOGIJA  
TYPOLOGY

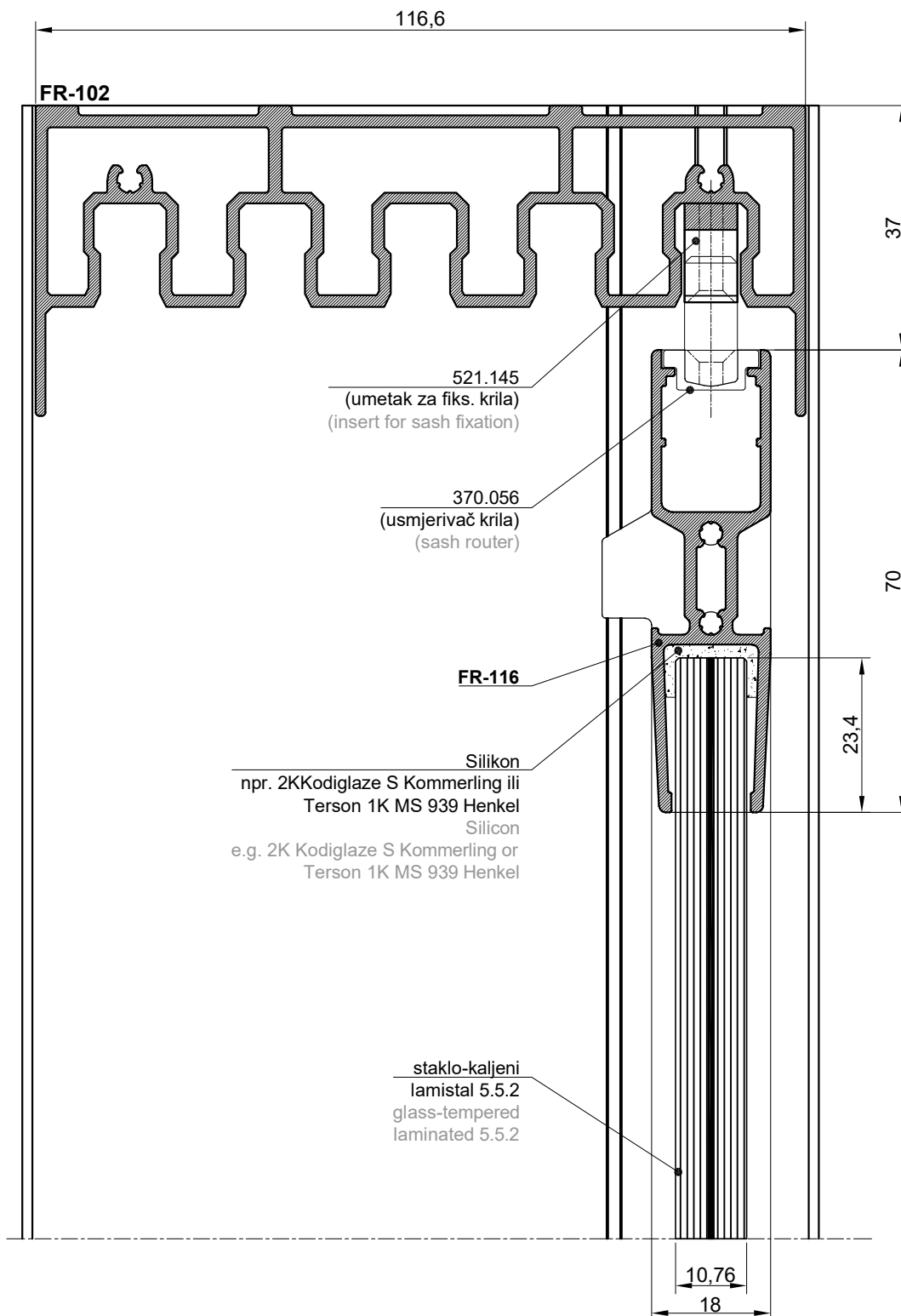
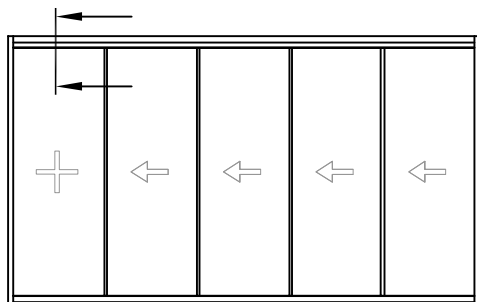


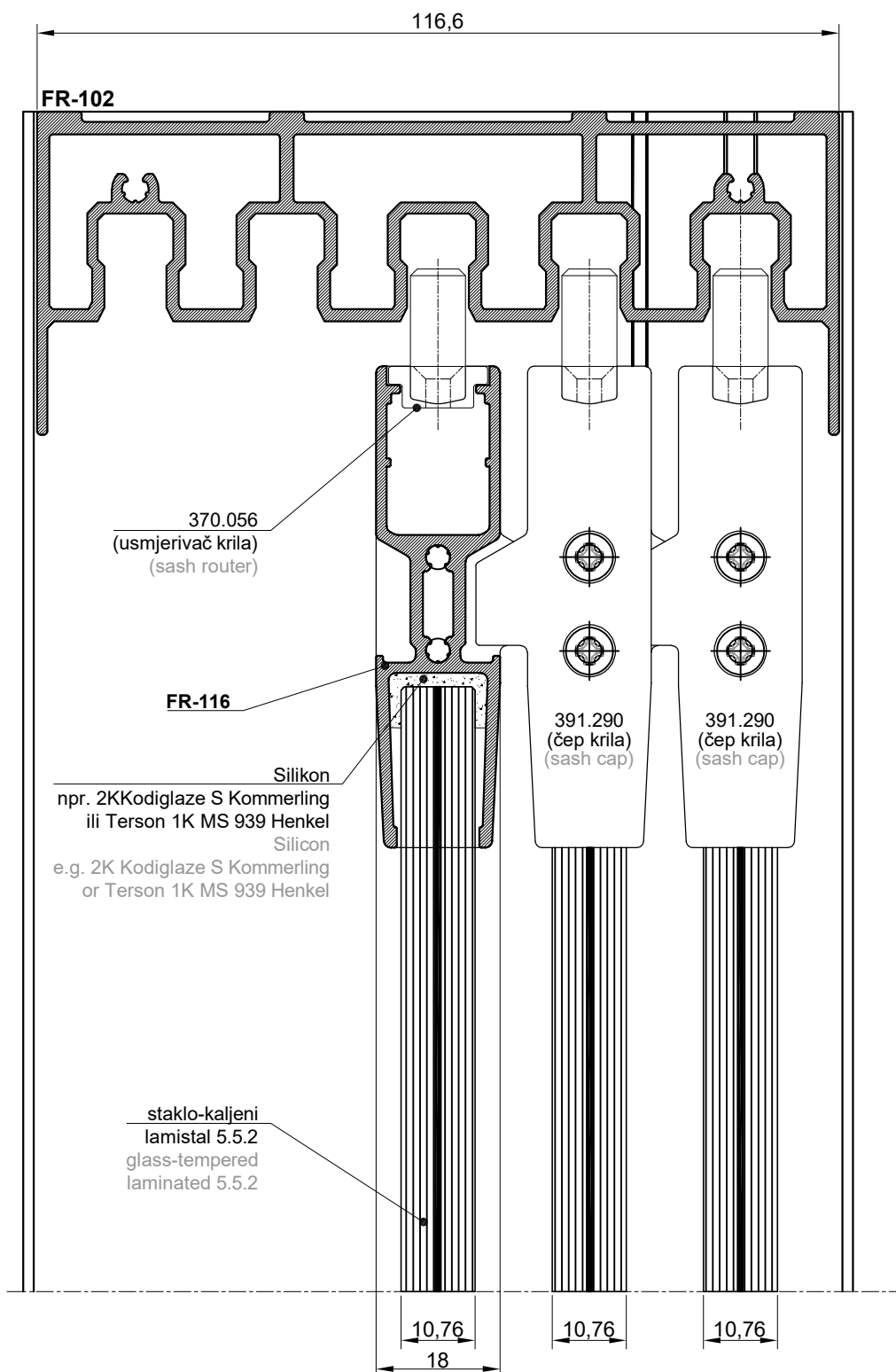
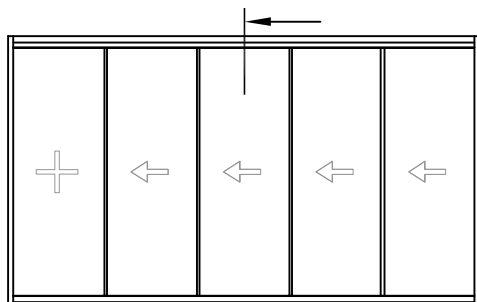


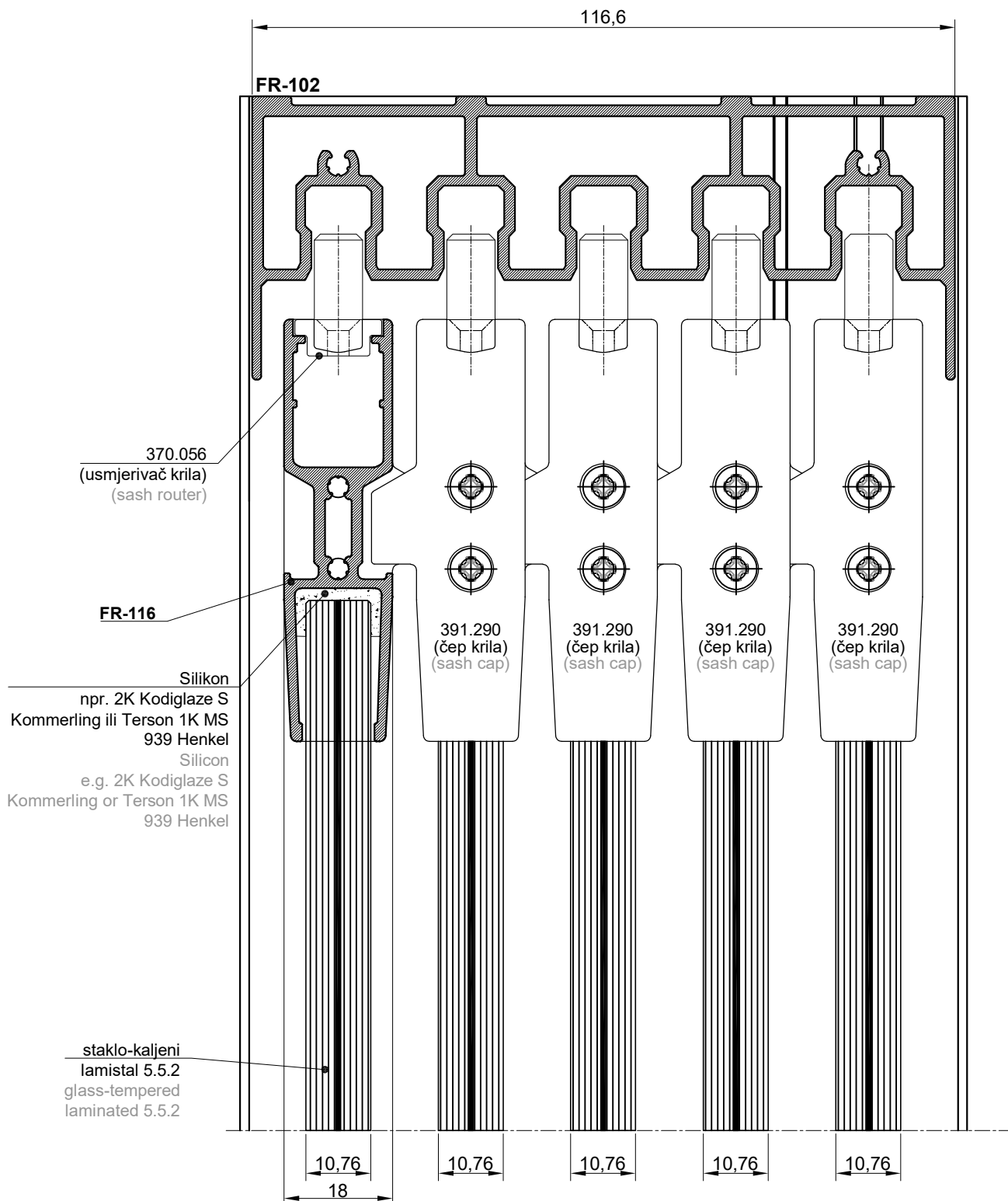
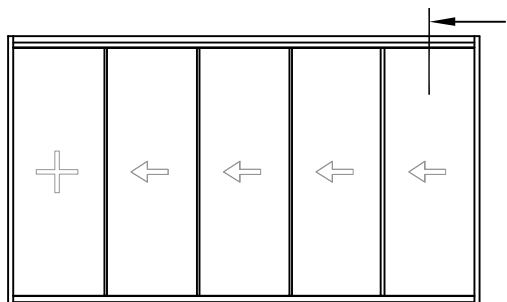


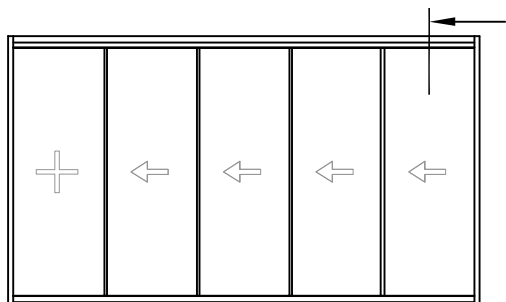




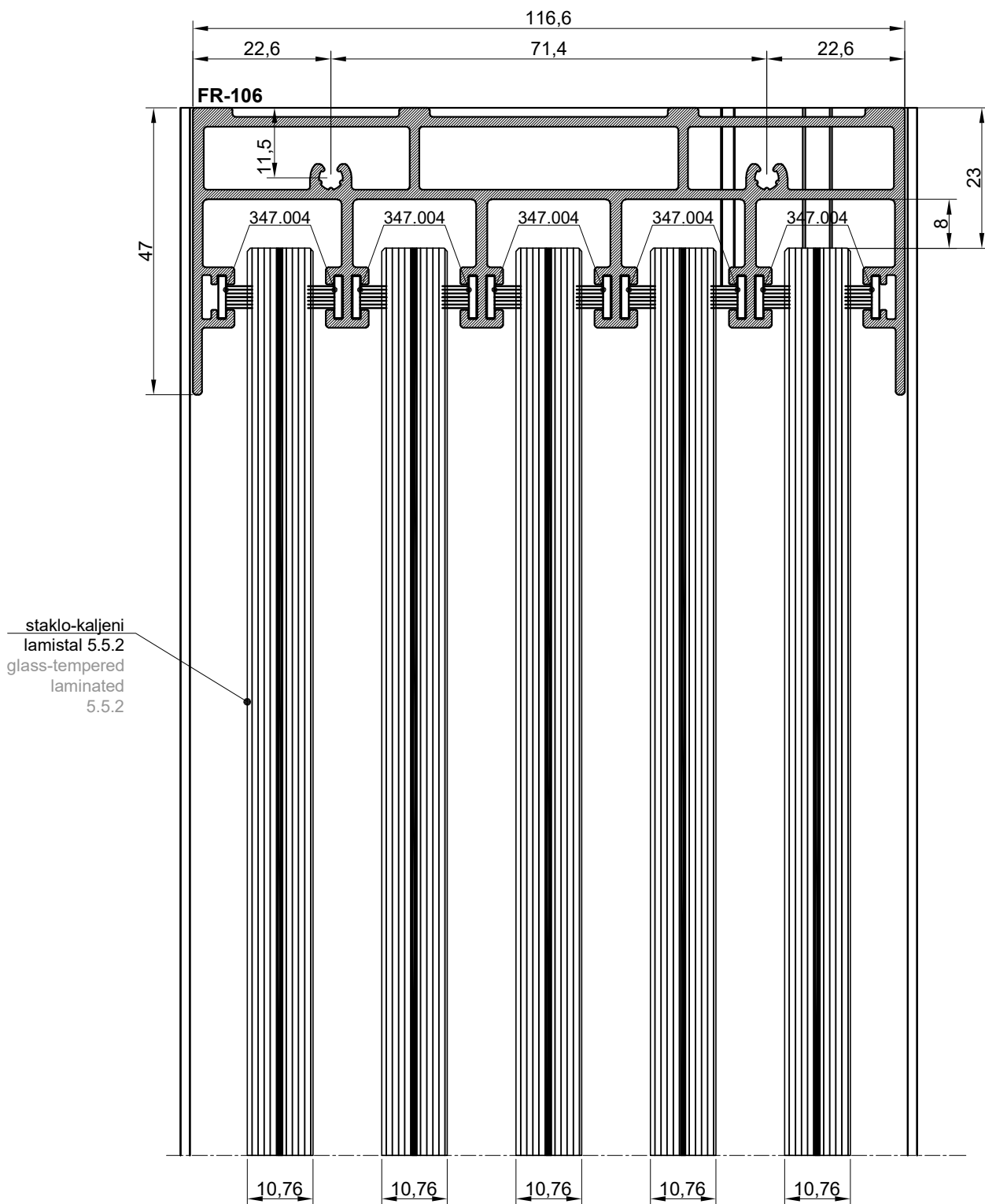


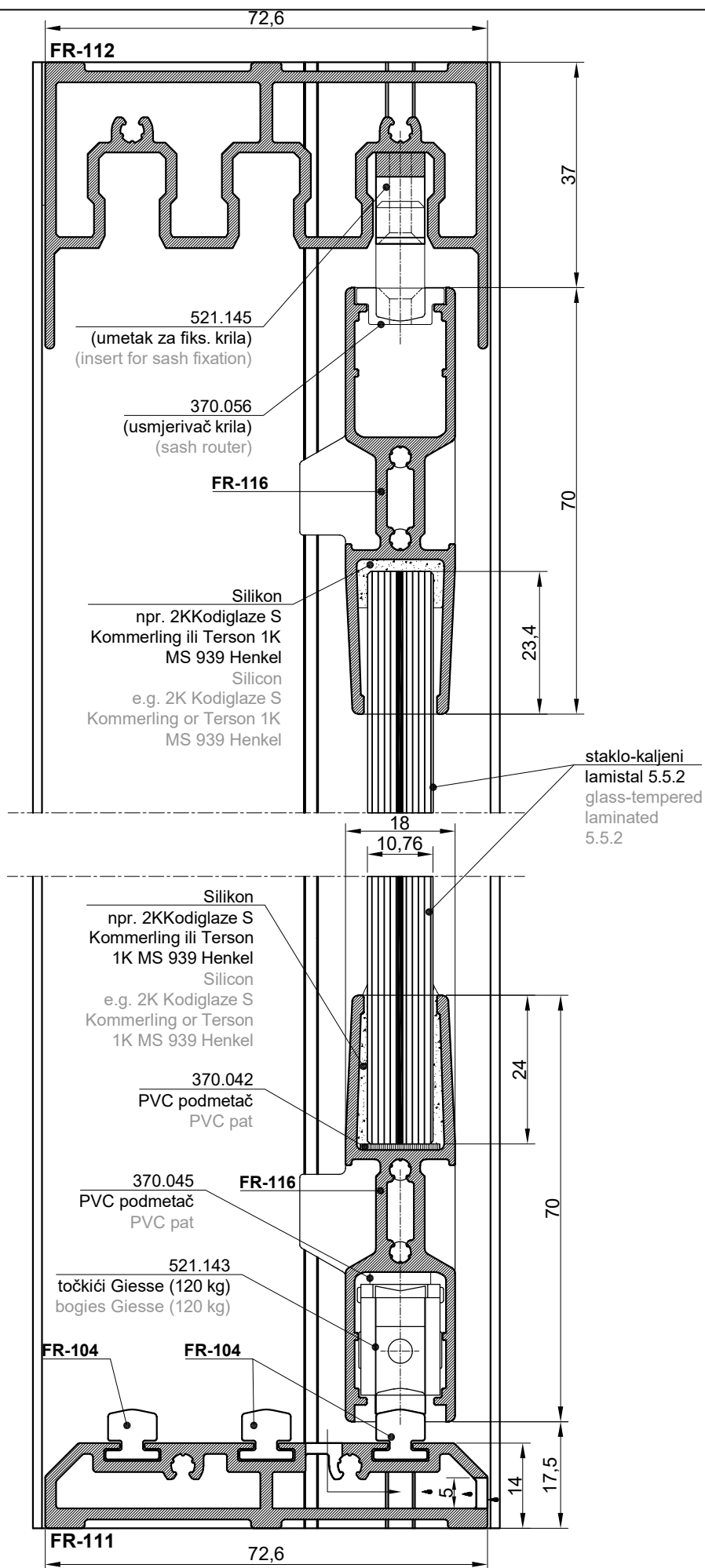
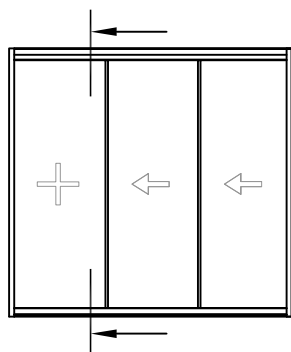


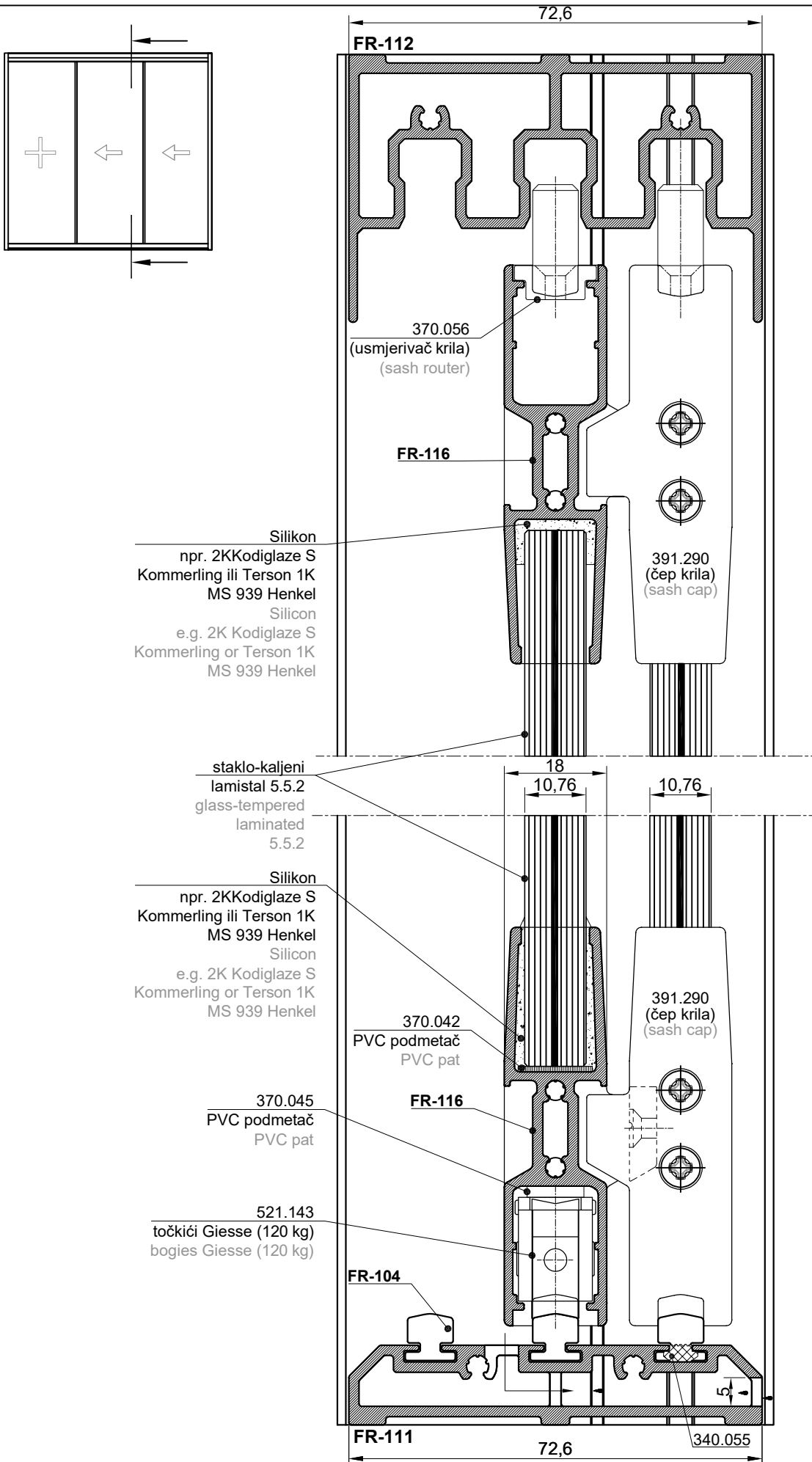


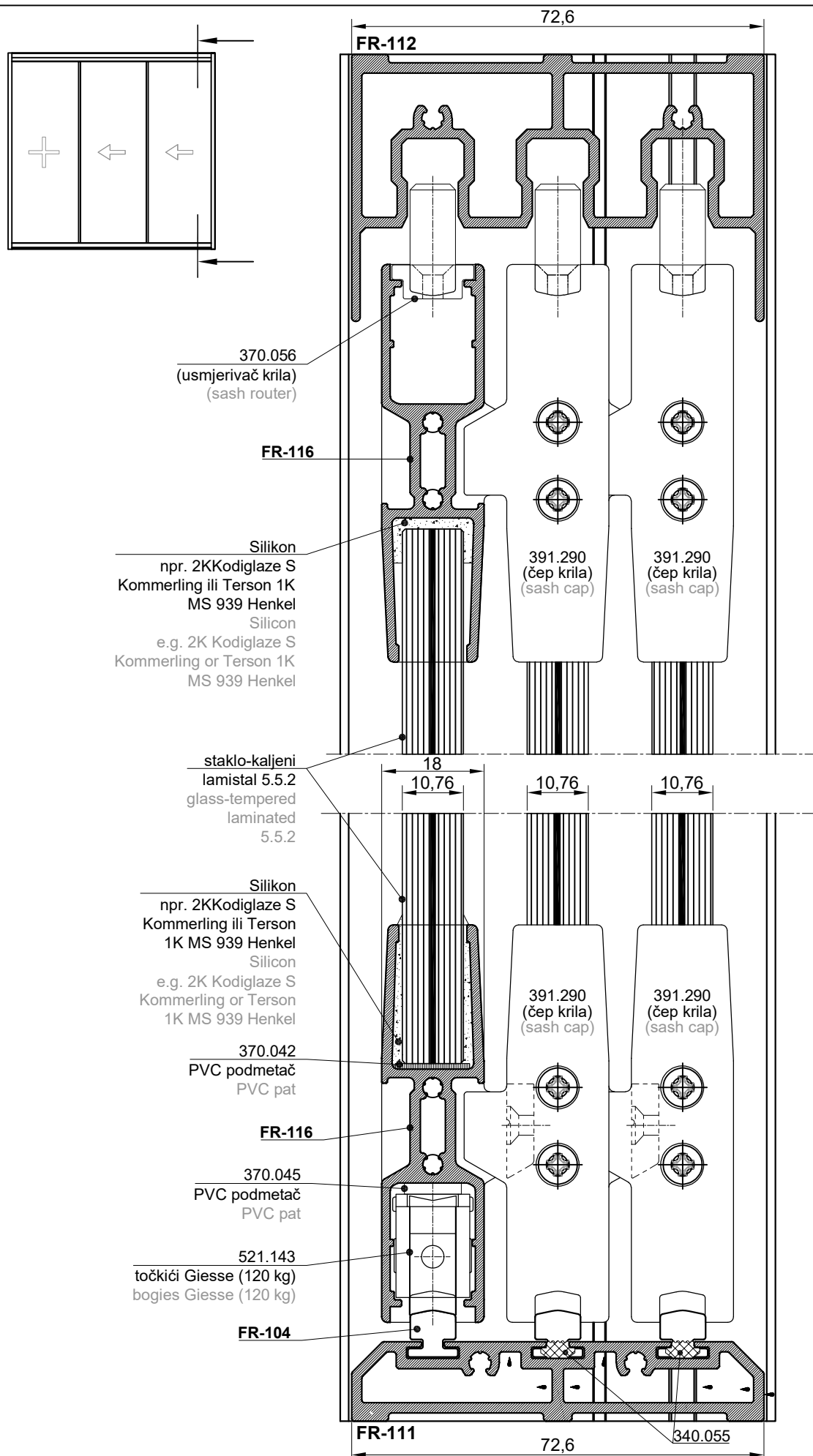


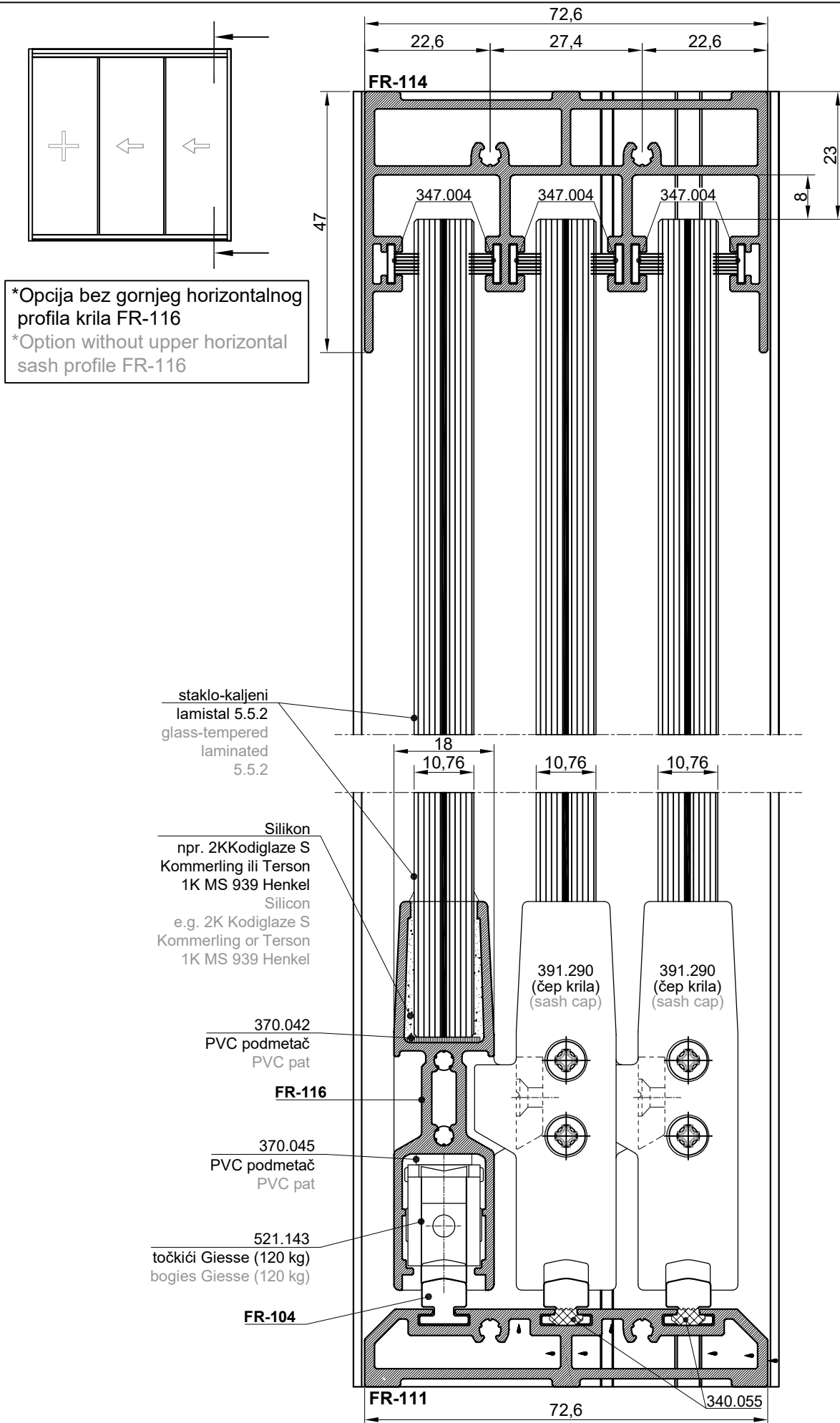
\*Opcija bez gornjeg horizontalnog profila  
krila FR-116  
\*Option without upper horizontal sash  
profile FR-116

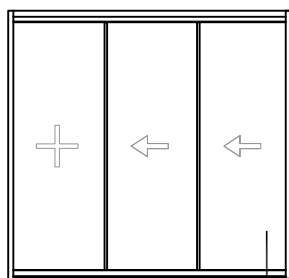






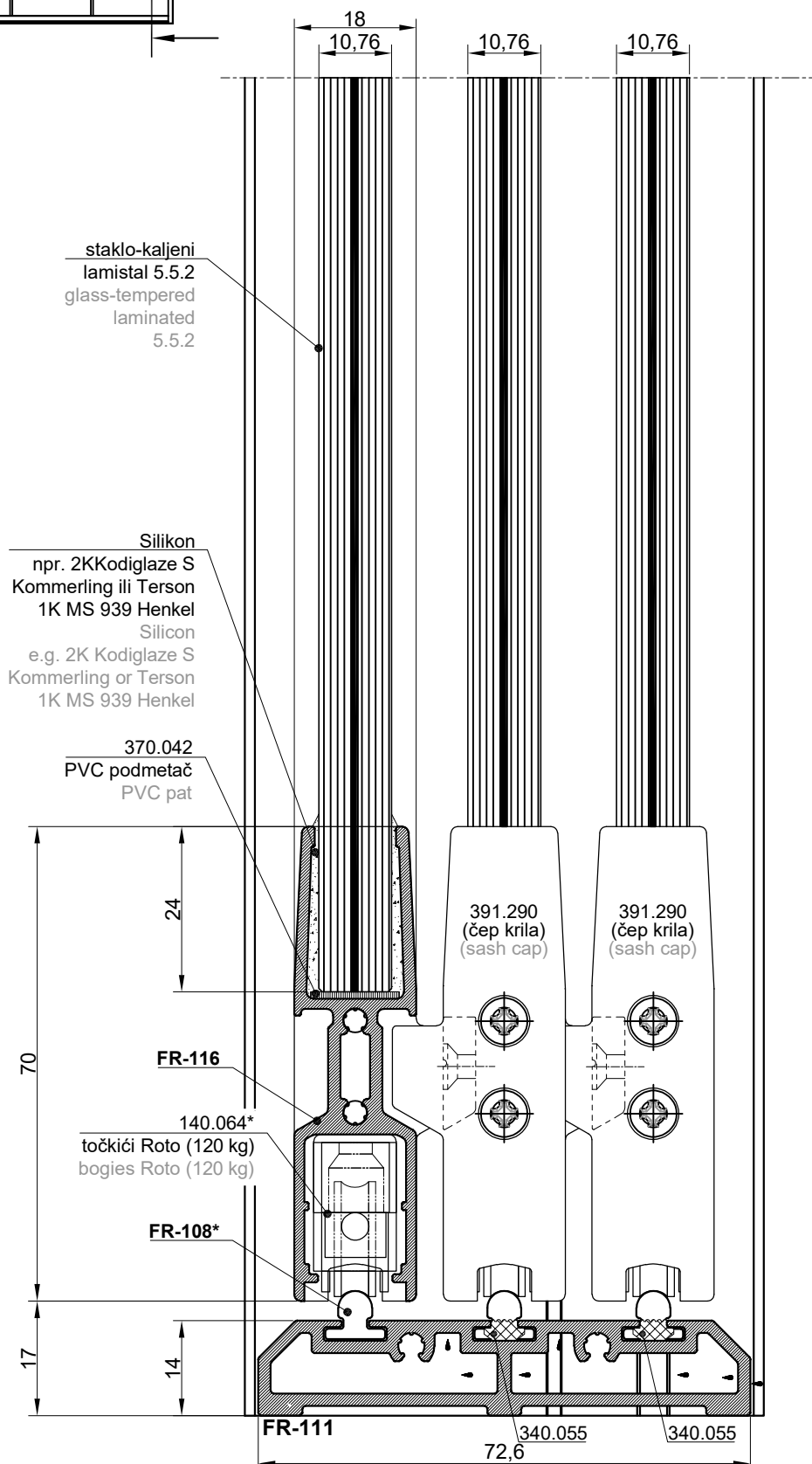


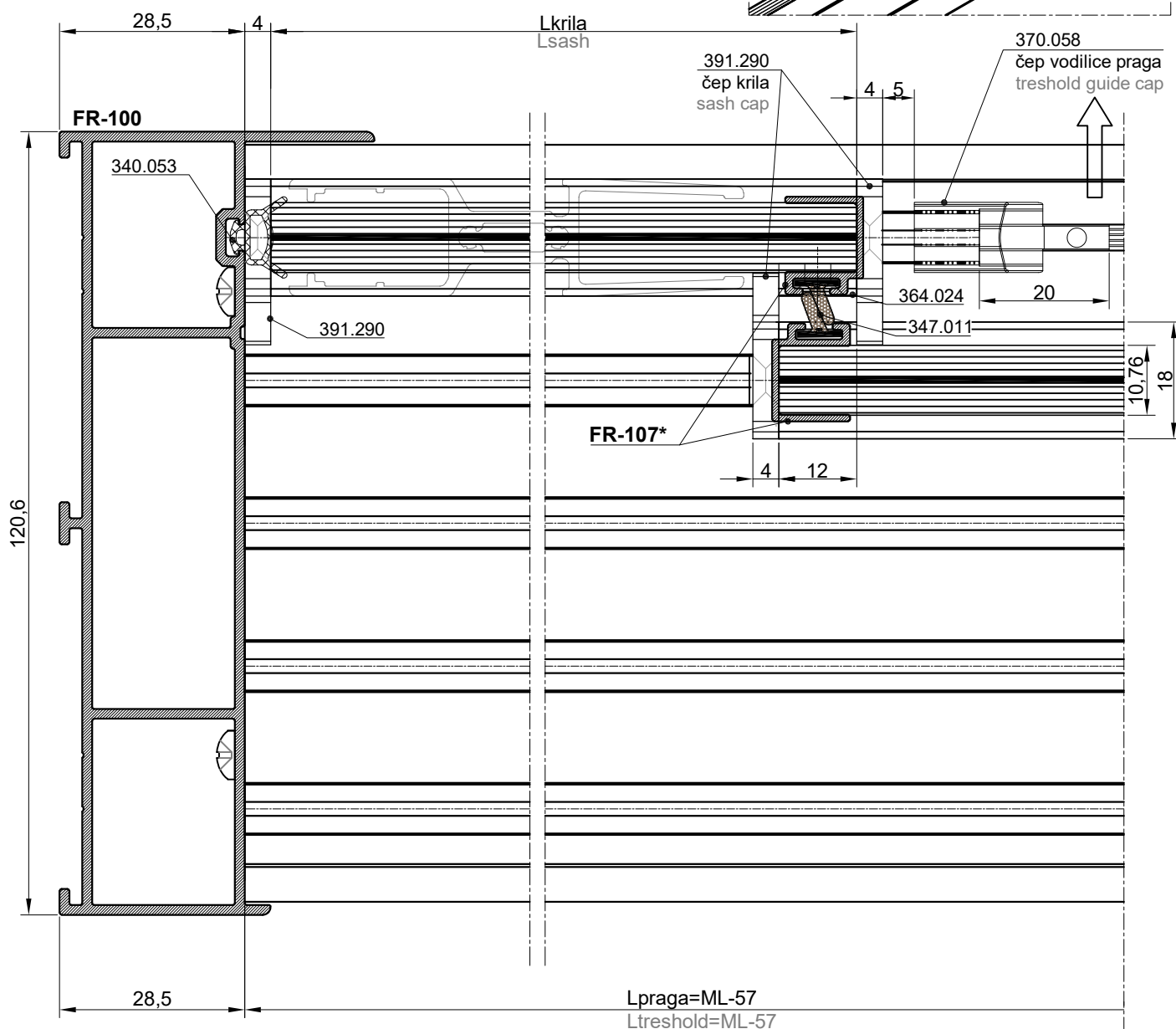
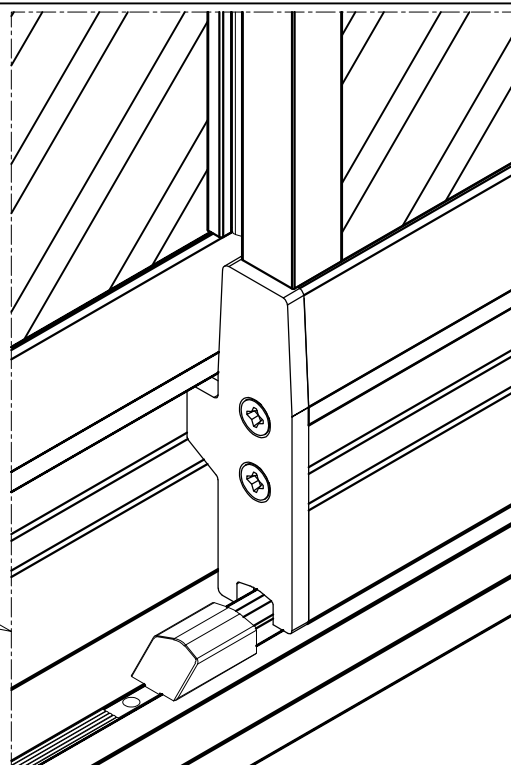
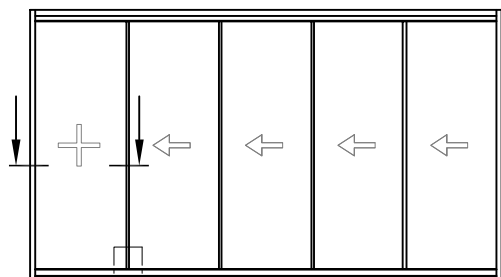


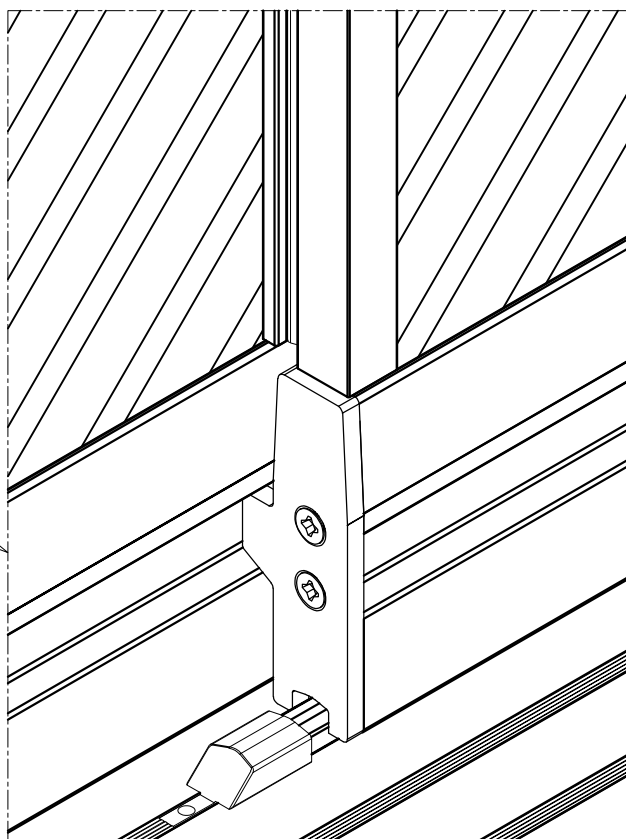
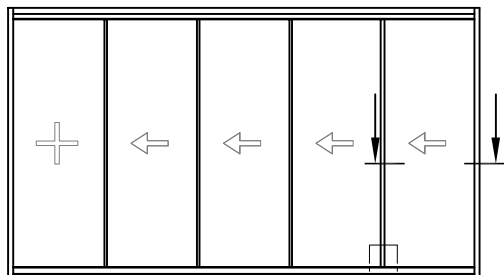


\*Mogućnost korištenja točkića 140.064 Roto (120 kg) i vodilice FR-108.

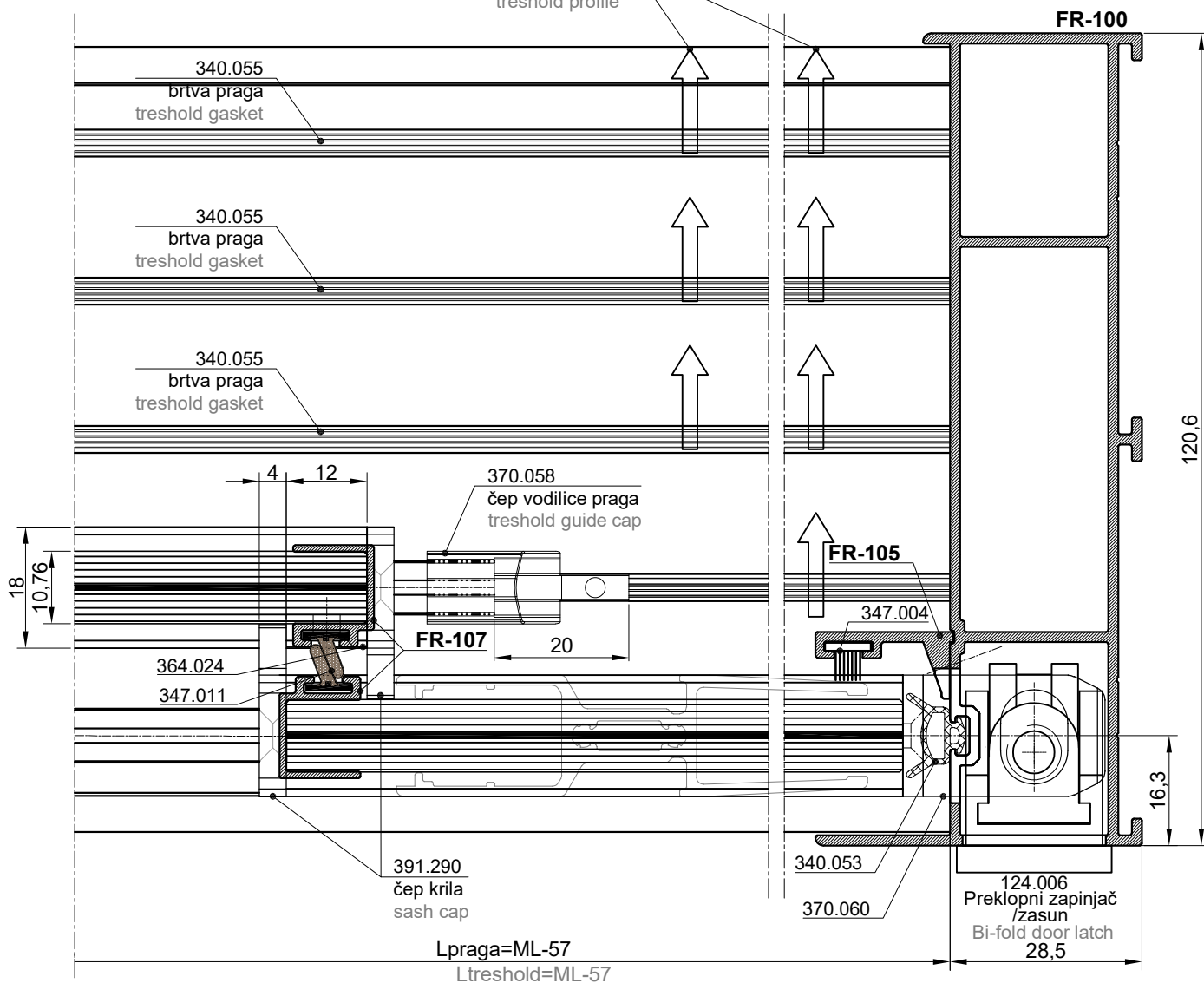
\*Possibility of using bogies 140.064 Roto (120 kg) and guide FT-108.

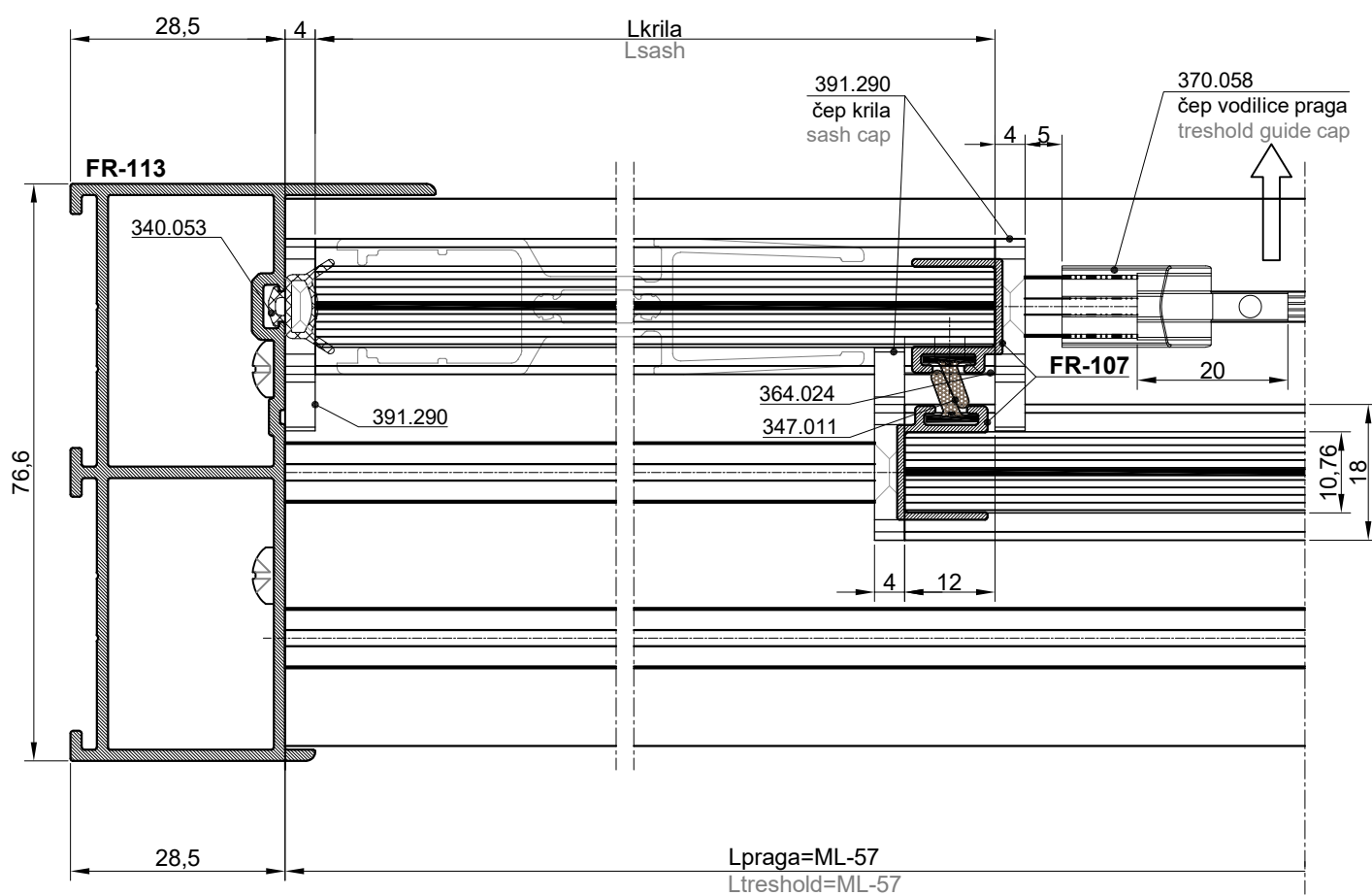
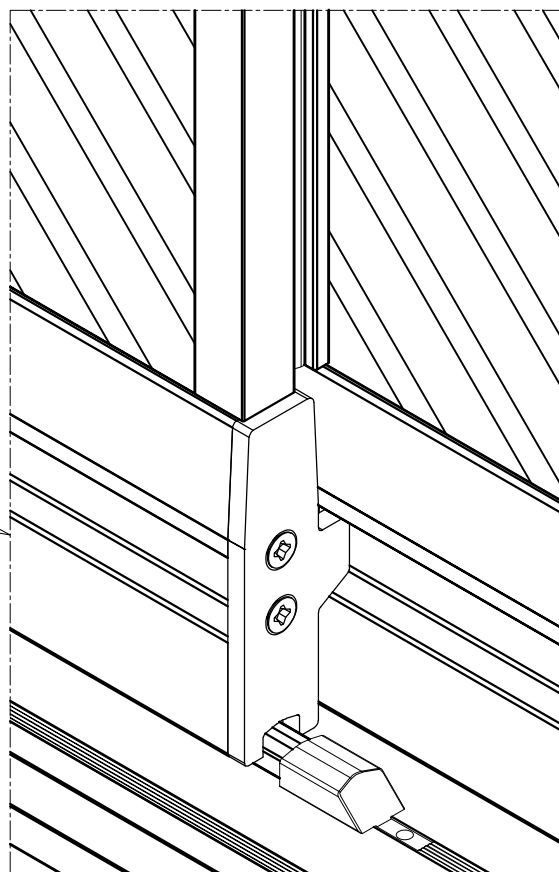
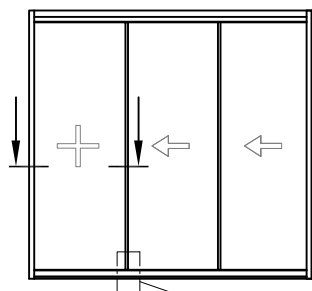


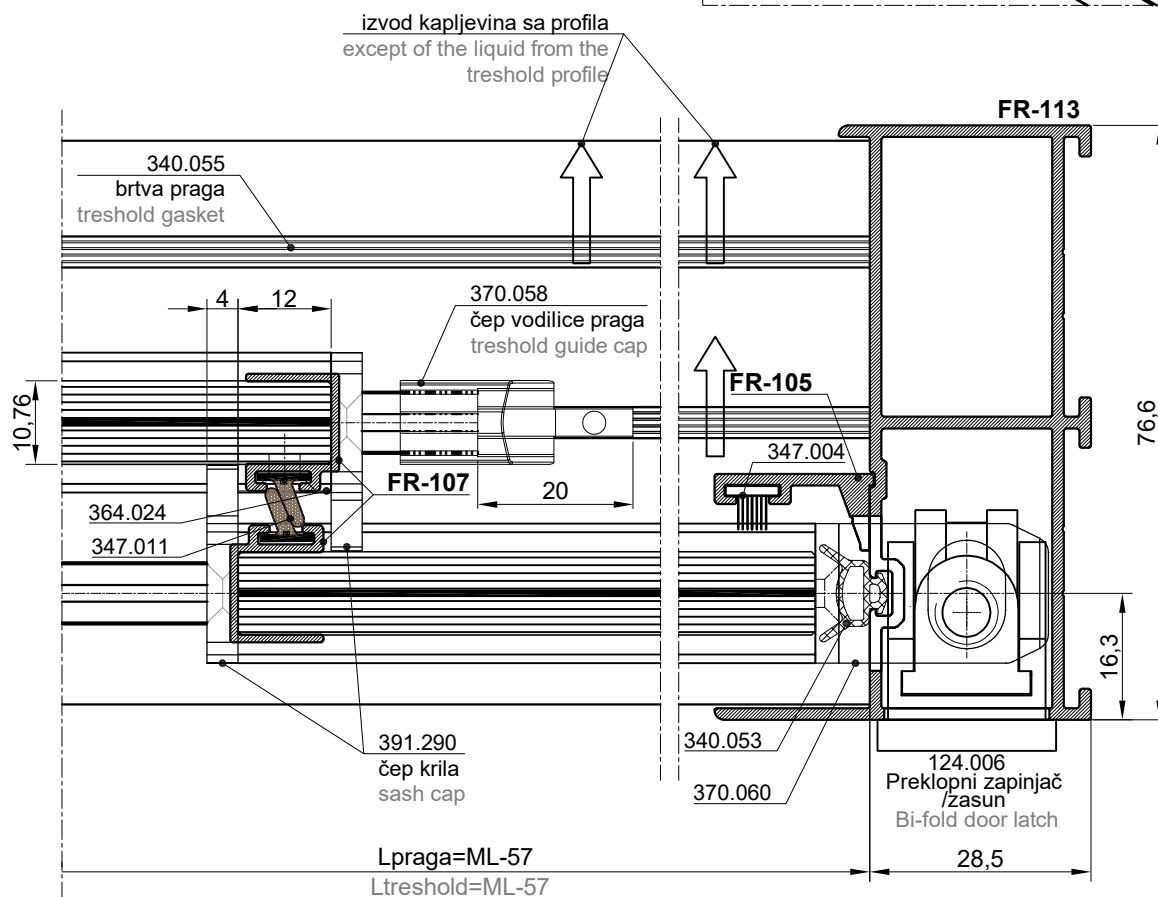
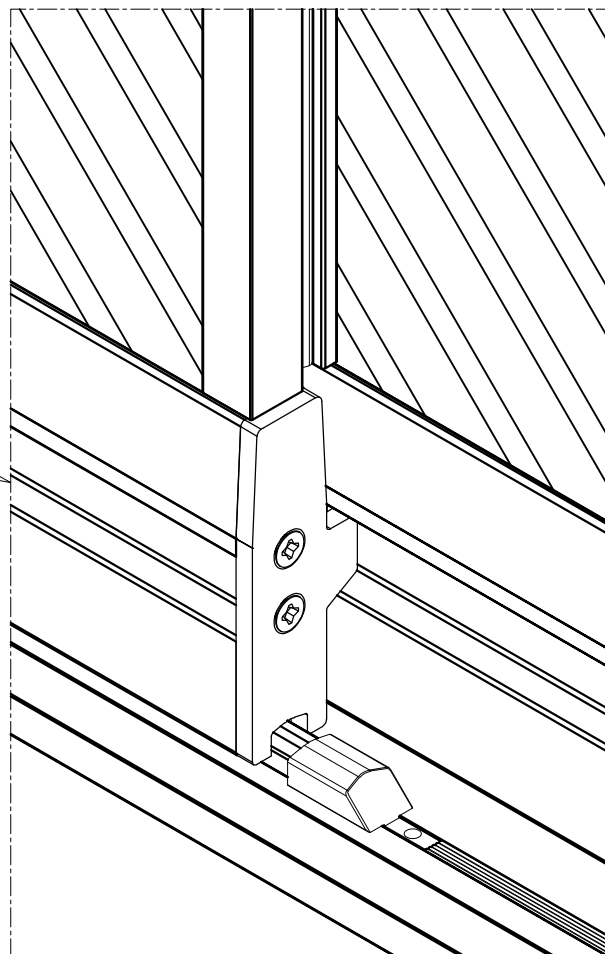
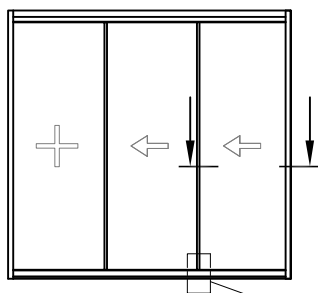


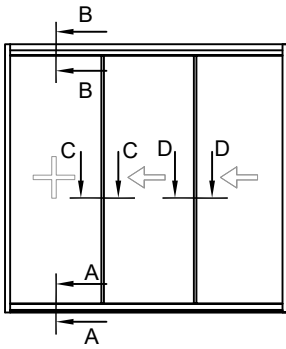


izvod kapljevina sa profila  
except of the liquid from the  
treshold profile



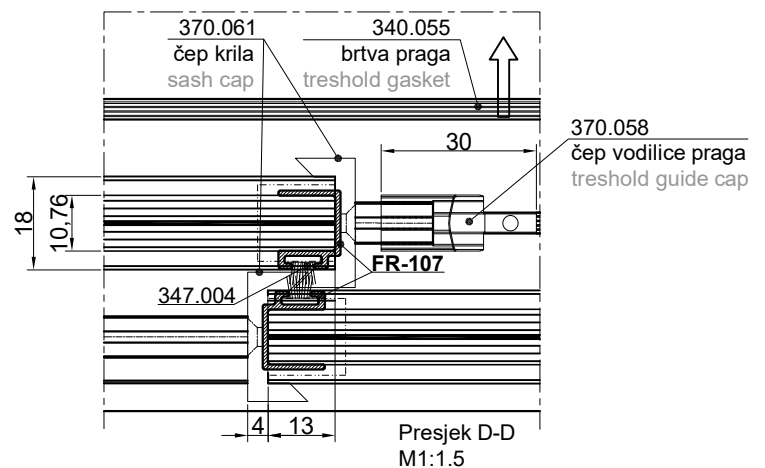
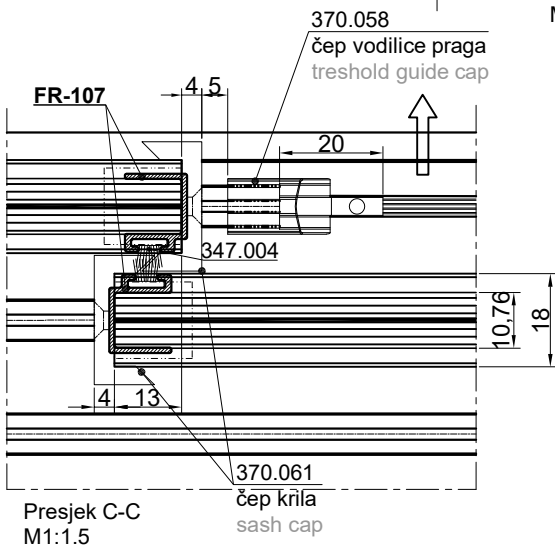
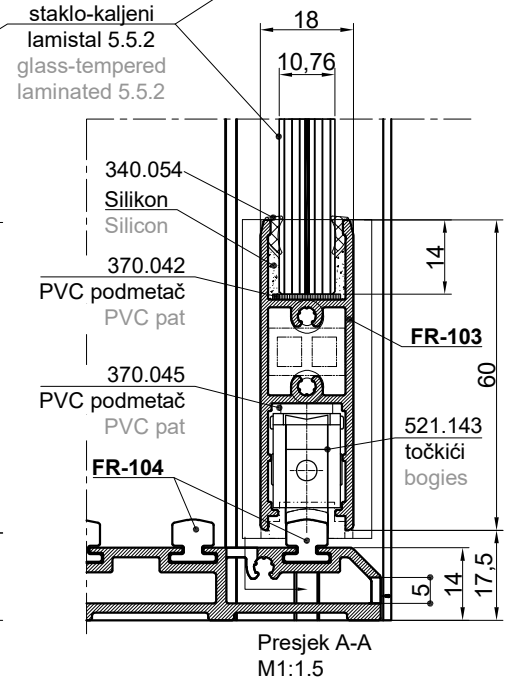
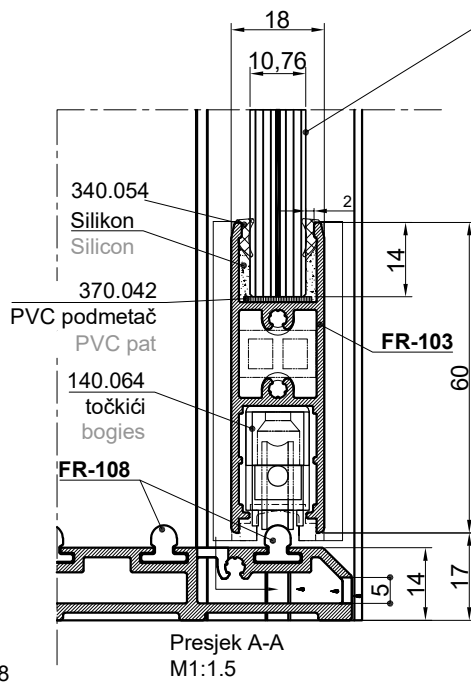
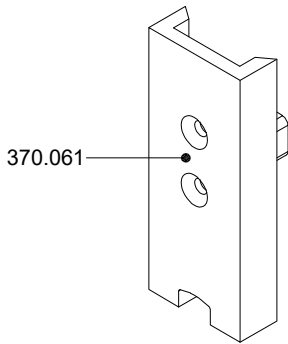
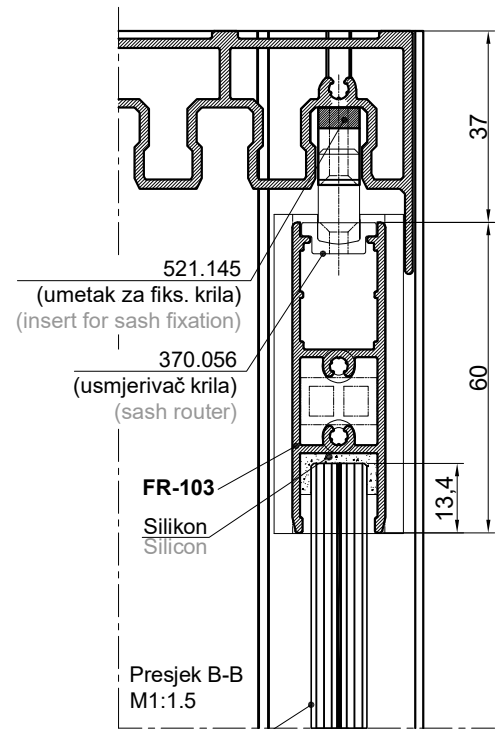
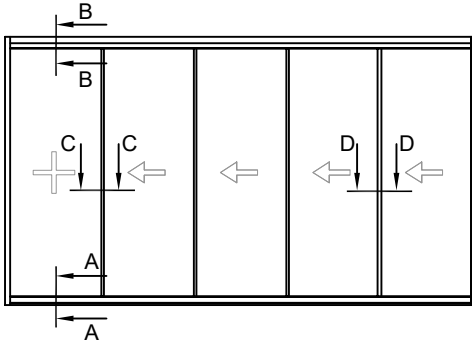


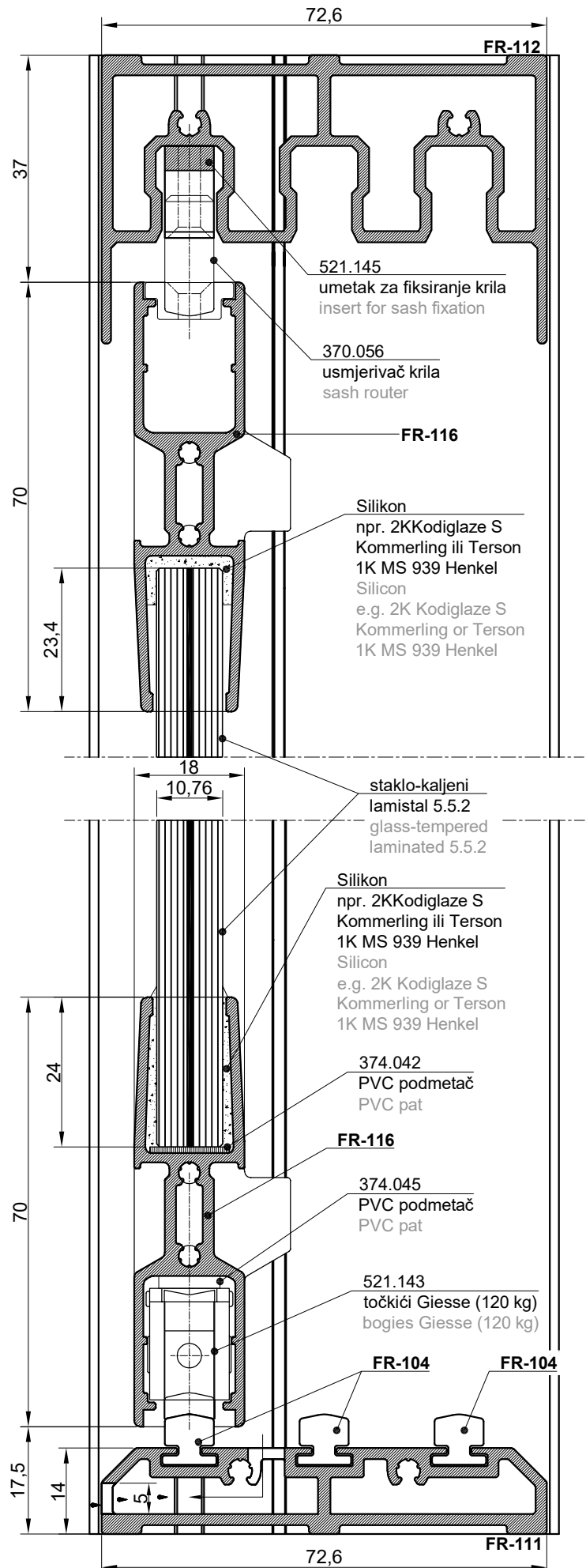
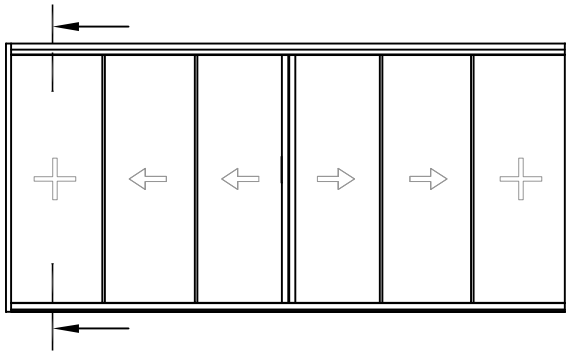


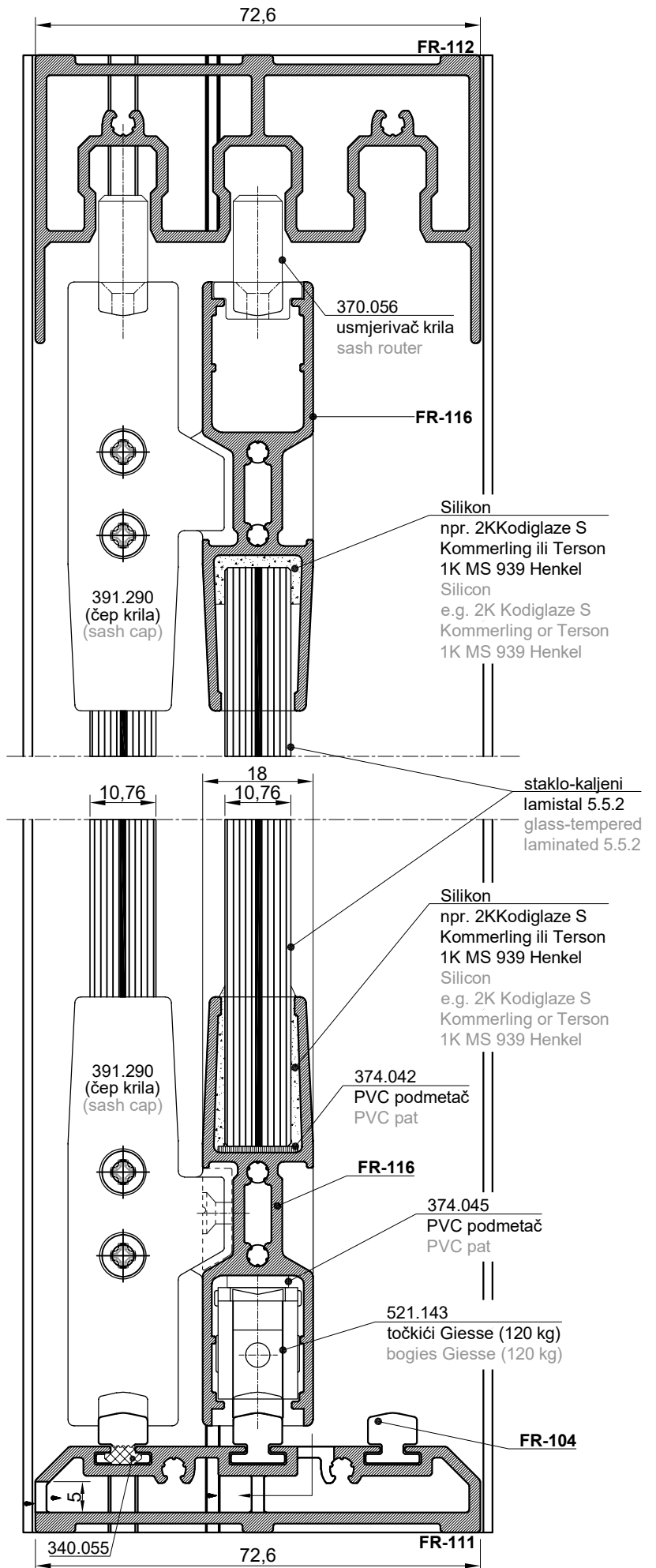
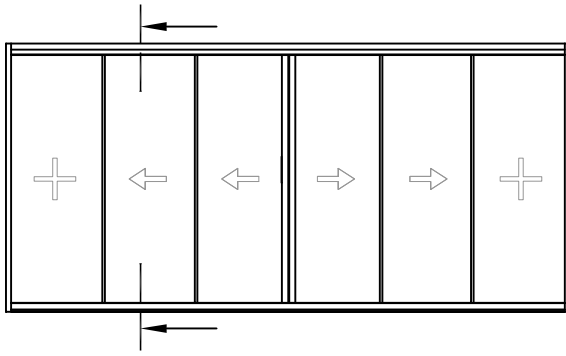


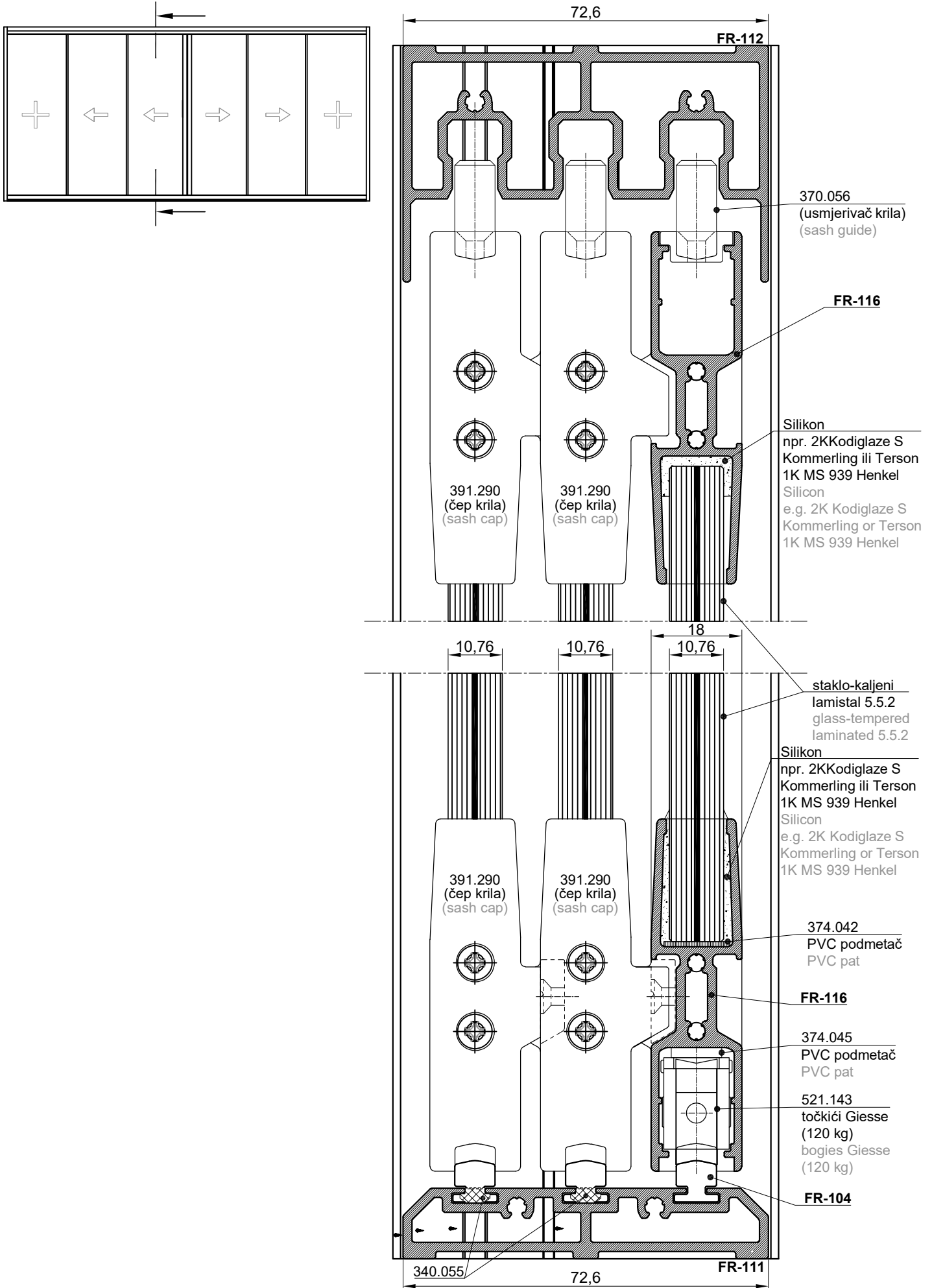
\*Mogućnost upotrebe krila FR-103 sa  
čepom i prihvatnikom krila 370.061!  
\*Possibility of using sash FR-103 with  
side sash cap and two sash acceptor  
370.061!

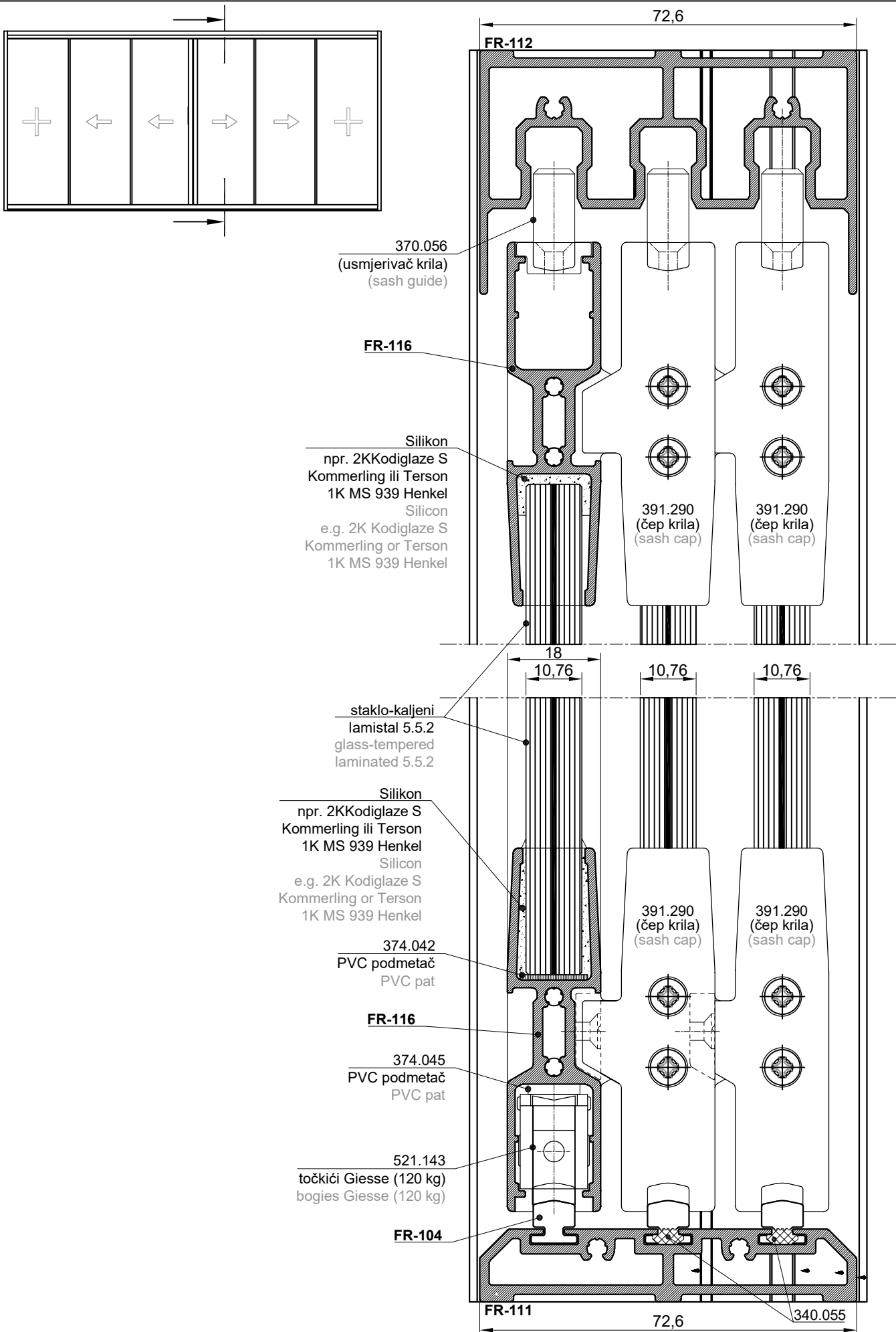
\*Profili rama su isti kao i za  
krilo FR-116.  
\*The frame profiles are the same as for the FR-116 sash.

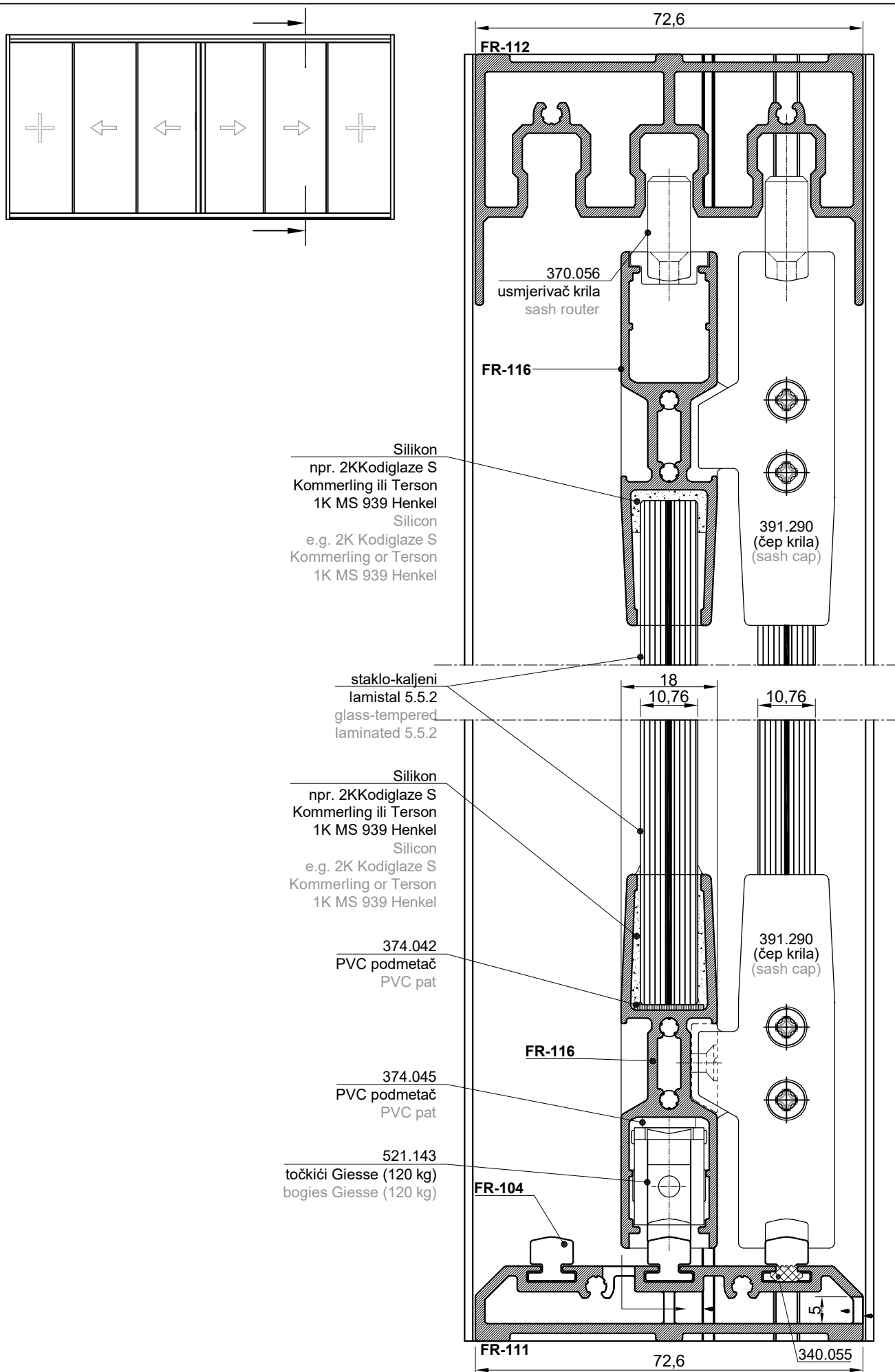


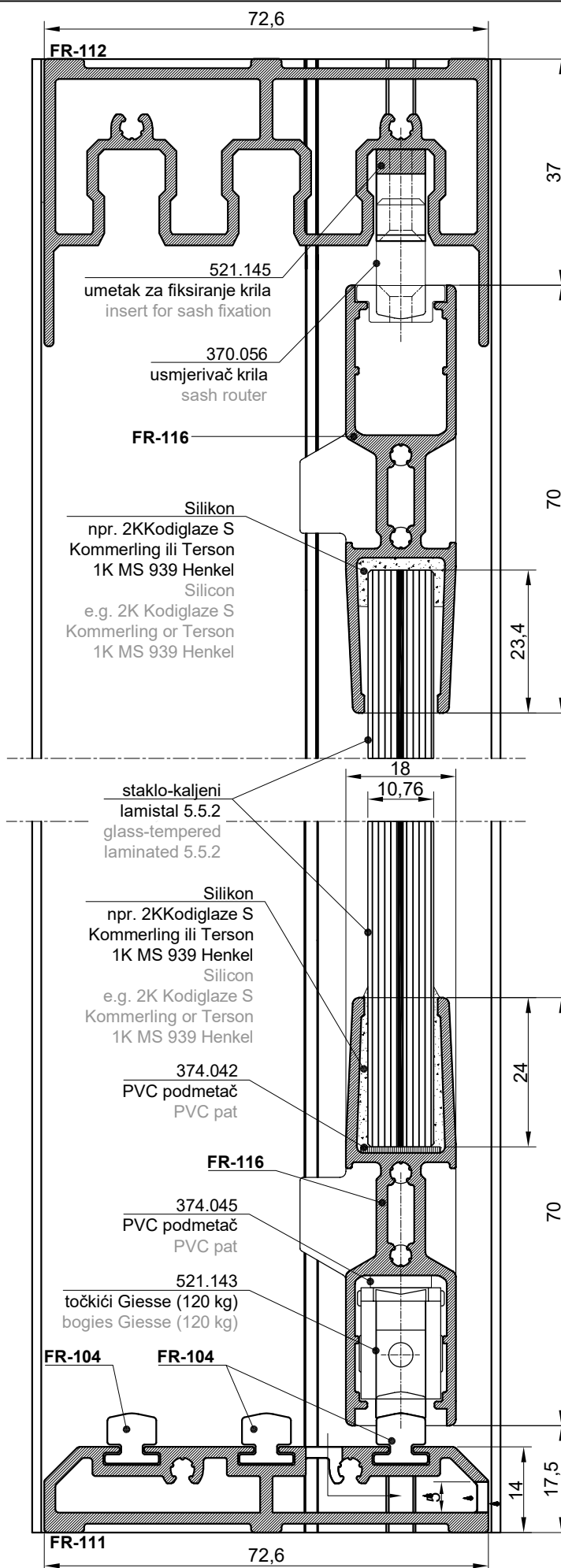
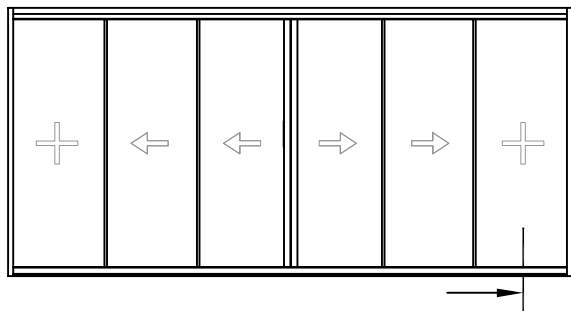


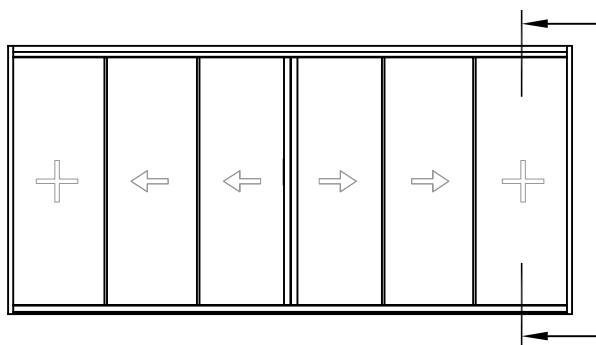




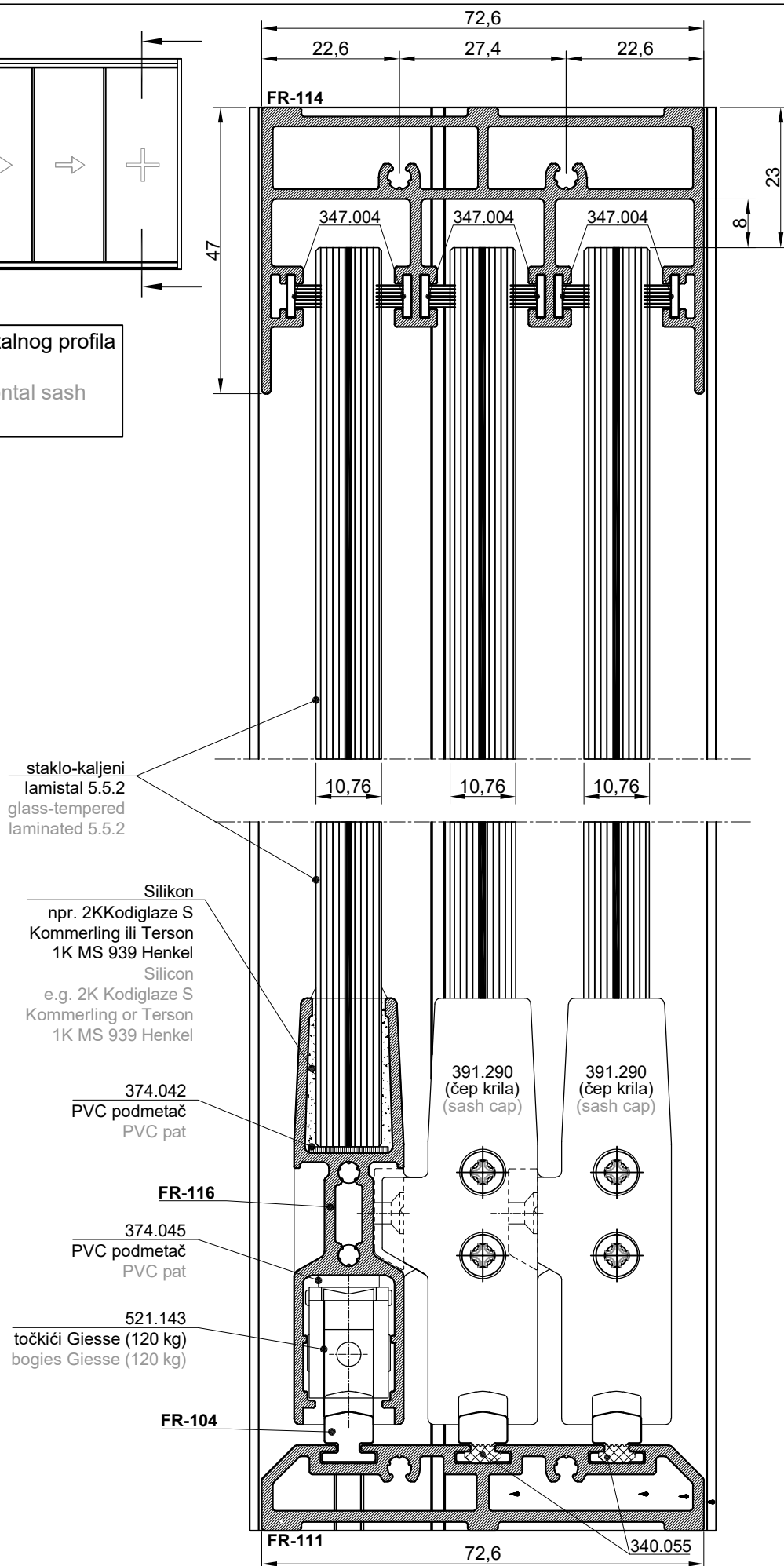


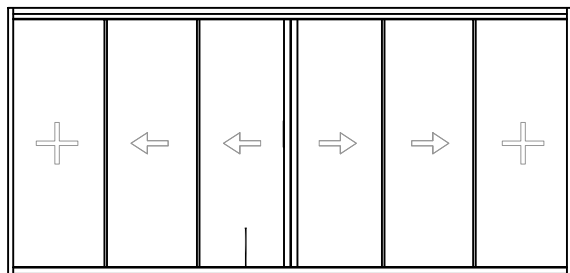




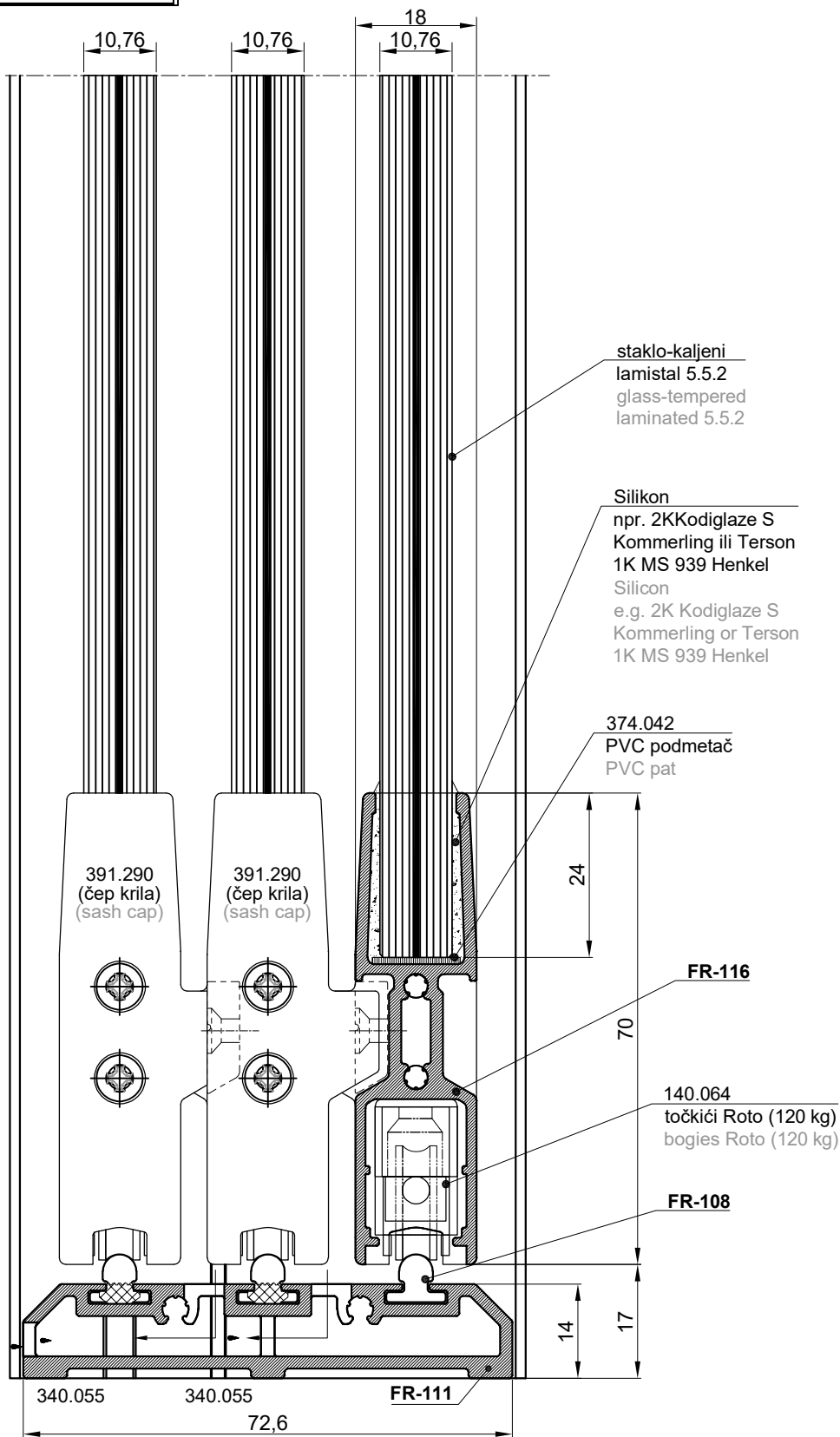


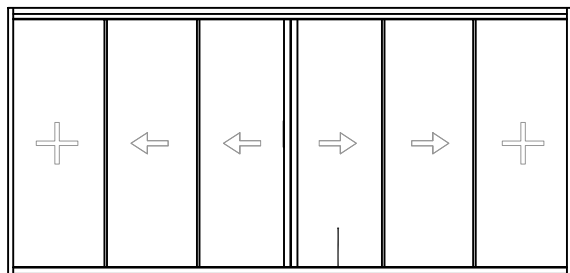
\*Opcija bez gornjeg horizontalnog profila krila FR-116  
\*Option without upper horizontal sash profile FR-116



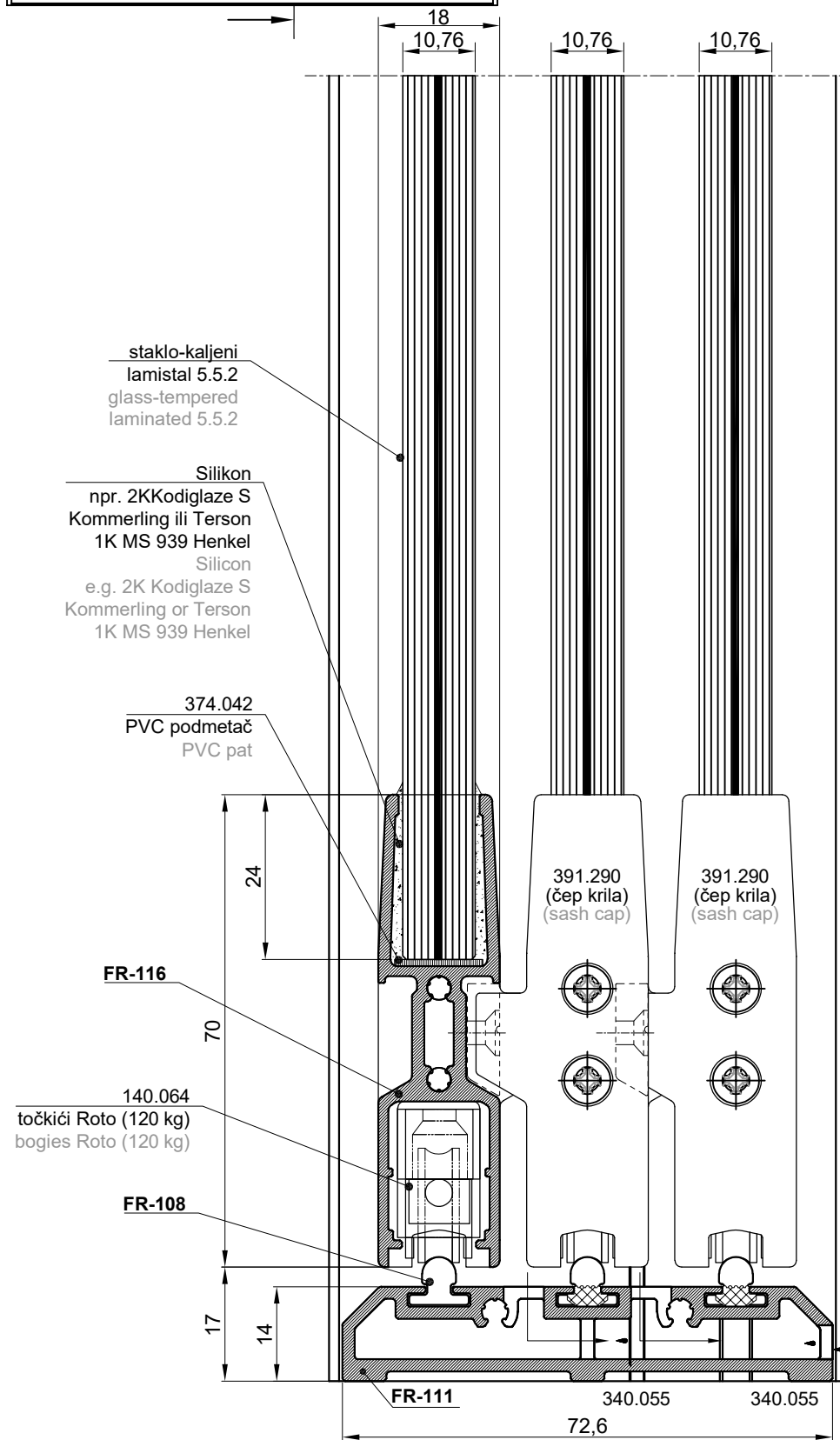


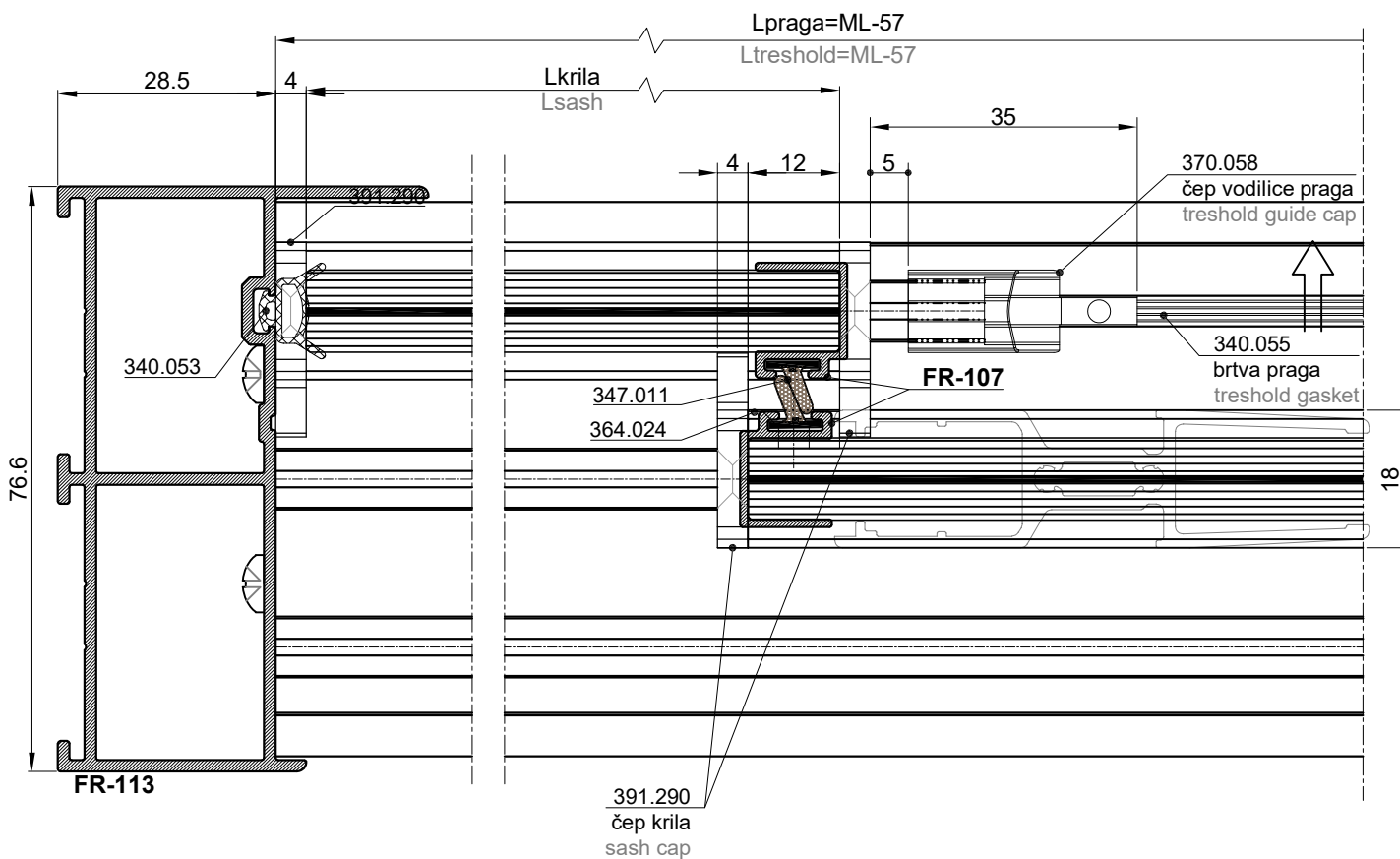
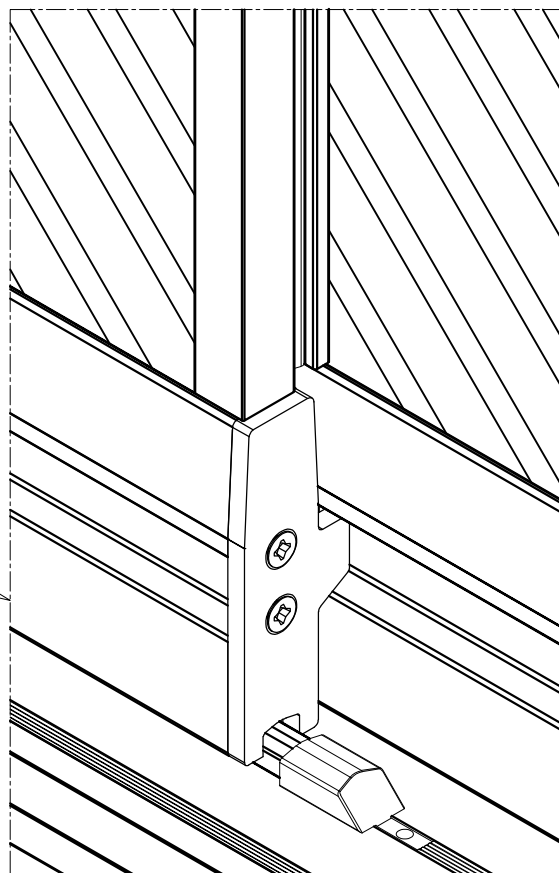
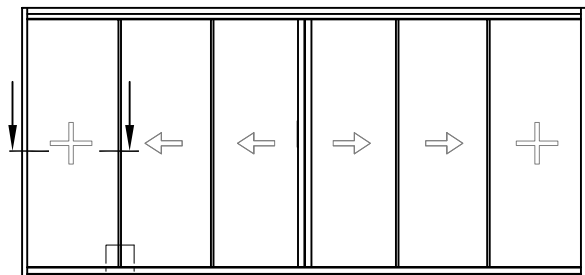
\*Mogućnost korištenja točkića 140.064 Roto (120 kg) i vodilice FR-108.  
\*Possibility of using bogies 140.064 Roto (120 kg) and guide FT-108.

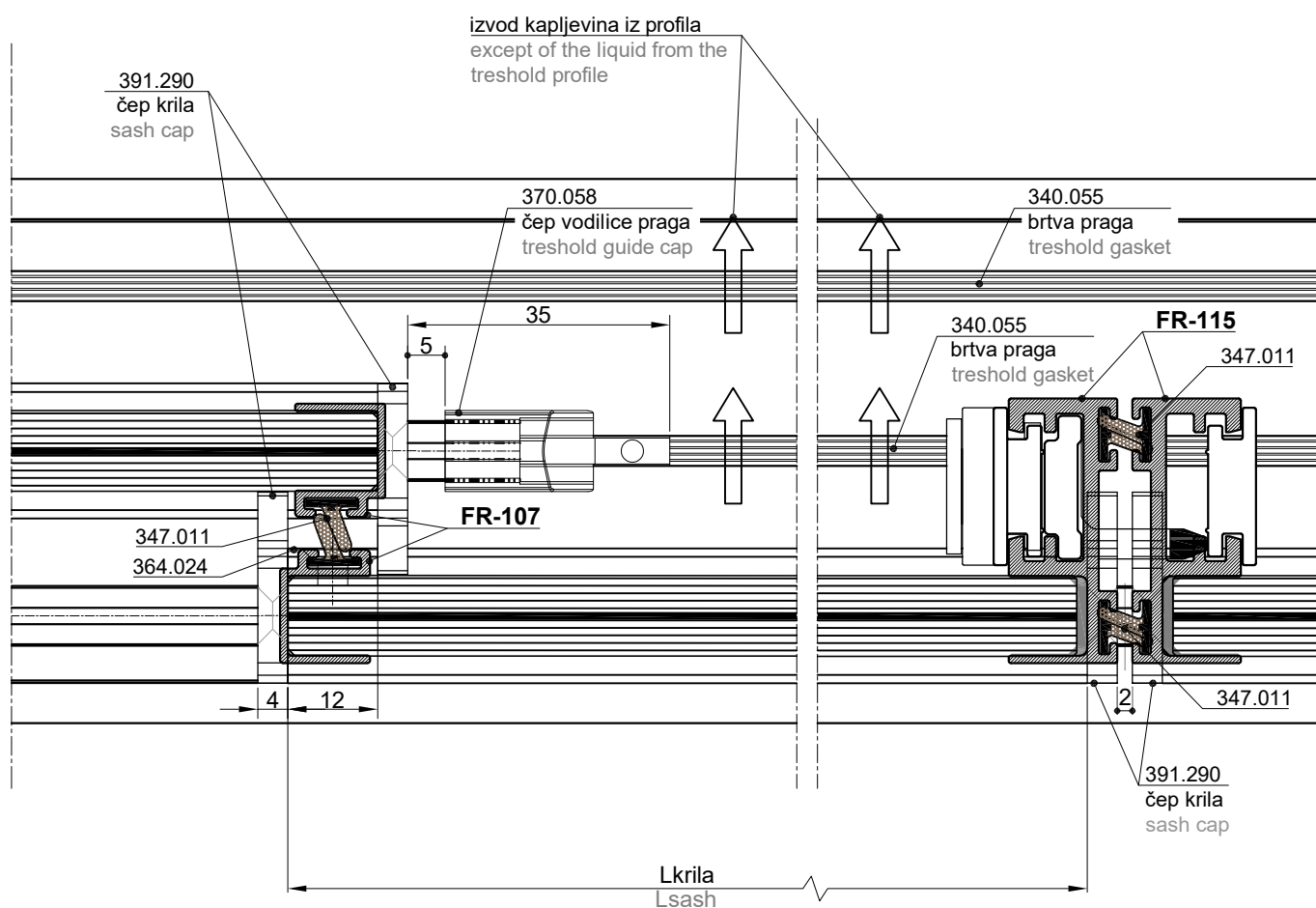
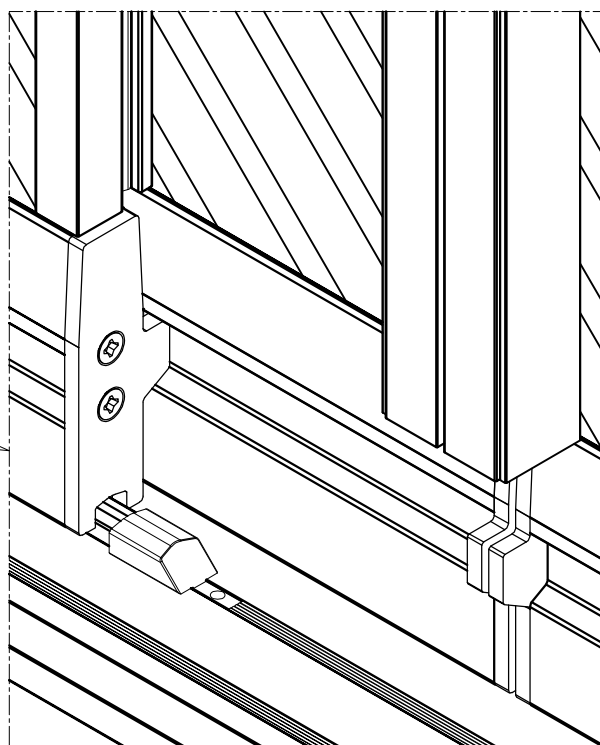
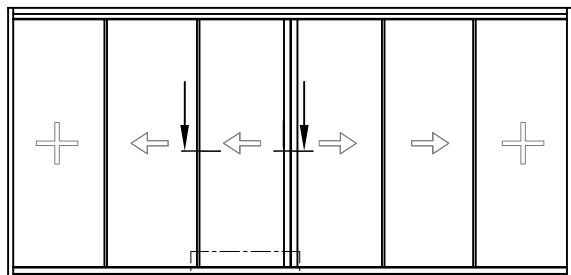




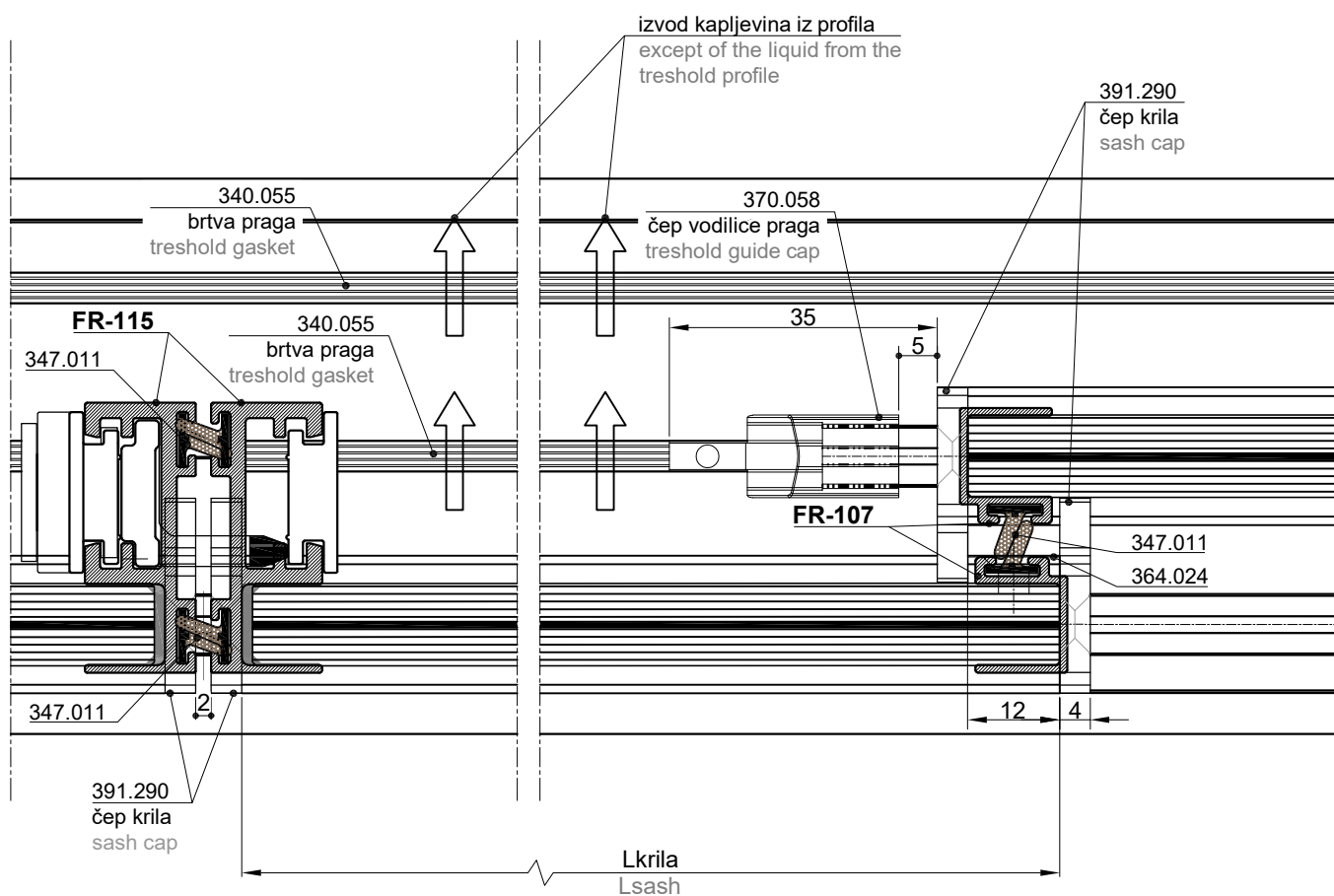
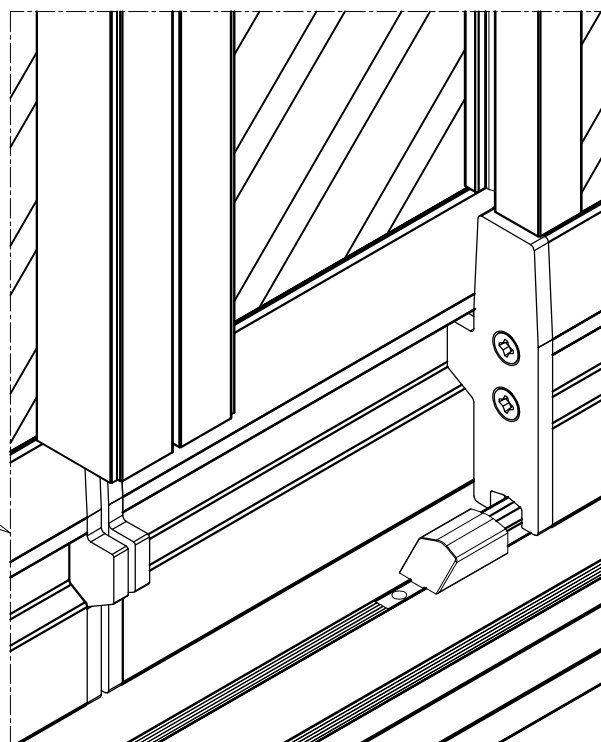
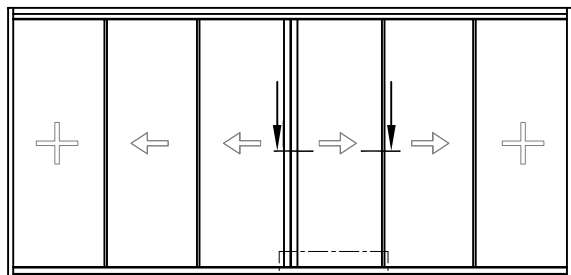
\*Mogućnost korištenja točkića 140.064 Roto (120 kg) i vodilice FR-108.  
\*Possibility of using bogies 140.064 Roto (120 kg) and guide FT-108.



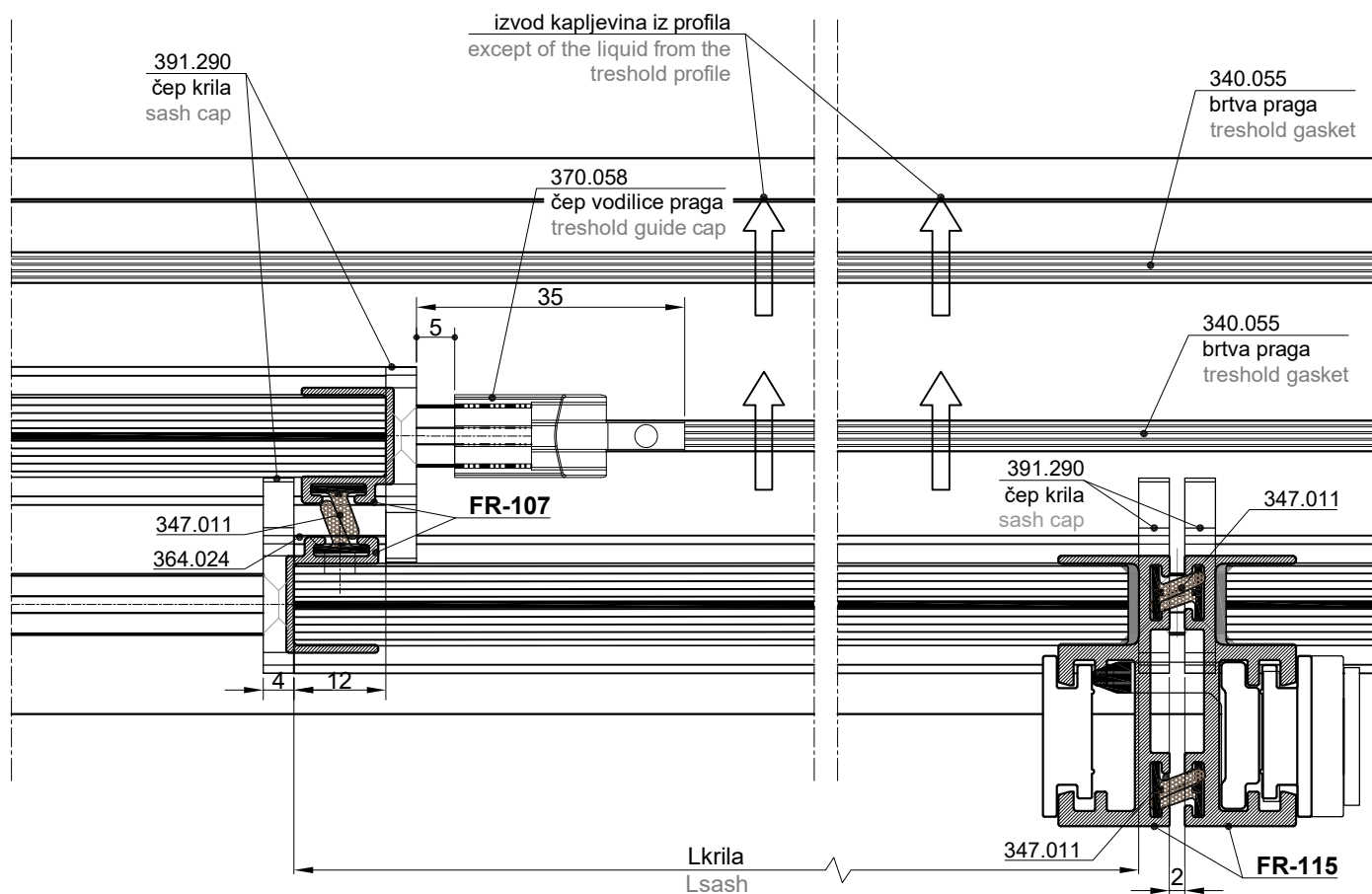
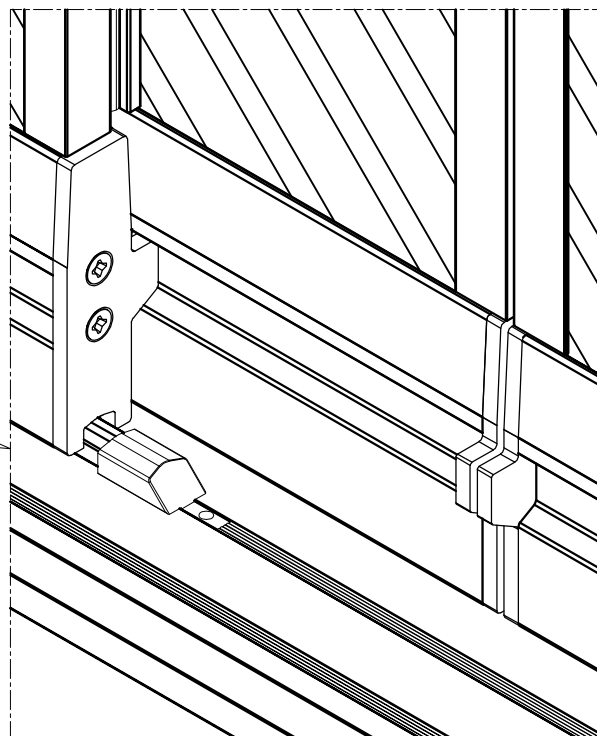
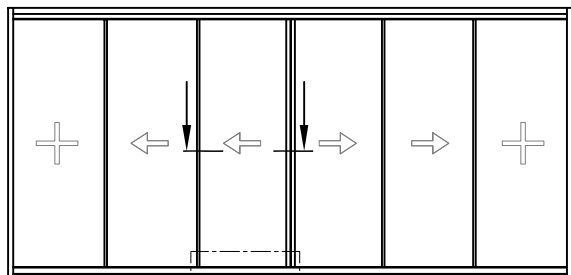




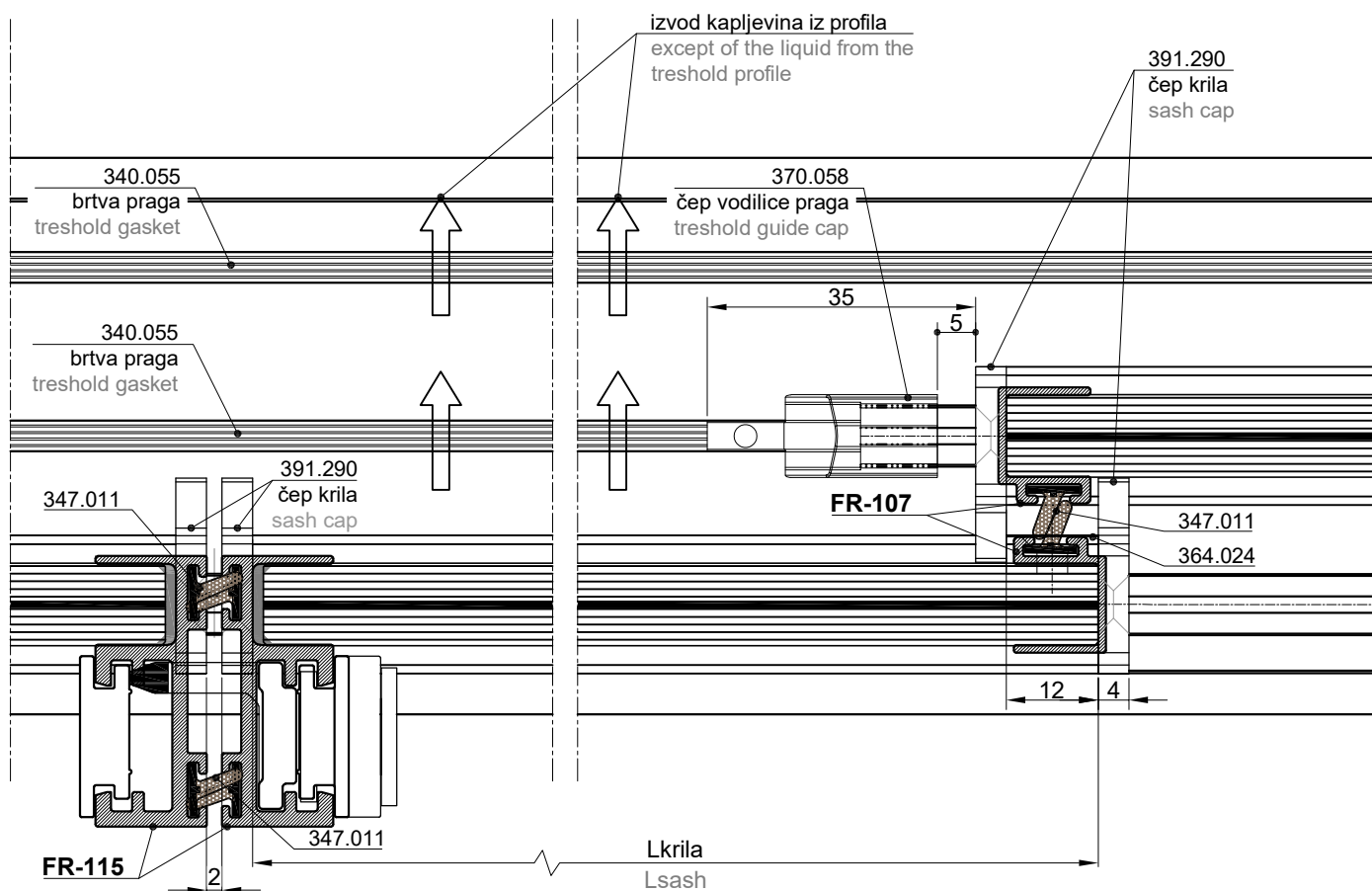
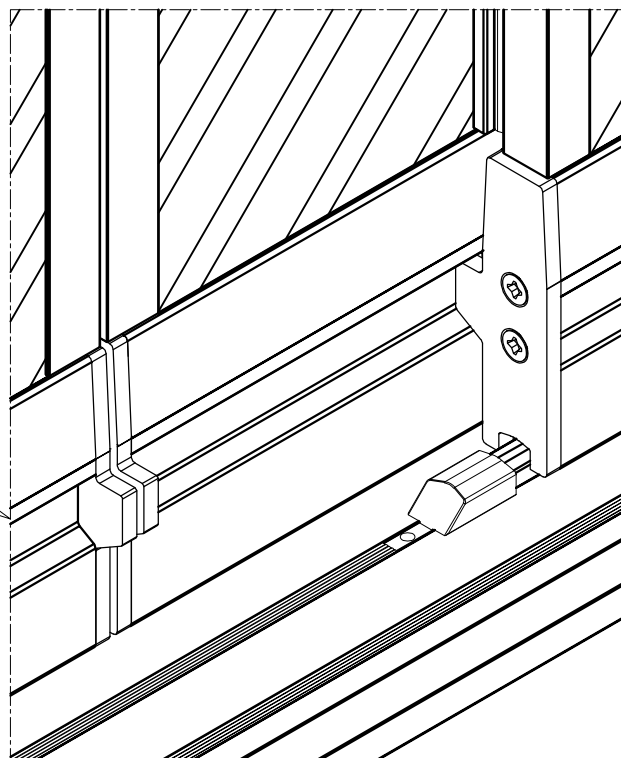
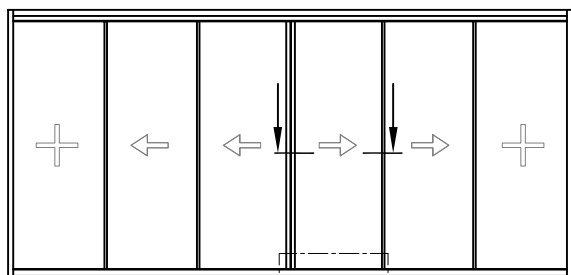
Otvaranje vani  
Opening on the outside



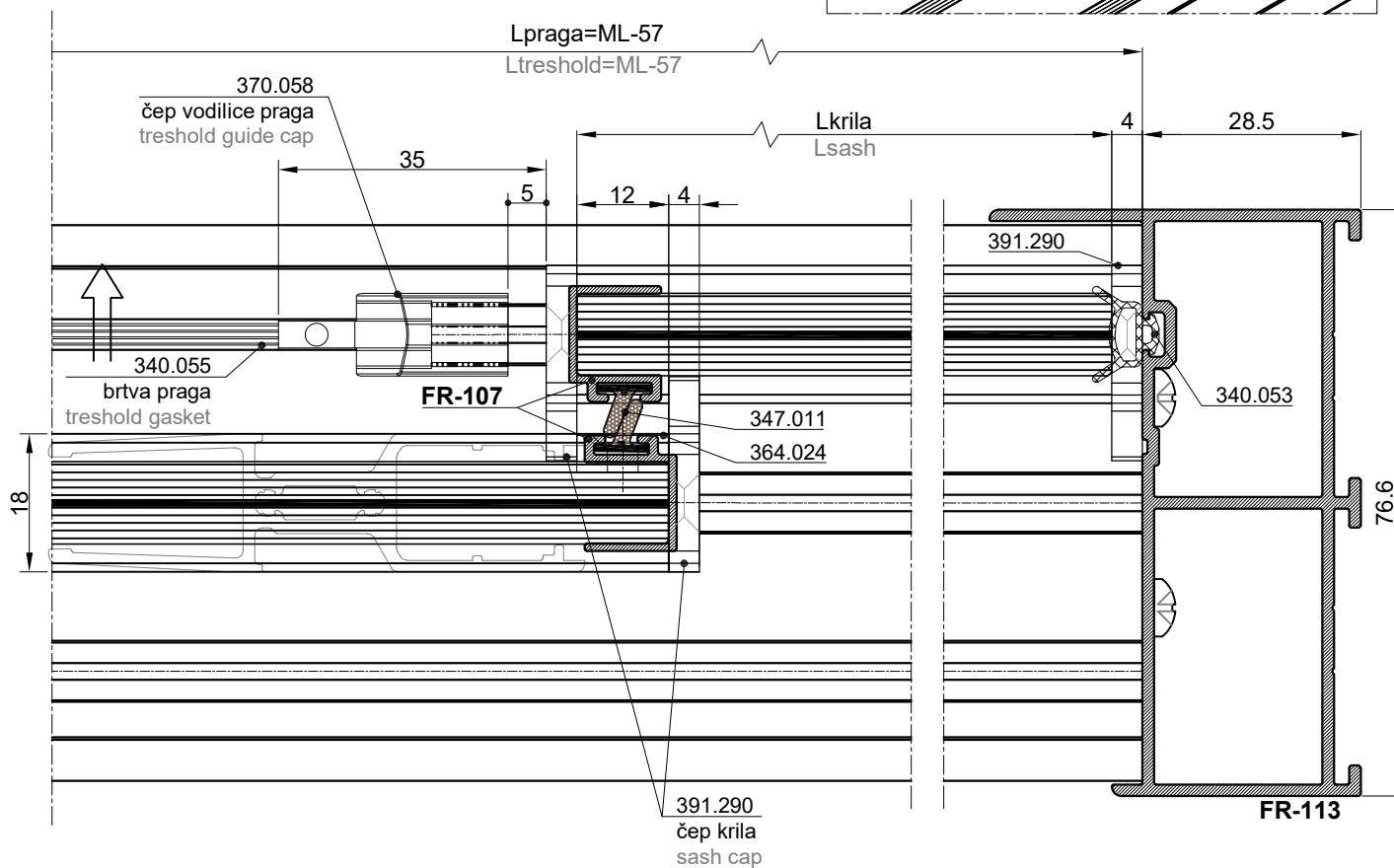
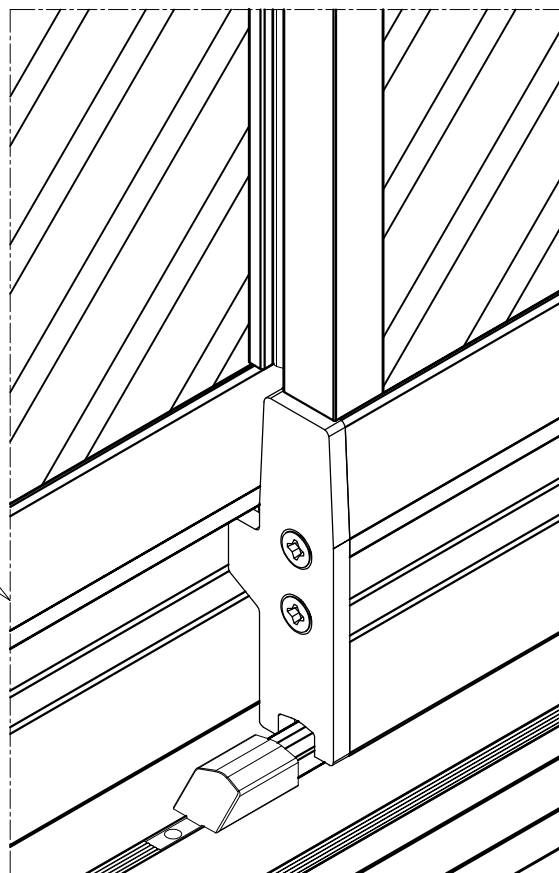
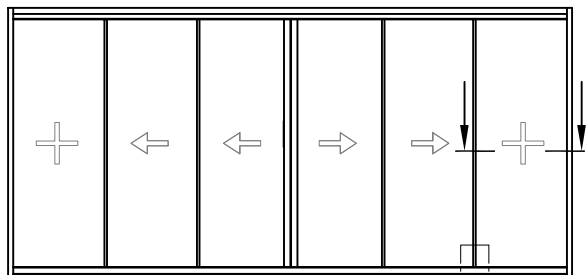
Otvaranje vani  
Opening on the outside



Otvaranje unutra  
Opening on the inside



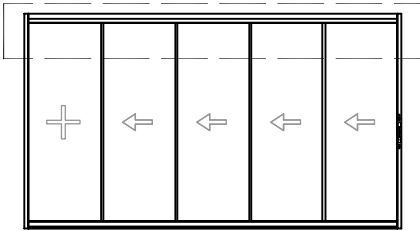
Otvaranje unutra  
Opening on the inside



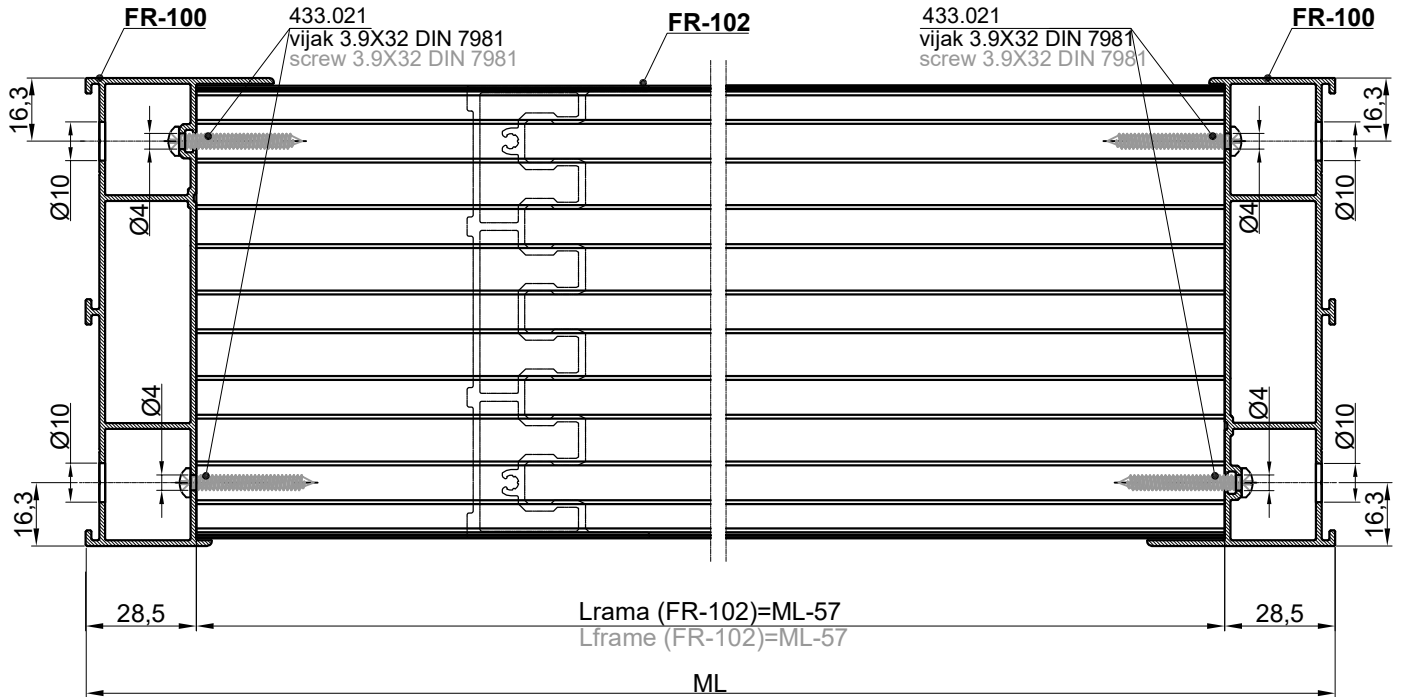
# Obrada i montaža

## Processing and montage

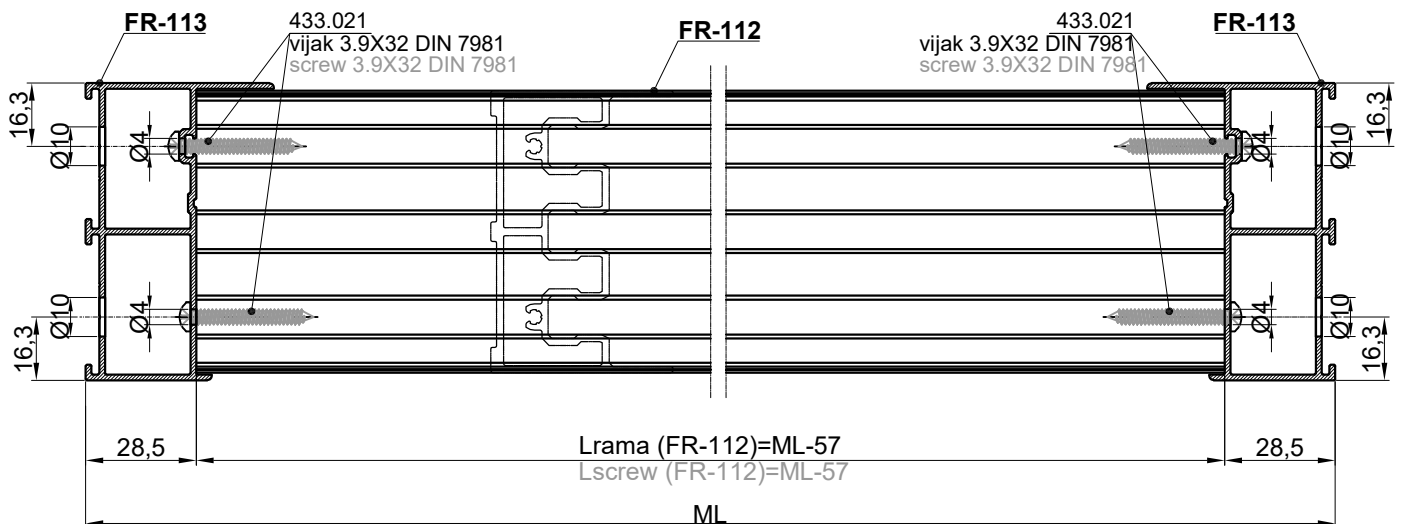
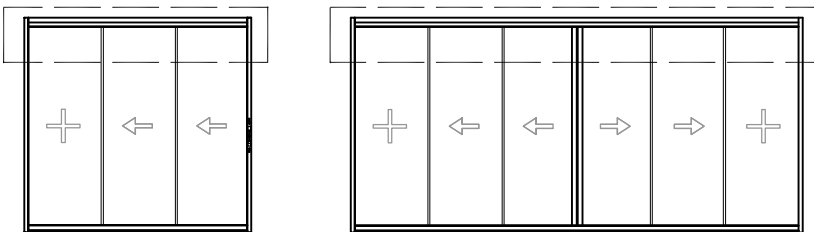


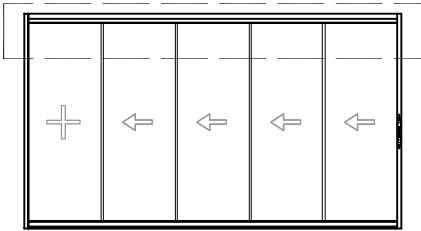


- pilanje gornjeg horizontalnog rama FR-102 i spoj sa vertikalnim ramom FR-100
- cutting the upper horizontal frame FR-102 and connecting to the vertical frame FR-100

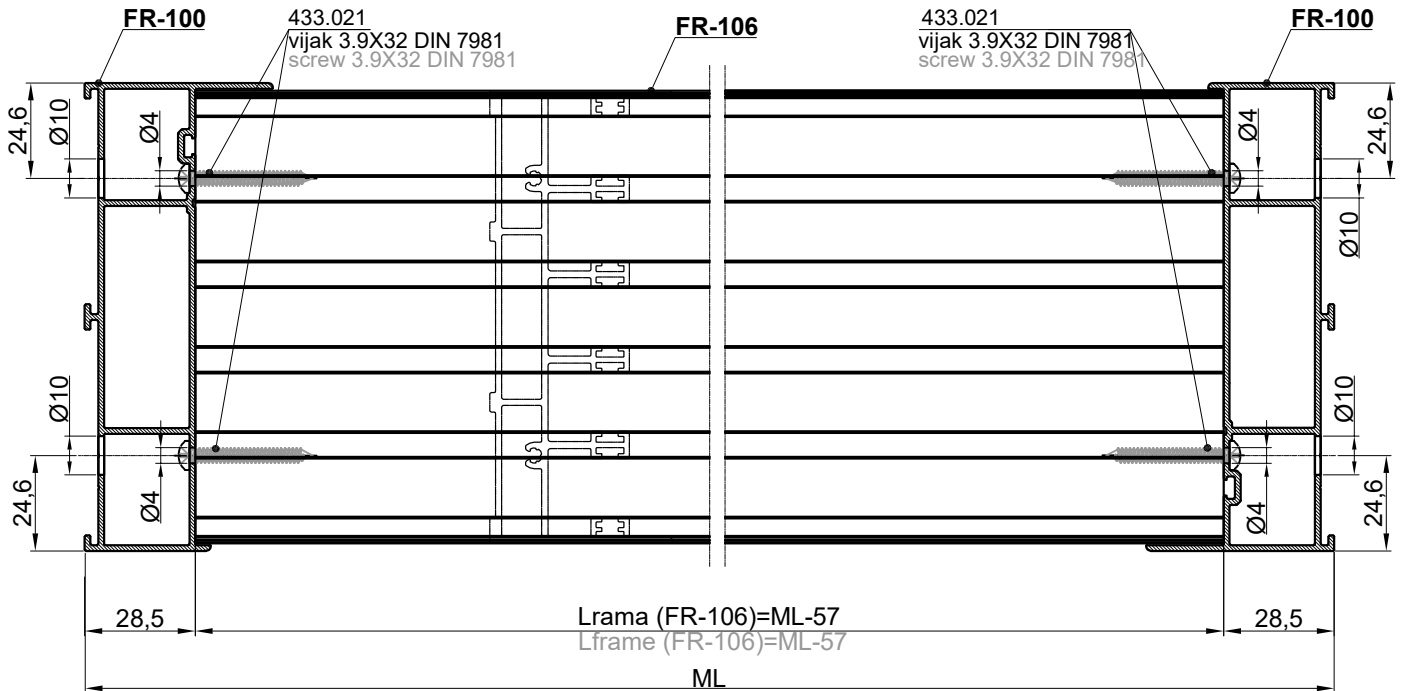


- pilanje gornjeg horizontalnog rama FR-112 i spoj sa vertikalnim ramom FR-113
- cutting the upper horizontal frame FR-112 and connecting to the vertical frame FR-113

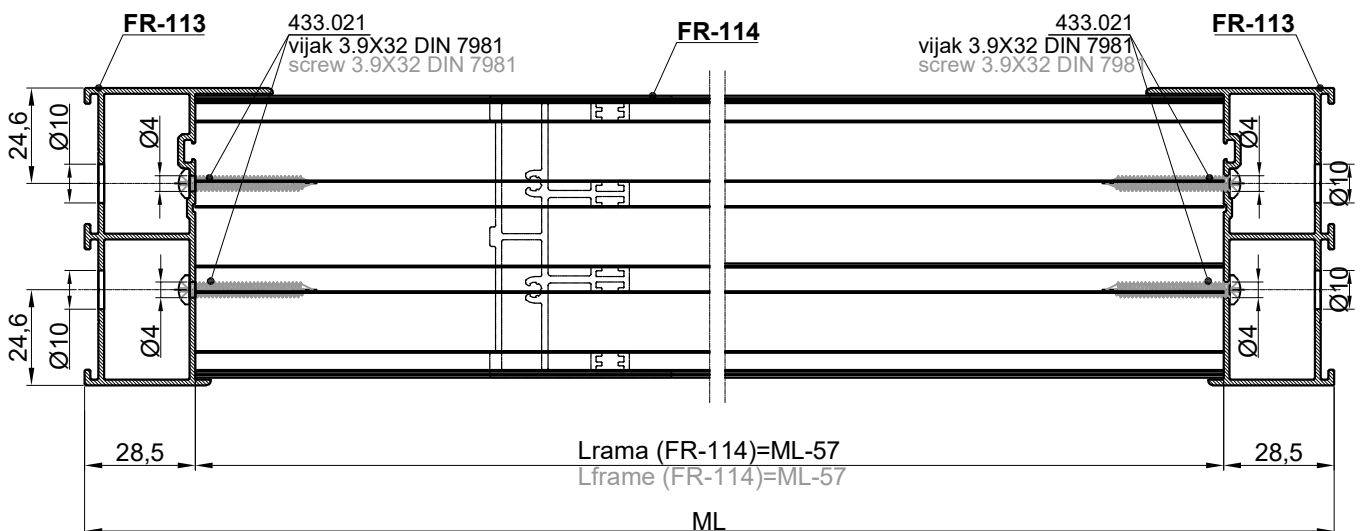
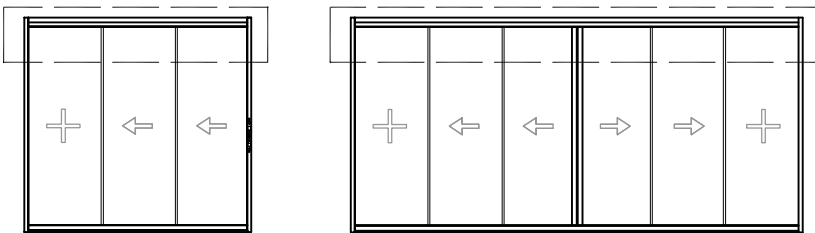


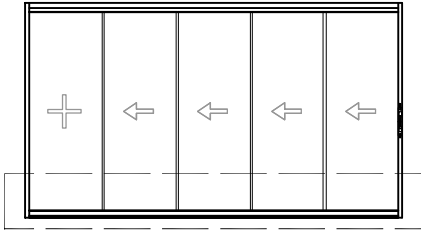


- pilanje gornjeg horizontalnog rama FR-106 i spoj sa vertikalnim ramom FR-100
- cutting the upper horizontal frame FR-106 and connecting to the vertical frame FR-100

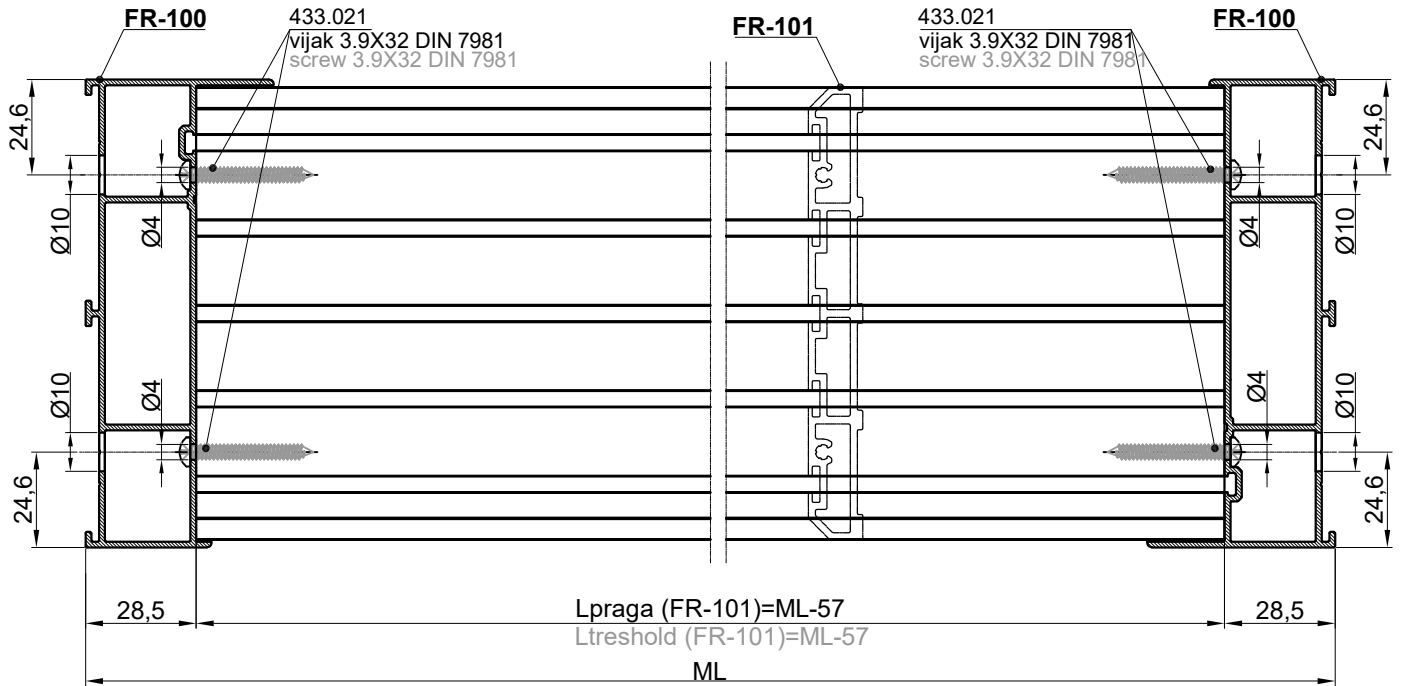


- pilanje gornjeg horizontalnog rama FR-114 i spoj sa vertikalnim ramom FR-113
- cutting the upper horizontal frame FR-114 and connecting to the vertical frame FR-113

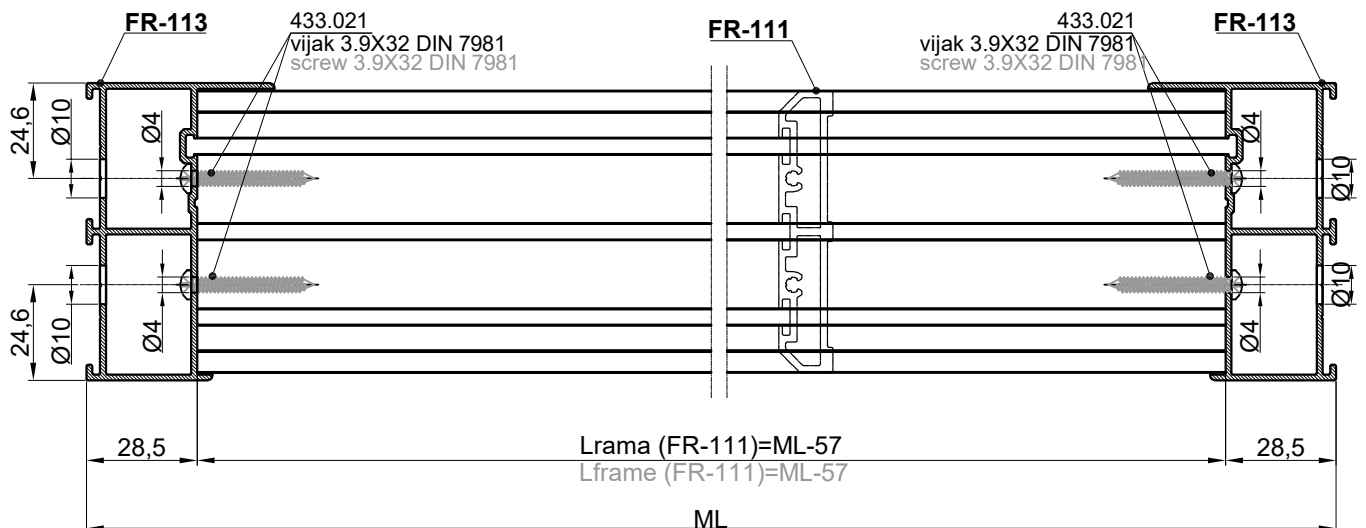
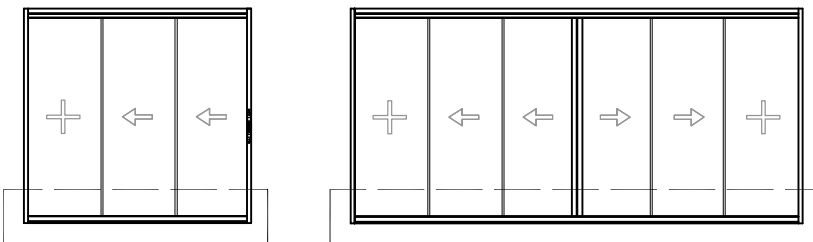


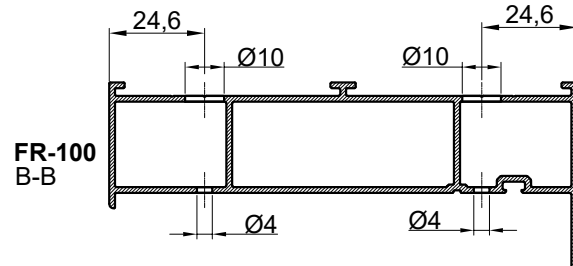
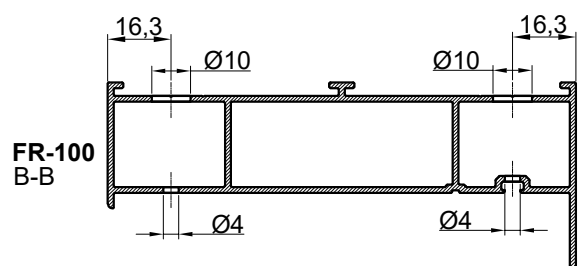
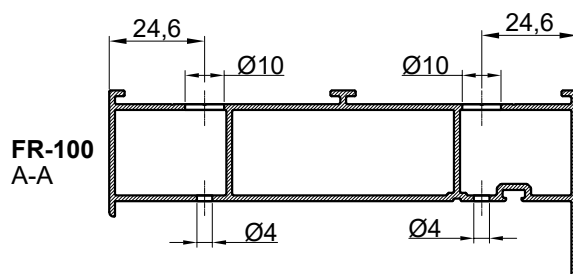
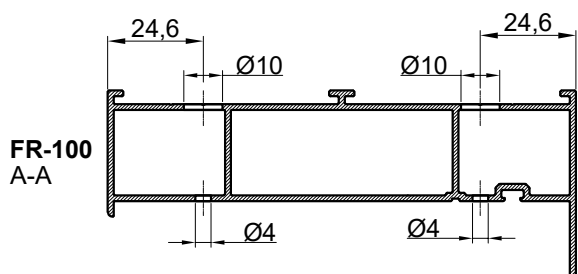
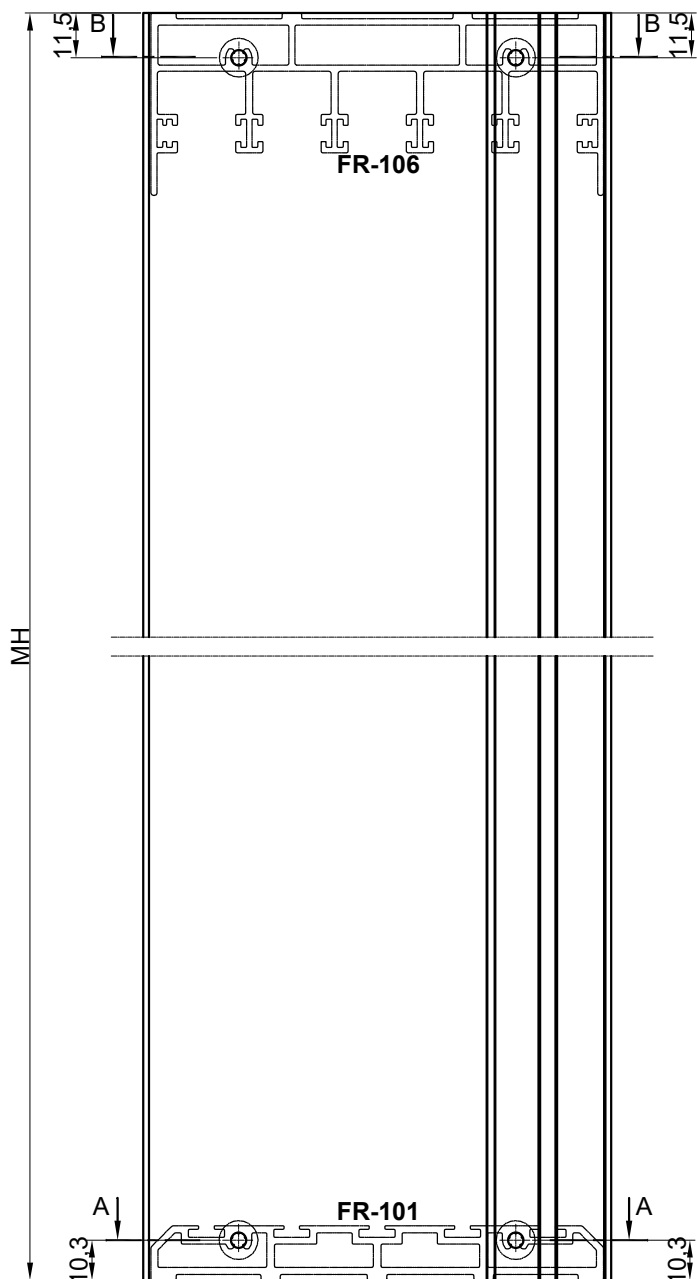
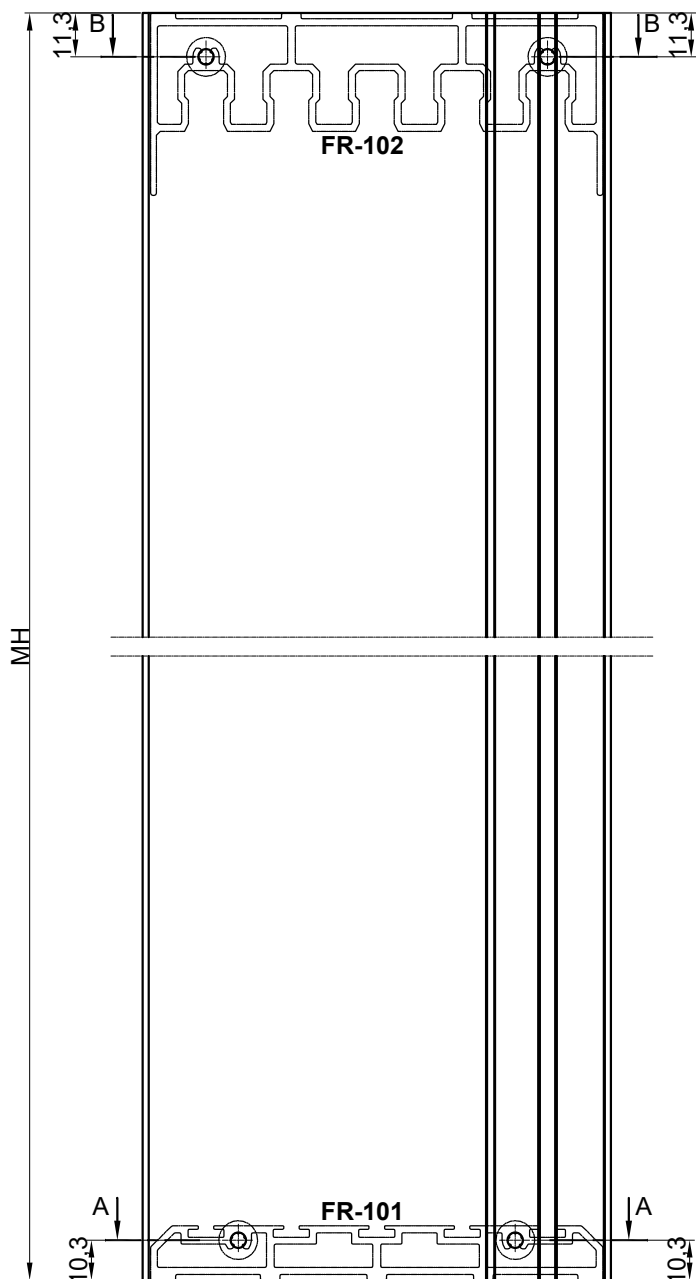


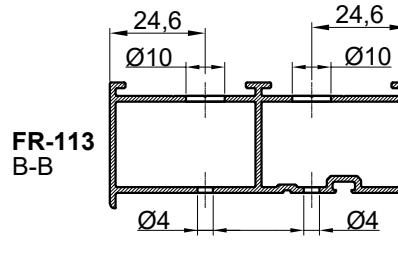
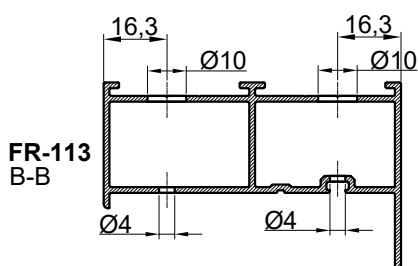
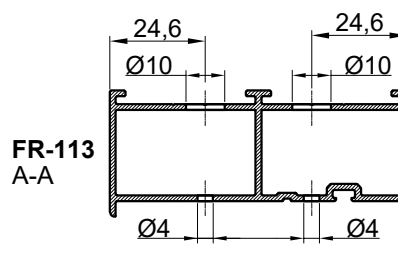
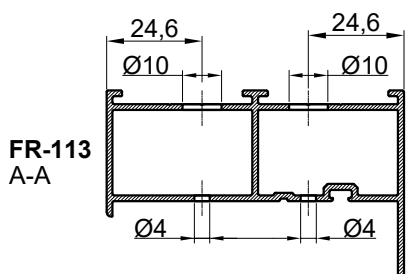
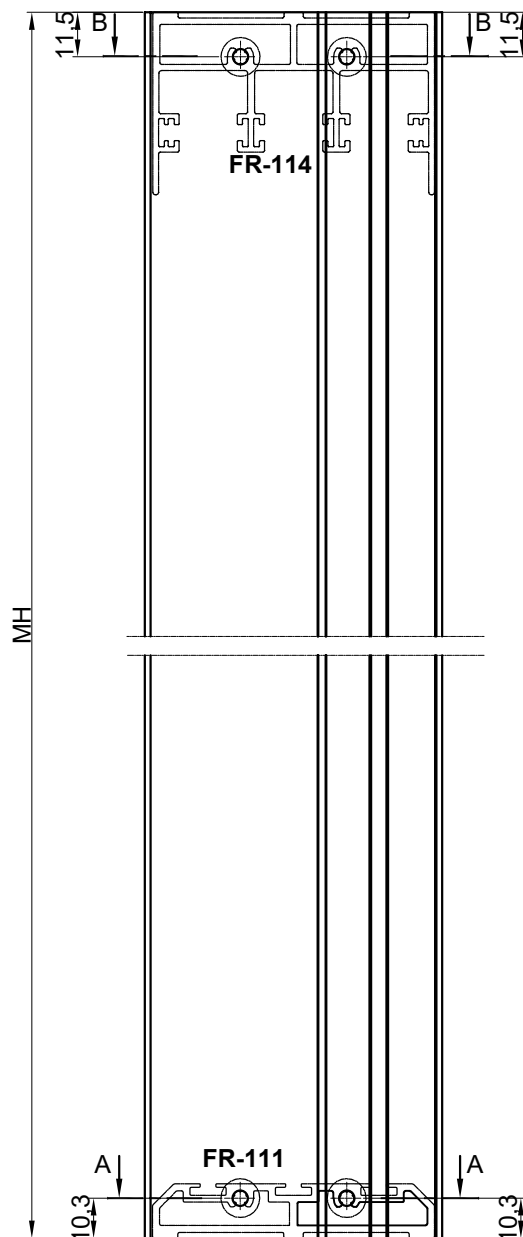
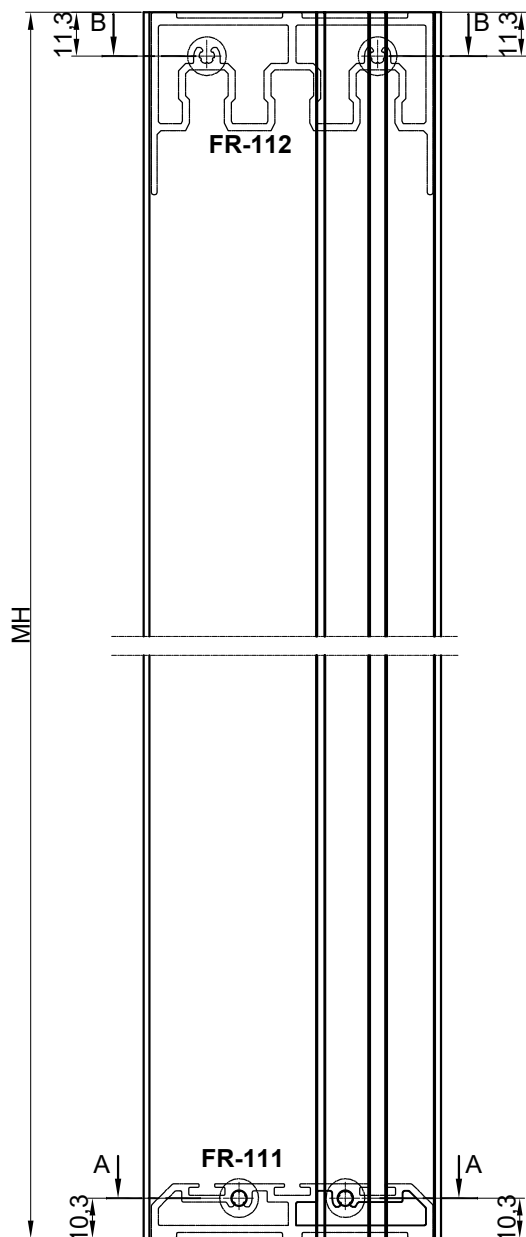
- pilanje donjeg horizontalnog rama FR-101 i spoj sa vertikalnim ramom FR-100
- cutting the lower horizontal frame FR-101 and connecting to the vertical frame FR-100

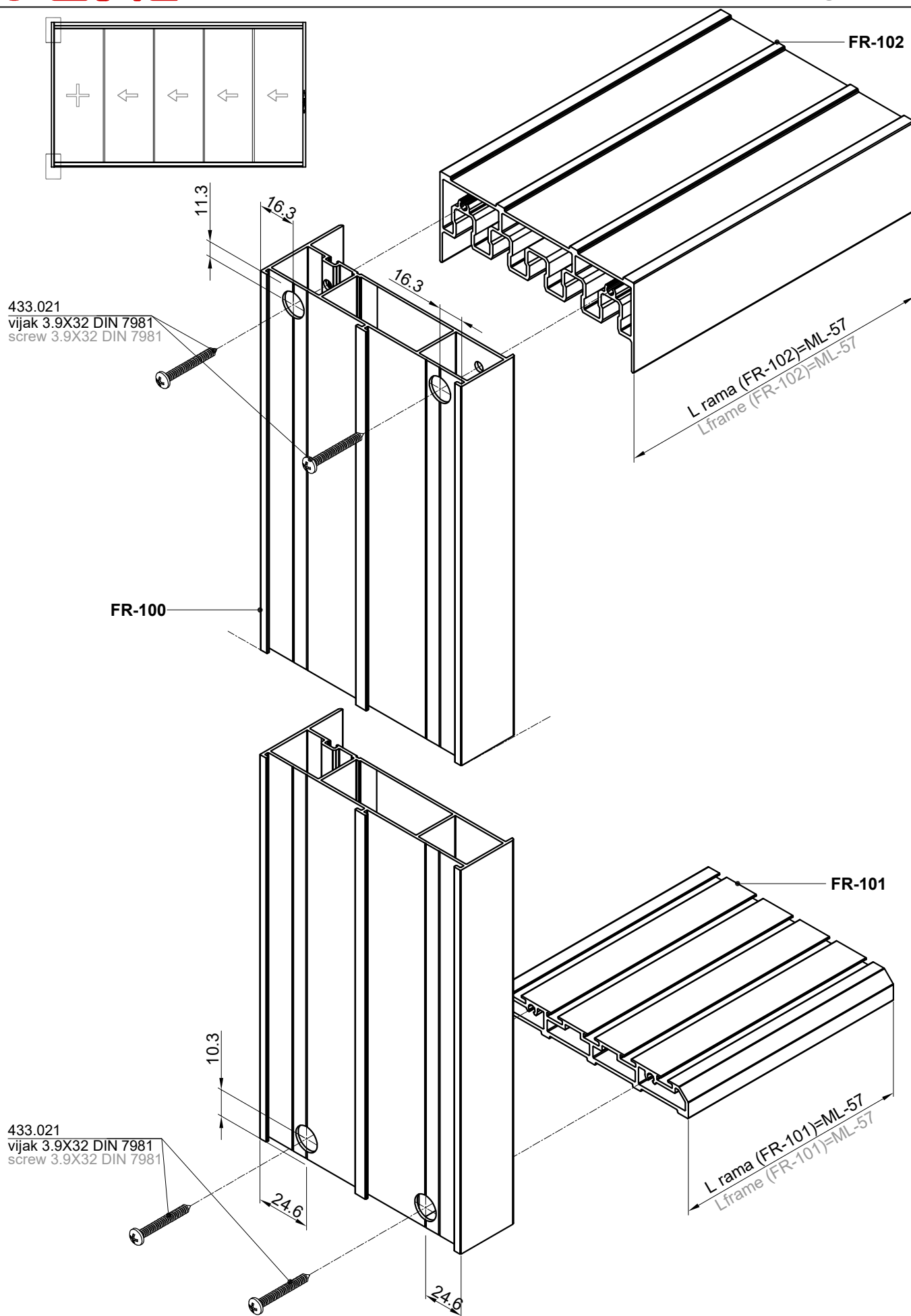


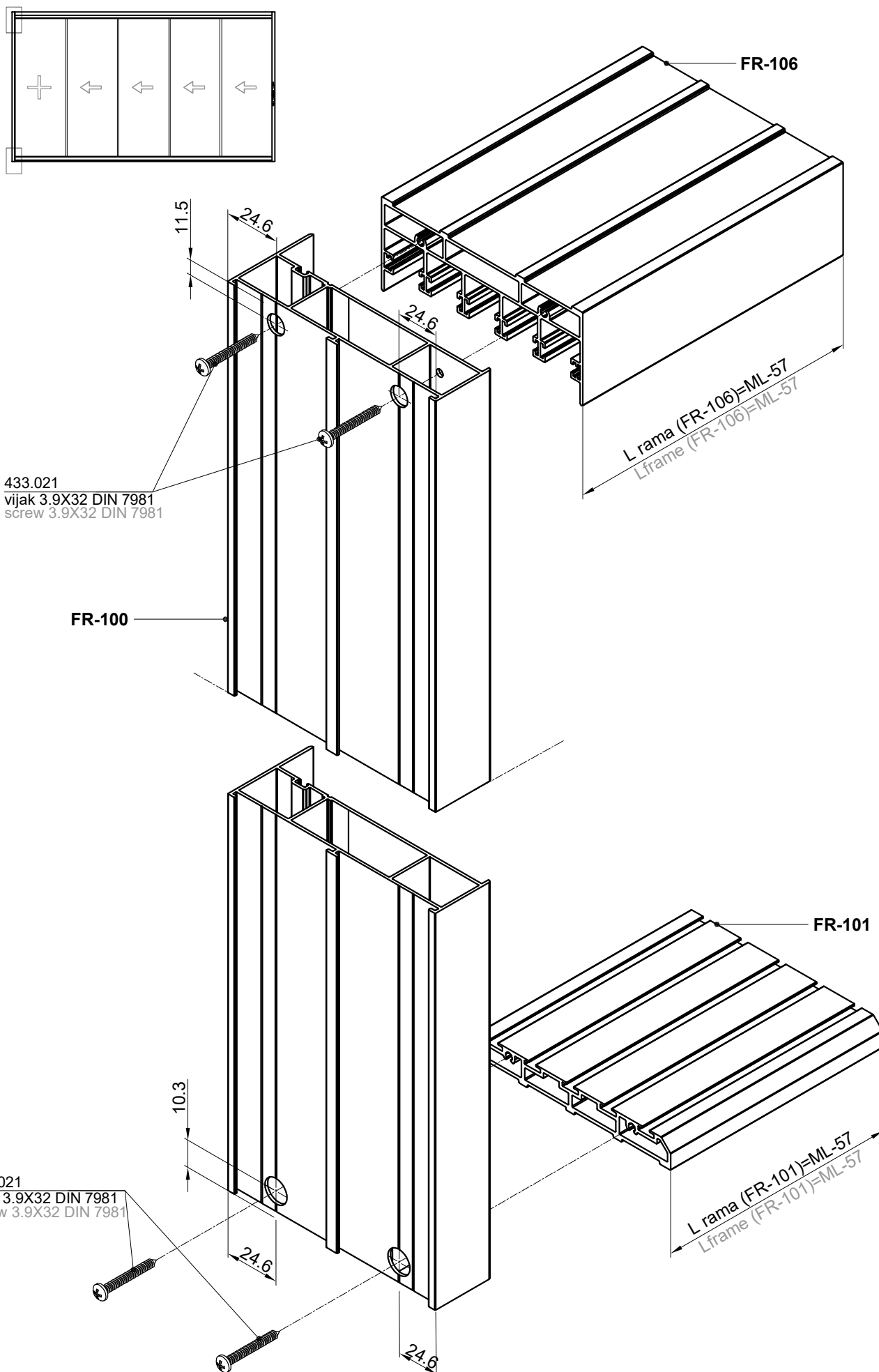
- pilanje donjeg horizontalnog rama FR-111 i spoj sa vertikalnim ramom FR-113
- cutting the lower horizontal frame FR-111 and connecting to the vertical frame FR-113

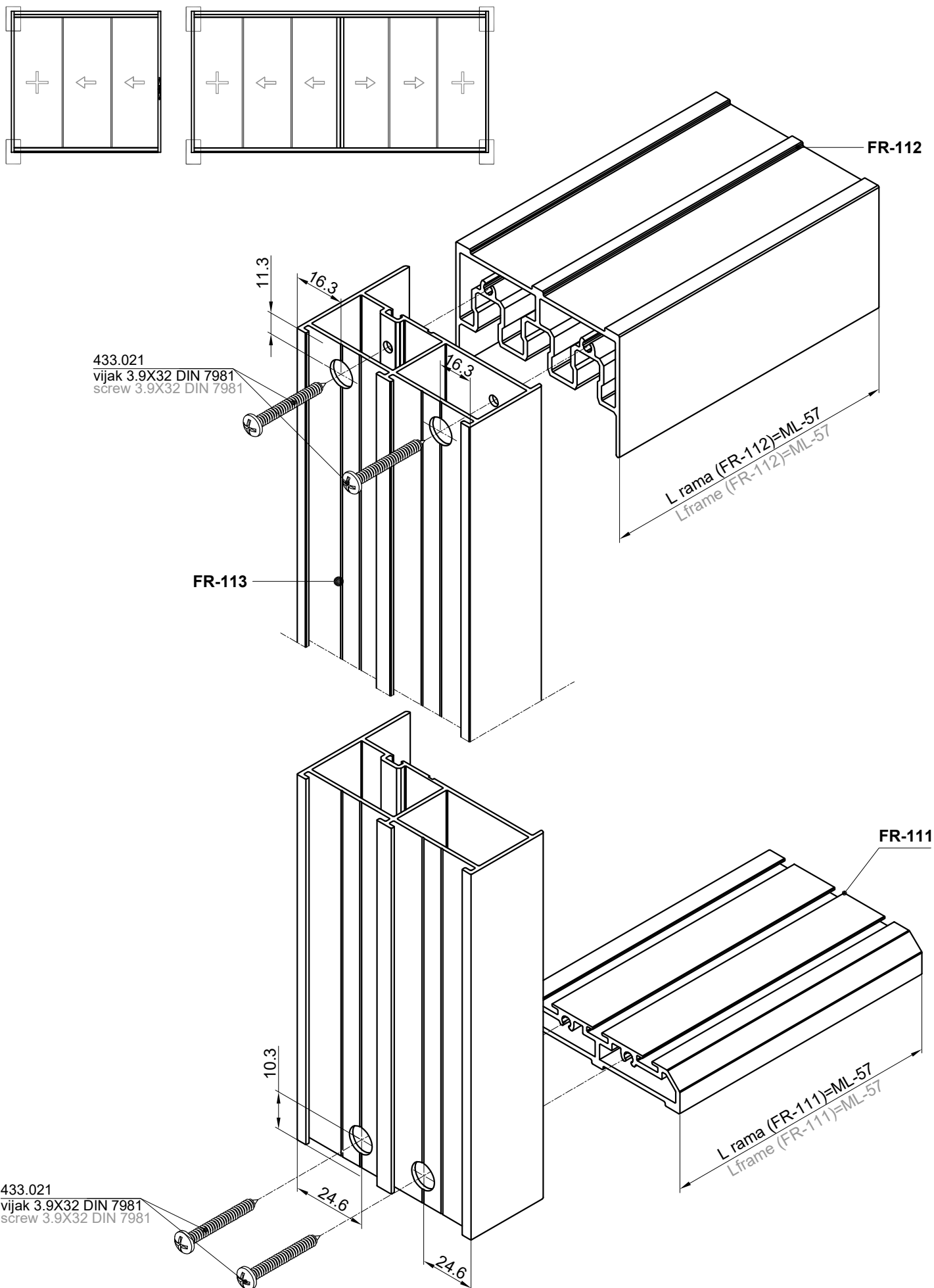


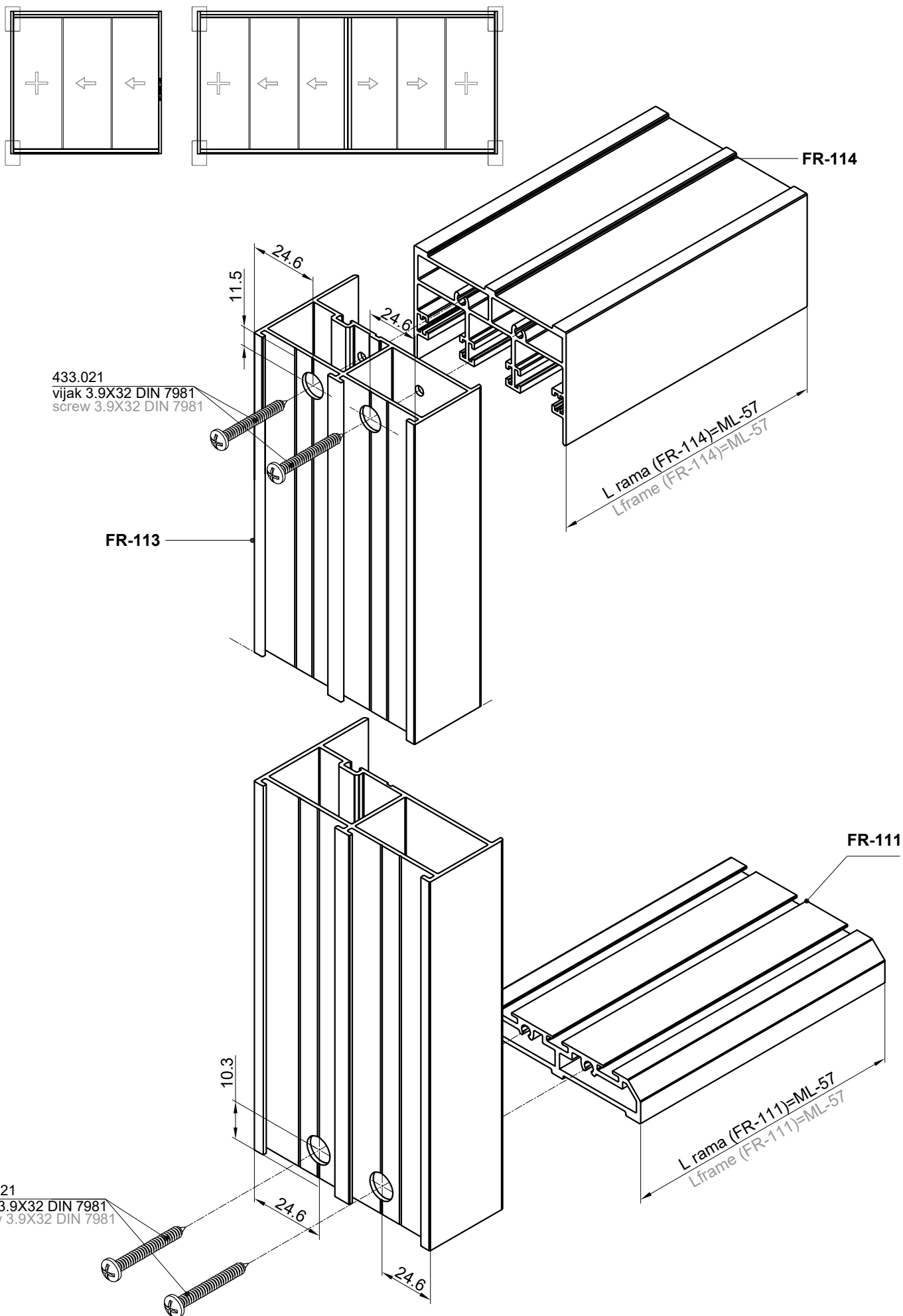






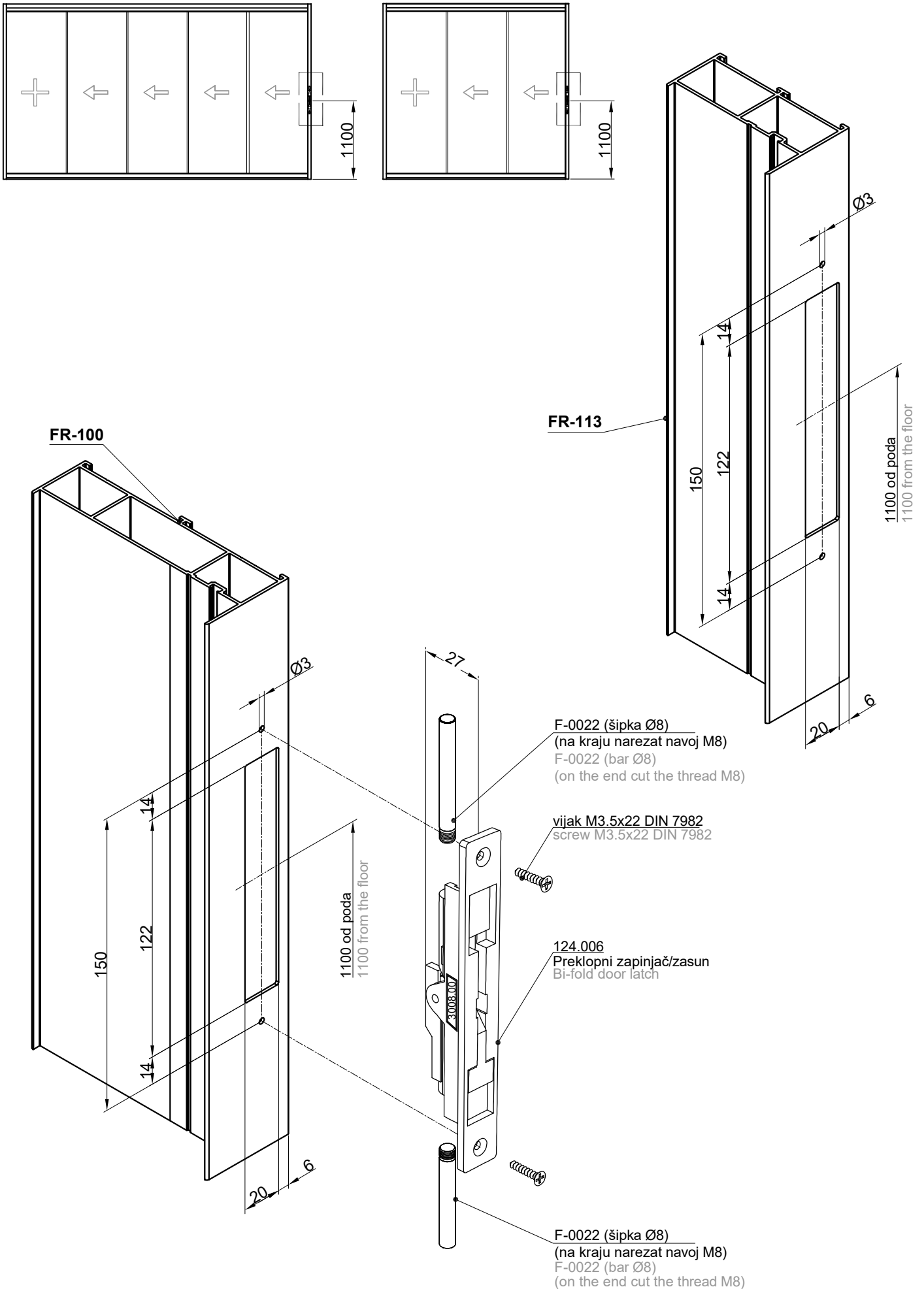


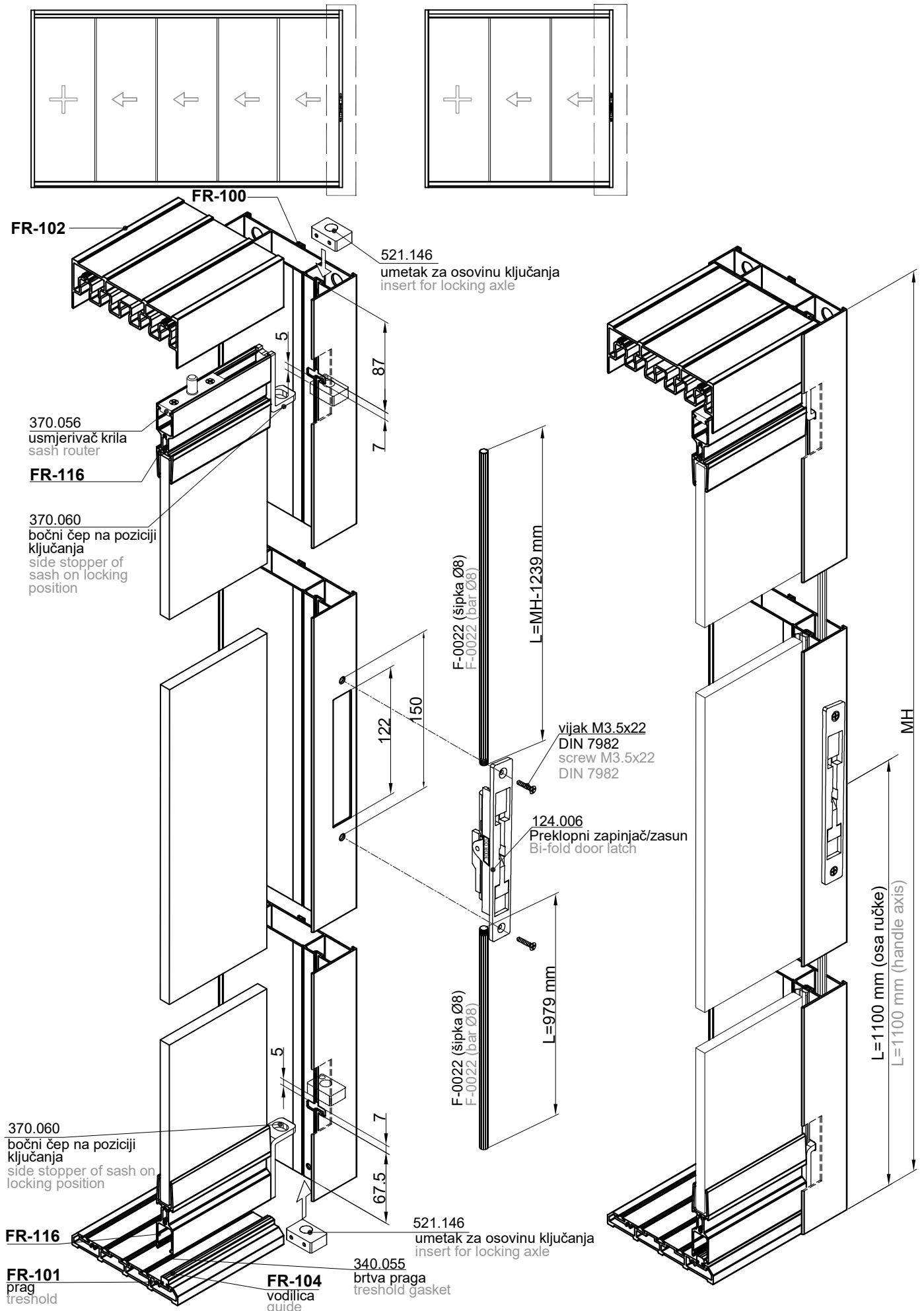


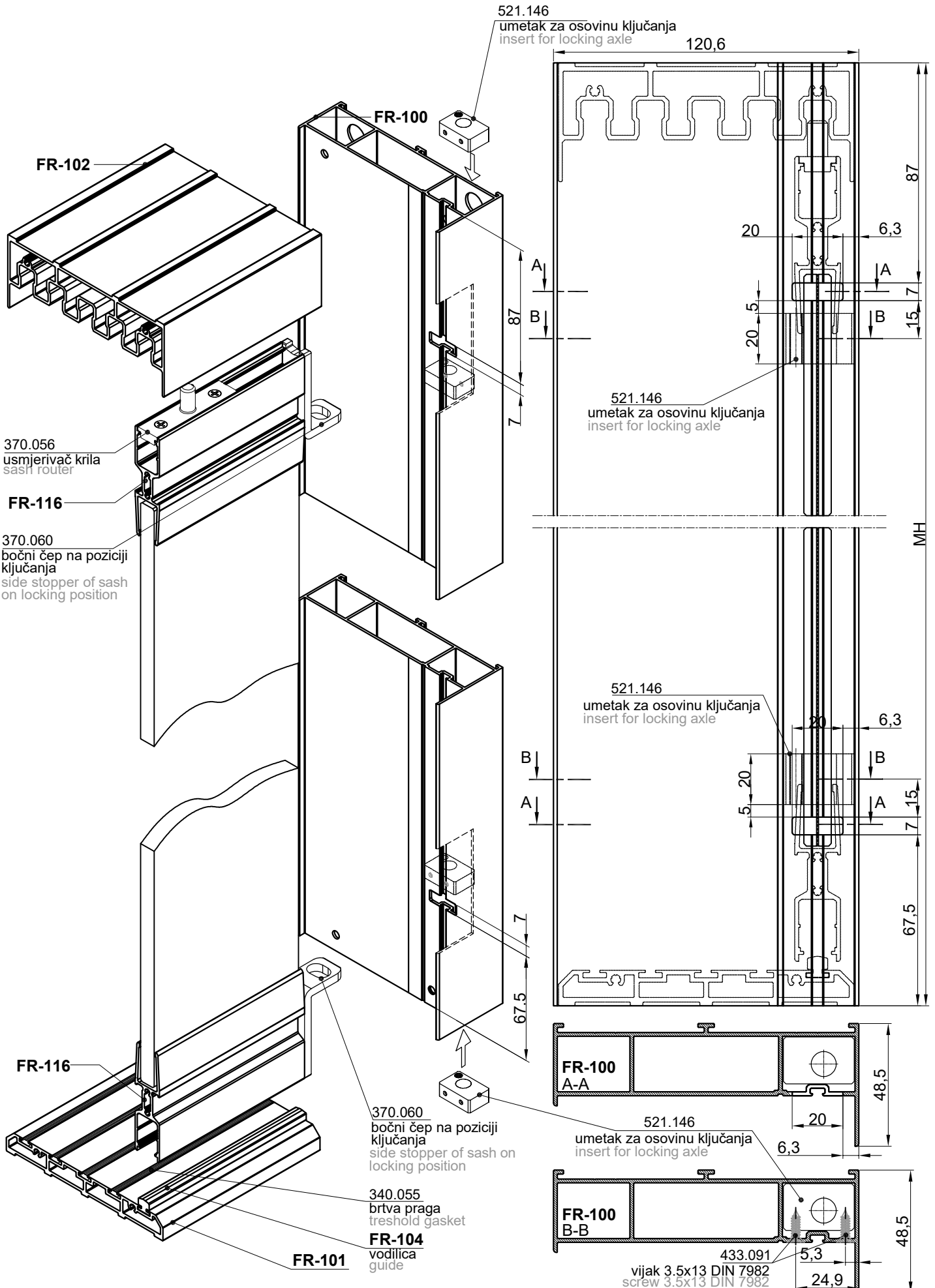


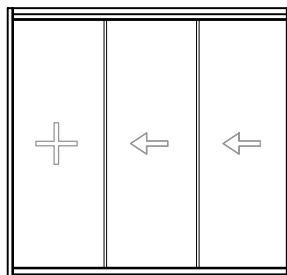
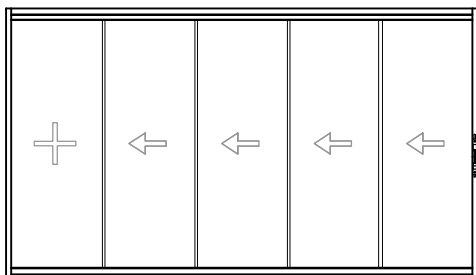




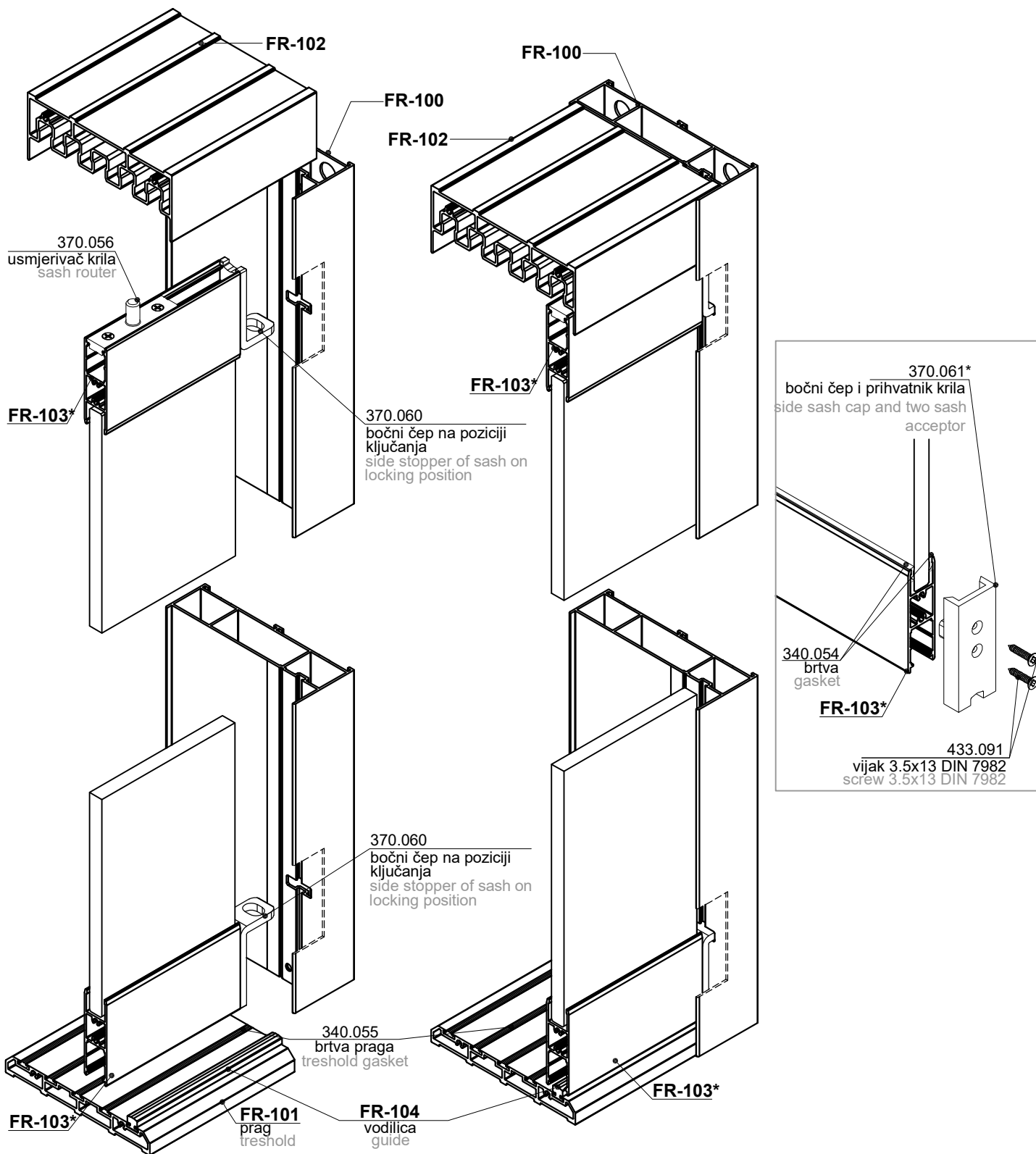


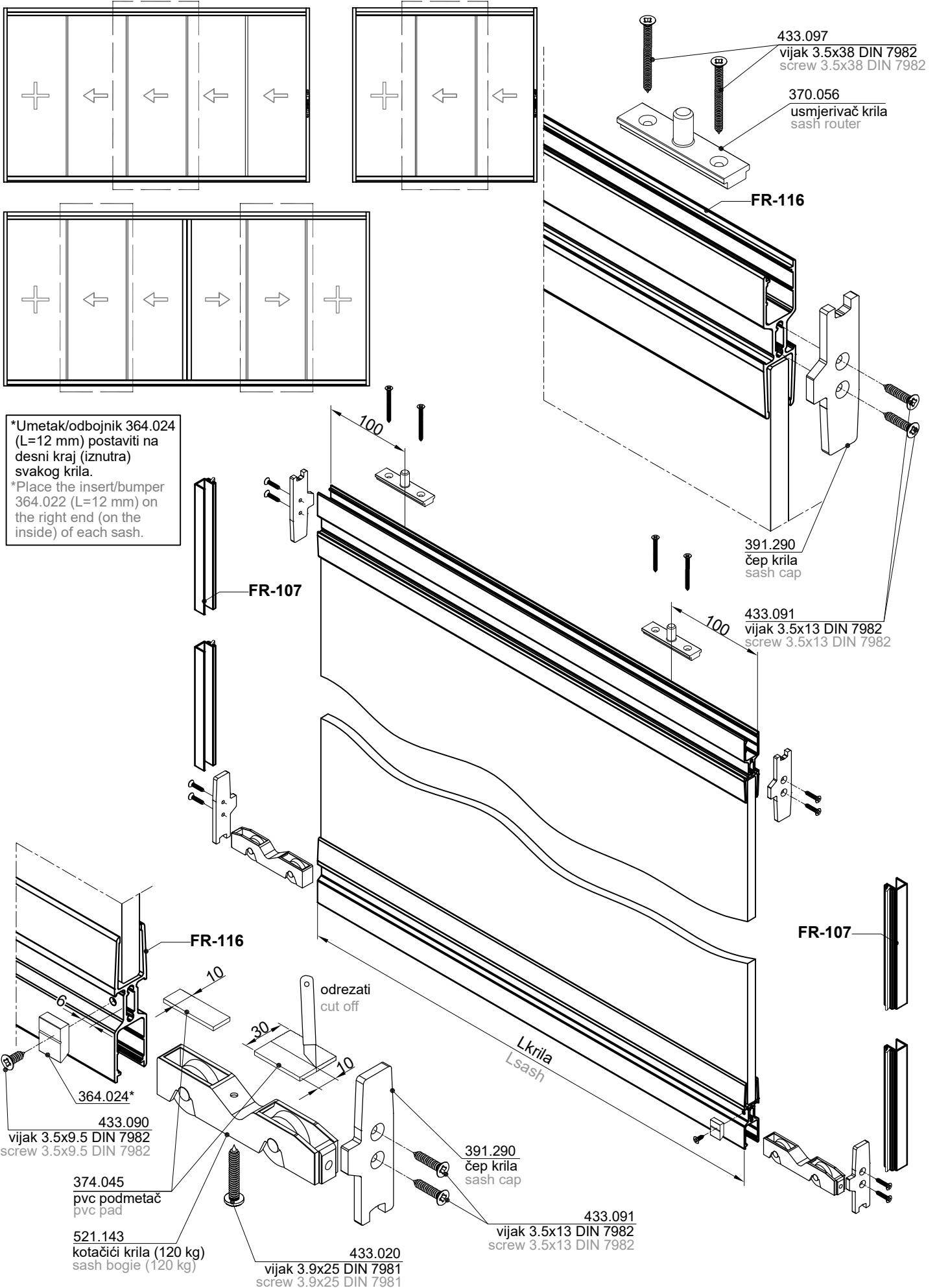


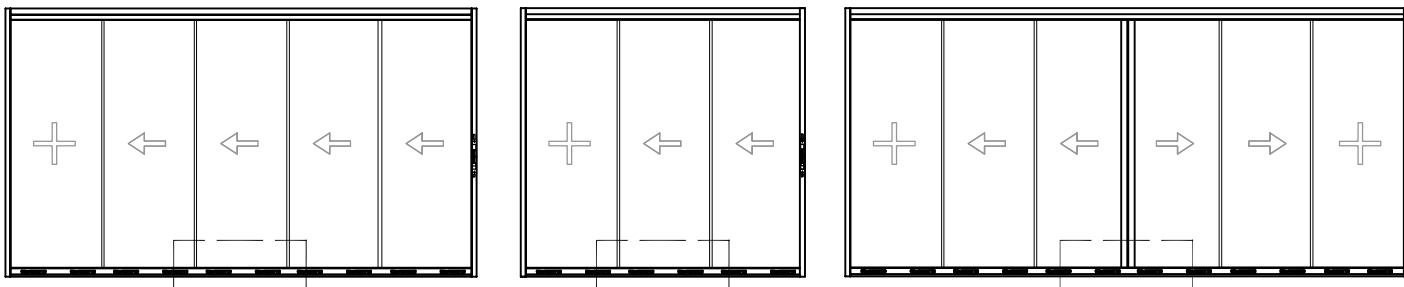




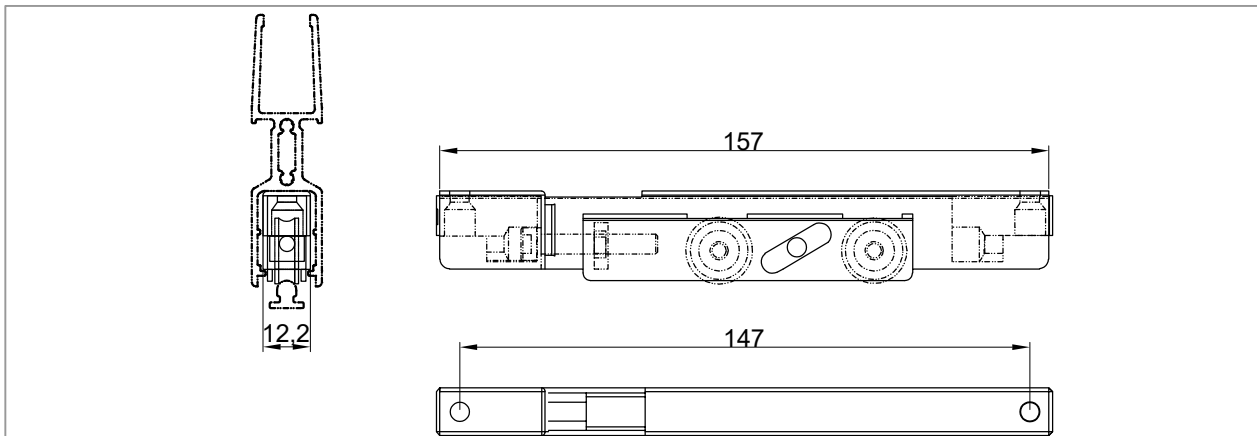
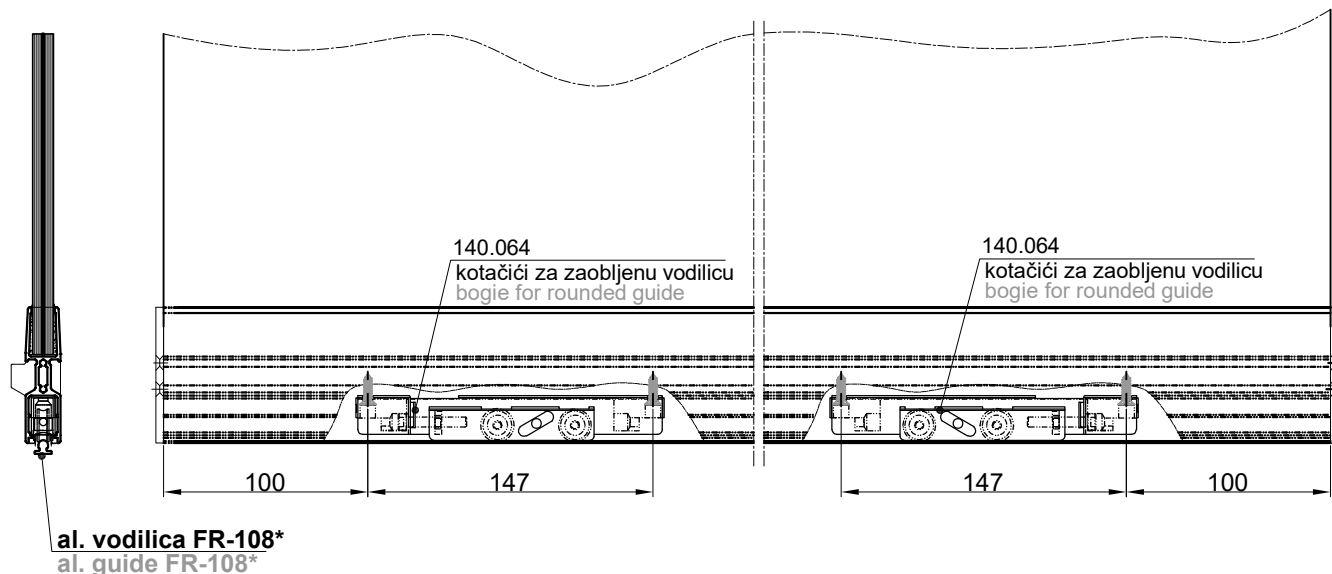
\*Moguće koristiti krilo FR-103 i bočni čep 370.061 (ključanje i obrada rama je ista kao i kod korištenja krila FR-116).  
\*Possible to use FR-103 sash and side cap 370.061 (locking and frame processing is the same as when using FR-116 sash).







\* Ukoliko se koristi vodilica FR-108, koristiti kotačiće 140.064  
\* If guide FR-108 is used, use wheels 140.064

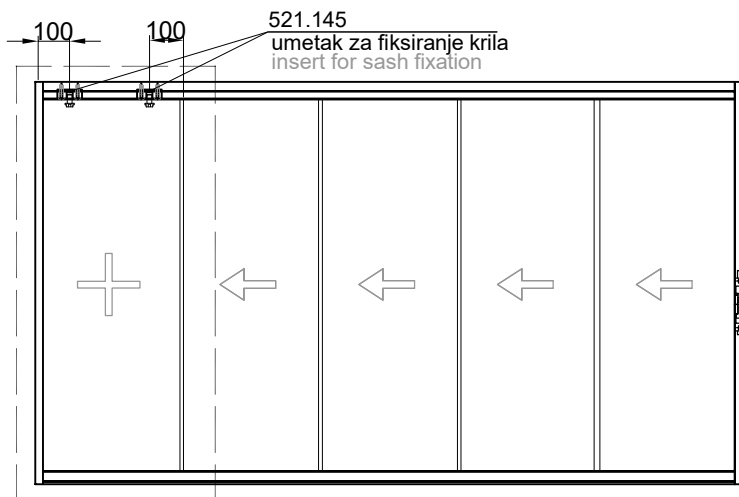


### 140.064\* kotačići za zaobljenu vodilicu FR-108

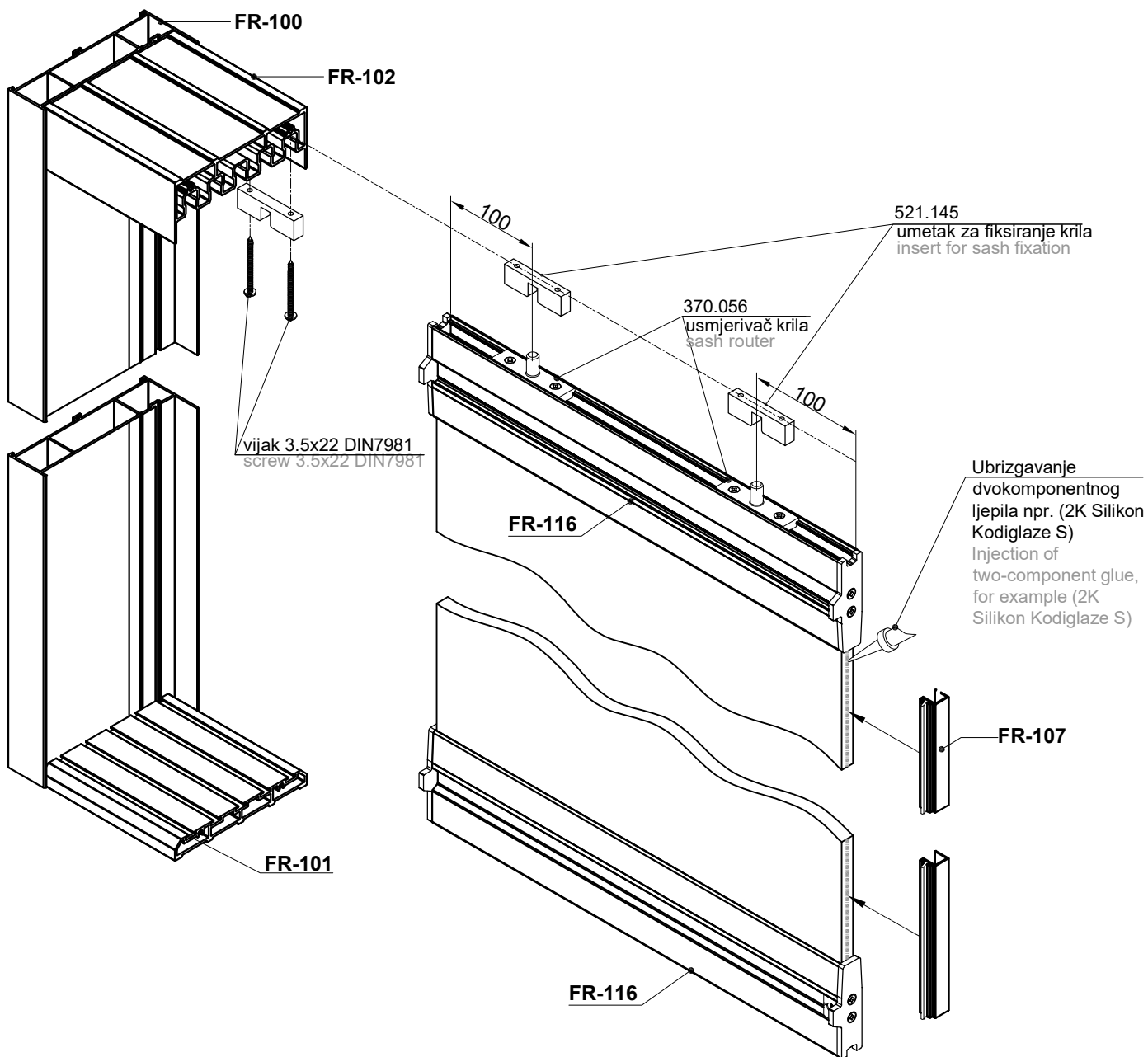
- max. težina krila 120 kg
- sa kugličnim ležajevima
- visina podešavanja od 19-26 mm
- srebrna boja, pocinčana površina sa dodatnom zaštitom od korozije
- DIN EN 13126/15, Klasa 5

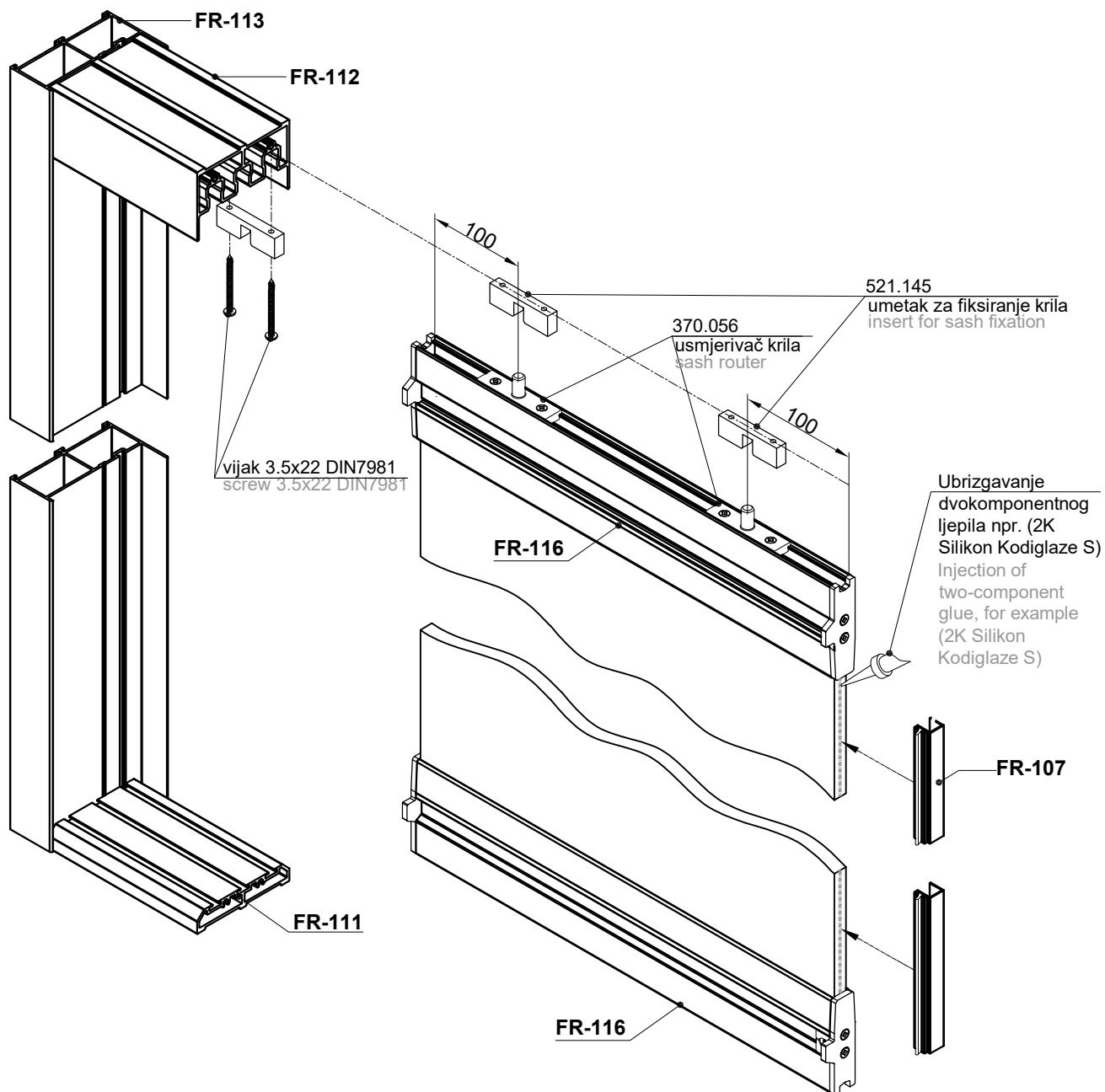
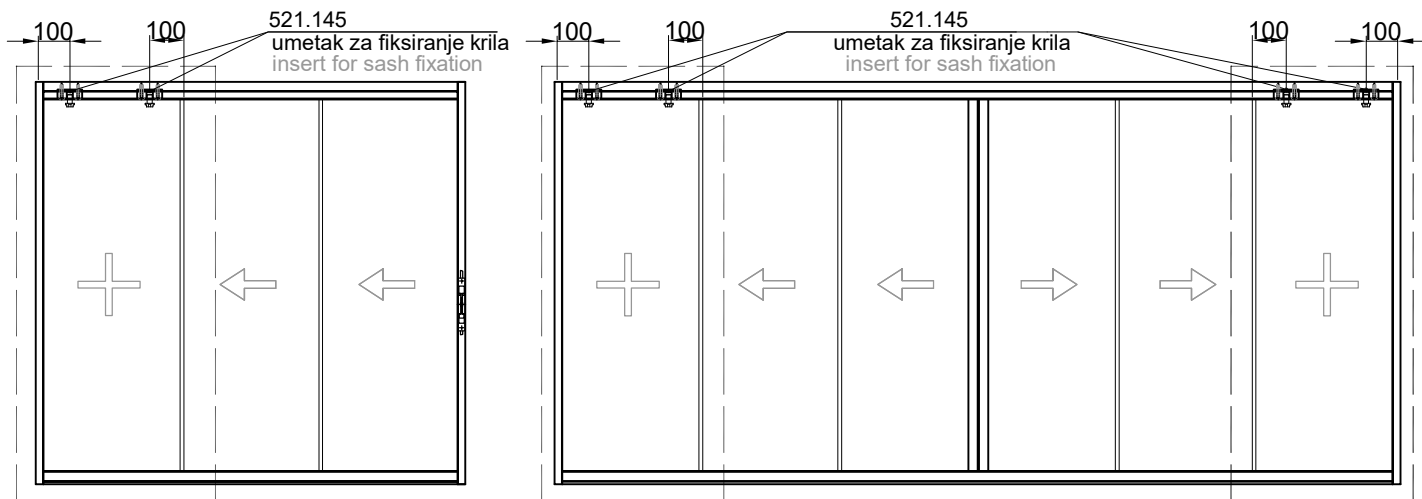
### 140.064\* bogie for rounded guide FR-108

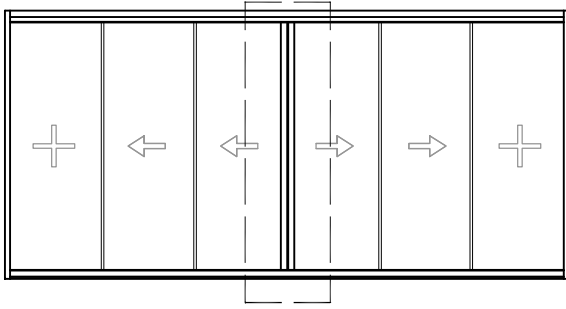
- max. sash weight 120 kg
- with ball bearing
- adjusment height of 19-26 mm
- silver color, galvanized surface with additional corrosion protection
- DIN EN 13126/15, Class 5



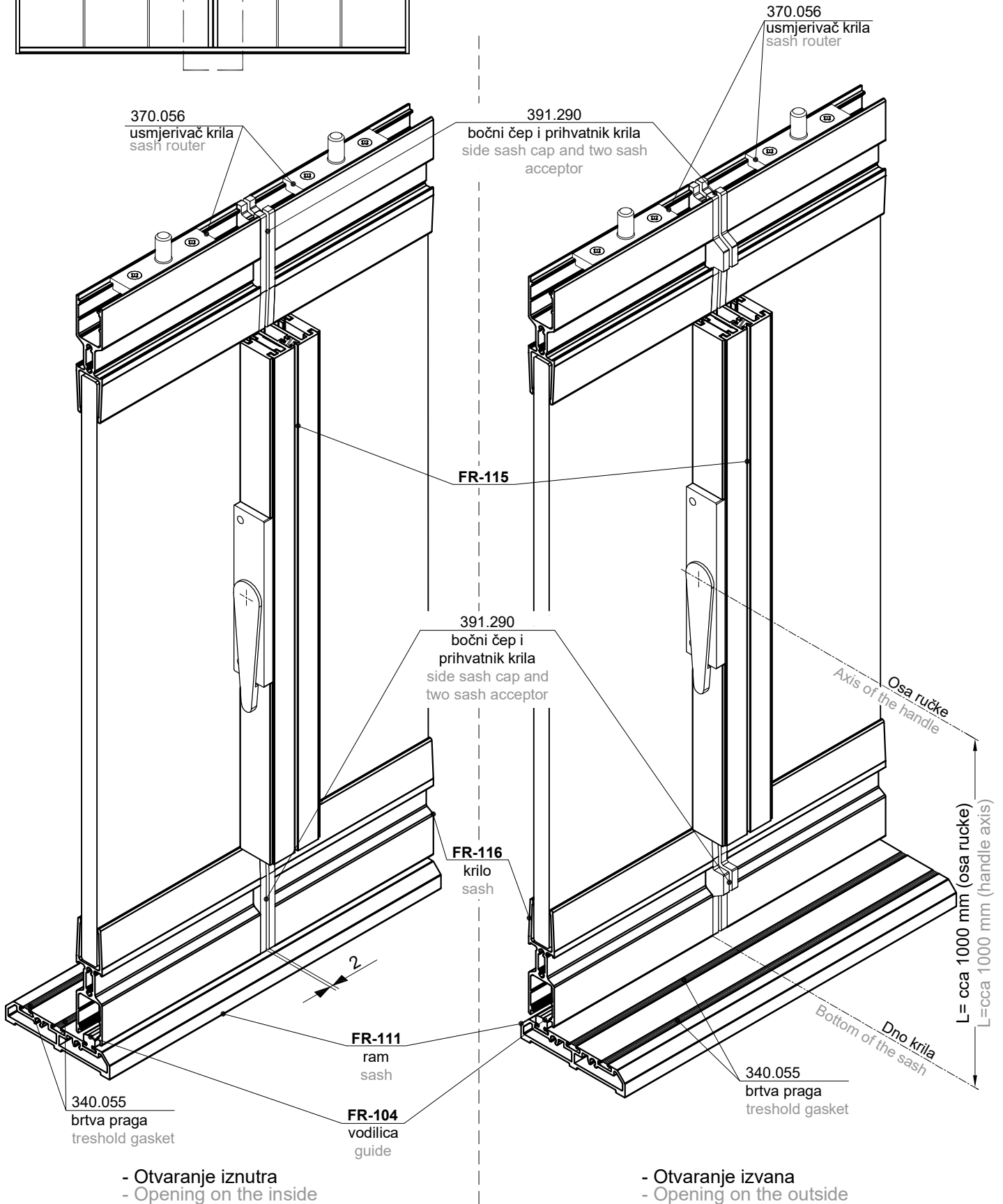
521.145  
umetak za fiksiranje krila  
insert for sash fixation





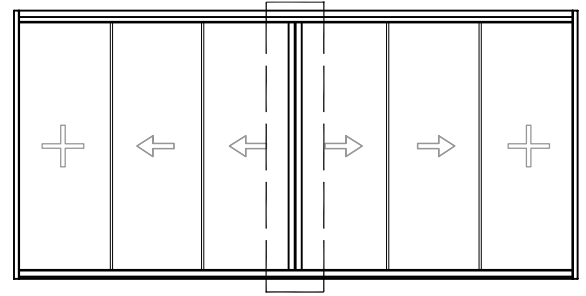
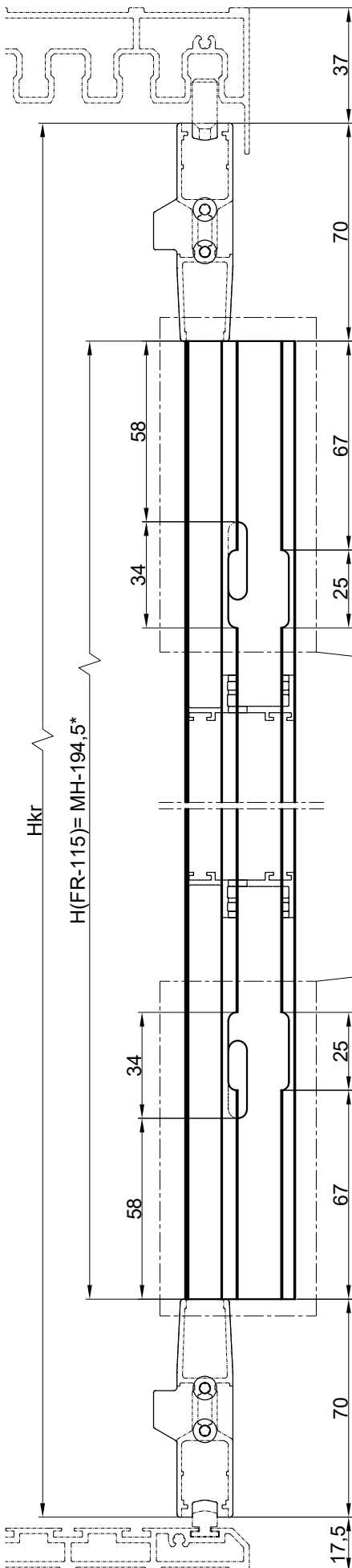


- Ugradnja 3+3 krila sa mogućnošću vanjskog ili unutarnjeg otvaranja.
- Instal of 3+3 sashes with optional opening on the outside or inside.

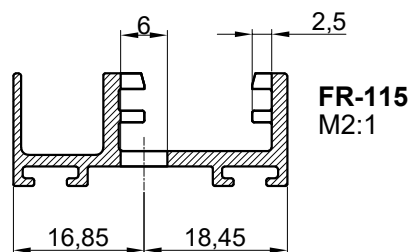
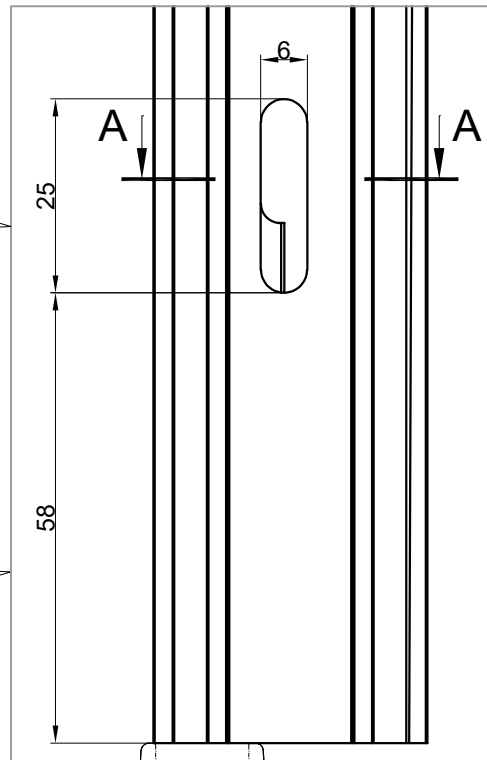


- Otvaranje iznutra  
- Opening on the inside

- Otvaranje izvana  
- Opening on the outside

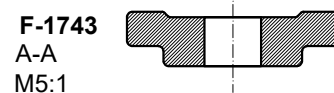
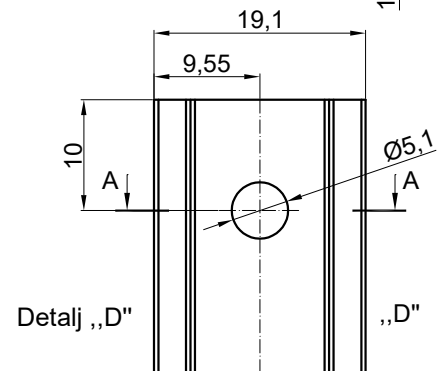
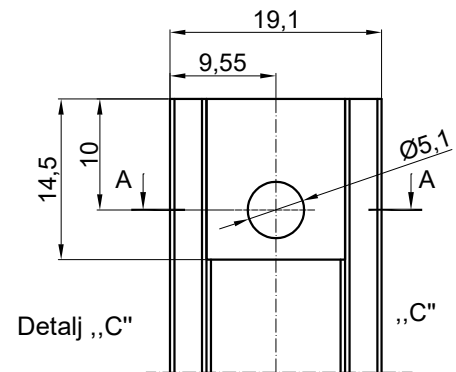
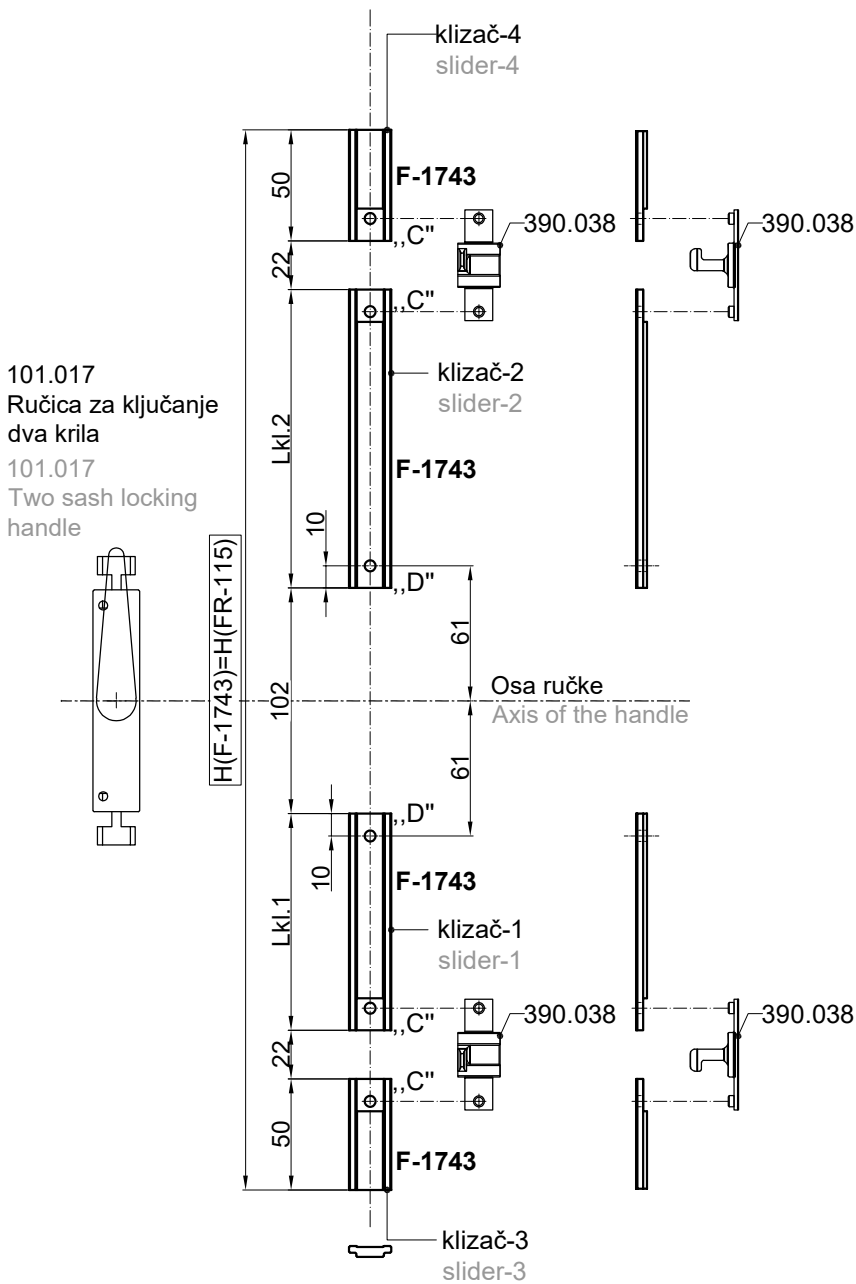
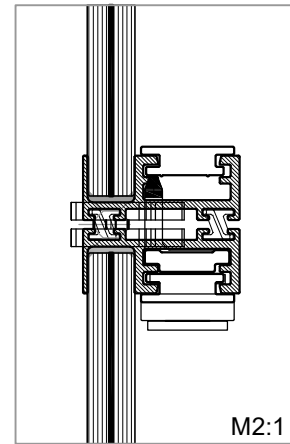
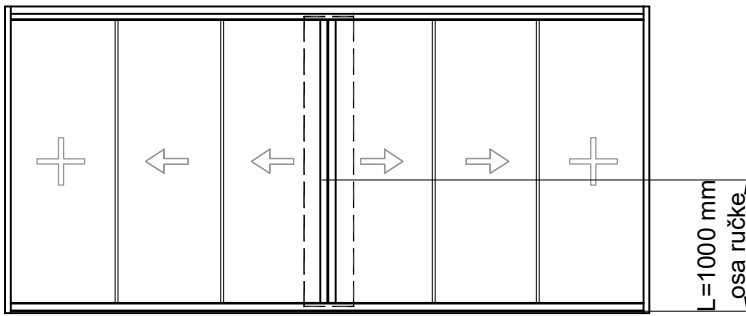


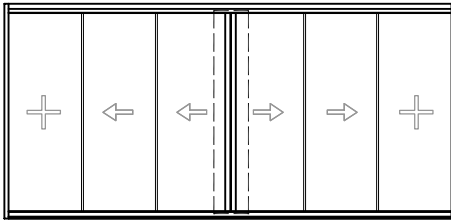
- Obrada profila FR-115 za prihvat ručice za ključanje 101.017 i klizača 390.038
- Processing of the FR-115 profile to insert the locking handle 101.017 and the slides 390.038



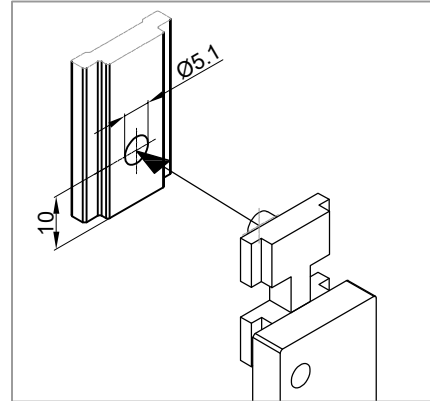
\*U slučaju korištenja vodilice FR-108,  $H(FR-115) = MH-194$   
\*In the case of using guide FR-108,  $H(FR-115) = MH-194$

- Obrada klizača F-1743
- Slider processing F-1743

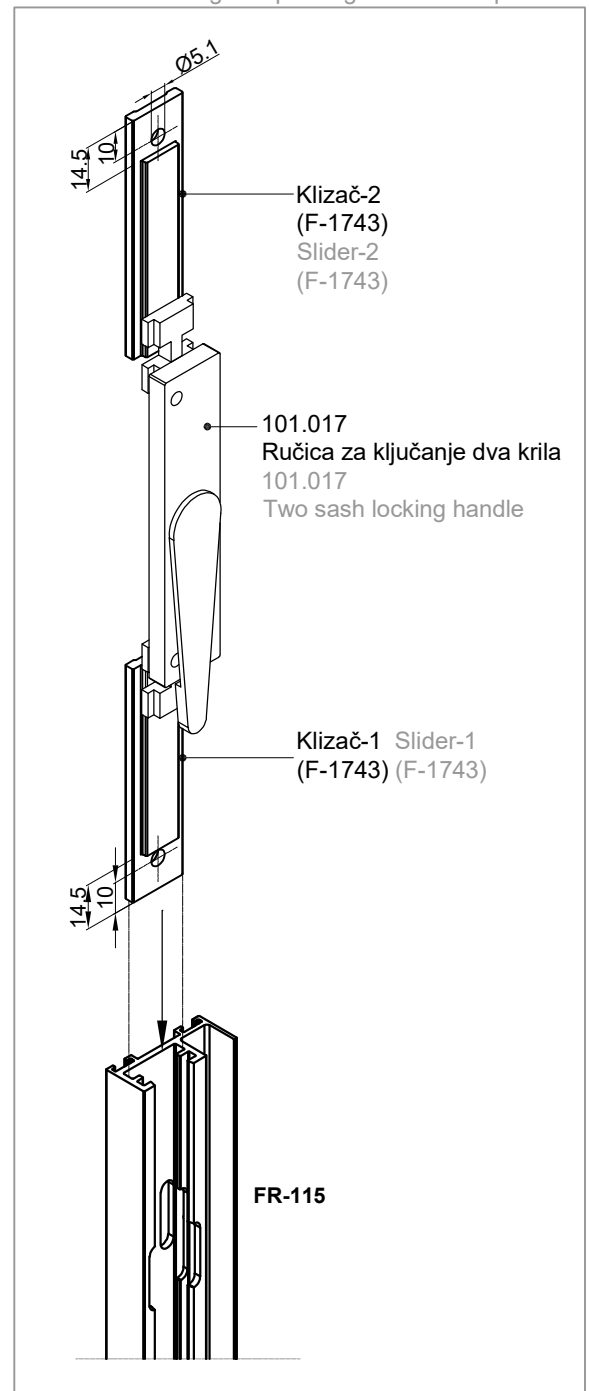
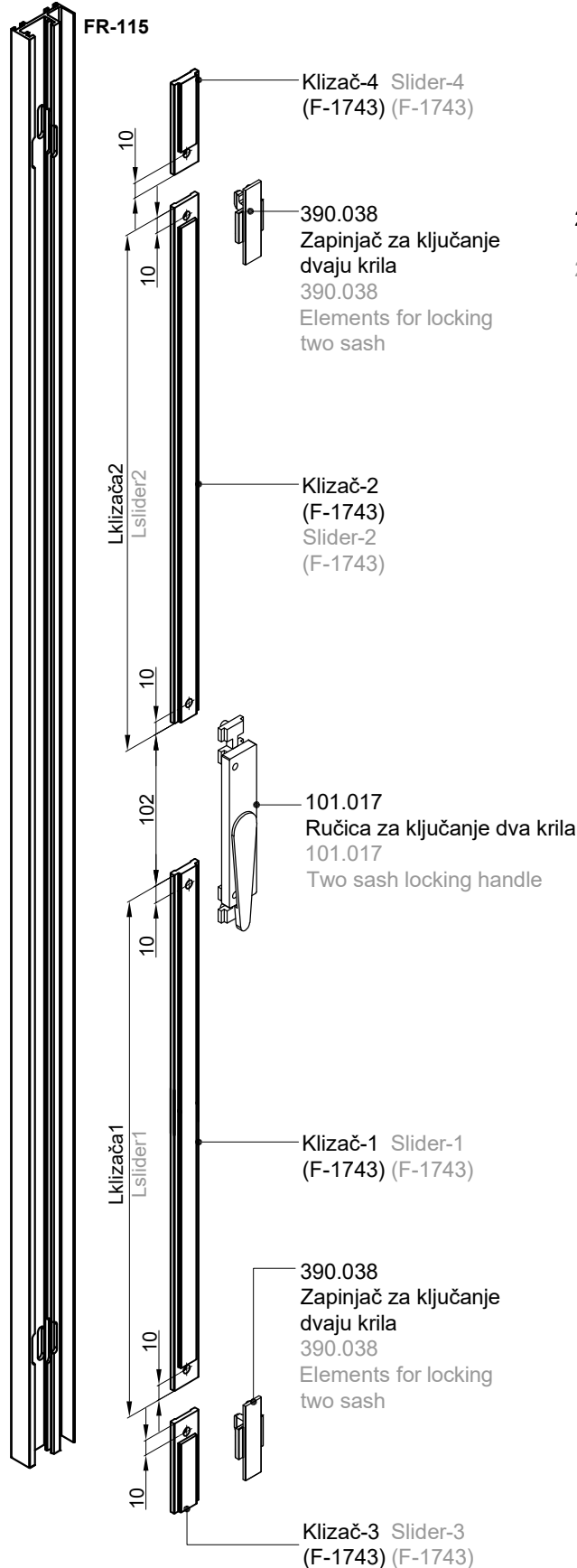




1. Bravicu za ključanje spojiti sa klizačima 1 i 2
1. Two sash locking handle connect with slider 1 i 2

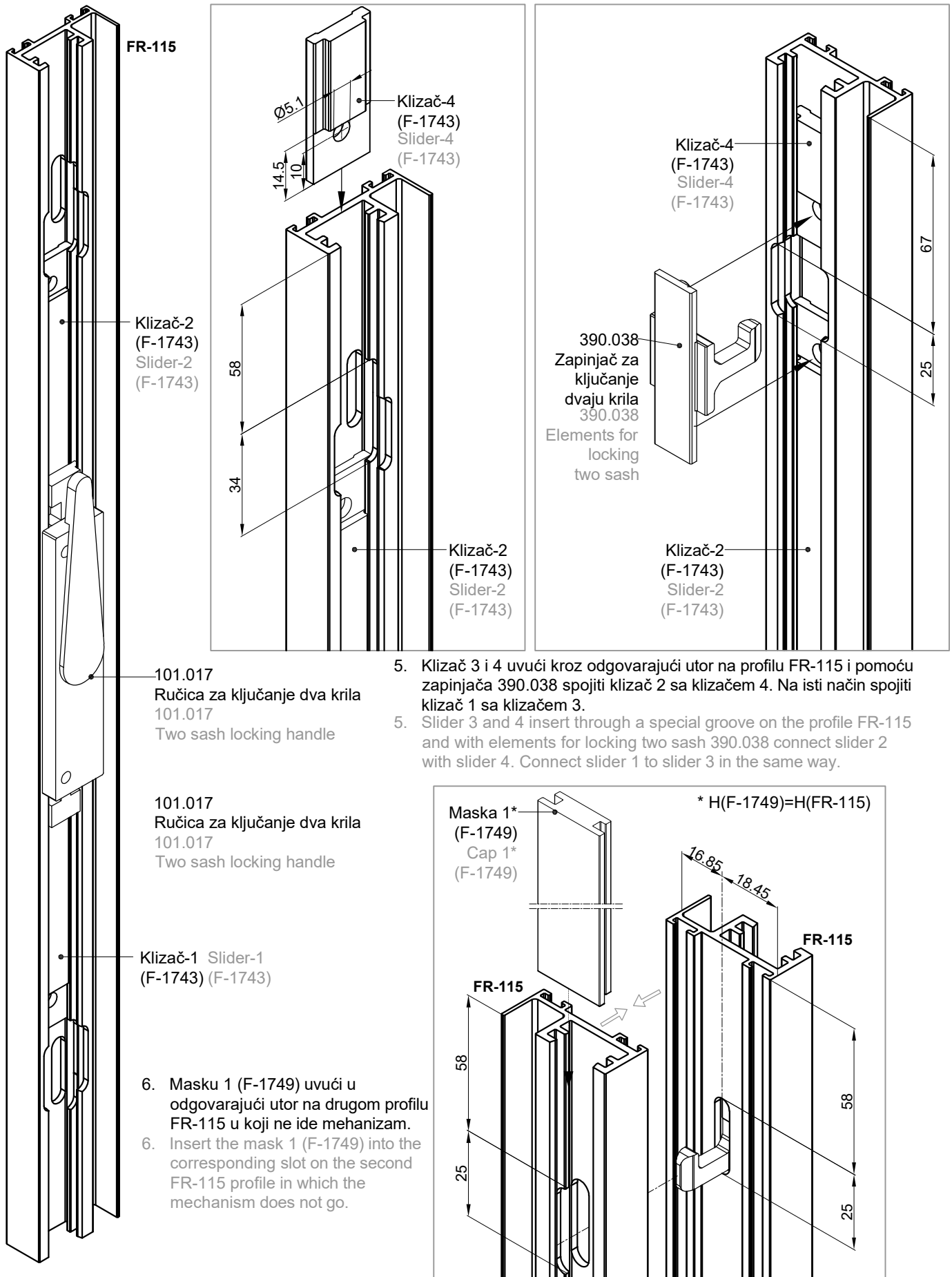


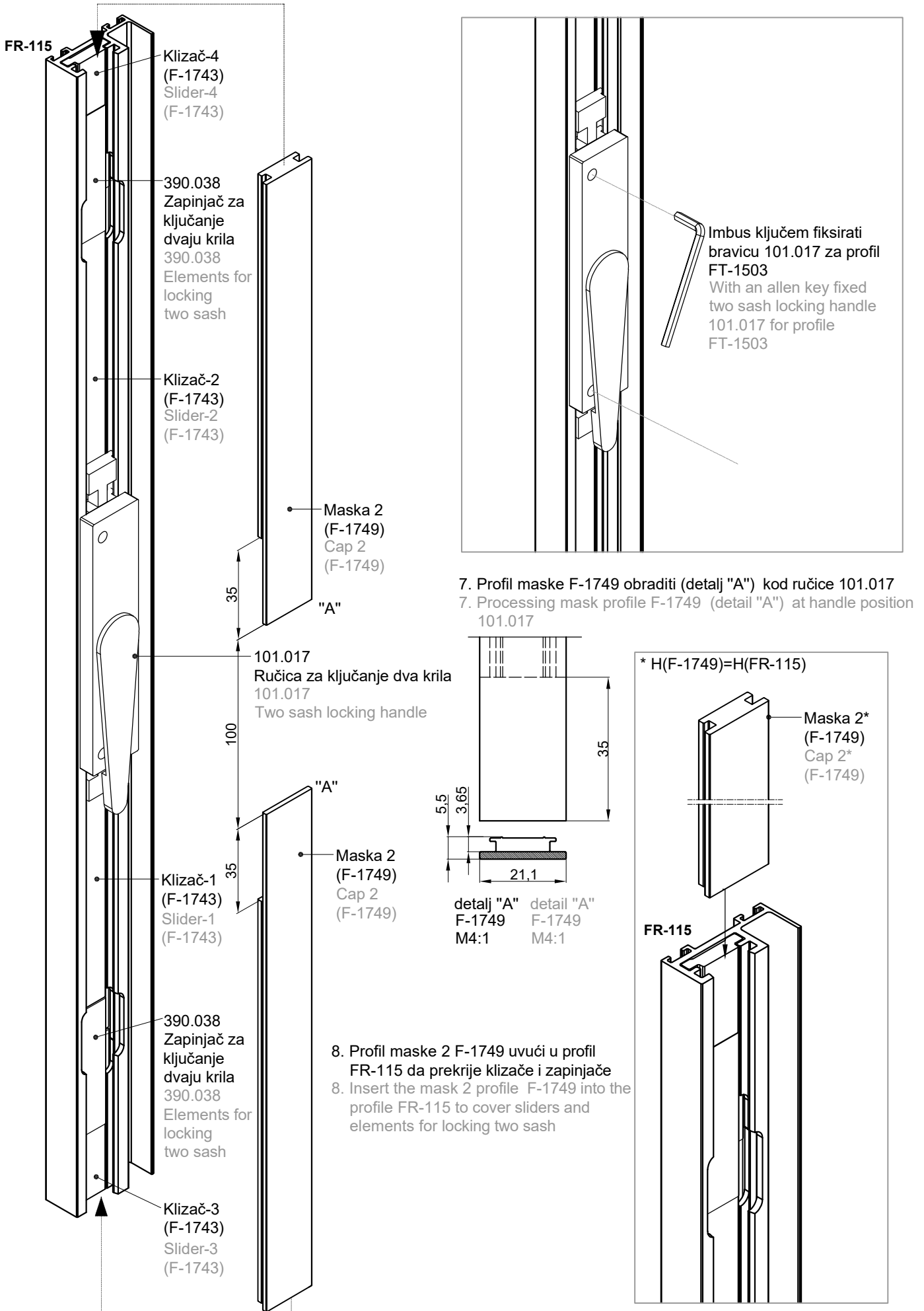
2. Klizač 2, bravicu i klizač 1 uvući u profil FR-115 kroz poseban utor na profilu
2. Slider 2, two sash locking handle and slider 1 insert in profile FR-115 through a special groove on the profile

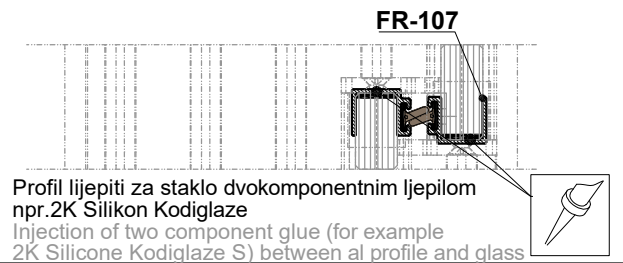
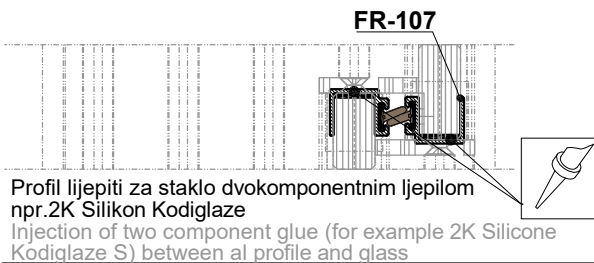
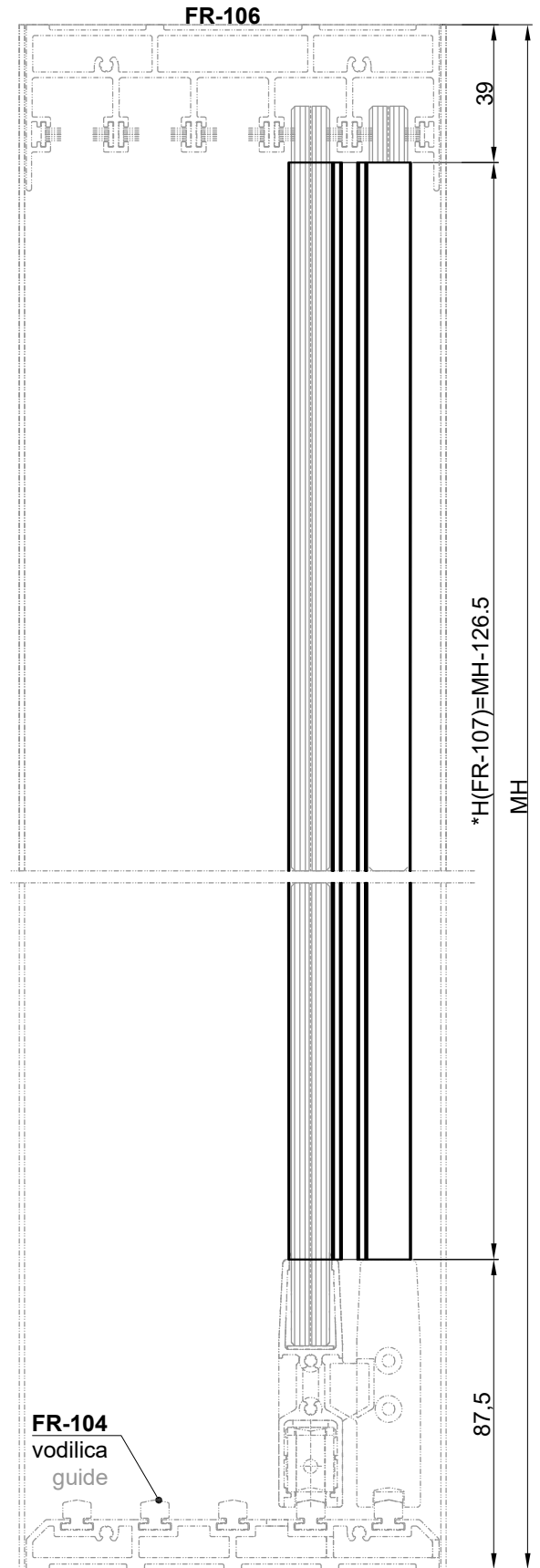
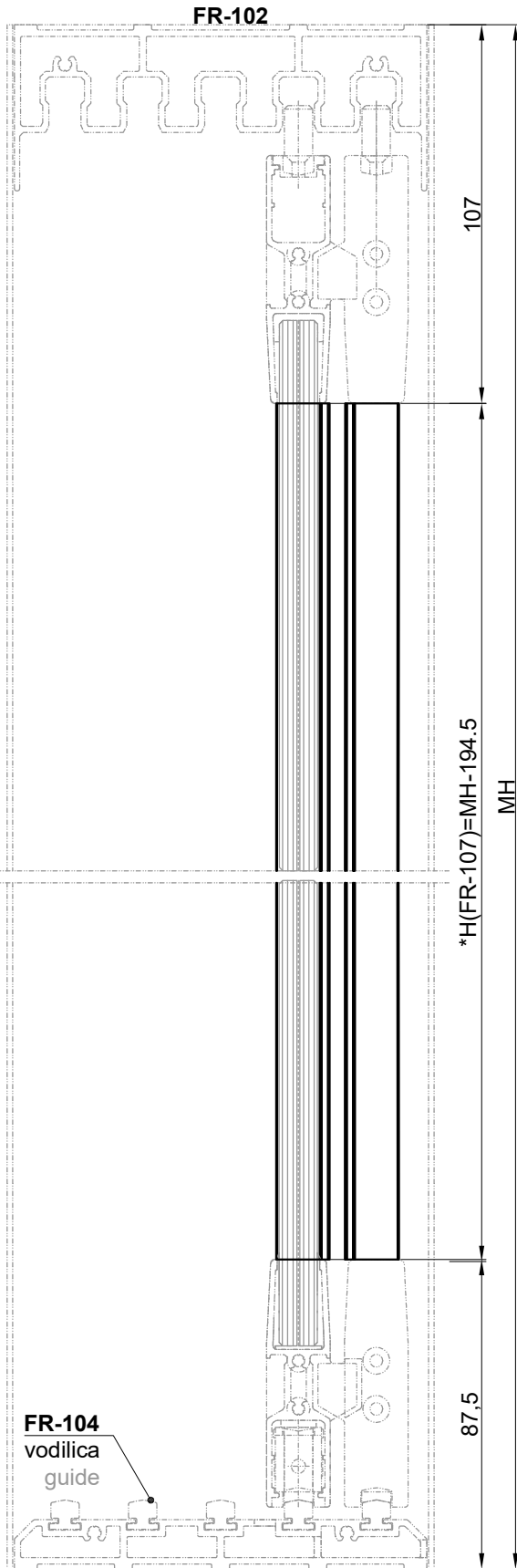


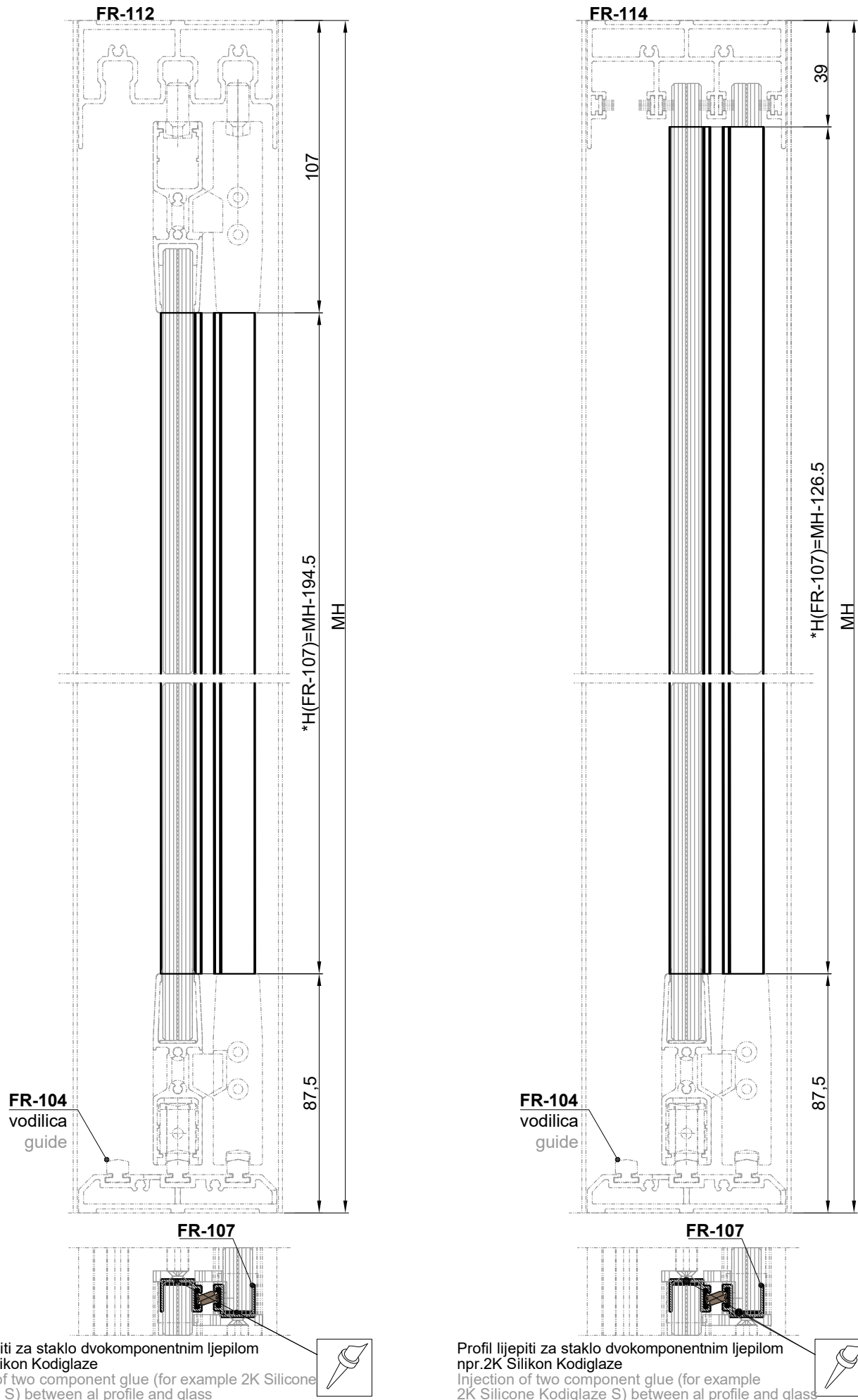
3. Pozicionirati ručicu na osu na profilu FR-115 (npr.cca 1000 mm od dna krila)
3. Position the handle on the axis on the profile FR-115 (eg.cca 1000 mm from the bottom of the sash)

4. Obrada profila FR-115 za prihvat zapinjača 390.038
4. Processing profile FR-115 for elements for locking two sash 390.038



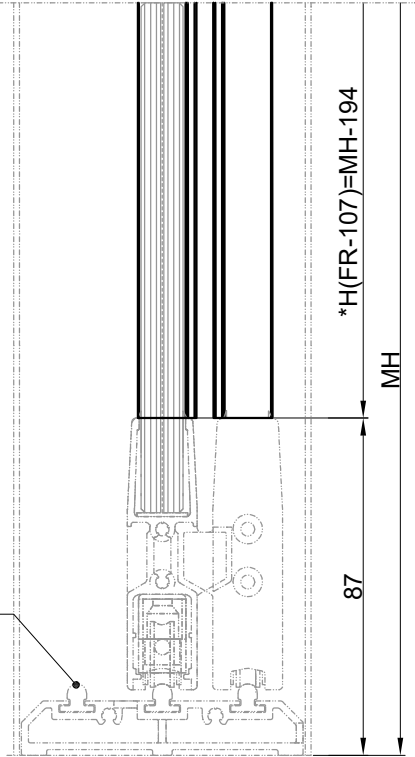




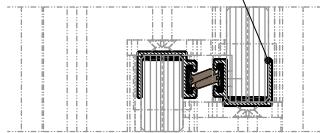


\*MH-194 (dužina profila FR-107 kada se koristi gornji profil rama FR-112 i FR-102)  
\*MH-194 (length of profile FR-107 when using upper frame profile FR-112 and FR-102)

**FR-108**  
vodilica  
guide

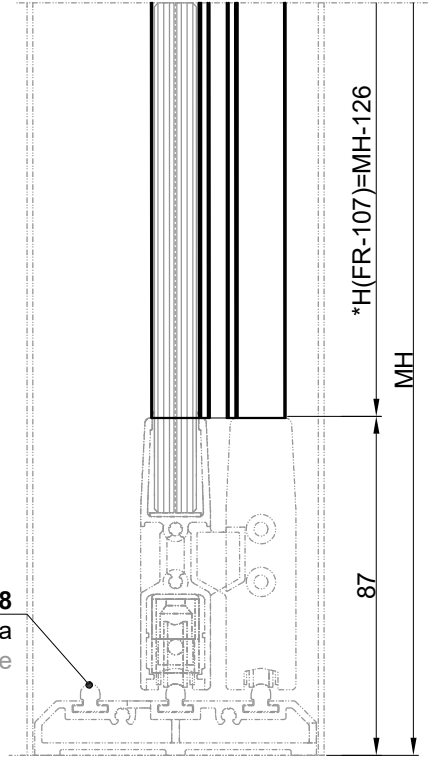


**FR-107**

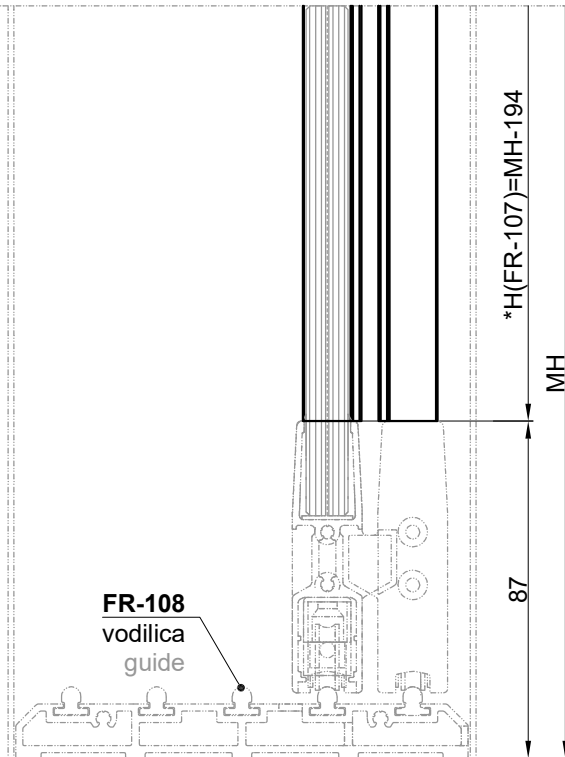
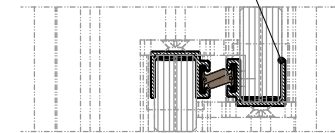


\*MH-126 (dužina profila FR-107 kada se koristi gornji profil rama FR-114 i FR-106)  
\*MH-126 (length of profile FR-107 when using upper frame profile FR-114 and FR-106)

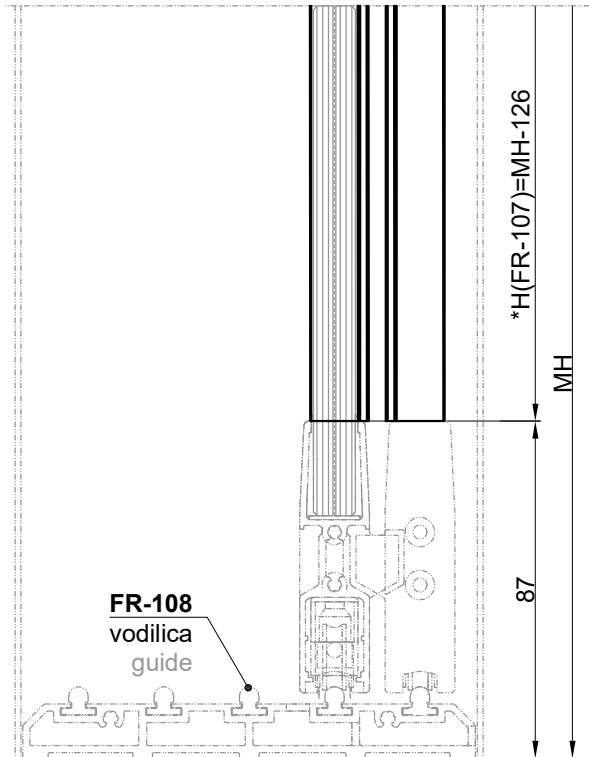
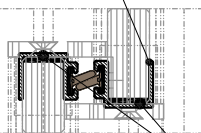
**FR-108**  
vodilica  
guide



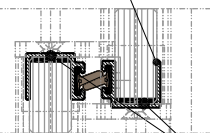
**FR-107**



**FR-107**



**FR-107**



Profil lijepiti za staklo dvokomponentnim ljepilom npr. 2K Silikon Kodiglaze  
Injection of two component glue (for example 2K Silicone Kodiglaze S) between al profile and glass

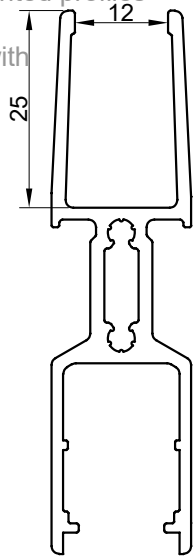


Profil lijepiti za staklo dvokomponentnim ljepilom npr. 2K Silikon Kodiglaze  
Injection of two component glue (for example 2K Silicone Kodiglaze S) between al profile and glass

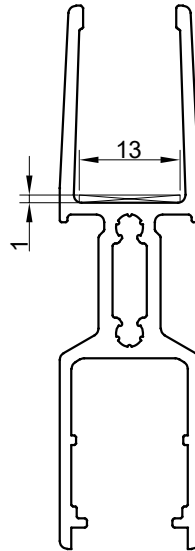


- 1) aluminijski profil krila  
- priprema površine za eloxirane profile npr. Kodiglaze WashCleaner-om  
- priprema površine za bojene profile prvo čišćenje sa čistačem npr. Korasolv WL i obrada Kodiglaze WashCleaner-om

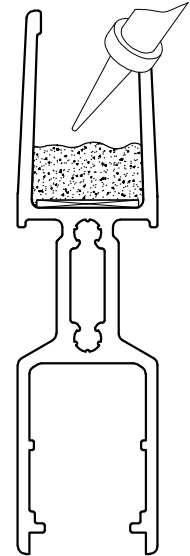
- 1) aluminium sash profile  
- surface preparation for anodized profiles e.g. Kodiglaze WashCleaner-om  
- surface preparation for painted profiles with cleaner e.g. Korasolv WL and then processing with Kodiglaze WashCleaner



- 2) ljepljenja pvc podmetača 374.042 (2 kom po krilu i odrezati na odgovarajuću dimenziju)  
2) gluing the pvc pad 374.042 (2 pcs by sash and cutting to the appropriate size)

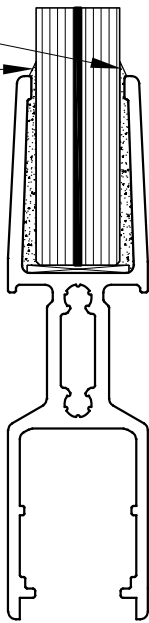


- 3) ubrizgavanje dvokomponentnog ljepila npr. (2K Silikon Kodiglaze S)  
3) injection of two-component glue for example (2K Silikon Kodiglaze S)

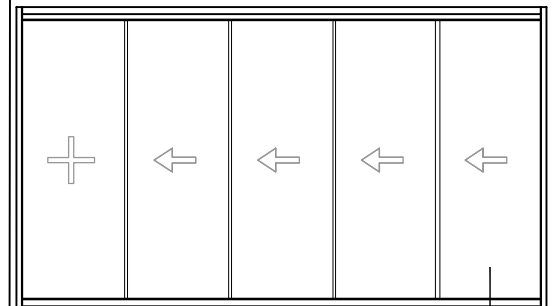
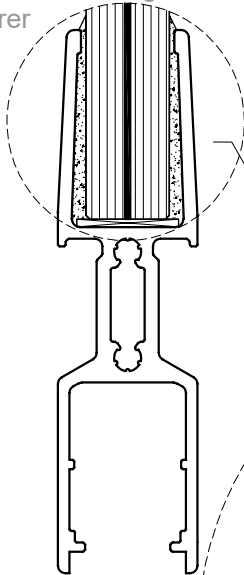


- 4) ubacivanje stakla u krilo  
4) insertion the glass in to the sash

odstranjivanje viška istisnutog ljepila  
removing excess squeezed glue



- 5) ostavljanje ljepila da se suši po zahtjevu proizvođača ljepila  
5) leaving glue to dry on recommendation from glue manufacturer



staklo-kaljeni lamistal 5.5.2  
glass-tempered laminated 5.5.2

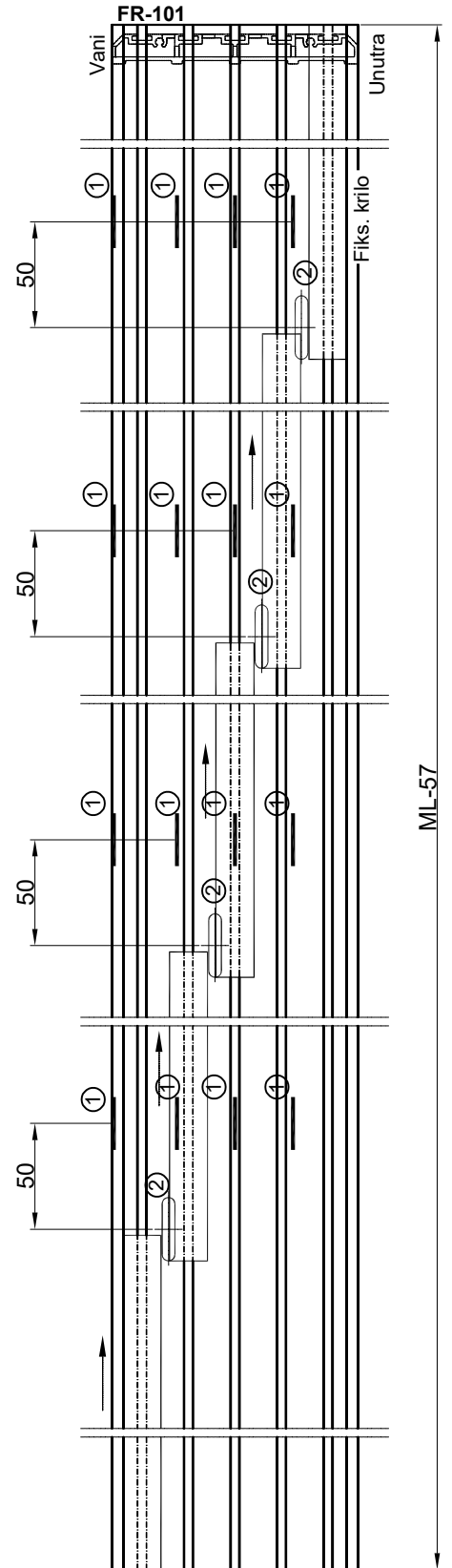
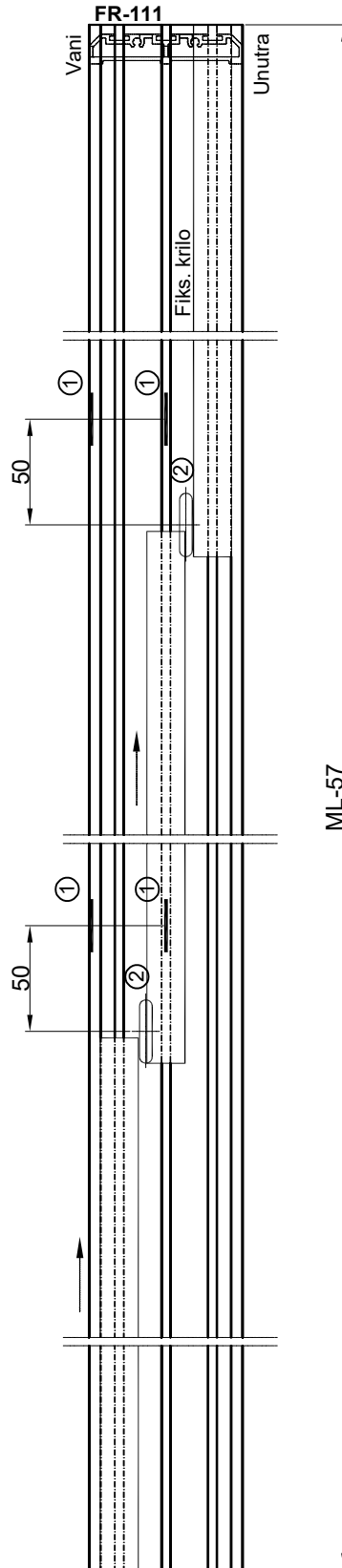
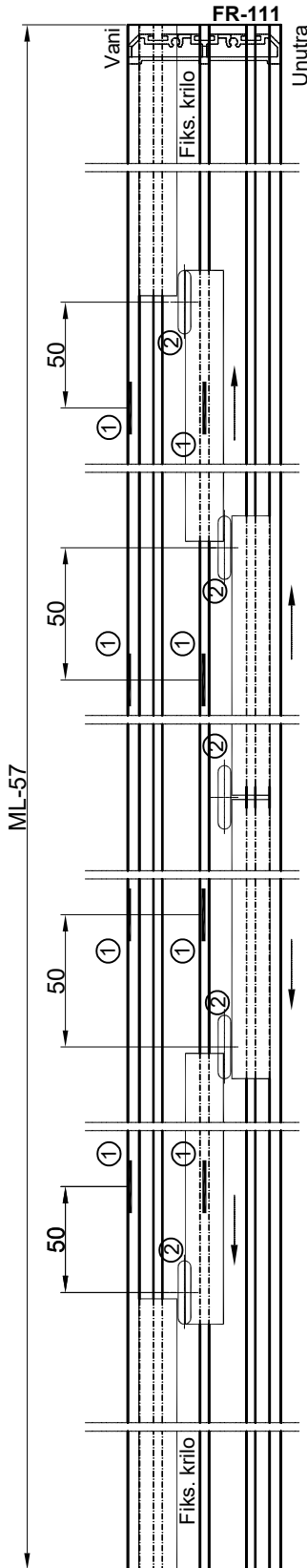
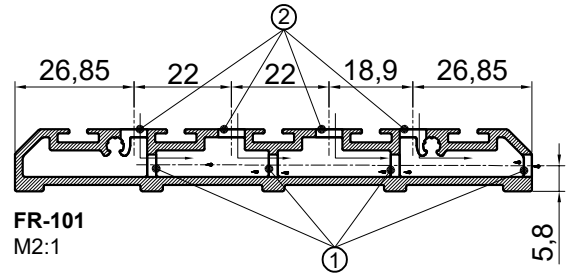
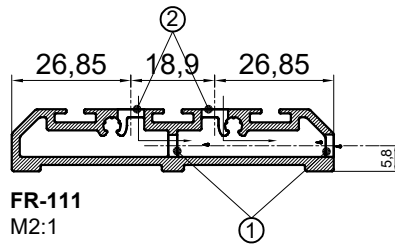
dvokomponentno ljepilo  
two-component glue

374.042 pvc podmetač  
374.042 pvs pad

① Žlijeb 5x20 mm

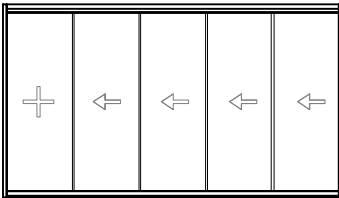
② Žlijeb 6x30 mm

**NAPOMENA:**  
Postaviti otvore "2" na mjesto spoja dvaju krila!  
**REMARK:**  
Place openings "2" at the junction of the two sashes!



**Rezna lista**  
Cutting list





naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-100 ram frame	MH	2	90-90
FR-101 ram frame	ML-57	1	90-90
FR-102 ram frame	ML-57	1	90-90
FR-116 krilo sash	Lkr=ML/5-4	10	90-90
<sup>1</sup> FR-104 vodilica guide	Lvod1=ML-4Lkr+3	1	90-90
<sup>1</sup> FR-104 vodilica guide	Lvod2=ML-3Lkr-9	1	90-90
<sup>1</sup> FR-104 vodilica guide	Lvod3=ML-2Lkr-21	1	90-90
<sup>1</sup> FR-104 vodilica guide	Lvod4=ML-Lkr-33	1	90-90
<sup>1</sup> FR-104 vodilica guide	Lvod5=ML-57	1	90-90
FR-105 umetak insert	MH-44,5	1	90-90
FR-107 umetak insert	<sup>2</sup> MH-194,5	8	90-90
F-0022 osovina axle	L=979 mm	1	90-90
F-0022 osovina axle	L=MH-1239	1	90-90

Čepovi i umetci Caps and inserts			
370.056 usmjerivač krila sash router		10	
370.058 čep vodilice praga threshold guide cap		4	
391.290 bočni čep krila i prihvatnik dva krila side sash cap and two sash acceptor		18	
370.060 bočni čep krila na poziciji ključanja side stopper of sash on locking position		2	
364.024 odbojnik krila sash bumper		4	
521.145 umetak za fiksno krilo insert for fixed sash		2	

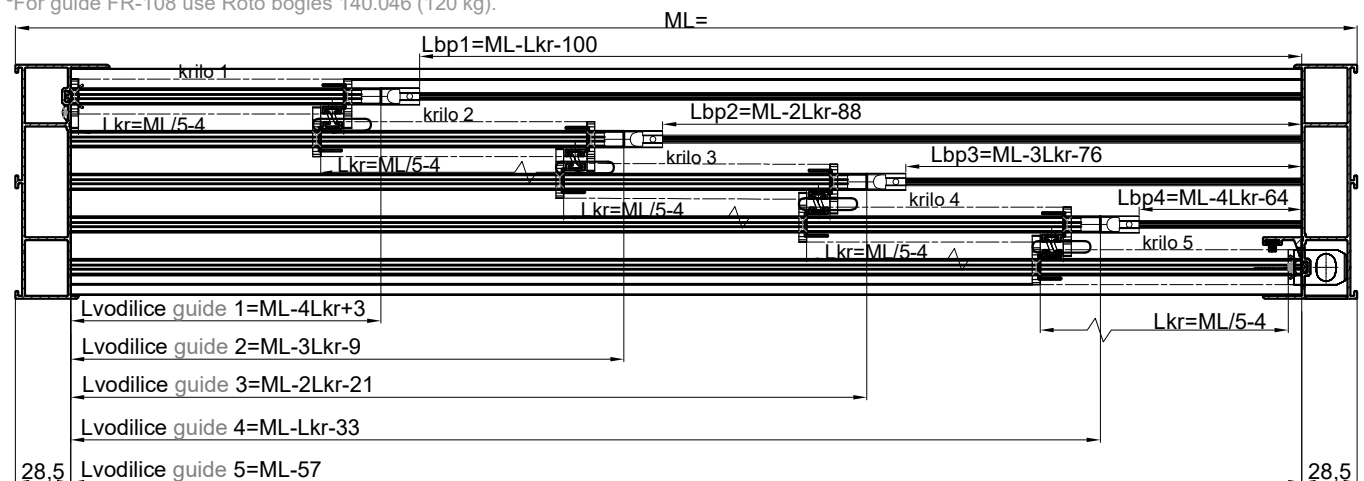
Okovi Hardware			
<sup>3</sup> 521.143 kotačići Giesse (120 kg) Bogies Giesse (120 kg)		10	
124.006 preklopni zapinjač-zasun /Stublina/ Bi-fold door latch /Stublina/		1	
521.146 umetak za osovinu ključanja insert for locking axle		2	

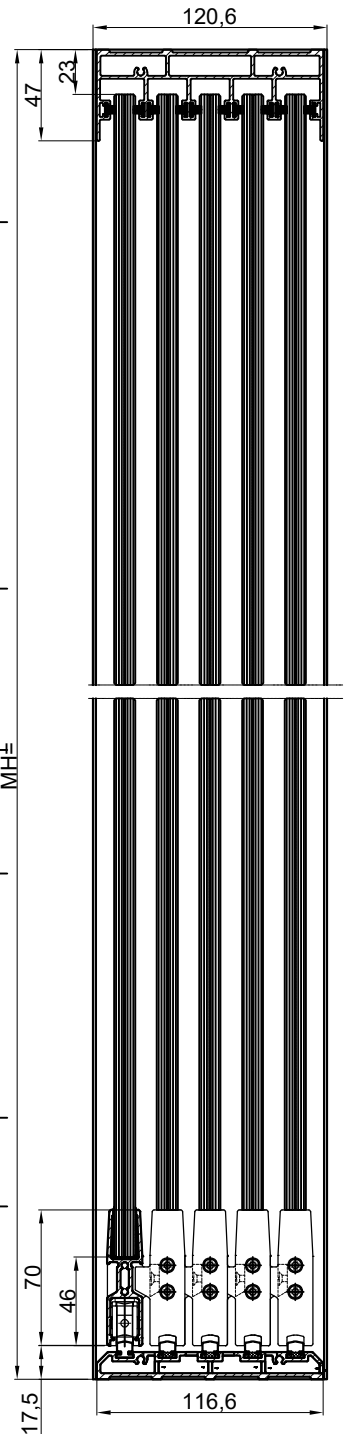
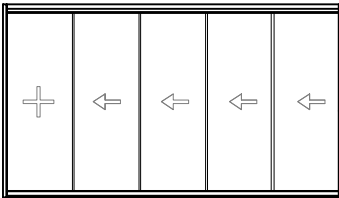
Brtve Gasket				
340.053 brtva u vert. pojasu rama gasket in vert. frame zone	MH-29	2	90-90	
340.055 brtva praga threshold gasket	Lbp1=ML-Lkr-100	1	90-90	
340.055 brtva praga threshold gasket	Lbp2=ML-2Lkr-88	1	90-90	
340.055 brtva praga threshold gasket	Lbp3=ML-3Lkr-76	1	90-90	
340.055 brtva praga threshold gasket	Lbp4=ML-4Lkr-64	1	90-90	
347.004 četkasta brtva brush gasket	MH-44,5	1	90-90	
347.011 QL brtva 7mm QL gasket 7mm	<sup>2</sup> MH-194,5	8	90-90	

Staklo Glass			
Dimenzije stakla (kaljeni lamistal 5.5.2) Glass dimension (tamped laminated 5.5.2)	Lst x Hst=Lkr x (Hkr-93)	5	
	Lgl x Hgl=Lsh x (Hsh-93)	5	

**NAPOMENE: REMARK:**

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height
<sup>1</sup> Moguće koristiti vodilicu FR-108. <sup>2</sup> Kada se koristi vod. FR-108 → MH-194.	<sup>2</sup> When using guide FR-108 → MH-194.		
<sup>1</sup> Possible to use the guide FR-108.			
<sup>3</sup> Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).			
<sup>3</sup> For guide FR-108 use Roto bogies 140.046 (120 kg).			





naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-100 ram	frame	MH	2 90-90
FR-101 ram	frame	ML-57	1 90-90
FR-106 ram	frame	ML-57	1 90-90
FR-116 krilo	sash	Lkr=ML/5-4	5 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1=ML-4Lkr+3	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod2=ML-3Lkr-9	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3=ML-2Lkr-21	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod4=ML-Lkr-33	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod5=ML-57	1 90-90
FR-105 umetak	insert	MH-50	1 90-90
FR-107 umetak	insert	<sup>2</sup> MH-134,5	8 90-90
F-0022 osovina	axle	L=979 mm	1 90-90

Čepovi i umetci Caps and inserts			
370.058 čep vodilice praga	threshold guide cap		4
391.290 bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor		9
370.060 bočni čep krila na poziciji ključanja	side stopper of sash on locking position		1
364.024 odbojnik krila	sash bumper		4
521.145 umetak za fiksno krilo	insert for fixed sash		1

Okovi Hardware			
<sup>3</sup> 521.143 kotačići Giesse (120 kg)	Bogies Giesse (120 kg)		10
124.006 preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/		1
521.146 umetak za osovinu ključanja	insert for locking axle		1

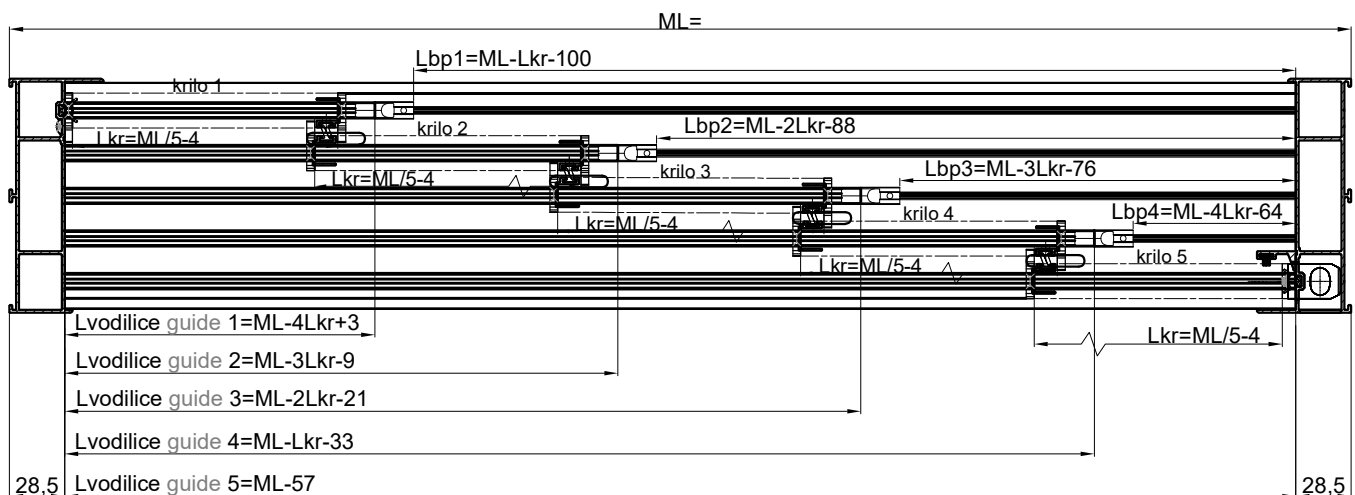
Brtve Gasket			
340.053 brtva u vertikalnom pojasu rama	gasket in vert. frame zone	MH-29	2 90-90
340.055 brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1
340.055 brtva praga	threshold gasket	Lbp2=ML-2Lkr-88	1
340.055 brtva praga	threshold gasket	Lbp3=ML-3Lkr-76	1
340.055 brtva praga	threshold gasket	Lbp4=ML-4Lkr-64	1
347.004 četkasta brtva	brush gasket	MH-50	1 90-90
347.004 četkasta brtva	brush gasket	ML-57	10 90-90
347.011 QL brtva 7mm	QL gasket 7mm	<sup>2</sup> MH-134,5	8 90-90

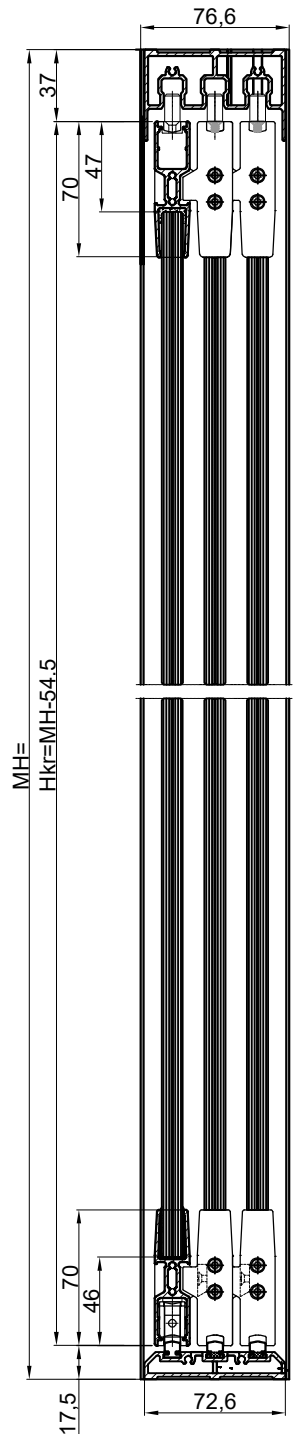
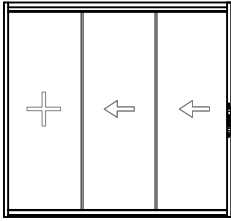
Staklo Glass			
Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x <sup>4</sup> Hst=Lkr x (MH-86.5)		5
Glass dimension (tamped laminated 5.5.2)	Lgl x <sup>4</sup> Hgl=Lsh x (HM-86.5)		5

### NAPOMENE: REMARKS:

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

- <sup>1</sup>Moguće koristiti vodilicu FR-108.      <sup>2</sup>Kada se koristi vod. FR-108 → MH-134.  
<sup>1</sup>Possible to use the guide FR-108.      <sup>2</sup>When using guide FR-108 → MH-134.  
<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).      <sup>4</sup>Za vodilicu FR-108 → Hst=(MH-86).  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg).      <sup>4</sup>For guide FR-108 → Hgl=(MH-86).





naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-113 ram	frame	MH	2 90-90
FR-111 ram	frame	ML-57	1 90-90
FR-112 ram	frame	ML-57	1 90-90
FR-116 krilo	sash	Lkr=ML/3-14,67	6 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1=ML-2Lkr-21	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod2=ML-1Lkr-33	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3=ML-57	1 90-90
FR-105 umetak	insert	MH-44,5	1 90-90
FR-107 umetak	insert	<sup>2</sup> MH-194,5	4 90-90
F-0022 osovina	axle	L=979 mm	1 90-90
F-0022 osovina	axle	L=MH-1239	1 90-90

### Čepovi i umetci Caps and inserts

370.056 usmjerivač krila	sash router	6
370.058 čep vodilice praga	threshold guide cap	2
391.290 bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor	10
370.060 bočni čep krila na poziciji ključanja	side stopper of sash on locking position	2
364.024 odbojnik krila	sash bumper	2
521.145 umetak za fiksno krilo	insert for fixed sash	2

### Okovi Hardware

<sup>3</sup> 521.143 kotačići Giesse (120 kg)	Bogies Giesse (120 kg)	6
124.006 preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/	1
521.146 umetak za osovinu ključanja	insert for locking axle	2

### Brtve Gasket

340.053 brtva u vert. pojasu rama	gasket in vert. frame zone	MH-29	2 90-90
340.055 brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1 90-90
340.055 brtva praga	threshold gasket	Lbp2=ML-2Lkr-88	1 90-90
347.004 četkasta brtva	brush gasket	MH-44,5	1 90-90
347.011 QL brtva 7mm	QL gasket 7mm	<sup>2</sup> MH-194,5	4 90-90

### Staklo Glass

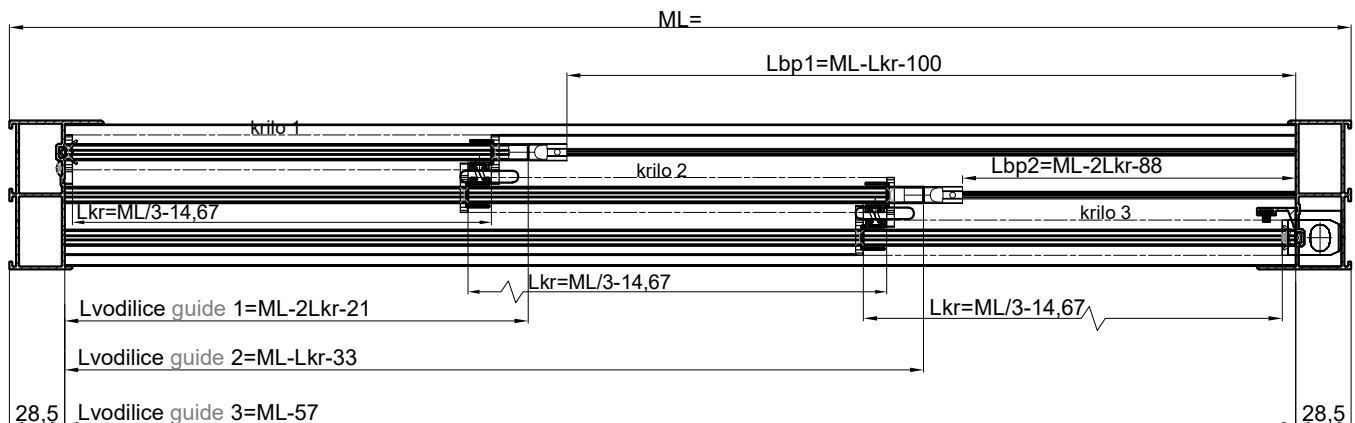
Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x Hst=Lkr x (Hkr-93)	3
Glass dimension (tampered laminated 5.5.2)	Lgl x Hgl=Lsh x (Hsh-93)	3

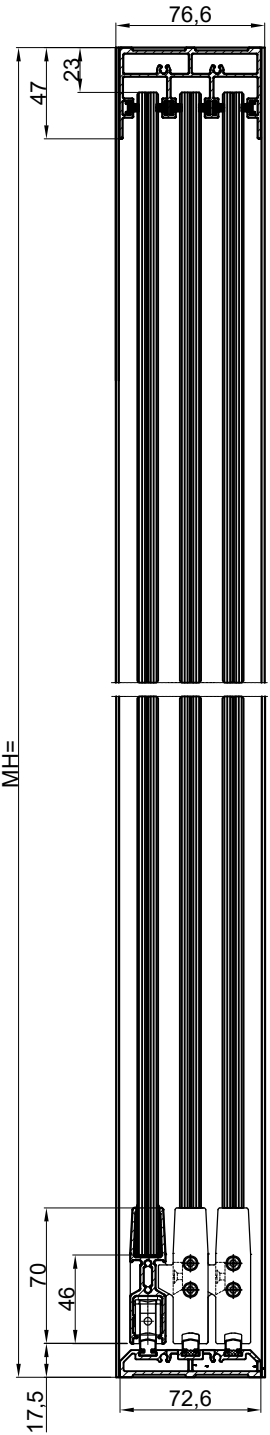
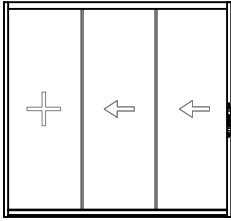
### NAPOMENE: REMARKS:

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108 → MH-194.  
<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108 → MH-194.

<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg).





naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-113 ram	frame	MH	2 90-90
FR-111 ram	frame	ML-57	1 90-90
FR-114 ram	frame	ML-57	1 90-90
FR-116 krilo	sash	Lkr=ML/3-14,67	3 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1=ML-2Lkr-21	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod2=ML-1Lkr-33	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3=ML-57	1 90-90
FR-105 umetak	insert	MH-50	1 90-90
FR-107 umetak	insert	<sup>2</sup> MH-134,5	4 90-90
F-0022 osovina	axle	L=979 mm	1 90-90

### Čepovi i umetci Caps and inserts

370.058	čep vodilice praga	threshold guide cap	2
391.290	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor	5
370.060	bočni čep krila na poziciji ključanja	side stopper of sash on locking position	1
364.024	odbojnik krila	sash bumper	2
521.145	umetak za fiksno krilo	insert for fixed sash	1

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)	6
124.006	preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/	1
521.146	umetak za osovinu ključanja	insert for locking axle	2

### Brtve Gaskets

340.053	brtva u vert.pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
340.055	brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1	90-90
340.055	brtva praga	threshold gasket	Lbp2=ML-2Lkr-88	1	90-90
347.004	četkasta brtva	brush gasket	MH-50	1	90-90
347.011	QL brtva 7mm	QL gasket 7mm	<sup>2</sup> MH-134,5	4	90-90
347.004	četkasta brtva	brush gasket	ML-57	6	90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x <sup>4</sup> Hst=Lkr x (MH-86.5) <sup>3</sup>
Glass dimension (tempered laminated 5.5.2)	Lgl x <sup>4</sup> Hgl=Lsh x (MH-86.5) <sup>3</sup>

### NAPOMENE: REMARKS:

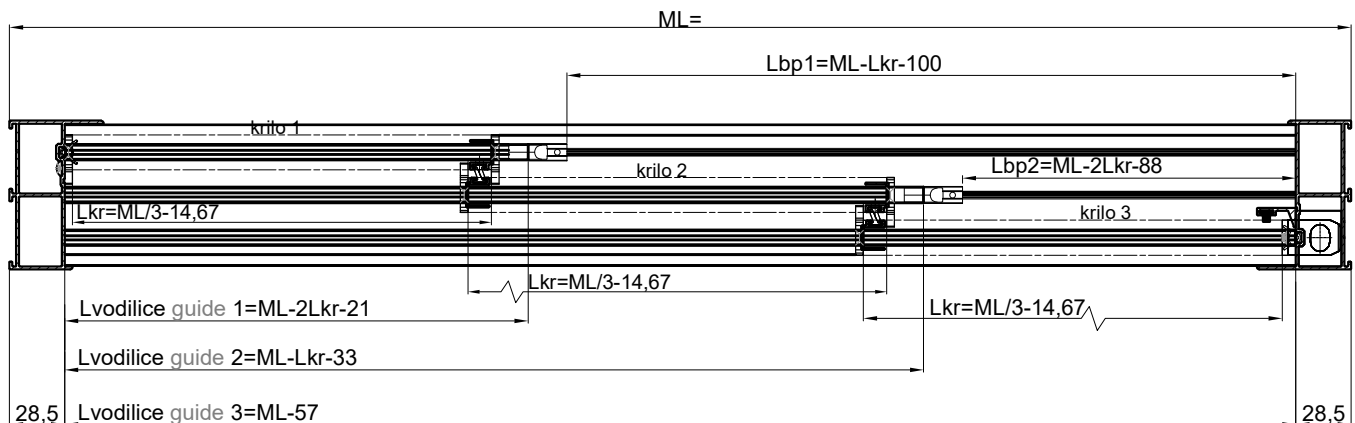
MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp-duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

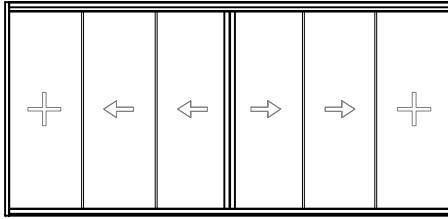
<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108 → MH-134.

<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108 → MH-134.

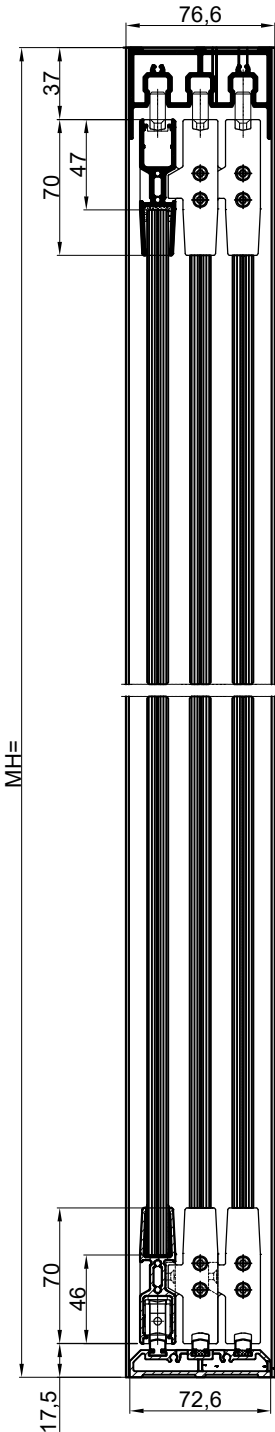
<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg). <sup>4</sup>Za vodilicu FR-108 → Hst=(MH-86).

<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg). <sup>4</sup>For guide FR-108 → Hgl=(MH-86).





Otvaranje prema van.  
Opening on the outside.



naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-113 ram	frame	MH	2 90-90
FR-111 ram	frame	ML-57	1 90-90
FR-112 ram	frame	ML-57	1 90-90
FR-116 krilo	sash	Lkr=ML/6-4,5	12 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1,2=ML/2-2Lkr+9,5	2 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3,4=ML/2-Lkr-2,5	1 90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod5=ML-57	1 90-90
FR-107 umetak	insert	<sup>2</sup> MH-194,5	8 90-90
FR-115 umetak	insert	<sup>2</sup> MH-194,5	2 90-90
F-1743 klizač	slider	<sup>2</sup> MH-194,5	1 90-90
F-1749 maska	cap	<sup>2</sup> MH-194,5	2 90-90

### Čepovi i umetci Caps and inserts

370.058	čep vodilice praga	threshold guide cap	4
370.056	usmjerivač krila	sash router	12
364.024	odbojnik krila	sash bumper	4
391.290	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor	24

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)	12
101.017	ručica za ključanje dva krila	lever for locking two sashes	1
390.038	zapinjač za ključanje dvaju krila	claps for locking two sashes	2

### Brtve Gasket

340.053	brtva u vert. pojasu rama	gasket in vert. frame zone	MH-29	2 90-90
347.011	QL brtva 7mm	QL gasket 7mm	<sup>2</sup> MH-194,5	12 90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x Hst=Lkr x (Hkr-93)	6
Glass dimension (tampered laminated 5.5.2)	Lgl x Hgl=Lsh x (Hsh-93)	6

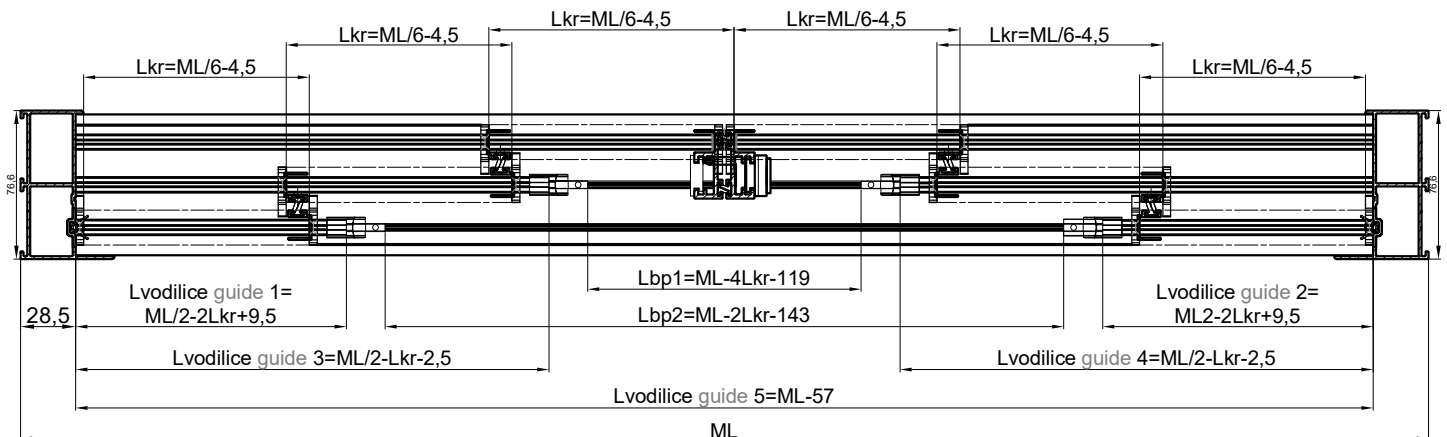
### NAPOMENE: REMARKS:

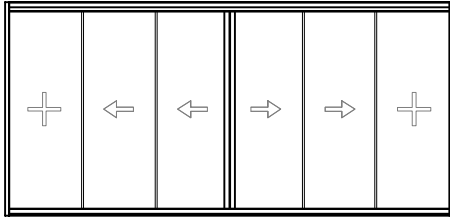
MH-visina rama	Lvod-duljina vodilice	Lst-širina stakla	Lkr-širina krila
MH-frame height	Lgui-guide length	Lst-sash width	Lkr-sash width
ML-širina rama	Lbp -duljina brtve praga	Hst-visina stakla	Hkr-visina krila
ML-frame height	Ltg -threshold gasket length	Hgl-glass height	Hkr-sash height

<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108 → MH-194.  
<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108 → MH-194.

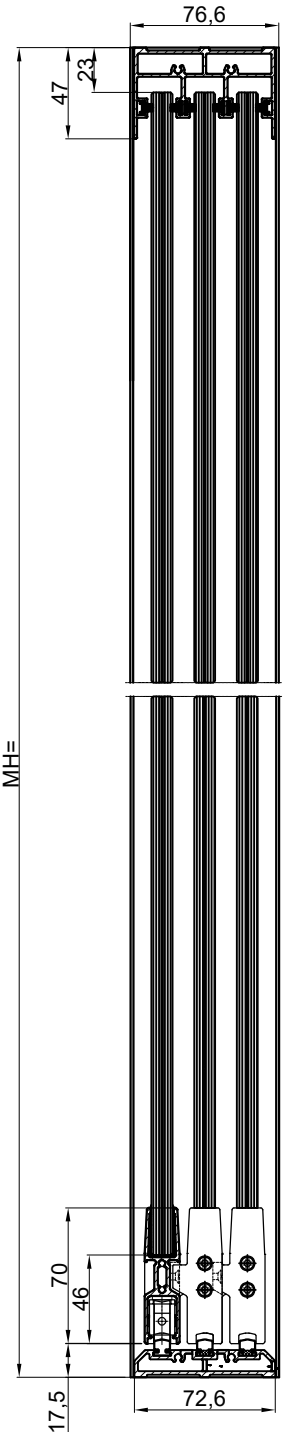
<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg).

Rezne liste za otvaranje iznutra su iste!  
Cutting lists for opening on the inside are the same!





Otvaranje prema van.  
Opening on the outside.



naziv name	mjera measure	kom. pcs.	pilanje cutting		
<b>Profili Profiles</b>					
FR-113	ram	frame	MH	2	90-90
FR-111	ram	frame	ML-57	1	90-90
FR-112	ram	frame	ML-57	1	90-90
FR-116	krilo	sash	$Lkr=ML/6-4,5$	12	90-90
<sup>1</sup> FR-104	vodilica	guide	$Lvod1,2=ML/2-2Lkr+9,5$	2	90-90
<sup>1</sup> FR-104	vodilica	guide	$Lvod3,4=ML/2-Lkr-2,5$	1	90-90
<sup>1</sup> FR-104	vodilica	guide	$Lvod5=ML-57$	1	90-90
FR-107	umetak	insert	<sup>2</sup> MH-134,5	8	90-90
FR-115	umetak	insert	<sup>2</sup> MH-134,5	2	90-90
F-1743	klizač	slider	<sup>2</sup> MH-134,5	1	90-90
F-1749	maska	cap	<sup>2</sup> MH-134,5	2	90-90

### Čepovi i umetci Caps and inserts

370.058	čep vodilice praga	threshold guide cap		4
370.056	usmjerivač krila	sash router		12
364.024	odbojnik krila	sash bumper		4
391.290	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor		24

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)		12
101.017	ručica za ključanje dva krila	lever for locking two sashes		1
390.038	zapinjač za ključanje dvaju krila	claps for locking two sashes		2

### Brtve Gasket

340.053	brtva u vert. pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
347.011	QL brtva 7mm	QL gasket 7mm	<sup>2</sup> MH-134,5	12	90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	$Lst \times {}^4Hst=Lkr \times (Hkr-86,5)$	6
Glass dimension (tampered laminated 5.5.2)	$Lgl \times {}^4Hgl=Lsh \times (Hsh-86,5)$	6

### NAPOMENE: REMARKS:

MH-visina rama	Lvod-duljina vodilice	Lst-širina stakla	Lkr-širina krila
MH-frame height	Lgui-guide length	Lst-sash width	Lkr-sash width
ML-širina rama	Lbp -duljina brtve praga	Hst-visina stakla	Hkr-visina krila
ML-frame height	Ltg -threshold gasket length	Hgl-glass height	Hkr-sash height

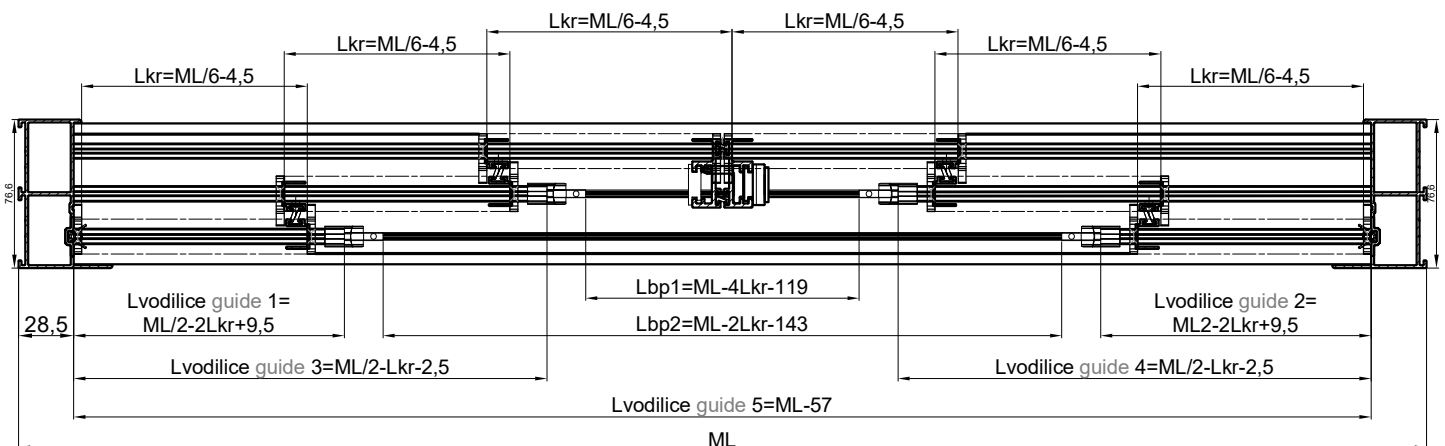
<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108 → MH-134.

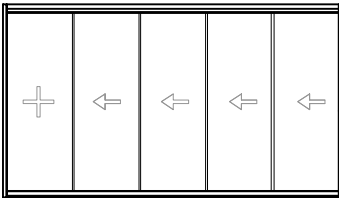
<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108 → MH-134.

<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg). <sup>4</sup>Za vodilicu FR-108 → Hst=(MH-86).

<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg). <sup>4</sup>For guide FR-108 → Hgl=(MH-86).

Rezne liste za otvaranje iznutra su iste!  
Cutting lists for opening on the inside are the same!





naziv name	mjera measure	kod code	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>				
FR-100 ram	frame	MH	2	90-90
FR-101 ram	frame	ML-57	1	90-90
FR-102 ram	frame	ML-57	1	90-90
FR-103 krilo	sash	Lkr=ML/5-3	10	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1=ML-4Lkr+7	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod2=ML-3Lkr-6	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3=ML-2Lkr-19	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod4=ML-Lkr-32	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod5=ML-57	1	90-90
FR-105 umetak	insert	MH-44,5	1	90-90
FR-107 umetak	insert	<sup>2</sup> MH-174,5	8	90-90
F-0022 osovina	axle	L=979 mm	1	90-90
F-0022 osovina	axle	L=MH-1239	1	90-90

### Čepovi i umetci Caps and inserts

370.056 usmjerivač krila	sash router		10
370.058 čep vodilice praga	threshold guide cap		4
370.061 bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor		18
370.060 bočni čep krila na poziciji ključanja	side stopper of sash on locking position		2
521.145 umetak za fiksno krilo	insert for fixed sash		2

### Okovi Hardware

<sup>3</sup> 521.143 kotačići Giesse (120 kg)	Bogies Giesse (120 kg)		10
124.006 Preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/		1
521.146 umetak za osovinu ključanja	insert for locking axle		2

### Brtve Gasket

340.053 brtva u vert. pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
340.054 brtva prema staklu krila	gasket to the sash glass	Lkr	20	90-90
340.055 brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1	90-90
340.055 brtva praga	threshold gasket	Lbp2=ML-2Lkr-87	1	90-90
340.055 brtva praga	threshold gasket	Lbp3=ML-3Lkr-74	1	90-90
340.055 brtva praga	threshold gasket	Lbp4=ML-4Lkr-61	1	90-90
347.004 četkasta brtva	brush gasket	MH-44,5	1	90-90
<sup>4</sup> 347.004 četkasta brtva	brush gasket	<sup>2</sup> MH-174,5	8	90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x Hst=Lkr x (Hkr-93)	5
Glass dimension (tamped laminated 5.5.2)	Lgl x Hgl=Lsh x (Hsh-93)	5

### NAPOMENE: REMARK:

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

<sup>1</sup>Moguće koristiti vodilicu FR-108.

<sup>1</sup>Possible to use the guide FR-108.

<sup>2</sup>Kada se koristi vod. FR-108; MH-174.

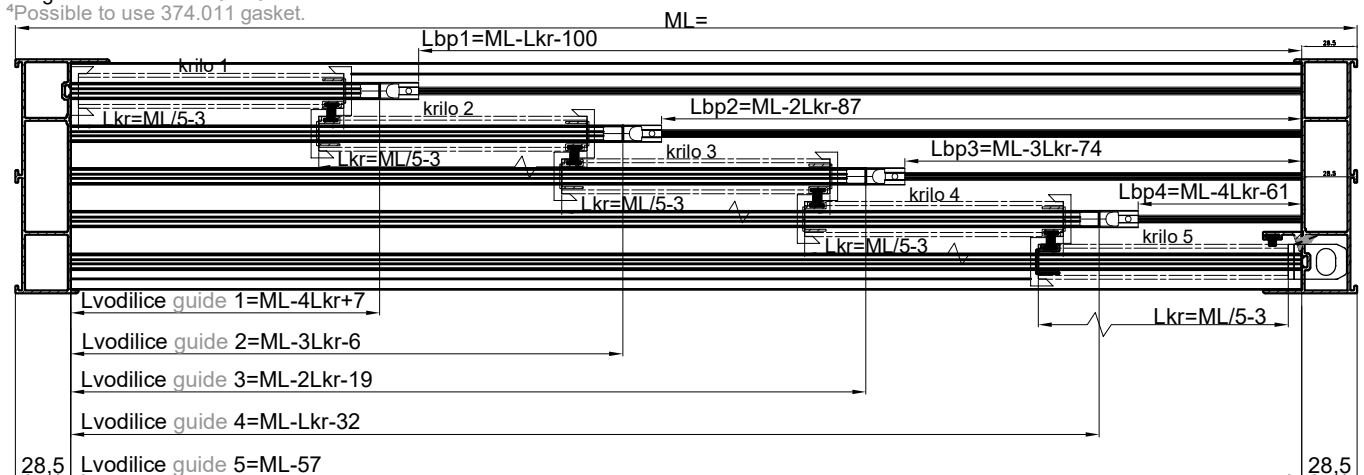
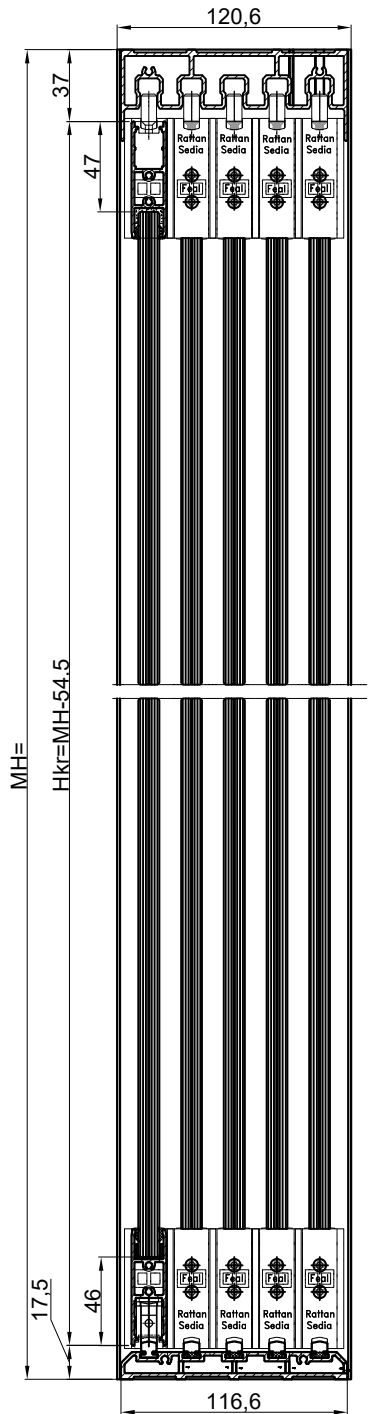
<sup>2</sup>When using guide FR-108; =MH-174.

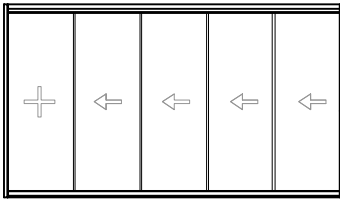
<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).

<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg).

<sup>4</sup>Moguće koristiti brtvu 374.011.

<sup>4</sup>Possible to use 374.011 gasket.





naziv name	mjera measure	kom. pcs.	pilanje cutting
<b>Profili Profiles</b>			
FR-100 ram	frame	MH	2 90-90
FR-101 ram	frame	ML-57	1 90-90
FR-106 ram	frame	ML-57	1 90-90
FR-103 krilo	sash	Lkr=ML/5-3	5 90-90
*FR-104 vodilica	guide	Lvod1=ML-4Lkr+7	1 90-90
*FR-104 vodilica	guide	Lvod2=ML-3Lkr-6	1 90-90
*FR-104 vodilica	guide	Lvod3=ML-2Lkr-19	1 90-90
*FR-104 vodilica	guide	Lvod4=ML-Lkr-32	1 90-90
*FR-104 vodilica	guide	Lvod5=ML-57	1 90-90
FR-105 umetak	insert	MH-50	1 90-90
FR-107 umetak	insert	<sup>2</sup> MH-124,5	8 90-90
F-0022 osovina	axle	L=979 mm	1 90-90

### Čepovi i umetci Caps and inserts

370.058	čep vodilice praga	threshold guide cap	4
370.061	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor	9
370.060	bočni čep krila na poziciji ključanja	side stopper of sash on locking position	1
521.145	umetak za fiksno krilo	insert for fixed sash	1

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)	10
124.006	Preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/	1
521.146	umetak za osovinu ključanja	insert for locking axle	1

### Brtve Gasket

340.053	brtva u vertikalnom pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
340.054	brtva prema staklu krila	gasket to the sash glass	Lkr	10	90-90
340.055	brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1	
340.055	brtva praga	threshold gasket	Lbp2=ML-2Lkr-87	1	
340.055	brtva praga	threshold gasket	Lbp3=ML-3Lkr-74	1	
340.055	brtva praga	threshold gasket	Lbp4=ML-4Lkr-61	1	
347.004	četkasta brtva	brush gasket	MH-50	1	90-90
*347.004	četkasta brtva	brush gasket	<sup>2</sup> MH-116,5	9	90-90
347.004	četkasta brtva	brush gasket	ML-57	10	90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x <sup>5</sup> Hst=Lkr x (MH-86.5)	5
Glass dimension (tamppered laminated 5.5.2)	Lgl x <sup>5</sup> Hgl=Lsh x (Hsh-86.5)	5

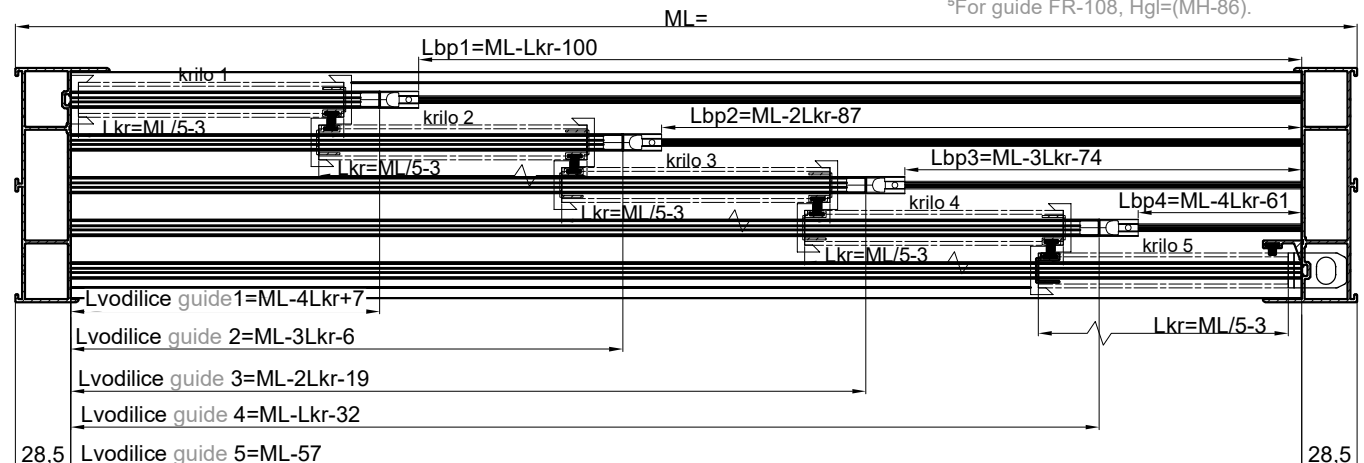
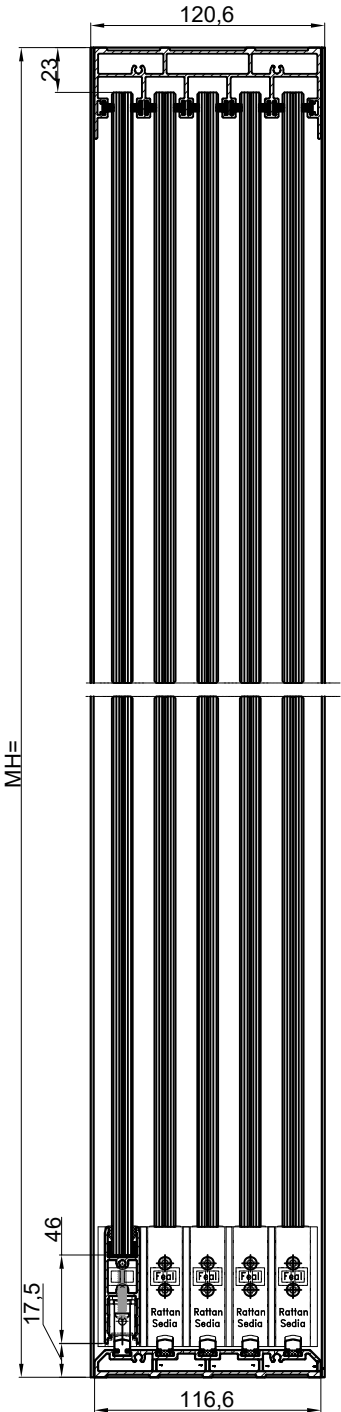
### NAPOMENE: REMARKS:

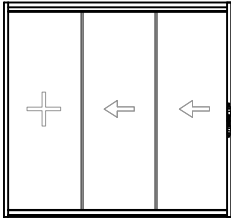
MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108; MH-124.  
<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108; MH-124.

<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg). <sup>4</sup>Moguće koristiti brtvu 374.011.  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg). <sup>4</sup>Possible to use 374.011 gasket.

<sup>5</sup>Za vodilicu FR-108, Hst=(MH-86).  
<sup>5</sup>For guide FR-108, Hgl=(MH-86).





naziv name	mjera measure	kom. pcs.	pilanje cutting		
<b>Profili Profiles</b>					
FR-113	ram	frame	MH	2	90-90
FR-111	ram	frame	ML-57	1	90-90
FR-112	ram	frame	ML-57	1	90-90
FR-103	krilo	sash	Lkr=ML/3-14	6	90-90
<sup>1</sup> FR-104	vodilica	guide	Lvod1=ML-2Lkr-19	1	90-90
<sup>1</sup> FR-104	vodilica	guide	Lvod2=ML-1Lkr-32	1	90-90
<sup>1</sup> FR-104	vodilica	guide	Lvod3=ML-57	1	90-90
FR-105	umetak	insert	MH-44.5	1	90-90
FR-107	umetak	insert	<sup>2</sup> MH-174,5	4	90-90
F-0022	osovina	axle	L=979 mm	1	90-90
F-0022	osovina	axle	L=MH-1239	1	90-90

### Čepovi i umetci Caps and inserts

370.056	usmjerivač krila	sash router		6
370.058	čep vodilice praga	threshold guide cap		2
370.061	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor		10
370.060	bočni čep krila na poziciji ključanja	side stopper of sash on locking position		2
521.145	umetak za fiksno krilo	insert for fixed sash		2

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)		6
124.006	Preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/		1
521.146	umetak za osovinu ključanja	insert for locking axle		2

### Brtve Gasket

340.053	brtva u vert. pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
340.054	brtva prema staklu krila	gasket to the sash glass	Lkr	10	90-90
340.055	brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1	90-90
340.055	brtva praga	threshold gasket	Lbp2=ML-2Lkr-87	1	90-90
347.004	četkasta brtva	brush gasket	MH-44.5	1	90-90
<sup>4</sup> 347.004	četkasta brtva	brush gasket	<sup>2</sup> MH-174,5	4	90-90

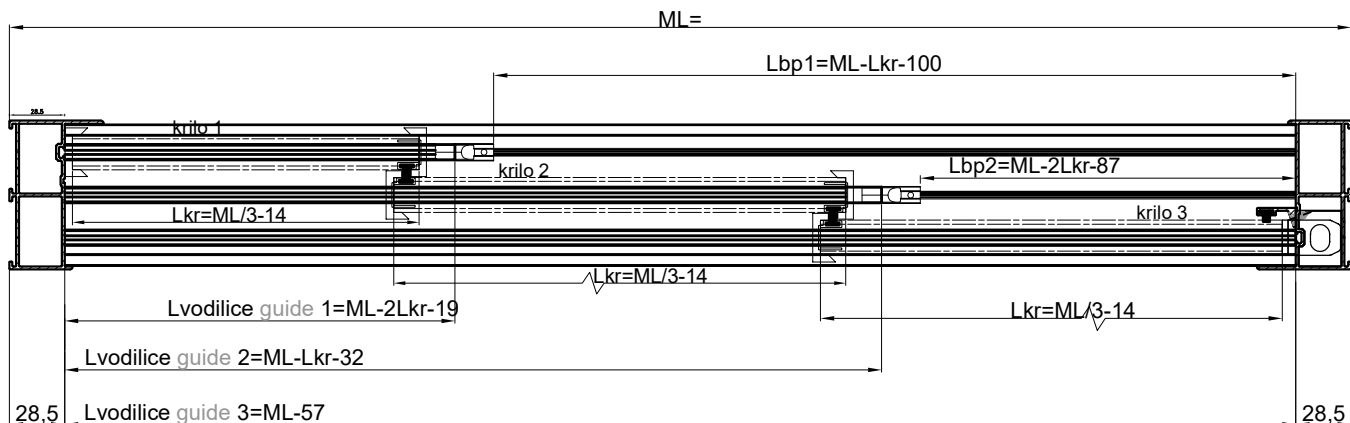
### Staklo Glass

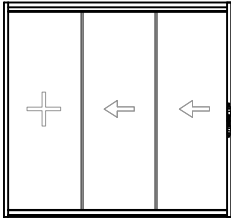
Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x Hst=Lkr x (Hkr-93)	3
Glass dimension (tamppered laminated 5.5.2)	Lgl x Hgl=Lsh x (Hsh-93)	3

### NAPOMENE: REMARKS:

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgl-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

- <sup>1</sup>Moguće koristiti vodilicu FR-108.      <sup>2</sup>Kada se koristi vod. FR-108; MH-174.  
<sup>1</sup>Possible to use the guide FR-108.      <sup>2</sup>When using guide FR-108; =MH-174.  
<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg).      <sup>4</sup>Moguće koristiti brtvu 374.011.  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg).      <sup>4</sup>Possible to use 374.011 gasket.





naziv name	mjera measure	kom. pcs.	pilanje cutting	
<b>Profili Profiles</b>				
FR-113 ram	frame	MH	2	90-90
FR-111 ram	frame	ML-57	1	90-90
FR-114 ram	frame	ML-57	1	90-90
FR-103 krilo	sash	Lkr=ML/3-14	3	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod1=ML-2Lkr-19	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod2=ML-1Lkr-32	1	90-90
<sup>1</sup> FR-104 vodilica	guide	Lvod3=ML-57	1	90-90
FR-105 umetak	insert	MH-50	1	90-90
FR-107 umetak	insert	<sup>2</sup> MH-124,5	4	90-90
F-0022 osovina	axle	L=979 mm	1	90-90

### Čepovi i umetci Caps and inserts

370.058	čep vodilice praga	threshold guide cap	2
370.061	bočni čep krila i prihvatnik dva krila	side sash cap and two sash acceptor	9
370.060	bočni čep krila na poziciji ključanja	side stopper of sash on locking position	1
521.145	umetak za fiksno krilo	insert for fixed sash	1

### Okovi Hardware

<sup>3</sup> 521.143	kotačići Giesse (120 kg)	Bogies Giesse (120 kg)	6
124.006	Preklopni zapinjač-zasun /Stublina/	Bi-fold door latch /Stublina/	1
521.146	umetak za osovinu ključanja	insert for locking axle	2

### Brtve Gaskets

340.053	brtva u vert.pojasu rama	gasket in vert. frame zone	MH-29	2	90-90
340.054	brtva prema staklu krila	gasket to the sash glass	Lkr	6	90-90
340.055	brtva praga	threshold gasket	Lbp1=ML-Lkr-100	1	90-90
340.055	brtva praga	threshold gasket	Lbp2=ML-2Lkr-87	1	90-90
347.004	četkasta brtva	brush gasket	MH-50	1	90-90
<sup>4</sup> 347.004	četkasta brtva	brush gasket	<sup>2</sup> MH-116,5	4	90-90
347.004	četkasta brtva	brush gasket	ML-57	6	90-90

### Staklo Glass

Dimenzije stakla (kaljeni lamistal 5.5.2)	Lst x <sup>5</sup> Hst=Lkr x (MH-86.5)	3
Glass dimension (tempered laminated 5.5.2)	Lgl x <sup>5</sup> Hgl=Lsh x (MH-86.5)	3

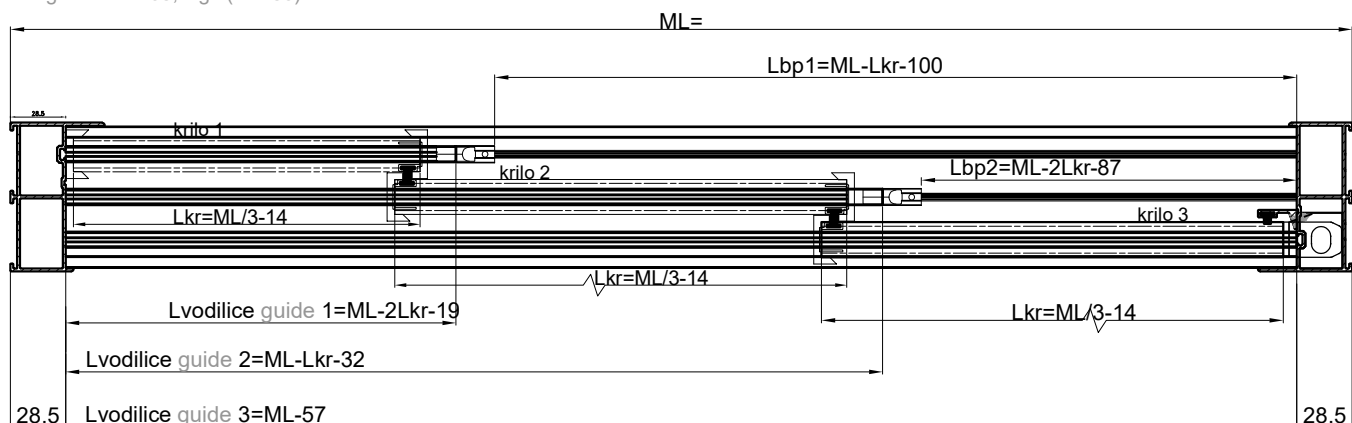
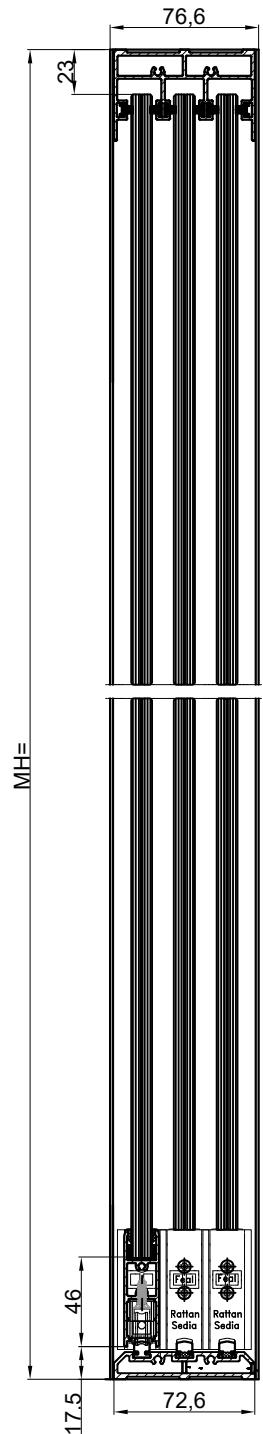
### NAPOMENE: REMARKS:

MH-visina rama MH-frame height	Lvod-duljina vodilice Lgui-guide length	Lst-širina stakla Lst-sash width	Lkr-širina krila Lkr-sash width
ML-širina rama ML-frame height	Lbp -duljina brtve praga Ltg -threshold gasket length	Hst-visina stakla Hgl-glass height	Hkr-visina krila Hkr-sash height

<sup>1</sup>Moguće koristiti vodilicu FR-108. <sup>2</sup>Kada se koristi vod. FR-108; MH-124.  
<sup>1</sup>Possible to use the guide FR-108. <sup>2</sup>When using guide FR-108; MH-124.

<sup>3</sup>Za vodilicu FR-108 koristiti Roto kotačiće 140.046 (120kg). <sup>4</sup>Moguće koristiti brtvu 374.011.  
<sup>3</sup>For guide FR-108 use Roto bogies 140.046 (120 kg). <sup>4</sup>Possible to use 374.011 gasket.

<sup>5</sup>Za vodilicu FR-108, Hst=(MH-86).  
<sup>5</sup>For guide FR-108, Hgl=(MH-86).





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## FR 18

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