

# 3 R54

## 1 General

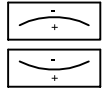
- 1.1 Calculating dimensions principles
- 1.2 Profiles
- 1.3 Profiles
- 1.4 Accessories
- 1.5 Accessories
- 1.6 Screws
- 1.7 Punches
- 1.8 Connection of lower end to building frame, alternative A
- 1.9 Connection of lower end to building frame, alternative B
- 1.10 Manufacturing connection of lower end
- 1.11 Fixing of wall to a building frame
- 1.12 Floor connection
- 1.13 Fixing of wall upper end to a frame
- 1.14 Locking of covering lists
- 1.15 Joints of facade glazing frame profiles
- 1.16 SG corner solution. Mitre joint of horizontal profiles
- 1.17 Glazing instruction
- 1.18 Installation order
- 1.19 Sealing

## 2 Lap joint



- 2.1 Structure
- 2.2 Joint
- 2.3 Connection, free angle
- 2.4 Bracing/extension/connecting pieces
- 2.5 Wall/ceiling joint
- 2.6 R54-402 sawing
- 2.7 R54 light roof
- 2.8 Joining to building frame details
- 2.9 Joining to building frame details
- 2.10 Facade and light roof joint
- 2.11 Rotating glazing profiles
- 2.12 O-frame, structure
- 2.13 Mounting of O-frame & glass support
- 2.14 Ventilation principle
- 2.15 Installation of ventilation gutter
- 2.16 Ventilation of facade glazing
- 2.17 Extensions
- 2.18 Sealing I
- 2.19 Sealing II
- 2.20 Machining and installing glazing and cover beads
- 2.21 Glazing 2K, 19-25 mm
- 2.22 Glazing 2K, 25-31 mm
- 2.23 Glazing 3K, 35-41 mm
- 2.24 Glazing 3K, 41-47 mm

- 2.25 Glazing, rotating
- 2.26 Glazing, rotating
- 2.27 Glazing, light roof
- 2.28 Glazing, light roof single pane



## 3 Butt joint



- 3.1 Structure
- 3.2 Joint
- 3.3 Connection, free angle
- 3.4 Mounting of O-frame & glass support
- 3.5 Ventilation principle
- 3.6 Ventilation of facade glazing
- 3.7 Sealing I
- 3.8 Sealing II
- 3.9 Machining and installing glazing and cover beads
- 3.10 Machining and installing glazing and cover beads
- 3.11 Glazing 2K, 19-25 mm
- 3.12 Glazing 2K, 25-31 mm
- 3.13 Glazing 3K, 35-41 mm
- 3.14 Glazing 3K, 41-47 mm
- 3.15 Partition wall, glass 6-10 mm

## 4 R54 SG

- 4.1 SG General Sika / Tremco
- 4.2 SG Structure double glazed unit Sika / Tremco
- 4.3 SG Structure triple glazed unit Sika / Tremco
- 4.4 Manufacture of insulating glass element Sika / Tremco
- 4.5 Manufacture of insulating glass element
- 4.6 SG Facade glazing
- 4.7 SG Glazing (6+15+6) , (6)
- 4.8 SG Glazing (8+15+8) , (8)
- 4.9 SG Glazing 3K (48) , (6)
- 4.10 SG Glazing 3K (52) , (8)



# GENERAL

## MATERIAL CHARACTERISTICS

### Aluminium profiles

AW-6060 T6		
Breaking strenght $f_u$ (Rm)	190 N/mm <sup>2</sup>	
Yield strenght $f_y$ (Rp 0,2)	150 N/mm <sup>2</sup>	
Elasticity modulus E	70 000 N/mm <sup>2</sup>	
Sliding factory G	27 000 N/mm <sup>2</sup>	
Density	2700 kg/m <sup>3</sup>	
Thermal expansion coefficient	23 · 10 <sup>-6</sup> / C°	
Thermal conductivity	209 W/mK	

### Thermal breaks

Recycled-PVC	
Tensile strenght	50 N/mm <sup>2</sup>
Elasticity modulus E	2500 N/mm <sup>2</sup>
Density	1400 kg/m <sup>3</sup>
Thermal expansion coefficient	0,8 · 10 <sup>-6</sup> / C°
Thermal conductivity	0,19 W/mK

### Gaskets

EPDM/cellular-EPDM	
Tensile strenght	80±5 Sh°
Elasticity modulus	10 N/mm <sup>2</sup>
Breaking strain	150 % min
Compression (22h/70°C)	25 % (max)

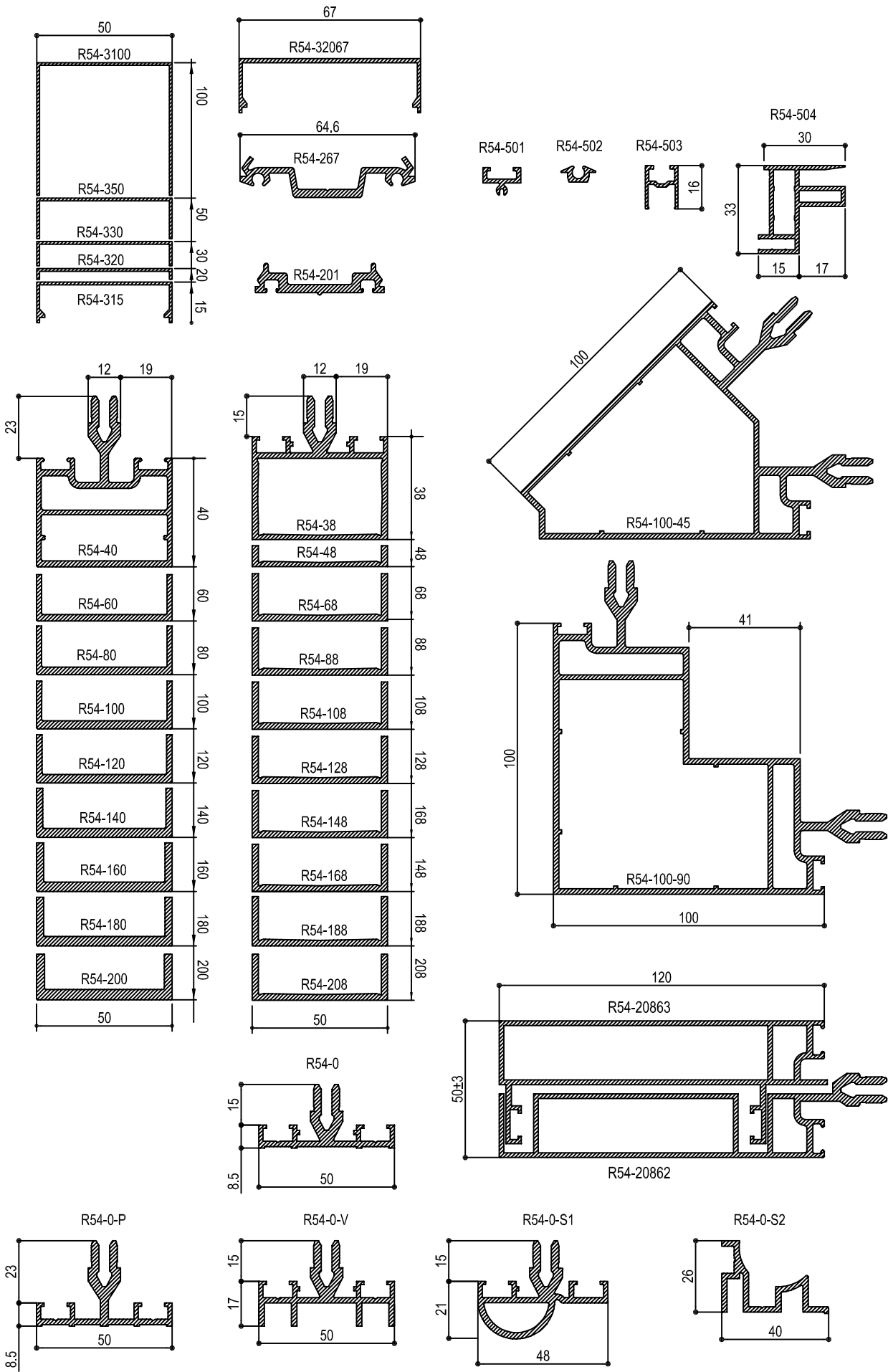
### Screws

Delta coating	DT-DS 600 (DIN 50021)
or	
Stainless steel	A2

## CROSS SECTION VALUES

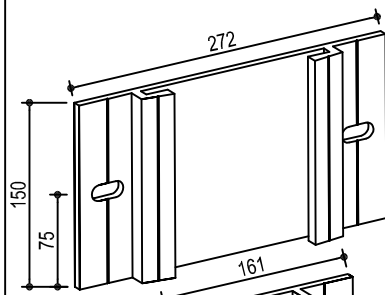
Profile	I <sub>x</sub> [cm <sup>4</sup> ]	W <sub>x</sub> [cm <sup>3</sup> ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	A [mm <sup>2</sup> ]	Kg/m
R54-40	19,28	5,39	14,04	5,61	621	1,68
R54-60	42,58	9,84	18,78	7,51	710	1,92
R54-80	82,64	15,90	23,29	9,32	800	2,16
R54-100	141,58	22,99	29,19	11,68	911	2,46
R54-120	221,48	30,80	34,94	13,97	1018	2,75
R54-140	326,94	39,98	42,17	16,87	1151	3,11
R54-160	464,98	50,53	49,58	19,83	1292	3,49
R54-180	617,12	60,12	55,02	22,01	1387	3,75
R54-200	865,92	76,84	69,53	27,81	1674	4,52
R54-38	12,09	4,30	12,72	5,09	488	1,32
R54-48	20,00	6,22	15,19	6,07	531	1,44
R54-68	43,82	10,32	20,11	8,04	617	1,67
R54-88	79,90	14,89	25,04	10,01	703	1,9
R54-108	130,10	20,15	29,96	11,98	789	2,13
R54-128	196,22	26,05	34,89	13,96	875	2,36
R54-148	280,11	32,59	39,81	15,93	961	2,59
R54-168	383,56	39,77	44,74	17,90	1047	2,83
R54-188	529,99	51,40	52,45	20,98	1293	3,49
R54-208	681,25	59,90	57,37	22,95	1379	3,72
R54-460	10,53	5,74	9,67	4,55	802	2,11
R54-480	33,60	11,68	12,38	5,83	904	2,44
R54-4100	74,51	19,00	14,72	6,93	1051	2,84
R54-4120	134,07	26,57	15,13	7,12	1127	3,04
R54-4140	217,08	35,55	17,48	8,23	1275	3,44
R54-4160	326,63	46,38	19,81	9,32	1426	3,85

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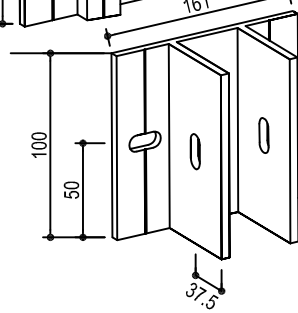
01.07.2013





R54-702

Bed for fixing piece

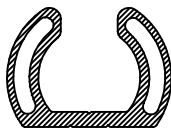
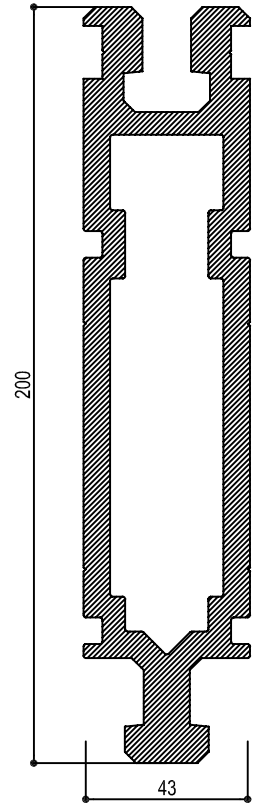
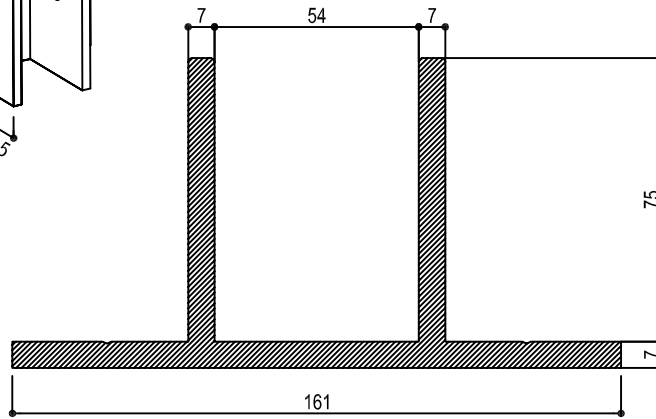


R54-701

Wall fixing piece

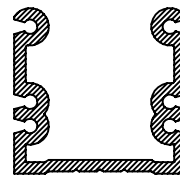
R54-19849

Wall fixing profile



R54-428

Optional angle T-joint profile  
length 6,6 m



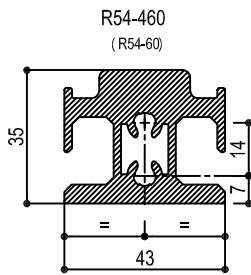
R54-401

Connection profile  
length 6,6 m

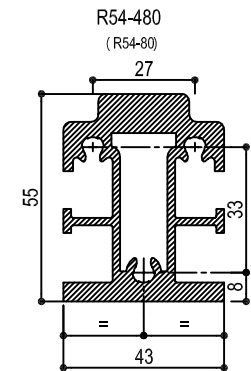
R54-402

Optional angle joint profile 90-180°  
length 3,3 m

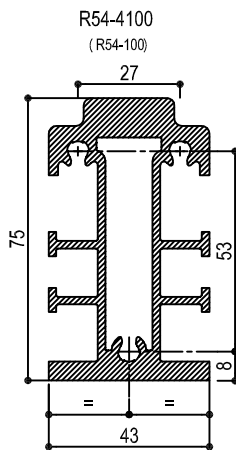
Reinforcement / joint profiles  
length 6,6 m



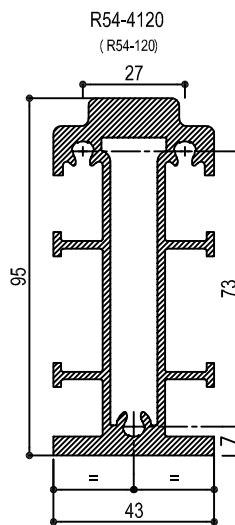
R54-460  
(R54-60)



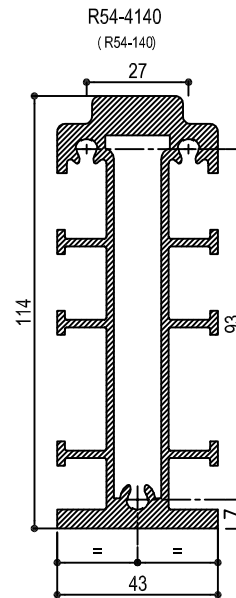
R54-480  
(R54-80)



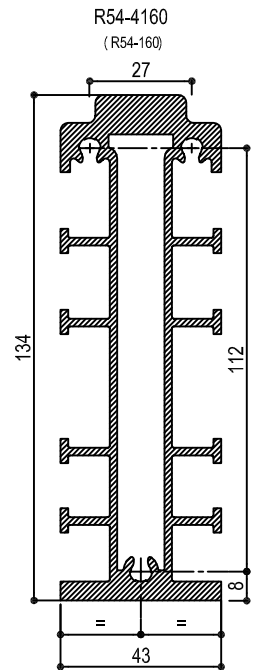
R54-4100  
(R54-100)



R54-4120  
(R54-120)

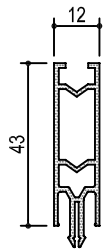


R54-4140  
(R54-140)



R54-4160  
(R54-160)

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R54-L43  
Thermal break profile

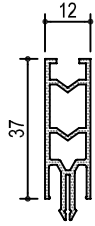
length 6,6 m plastic



P15 Inner gasket



P13 Inner gasket



R54-L37  
Thermal break profile

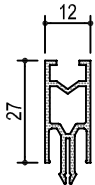
length 6,6 m plastic



P11 Inner gasket



V7 Inner gasket



R54-L27  
Thermal break profile

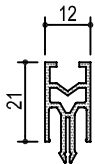
length 6,6 m plastic



V5 Inner gasket



V3 Inner gasket

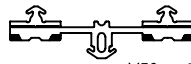


R54-L21  
Thermal break profile

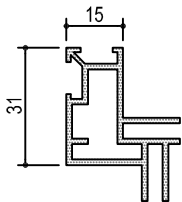
length 6,6 m plastic



P50 Outer vertical gasket



V50 Outer horizontal gasket



R54-KJL  
Frame profile

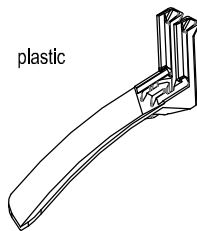
length 6,6 m plastic



U5 Outer gasket

N50si-TK  
Ventilation piece

plastic



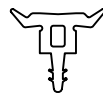
TL50 Lap joint gasket



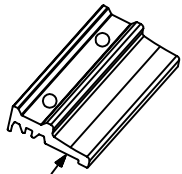
TJL Blind part gasket



TKT Corner sealing gasket

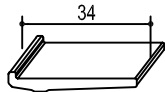


TSG SG - gasket

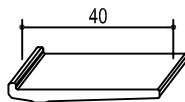


R54-SG  
SG-fixing piece, normal

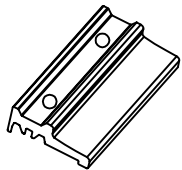
NOTE! Mark



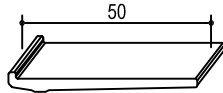
R54-LT34 Glass support piece  
L=100 mm



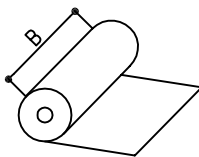
R54-LT40 Glass support piece  
L=100 mm



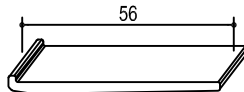
R54-SG-JL  
SG-fixing piece, facade glass



R54-LT50 Glass support piece  
L=100 mm



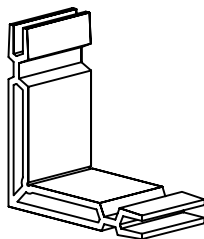
R54-TR  
Sealing strip EPDM  
B x L = 1 x 25 m



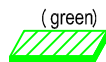
R54-LT56 Glass support piece  
L=100 mm



(blue)  
R54-K26 Glazing pad



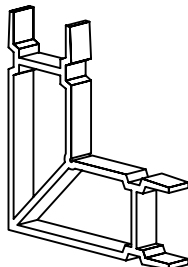
R54-802  
Joint piece for rim profile (triple glazing)



(green)  
R54-K32 Glazing pad



(yellow)  
R54-K42 Glazing pad

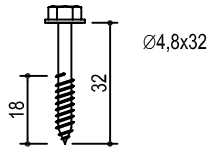


R54-803  
Joint piece for rim profile (double glazing)



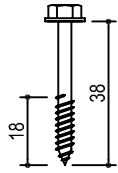
(orange)  
R54-K48 Glazing pad

GLAZING 19-25 mm



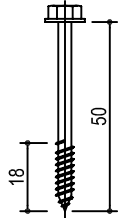
Ø4,8x32

GLAZING 25-31 mm



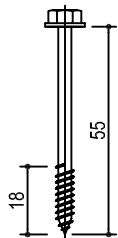
Ø4,8x38

GLAZING 35-41 mm



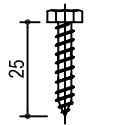
Ø4,8x50

GLAZING 41-47 mm



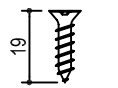
Ø4,8x55

INTERNAL WALL



Ø4,8x25

SG GLAZING



Ø4,8x19

MOUNTING OF VENTILATION GUTTER



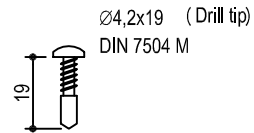
Ø4,8x13

BRACING / EXTENSION PROFILE SCREW



Screws Ø 6.3 x XX  
Capacity must be checked

LAP JOINT



Ø4,2x19 (Drill tip)  
DIN 7504 M

BUTT JOINT



Ø4,2x19  
DIN 7981 C

MOUNTING OF HORIZONTAL FRAME (REAR END)



Ø4,2x16 (Drill tip)  
DIN 7504 M

MOUNTING OF CONNECTION



Ø4,2x16 (Drill tip)  
DIN 7504 M

MOUNTING OF O-FRAME, VERTICAL: LAP JOINT  
VERTICAL/HORIZONTAL BUTT JOINT



Ø4,2x13  
DIN 7981 C

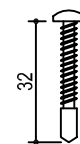


Ø4,2x19 (Drill tip)  
DIN 7504 M

MOUNTING OF O-FRAME, HORIZONTAL: LAP JOINT



Ø4,2x22  
DIN 7981 C



Ø4,2x32 (Drill tip)  
DIN 7504 M

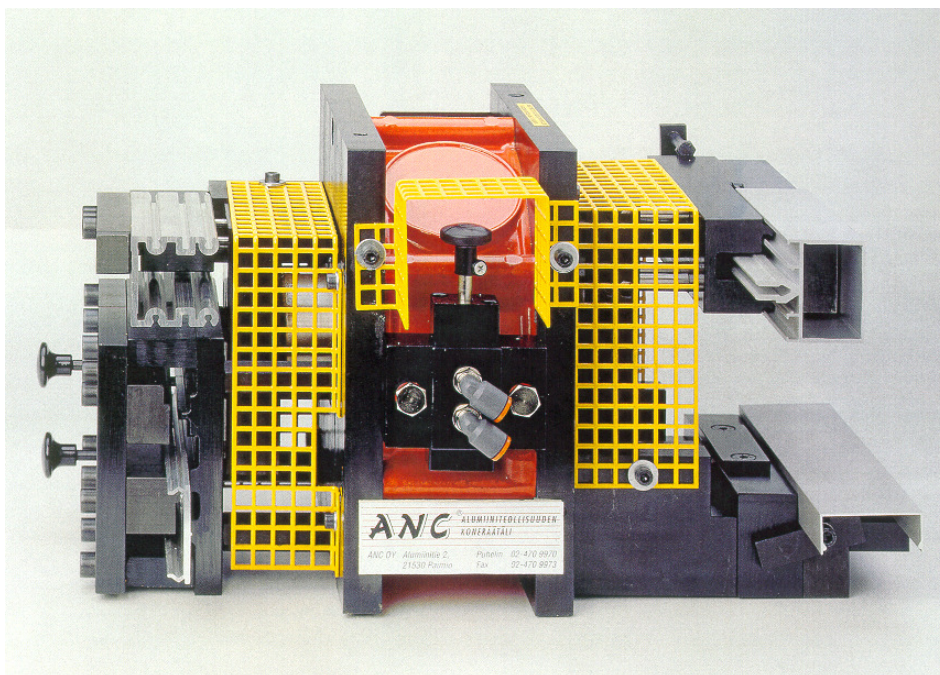
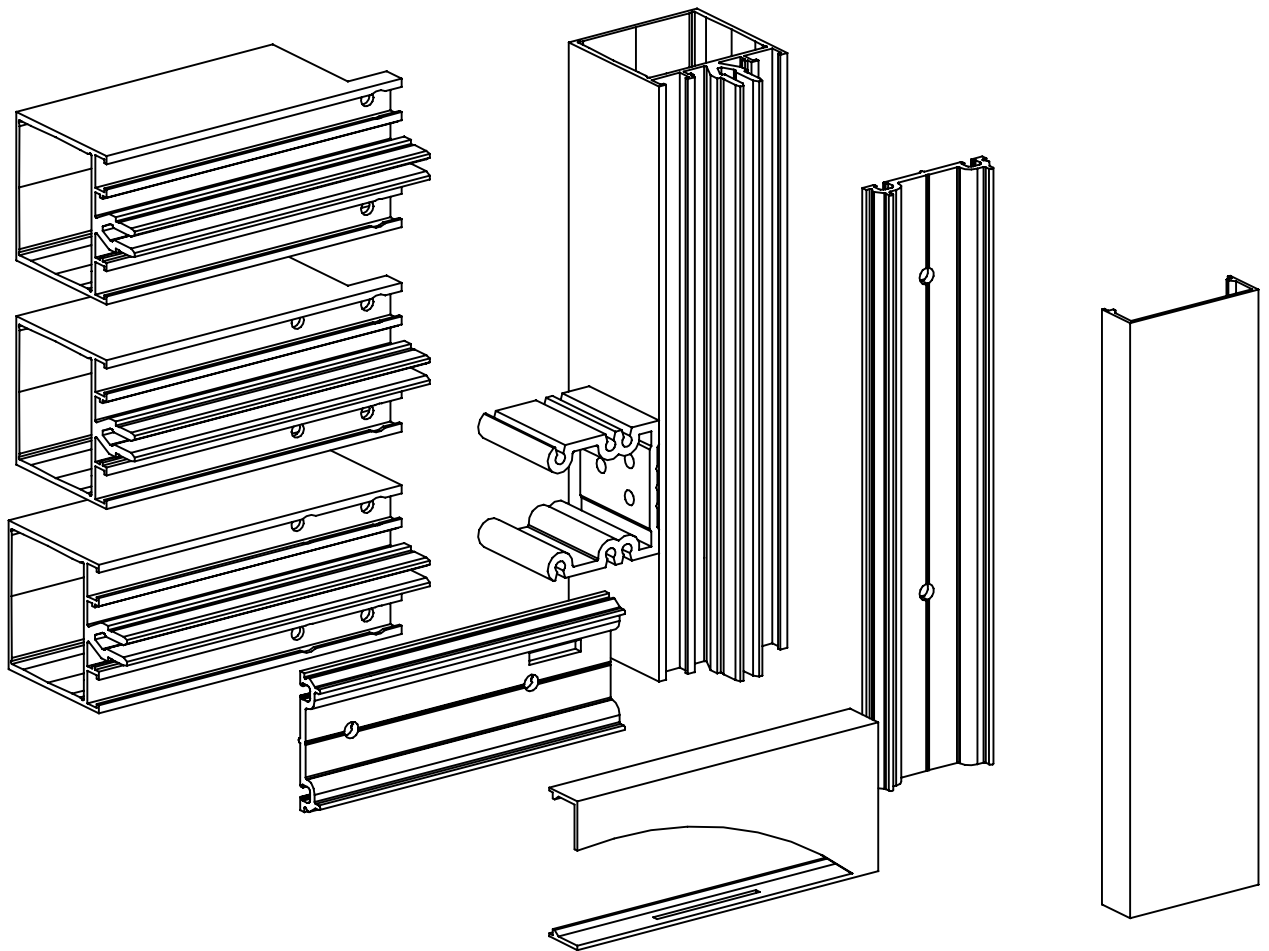
MOUNTING OF O-FRAME, VERTICAL AND HORIZONTAL FRAMES  
(THICK MATERIALS)

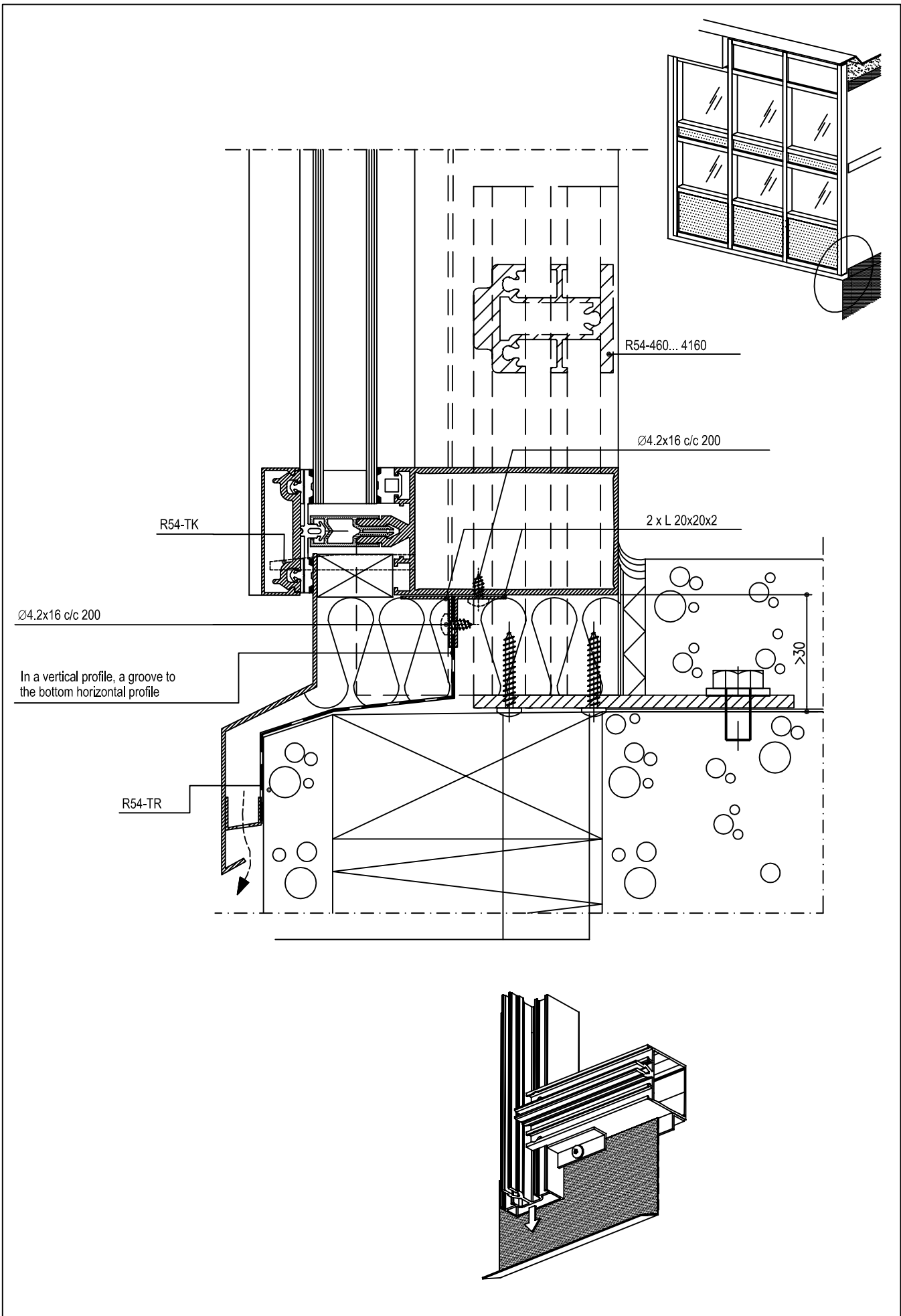


( Thread-moulding screw)

FINISHING

Multifunction press for R54 system



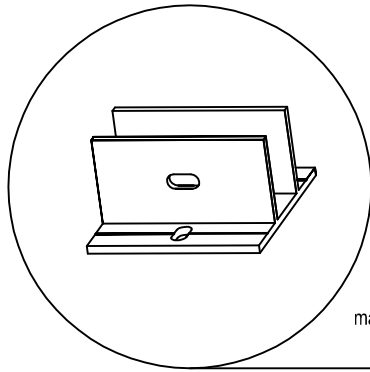


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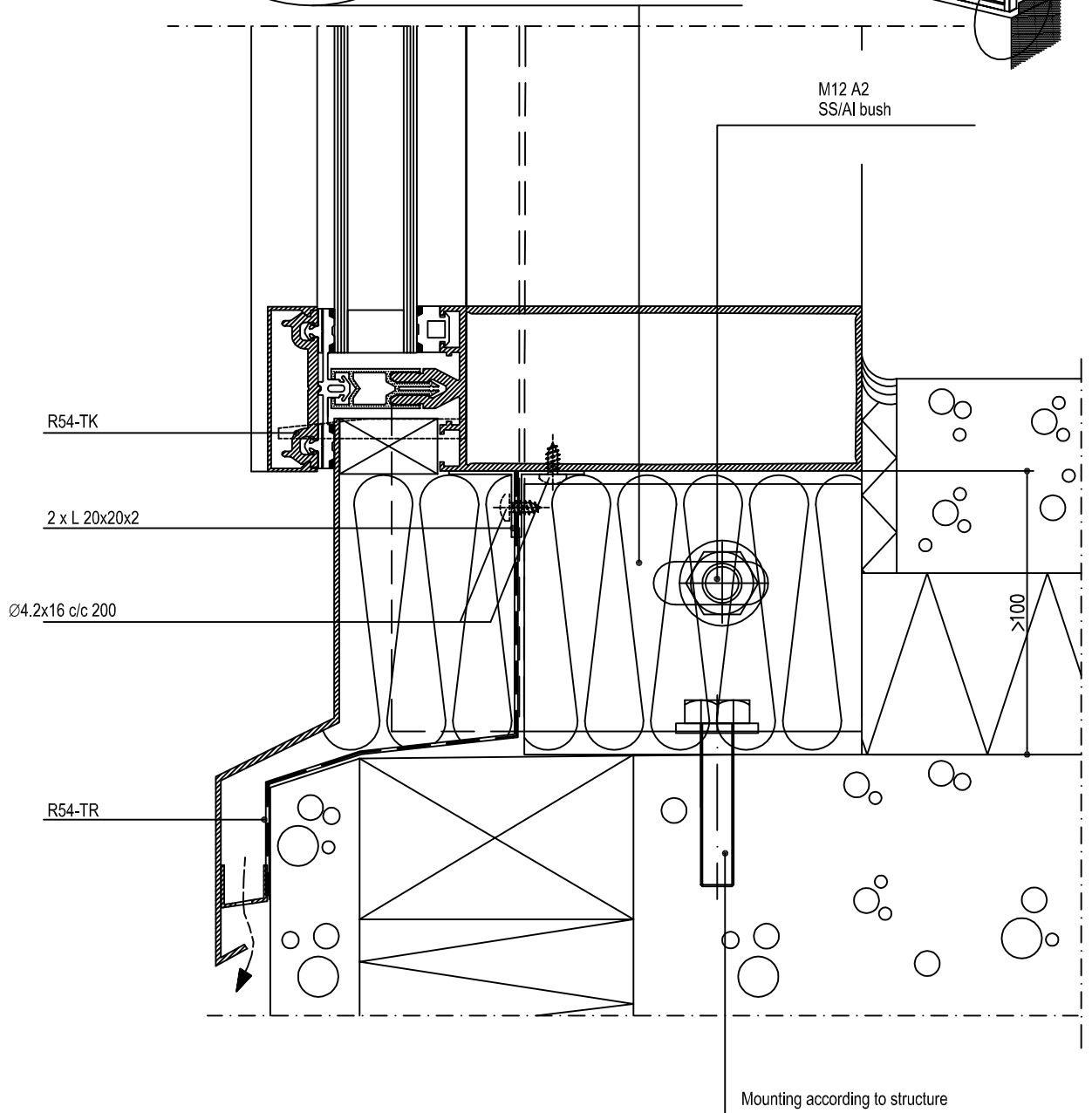
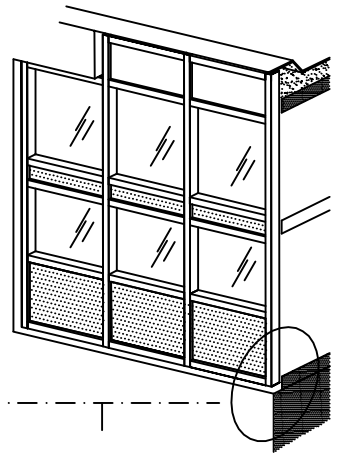
**R54** 1.8

**NOKIAN**  
PROFILES

Connection of lower end, alternative A

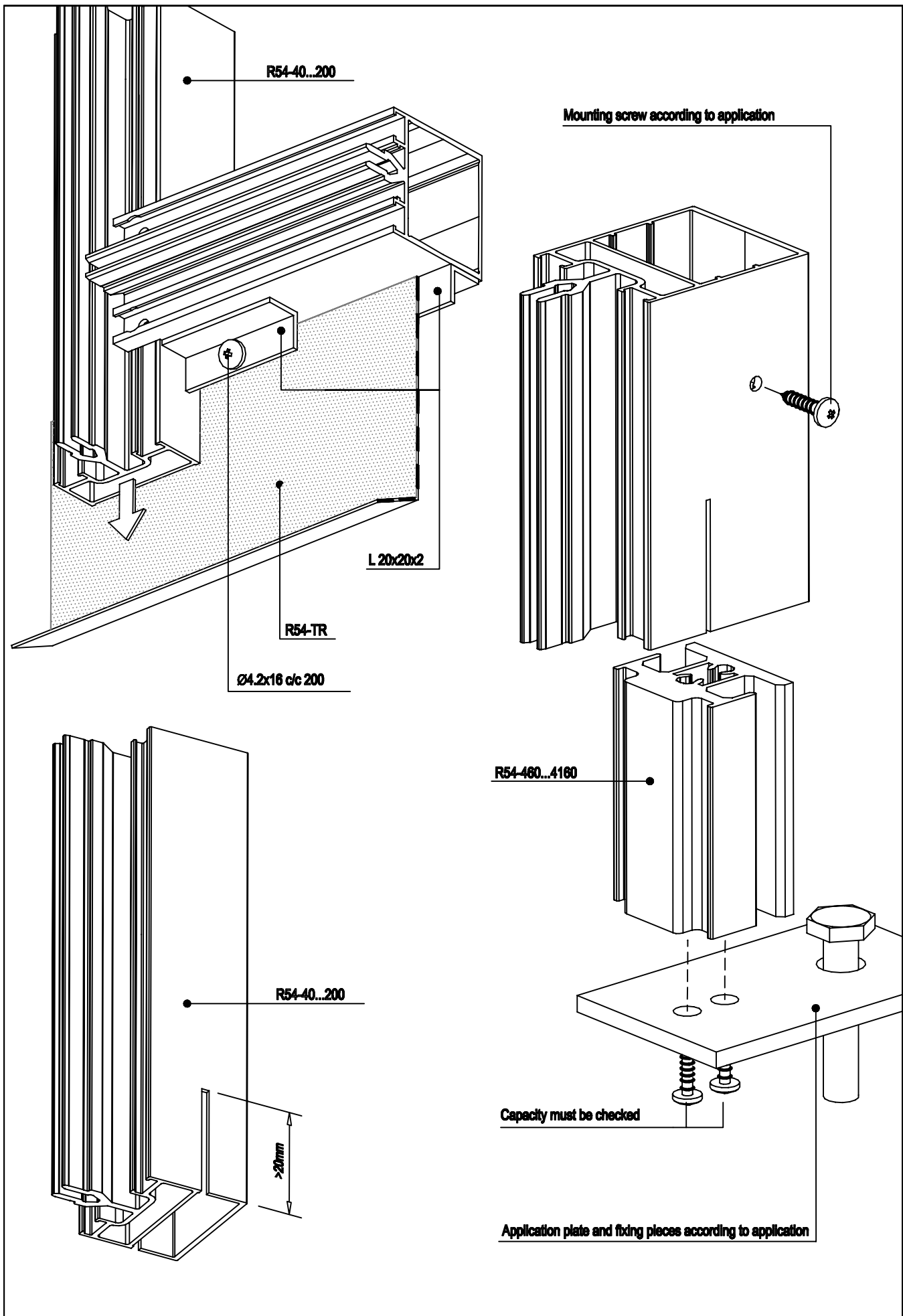


machined



01.07.2013





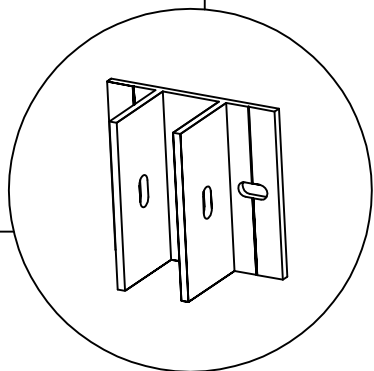
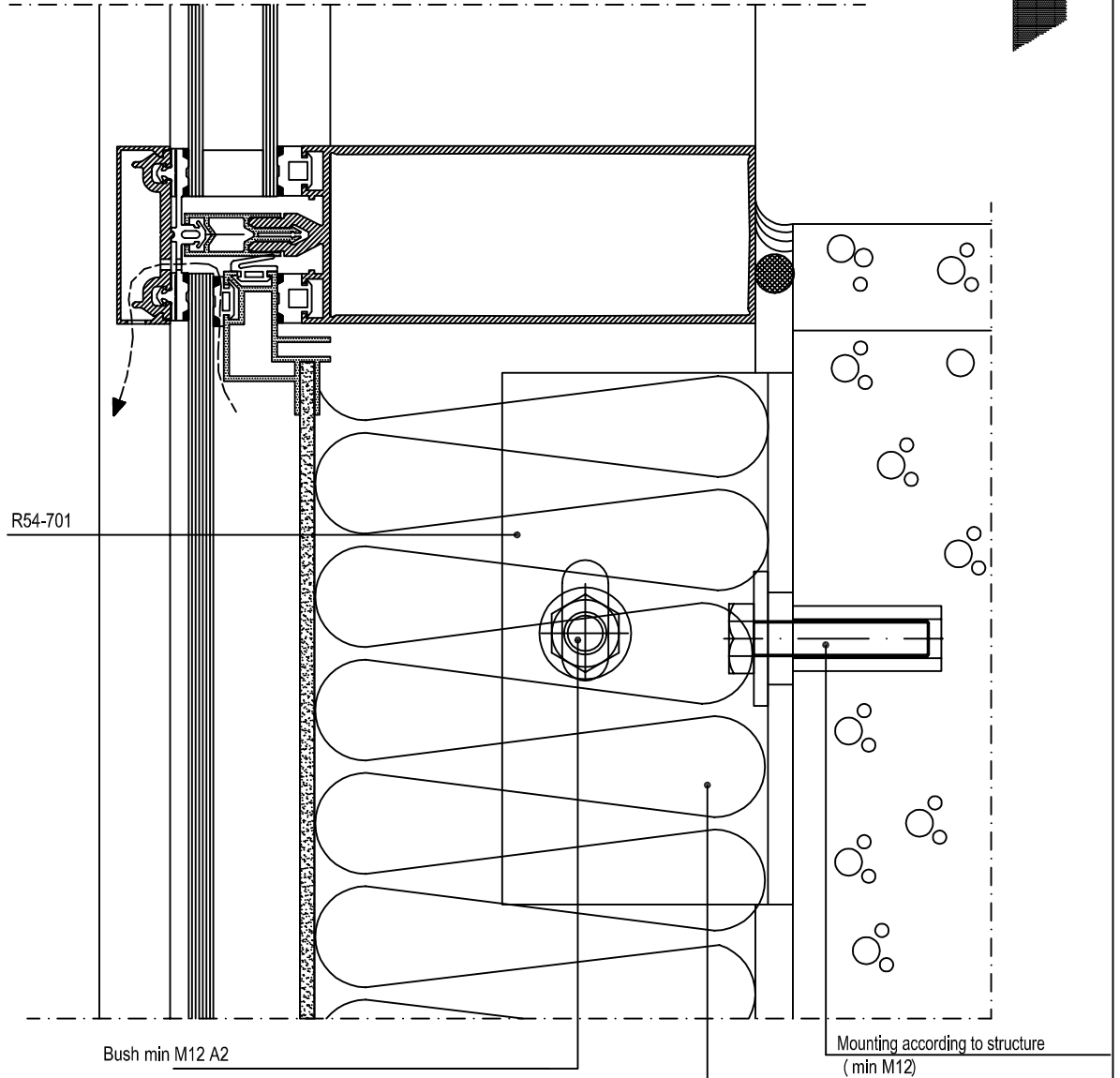
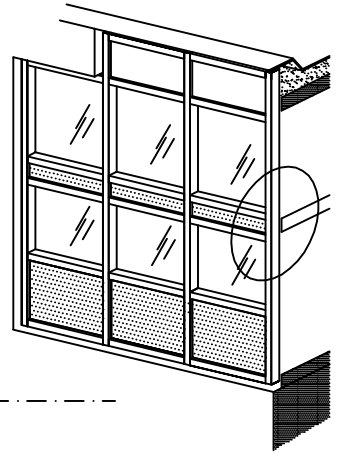
01.07.2013

**R54** 1.10

**NOKIAN**  
PROFILES

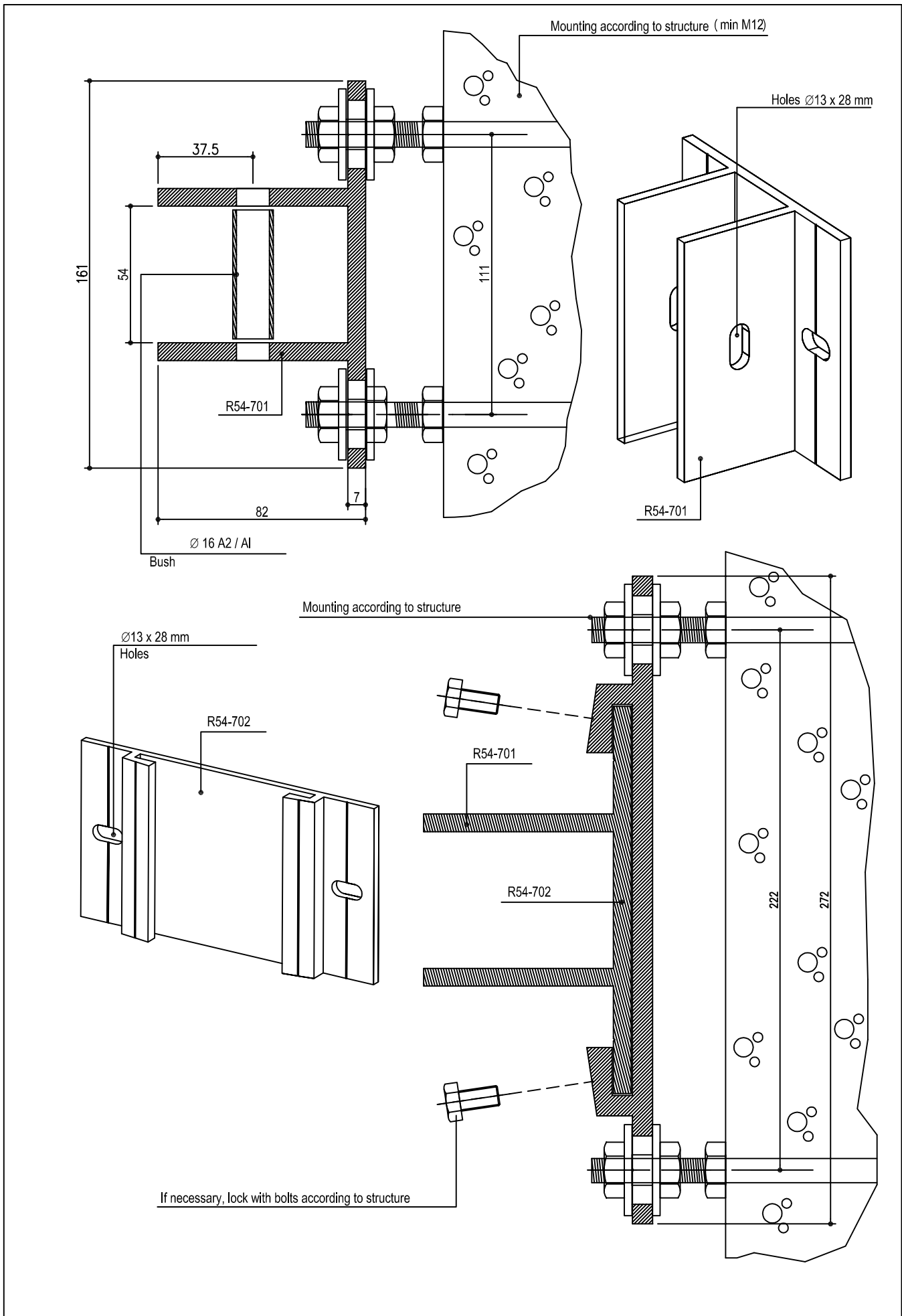
Manufacturing of lower connection



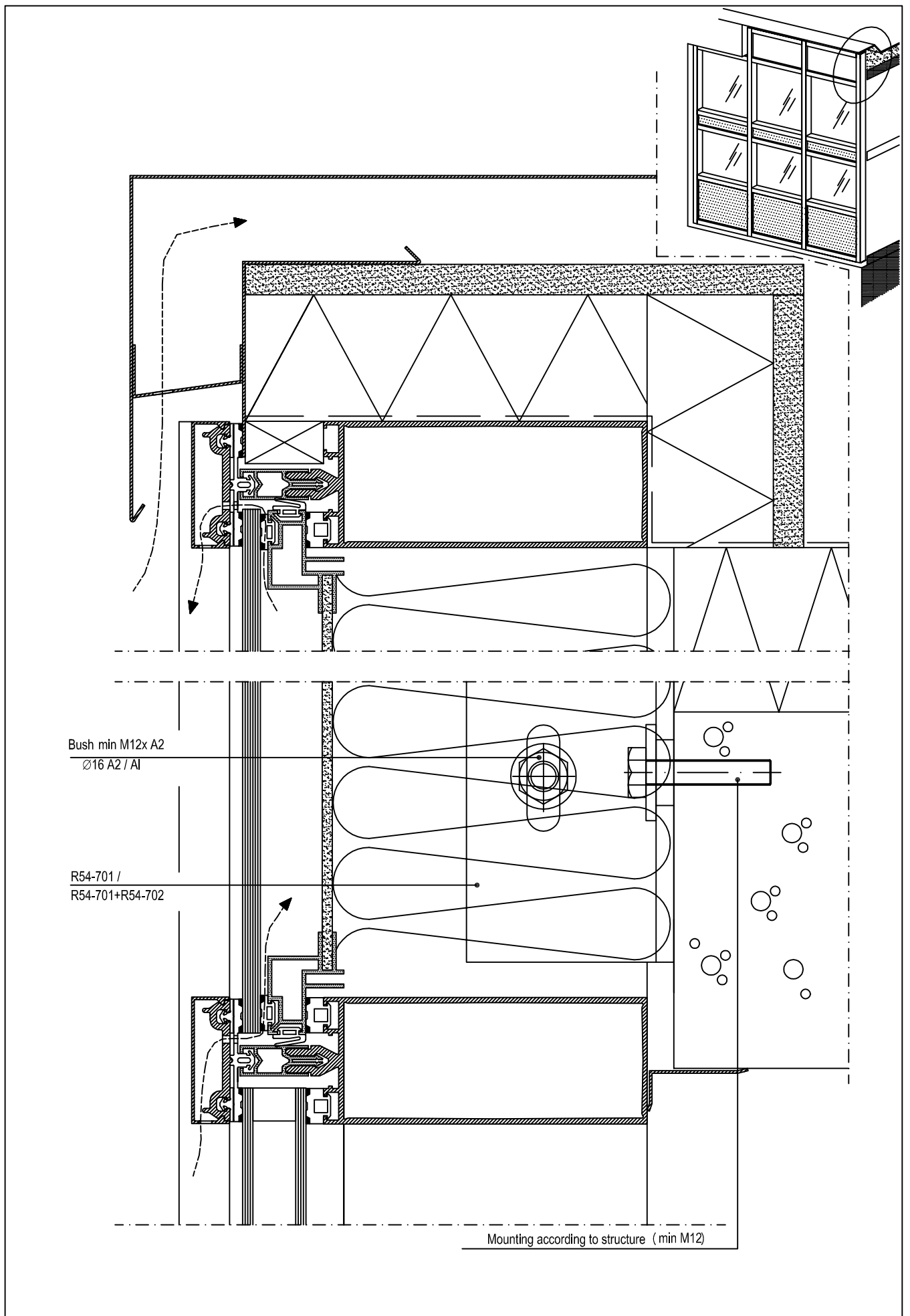


R54-701 /  
R54-19849 (mached)

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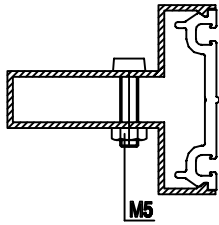


01.07.2013

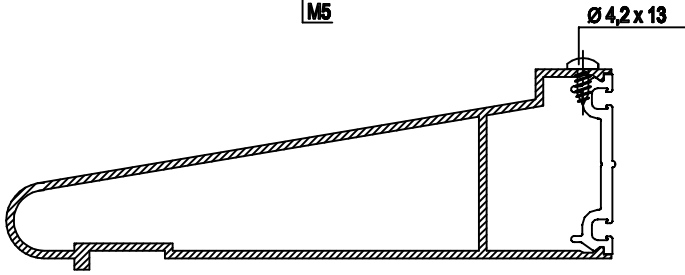
Fixing of upper end to the frame

**NOKIAN**  
PROFILES

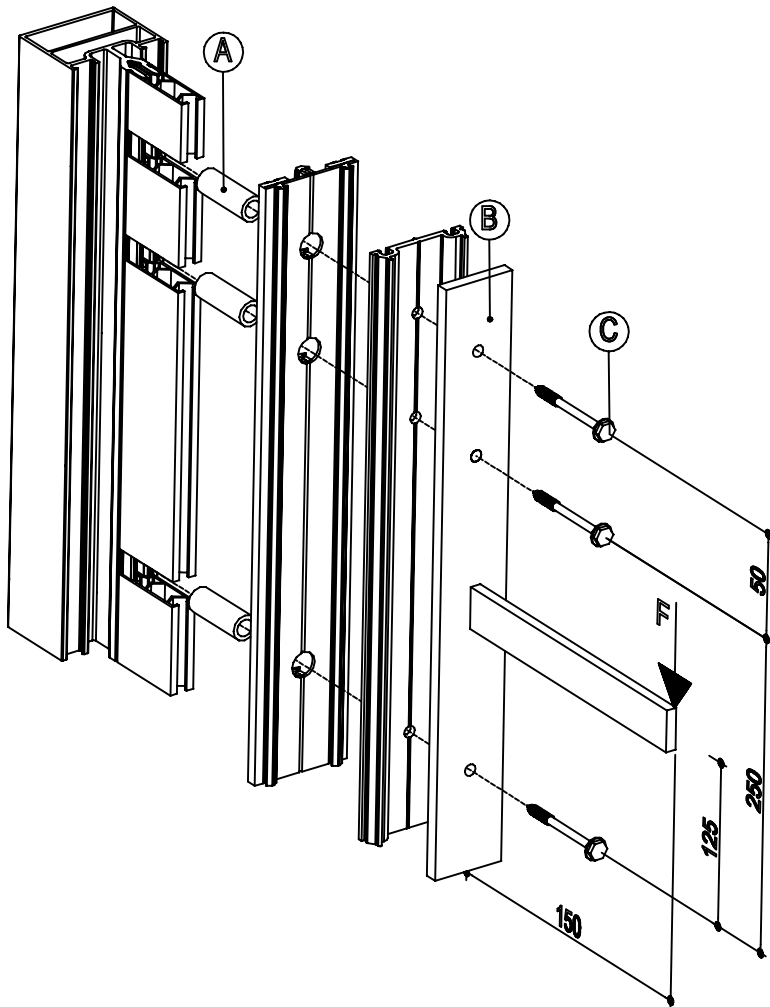
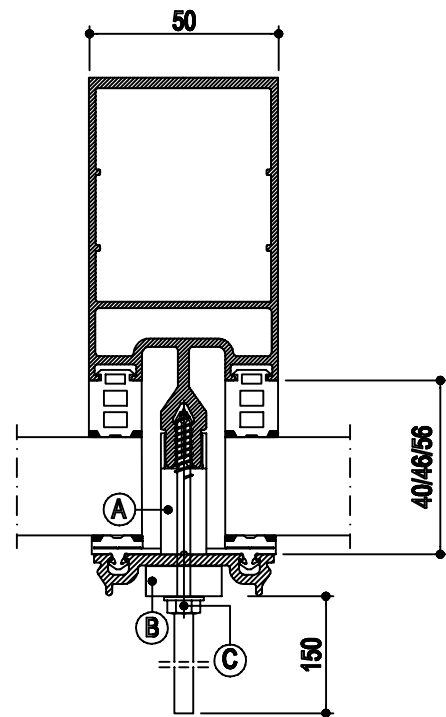
**R54 1.13**



Vertical mounting of high horizontal covers must be mechanically secured.



Glass space	(A)	(B)	(C)
	stainless steel bush	stainless steel flat	glazing screw
40 mm	Ø12x23 mm	20x5 mm	Ø4.8x38
46 mm	Ø12x29 mm	20x8 mm	Ø4.8x50
56 mm	Ø12x39 mm	20x5 mm	Ø4.8x55



With figure dimensions

F<sub>max</sub>=50 kg

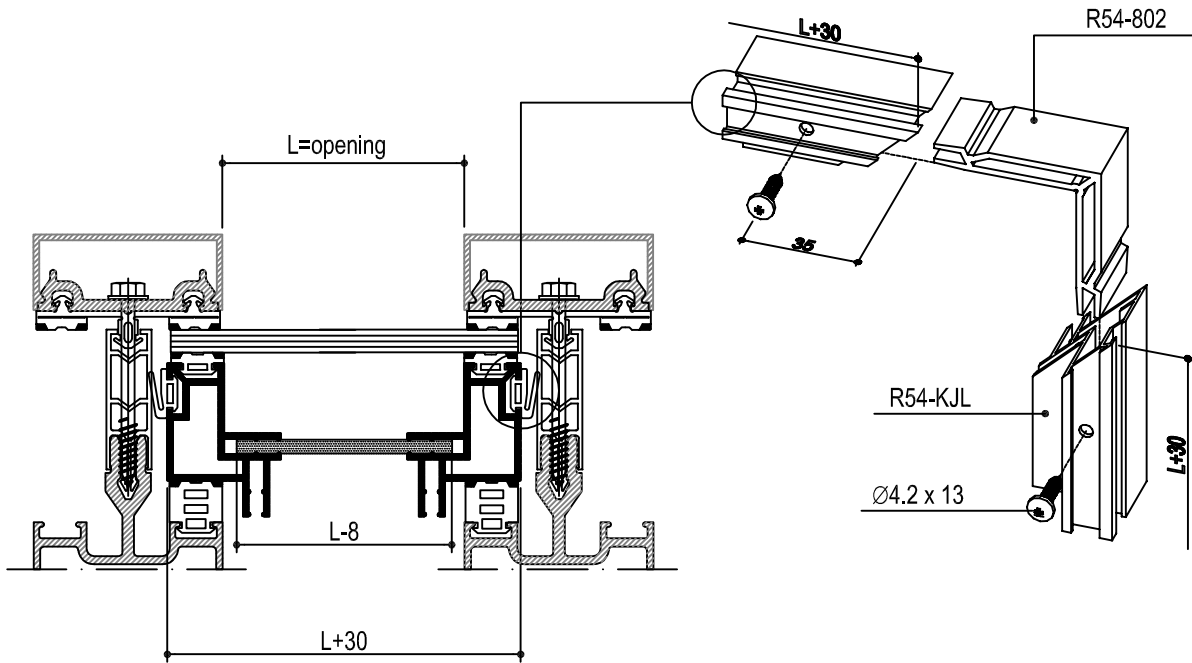
01.07.2013

**R54 1.14**

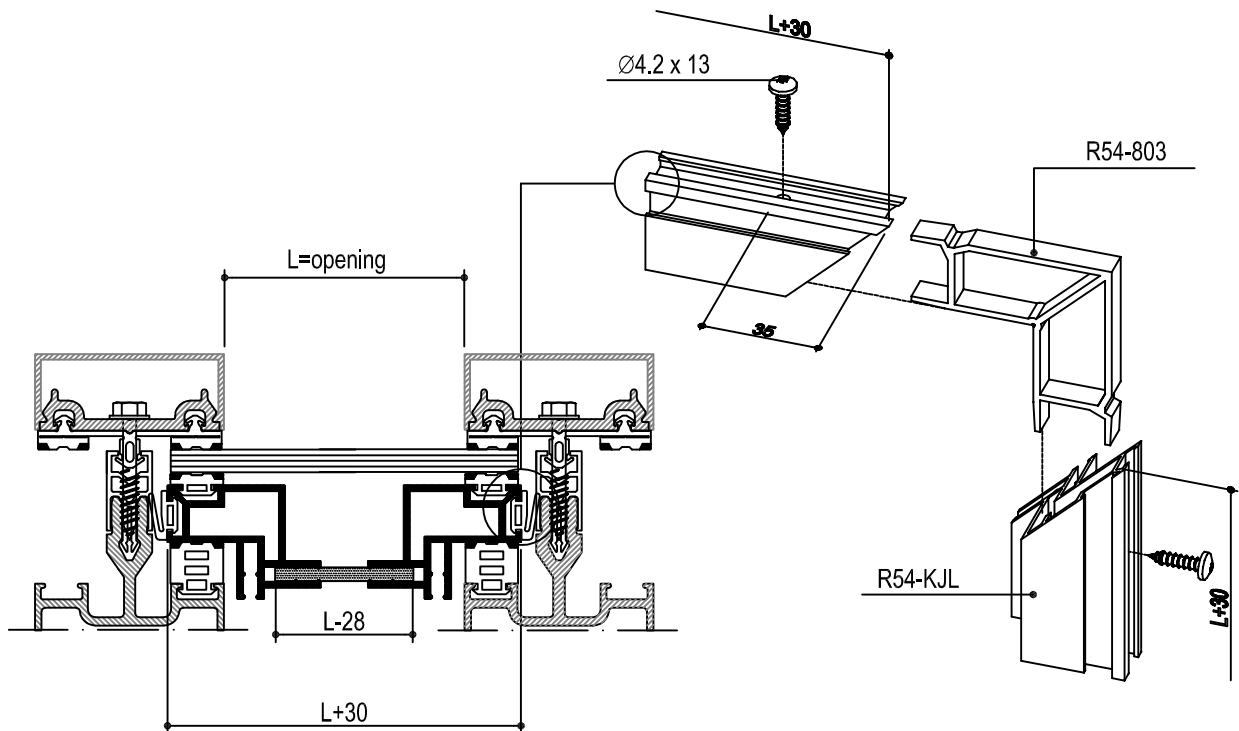
**NOKIAN**  
PROFILES

Locking of covering lists, mounting of slats/advertisements

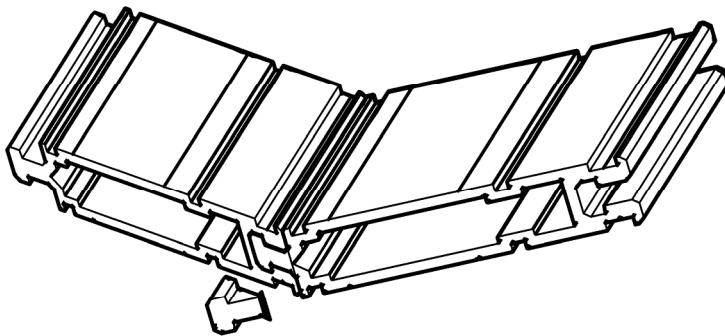
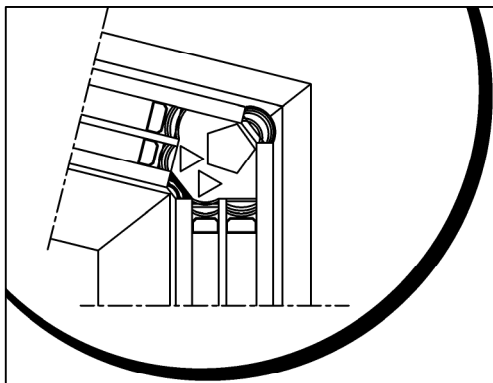
3K



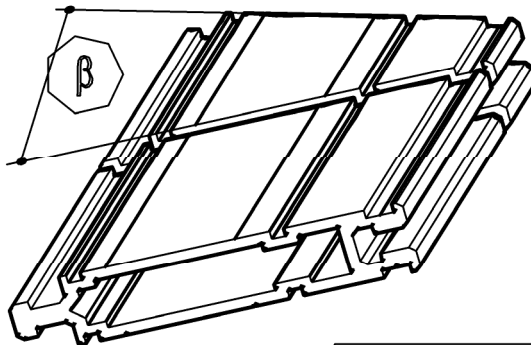
2K



01.07.2013

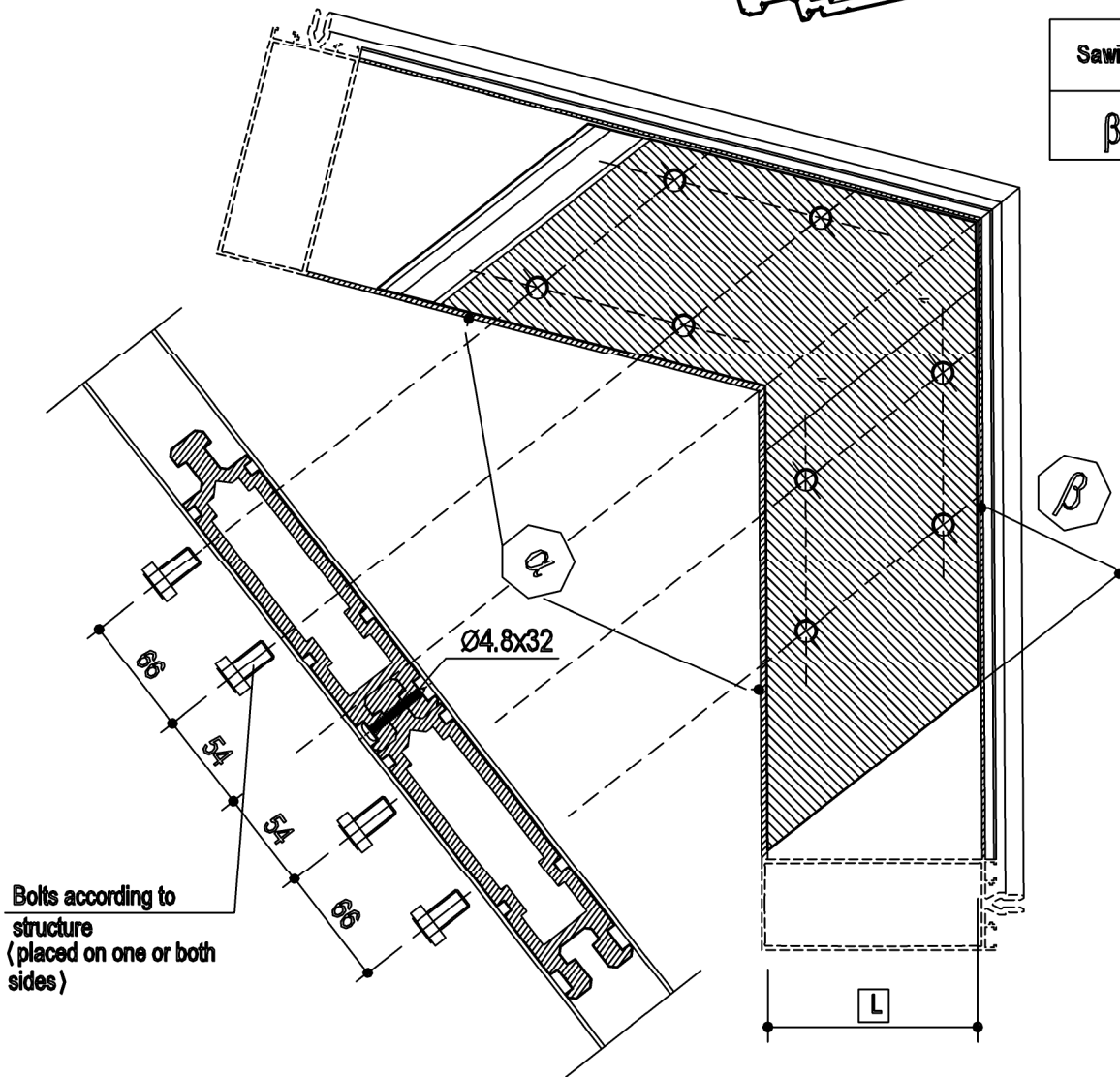


Frame profile	Length L [mm]
R54-38	27,5
R54-48	37,5
R54-68	57,5
R54-88	77,5
R54-108	97,5
R54-128	117
R54-148	137
R54-168	157
R54-188	2x87
R54-208	2x97



Sawing angle  $\beta$

$$\beta = \alpha/2$$



01.02.2018

**R54** 1.16

**NOKIAN**  
PROFILES



SG corner solution.  
Mitre joint of horizontal profile

## GENERAL

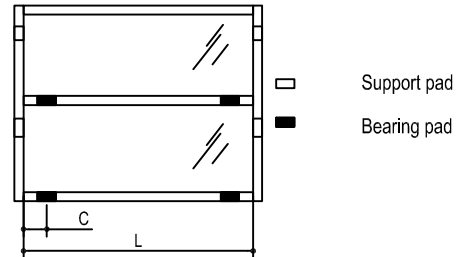
When starting the glazing, make sure that the rabbets, glazing beads and glass is clean.

The installation base must be completely straight. The sealing materials used in the installation must be compatible with each other and must not create any adverse chemical reactions.

## GLAZING

### PAD TYPES

- Bearing pads, which transfer the weight of the pane to the frame
- Support pads, which prevent the pane from moving when in use

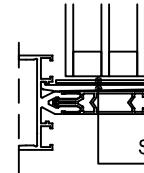
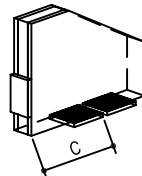
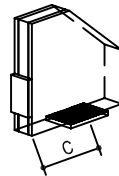


### Bearing pads

Bearing pads must be R54 system bearing pads R54-K26...K42. Under the bearing pad is always used AINA glass support pieces R54-LT34...LT56, except in partition walls. Selecting support pads and pieces is shown more detailed at picture pages of glazing. Placement of support pads is shown in attached figure.

Capacity of bearing pads:

Support pieces	Max. weight of glass element [kg]
R54-LT34	180
R54-LT40	160
R54-LT50	120
R54-LT56	80



Support pad and -piece

When  $L < 2500$  mm,  $C = 100$  mm  
When  $L > 2500$  mm,  $C = L/8$  mm

NOTICE! WHEN USING 0-FRAME, CHECK INSTRUCTIONS FROM PAGE 2.13 AND 3.4

### Support pads

The length of the supporting pads can be 50-100 mm depending on the size of the pane, and the width the same as the bearing pads.

Supporting pads must be made out of flexible material, and they must not impede the function of the bearing pads.

### Gaskets

When cutting the glazing sealing, a shrinkage allowance of 0,5% must be observed.

Corners and joints of gaskets must be sealed from joint surfaces by sealing mass.

When installing the gaskets, amount of joints must be minimized.

All materials which are used in sealing must be approved by Nokian Profiles.

### Butyle tapes

At variable angled walls and sky lights is butyle tape always used under the outer gaskets.

At walls butyle tape is used in vertical frames and in sky lights in vertical and horizontal frames.

When using outside the sealing U5, put in the crossing horizontal butyl band  $l=250$ .

The overlap between butyle tape and glass must be at least 5 mm. The surface of the glasses must be absolutely dry and clean during the fastening. In skylights continuous butyle tape is installed across the crossings.

Open the holes in the butyl tape at the glazing bead screw positions to prevent rotation of butyl tape around glazing screws.

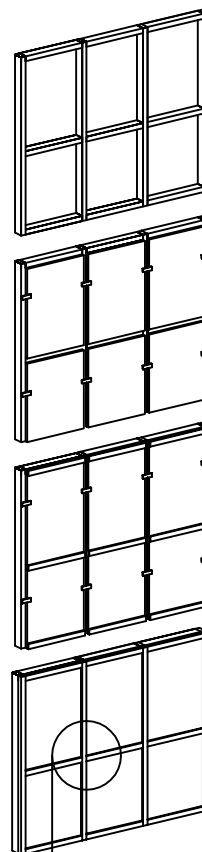
### Glazing beads

Installing the glazing beads according to machine-shop folder instructions.

These glazing introductions are in principal only.

We accept no responsibility for actual glazing work that we are not personally supervising.

- ① Inner gaskets, thermal brakes and glass bearing pieces and -pads
  
- ② Overlapping glasses/glass elements are fixed with temporal fixing pieces (you can also move on straight to stage 3.)
  
- ③ Install the outer horizontal gaskets and glazing beads.
  
- ④ Remove the temporal fixing pieces.
  
- ⑤ Install the outer vertical gaskets and glazing beads.



next page



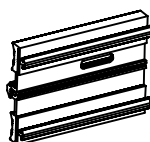
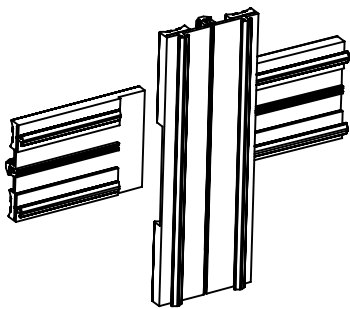


Gasket joints are cut by special scissors:

SWR-33-04 Cross joints

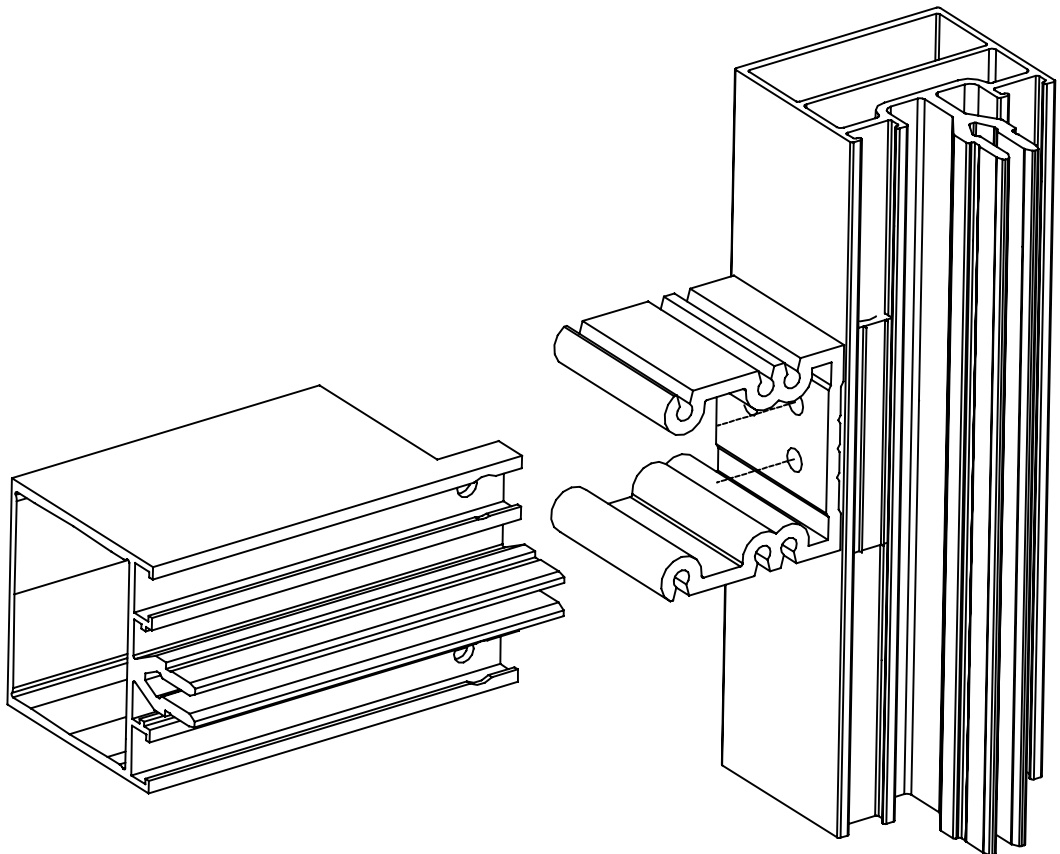
WL-33-04 ventilation holes  
to gaskets

TI-58-04 Straight cutting  
of gaskets

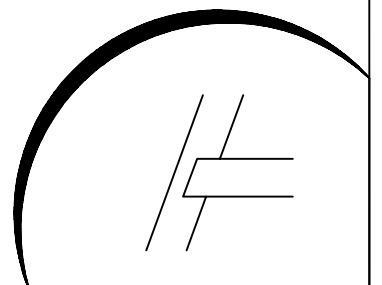




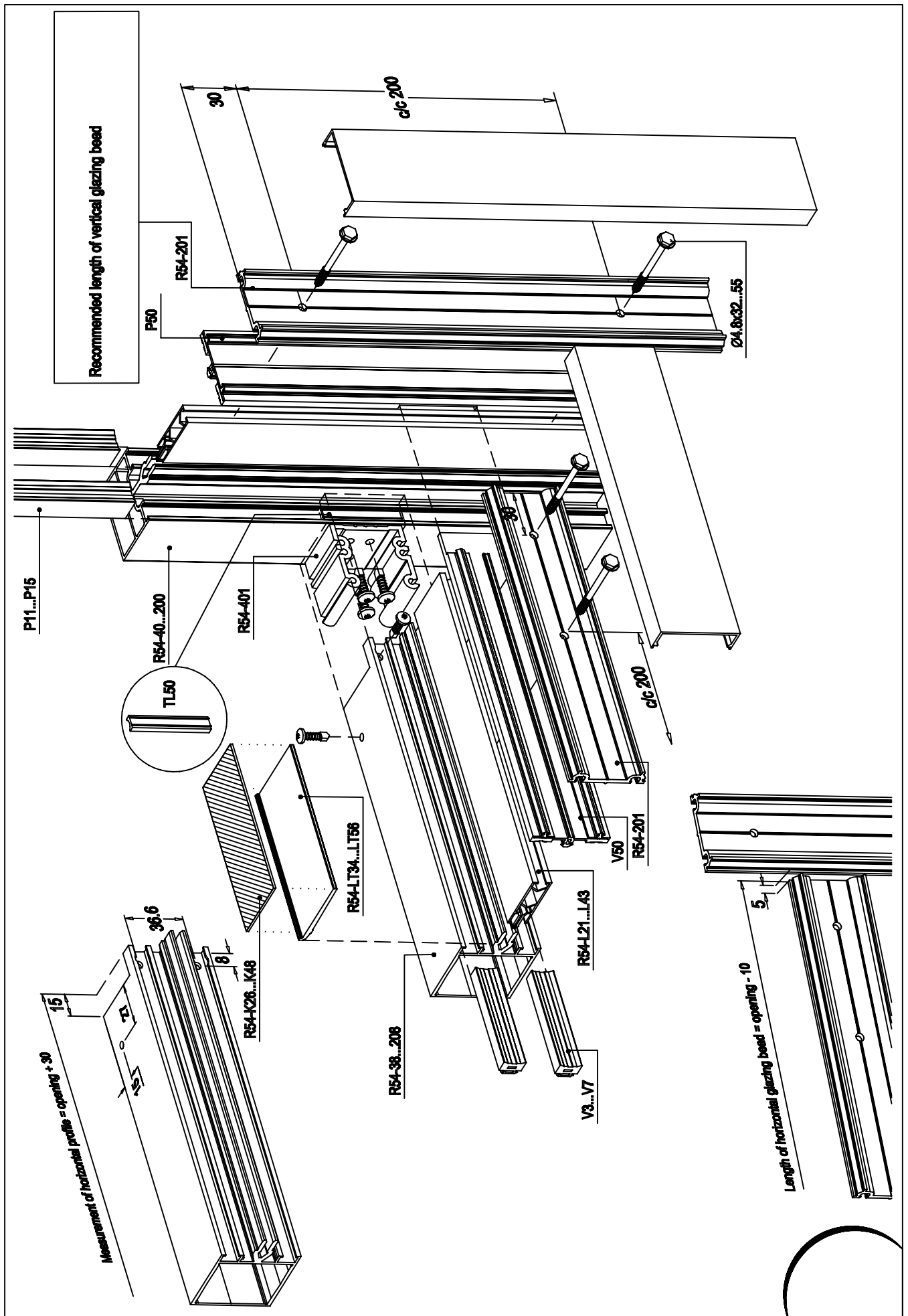
# Lap joint



01.07.2013

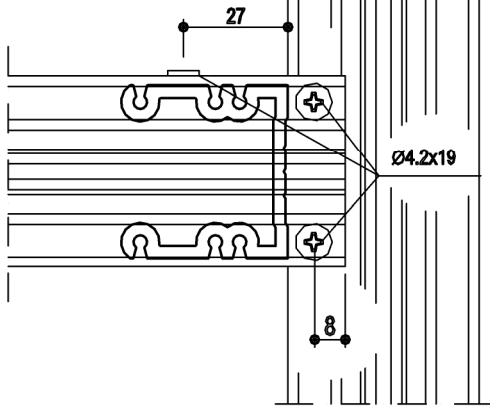




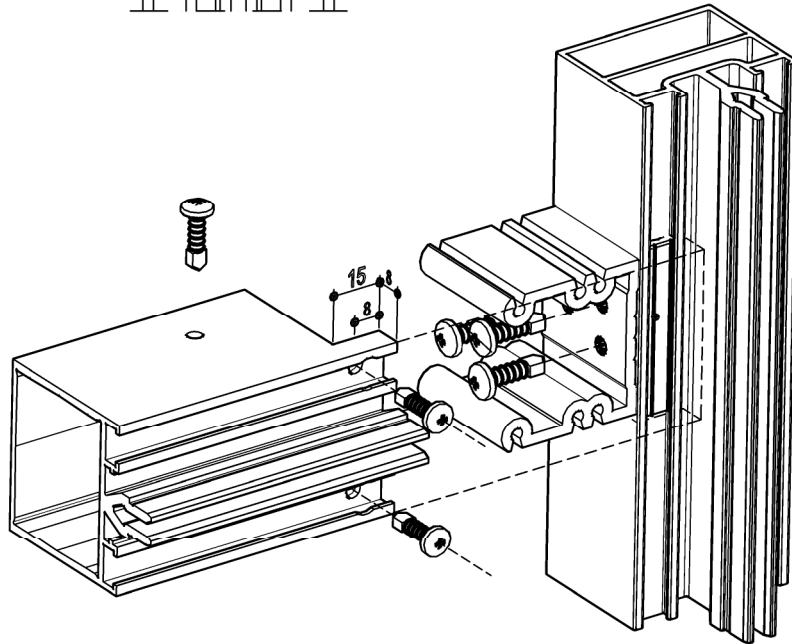
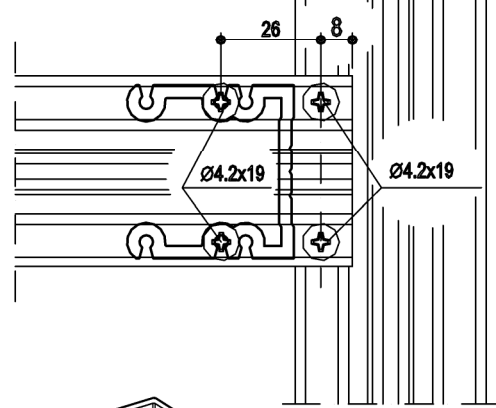


01.07.2013

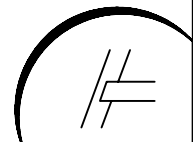
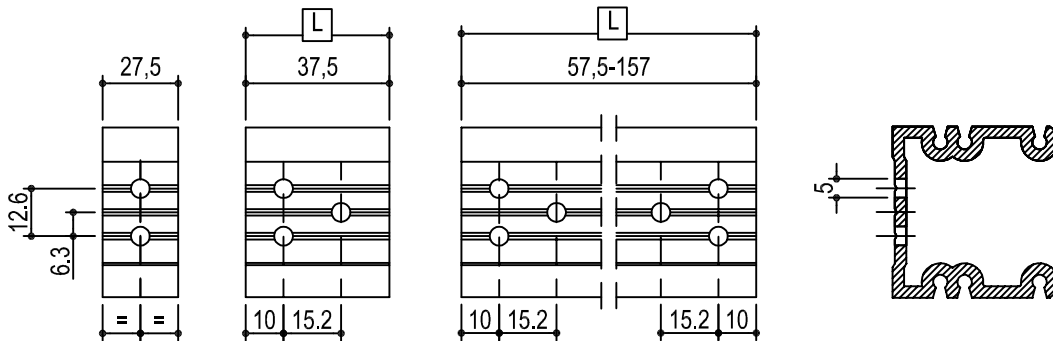
Alternative



Alternative



Frame profile	Nominal length of connection piece $L$	R54-401
R54-38	27,5	
R54-48	37,5	
R54-68	57,5	
R54-88	77,5	
R54-108	97	
R54-128	117	
R54-148	137	
R54-168	157	
R54-188	87 + 87	
R54-208	97 + 97	

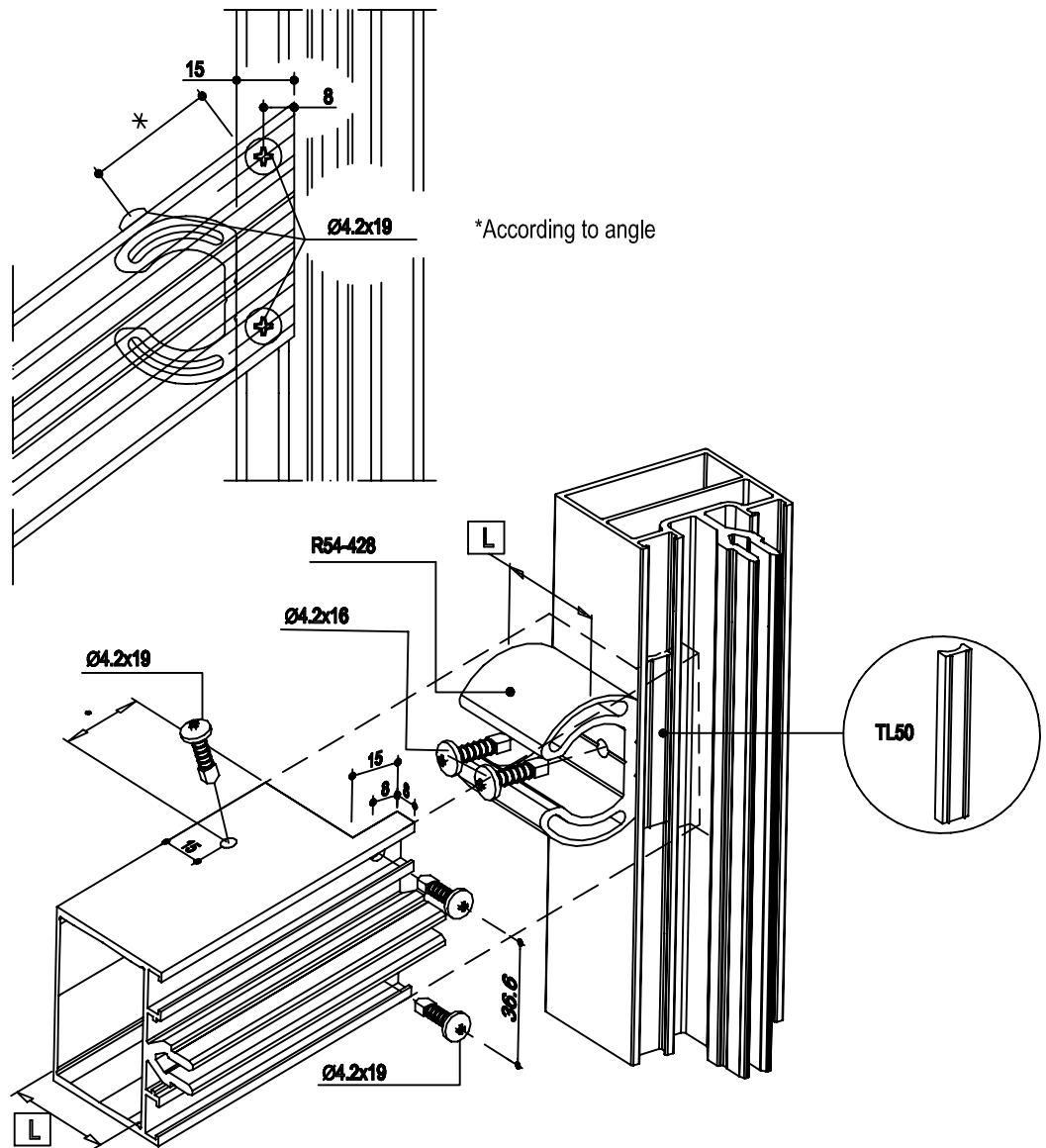


01.02.2018

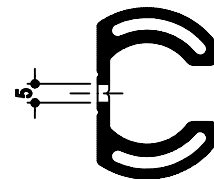
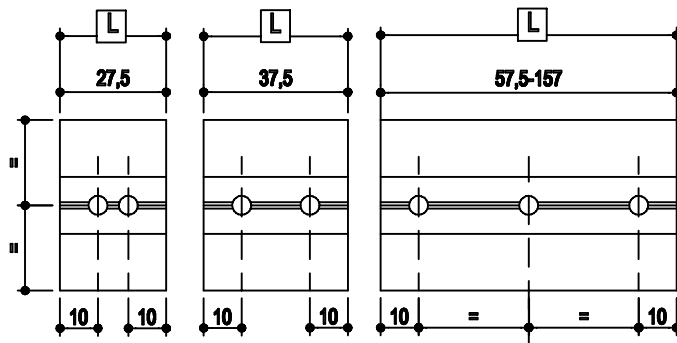
**R54** 2.2

**NOKIAN**  
PROFILES

Connection, straight



Frame profile	Nominal length of connection piece	L R54-401
R54-38	27,5	
R54-48	37,5	
R54-68	57,5	
R54-88	77,5	
R54-108	97	
R54-128	117	
R54-148	137	
R54-168	157	
R54-188	87 + 87	
R54-208	97 + 97	



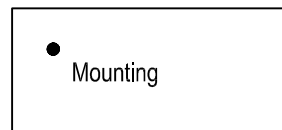
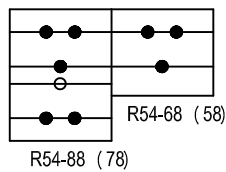
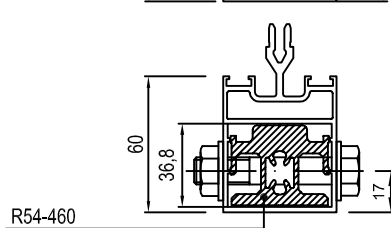
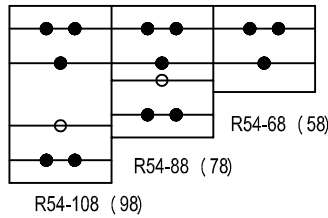
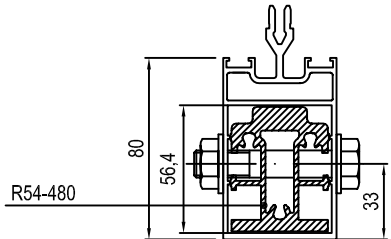
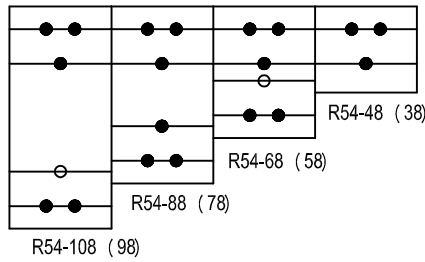
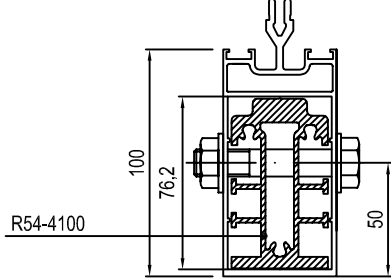
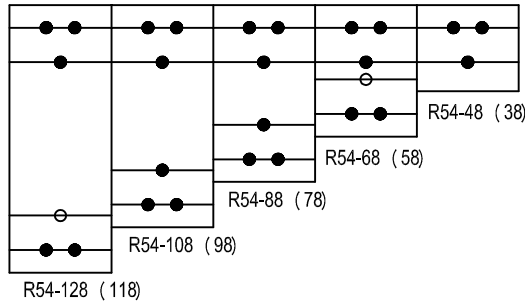
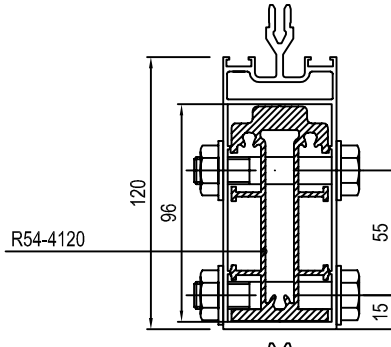
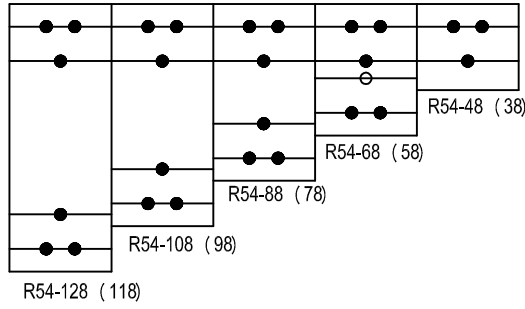
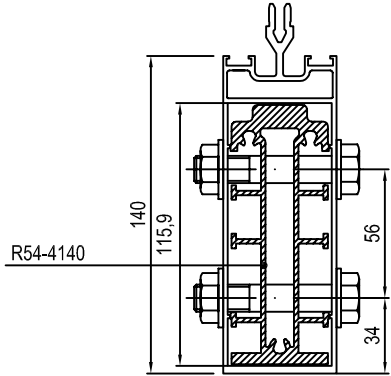
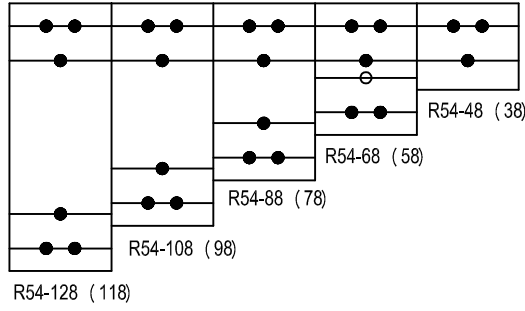
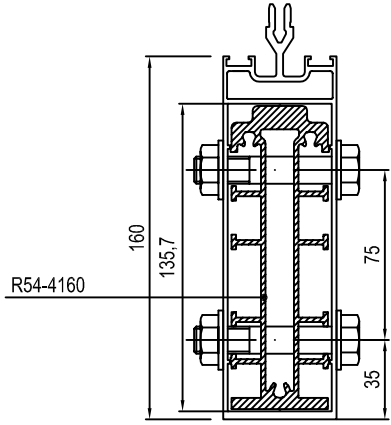
1.2.2018

Connection, free angle

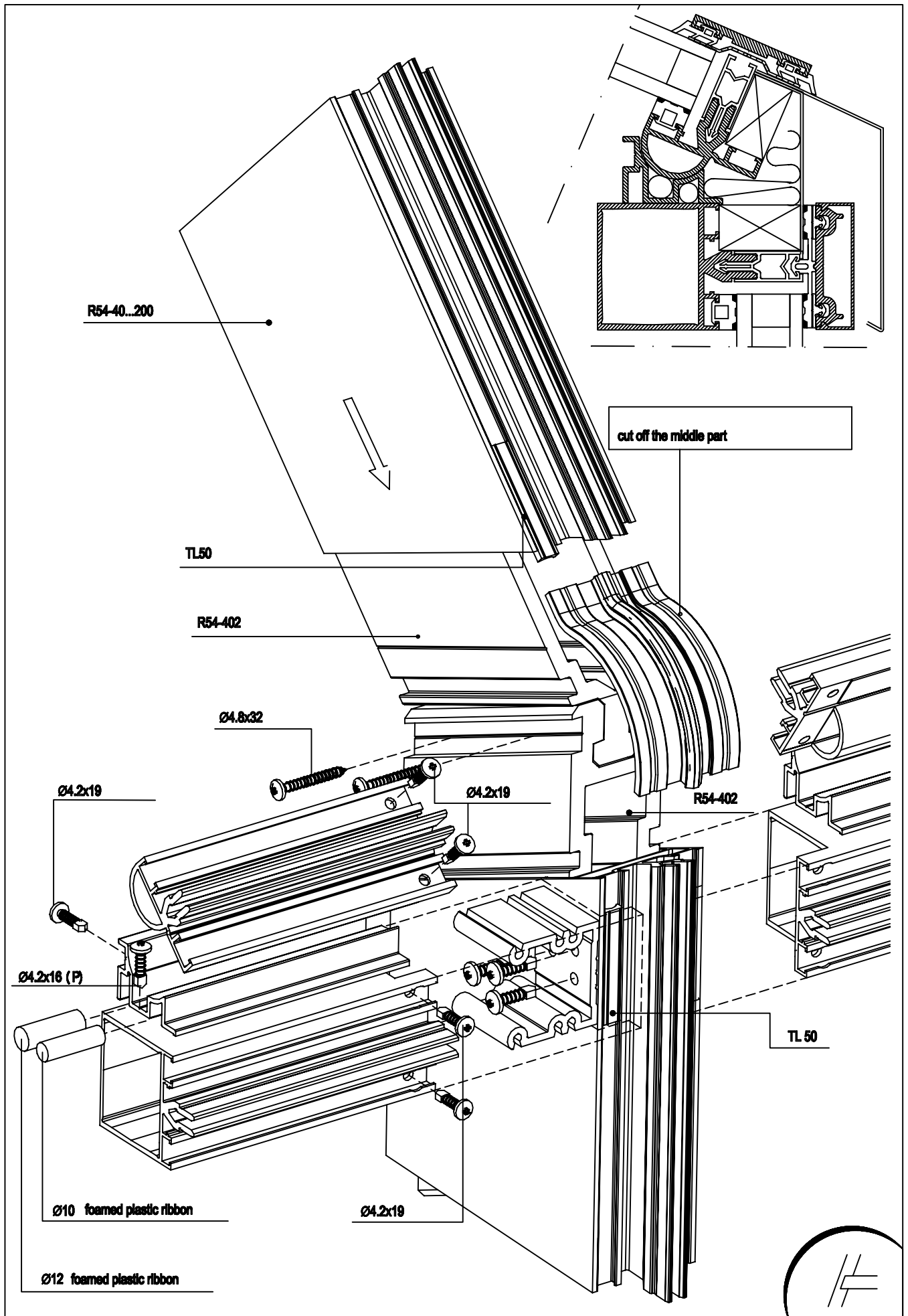
**NOKIAN**  
PROFILES

**R54 2.3**

Mounting when using bracings







Wall/ceiling joint

**NOKIAN**  
PROFILES

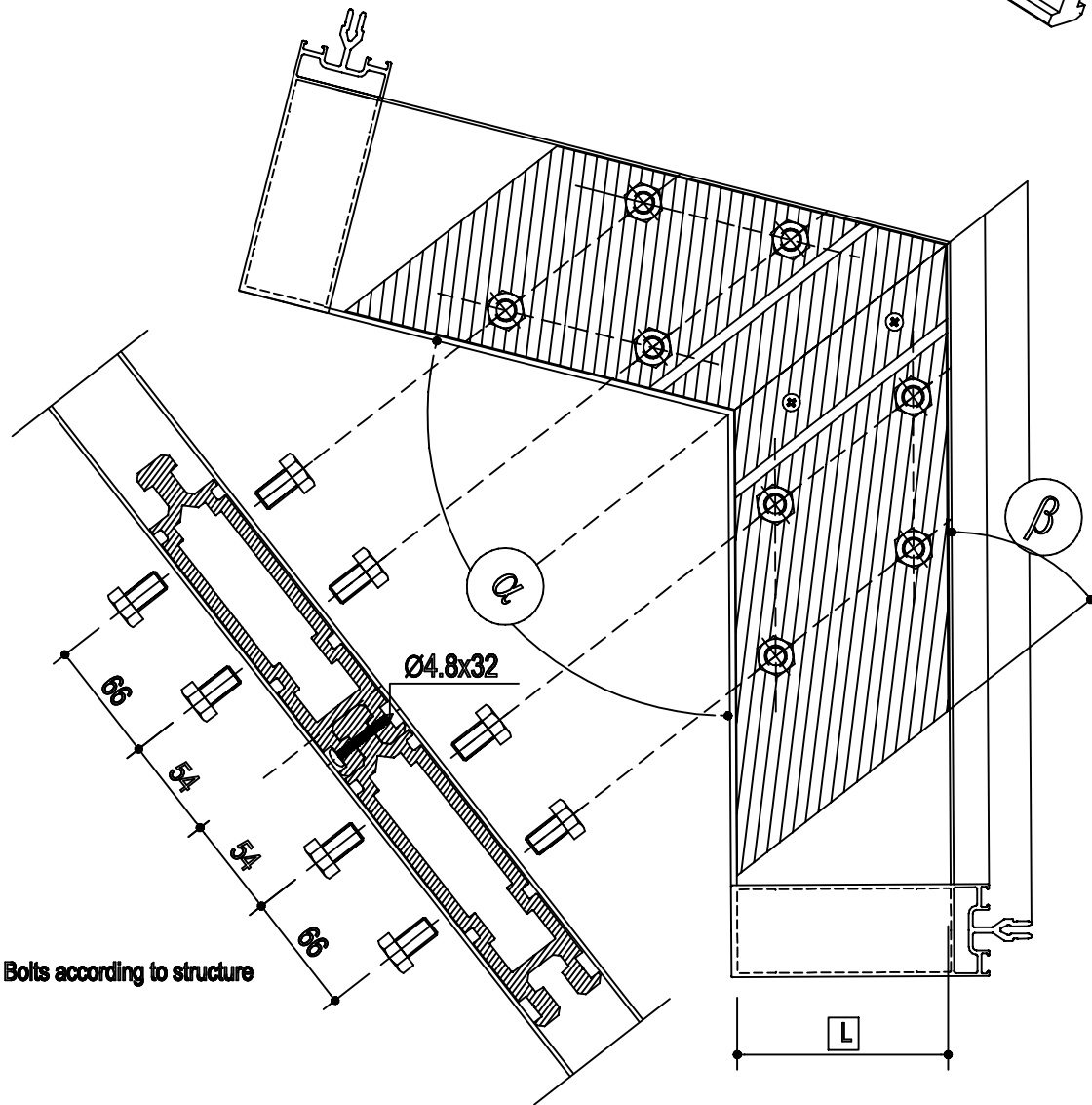
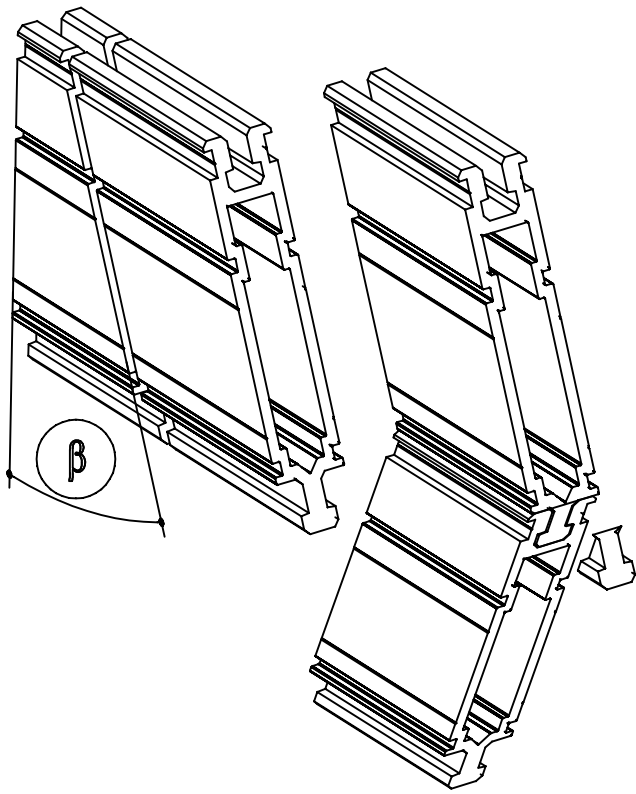
**R54 2.5**

01.07.2013

Sawing angle  $\beta$

$$\beta = \alpha/2$$

Frame profile	Nominal length	L [mm]
R54-40	17	
R54-60	36	
R54-80	55	
R54-100	75	
R54-120	95	
R54-140	115	
R54-160	135	
R54-200	175	



Bolts according to structure

01.07.2013

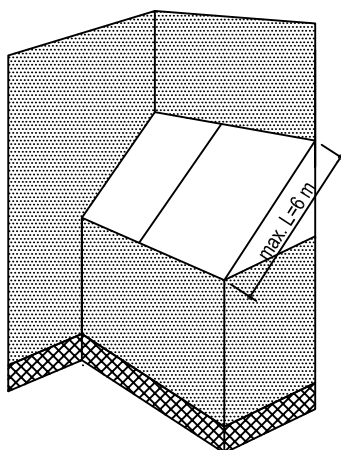
**R54** 2.6

**NOKIAN**  
PROFILES

R54-402 sawing

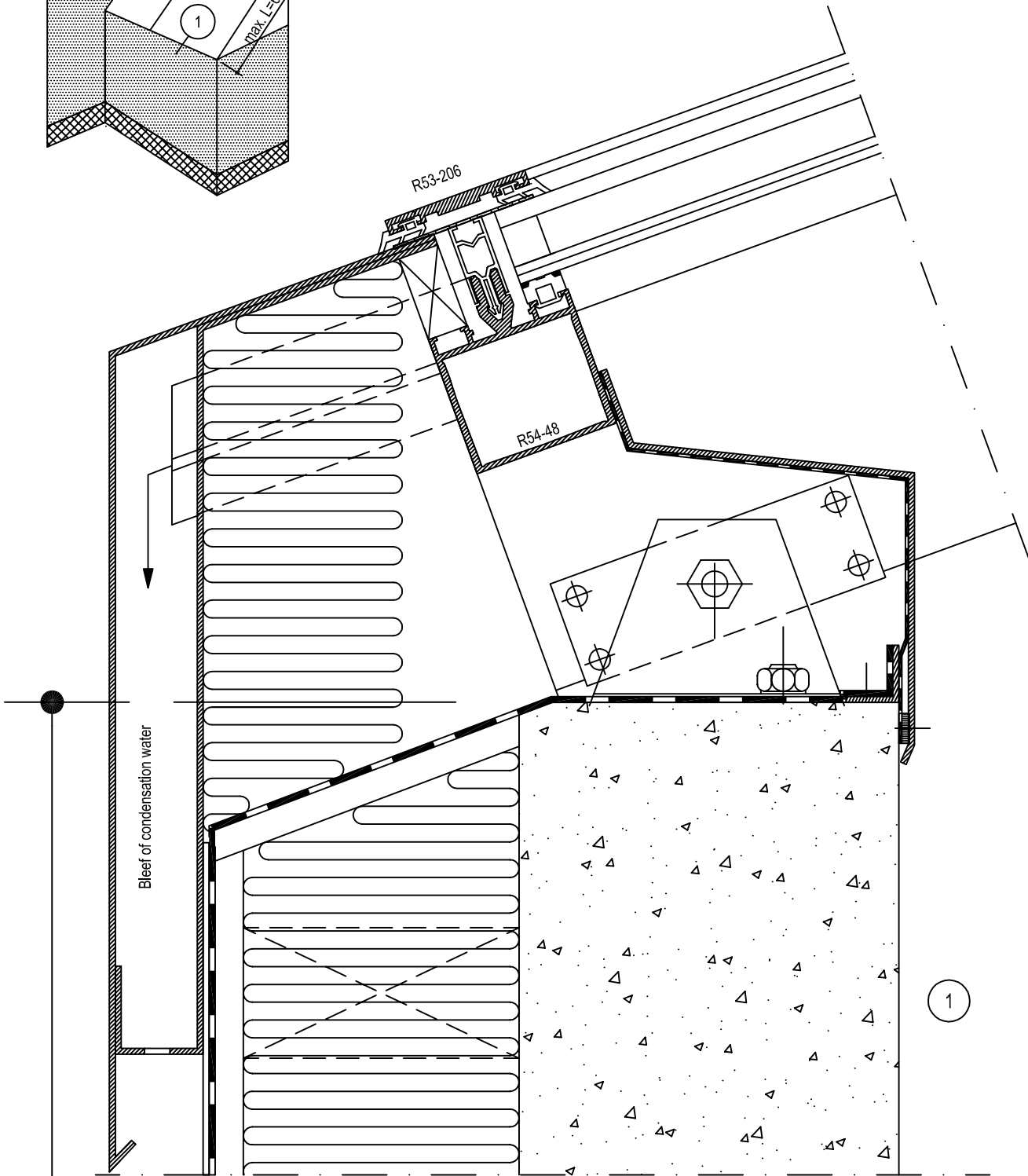
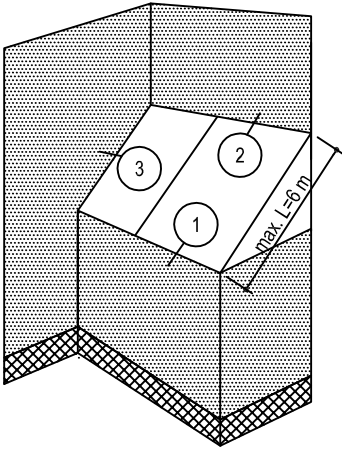
# R54 LIGHT ROOF

- possible roof shapes: desk and ridge roof
- R54 light roof does not have inside condensation grooves
- roof max. length: 6 m
- all profile connections must be made with lap-joint
- R54 0-frames can not be used for light roofs
- all grooves in vertical profile **MUST** be brought outside from the eaves
- for outside sealing glazing bead R53-206 with gasket 611 or 619 together with butyl tape must be used
- DIN 7981 A2 stainless steel screws with EPDM sealing plate must be used for fastening glazing beads



01.07.2013

U-value of the building frame > U-value of the glass.

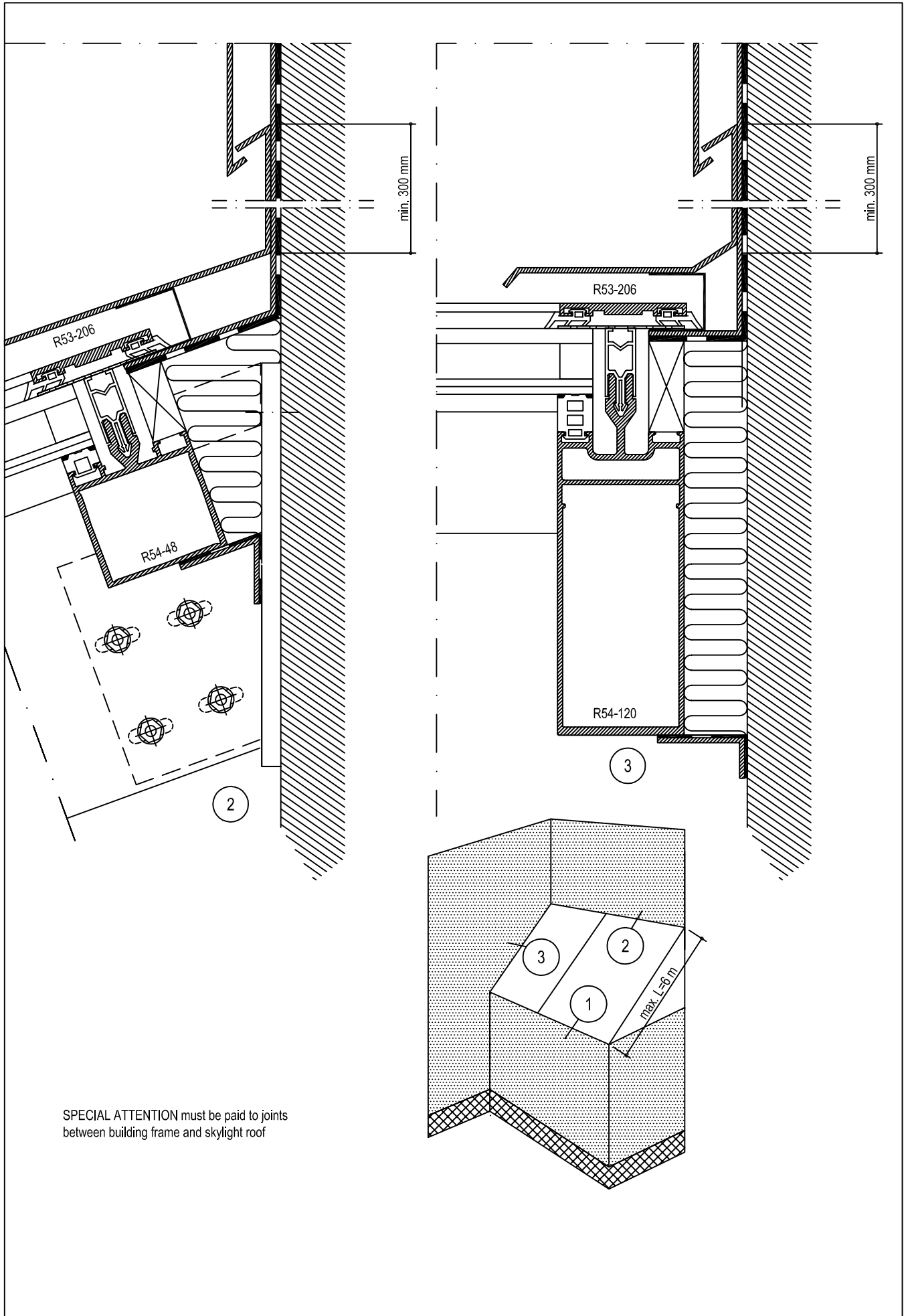


01.07.2013

**R54** 2.8

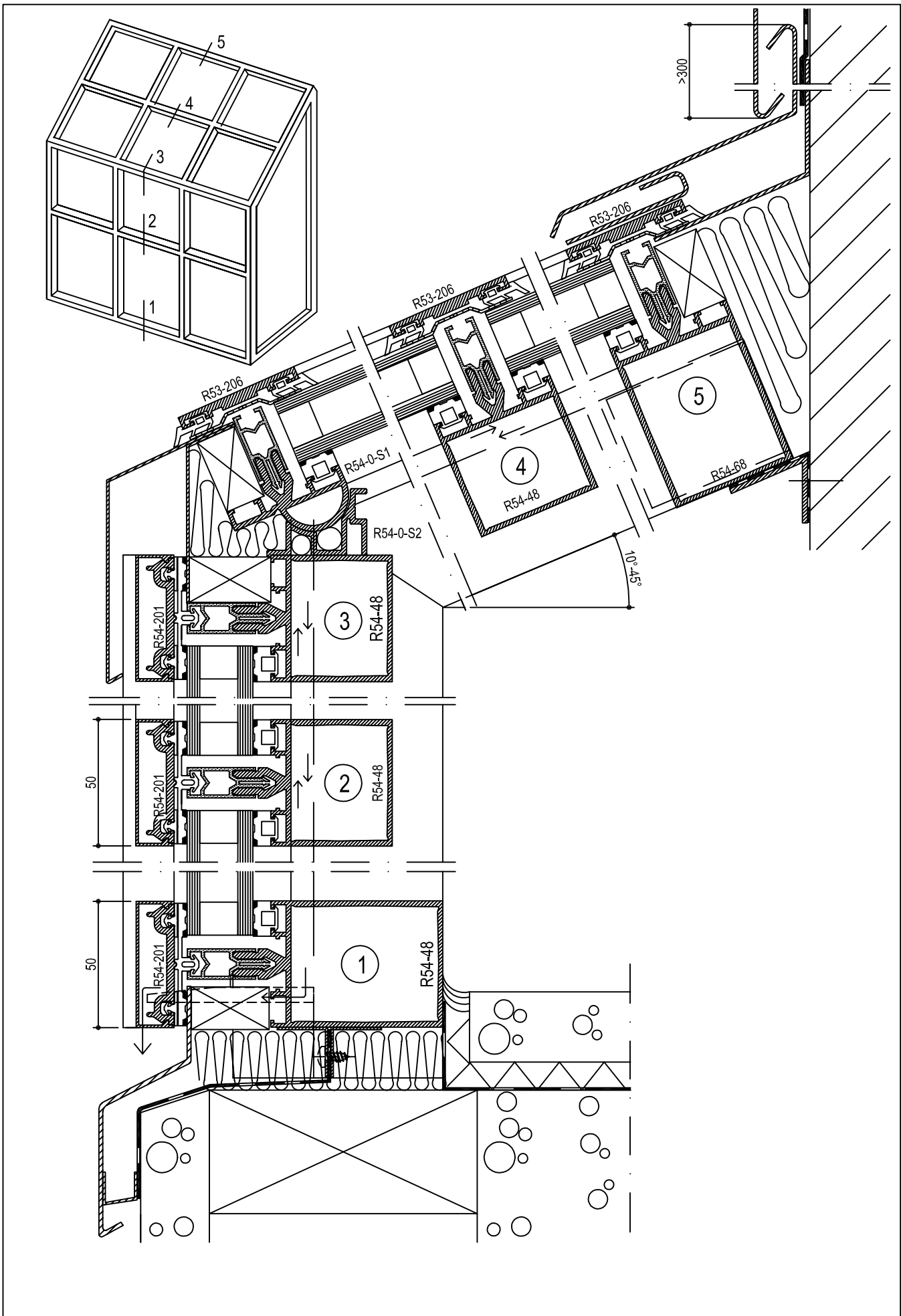


Joining to building frame details



SPECIAL ATTENTION must be paid to joints between building frame and skylight roof

01.07.2013

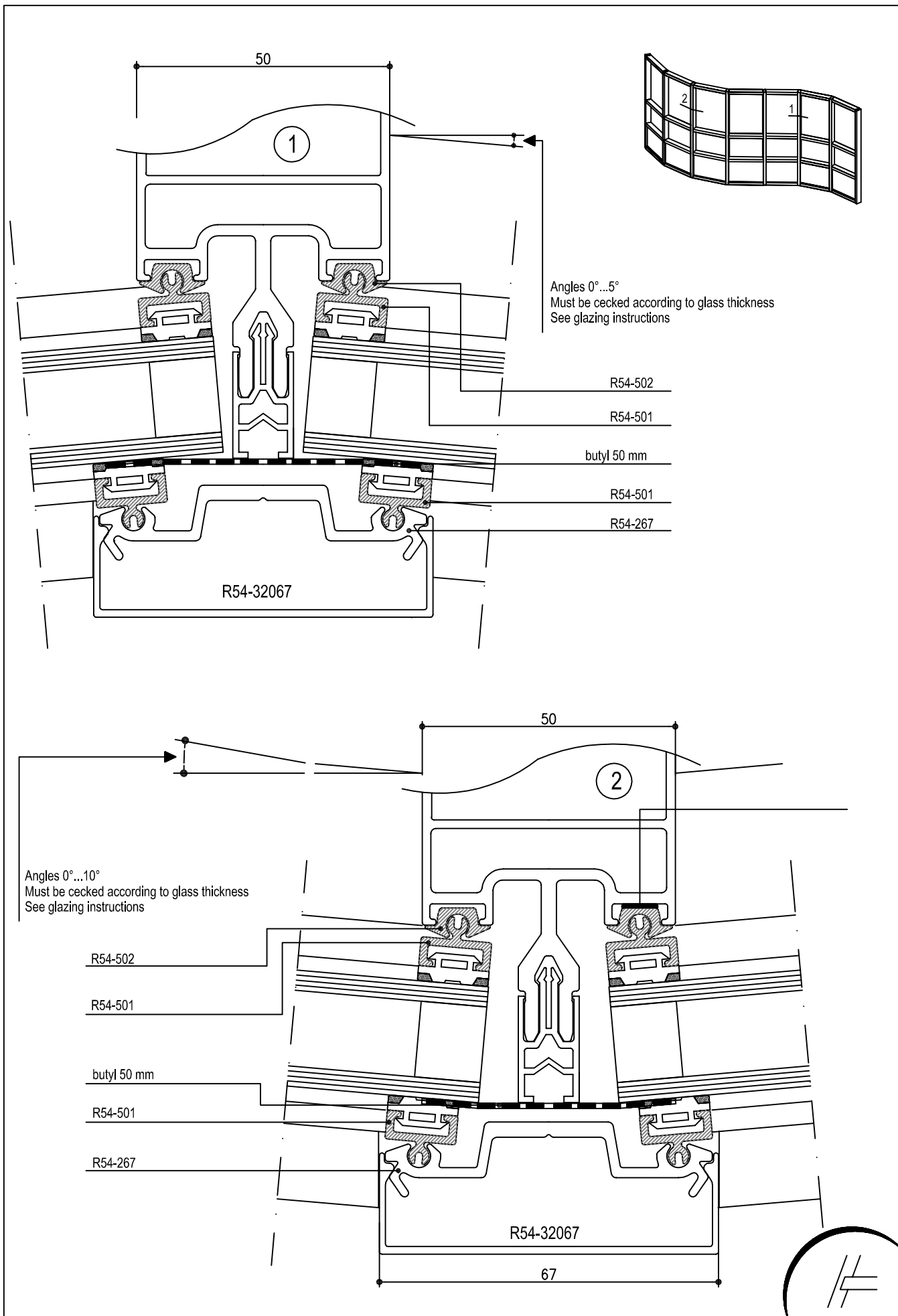


01.07.2013

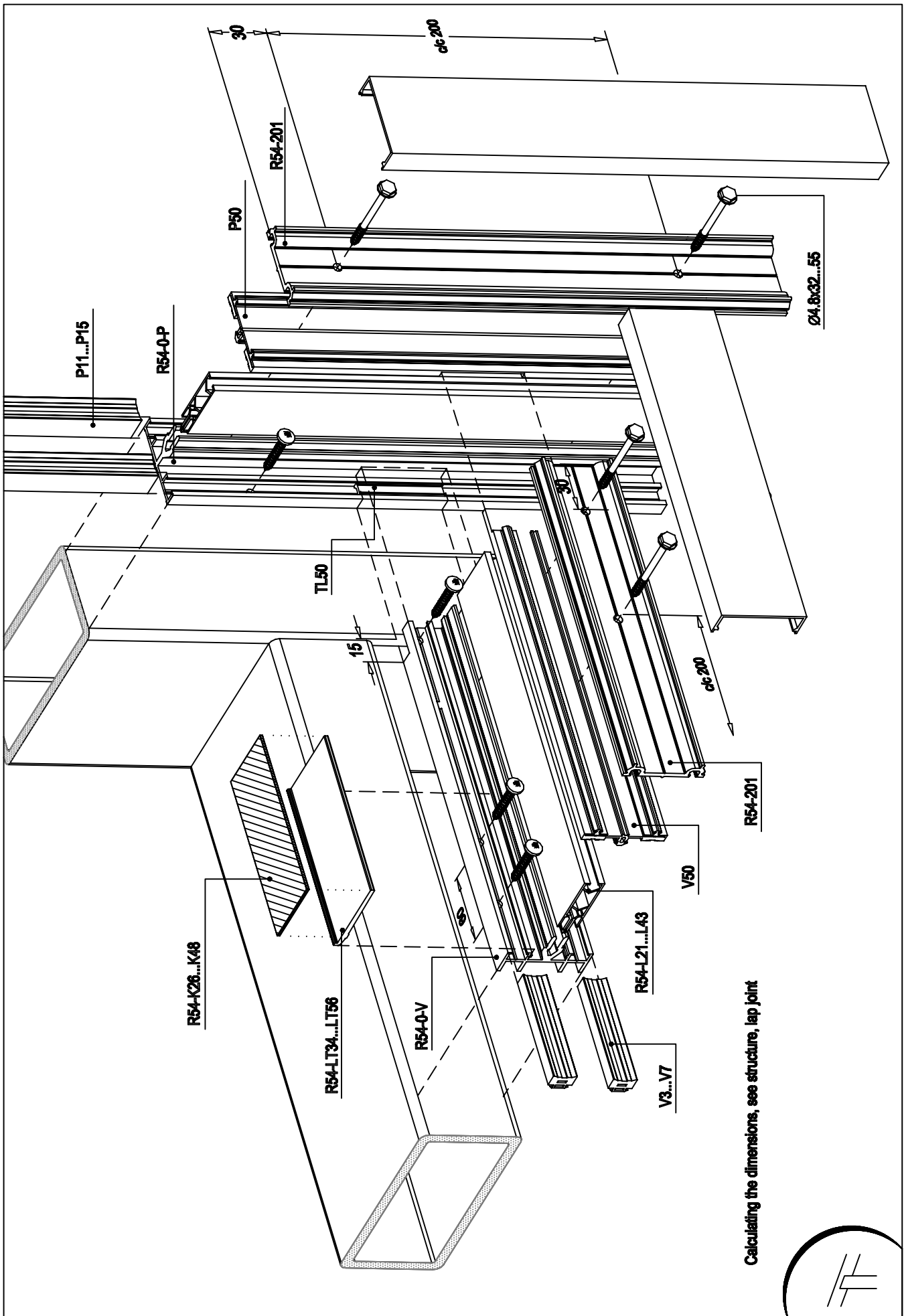
**R54 2.10**

**NOKIAN**  
PROFILES

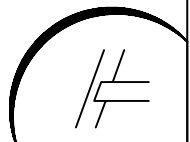
Facade and light roof joint







Calculating the dimensions, see structure, lap joint



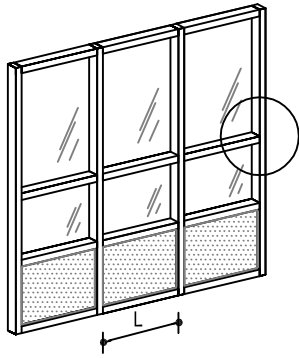
01.07.2013

**R54** 2.12

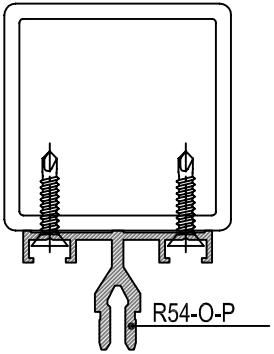
**NOKIAN**  
PROFILES

0-frame structure



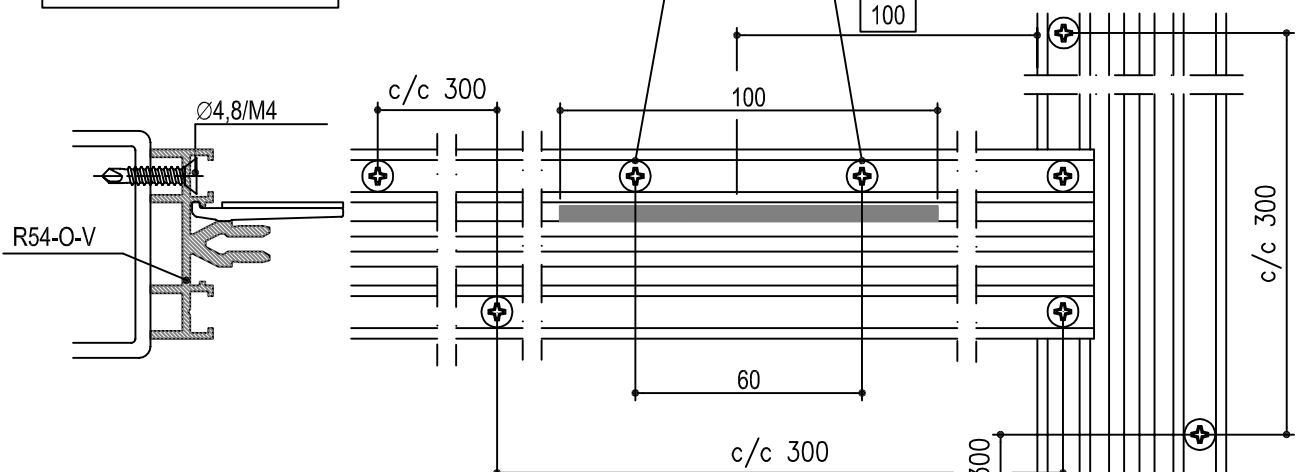


0-frame mounting screws		
Vertical frame	R54-O-P	Ø4.8x13 / 4.8x19P
Horizontal frame	R54-O-V	Ø4.8x22 / 4.8x32P

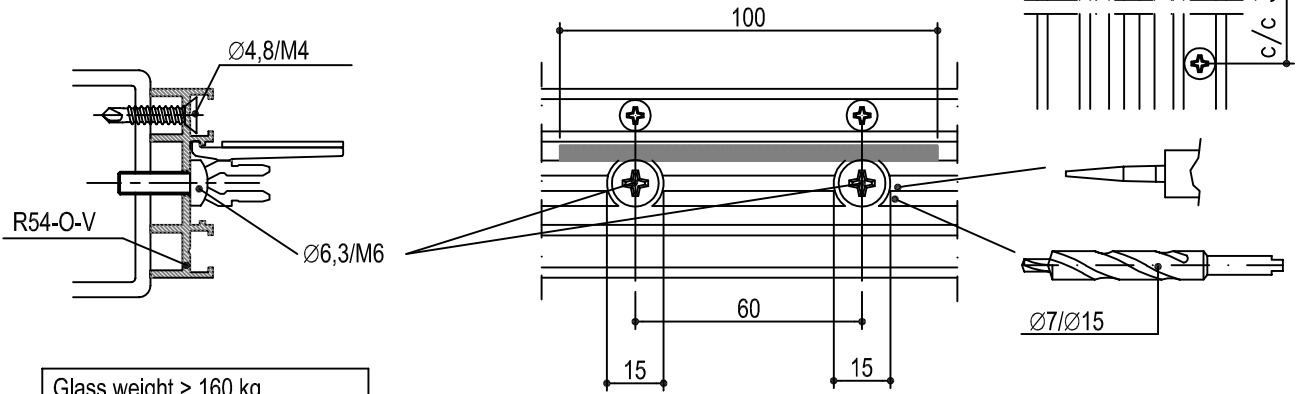


Glass weight < 80 kg

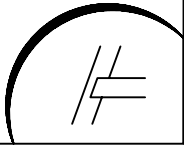
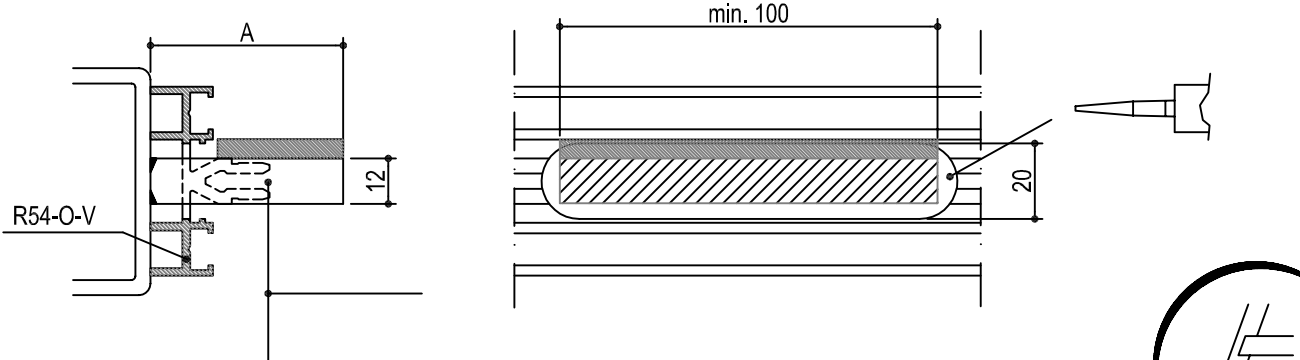
Screws at every glass support piece



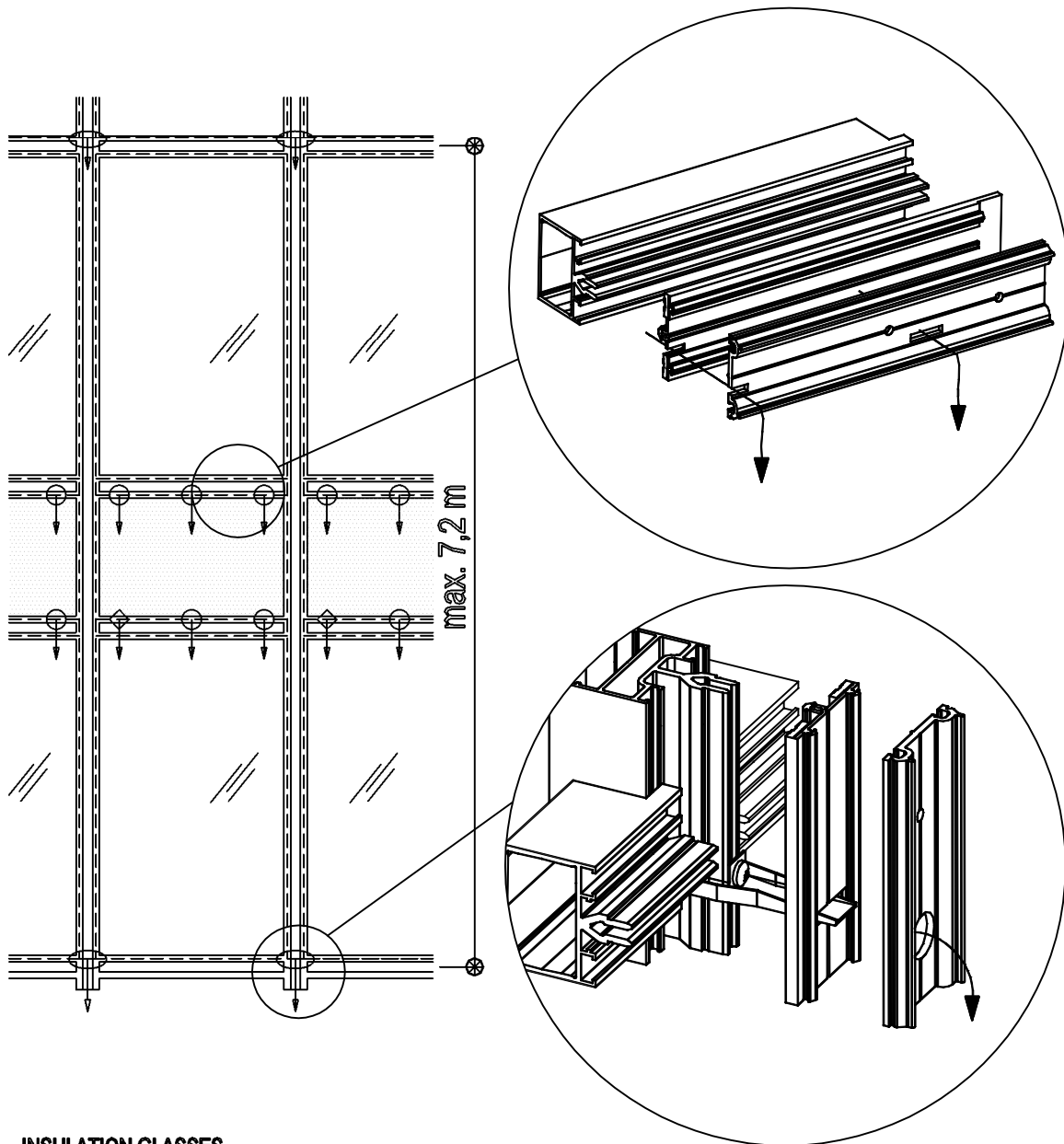
Glass weight 80... 160 kg



Glass weight > 160 kg



16.02.2016



#### INSULATION GLASSES

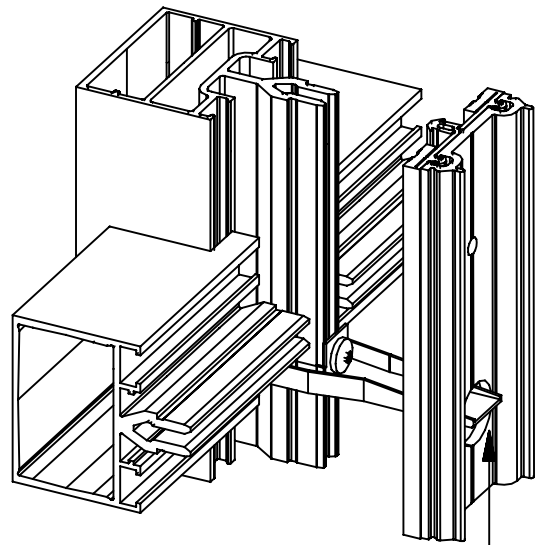
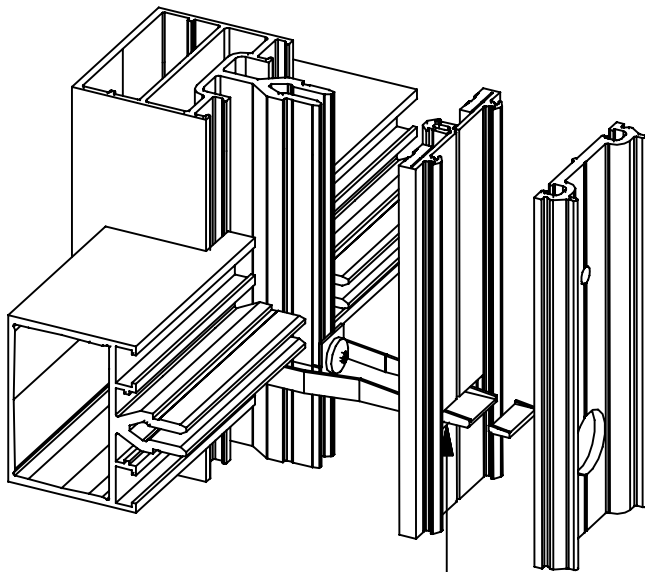
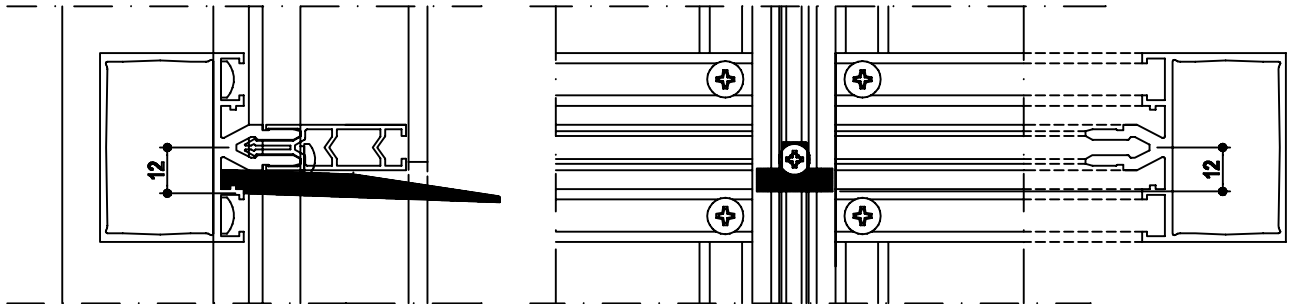
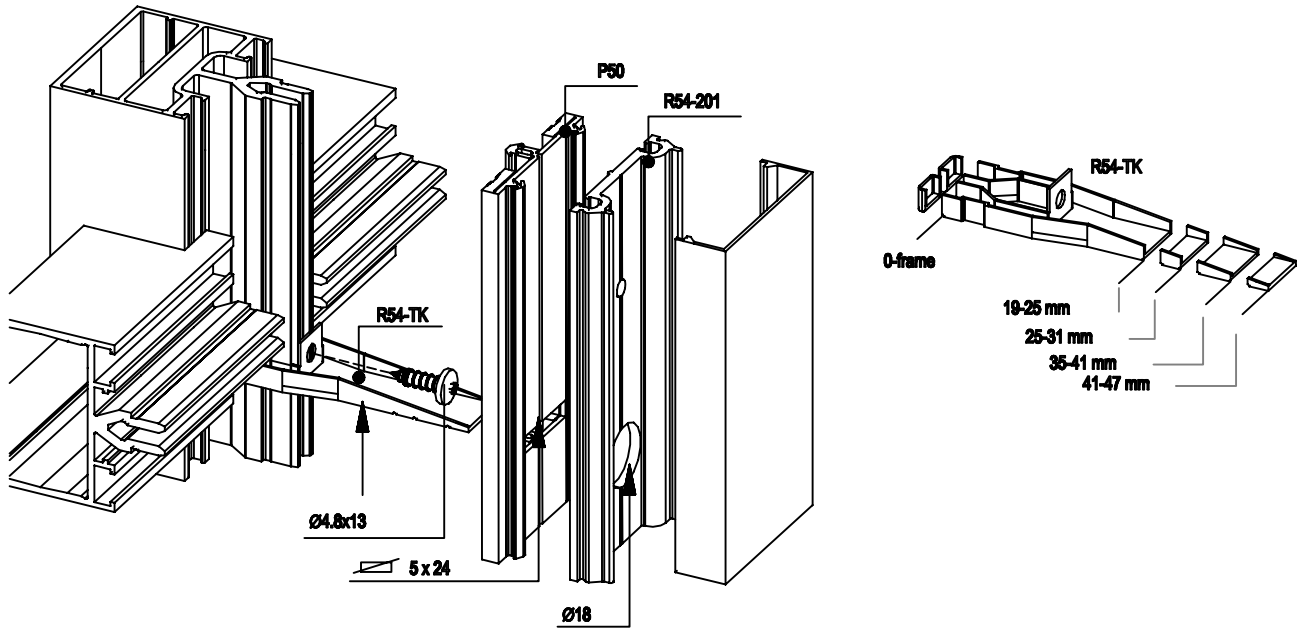
Glass space is ventilated with ventilation gutters. The ventilation gutter is installed on the lower edge of a vertical profile in the glass space, at every second floor height.

#### FACADE GLASSES

Facade glasses are ventilated separately.

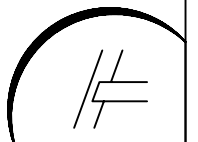


BREAK-OFF OF VENTILATION GUTTER AT DIFFERENT RABBET DEPTHS

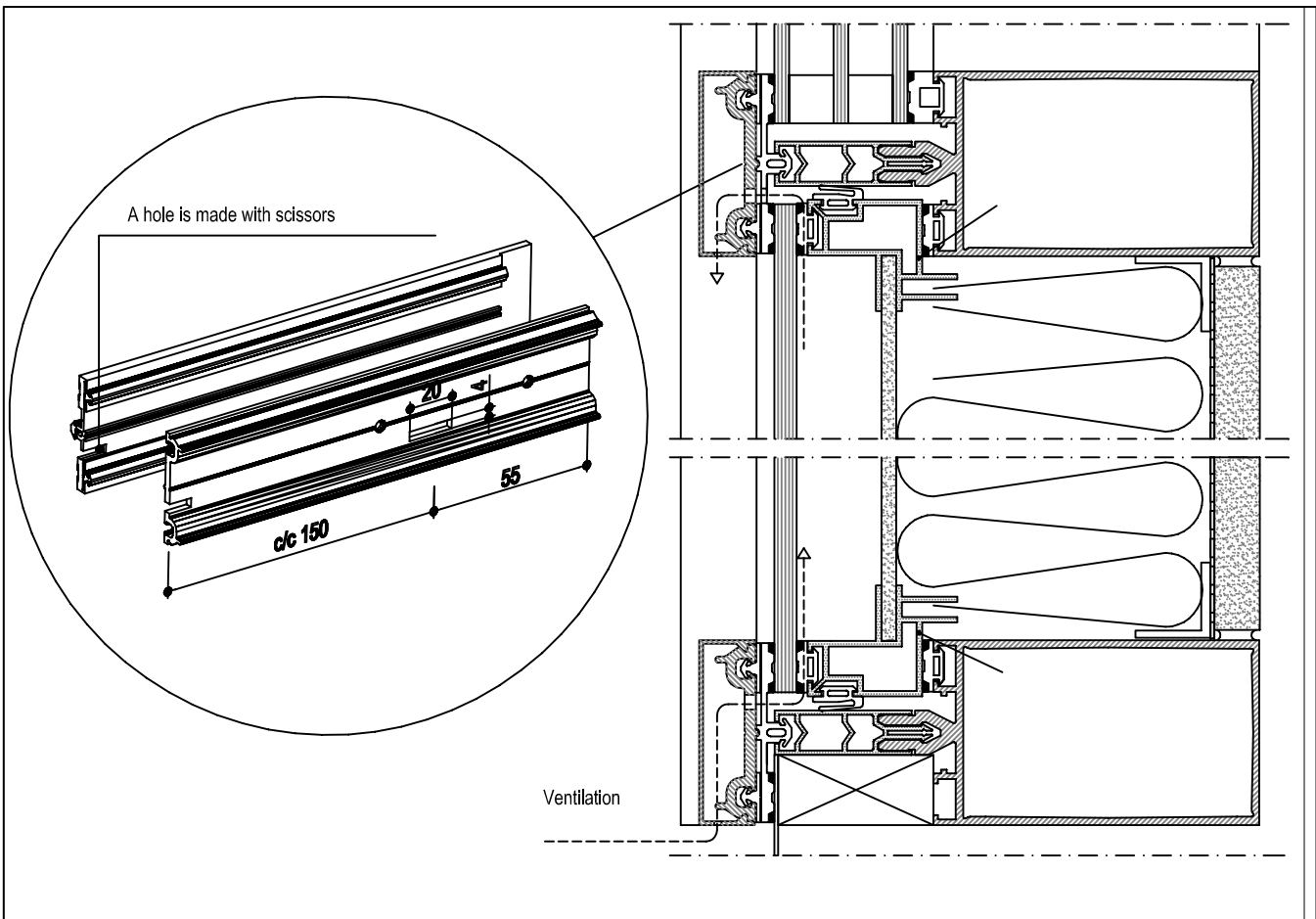


A 5x24 hole is cut with scissors WL-33-04  
The joint is sealed from the sides and the bottom  
EPDM seal with BSR-50-50 compound ( R54-PV50)

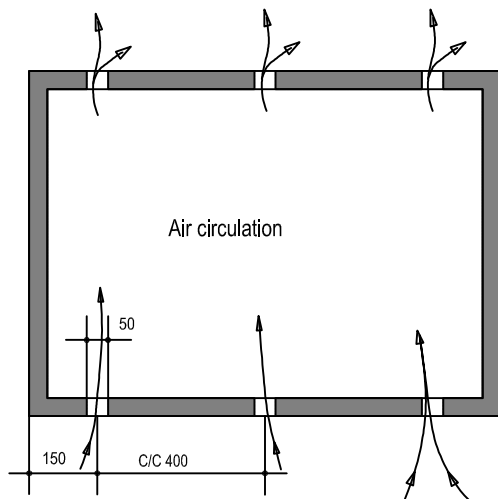
The joint is sealed from the sides and the bottom  
EPDM seal with BSR-50-50 compound ( R54-PV50)



01.07.2013



Break-off interior glazing sealing V3...V7 in vented enclosed space



Glazing bead vent holes, see page  
Machining and installation of glazing beads and cover profiles

Note: In corners, the sealings must  
be attached to each other; the  
instructions refers to all sealing options

-Note: When tightening, be careful for the glazing screw at the vent outlet.



01.07.2013

**R54** 2.16

**NOKIAN**  
PROFILES

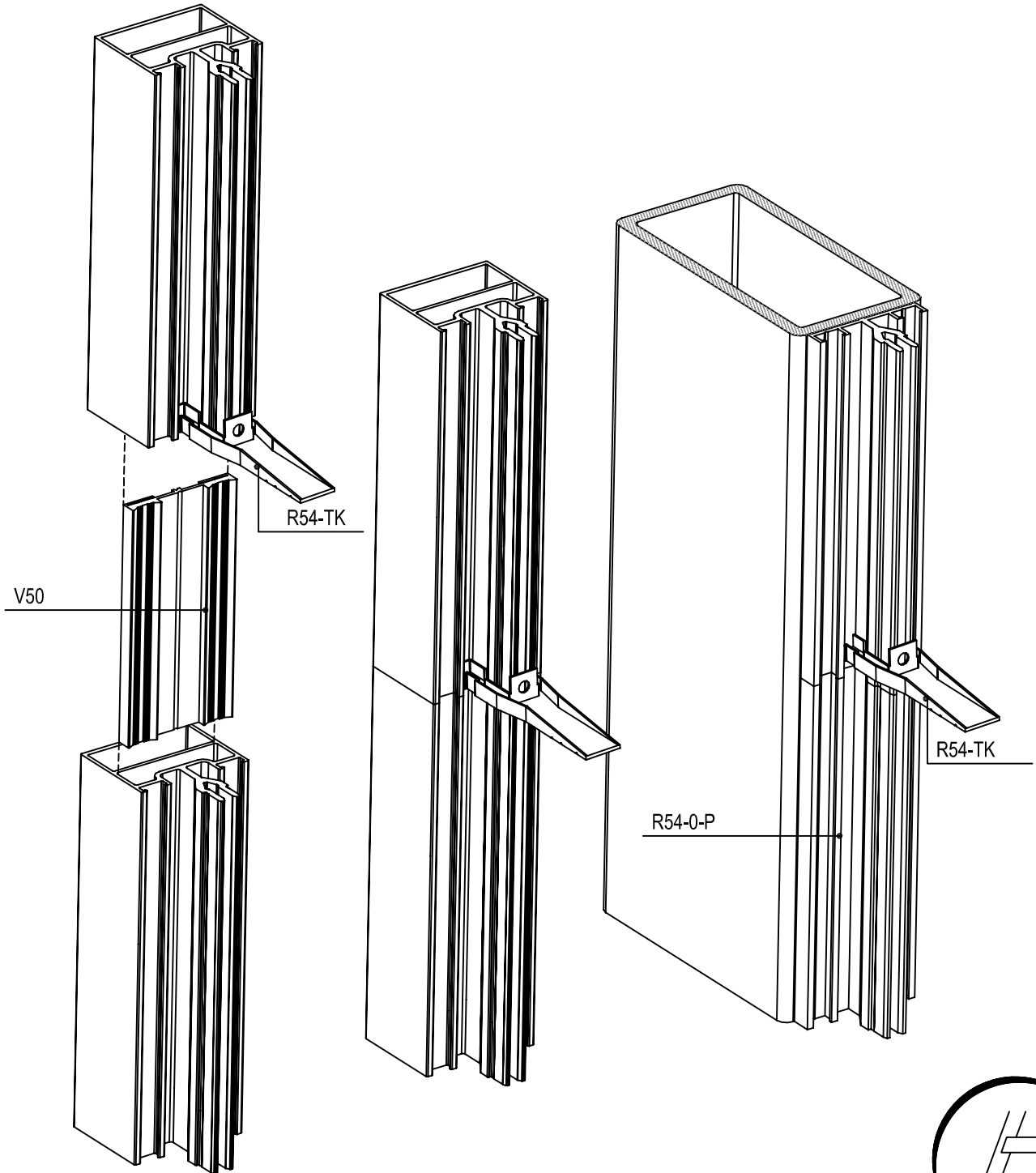
Ventilation of facade glazing

R54

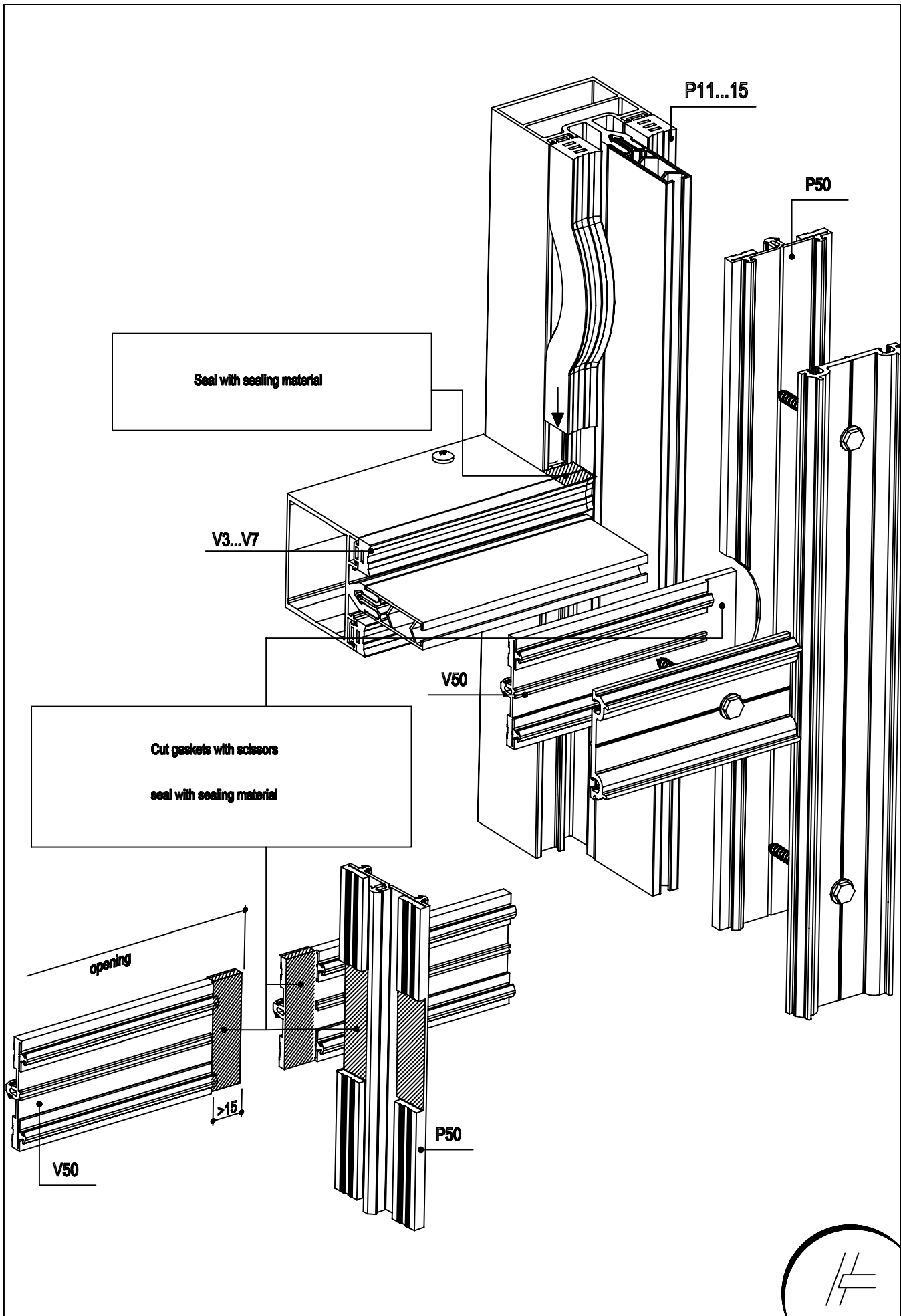
0-frame

Seal extensions with sealing compound V50.  
Install a ventilation gutter above the extension.

Install a ventilation gutter above the extension.

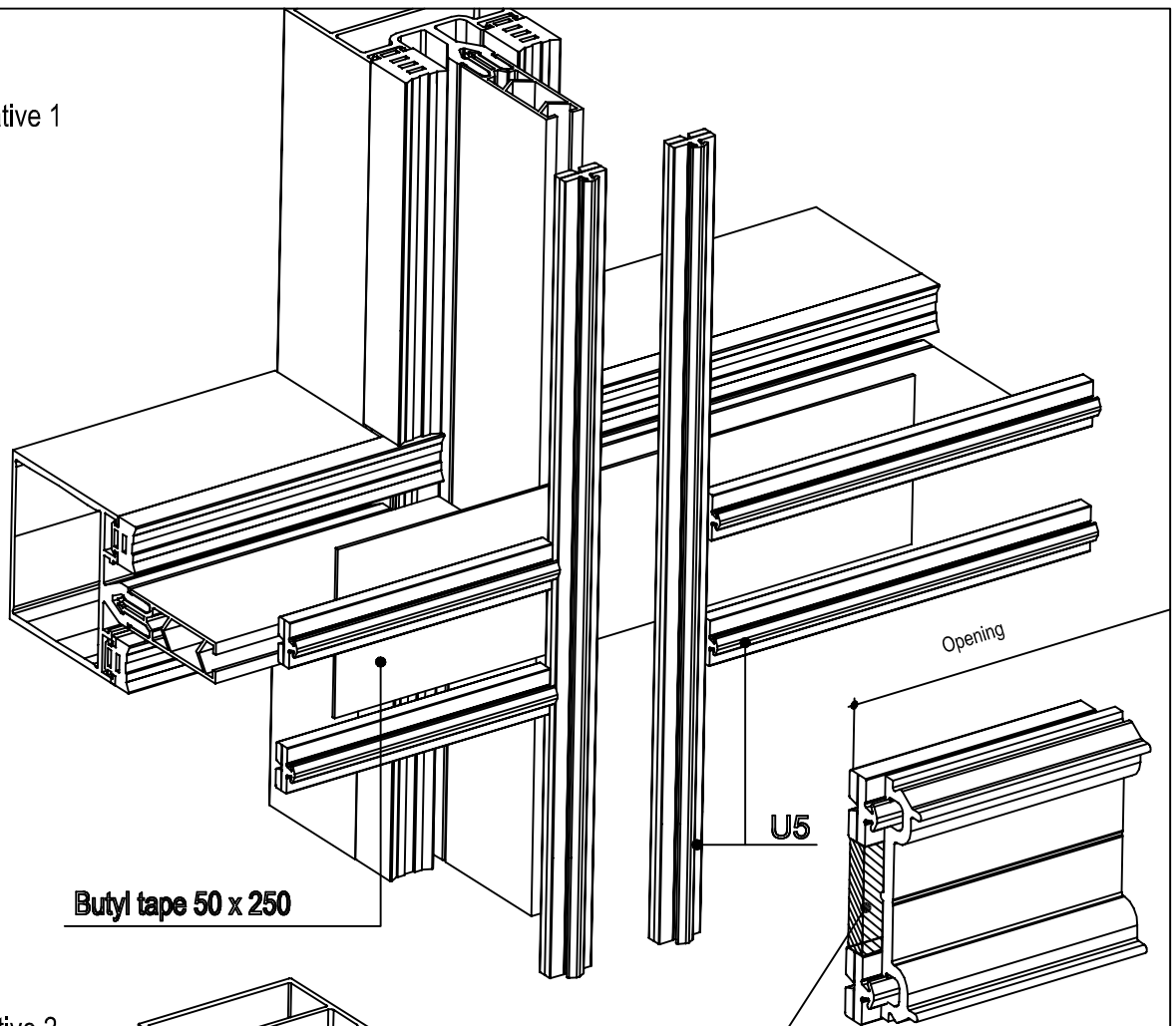


01.07.2013



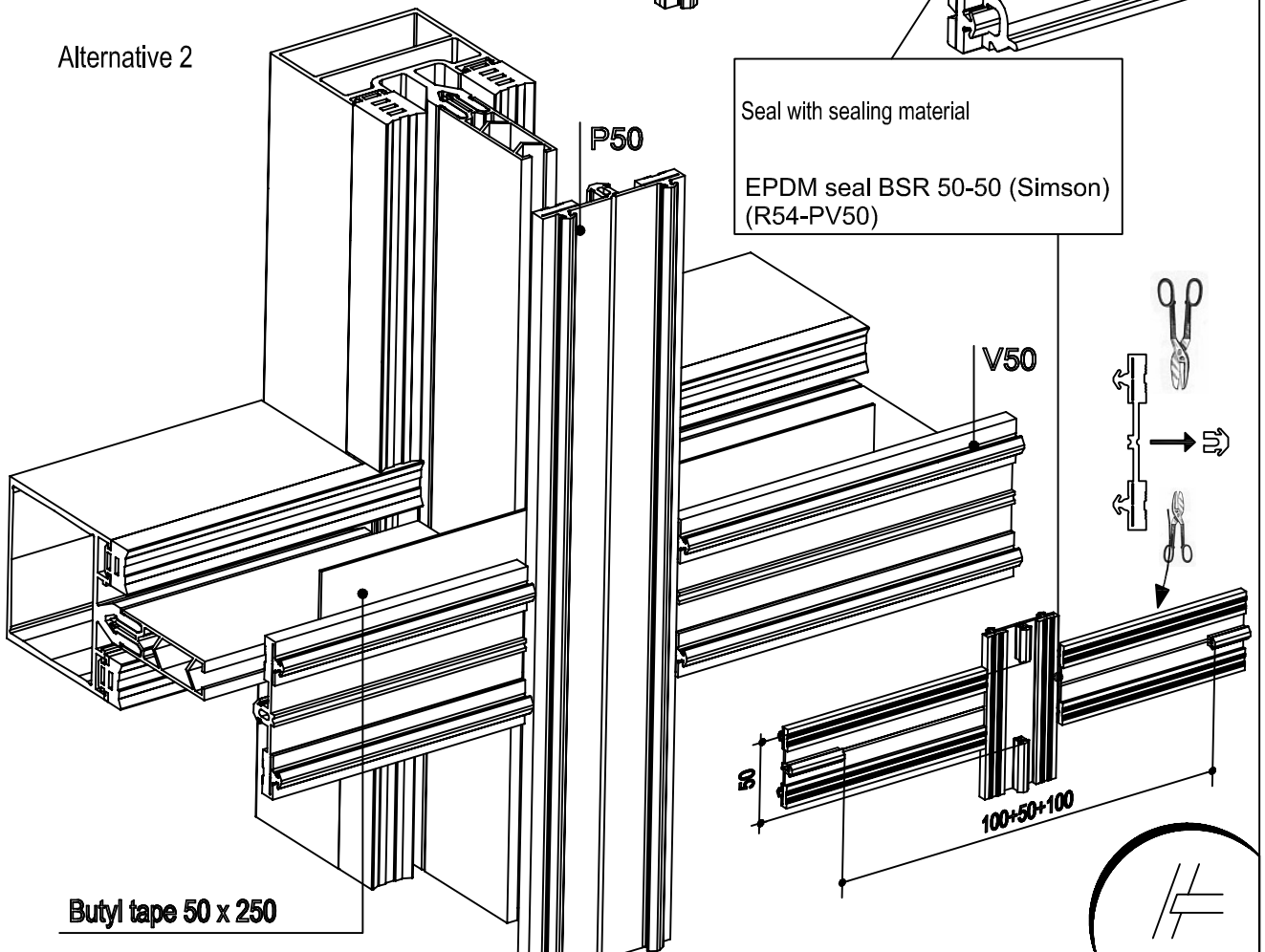
01.07.2013

Alternative 1



Butyl tape 50 x 250

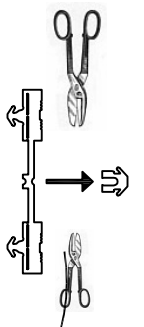
Alternative 2



Butyl tape 50 x 250

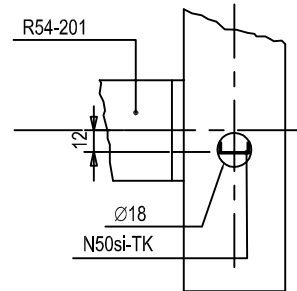
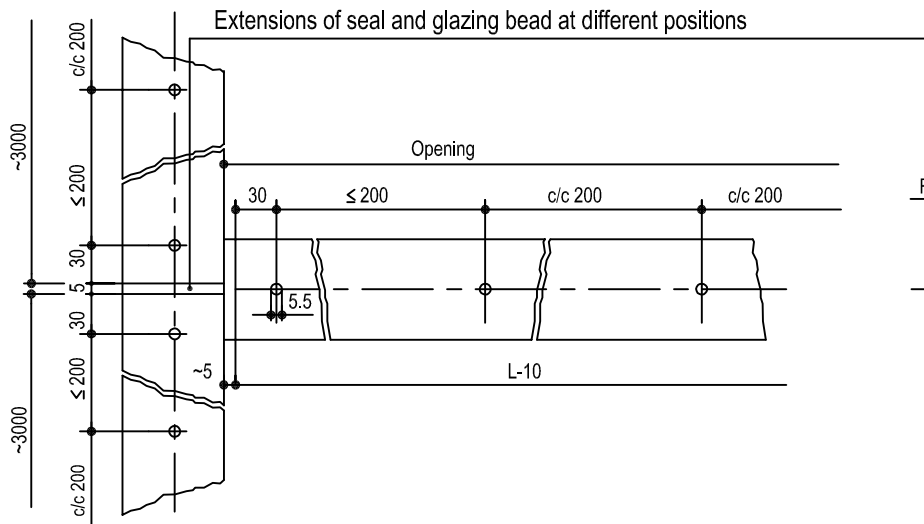
Seal with sealing material

EPDM seal BSR 50-50 (Simson)  
(R54-PV50)



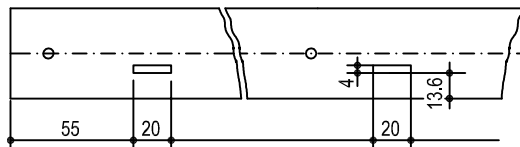
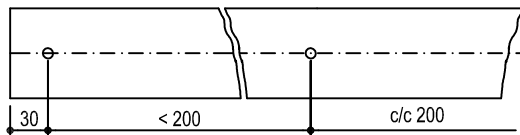
50  
100+50+100

01.07.2013



GLAZING BEADS

Insulating glasses



Glass is attached with a perforated glazing bead profile.  
Usually horizontal glazing beads are installed between vertical beads.

COVERING BEADS

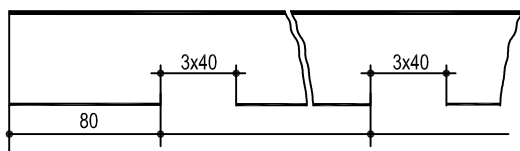
Insulating glasses



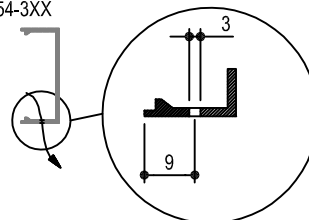
R54-3XX



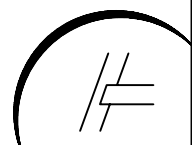
Facade glass



R54-3XX

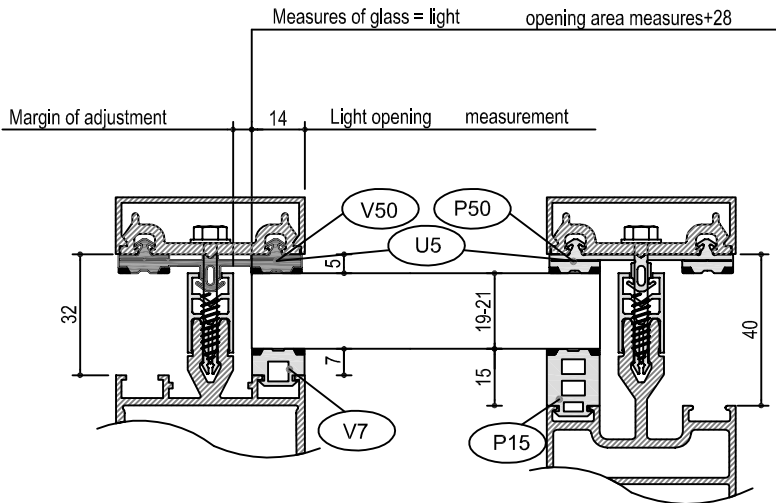


Horizontal covering beads are cut and tooled as shown in the figure.  
The covering bead is placed on the glazing bead. Ensure that the bead is positioned correctly.



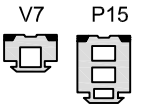
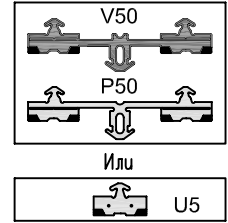


# 19-21 mm

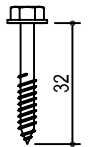


Glass support

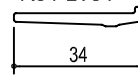
R54-K26 + R54-LT34



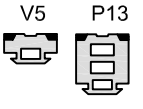
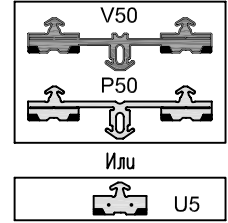
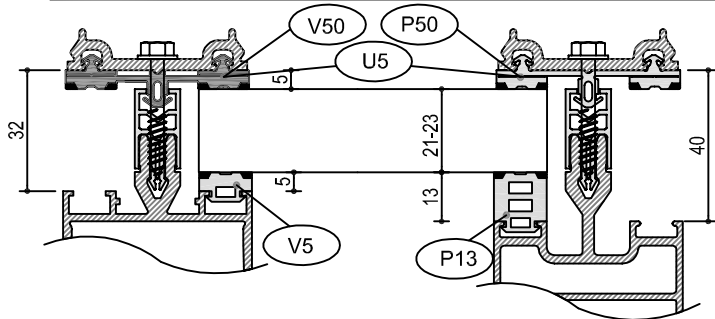
Ø4,8x32



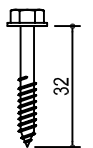
R54-K26 (Blue)  
R54-LT34



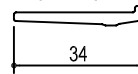
# 21-23 mm



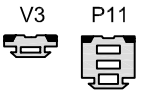
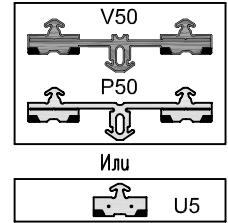
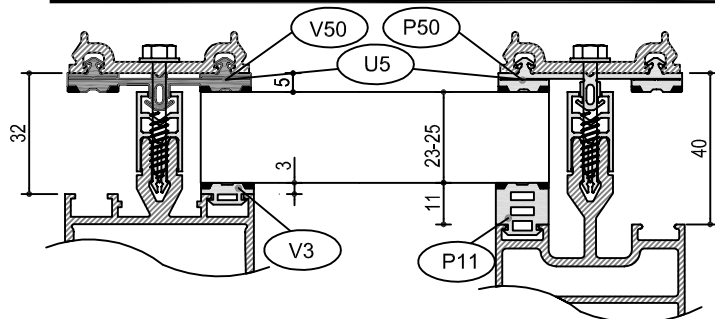
Ø4,8x32



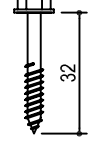
R54-K26 (Blue)  
R54-LT34



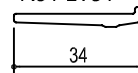
# 23-25 mm



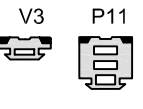
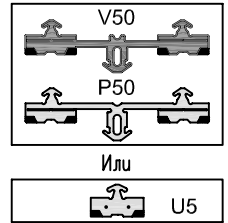
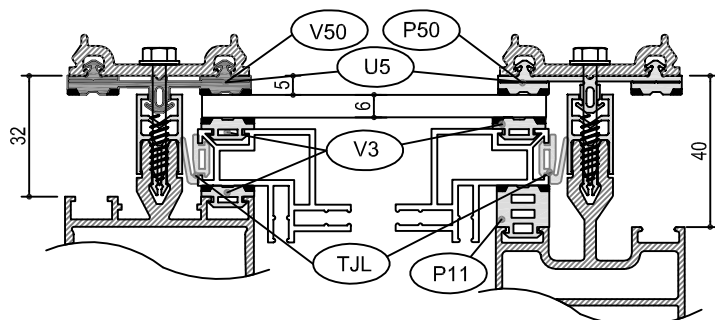
Ø4,8x32



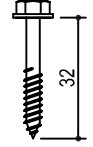
R54-K26 (Blue)  
R54-LT34



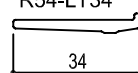
# Facade glass



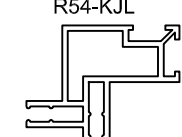
Ø4,8x32



R54-K26 (Blue)  
R54-LT34

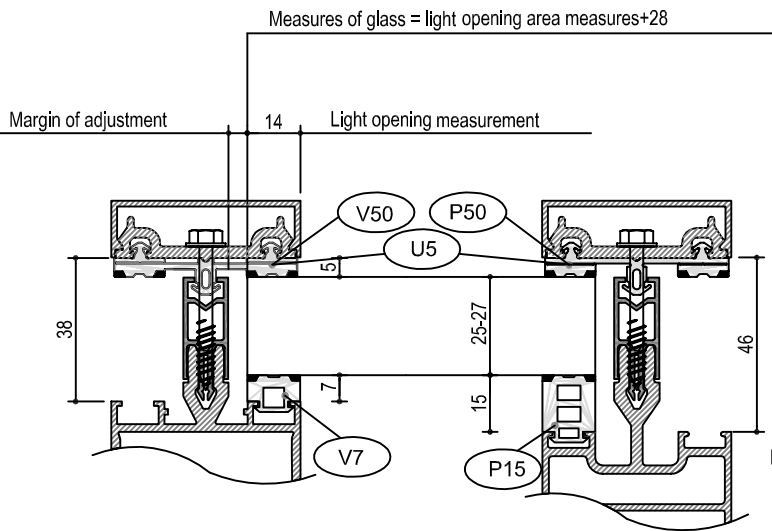


R54-KJL



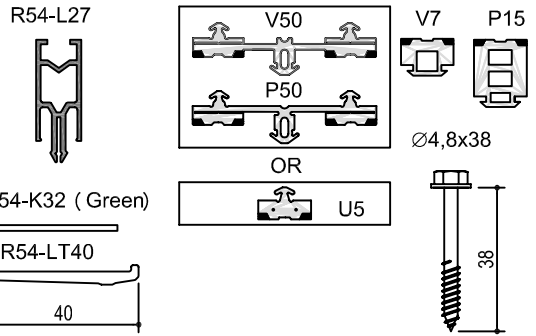
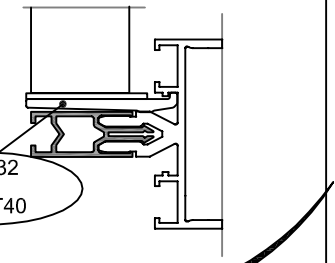
01.07.2013

# 25-27 mm

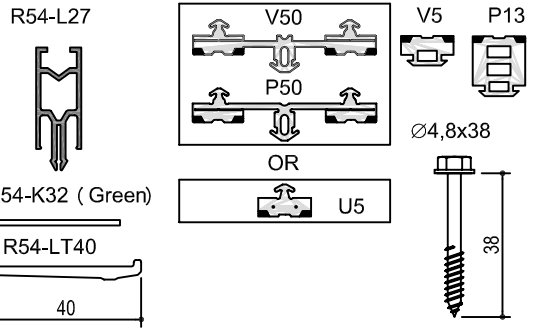
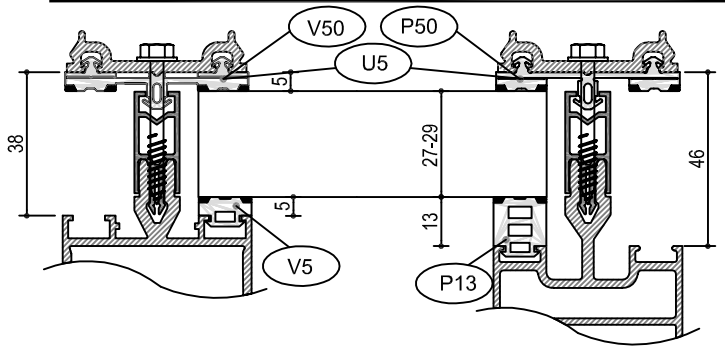


Glass support

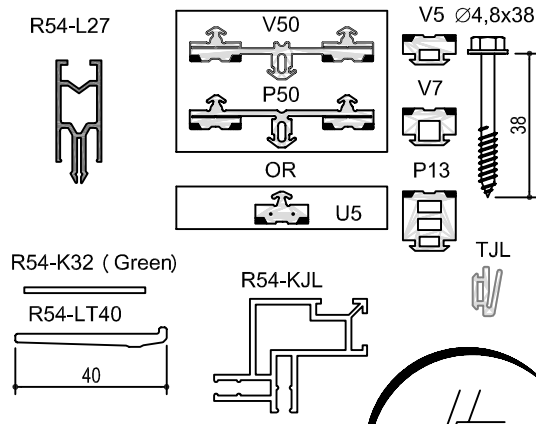
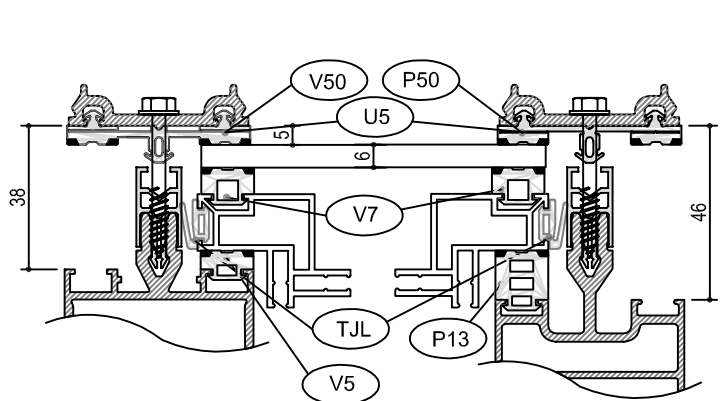
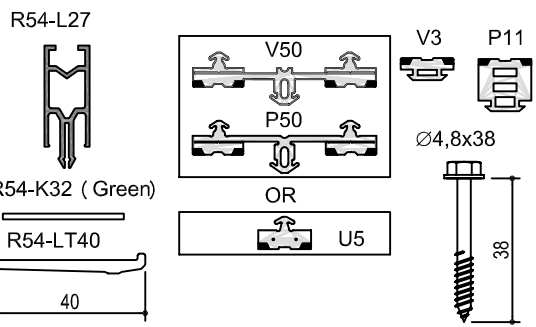
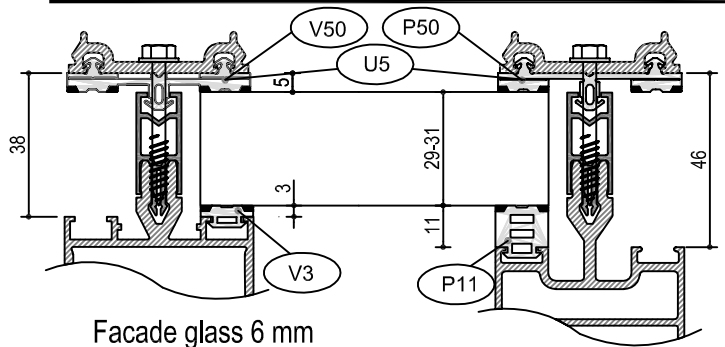
R54-K32 + R54-LT40



# 27-29 mm



# 29-31 mm



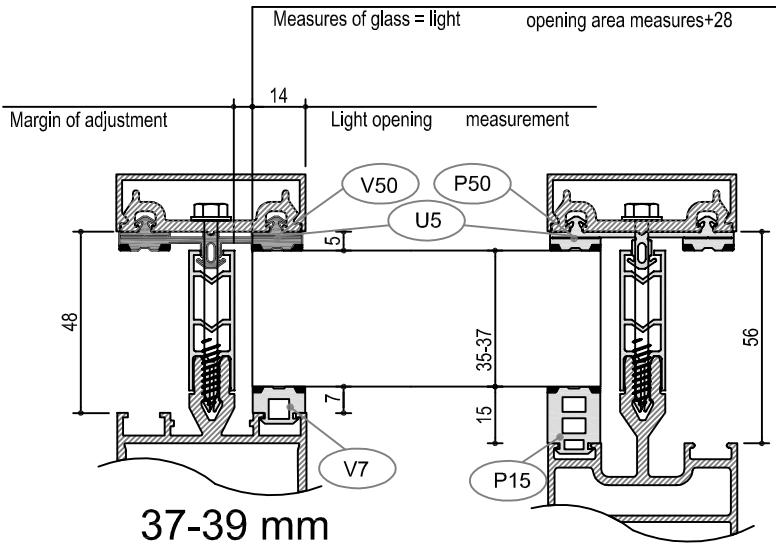
01.07.2013

**R54 2.22**

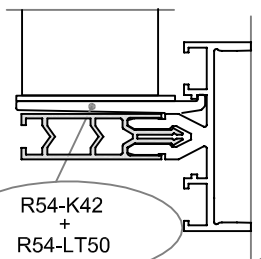
**NOKIAN PROFILES**

Glazing, 2K25-31 mm

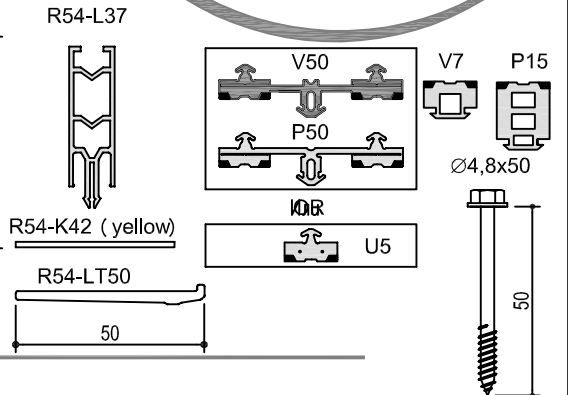
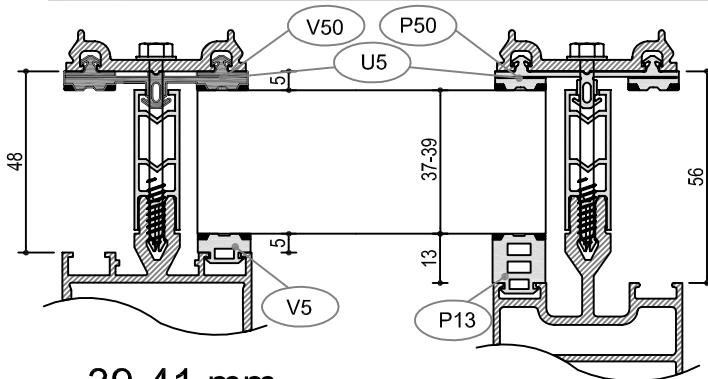
# 35-37 mm



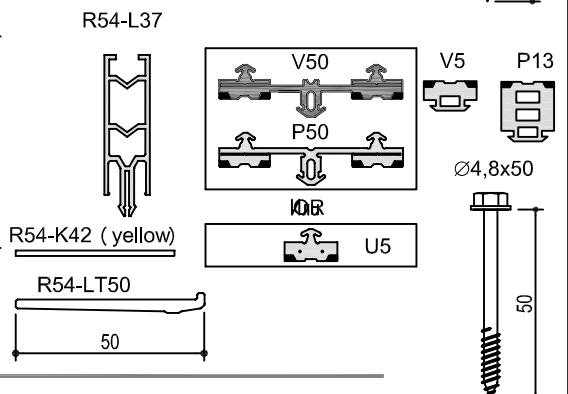
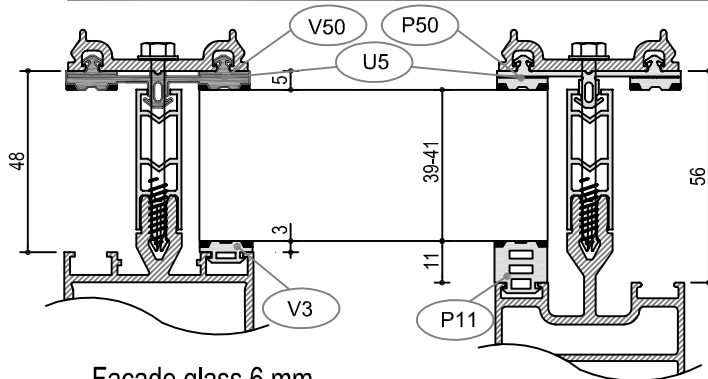
Glass support



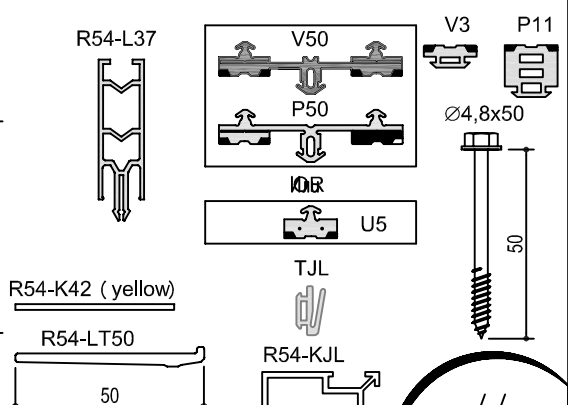
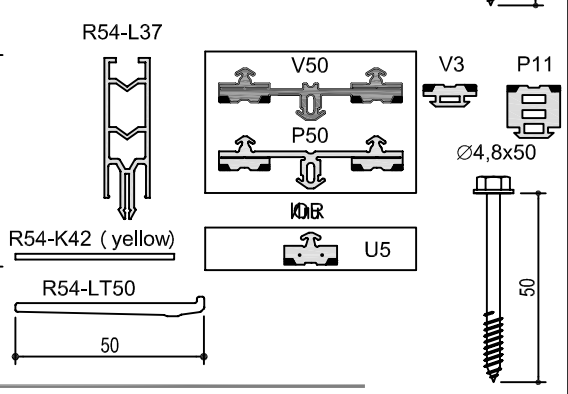
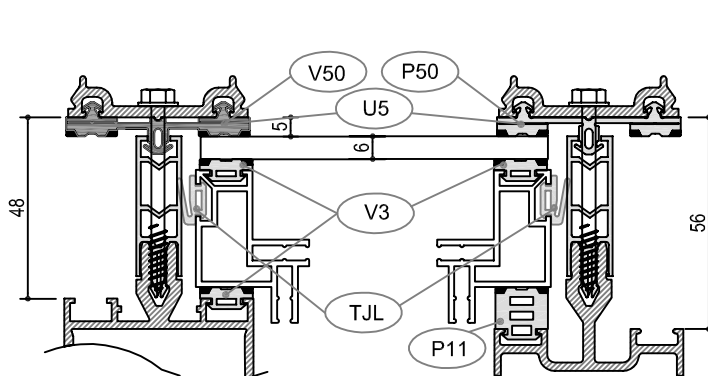
# 37-39 mm



# 39-41 mm

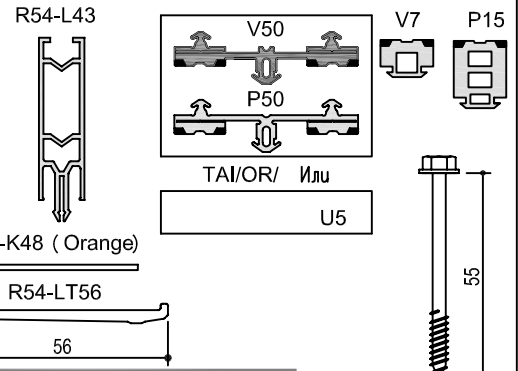
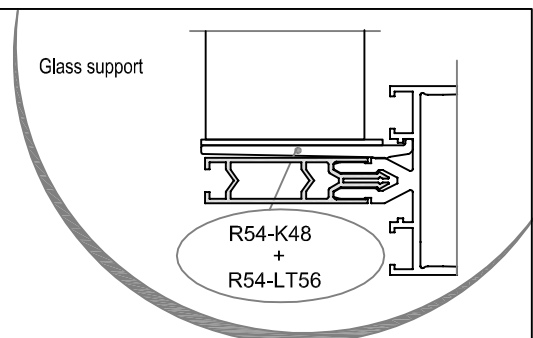
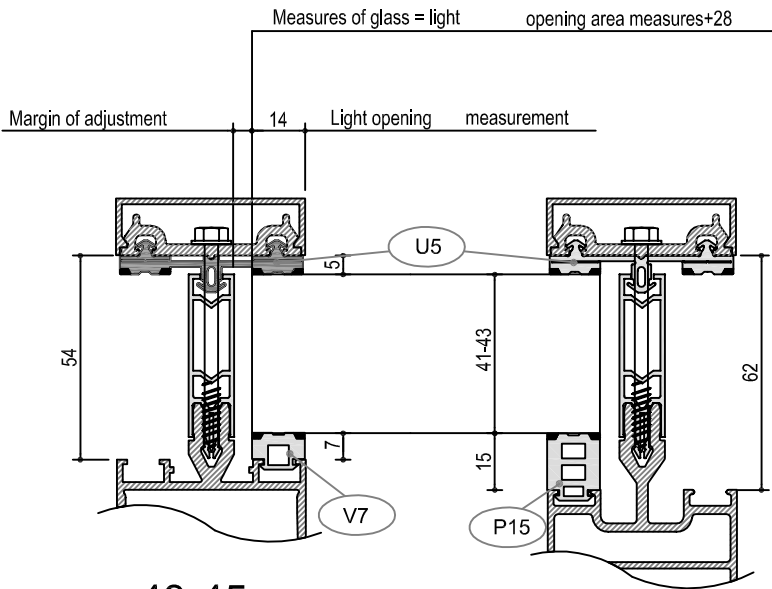


Facade glass 6 mm

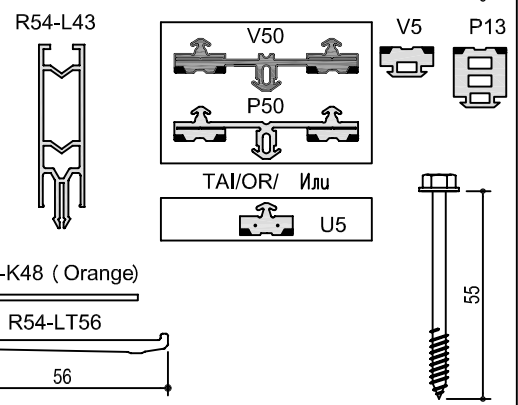
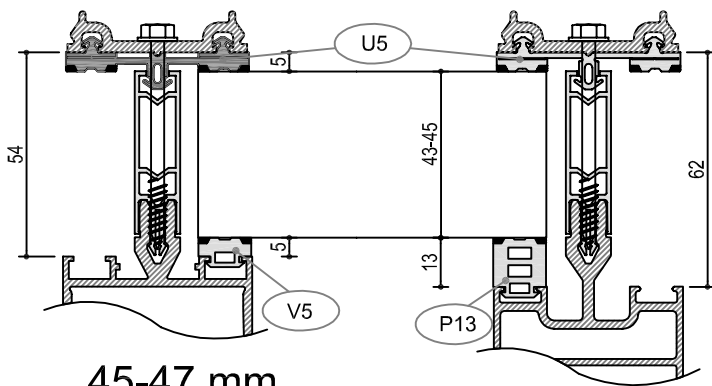


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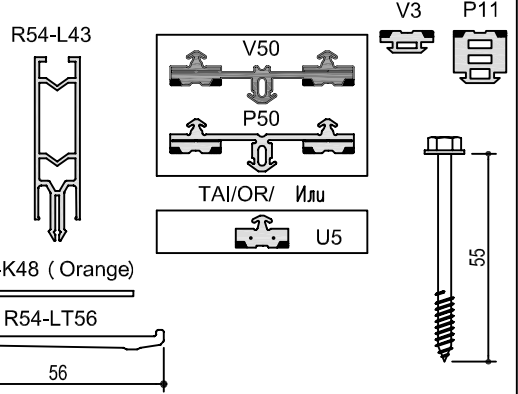
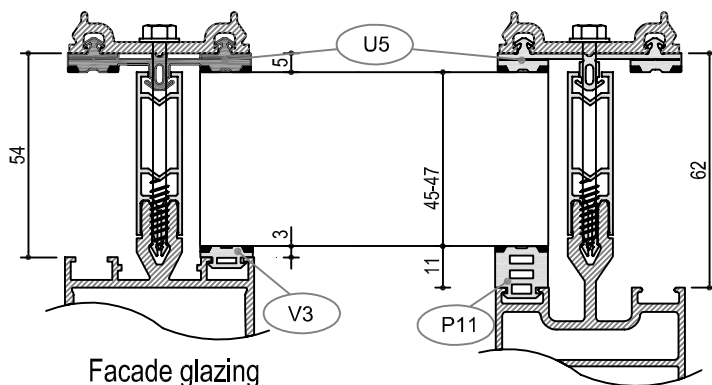
# 41-43 mm



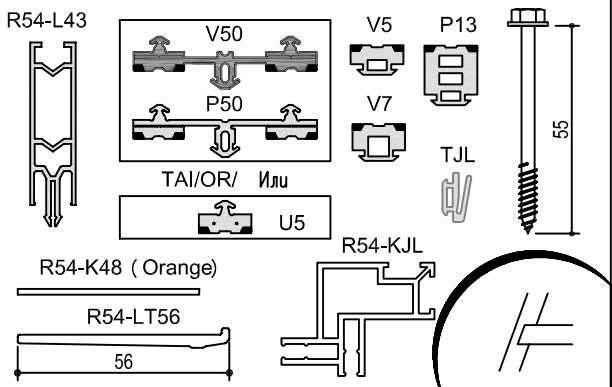
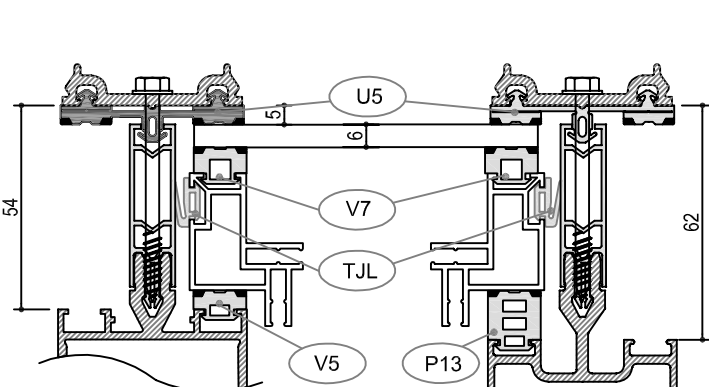
# 43-45 mm



# 45-47 mm



# Facade glazing



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**R54 2.24**

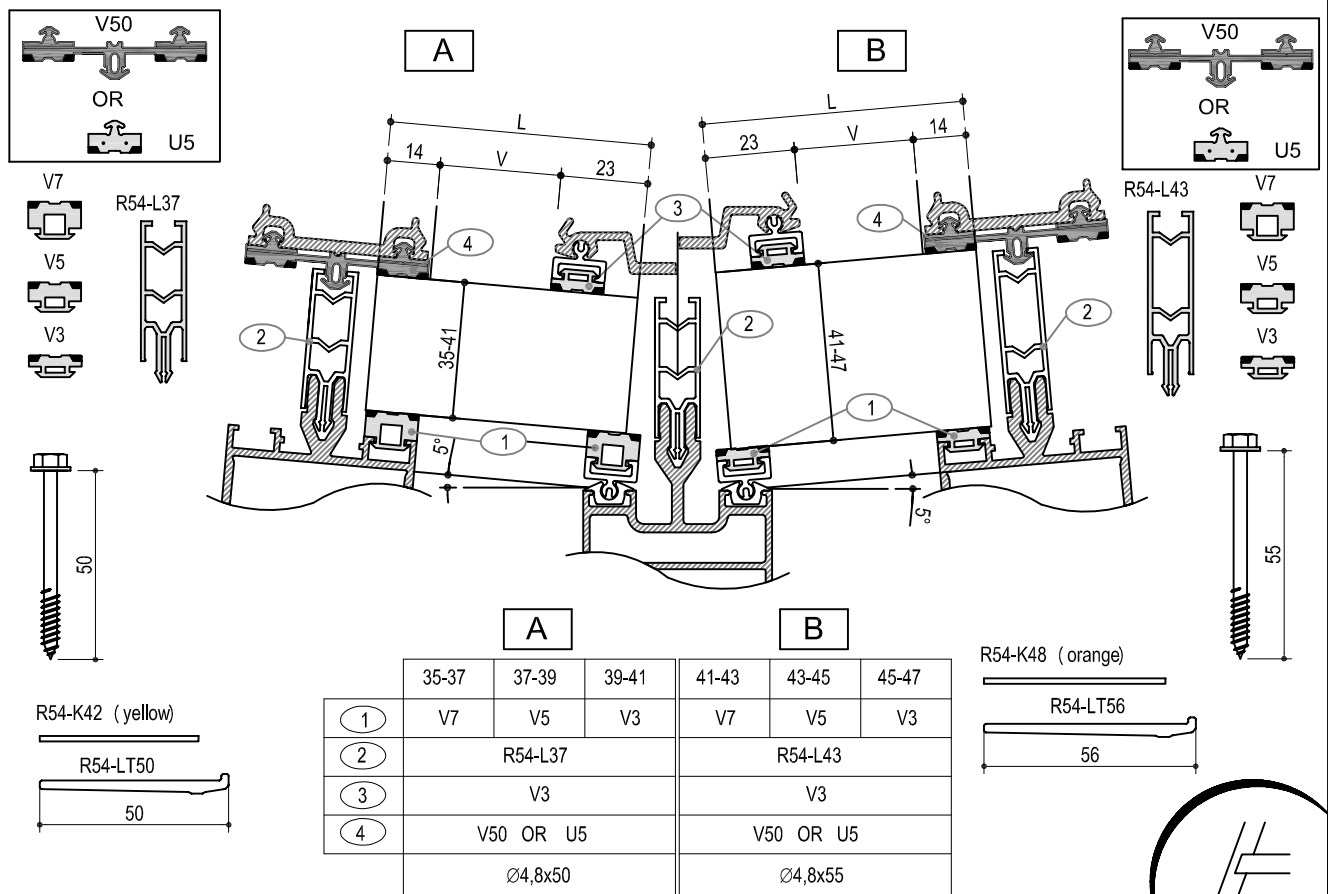
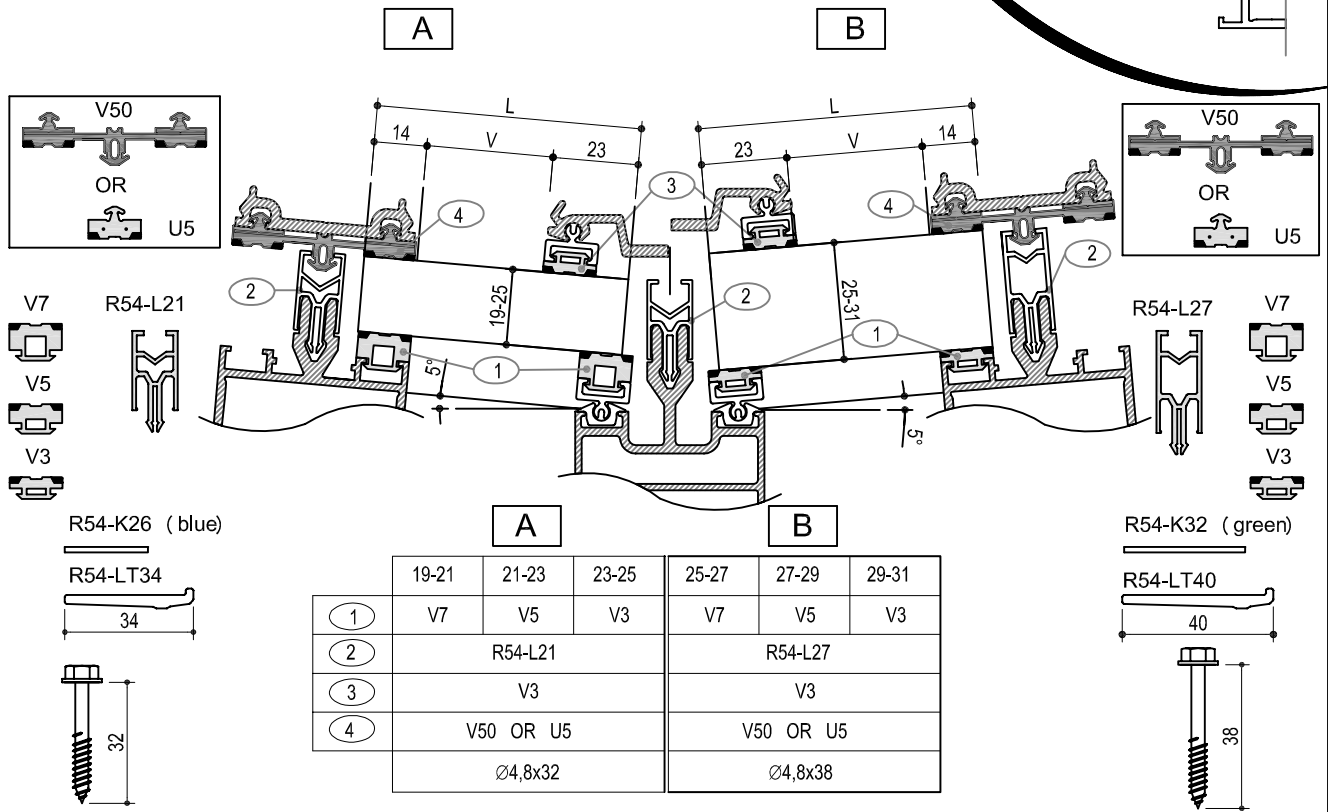
**NOKIAN PROFILES**

Glazing, 3K 41-47

L= Measures of glass

V= Light opening measurement

Glass support



01.07.2013



**NOKIAN**  
PROFILES

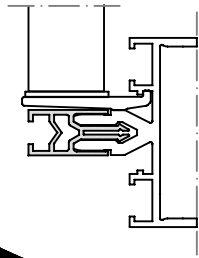
**R54 2.25**

Glazing, rotating

L= Measures of glass

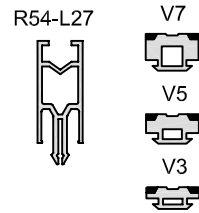
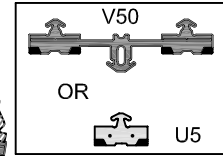
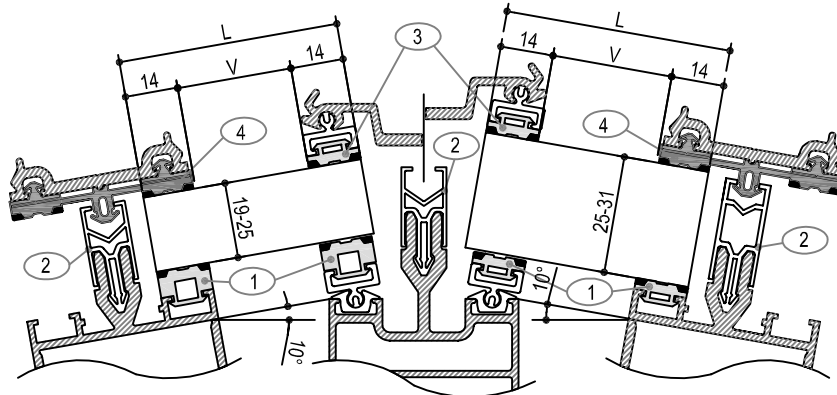
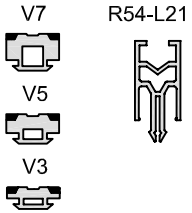
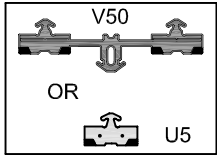
V= Light opening measurement

Glass support

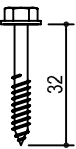
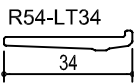


A

B



R54-K26 (blue)

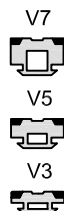
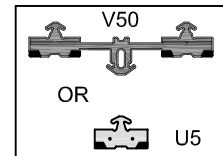
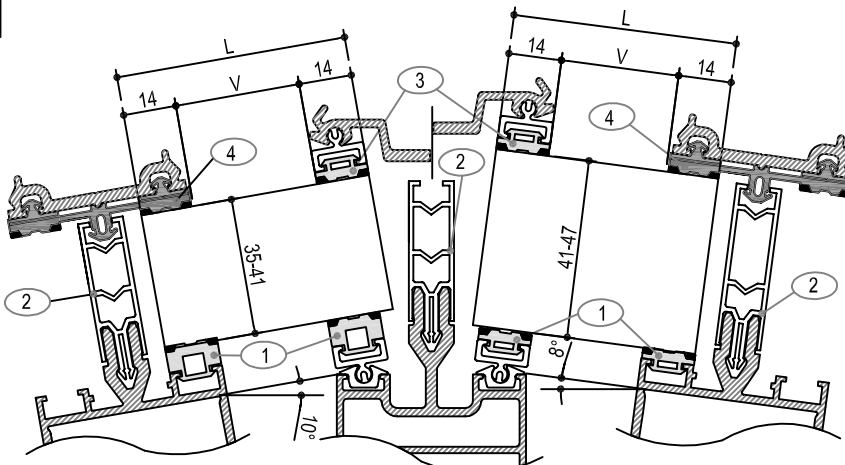
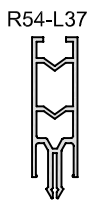
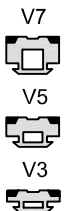
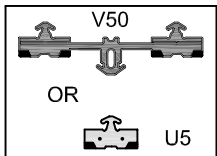
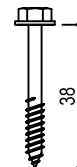
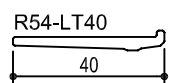


A

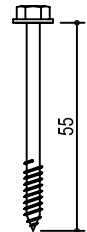
B

	19-21	21-23	23-25	25-27	27-29	29-31
①	V7	V5	V3	V7	V5	V3
②	R54-L21			R54-L27		
③	V3			V3		
④	V50 OR U5			V50 OR U5		
	Ø4,8x32			Ø4,8x38		

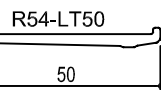
R54-K32 (green)



R54-L43



R54-K42 (yellow)

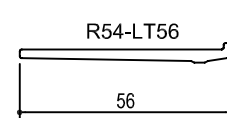


A

B

	35-37	37-39	39-41	41-43	43-45	45-47
①	V7	V5	V3	V7	V5	V3
②	R54-L37			R54-L43		
③	V3			V3		
④	V50 OR U5			V50 OR U5		
	Ø4,8x50			Ø4,8x55		

R54-K48 (orange)



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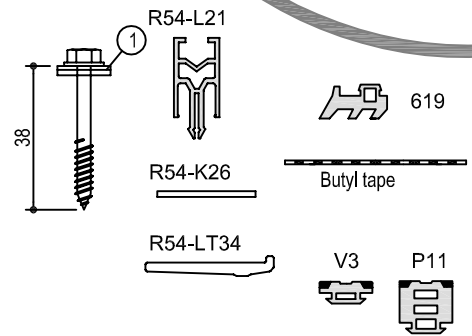
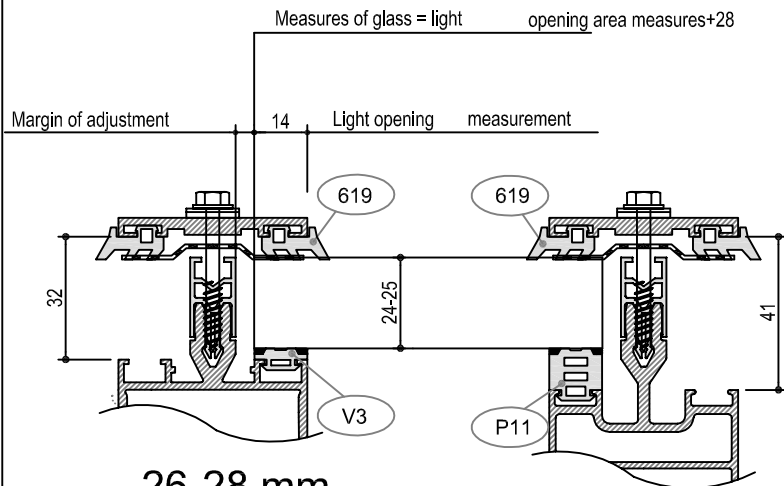
2.26 R54



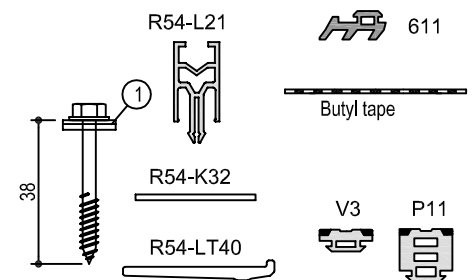
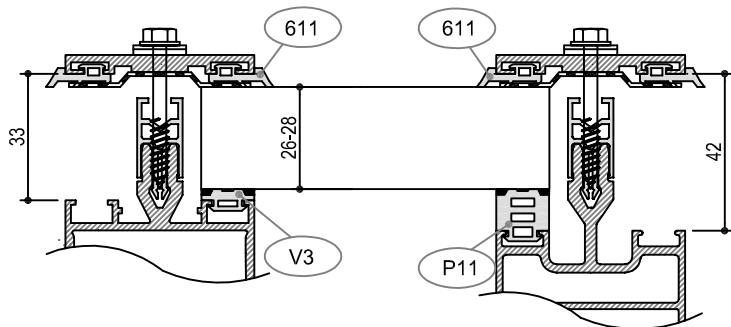
Glazing, rotating



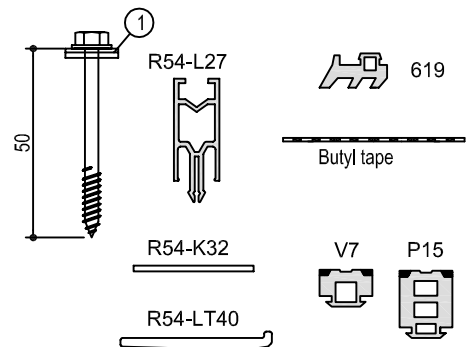
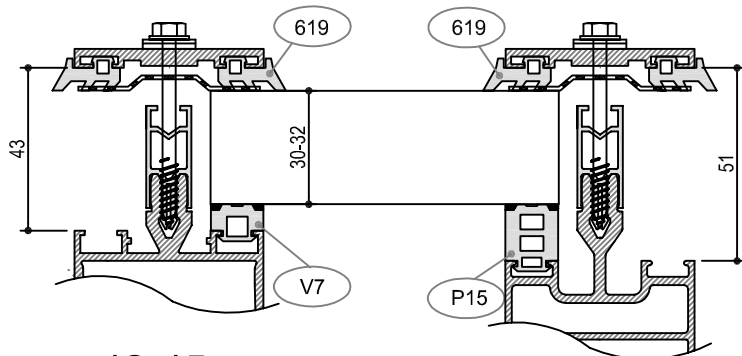
## 24-25 mm



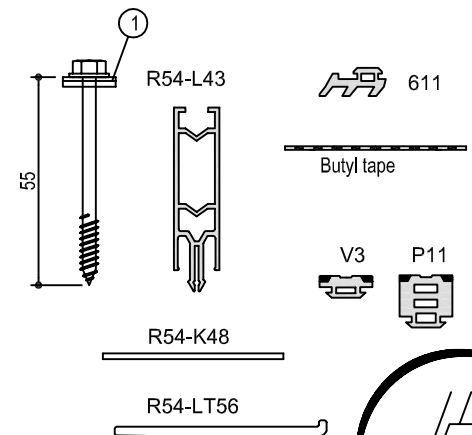
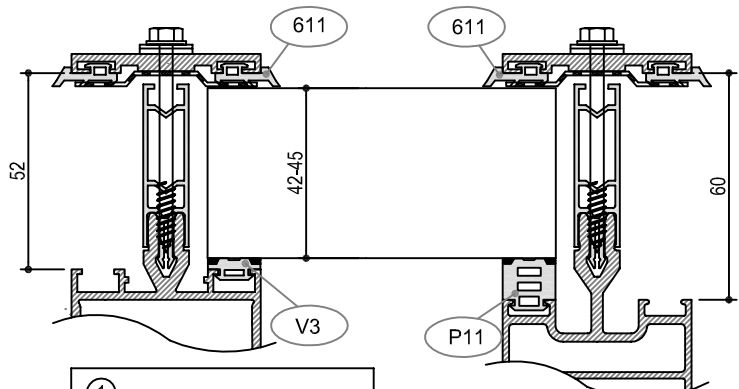
## 26-28 mm



## 30-32 mm



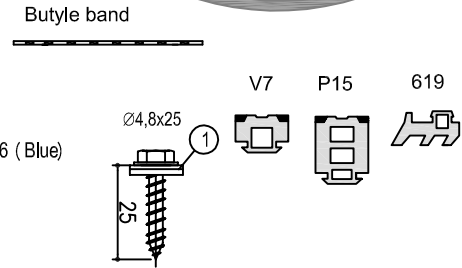
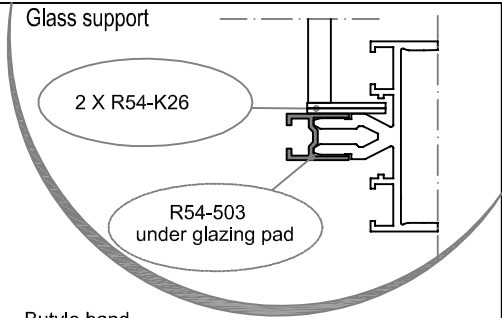
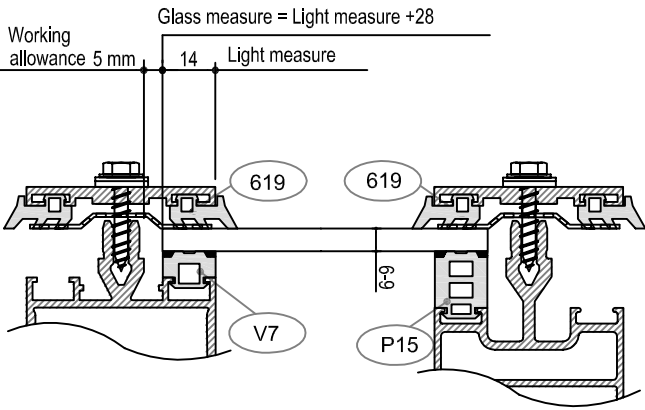
## 42-45 mm



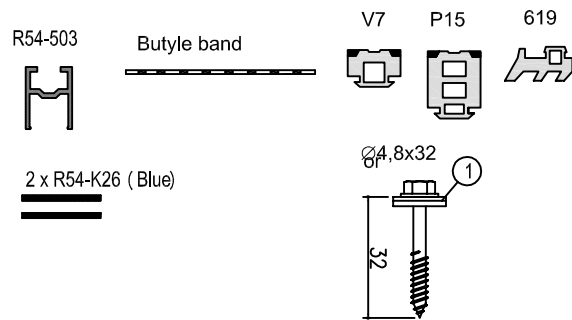
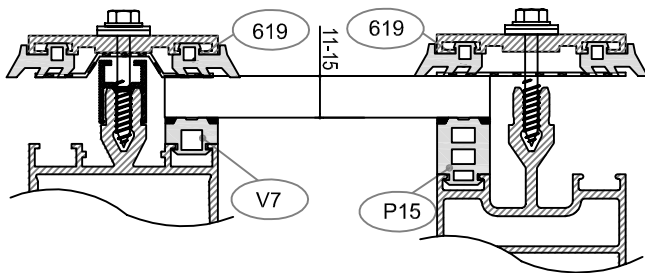
① Washer+EPDM-sealing

01.07.2013

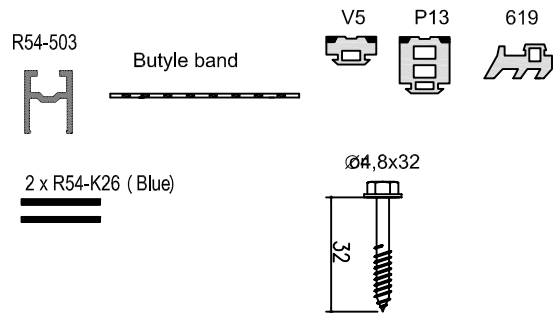
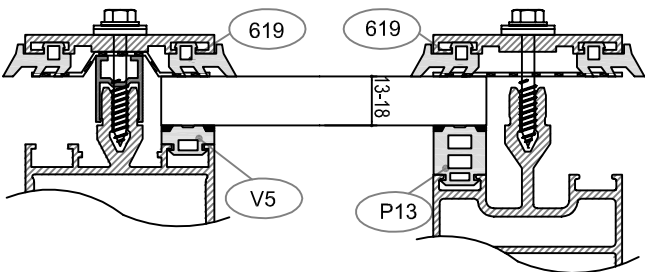
# 6-9 mm



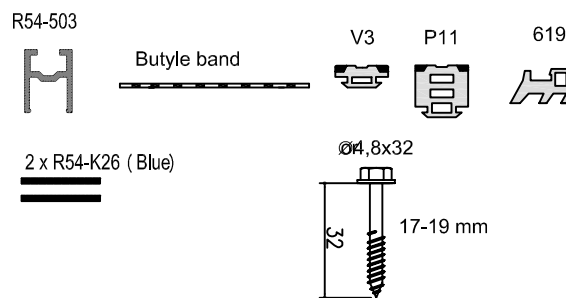
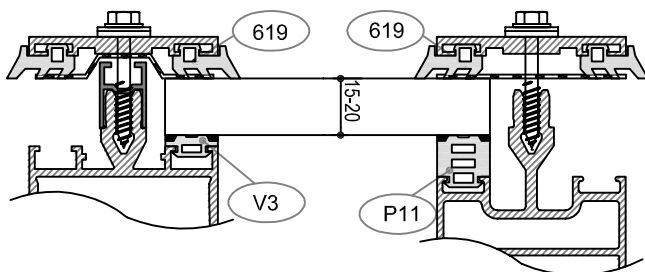
# 11-15 mm



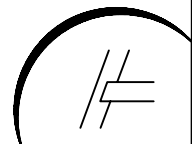
# 13-18 mm



# 15-20 mm



① Washer+EPDM-sealing



01.07.2013

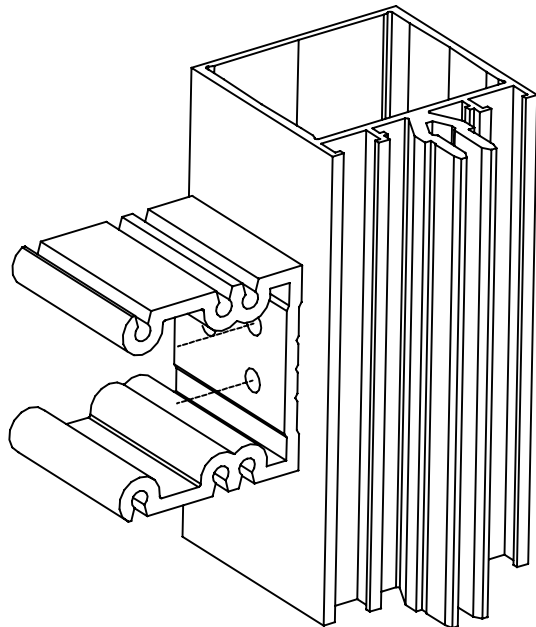
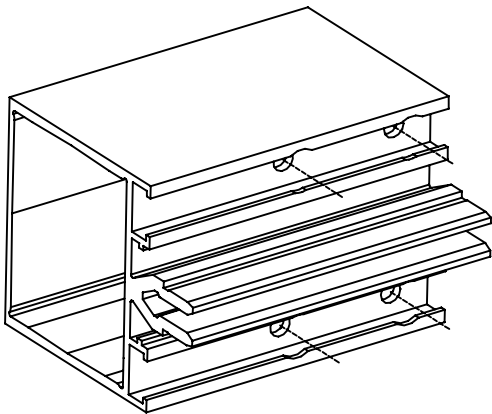
2.28 R54



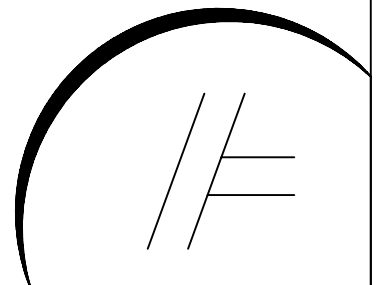
Glazing, light roof single glass



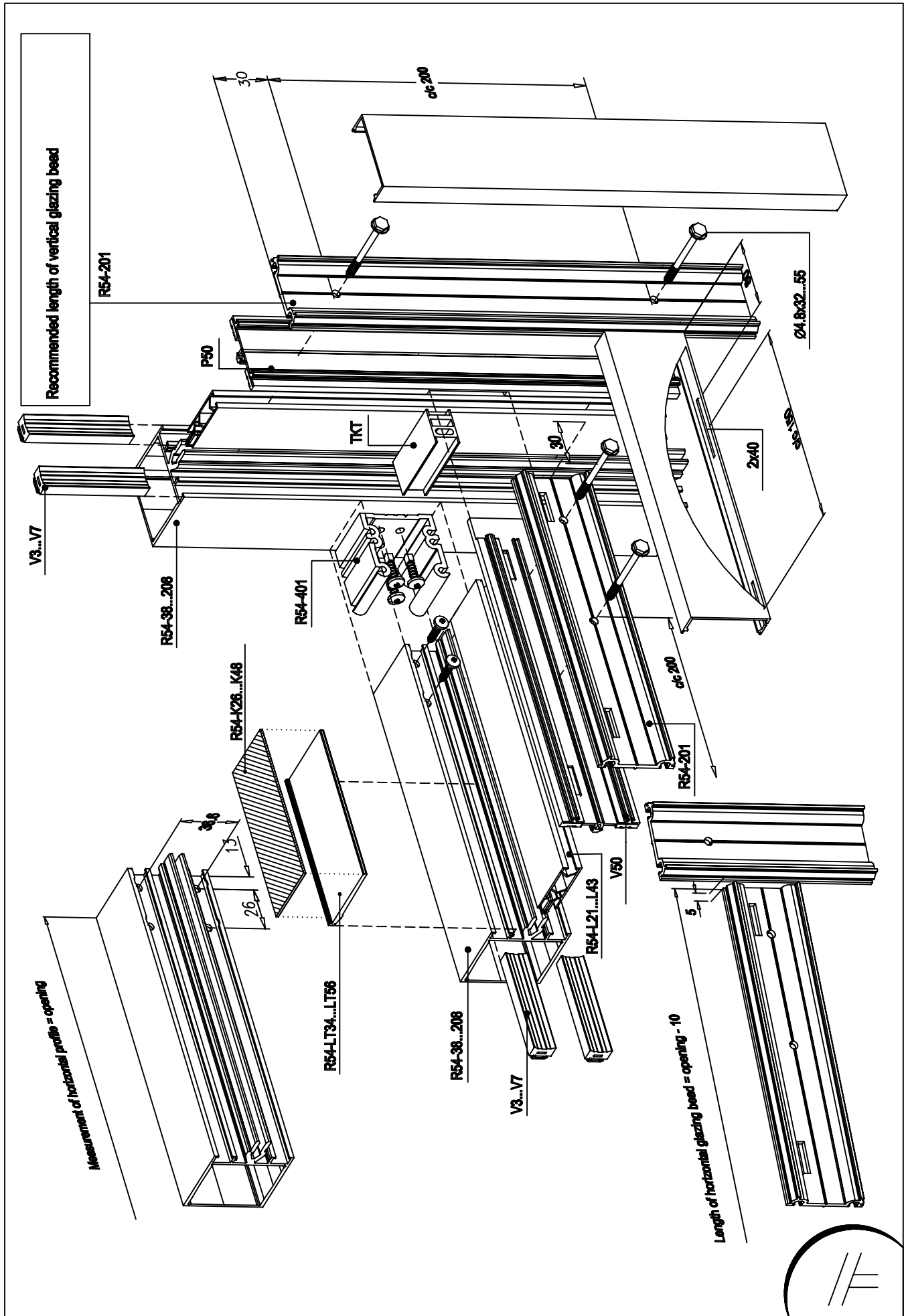
# Butt joint

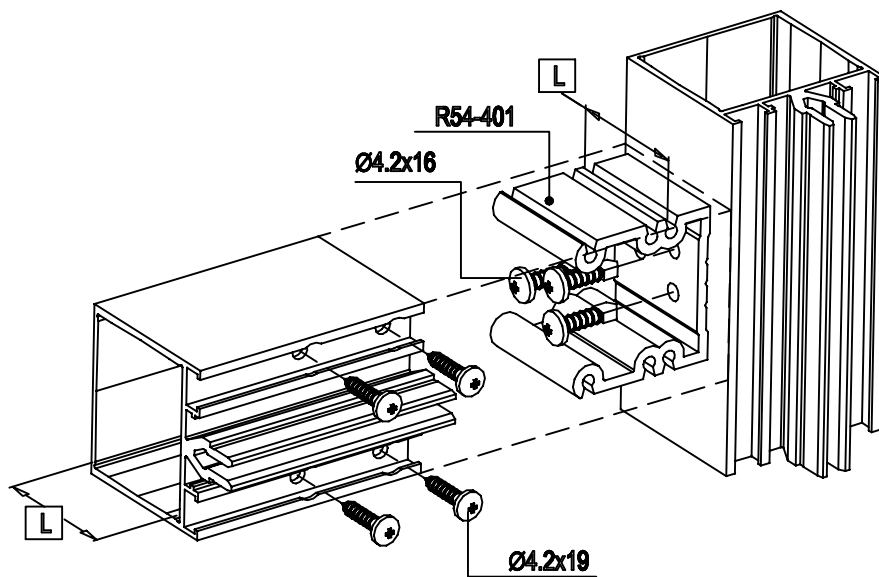
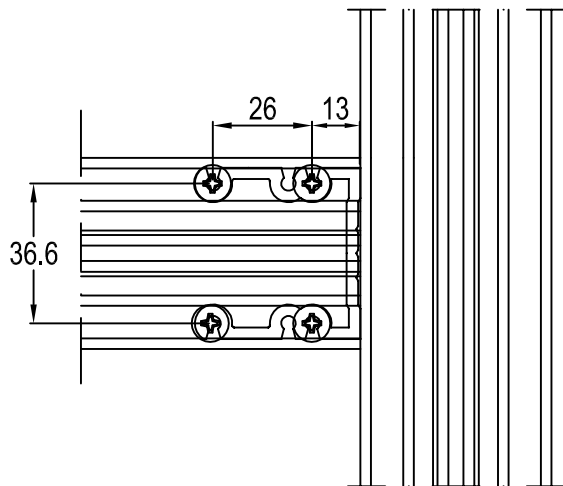


01.07.2013

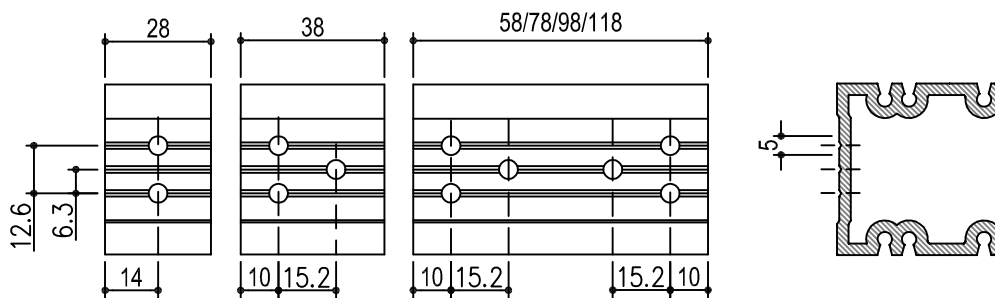








Frame profile	Nominal length of connection piece	L	R54-428
R54-38	28		
R54-48	38		
R54-68	58		
R54-88	78		
R54-108	98		
R54-128	118		
R54-148	138		
R54-168	158		
R54-188	2 x 87		
R54-208	2 x 97		

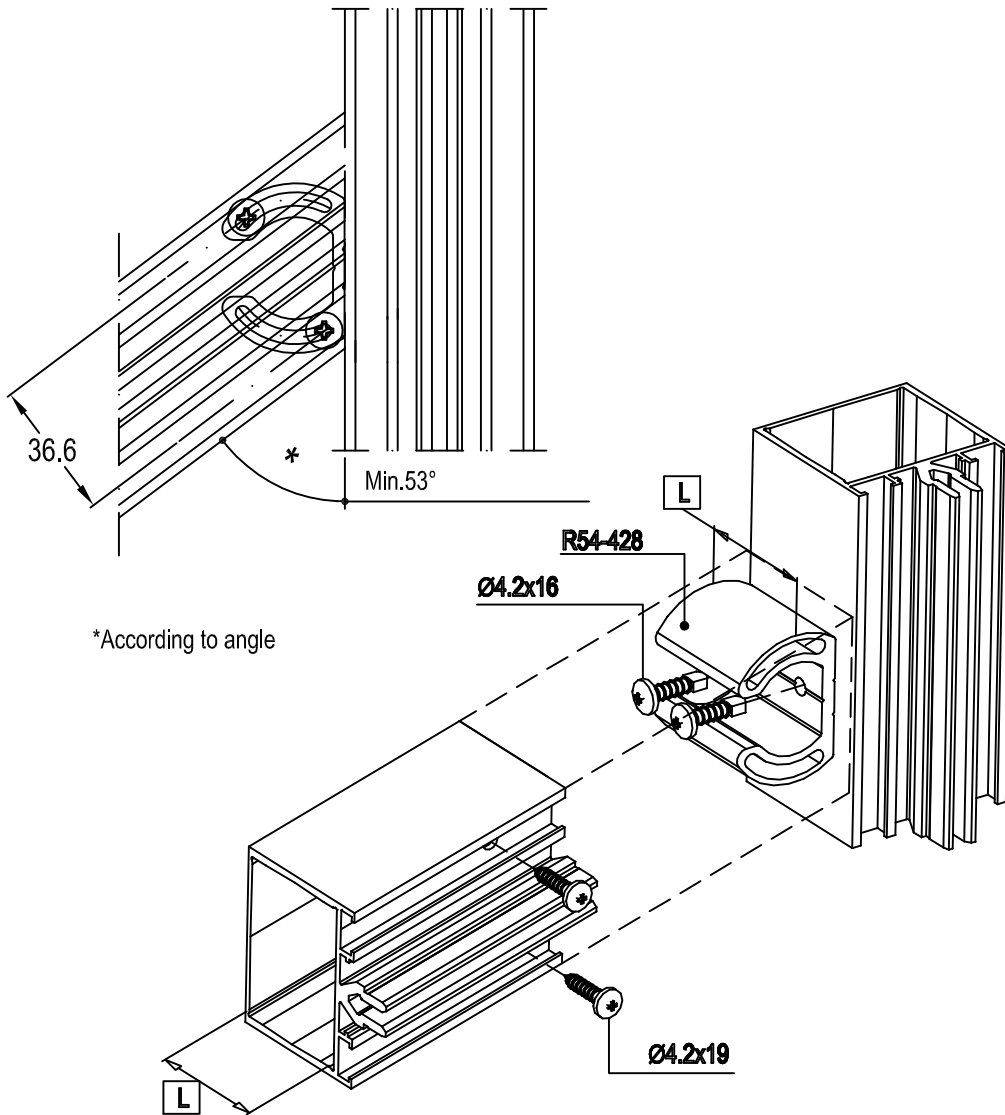


03.03.2016

**R54 3.2**

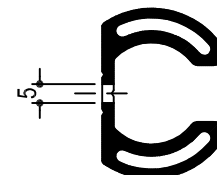
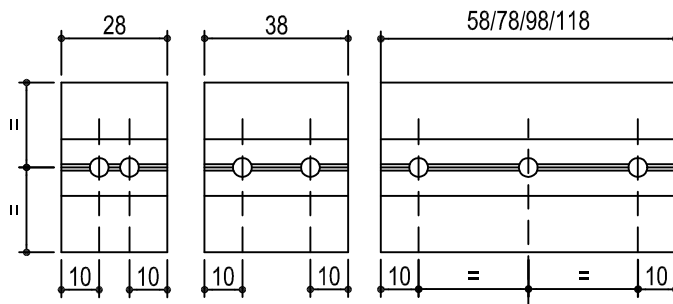
**NOKIAN**  
PROFILES

Joint



\*According to angle

Frame profile	Nominal length of connection piece	L	R54-428
R54-38	28		
R54-48	38		
R54-68	58		
R54-88	78		
R54-108	98		
R54-128	118		
R54-148	138		
R54-168	158		
R54-188	2 x 87		
R54-208	2 x 97		

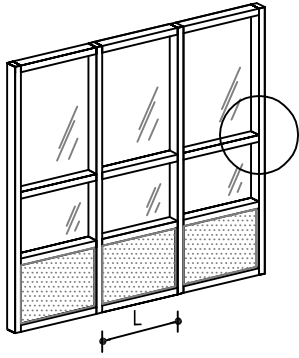


03.03.2016

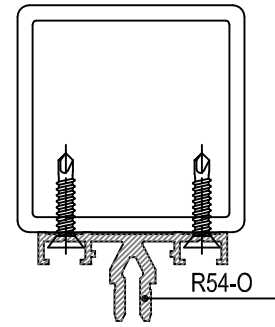
Joint, free angle

**NOKIAN**  
PROFILES

**R54 3.3**

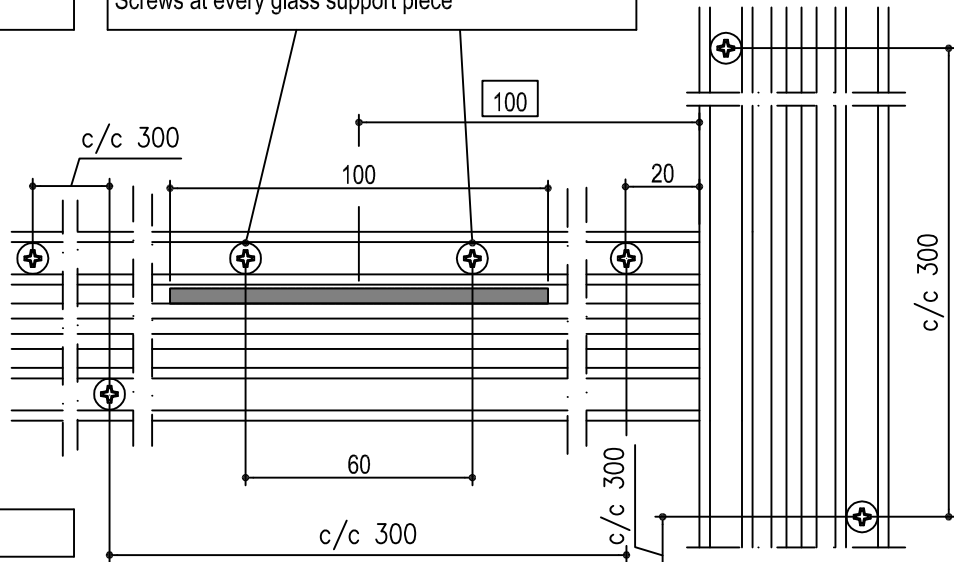
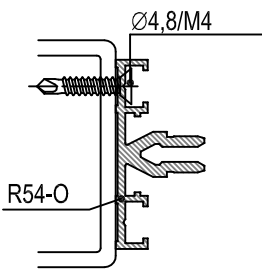


0-frame mounting screws		
Vertical frame	R54-O	Ø4.8x13 / 4.8x19P
Horizontal frame	R54-O	Ø4.8x22 / 4.8x32P

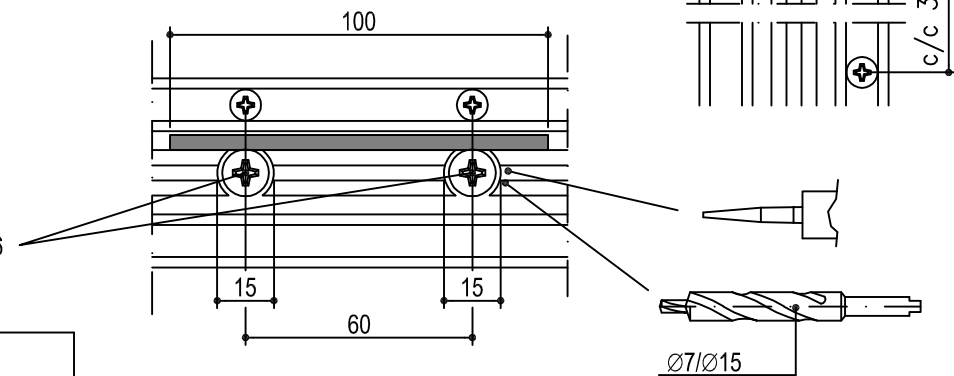
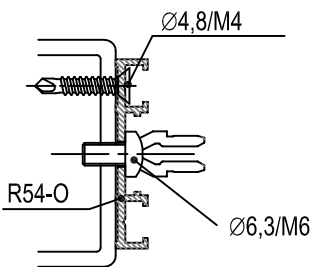


Glass weight < 80 kg

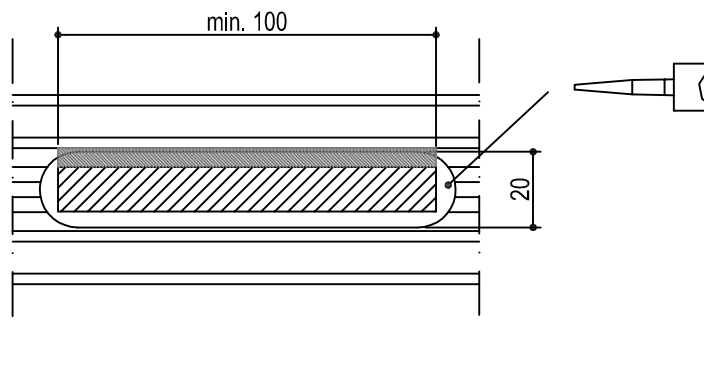
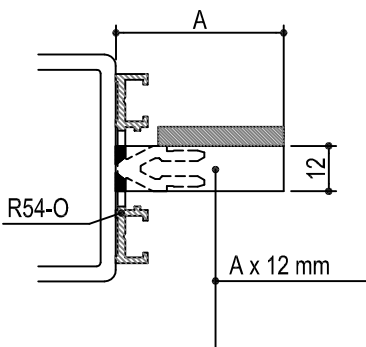
Screws at every glass support piece



Glass weight 80...160 kg



Glass weight > 160 kg

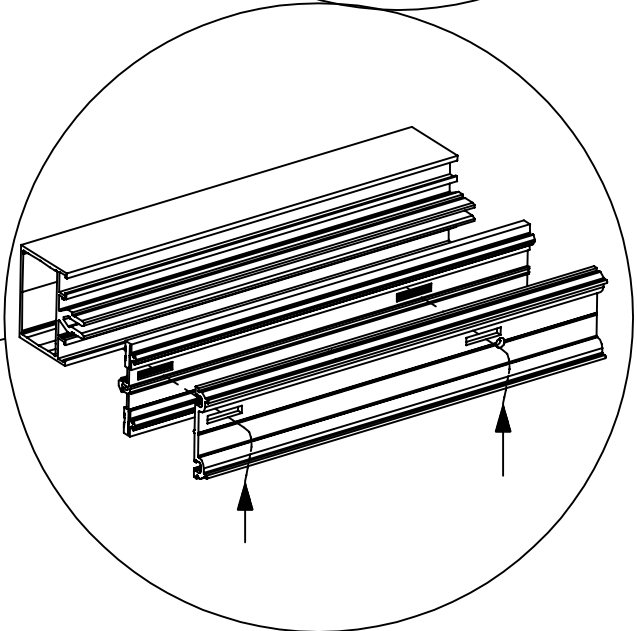
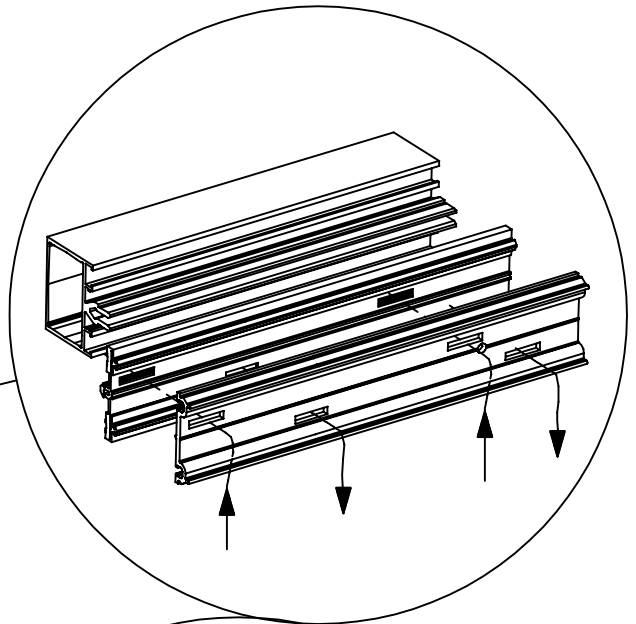
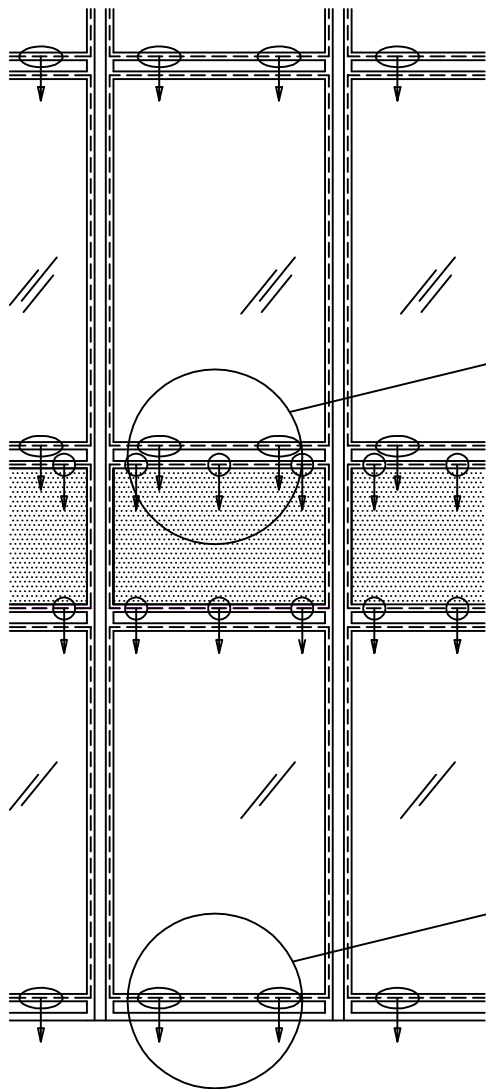


16.02.2016

**R54 3.4**



Mounting of 0-frame & glass support

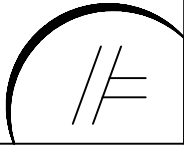


**INSULATION GLASSES**

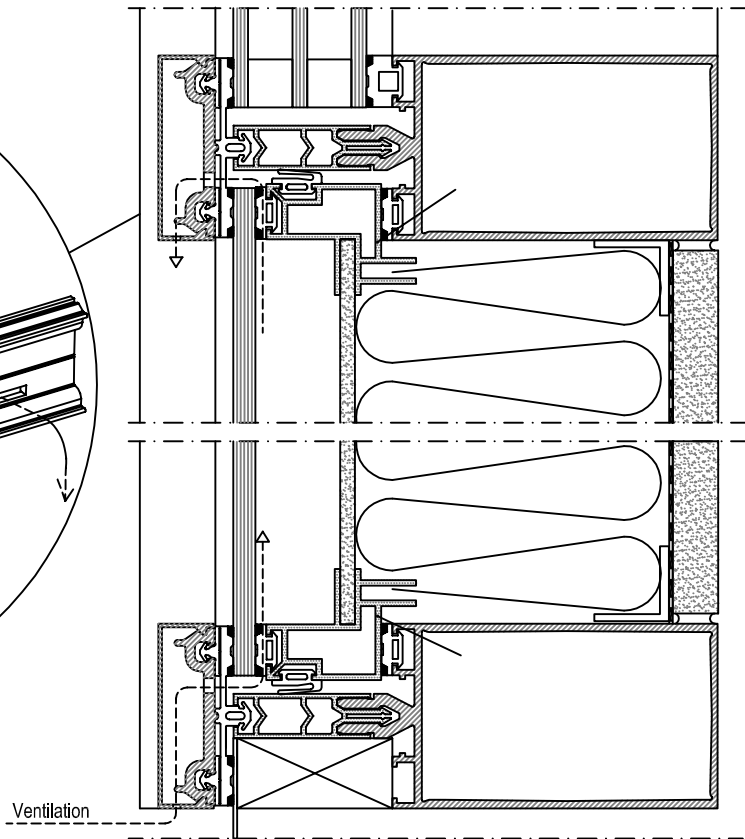
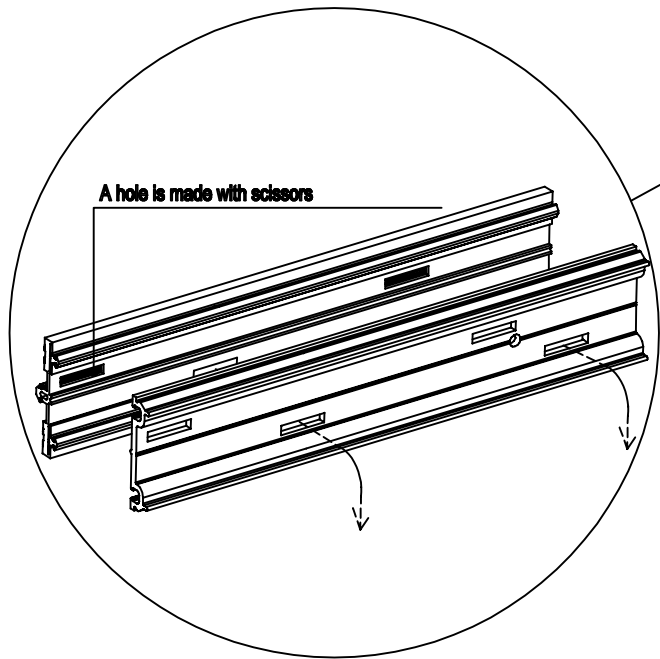
Glass space is ventilated through ventilation holes made in the horizontal glazing beads, min. 2 holes 4x20 mm . Maximum distance between holes is 600 mm. For humid locations and large glass panes, ventilation holes 4x20 mm , c/c 150, are recommended for the top and bottom glazing bead.

**FACADE GLASSES**

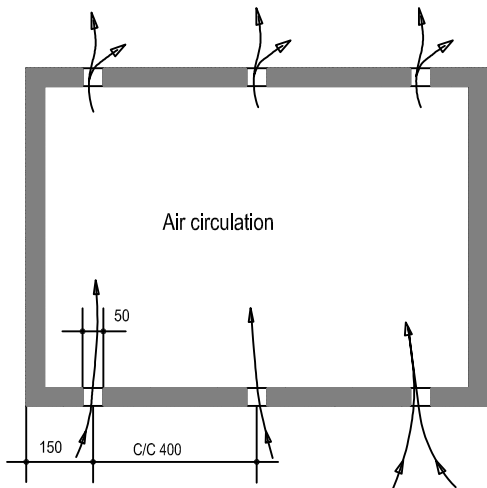
Ventilation holes 4x20 mm , c/c 150, are made in the horizontal glazing beads in the top and bottom glazing space.



01.07.2013



Break-off interior glazing sealing V3...V7 in vented enclosed space



Glazing bead vent holes, see page  
Machining and installation of glazing beads and cover profiles

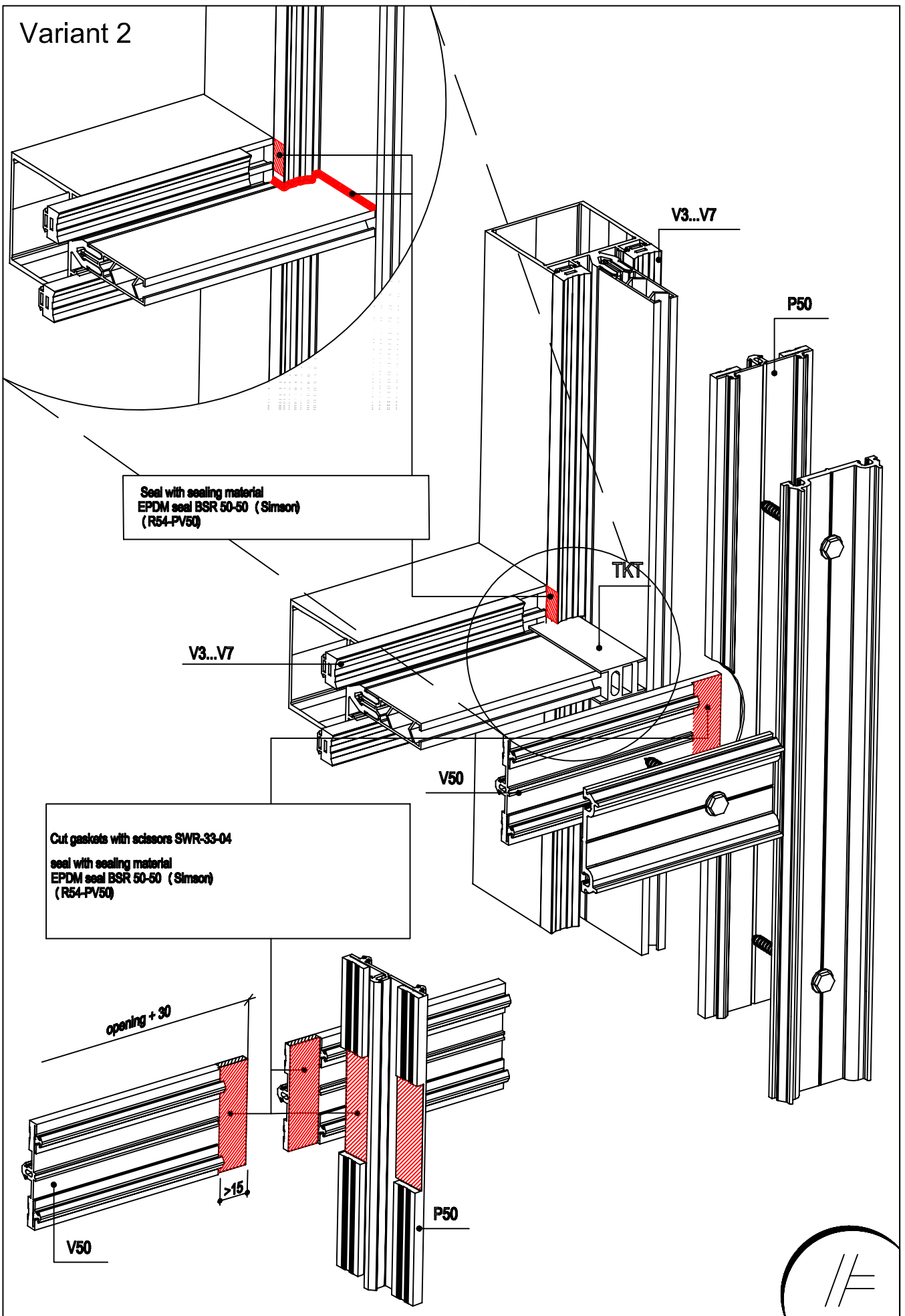
Note: In corners, the sealings must be attached to each other; the instructions refers to all sealing options

-Note: When tightening, be careful for the glazing screw at the vent outlet.

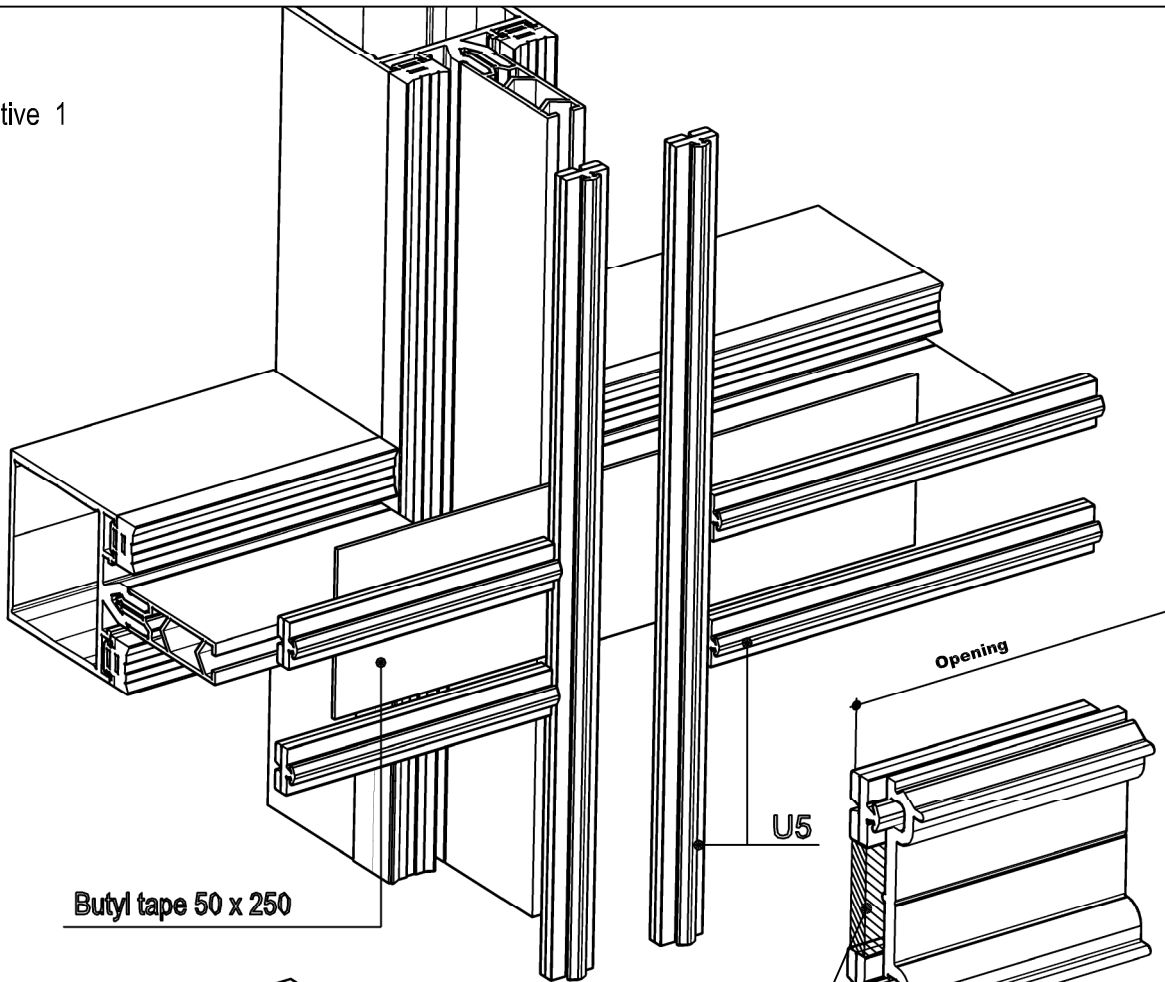




Variant 2

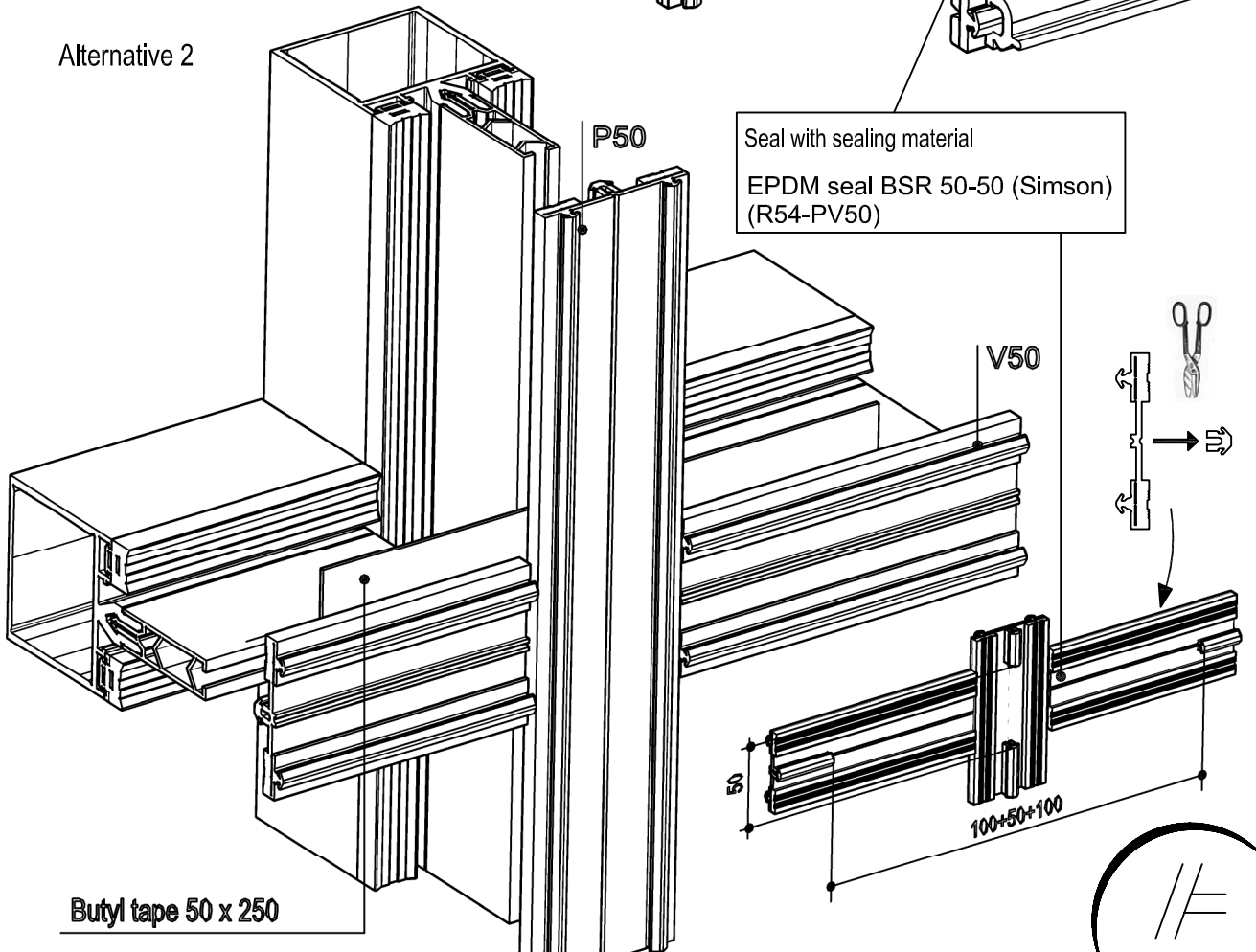


Alternative 1



Butyl tape 50 x 250

Alternative 2



Butyl tape 50 x 250

Seal with sealing material  
EPDM seal BSR 50-50 (Simson)  
(R54-PV50)

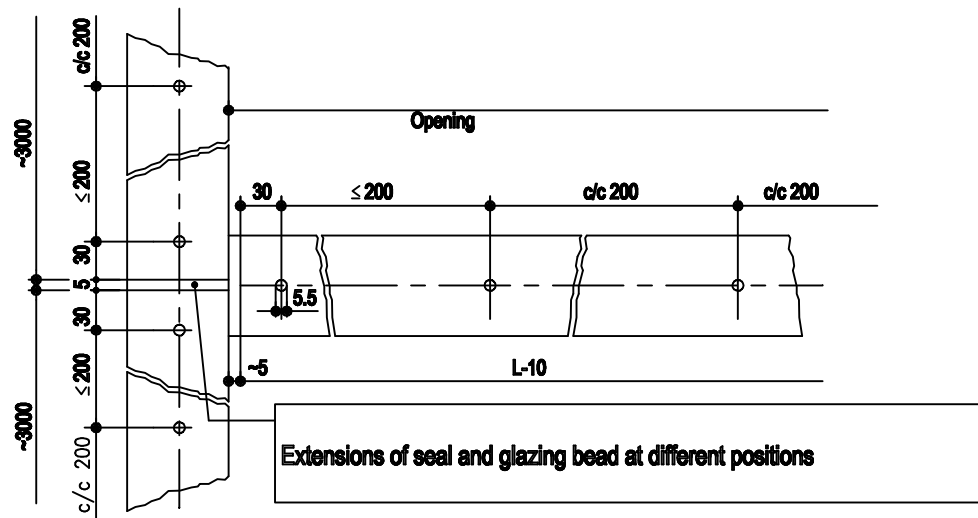
01.07.2013

**R54** 3.8

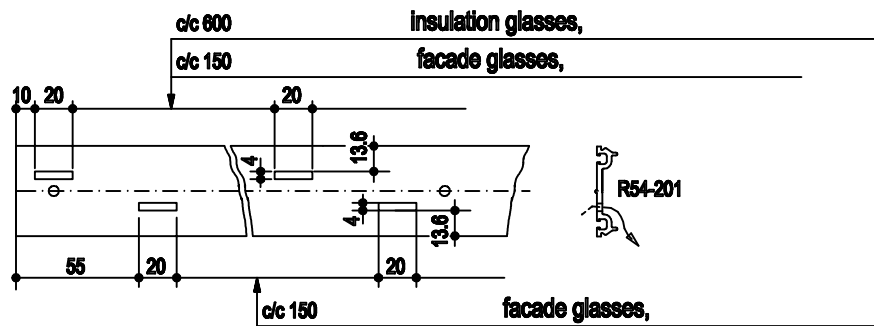
**NOKIAN**  
PROFILES

Sealing II

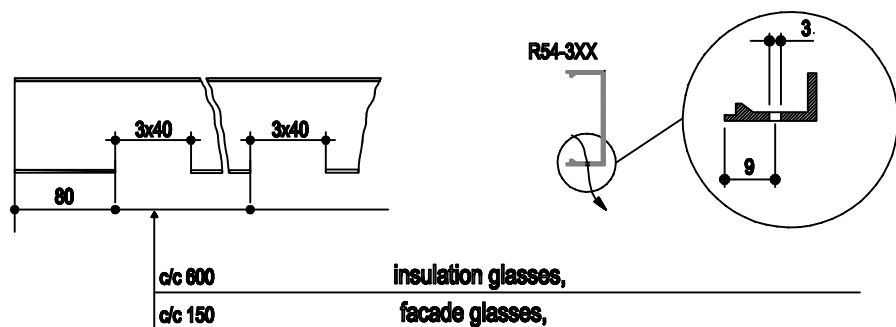
## Mounting/extending a glazing bead



## Glazing bead ventilation holes



## Covering bead ventilation holes, facade glasses



**GLAZING BEADS:**

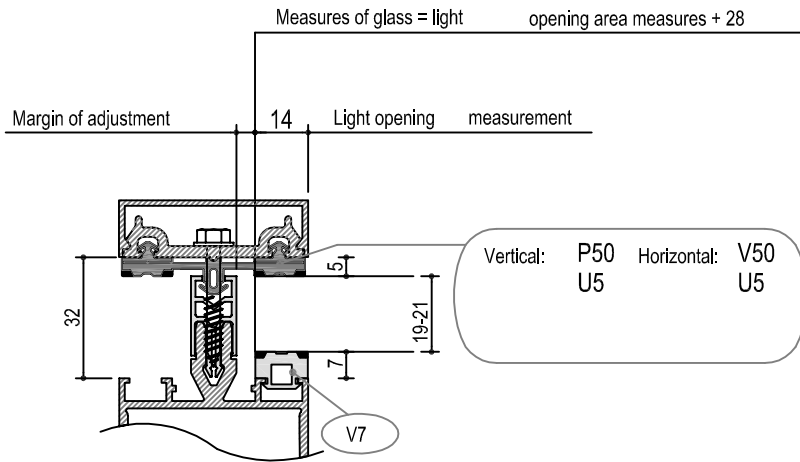
Glass is attached with a perforated glazing bead profile, ~3000 mm.  
Usually horizontal glazing beads are installed between vertical beads.

**COVERING BEADS:**

Horizontal covering beads are cut and tooled as shown in the figure.  
The covering bead is placed on the glazing bead. Ensure that the bead is positioned correctly.



# 19-21 mm



Glass support

R54-K26 + R54-LT34

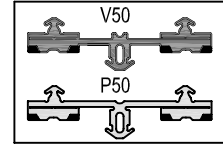
Vertical: P50 U5 Horizontal: V50 U5

R54-L21

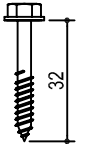
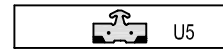
R54-K26 (Blue)

R54-LT34

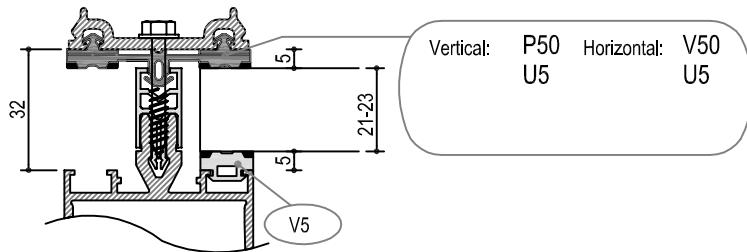
34



OR



# 21-23 mm



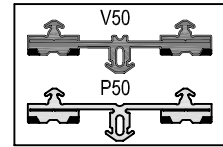
Vertical: P50 U5 Horizontal: V50 U5

R54-L21

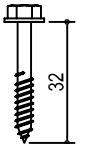
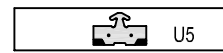
R54-K26 (Blue)

R54-LT34

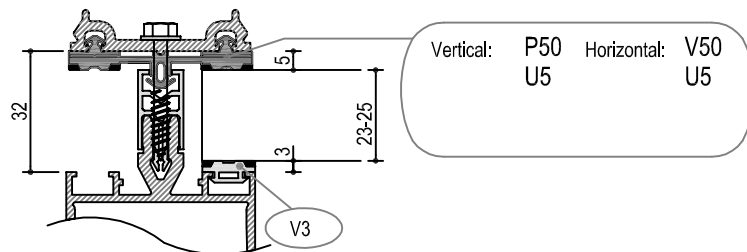
34



OR



# 23-25 mm



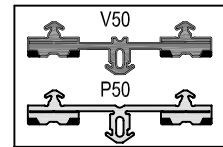
Vertical: P50 U5 Horizontal: V50 U5

R54-L21

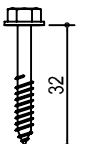
R54-K26 (Blue)

R54-LT34

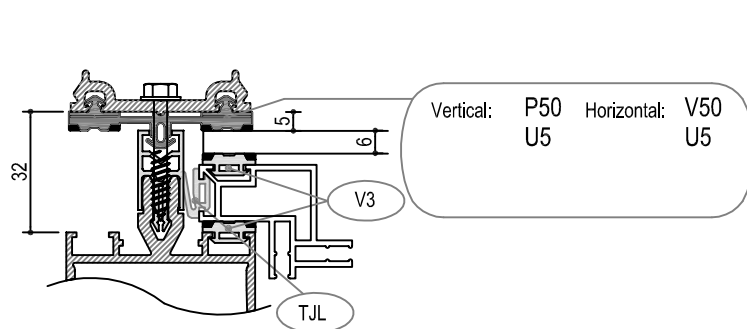
34



OR



# Facade glazing 6 mm



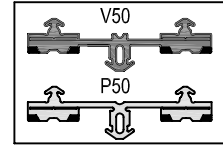
Vertical: P50 U5 Horizontal: V50 U5

R54-L21

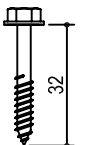
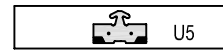
R54-K26 (Blue)

R54-LT34

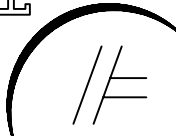
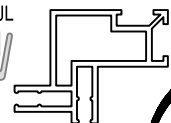
34



OR

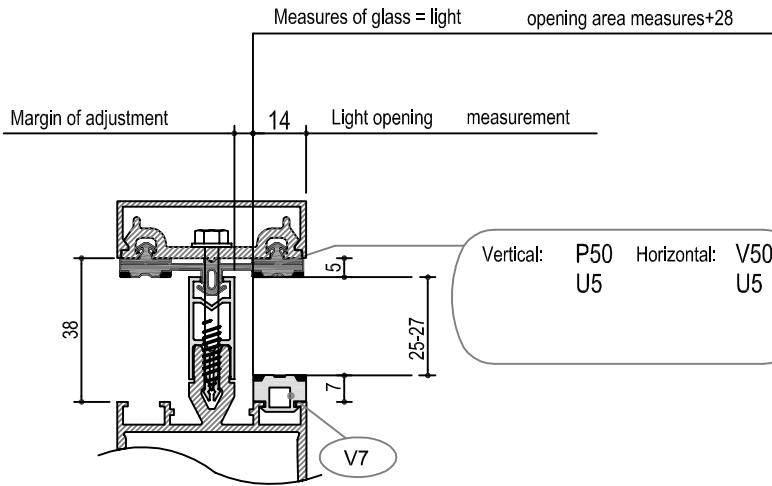


R54-KJL



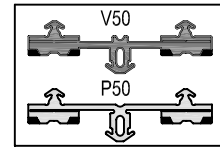
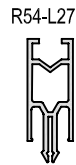
01.07.2013

# 25-27 mm

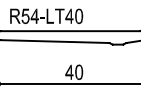
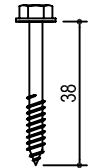
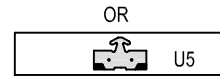


Glass support

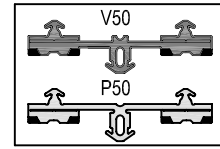
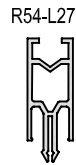
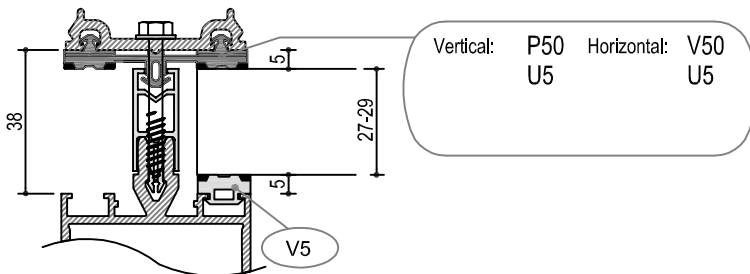
R54-K32 + R54-LT40



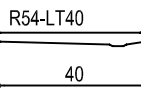
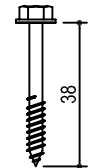
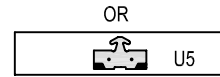
R54-K32 (Green)



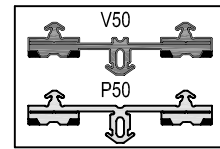
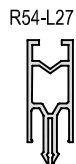
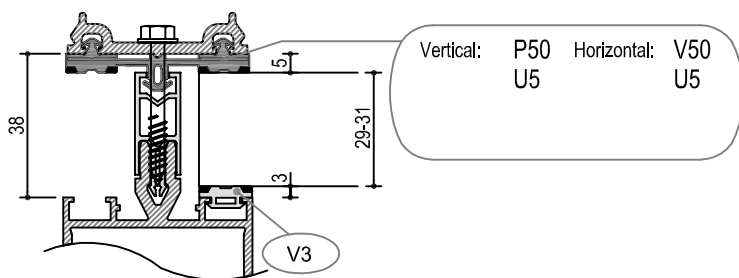
# 27-29 mm



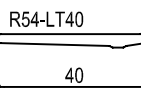
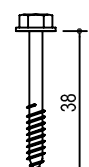
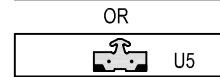
R54-K32 (Green)



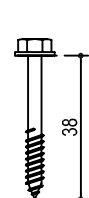
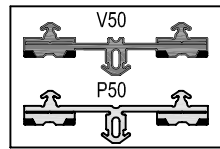
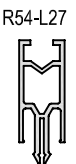
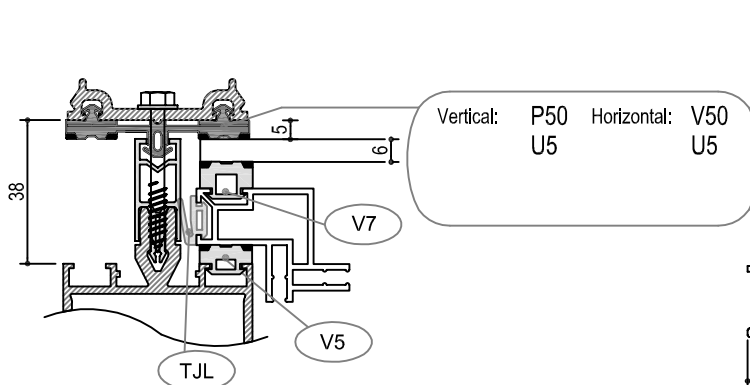
# 29-31 mm



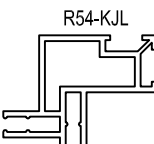
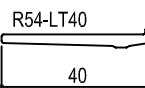
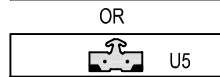
R54-K32 (Green)



# Facade glazing 6 mm



R54-K32 (Green)



01.07.2013

**R54 3.12**

**NOKIAN PROFILES**

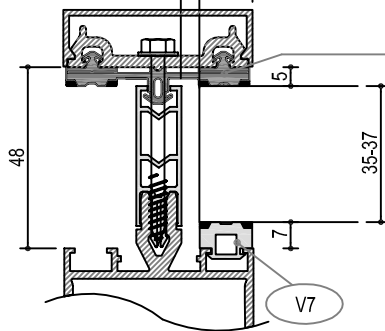
Glazing, 2K 25-31 mm

# 35-37 mm

Measures of glass = light opening area measures + 28

Margin of adjustment

14 Light opening measurement



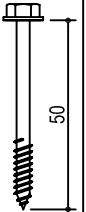
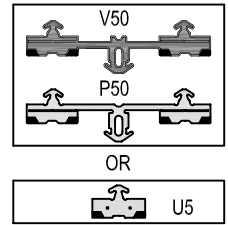
Vertical: P50 Horizontal: V50  
U5 U5

R54-L37

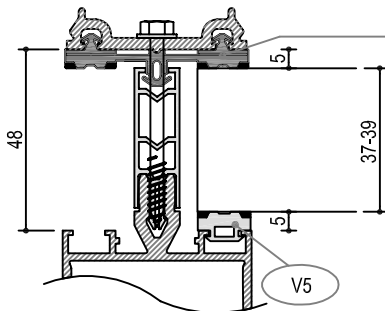
R54-K42 (yellow)

R54-LT50

50



# 37-39 mm



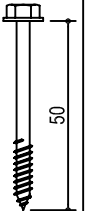
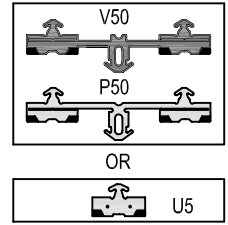
Vertical: P50 Horizontal: V50  
U5 U5

R54-L37

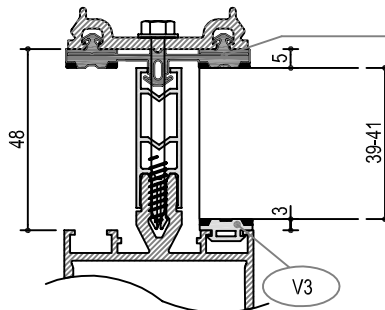
R54-K42 (yellow)

R54-LT50

50



# 39-41 mm



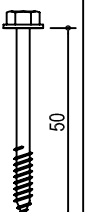
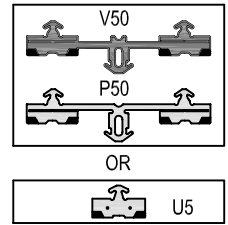
Vertical: P50 Horizontal: V50  
U5 U5

R54-L37

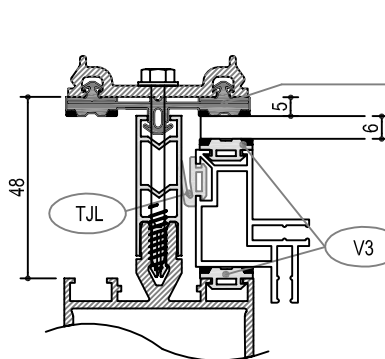
R54-K42 (yellow)

R54-LT50

50



Facade glazing, 6 mm



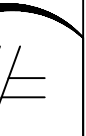
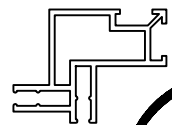
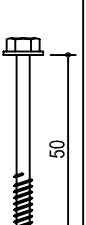
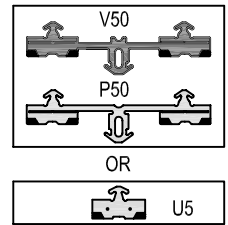
Vertical: P50 Horizontal: V50  
U5 U5

R54-L37

R54-K42 (yellow)

R54-LT50

50



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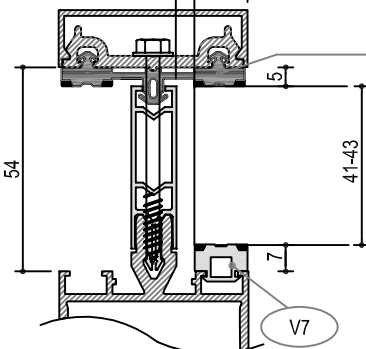
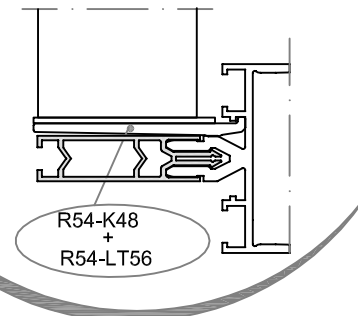
# 41-43 mm

Glass support

Measures of glass = light opening area measures + 28

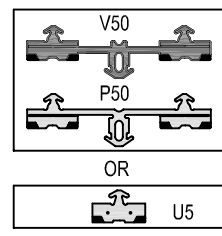
Margin of adjustment

14 Light opening measurement



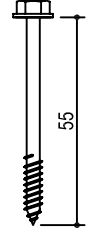
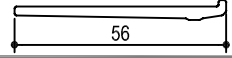
Vertical: P50 U5 Horizontal: V50 U5

R54-L43

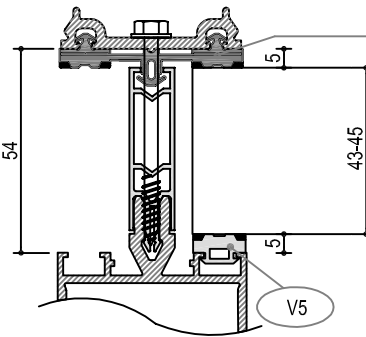


R54-K48 (Orange)

R54-LT56

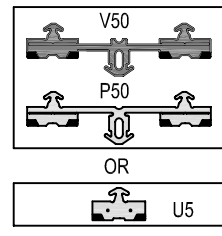


# 43-45 mm



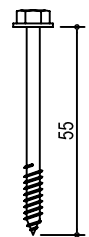
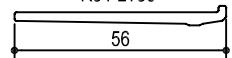
Vertical: P50 U5 Horizontal: V50 U5

R54-L43

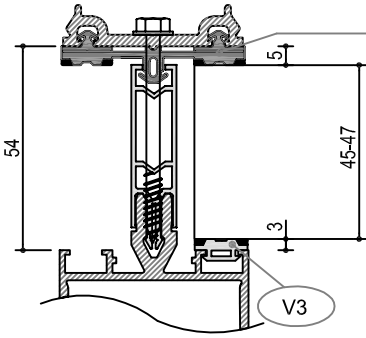


R54-K48 (Orange)

R54-LT56

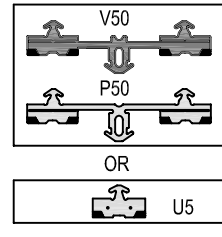


# 45-47 mm



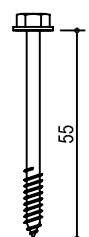
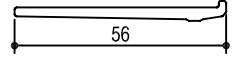
Vertical: P50 U5 Horizontal: V50 U5

R54-L43

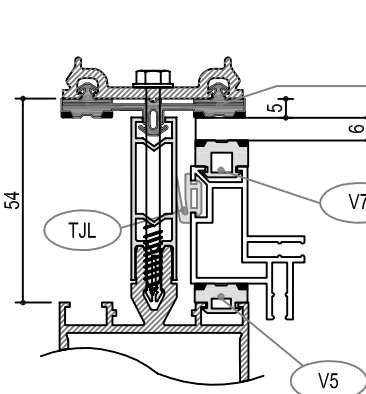


R54-K48 (Orange)

R54-LT56

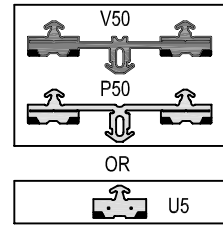


# Facade glazing 6 mm



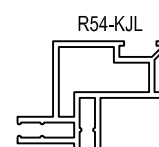
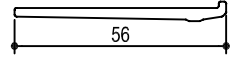
Vertical: P50 U5 Horizontal: V50 U5

R54-L43



R54-K48 (Orange)

R54-LT56



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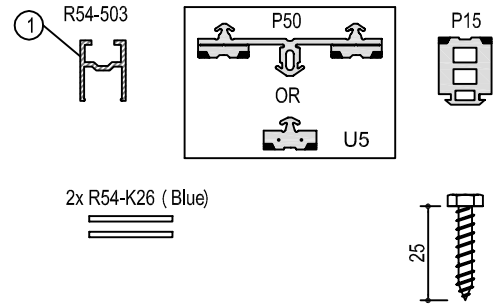
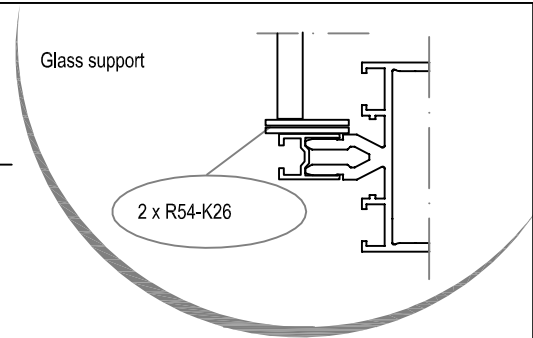
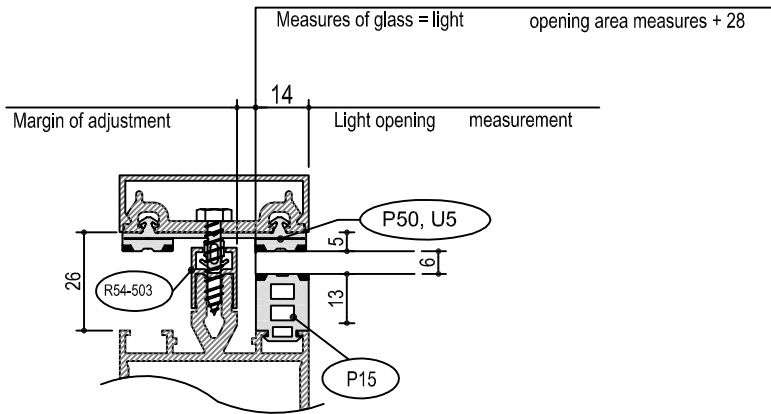
**R54 3.14**



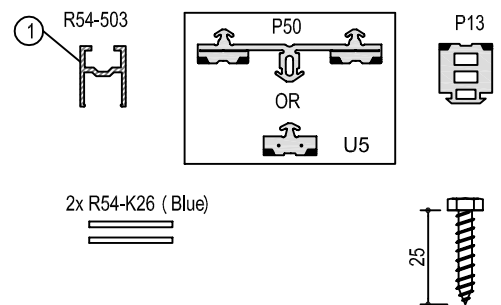
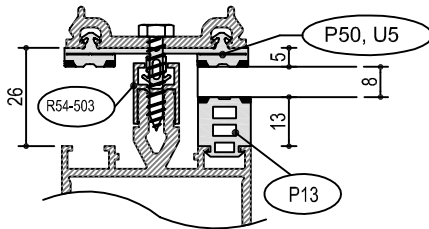
Glazing, 3K 41-47 mm



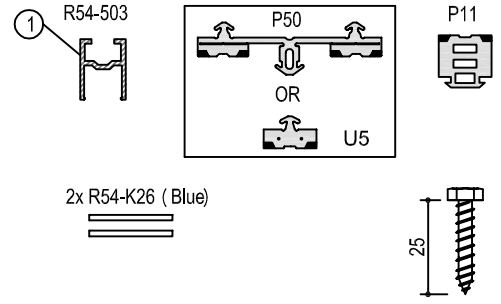
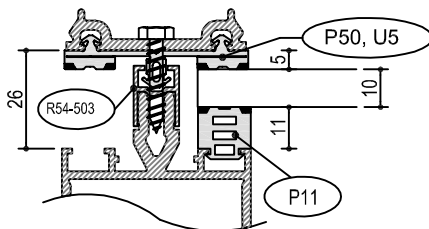
# 6 mm



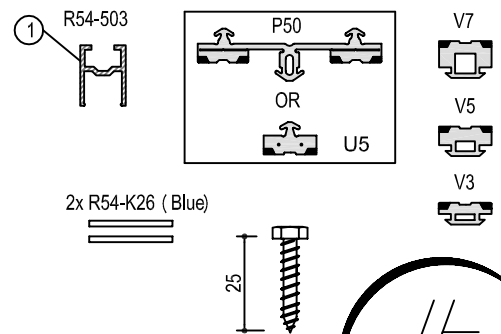
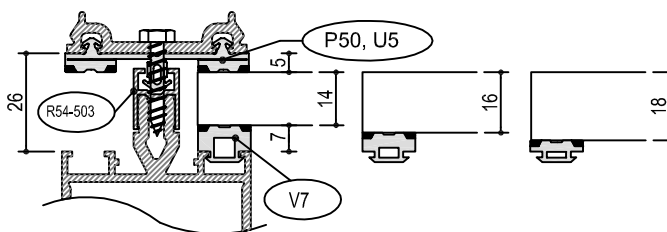
# 8 mm



# 10 mm



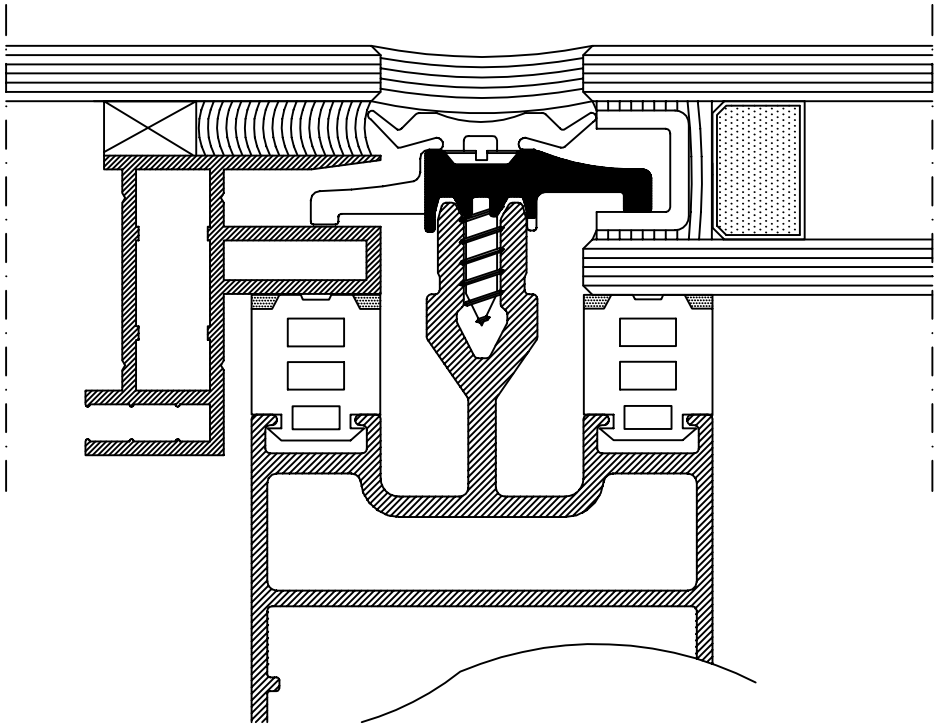
# Solid part



① Profile R54-503 is used under glazing pads (L=100 mm)



# SG Glazing





## GENERAL

SG glazing can be made with two or four sides.

## GLASSES

The glasses are tempered, TSH edge-ground safety glasses, minimum thickness 6 mm.

## GLASS PACKAGE

Inner glass 6 mm or 8 mm

Spacer 15 mm

Edge mass for SG insulating glasses is made with a two-component silicon-based glue mass, suitable for unbeaded glazing that has been developed to withstand solar heat radiation and stress caused by the UV radiation of short-wave radiation. Furthermore, anodised U-pieces are installed into the SG insulating glass element at the factory during manufacture.

## FACADE GLASS

The thickness of the facade glass is the same as that of the external glass in a glass package.

Facade glass is glued into a frame profile (R54-504).

Ventilation according to instructions must be arranged behind a facade glass.

## MOUNTING OF GLASS PACKAGE AND FACADE GLASS INTO FRAME

Glass packages are mounted mechanically into the R54 frame with attachments (R54-SG).

Facade glass elements are mounted mechanically with attachments (R54-SG-JL).

THE NUMBER OF ATTACHMENTS DEPENDS ON THE GLASS SIZE AND LOAD.

## MAXIMUM SIZE OF GLASS PACKAGE

Glass package: 1500 mm x 2000 mm, load < 1 kN/m – 2

Glass package: 1500 mm x 2000 mm, load < 2 kN/m – 2

## MAXIMUM SIZE OF FACADE GLASS

Facade glass 6 mm: 1500 mm x 2000 mm, load < 1 kN/m – 2

Facade glass 8 mm: 1500 mm x 2000 mm, load < 1 kN/m – 2

Facade glass 8 mm: 1500 mm x 2000 mm, load < 2 kN/m – 2

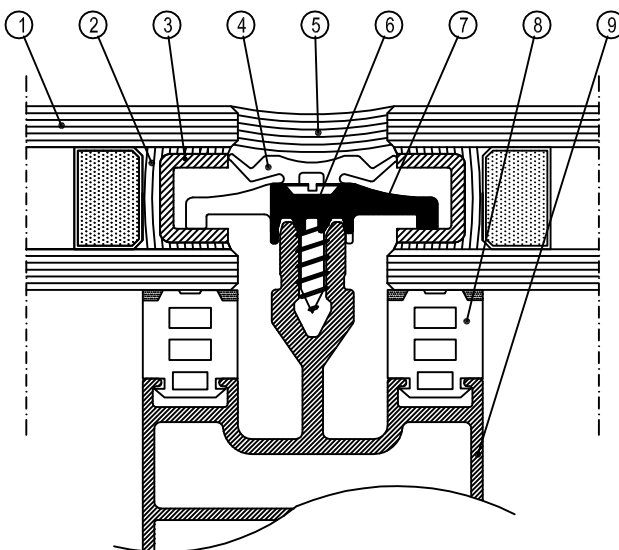
## GLASS PACKAGE ORDER CODE

	Pcs	Size	Structure	Code	Load
e.g.	25	1000x1200	2k 6/6-15	R54-SG	Type I
e.g.2	32	900x1300	3k 8-15Ar-6-15Ar-8	R54-SG (Allways)	Type I ( see 4.4)

## FRAME ASSEMBLY

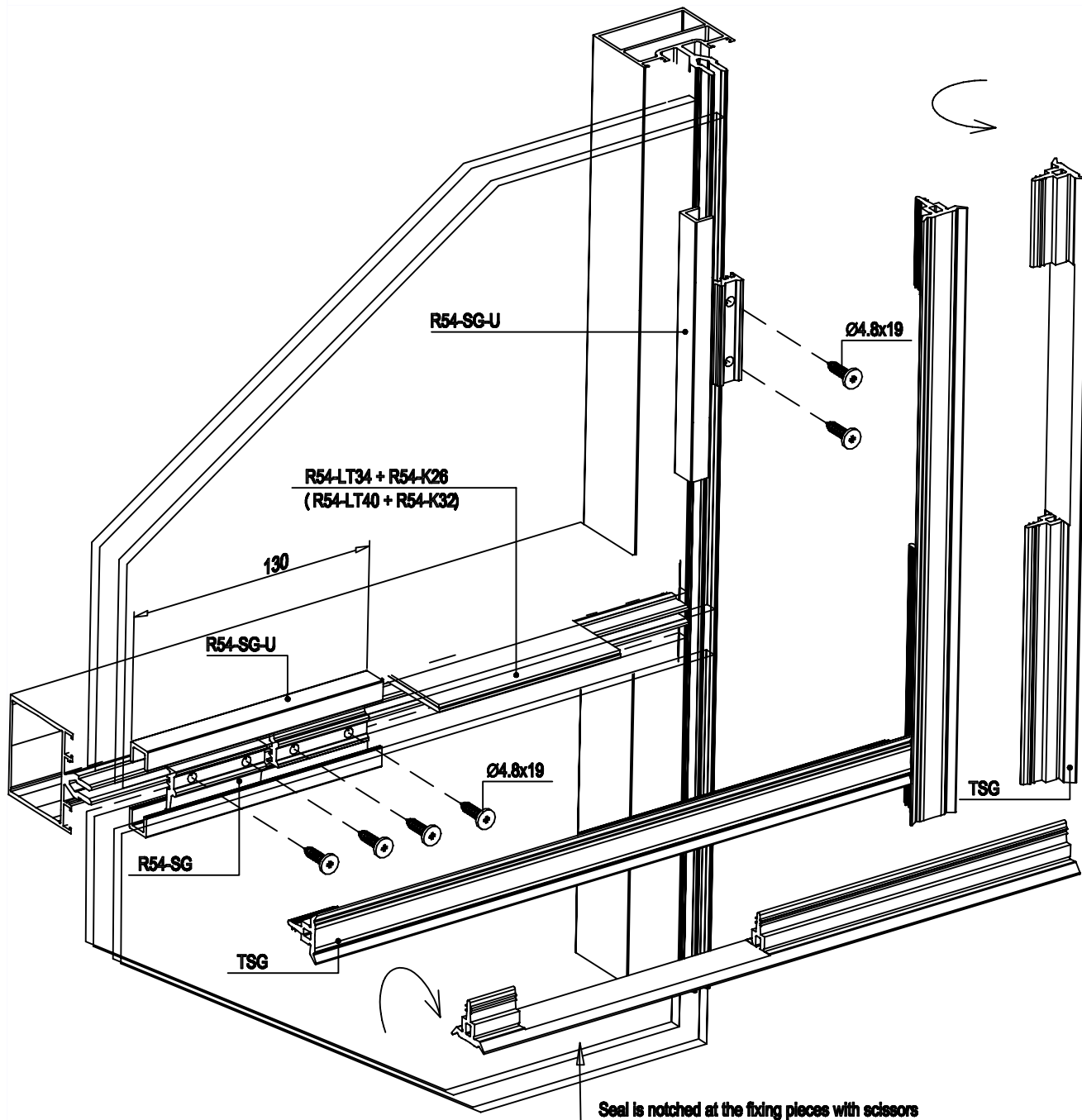
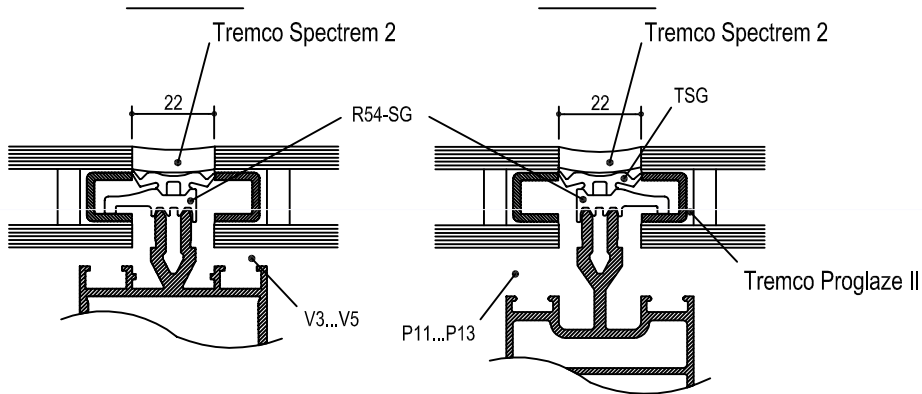
The aluminium frame is assembled using the lap joint technique.

For more information on assembly, contact the Nokian Profiles technical support.



1. SG insulating glass, minimum structure 2k 6/6-15
2. Edge mass for SG insulating glass elements Tremco Proglaze II
3. Anodised aluminium U-piece
4. Silicone sealing
5. SG seal against weather Tremco Spectrem 2
6. Attachment mounting screw
7. Insulating glass attachment
8. R54 system gasket
9. R54 frame profile

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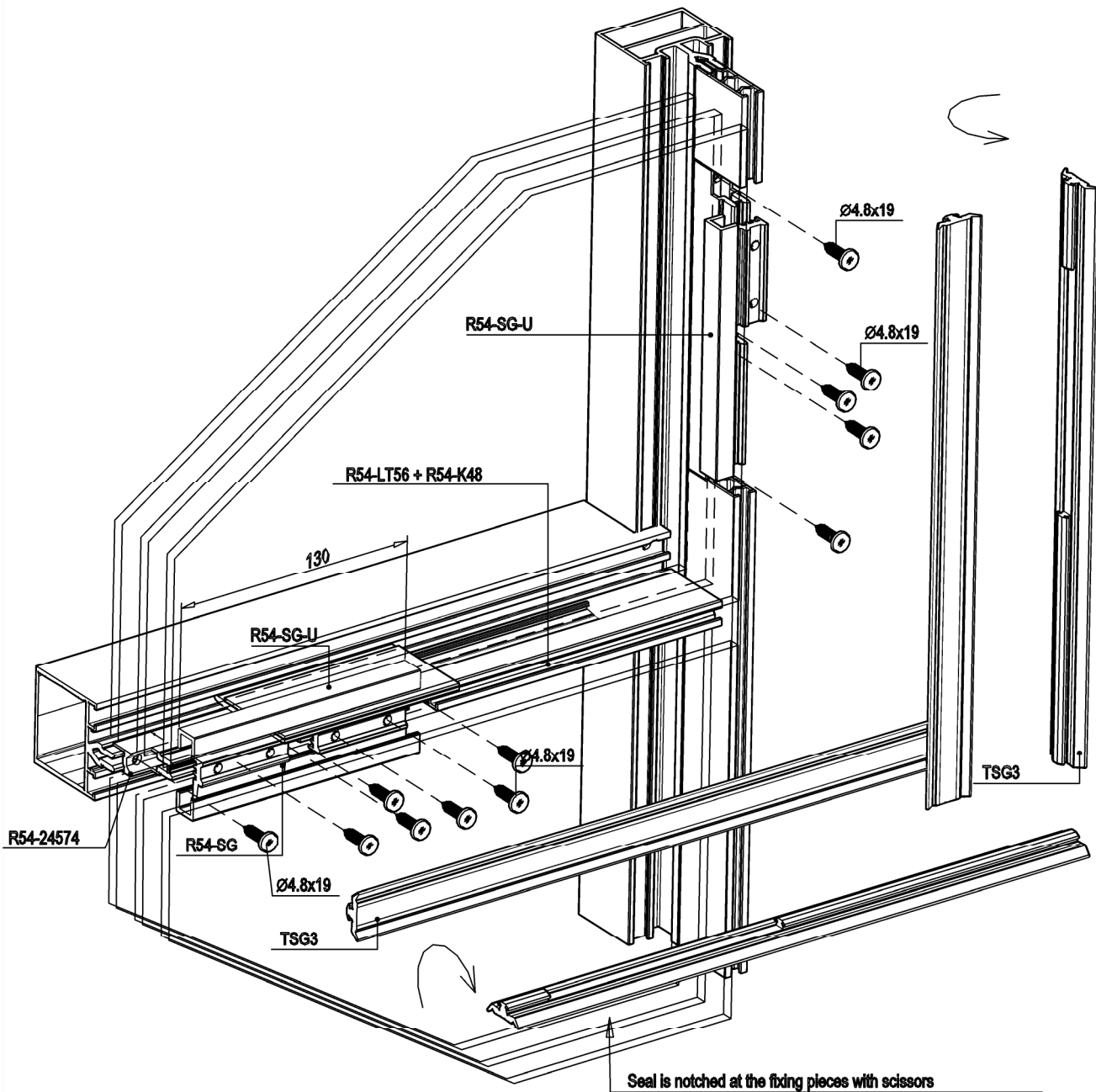
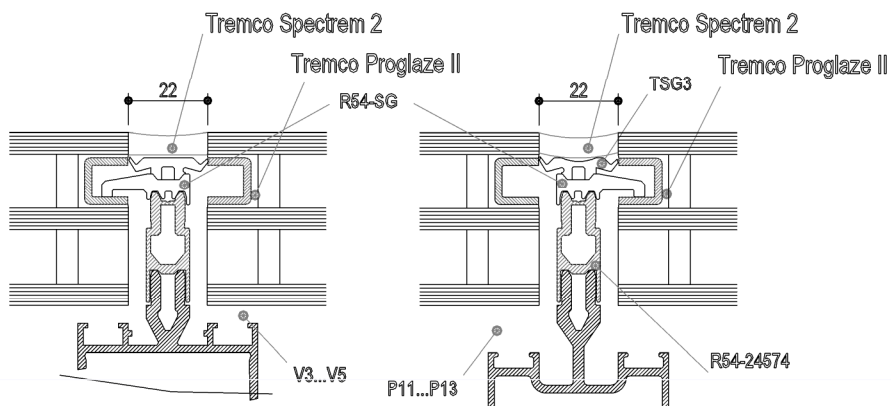
**R54** 4.2



**SG-structure**

Horizontal frame

Vertical frame



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SG-structure

**NOKIAN**  
PROFILES

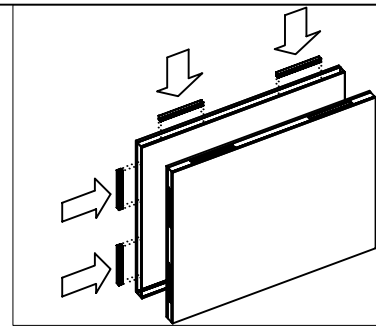
**R54** 4.3

## Glasses:

- Quality standard prEN13022 for tempered glass
- Tempered, TSH edge-grinding max. 1.5 mm x 1.5 mm.
- Marked as safety glasses.
- Thickness min. 6 mm.
- Glass temperer decides heat-soak treatment.

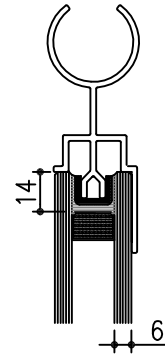
## Manufacture of insulating glass element:

- Quality standard prEN 279 for insulating glass element.
- 1 - Spacer 15 mm.  
- Installation 14 mm from edge of glass.
  - 2 - The space between glasses is filled with SG mass, e.g. Tremco Proglaze II.
  - 3 - R54 SG U-piece is cleaned by wiping it with MEK solvent (methylethylketone). A clean, lint-free cloth is used for cleaning.  
- The U-piece is pressed with an R54SG installation piece into the edge mass of the insulating glass, see illustration.
  - Number and position of U-pieces depends on load and glass size, see "Positions of U-pieces".
  - 4 - Guidance ALWAYS with installation piece A 6 mm from inner glass and installation piece B 8 mm from inner glass.
  - 5 - Excess mass is wiped off, and the insulating glass element is left to dry.  
- Ready for transport after 3 days.



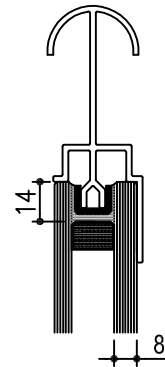
Assembling piece A

- 6 mm inner glass

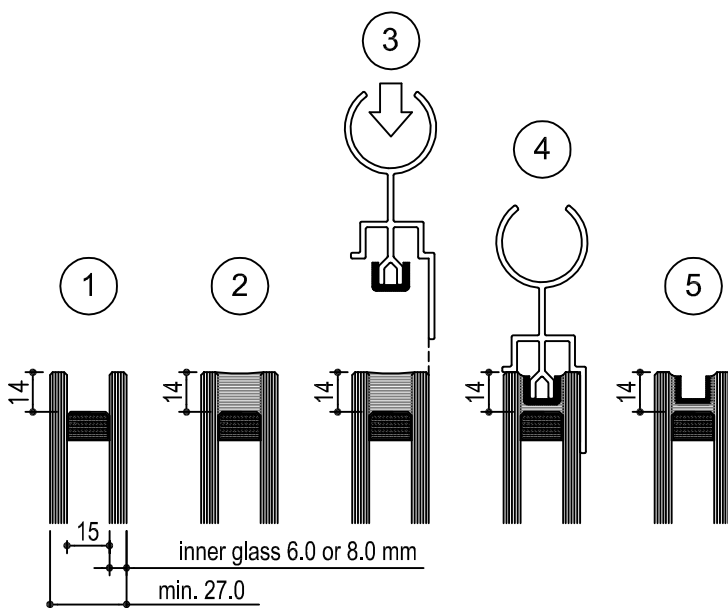


Assembling piece B

- 8 mm inner glass



Order code: **R54** 1000 Size 1200 Structure 15 R54SG Load Type I  
e.g.:



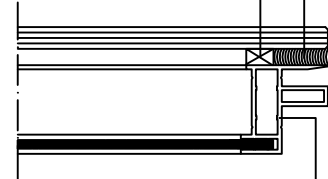
## Facade glass

e.g. Tremco Proglaze II

Spacer 8.5 mm

SST-800 spacer

6.3x8.5 mm



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**R54** 4.4

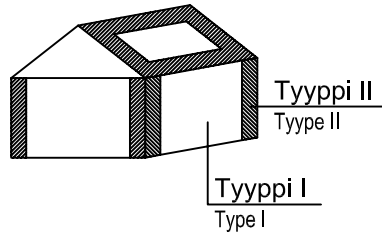
**NOKIAN**  
PROFILES

Manufacture of insulating glass element



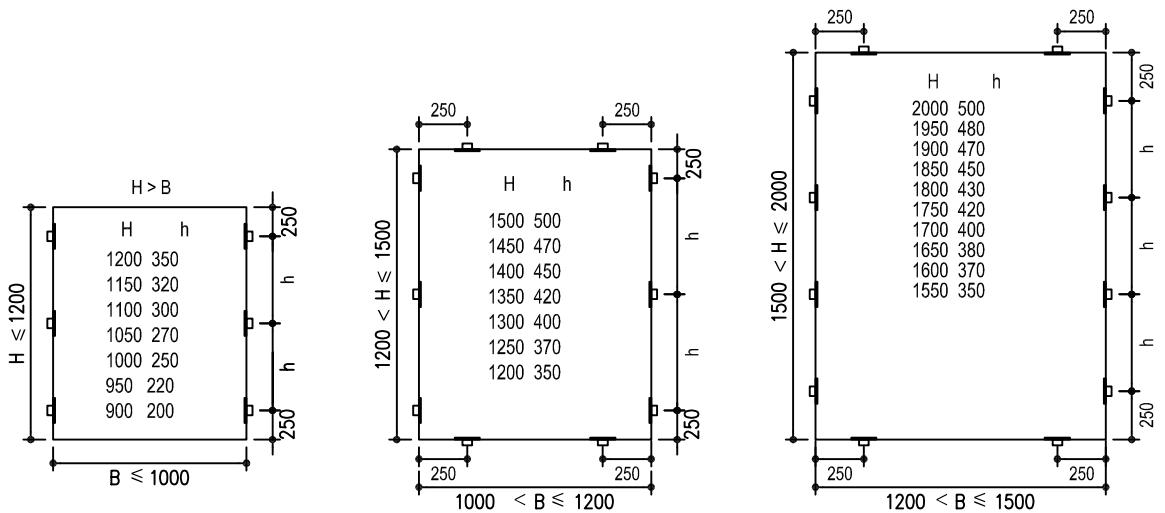
# U-kappaleiden sijainnit

Positions of U-pieces



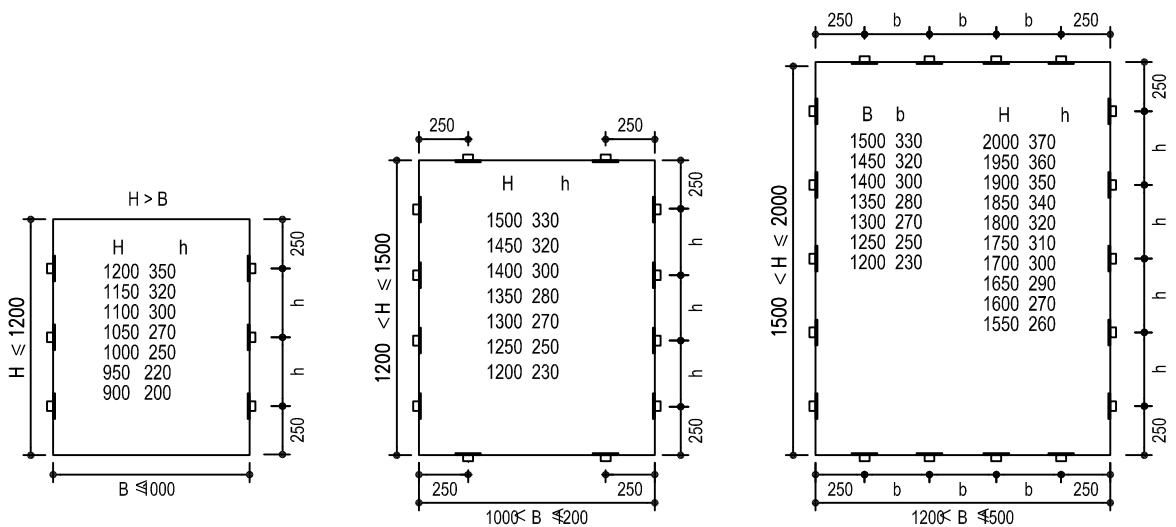
## Tyyppi I / Type I /

-Kuormitus  $\leq 1 \text{ kN/m}^2$  (RIL 144-1997)  
-Load



## Tyyppi II / Type II /

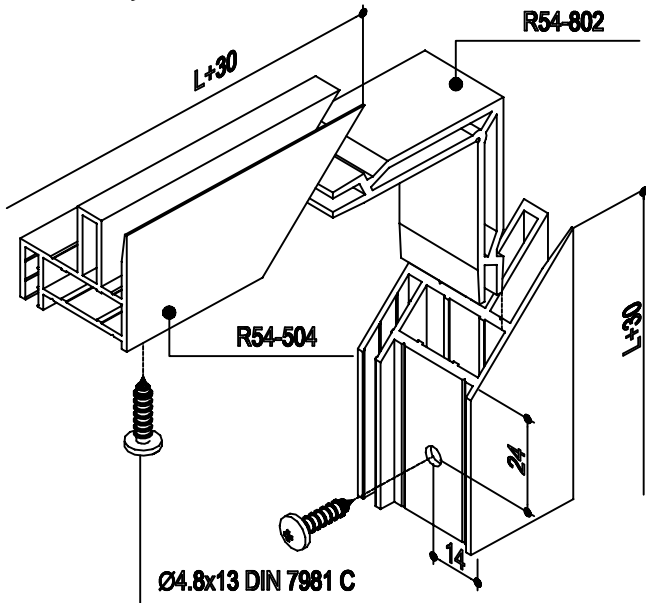
-Kuormitus  $1 \text{ kN/m}^2 \leq 2 \text{ kN/m}^2$  (RIL 144-1997)  
-Load



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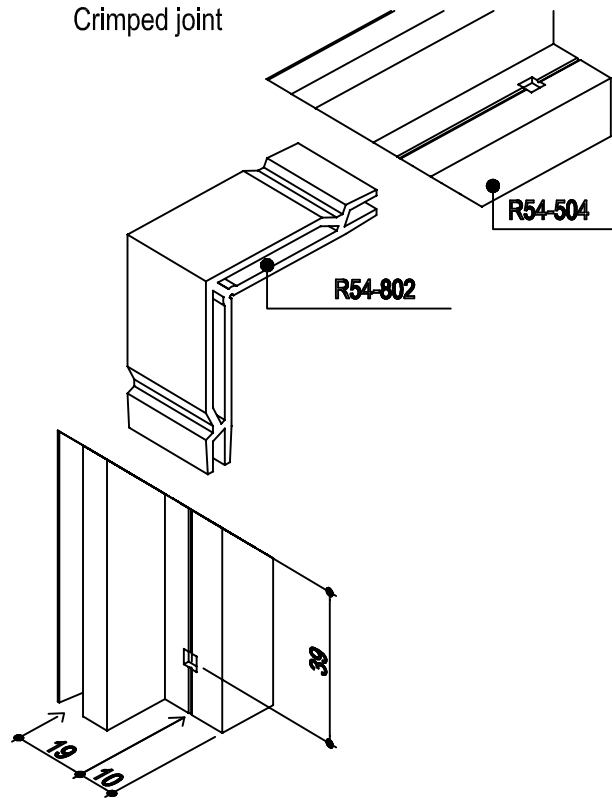
# Angle joints

## Screw joint

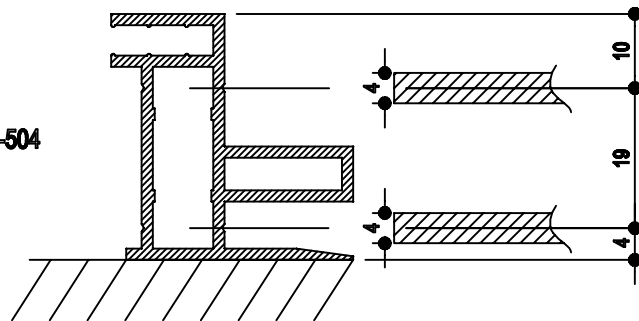


L = opening

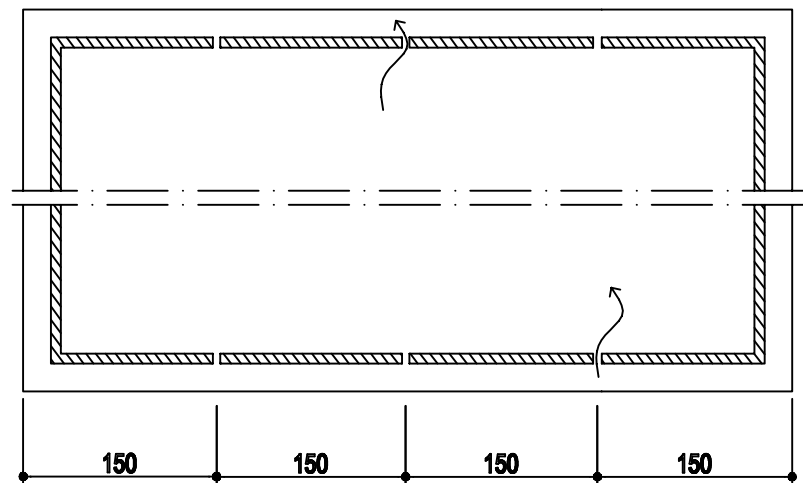
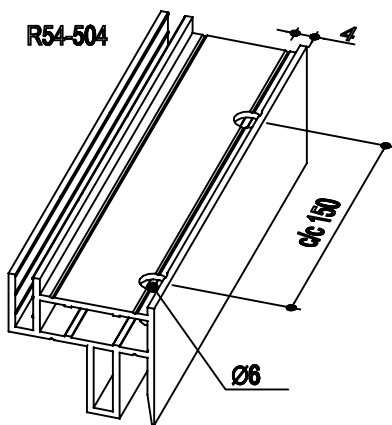
## Crimped joint



**R54-504**



## Ventilation holes



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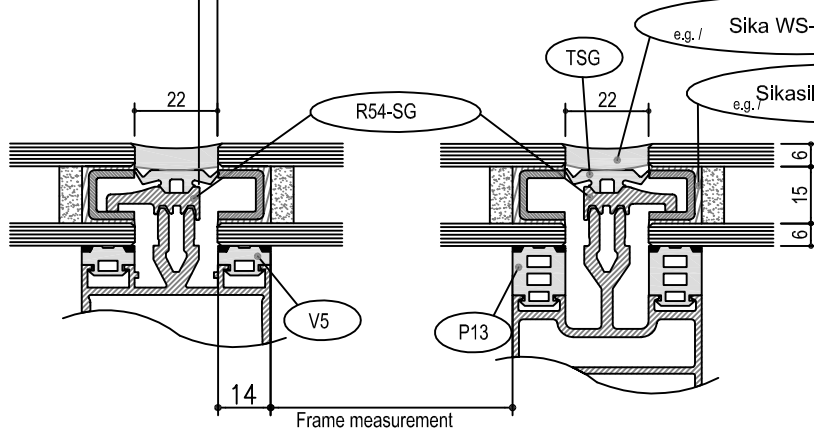
**R54** 4.6

**NOKIAN**  
PROFILES

SG facade glazing

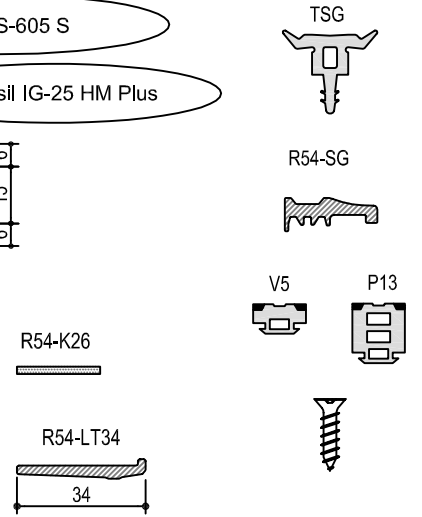
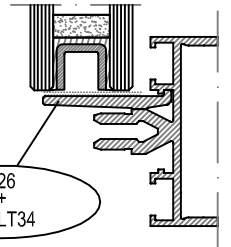
## SG glass package

Margin of adjustment      Measures of glass = light      opening area measures+28



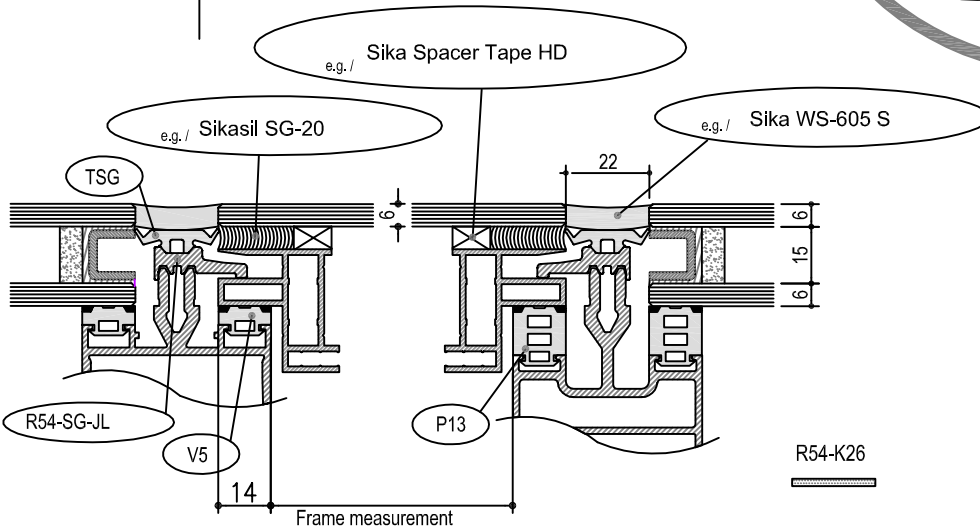
Glass support

K26 + R54-LT34



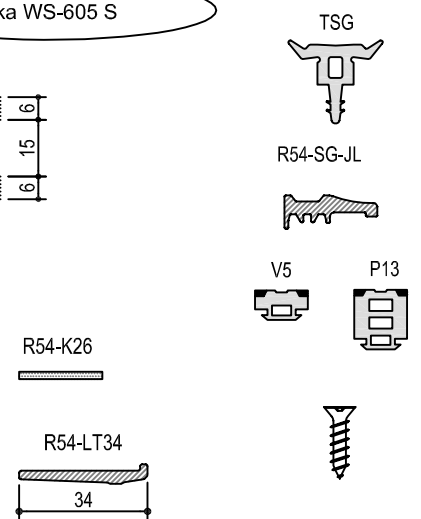
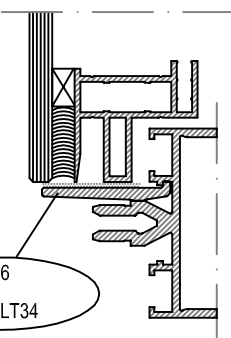
## SG Facade glass

Margin of adjustment      Measures of glass = light      opening area measures+28



Glass support

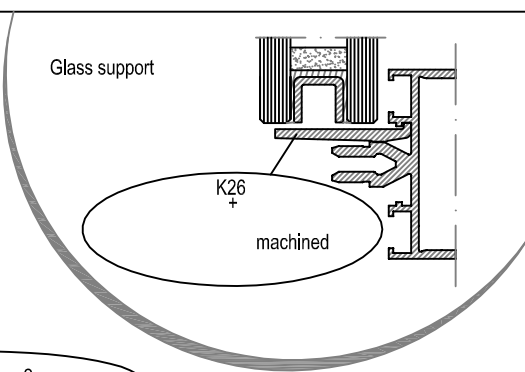
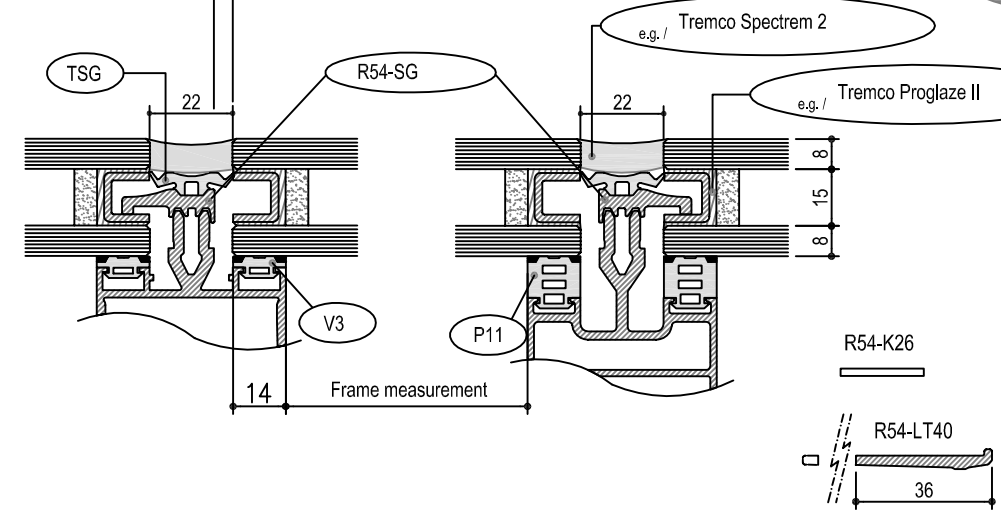
K26 + R54-LT34



01.07.2013

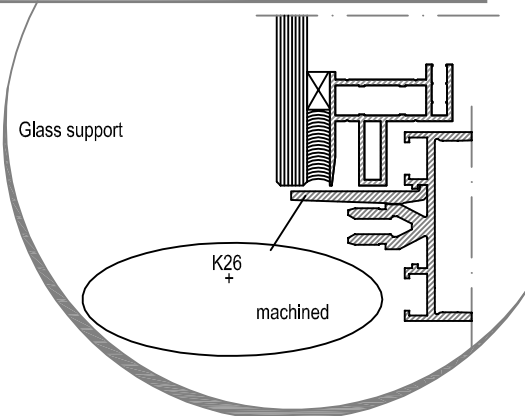
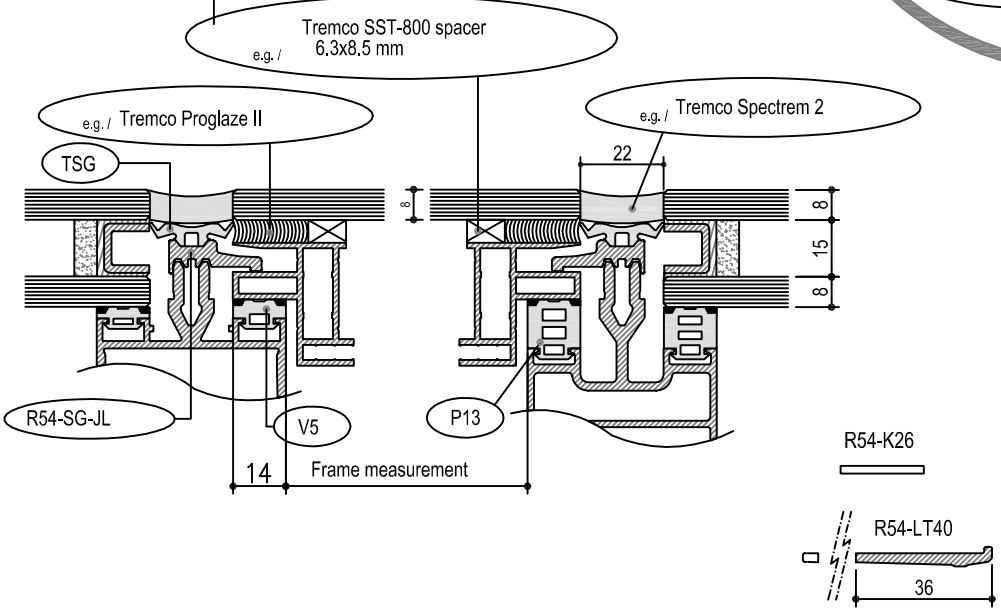
# SG glass package 31 mm

Margin of adjustment      Measures of glass = light opening area measures+28



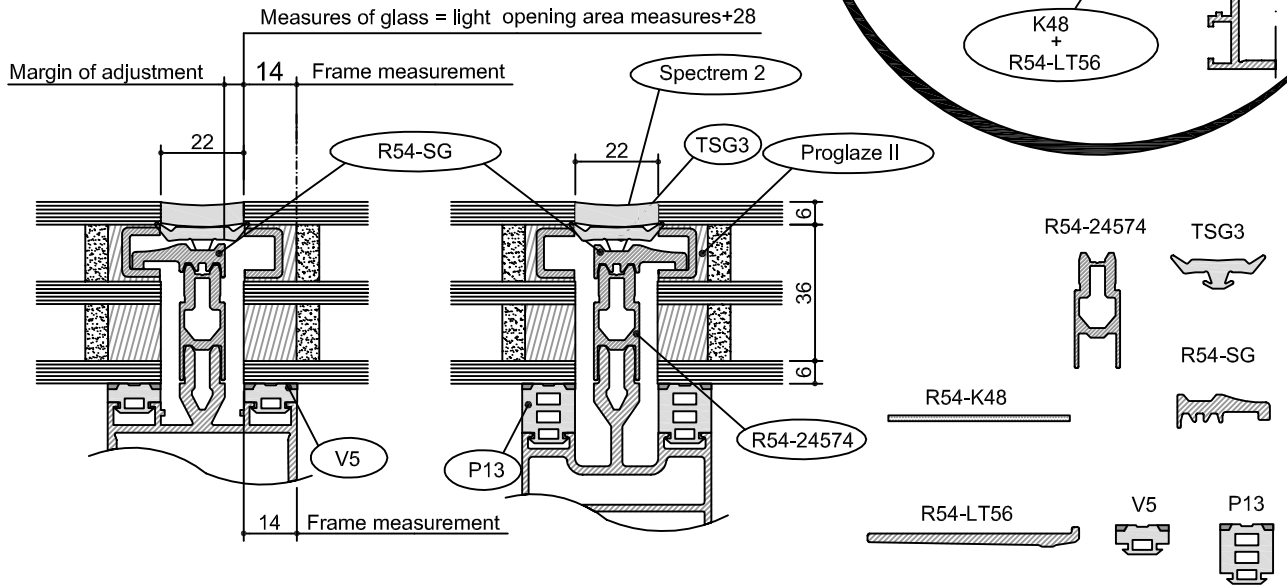
# SG Facade glass

Margin of adjustment      Measures of glass = light opening area measures+28

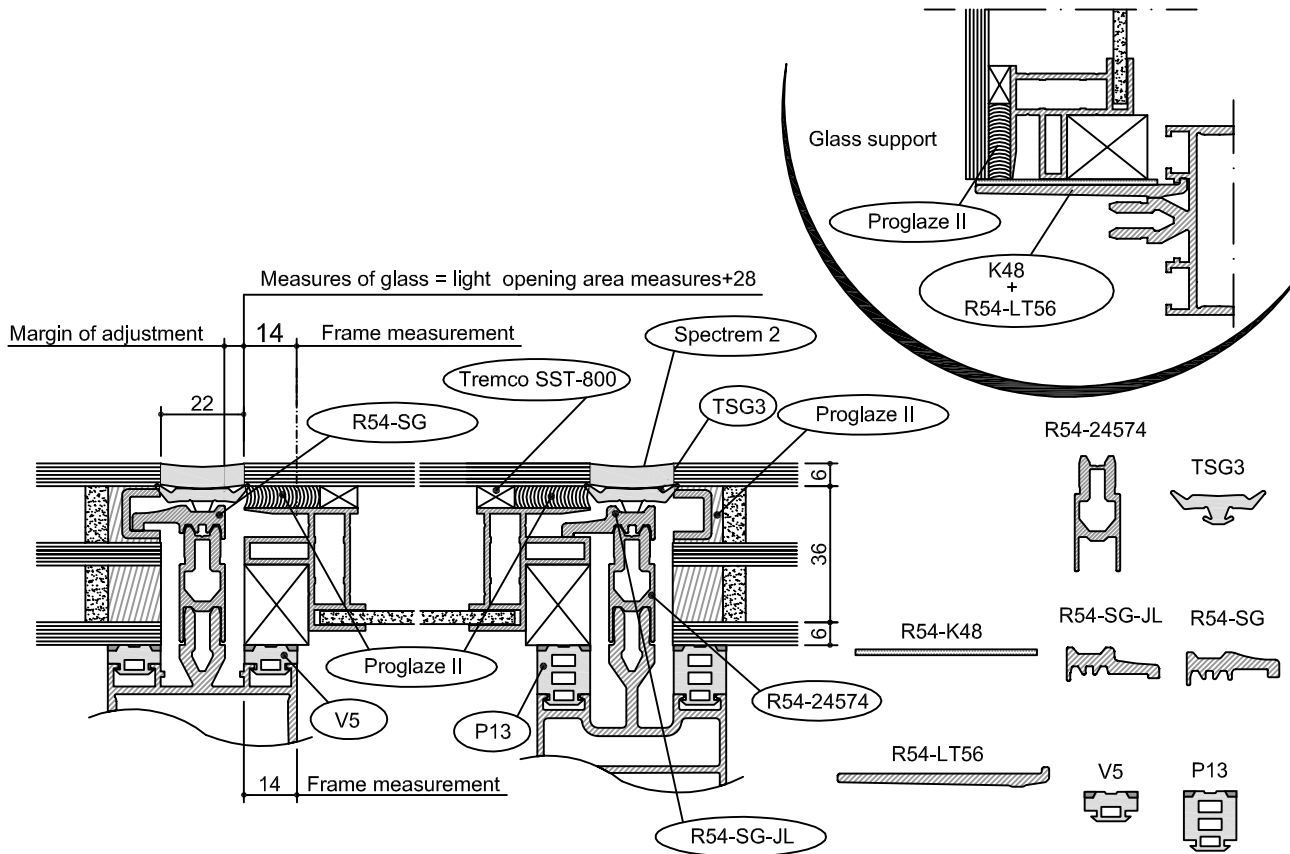


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# SG glass package 48 mm

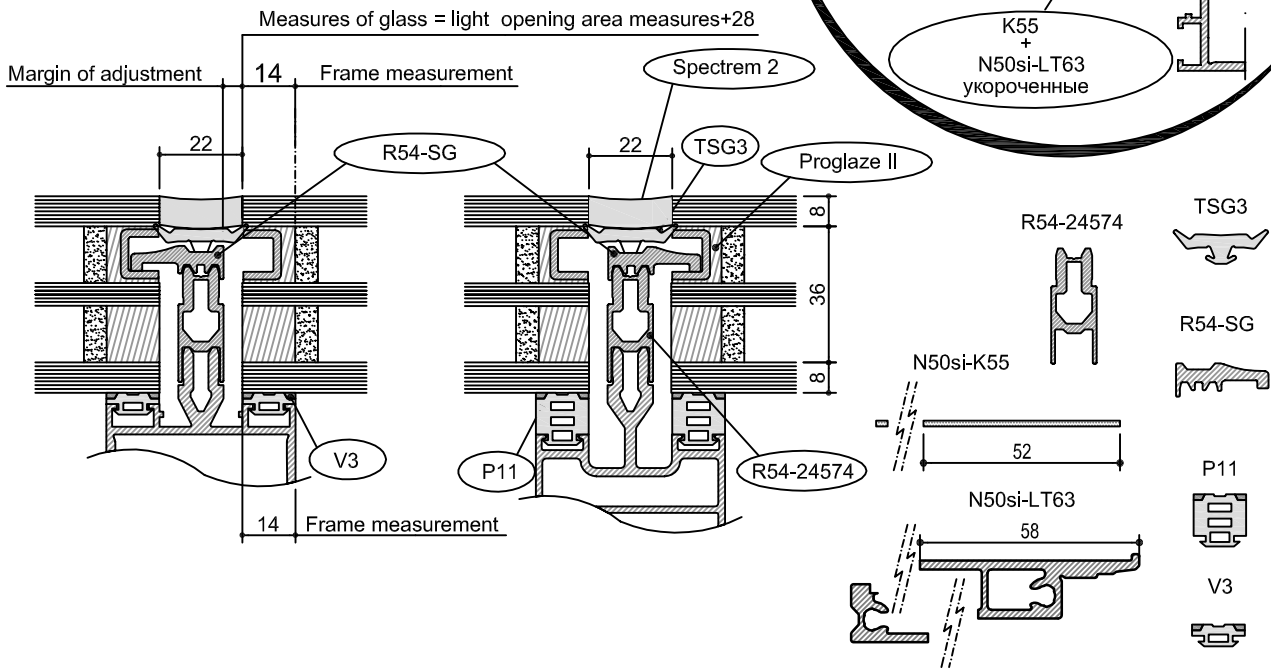


# SG Facade glass

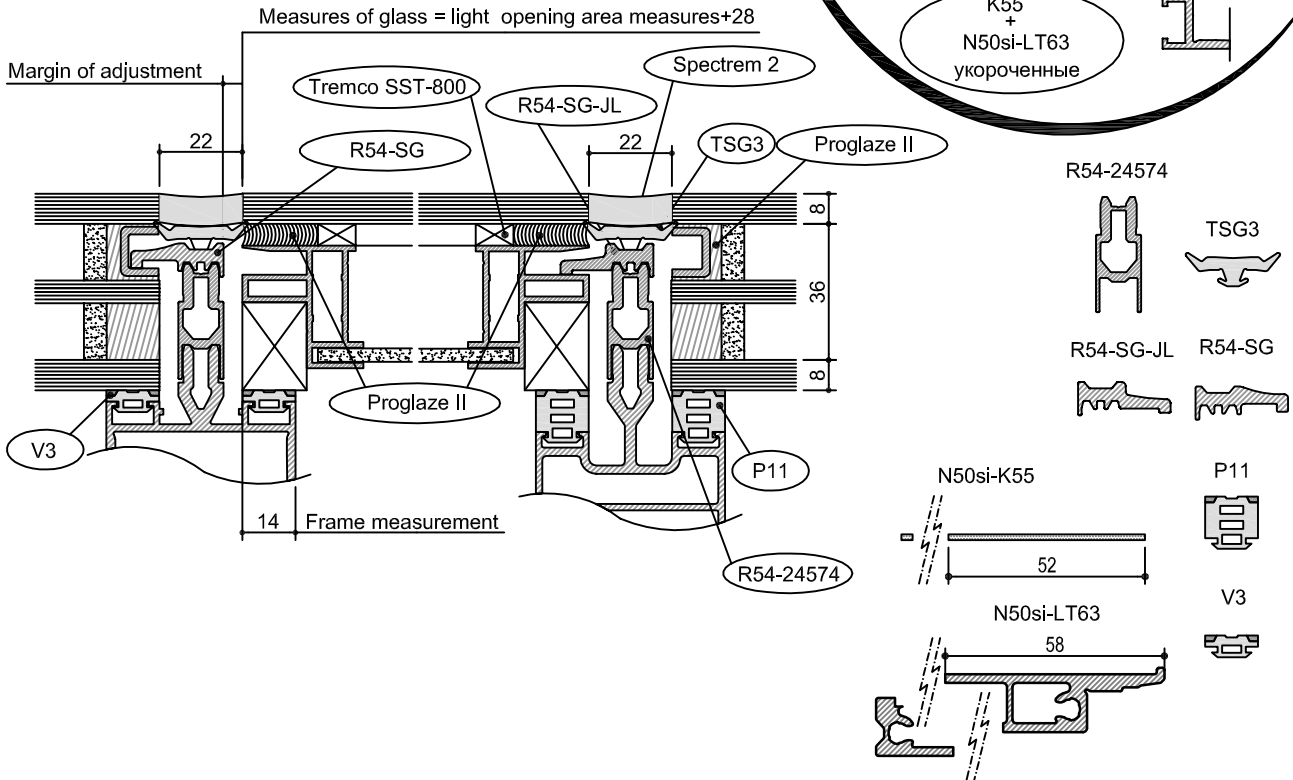


01.07.2013

# SG glass package 52 mm



# SG Facade glass



01.07.2013

**R54** 4.10

**NOKIAN**  
PROFILES

SG Glazing