Lumon 5

Balcony Glazing System
Technical File

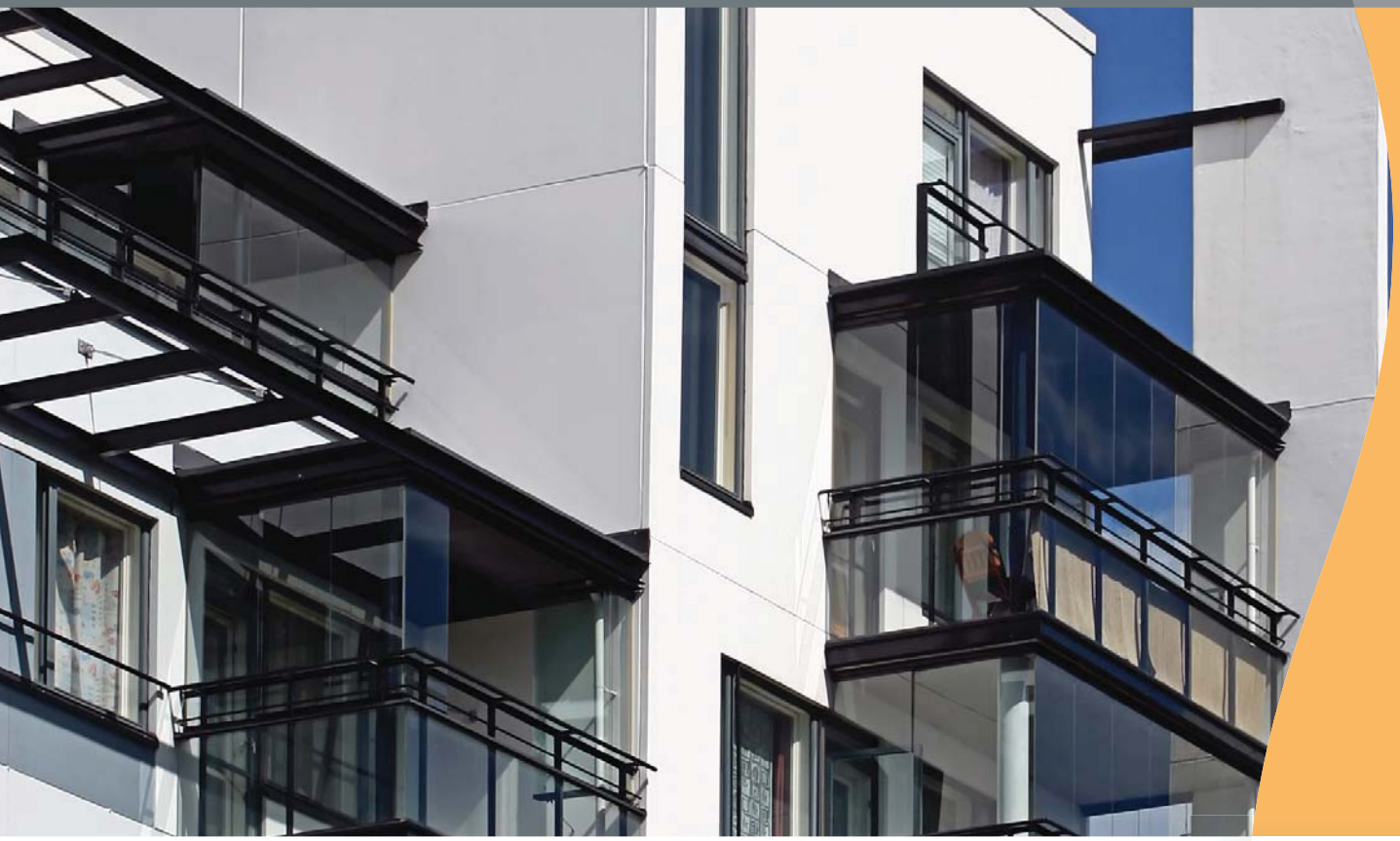
This Lumon 5 technical file is published in June 2010.

Version	Date	Made by	Approved by	Change
4.0	02.10.2009	EsH	MLe	Changes on pages 2-2, 3-1. 4-1, 4-5, 4-6, 4-10, 10-7
5.0	01.06.2010	SVi	MLe	Added 10 mm Glass pane, Glazing from floor to roof

Lumon 5 Balcony Glazing System			
Made by:	SVi	Version:	5.0
Checked by:	EsH	Date:	30.6.2010
Approved by:	MLe	Code:	14.10.01.07.EN

Lumon Oy
Kaitilankatu 11
45130 KOUVOLA, FINLAND
tel. +358 (0)20 740 3200
www.lumon.com

Balcony glazing – be inspired.



Four seasons in balcony glazing

Lumon balcony glazing compliments a variety of furnishings and decor to complete a pleasant and functional leisure space. Lumon's quality materials will also ensure protection from nature's outside elements – plants will thrive in the spring sunshine as they start their growth season early.

Lumon balcony glazing is designed to work in harmony with your lifestyle. What could be more enjoyable than sitting with friends on your balcony enjoying a coffee and watching the sunset...

Lumon – style, useability and satisfaction

Lumon balcony glazing offers so much more. This is exemplified throughout the seasons, where our glazing prevents dirt, rain, snow, wind, flying debris and leaves in your balcony. Environmental noise is also dampened down. The warmer climate resulting from our glazing means spring starts early.
In the warmer months the glazing can be opened up completely so you can enjoy the fresh air and sunshine.

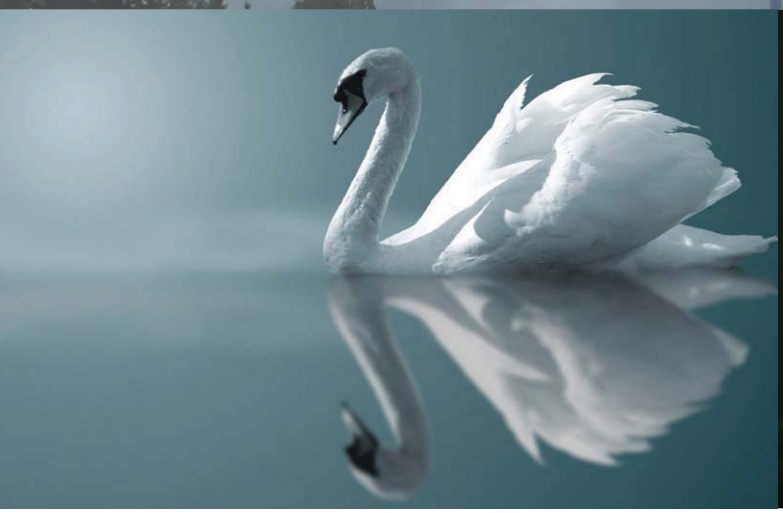
The clean, aesthetically pleasing Scandinavian design of Lumon balcony glazing combined with great useability forms the perfect balcony glazing solution.

Quality is in the smaller details

The finer technicalities and components of Lumon balcony glazing come together to maximise useability. Small profiles and design details create a stylish wholeness and a product that is easy and comfortable to use. Our balcony glazing can be completely opened aside, so cleaning is made safe and easy.

Whether you choose ventilation crack, partly open or whole view/wide open positions, Lumon balcony glazing satisfies the user's needs.

Invest in quality.
Invest in the future.



Installation of Lumon balcony glazing couldn't be easier. Your local Lumon expert offers the best solution for installation and advice. Everything is outlined in one contract and guaranteed. Full instructions are provided.

Be part of tens of thousands of satisfied Lumon customers and enjoy many seasons of quality balcony glazing.

LUMON®

+358 20 7403 200
Kaitilankatu 11, 45130 Kouvola, FI
info@lumon.fi

Visit our website:

www.lumon.com

Technical Description

The balcony glazing system consists of two horizontal aluminum profiles which are attached to the balcony's ceiling and balustrade. Toughened glass panes are attached to the profiles through separate mechanisms which allow the panes to slide and turn.

The panes are made of 6, 8 or 10 mm toughened glass. The table of recommended glass pane sizes shows the optimal glass thickness for various circumstances. Toughened glass is not easily broken and if it is, it shatters into small, blunt fragments that do not pose a serious risk of injury.

Aluminum glazing beads are attached to the upper and lower edges of the panes with the help of flanges which have been ground to the upper and lower edges of the pane. Fastening is secured by gluing. The upper and lower glazing beads are provided with components which enable sliding and opening of glasses.

The first pane is opened by unlocking the handle and it can also be locked in the ventilating position. The handle can be provided with a lock. The other panes can be moved by sliding and turning. When the panes are turned, their hinges lock to the chamfers in the profiles. The glazing can hence be opened completely. On L- and U-balconies, glass panes can slide round +90° ... +270° corners.

In Lumon 5 glazing system, the pane size has been modularized by scaling the width and height of the pane every 20 mm. Adaptation to the balcony structure is realized with edge seal, attachments and telescopic profile. Panes deviating from module size are available on special order.

The upper profile is attached to the ceiling through a telescopic profile or to the overhang with mounting brackets. The lower profile is attached with mountain brackets or through the bottom of the profile to the balustrade structure. Corrosion-resistant fasteners must be used to attach the system to the balcony structures.

Rainwater is drained off by using water sills made of plastic-coated steel sheet or aluminum sheet.

A seal is used to close the gap between the glass pane and the wall.

1. Aluminum profiles
The upper and lower profiles and the glazing beads are made of aluminum and are polyester powder-coated or anodized; anodizing is available on special order.
The upper and lower profiles are selected on a case-by-case basis.
The standard colors are:
- RAL 9006 grey
- RAL 9016 white
- RAL 7024 dark grey

Other colors and anodized coatings are available on special order.

2. Glass panes
The balcony glazing panes are cut from 6, 8 or 10 mm float glass and toughened. For a more detailed specification, see the table of recommended glass pane sizes at chapter 10. The panes have chamfered edges. All the panes comply with the requirements of the EN 12150-1 and EN 572-8 standards. The ground flanges of the panes are attached to the glazing beads and secured with glue.
Fixed and hinged panes used to close openings on the balcony are made of 6 mm toughened glass.
The panes used in balcony glazing systems are usually transparent, so that the external appearance of the building remains virtually unchanged. Stained or sand-blasted panes can also be used.

3. Hinges and sliding parts
A hinge with rollers and an upper guide are attached to the upper glazing bead. The hinge and the lower guide are attached to the lower glazing bead. When the glass pane is open, it is attached to the profile of the upper and lower edges of one vertical side. All parts are made of aluminum, stainless steel or high quality plastic material. The visible plastic parts are light or dark grey, according to the order, while the plastic parts located inside the profiles are always dark grey.

4. Seals
There is a light or dark grey silicone seal between the lower profile and the glazing bead. A 20-30 mm silicone seal is provided between the side wall and the outermost pane. A transparent PVC seal can be used between the panes, if necessary. A ceiling seal of the telescopic profile is used between the telescopic profile and the ceiling.

5. Fasteners
The upper and lower profiles are attached to the concrete structures with corrosion-resistant wedges or expansion anchors or concrete screws. The screws are made of stainless steel, while the brackets are made of aluminum.

6. Flashings
All flashings, such as water sills and corner flashings are made of 0.5 mm plastic-coated steel sheet or aluminum sheet, depending on the project. The manufacturer's color chart shows the colors available for the steel flashings. RR chart colors are used for deliveries from the factory. Aluminum flashings are painted according to the RAL color chart.

General instructions

Ventilation
Ventilation on the balcony is provided through the 2-3 mm gaps between the panes. The first pane can also be locked in the ventilating position so that it remains slightly open. IMPORTANT! Ventilation of the balcony is necessary to prevent the condensation of moisture and to keep the balcony structures in good condition.

Sealing
Lumon balcony glazing provides protection from the elements. However, in certain conditions, rain or snow may enter the balcony through the gaps between the panes.

Thermal insulation
The Lumon balcony glazing system consists of uninsulated aluminum profiles and single glass panes. A glazed balcony is not a warm space and its characteristics are not comparable to those of normal warm living spaces. Even after the balcony has been glazed, heat insulation continues to be provided by the insulated wall of the building, the window facing the balcony or the balcony door.

Noise control
Lumon balcony glazing reduces traffic noise by 8-12 dB. This decrease is as much as half of heard noise.

Cleaning
Both the inner and outer surfaces of the panes can be washed from inside the balcony, as the panes can be turned inward for cleaning.

Manufacturing
Lumon balcony glazing systems are made to measure specifically for each balcony. All materials and components related to the basic product are supplied by the factory, while accessories are delivered to order. For a specification of the content of the delivery, see chapter 9.

Official regulations
Balcony glazing systems are subject to permission. The local official regulations relating to balcony glazing systems must be checked beforehand. Balcony glazing causes minimal changes to the visual appearance of the building, as the glazing system can be made of transparent glass and no vertical profiles are used.

Special cases
The solutions specified in the technical file may not be applicable in all circumstances. In these cases, the solutions to be applied must be planned on a case-by-case basis.

Specific instructions

Height of the balustrade

The total height of the balustrade must be more than 1.0 m; the protective section of the balustrade must be higher than 0.7 m. A separate handrail must be provided behind glass panes that can be opened if the upper surface of the lower profile is less than 1.0 m from the balcony floor. Should the lower profile double as a handrail, its attachment must be checked against loads specified in the Building Regulations.

Opening the panes / using the balcony

Corner and U-balconies have panes that are opened only for cleaning. On some balconies, the panes and the door may open in the same place. Drainage pipes, pillars and other structures must also be taken into account when designing balcony glazing systems.

Structures

Glazing causes vertical loads on the structures of the balcony ceiling. The maximum deflection a vertical load is allowed to cause is 2 mm. The maximum weight of an individual pane is 50 kg. At the end of the balcony where the panes are opened, one point, i.e. where the upper profile is attached to the ceiling, takes the weight of the entire system. Check the strength of the fastening and of the structure. The balustrade must be sufficiently strong at the point where the lower profile is attached, and this point must withstand the additional wind load caused by the glazing.

Opening rules
- It is possible to open up to 9 glass panes on your right and left side. (See measurement chart)
- It is possible to have one fixed glass pane on both sides
- Maximum glass width is 960 mm
- Minimum width for opening glass is 300 mm or 16 % of glass height
- Minimum width for fixed glass is 200 mm or 14 % of glass height
- You can change hinge location max. 300 mm or < 30% of glass width, see page 4

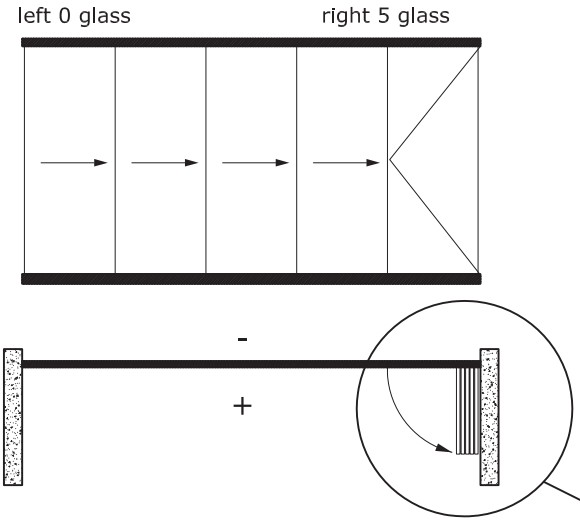
Corners
- The angel between the left hand wall and the glazing, is called starting angle
- The angle between sides, is called structure angle
- The angle between right hand wall and the glazing, is called ending angle
- Corners are measured from inside the balcony
- In case where a structure divides the glazing, you have to handle the glazings individually (against the structure it is either starting- or ending angle, not structure angle)
- The size for starting- and ending angle is 40°-140° (viewing inside)
- Opening angle for the opening glass is 60°-130° (note obstacles)
- Structure angles are 80°-280°

Over the corner glazing
- 90°-270° angle is possible on over the corner glazing
- Overall there can be 9 glass panes on one opening, includes both sides (= 9 glass / pack)
- there must be at least two glass panes on opening side, if over the corner angle is under 177° or over 183°, see page 3-7

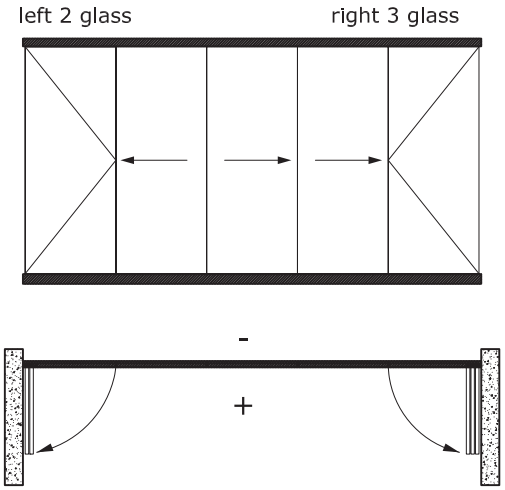
Glazing with System Angle and Different Glazing Heights on Sides
-It is possible to order glazing with structure angle where glazing height is different on sides by tieTori.
- It is not possible to slide glass panes around corner.
- There is straight cut at end of profiles which are not at same level (either upper or lower profile).
- In order incidence profiles have to be specified (either upper or lower profiles)

Straight balcony:
Glass panes can be opened right, left or both ways

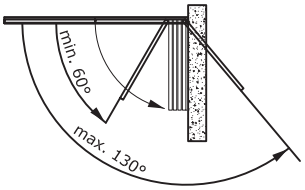
one way opening glazings



both ways opening glazings

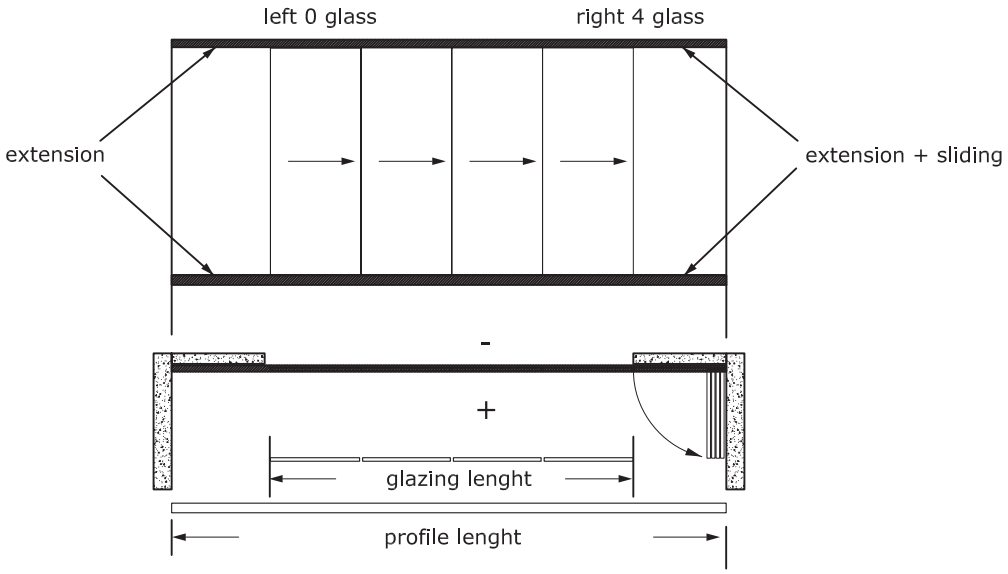


glass openings in pack:



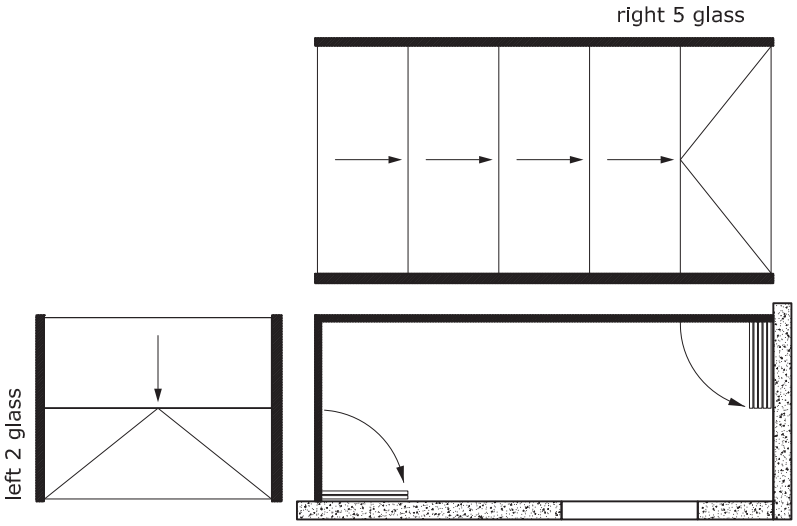
Extension and sliding:

Straight glazing opens to the right, which has a solid precast element

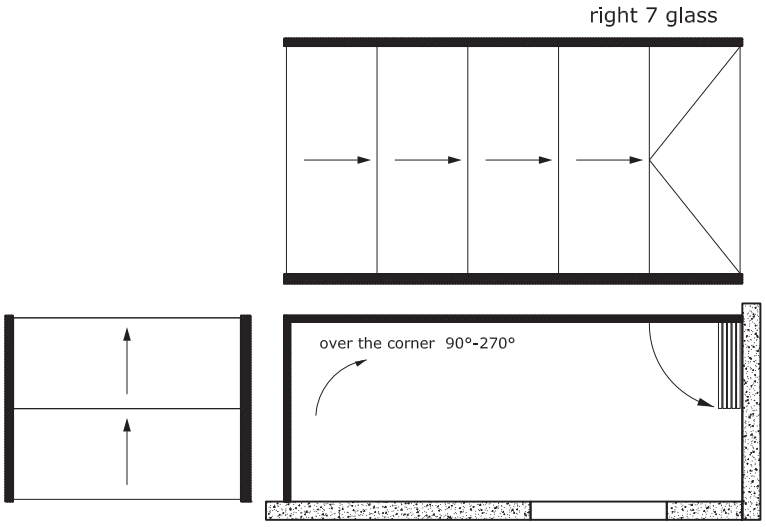


Glazing ends to precast element, yet opens in the far end of the profile.
Profile extension has to be at least 60 mm.
In this case you can not install the latch.

Corner balcony:
On two sides opening balcony

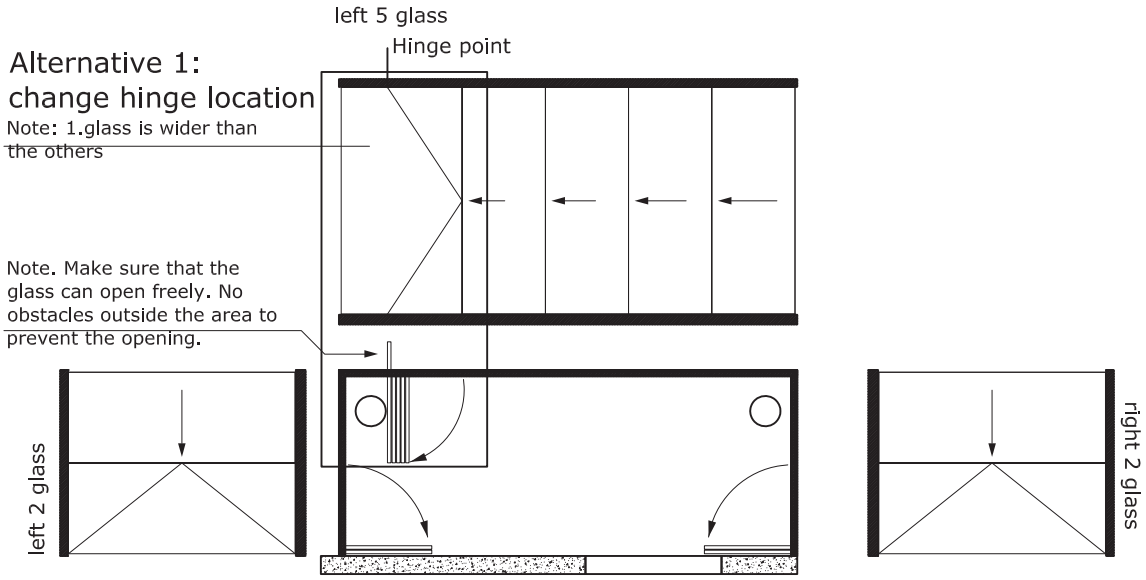


To one side opening glazing, where the glasses slides over the corner.
NOTE! There must at least two glasses on the opening side.



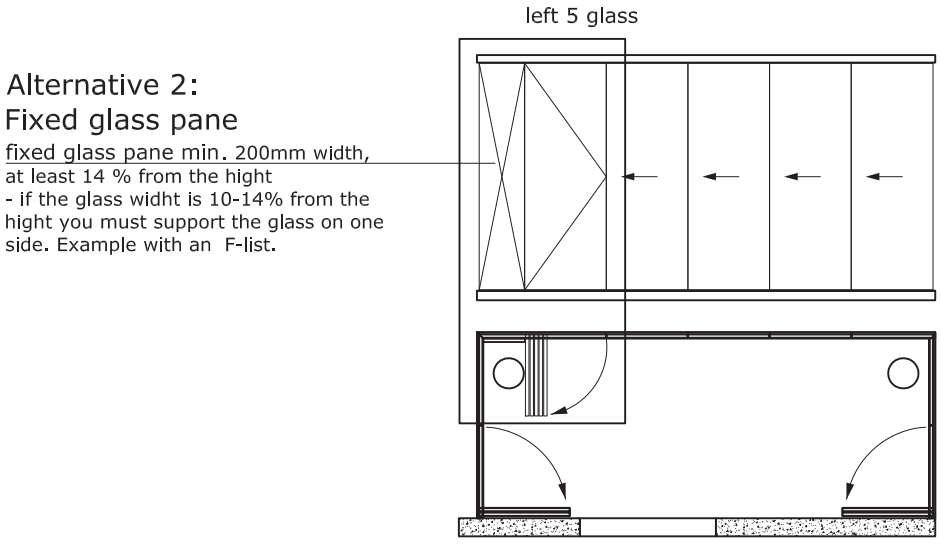
Balconies, which has an obstacle, for example a waterpipe or a column.

On three sides open out corner balcony
90 degree



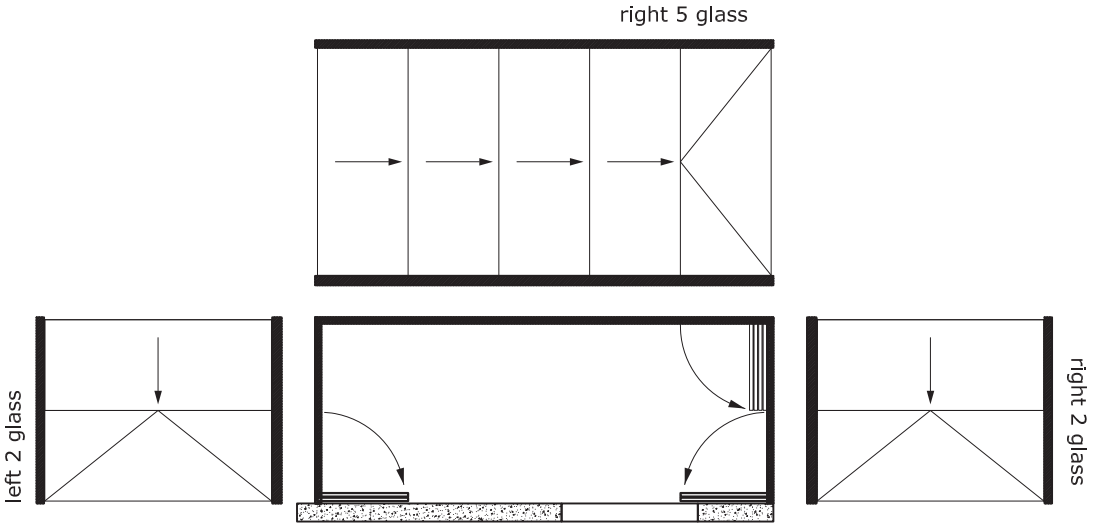
In case there is an obstacle on the opening end, which prevent the normal opening, you have to change the hinge location on the first glass.
To change the hinge distance is max. 30% from the glass widht or 300 mm most.
NOTE! You must order the glass that much wider, how much is the change.

Otherwise you take alternative 2. where you put a fixed glass pane on front of the obstacle.



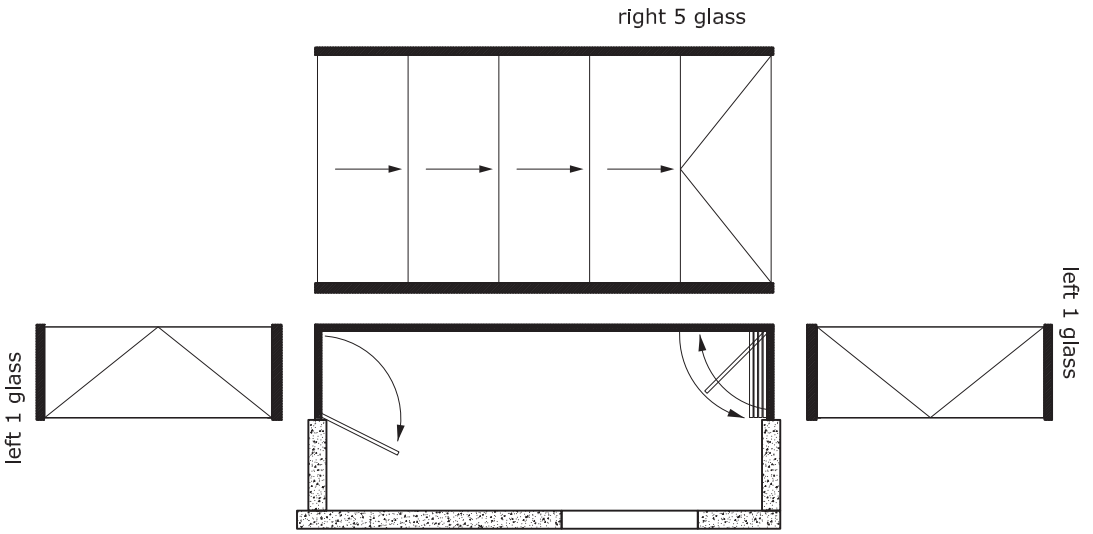
Corner balcony which opens on three sides

90 degree



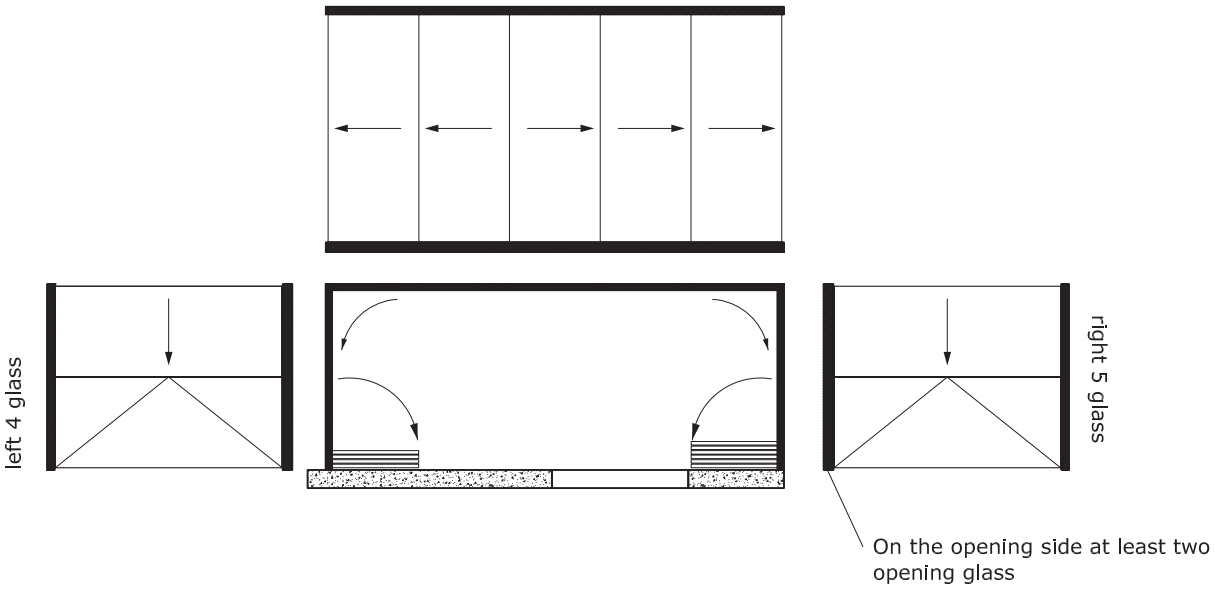
Corner balcony which opens on three sides

90 degree

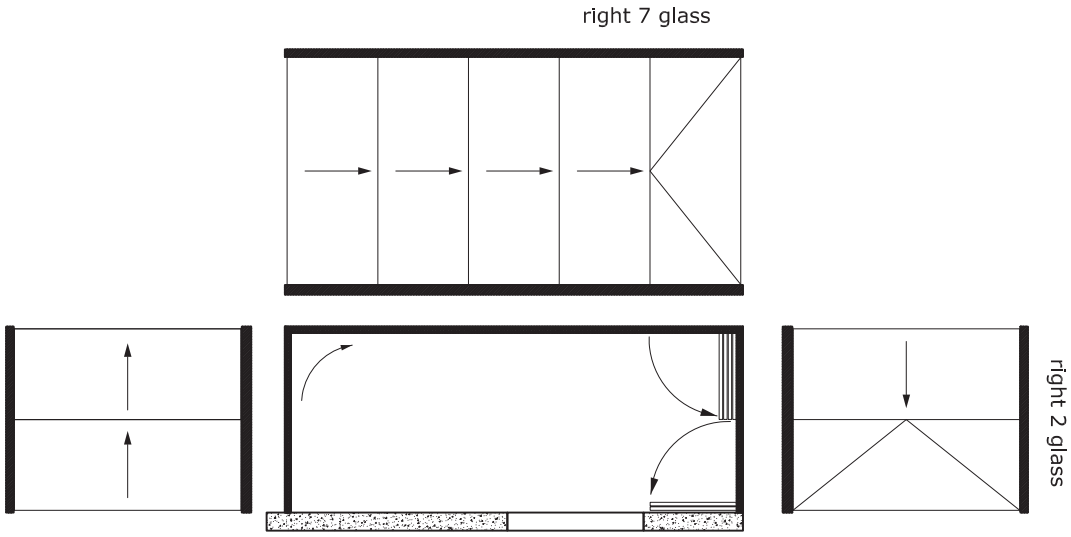


NOTE!
This way hinged pane is 6 mm narrower than "normal" pane. There is bigger gap in the system angle and pane can be opened while front glazing is closed. Ordering system tieTori take care of measuring.
If pane is hinged other way round there is no extra gap between panes at corner.
Don't influence 135°-270° angles.
If system angle is <90° opening direction shown in drawing is not possible.
You can also put the hinges other way round.

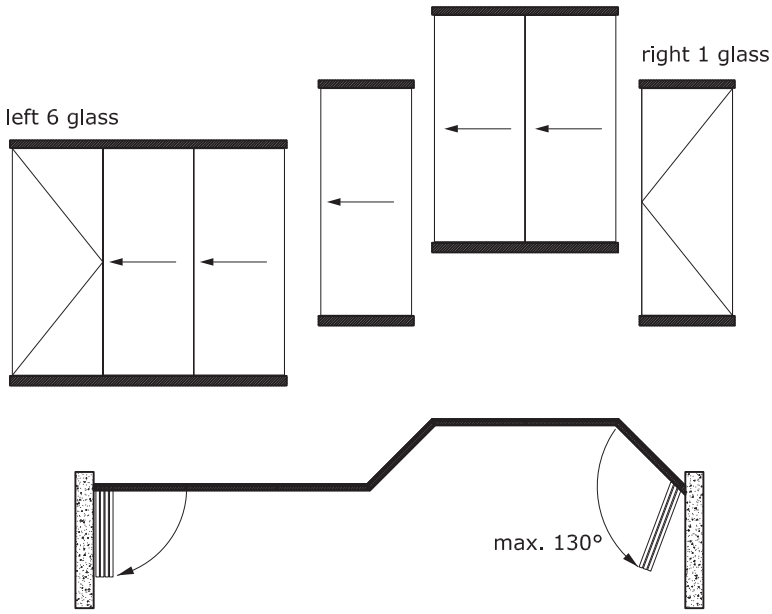
Corner balcony which opens on two sides. The glasses slides over 90 degree corner.



Corner balcony which opens on two sides. The glasses slides over 90 degree corner.

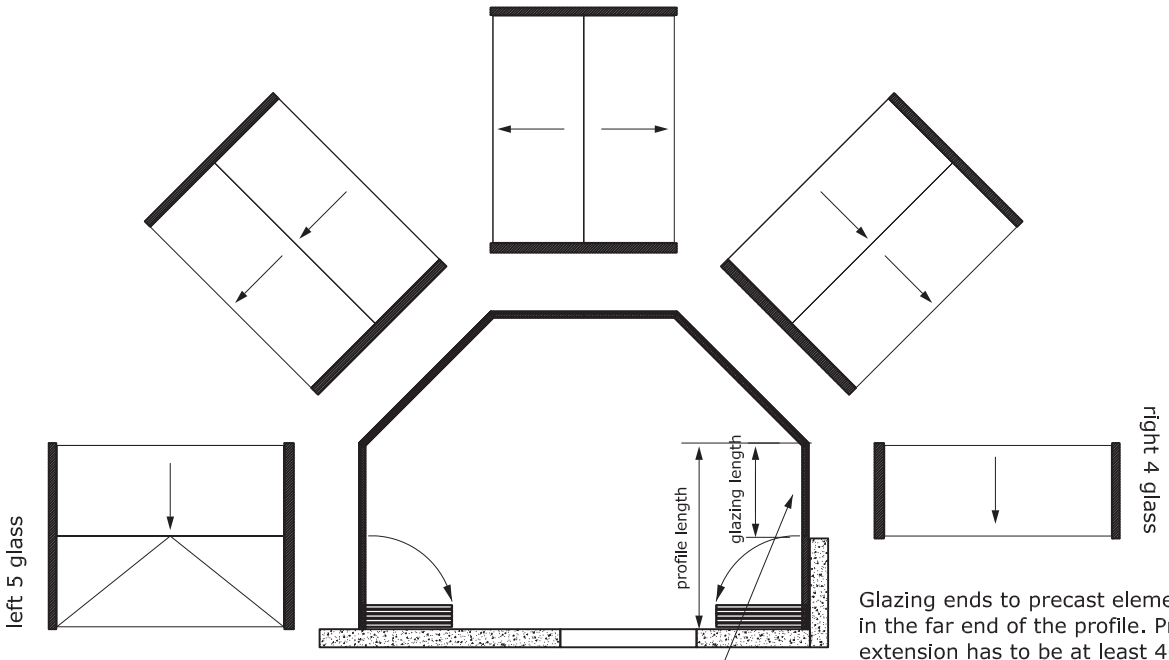


Corner balcony which opens on two sides and have four different sides. Glasses slides over 135 degree corner.



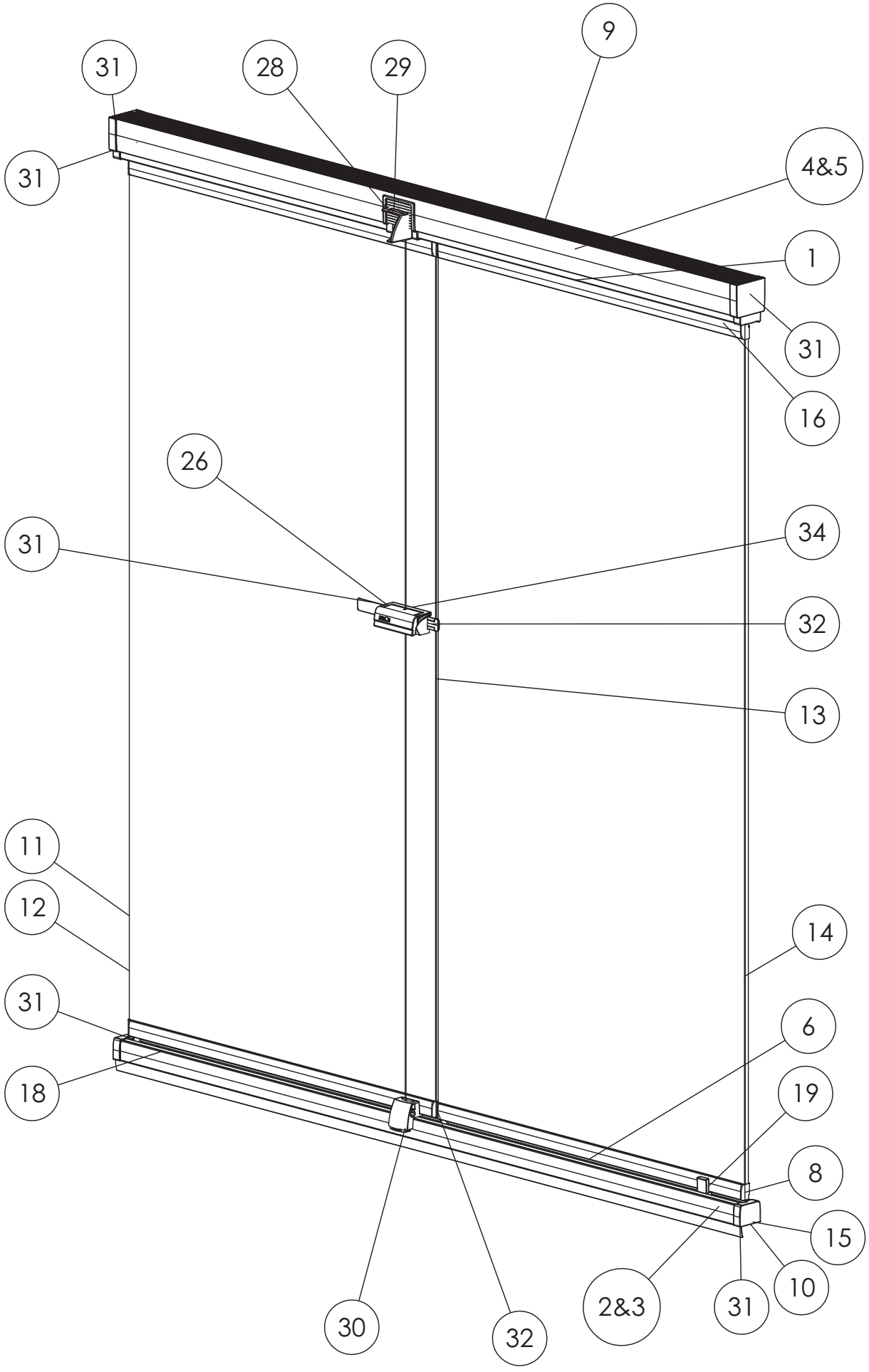
On opening side at least two opening glass.

Corner balcony which opens on two sides and have five different sides. Glasses slides over 135 degree corner.



Glazing ends to precast element, yet opens in the far end of the profile. Profile extension has to be at least 40 mm.
In this case you can not install the latch.

On one glass side, sliding distance must be longer than the width of the opening glass.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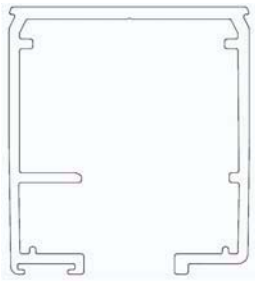
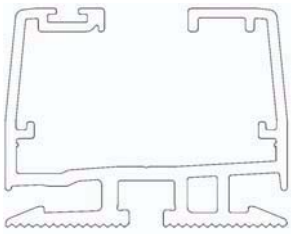
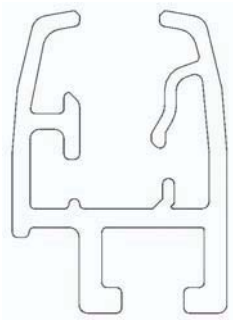
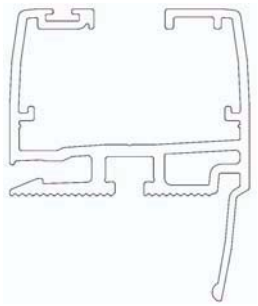
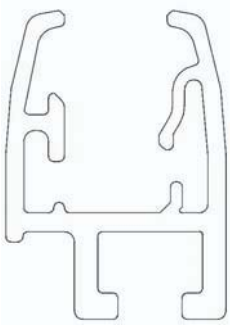
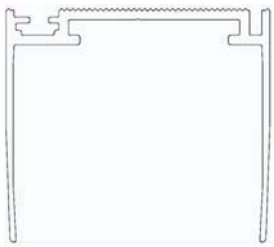
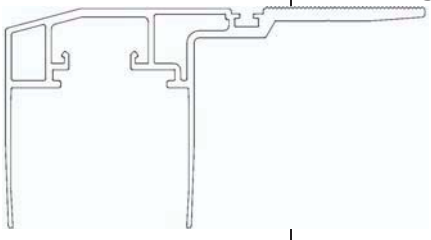
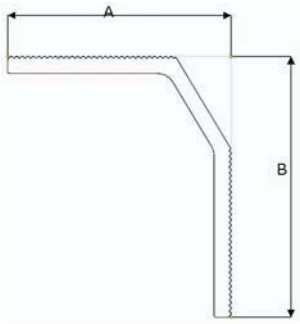
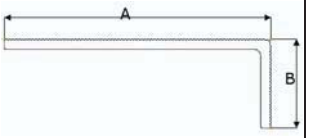
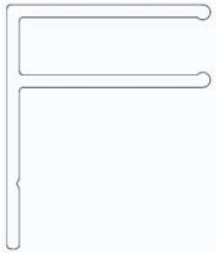
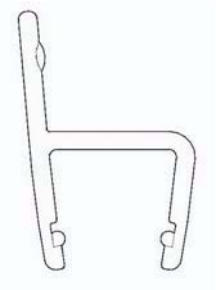
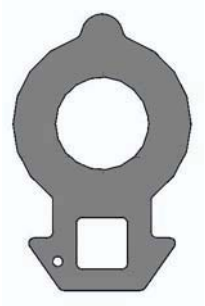
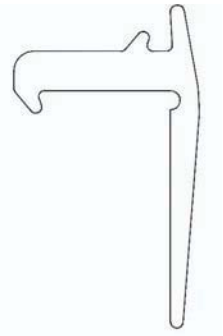
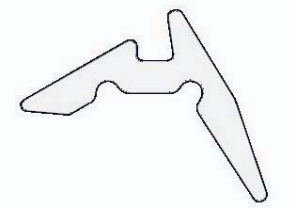
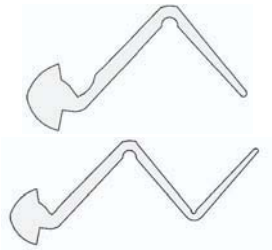
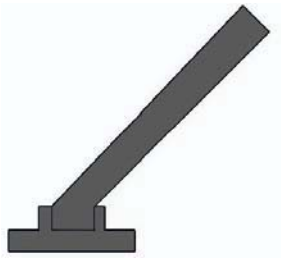
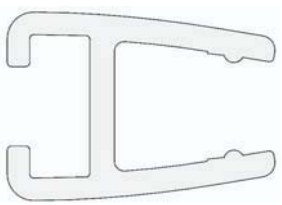
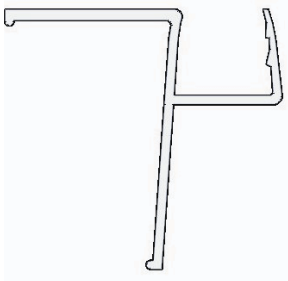
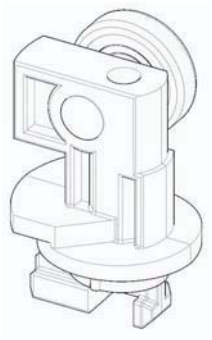
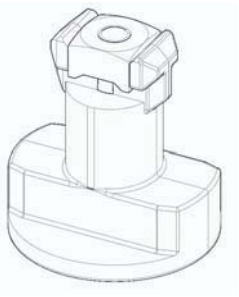
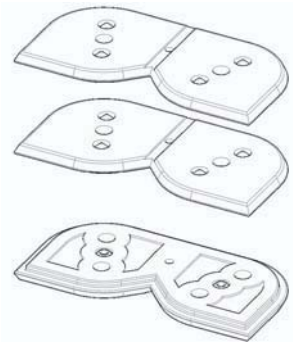
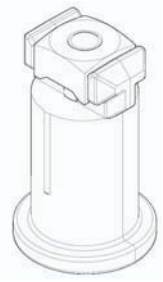
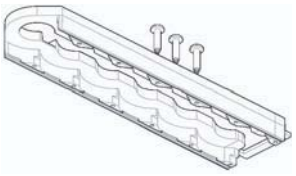
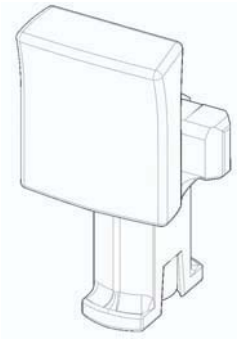
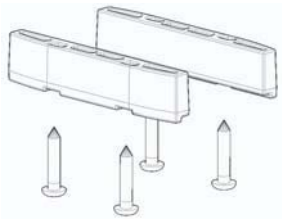
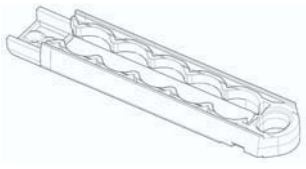
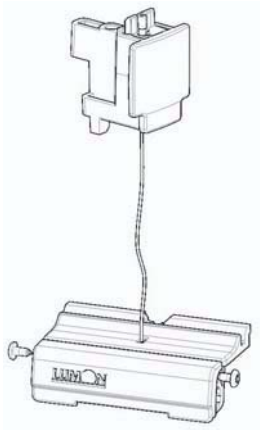
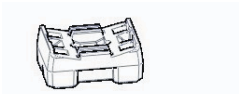
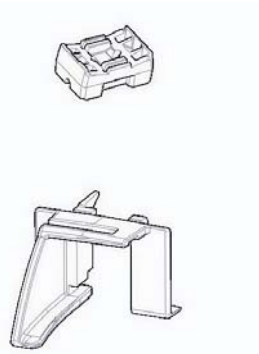
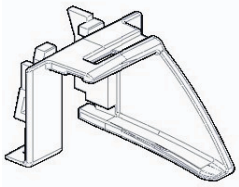
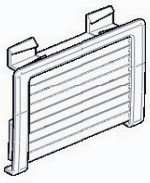
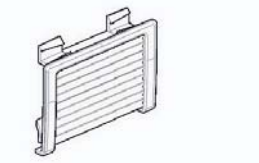
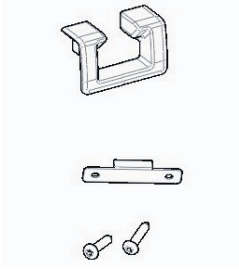
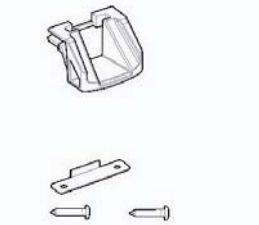
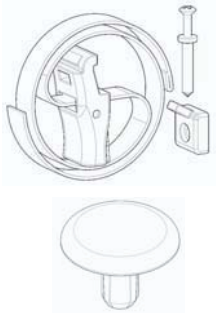
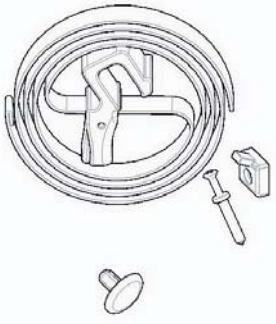
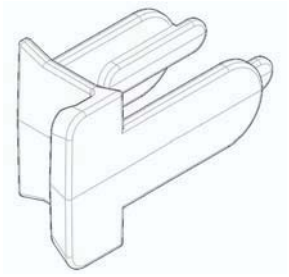
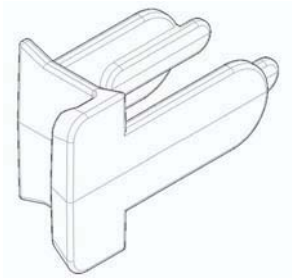
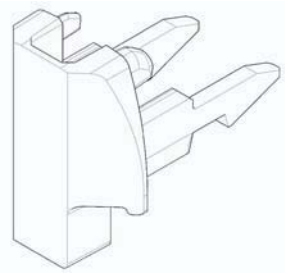
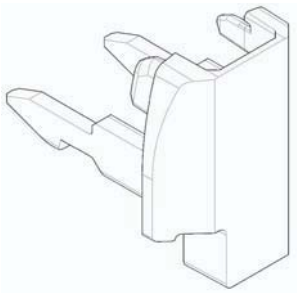
Drawing	Component Name and Number	Drawing	Component Name and Number
1. 	Upper Profile 11 22 1205	6. 	Glazing Bead 6mm 11 22 5232
2. 	Lower Profile 11 22 3001	6. 	Glazing Bead 8 mm 11 22 5233
3. 	Lower Profile with eyeshade 11 22 3002	6. 	Glazing Bead 10 mm 11 22 5234
4. 	Telescopic Profile 11 22 2206		
5. 	Telescopic Profile, with flange 11 22 2207		

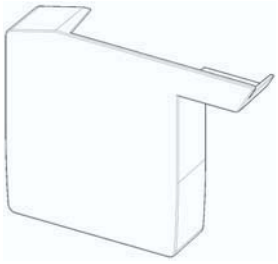
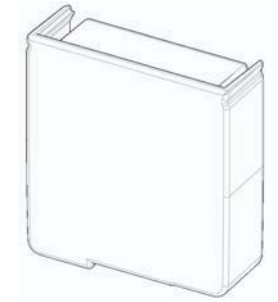
Drawing	Component Name and Number	Drawing	Component Name and Number
	Continuous Bracket - Attaches lower and upper profiles to the balcony constructions - Aluminium - Painted with RAL-colors A B 60 70 11 06 3130 70 60 11 06 3131 80 50 11 06 3128 100 110 11 06 3150 110 100 11 06 3151 90 60 11 11 6233		
	Continuous Bracket - Attaches lower and upper profiles to the balcony constructions - Aluminium - Painted with RAL-colors A B 120 40 11 06 3161		
	h- Bead, 6mm - for aperature glass fixings 11 01 0603		
	F- Bead, 6mm - for aperature glass fixings 11 01 0613		

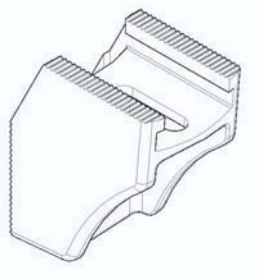
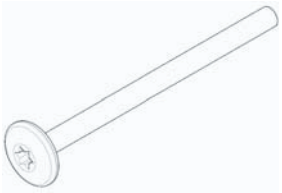
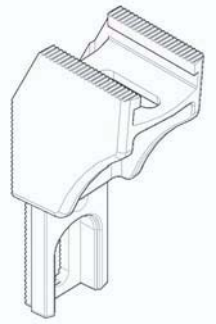
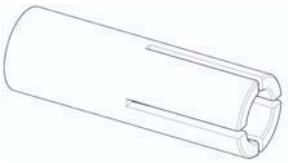
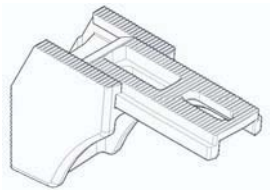
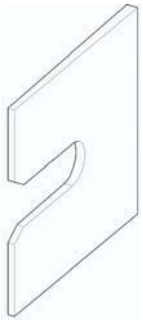
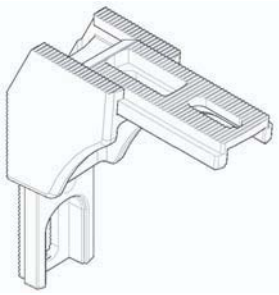
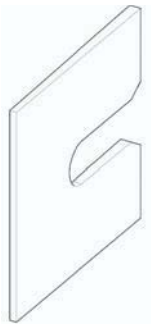
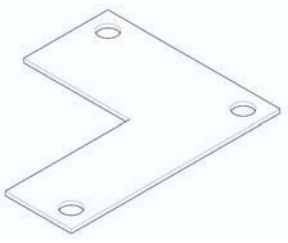
Drawing	Component Name and Number	Drawing	Component Name and Number
8. 	Bottom Seal - Sealing btw Glazing Beam and Lower Profile - Silicon Light Grey 54 22 0001 Dark Grey 54 22 0002	13 	h– Seal between panes h– corner Seal - Seals the gap between panes - UV-resistant, clear PVC 6 mm 54 04 3034 8 mm 54 04 3044 10 mm 54 04 3064
9. 	Telescopic Profiles Seal - Sealing btw Telescopic Profile and balcony roof - Cell rubber Dark Grey 54 22 0003	14. 	Corner Seal (needs a corner) - Seals the gap between pane and wall - Silicon - clear 54 04 2026
10. 	Lower profiles rail seal - Hides a gap between lower profile and balustrades handrail. - Installation on top of the handrail. - Rubber Light Grey 54 22 0004 Dark Grey 54 22 0005	15. 	Seal for a water sill - Seals the gap between lower profile and the water sill. - Silicon Light Grey 54 14 4220 Dark Grey 54 14 4211
11. 	Edge sealing - Sealing the gap between pane and wall - Silicon - clear 20 mm 54 04 2014 30 mm 54 04 2024	16. 	Bent Brush Seal 4,8mm - black 54 22 0006
12. 	Fastening Bead - Attach edge sealing to the glass. - UV-resistant PVC 6 mm 54 04 3014 8 mm 54 04 3024 10 mm 54 04 3054		Lower Bead for hinged glass opens - Used under the hinged open out glass - plastic White 54 04 3071

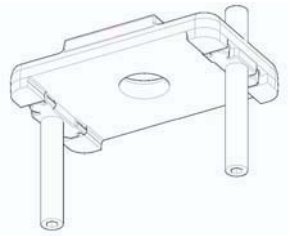
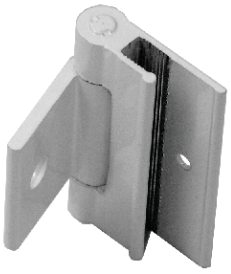
Drawing	Component Name and Number	Drawing	Component Name and Number
17. 	Upper Hinge - Supports and guides glass inside upper profile - Dark Grey Right 50 22 0020 Left 50 22 0021	18 	Lower Hinge - Guides glass inside lower profile - Dark Grey 50 22 0024
	Profile Joint Unit, plastic bag - Incl. 3 joint units with screws (for lower, upper and telescopic profiles) - Supports in extensions and in 90-270° corners 50 22 0009	25. 	Lower Start Hinge - 1st panes hinge 50 22 0026
22. 	Upper Chamber, bag - Locks the hinges - Dark Grey - incl. 1st panes mounting component and screws Chamber 1 50 22 0049 Chamber 6 50 22 0050 Chamber 9 50 22 0051	19. 	Lower Rail Guide - Guides the glass inside lower profile. Light Grey 50 22 0023 Dark Grey 50 22 0022
	Upper Profiles Joint Unit Bag - Increase upper profile extension quality - Dark Grey 50 22 0070	24. 	Lower Chamber - Locks the hinges - Dark Grey Chamber 1 50 22 0046 Chamber 6 50 22 0047 Chamber 9 50 22 0048

Drawing	Component Name and Number	Drawing	Component Name and Number
26. 	**Item Bag** Light Grey Right 50 22 0034 Left 50 22 0035 Dark Grey Right 50 22 0037 Left 50 22 0036 Bag includes: **Latch** Light Grey 50 22 0040 Dark Grey 50 22 0041		**High Pane Item Bag** Light Grey Right 50 22 0066 Left 50 22 0067 Dark Grey Right 50 22 0068 Left 50 22 0069 Bag includes: **High Pane Latch** Light Grey 50 22 0064 Dark Grey 50 22 0065
27. 	**Pane Stop** 50 22 0042 **Follower** Light Grey Right 50 22 0053 Left 50 22 0052 Dark Grey Right 50 22 0055 Left 50 22 0054		**Pane Stop** 50 22 0042 **Follower** Light Grey Right 50 22 0053 Left 50 22 0052 Dark Grey Right 50 22 0055 Left 50 22 0054
28. 			
29. 	**Cower Plate for Telescopic Profile** Light Grey 53 22 0042 Dark Grey 53 22 0037		**Cower Plate for Telescopic Profile** Light Grey 53 22 0042 Dark Grey 53 22 0037
30. 	**Lower Cover Plate** Light Grey 53 22 0028 Dark Grey 53 22 0027		**High Pane Lower Cover Plate** Light Grey 53 22 0077 Dark Grey 53 22 0078
23. 	**1st Pane Fixing Component** 50 22 0043 Incl. screws st/st 3,5x19 **Wall Lock** Grey 50 13 1413 **Ceiling Plug** Grey 53 13 2833		**1st Pane Fixing Component** 50 22 0043 Incl. Screws st/st 3,5x19 **High Pane Wall Lock** Grey 50 13 3433 **Ceiling Plug** Grey 53 13 2833

Drawing	Component Name and Number
	High Pane Latch Installation Strip Cover 8mm Light Grey 53 22 0088 Dark Grey 53 22 0089
	High Pane Latch Installation Strip Cover 10 mm Light Grey 53 22 0090 Dark Grey 53 22 0091
	Installation Strip for High pane Latch Light Grey 50 22 0072 Dark Grey 50 22 0071
32. 	Glazing Bead End Plug for 6mm Glass Light Grey Left 53 22 0093 Right 53 22 0094 Dark Grey Left 53 22 0095 Right 53 22 0096
32. 	Glazing Bead End Plug for 8 & 10 mm Glass Light Grey Left 53 22 0097 Right 53 22 0098 Dark Grey Left 53 22 0099 Right 53 22 0100

Drawing	Component Name and Number
31. 	**Profile End Cap Bag** - Bag includes end caps for lower, upper and telescopic profiles in both ends for Telescopic Profile Light Grey 50 22 0032 Dark Grey 50 22 0033 for Telescopic Profile with Flange Light Grey 50 22 0044 Dark Grey 50 22 0045
	**For Telescopic Profile** Light Grey 53 22 0059 Dark Grey 53 22 0060
	**For Telescopic Profile with Flange** Light Grey Left 53 22 0061 Right 53 22 0062 Dark Grey Left 53 22 0063 Right 53 22 0064
	For Upper Profile Light Grey Left 53 22 0050 Right 53 22 0051 Dark Grey Left 53 22 0052 Right 53 22 0053
	**For Lower Profile** Light Grey Left 53 22 0054 Right 53 22 0055 Dark Grey Left 53 22 0056 Right 53 22 0057

Drawing	Component Name and Number	Drawing	Component Name and Number
33. 	Lower Mounting Bracket 55x65 / 65x55 - Casted Aluminium Light Grey 50 22 0203 Dark Grey 50 22 0003		Concrete Screw - Stainless Steel 7,5x50 st/st tx30 68 98 0465 7,5x115 st/st tx30 68 98 0488
	Lower Mounting Bracket 55x118 / 118x55 - Casted Aluminium Light Grey 50 22 0202 Dark Grey 50 22 0002		Anchor 6x30 st/st - Outer Diameter 8mm 68 06 1121
	Lower Mounting Bracket 65x108 / 108x65 - Casted Aluminium Light Grey 50 22 0204 Dark Grey 50 22 0004		Wedge, 12/20 pointing out 51 16 3201
	Lower Mounting Bracket 108x118 / 118x108 - Casted Aluminium Light Grey 50 22 0205 Dark Grey 50 22 0005		Wedge, 12/20 pointing in 51 16 3202
 	Fastening Flat Bar - aluminum Light Grey 10x60x250 51 06 3432 10x60x300 51 06 3434 Dark Grey 10x60x250 51 06 3433 10x60x300 51 06 3435		Multipurpose Wedge 1 mm 51 98 3210 1,5 mm 51 98 3215 4 mm 51 98 3240 10 mm 51 98 3250

Drawing	Component Name and Number	Drawing	Component Name and Number
	Lock for Latch 50 22 0039		Screws for Water Sill - 10 pc / bag 50 22 0056
	Flower Board, glass 8mm - can used with lower profile 11 22 3001 if profile installed inside the handrail. 600 mm 50 02 0601 900 mm 50 02 0602 1400 mm 50 02 0603	20. 	Telescopic Profile Hardware - Casted Aluminium 50 22 0038
	Blinds White Transparent 90 22 0200 Non-transparent 90 22 0201 Gray Transparent 90 22 0202 Non-transparent 90 22 0203	21. 	Hardware bag for Telescopic Profile with Flange - Casted Aluminium 50 22 0057
	Hinge for a Pane that Closes an Opening - Functions as a hinge for a 6mm pane that closes an opening - Aluminium - White 50 06 3512		
	Latch for the Open Glasses - Plastic Light Grey 53 03 1811		

The flashings are made of 0,5mm hot - dip zinc coated Prelaq 50 plastic - coated steel sheet.

RR - chart colors for steel sheet	
Standard Colors	**RR20** white, **RR21** grey, **RR32** brown
Other Colors	RR 22, RR23, RR24, RR29, RR30, RR31, RR33, RR34, RR35, RR36, RR37, RR11, RR750

Prelaq 50 is thick polyester - type coating that is available in following standard colors: RR20 white, RR21 Brown and RR32 dark brown.
The coating is extremely gloss- and fade - proof and it provides good corrosion resistance. The back of the sheet is normally treated with grey epoxy - type varnish.

Plastic Coating		
	Type	Thickness
Color of Front Side	Polyester	50 my
Color of Back Side: Grey	Epoxy - based	10 my

The steel sheet is hot-dip zinc coated in accordance with either SS-EN 10 142 or SS-EN 10 147 and its zinc coating weight class is Z 275 or Z 350. Alternatively, the steel sheet can be aluminum zinc coated in accordance with SS-EN 10 215, in which case its coating weight class is AZ 150 or AZ 185.

Corrosion Resistance		
	Test Methods	Values
Salt Spray	ISO 7253	1000 h 1)
Cleveland	SS 18 41 92	1000 h 2)

Properties		
Coating Thickness	ISO 2808/ SS 18 41 60	50 my
Glass	ISO 2813	40
Smallest Bend Radius	ISO 1519/ SS 18 41 76	1,0T 1)
Adhesion	ISO 1520/ SS 18 41 72	No comments
Pencil Hardness	ASTM D 3363	HB
Highest permissible operating temperature		120°C 3)

1) T corresponds to sheet thickness.
2) In accordance with SS-EN 10 169-1.
3) Yellowing can occur in high temperatures and with light colors.

Preparing the Glass Panes

The large glass panes (6000 x 3200 mm) delivered to the factory is cut, their edge grounded and manufactured by individual order.

Toughening

Lumon glass wall glass panes are made of extremely durable toughened safety glass. The strength of toughened glass is achieved by heating the glass to 600 - 620 °C and then quickly cooling it. This process causes a permanent compression stress on the glass surface, while a tensile stress is generated in the core. When toughened glass is broken, it shatters into small fragments that do not have the sharp edges which are typical of ordinary broken glass. The toughened glass complies with the requirements of EN 12150-1 and EN 572-8.

Edge Grinding

Glass panes visible edges are grounded with chamfered edge grounding.

Heat Soak – test

In some cases, toughened glass may break spontaneously because of impurities that are present in the glass. This is prevented by performing a heat soak test, during which the glass is kept at 290 °C for approximately six hours. During this time glass that has invisible defects is broken.

Strength

The breaking stress of 6mm toughened glass is almost three times greater than of ordinary glass.

Types of Toughened Glass:

Transparent Glass Panes:

Lumon OF 88, 6 mm transparent
Lumon OF 88, 8 mm transparent
Lumon OF 88, 10 mm transparent

Stained Glass Panes:

Lumon OF 72, 6 mm Green
Lumon OF 72, 8 mm Green

Lumon OF 42, 6 mm Grey
Lumon OF 42, 8 mm Grey

Lumon OF 50, 6 mm Bronze
Lumon OF 50, 8 mm Bronze

Translucent Obscure Glass Panes:

Lumon OF 87, 6 mm stippolyte
Lumon OF 85, 6 mm satinato
Lumon OF 85, 8 mm satinato

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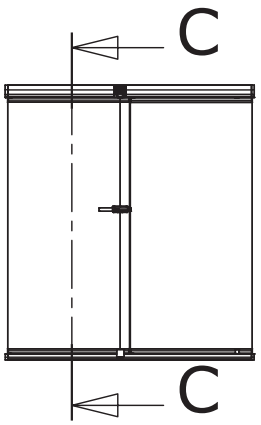
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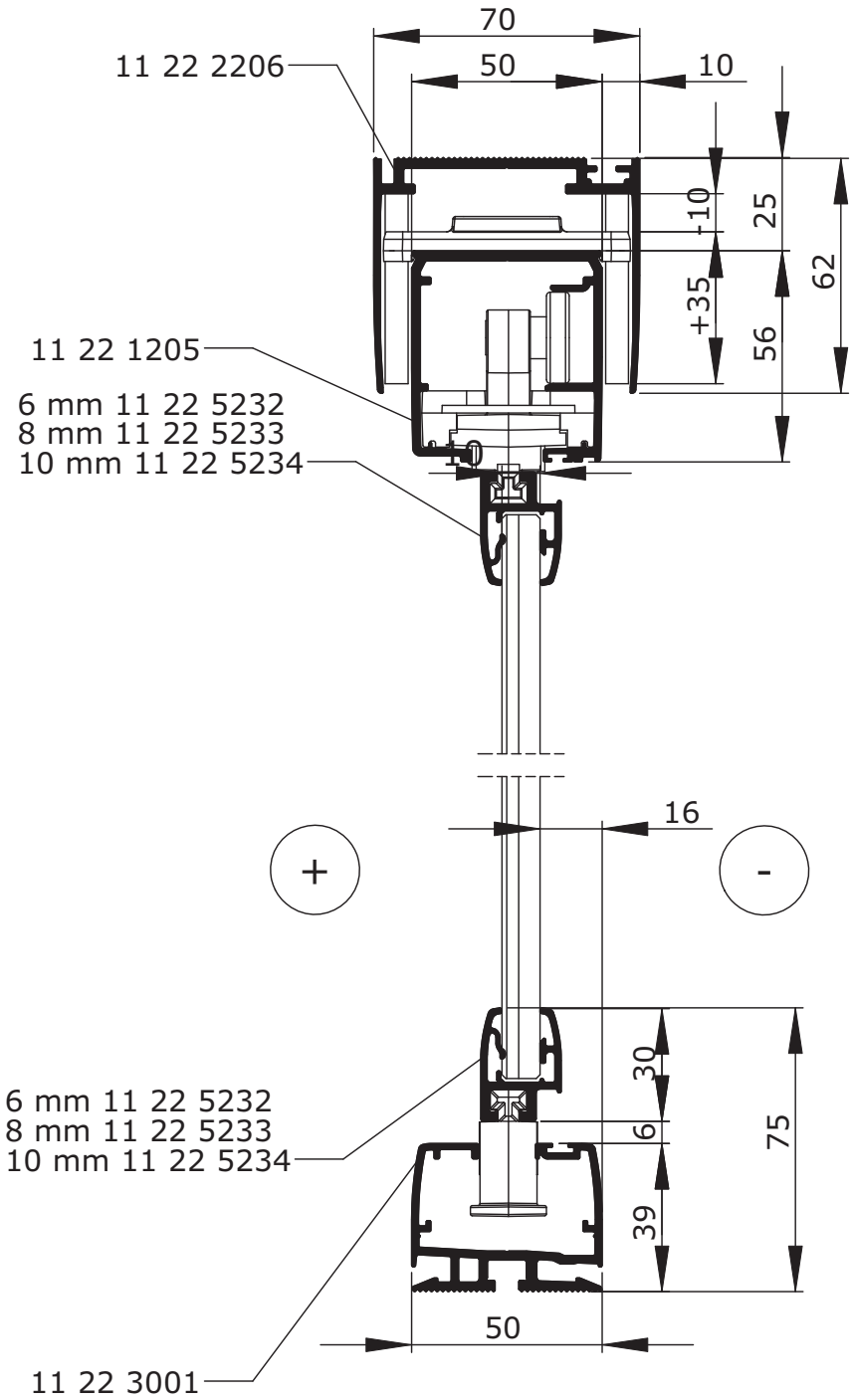
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50
10
11 22 2206
+10
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56
62
11 22 1205
6 mm 11 22 5232
8 mm 11 22 5233
10 mm 11 22 5234
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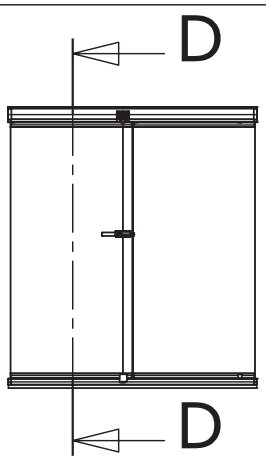
1:2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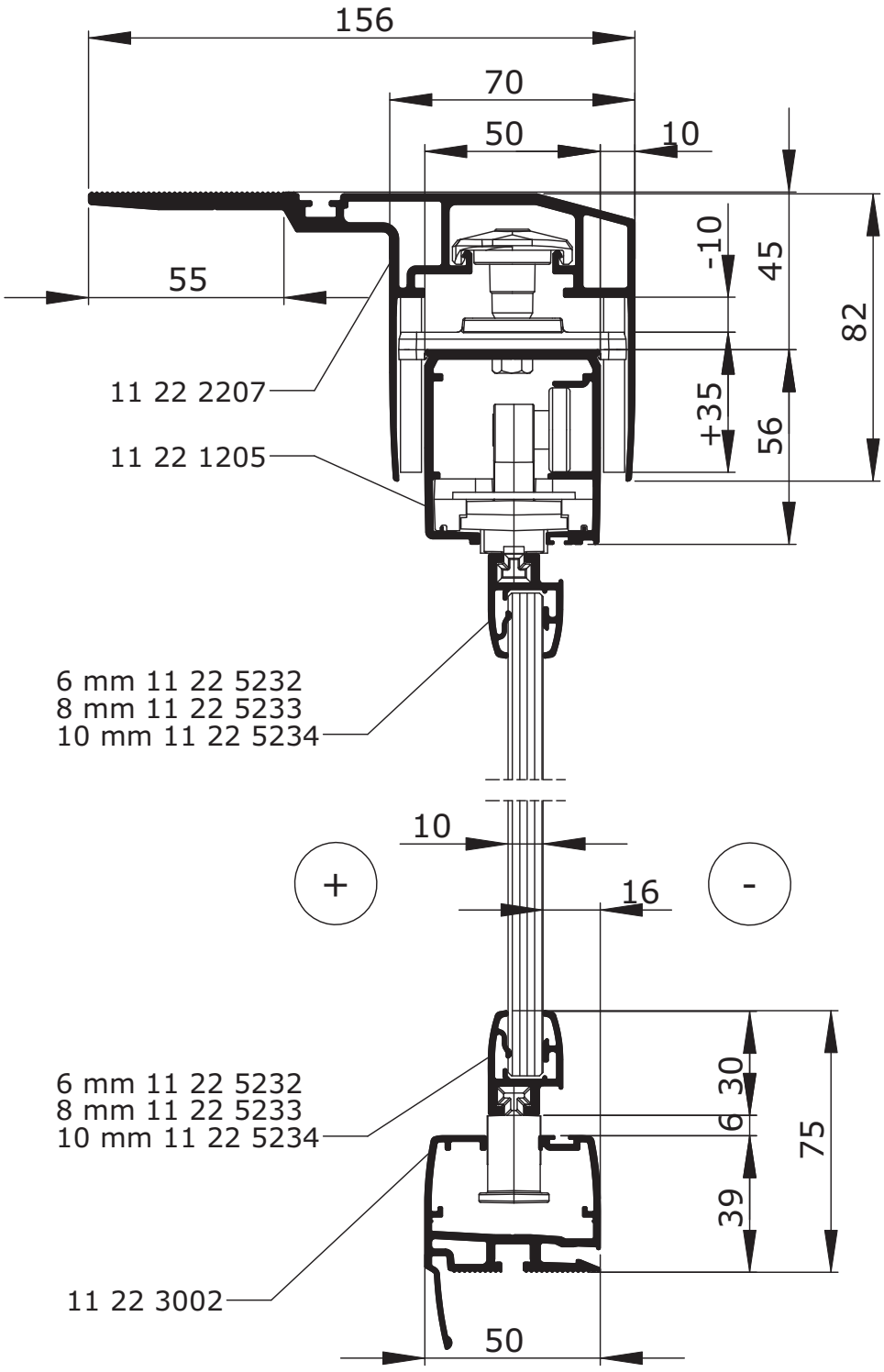
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-10
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8 mm 11 22 5233
10 mm 11 22 5234
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8 mm 11 22 5233
10 mm 11 22 5234
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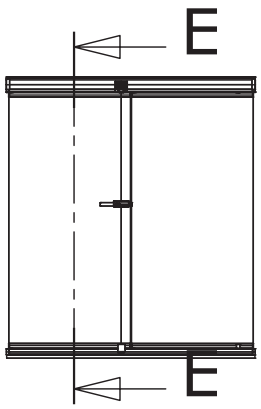
1:2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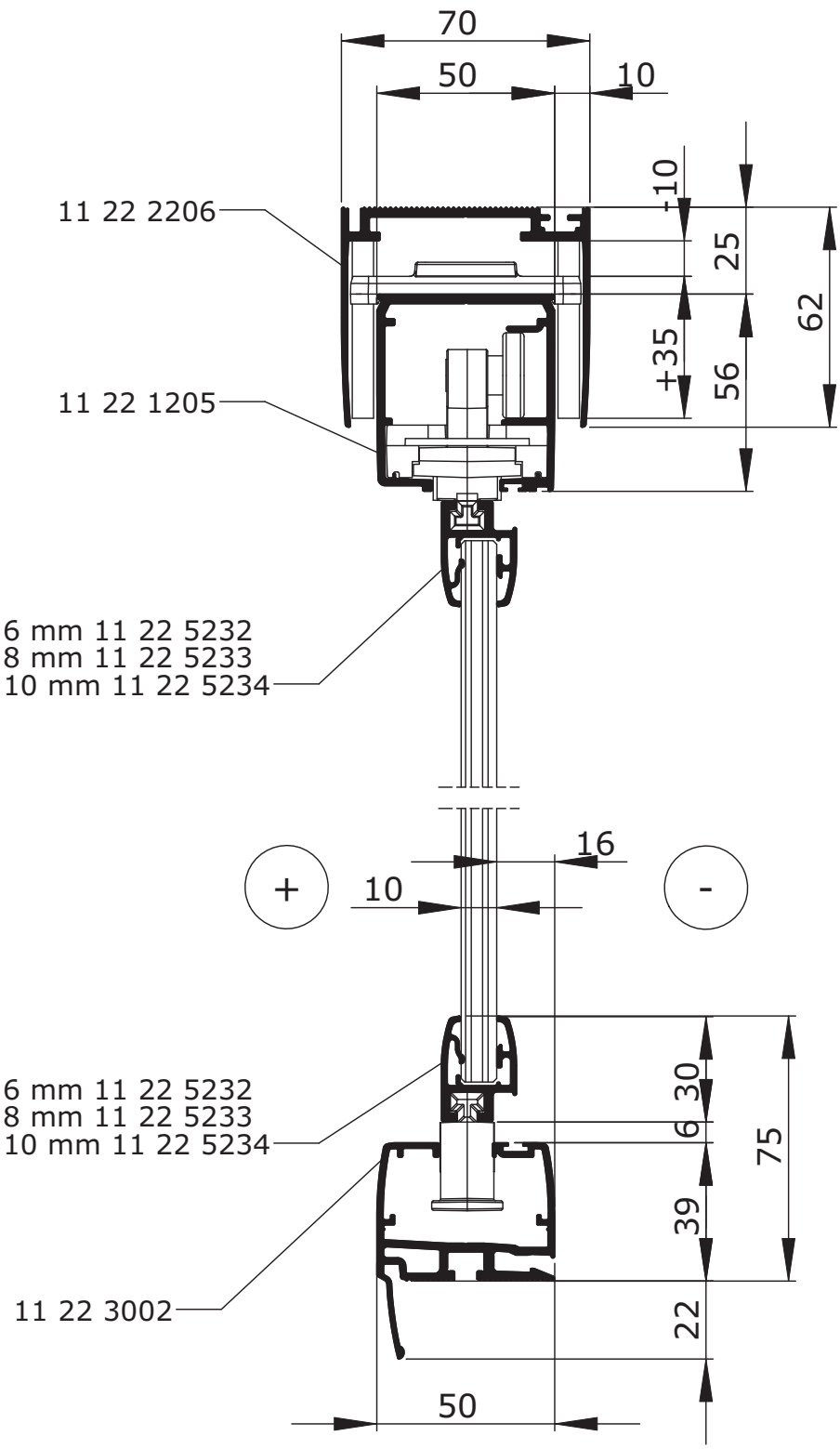
70
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62
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56
11 22 2206
11 22 1205
6 mm 11 22 5232
8 mm 11 22 5233
10 mm 11 22 5234
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-
6 mm 11 22 5232
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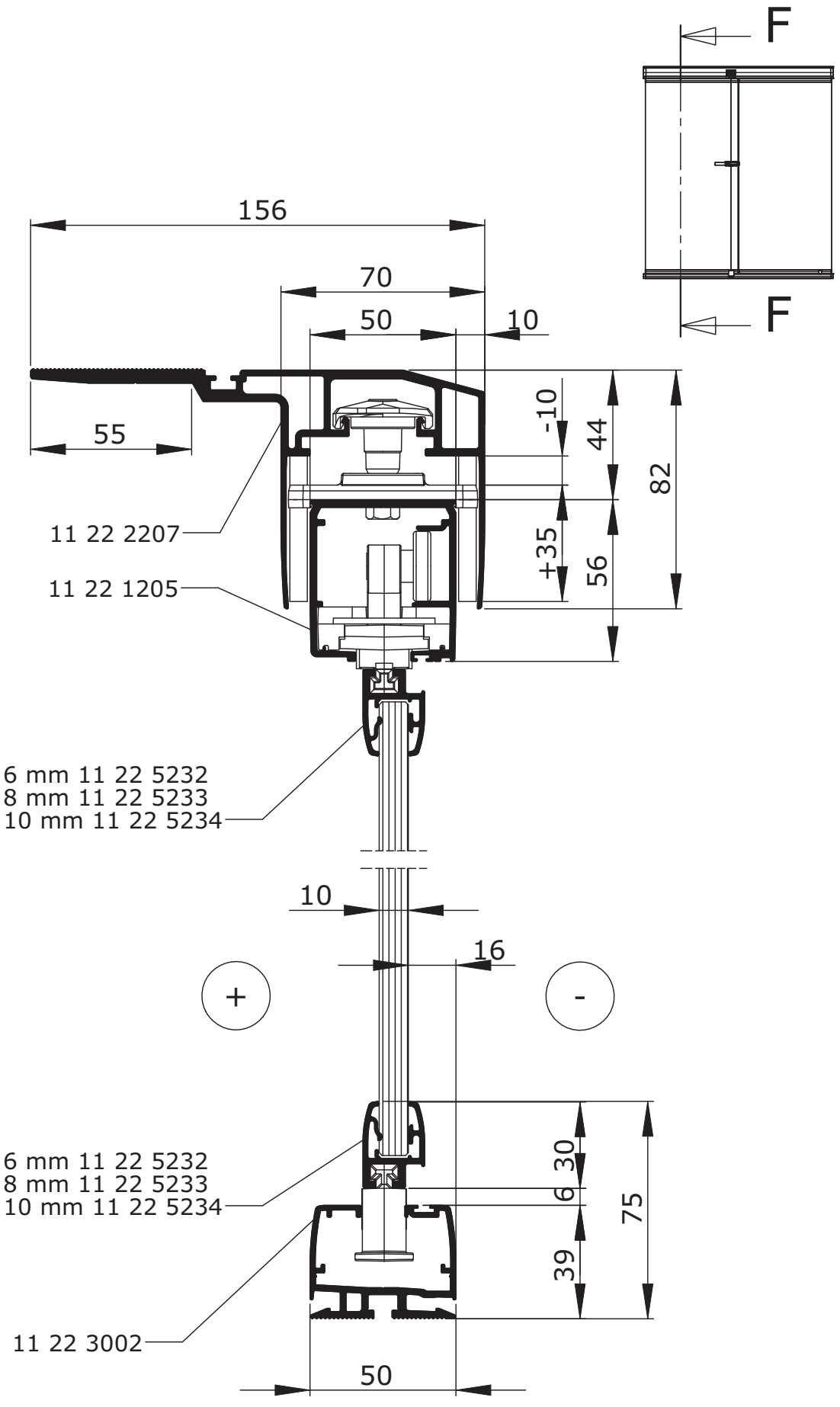
1:2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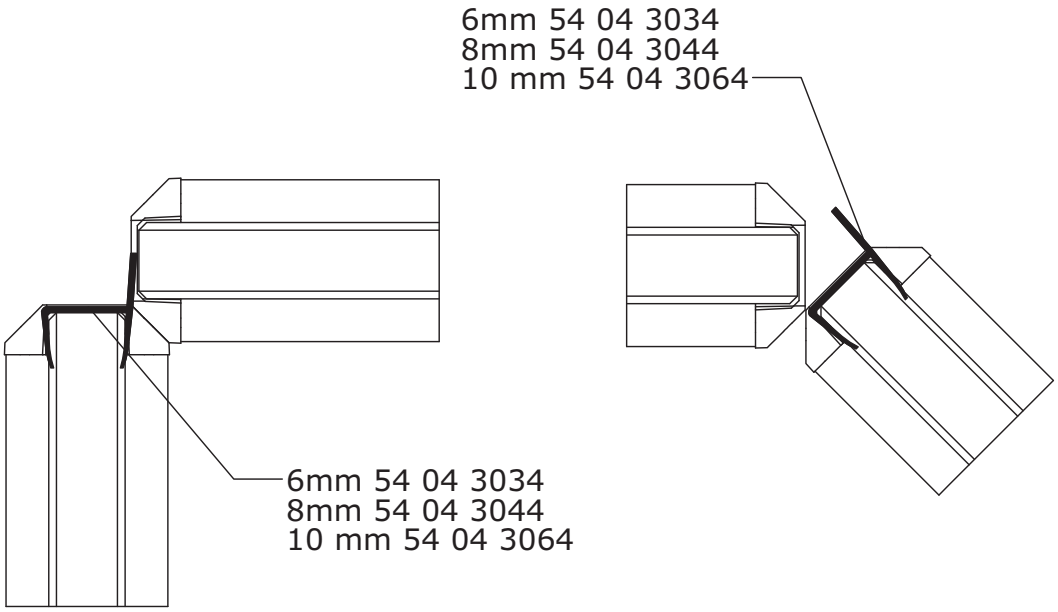
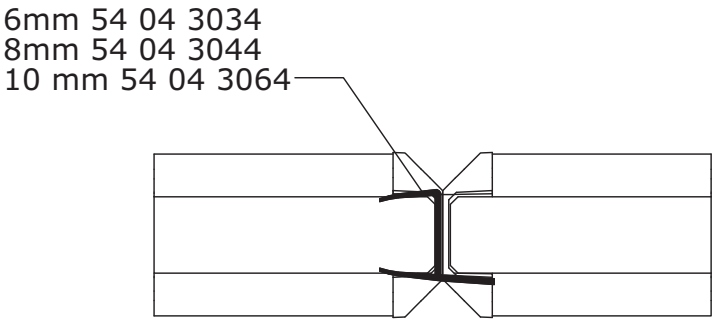
1:1


6mm 54 04 3034
8mm 54 04 3044
10 mm 54 04 3064
6mm 54 04 3034
8mm 54 04 3044
10 mm 54 04 3064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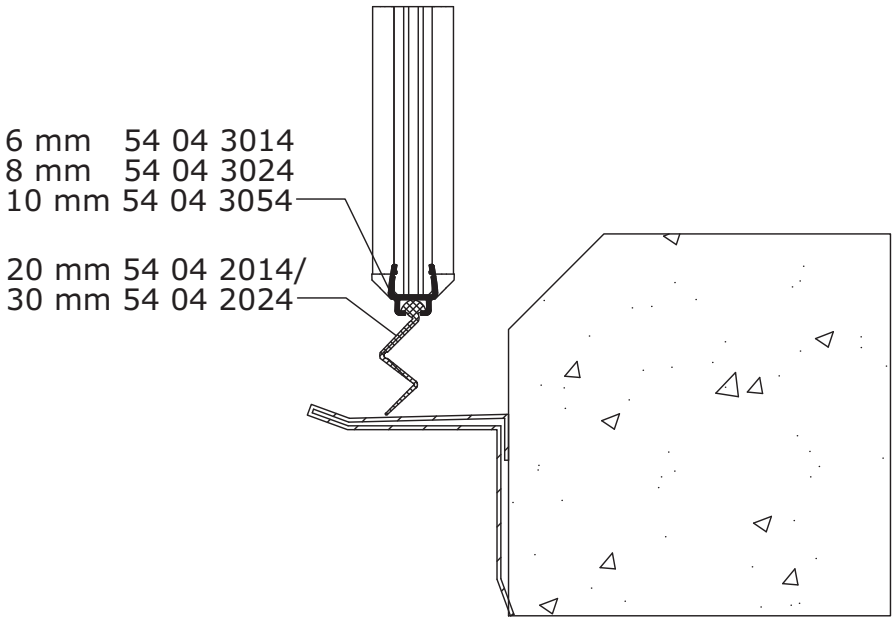
8mm 54 04 3044
10 mm 54 04 3064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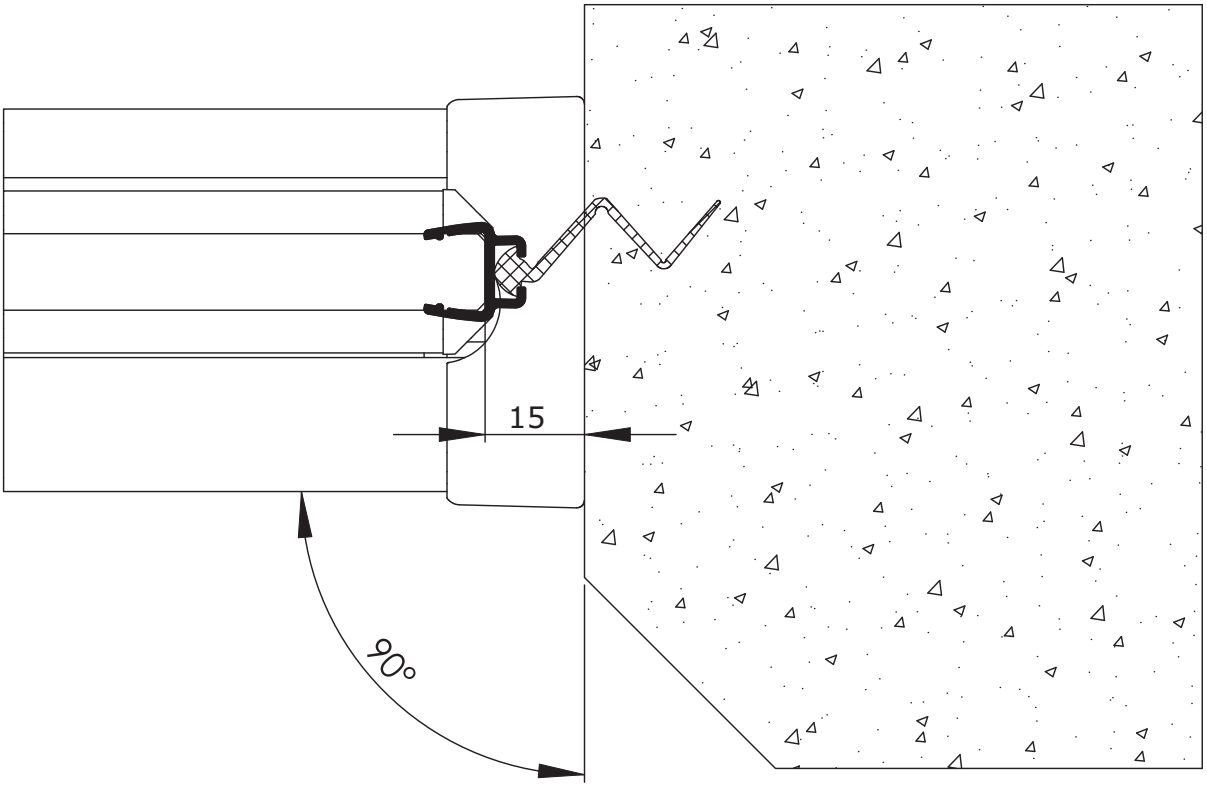
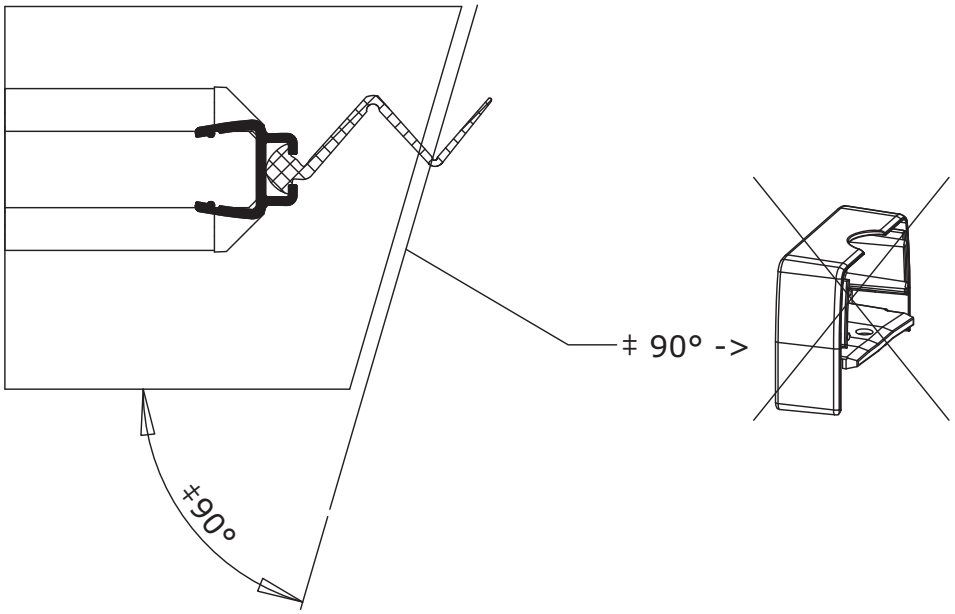
8 mm 54 04 3024
10 mm 54 04 3054
20 mm 54 04 2014/
30 mm 54 04 2024

1:1





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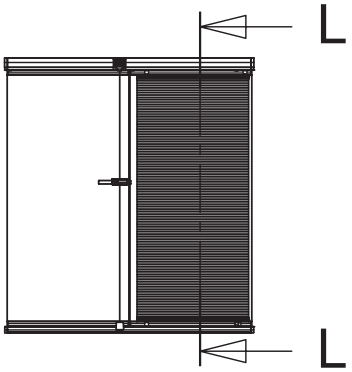
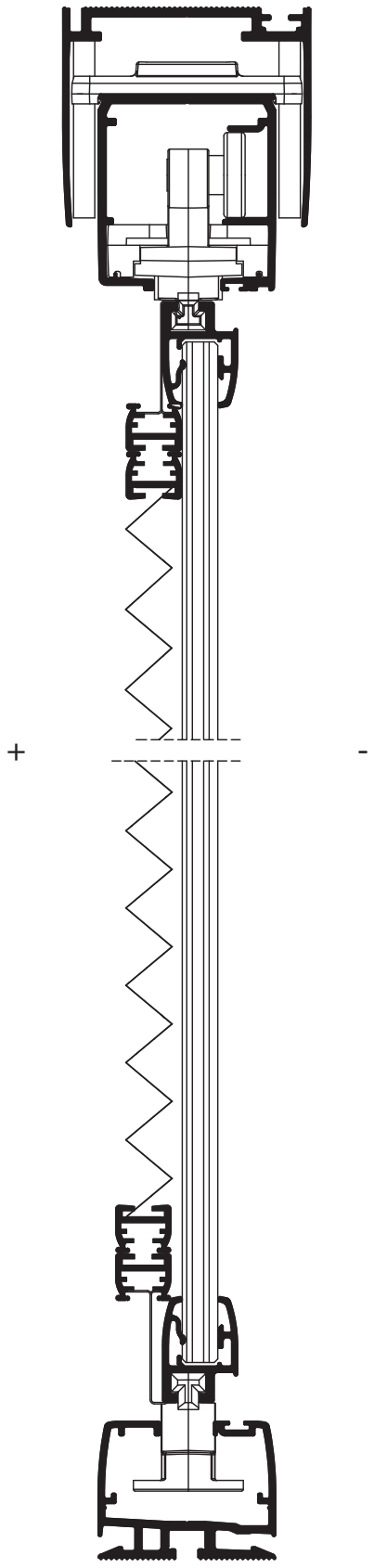
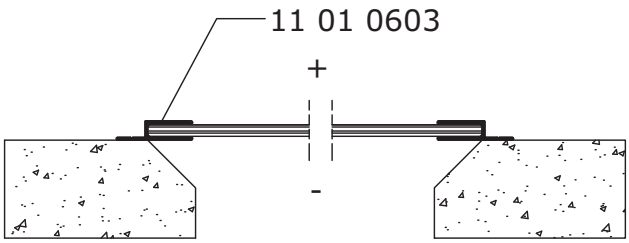


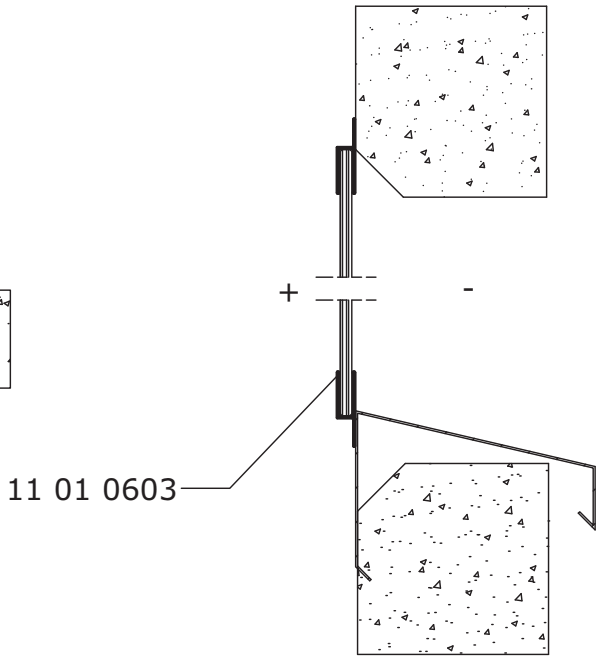


1:4

Fixed Pane for Closing an Opening

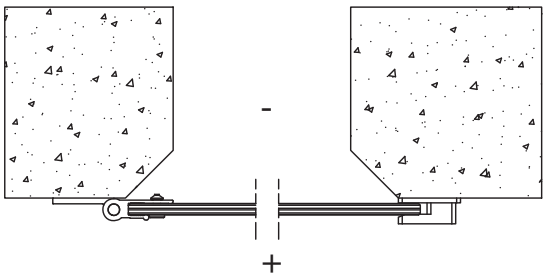


Horizontal Section

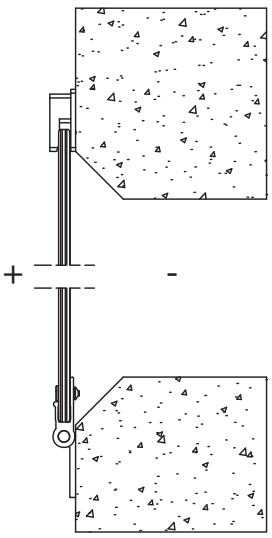


Vertical Section

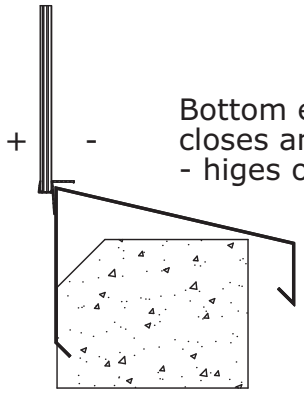
Hinged Pane for Closing an Opening



Hinges on the side

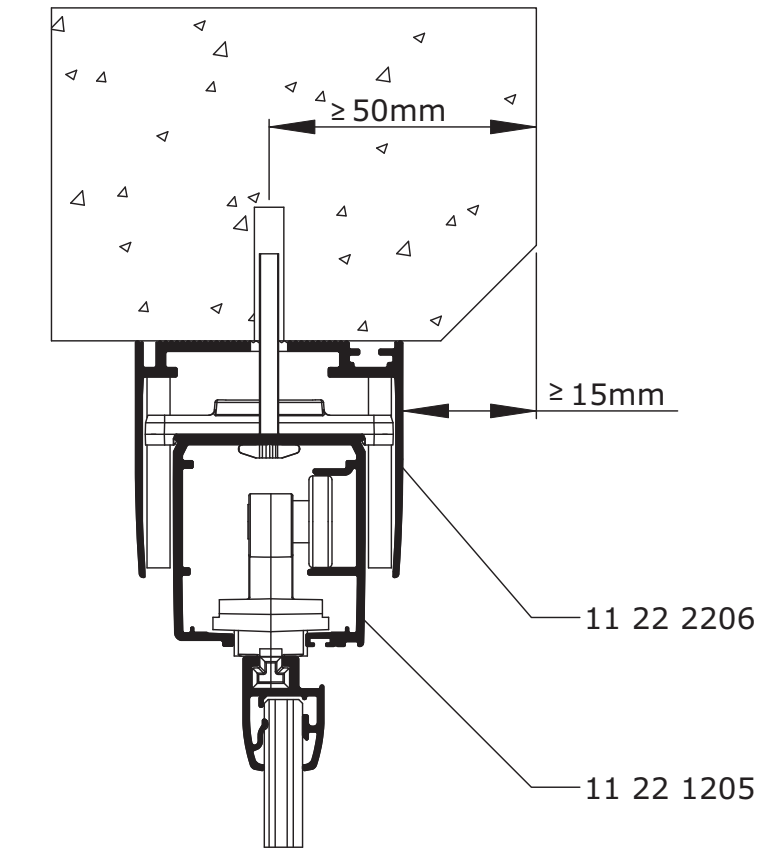


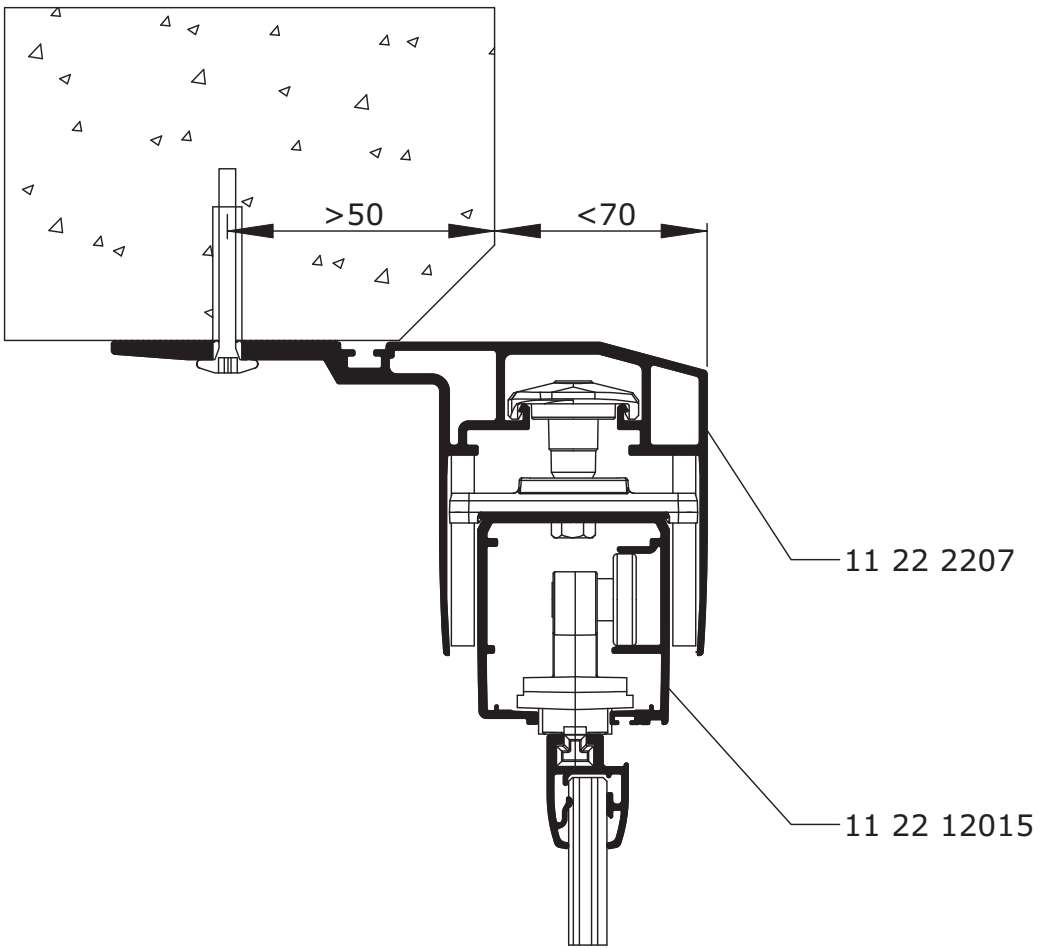
Hinges at the bottom



Bottom edge of the pane that closes an opening
- higes on the side

1:2





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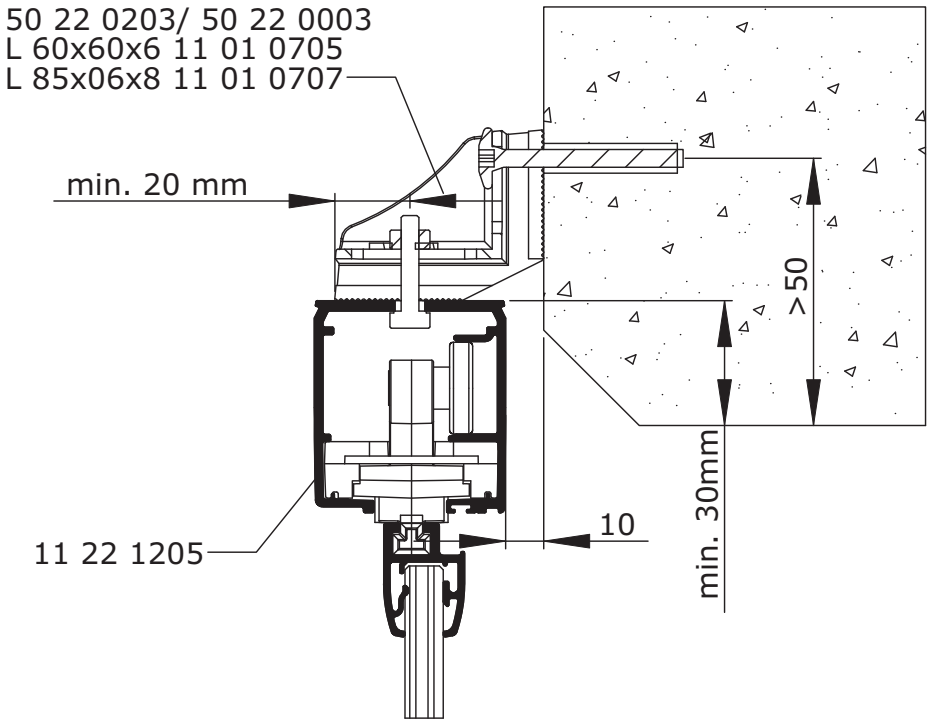
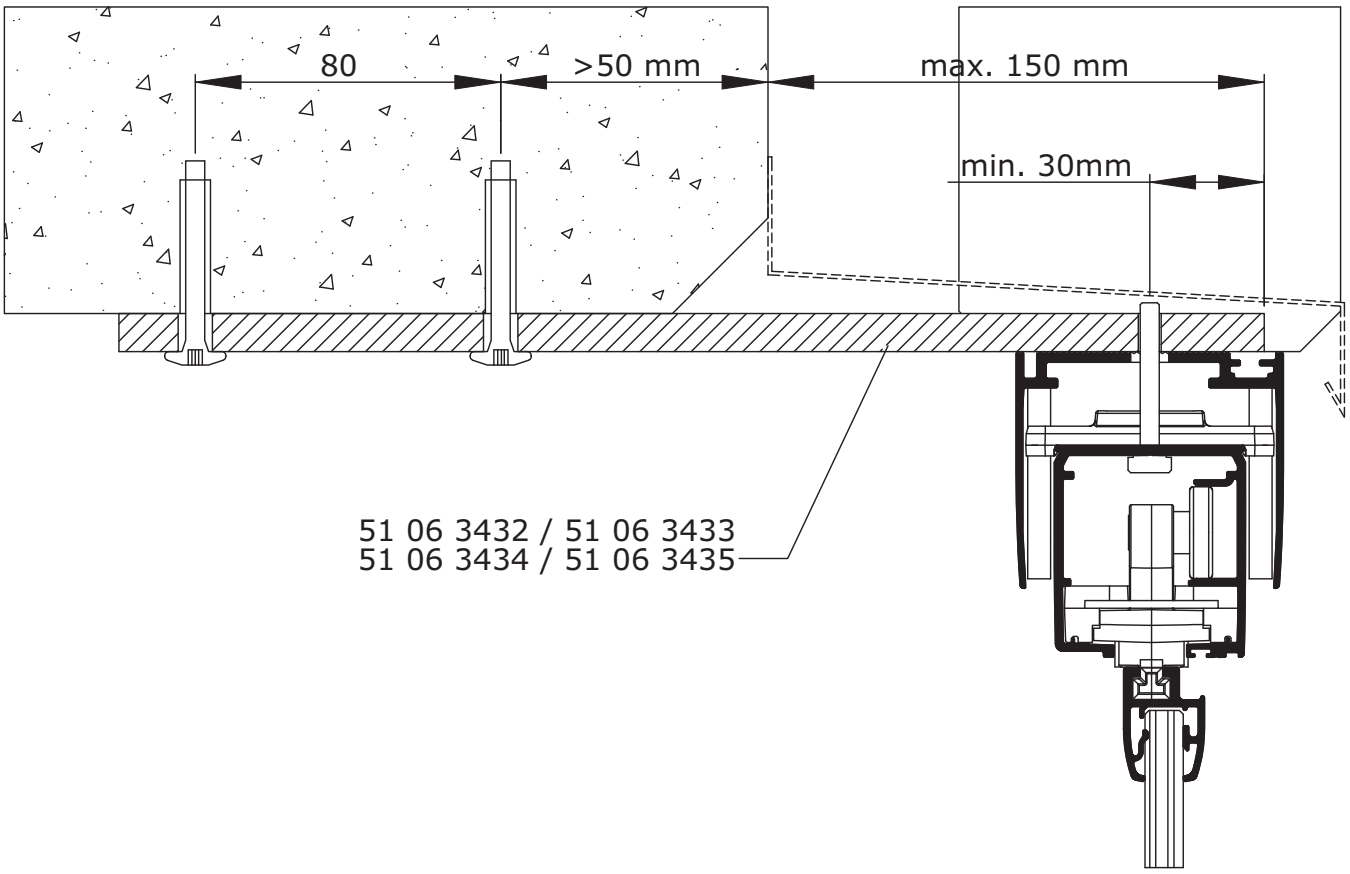
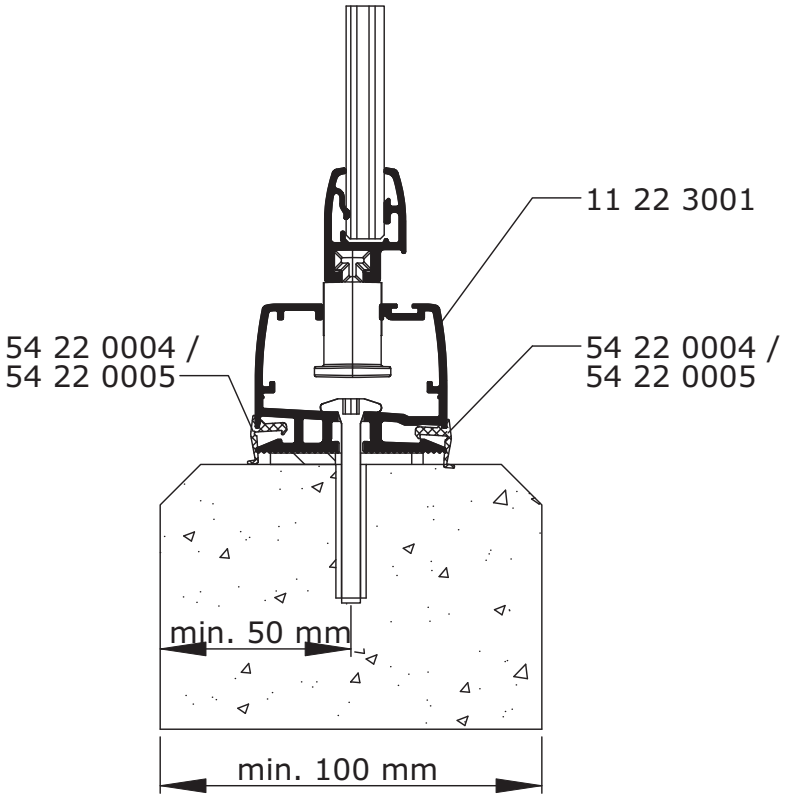
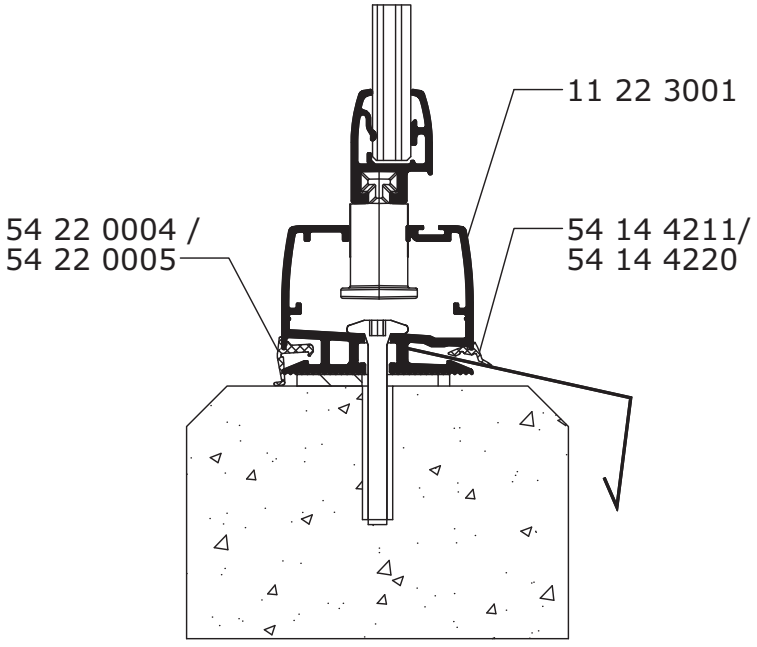

50 22 0203/ 50 22 0003
L 60x60x6 11 01 0705
L 85x06x8 11 01 0707
min. 20 mm
>50
min. 30mm
10
11 22 1205

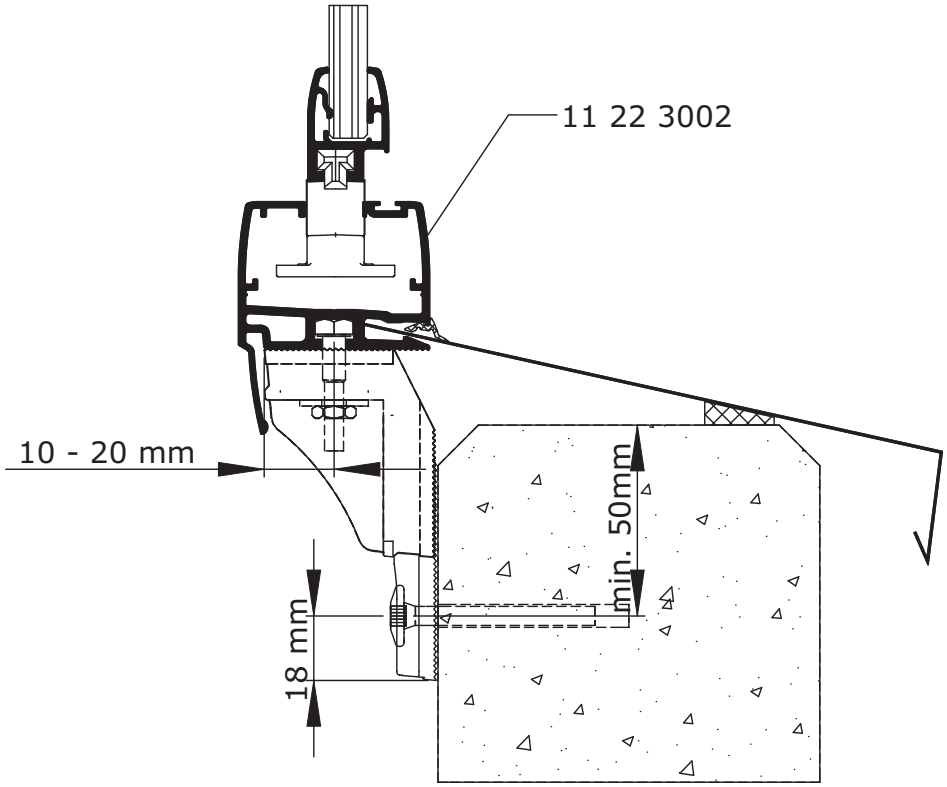

80
>50 mm
max. 150 mm
min. 30mm
51 06 3432 / 51 06 3433
51 06 3434 / 51 06 3435

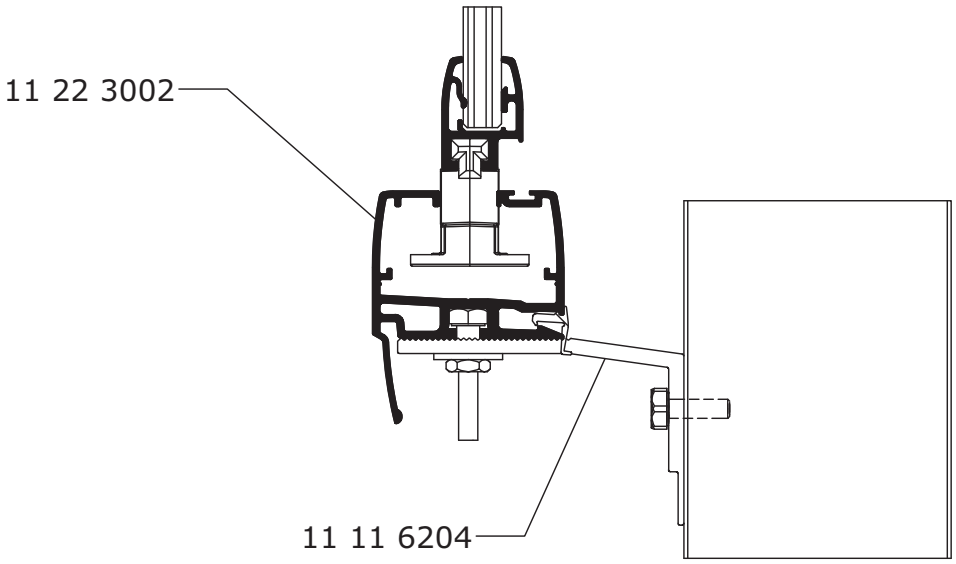
1:2

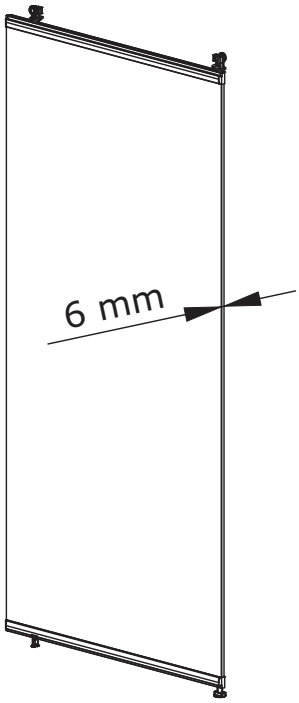

11 22 3001
54 22 0004 /
54 22 0005
54 22 0004 /
54 22 0005
min. 50 mm
min. 100 mm

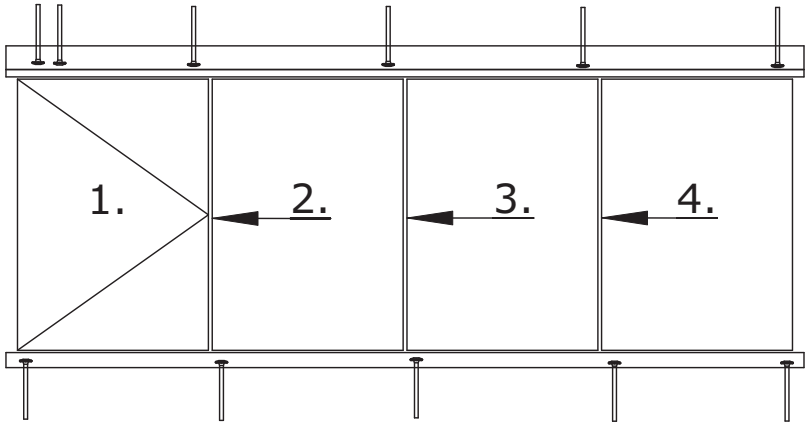

11 22 3001
54 22 0004 /
54 22 0005
54 14 4211/
54 14 4220

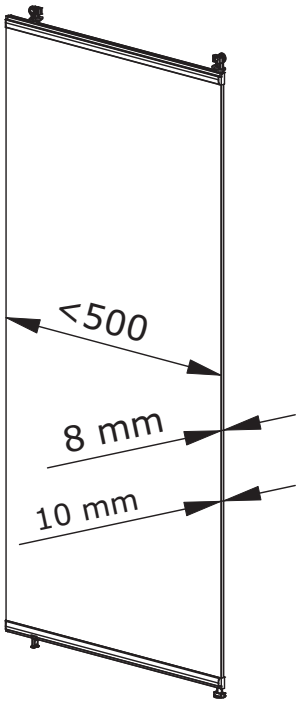
1:2

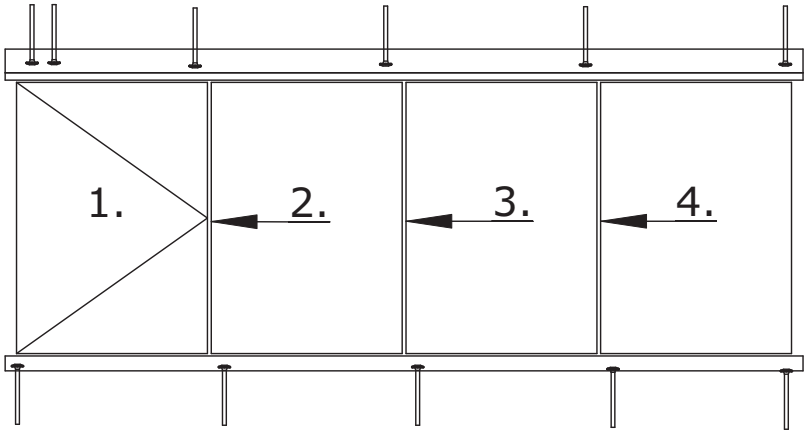


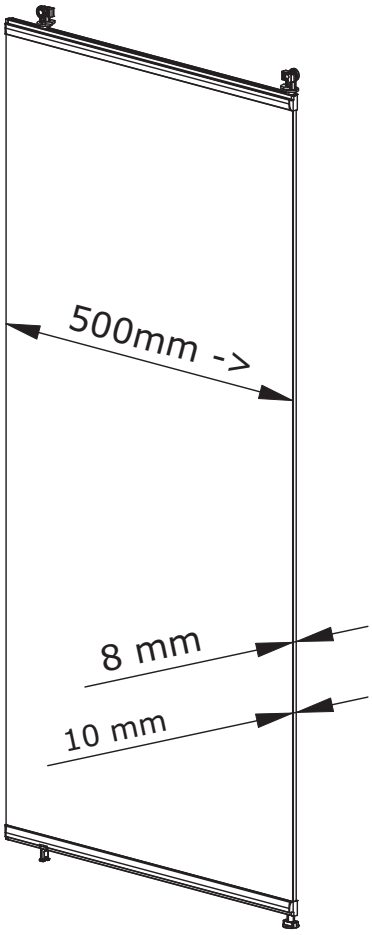


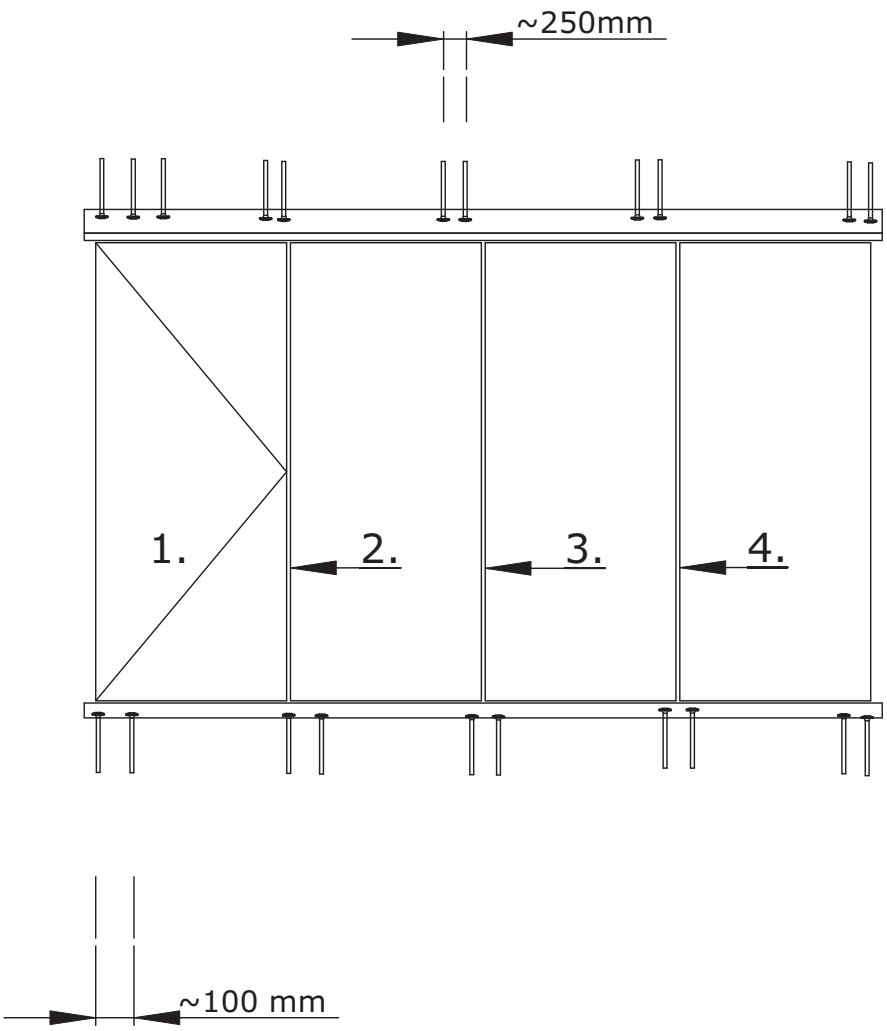

6 mm


1.
2.
3.
4.


<500
8 mm
10 mm


1.
2.
3.
4.


500mm ->
8 mm
10 mm


~250mm
1.
2.
3.
4.
~100 mm

GENERAL INSTRUCTIONS:

Height of the opening H1 : The measure between the lowest surface of the ceiling and the highest surface of the balustrade. See picture 1.

Width of the opening L1: The smallest measure between the vertical lines of the opening to be glazed. See picture 2.

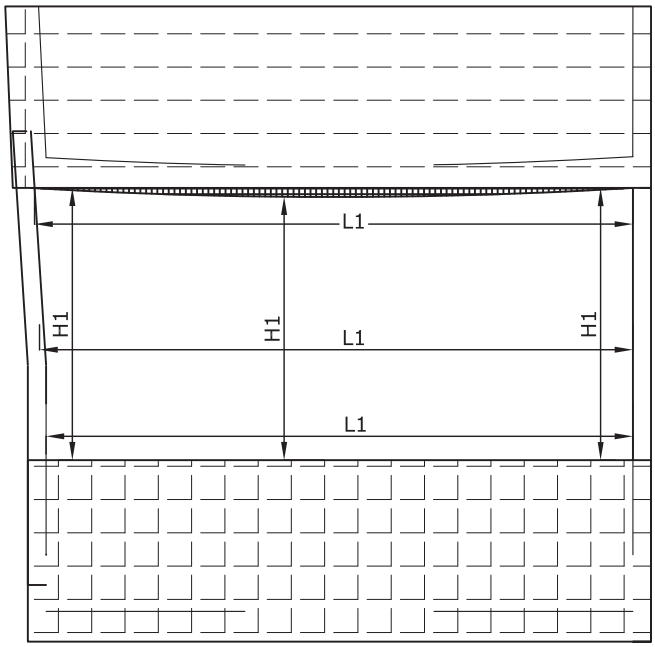
Glazing height H2: The balcony glazing system height from lower profile lowest surface to upper profile topmost surface. Glazing height can be calculated when the installation allowance is subtracted from the height of the opening (X = lower reduction and Y= upper reduction; see p. 7-2). Note the fall of the flashing when calculating lower reduction (X).

Glazing length L2: The length of the balcony glazing system. Glazing length can be calculated by subtracting the installation allowance from the width of the opening L1; in straight balconies initial and end reductions (ca. 5 mm), in corner glazing initial reduction, deviation (Z) and end reduction. Glazing length L2 includes end plugs at the 90° initial and end angles.

X= lower reduction: Only in cases that lower edge tolerance is not enough, or lower profile is attached to the cutting in.
Y= upper reduction: Default value = 0.
Z= deviation = Please note that the sign is positive (+) for retractable glazing and negative (-) if the glazing is outside the measuring line.

Each balcony will be measured separately and marked to the measure record.

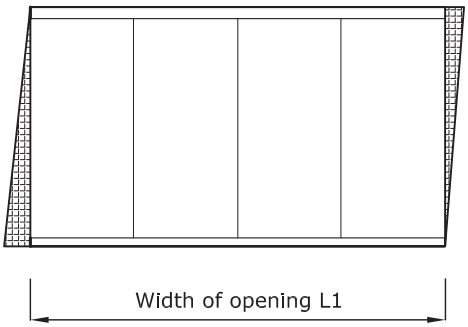
It is possible to order upper and lower profiles towered over glazing length; both profiles are of equal length.



Picture 1

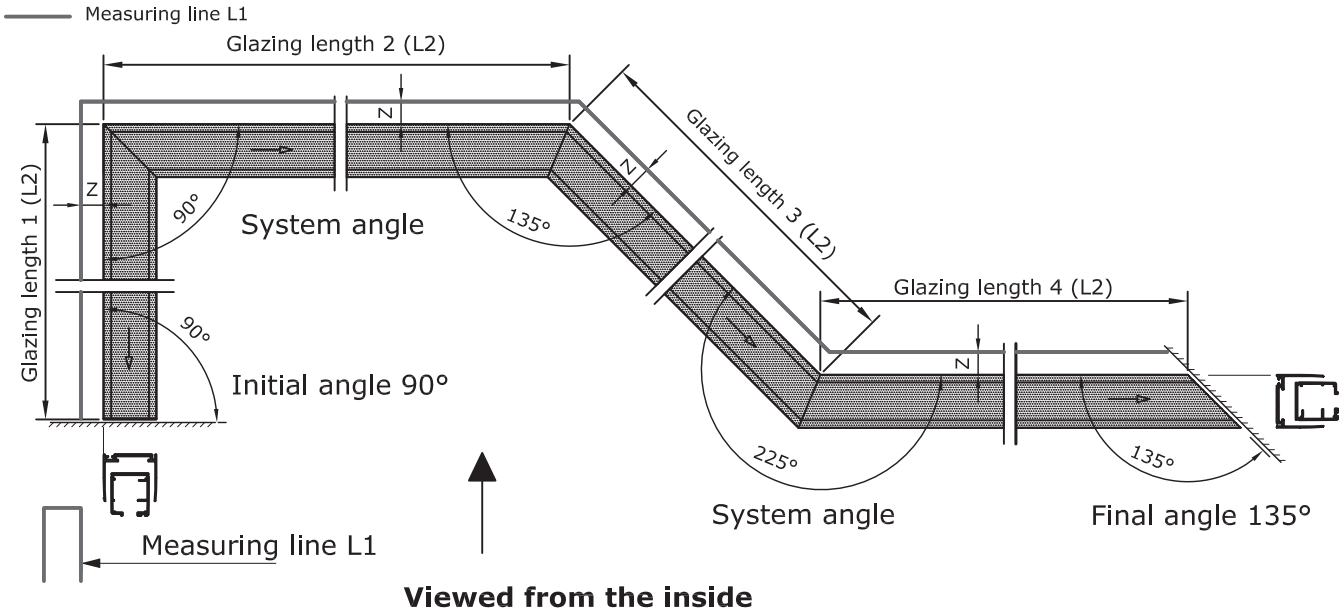
The balcony seen from above

Check that the opening is true and square.



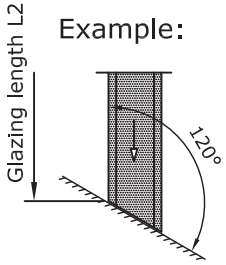
Picture 2

Measuring line is the internal surface or balustrade or edge of the existing structure.
Angles: Please, always mark the initial angle, system angle and final angle in the order.
- initial or final angle is the angle between the outer surface of profiles on one hand and the system intersection plane on the outer hand.
- system angle is the angle of the outer surface of two profiles which are joined together.



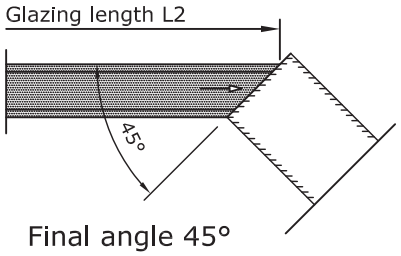
Viewed from the inside

Example:

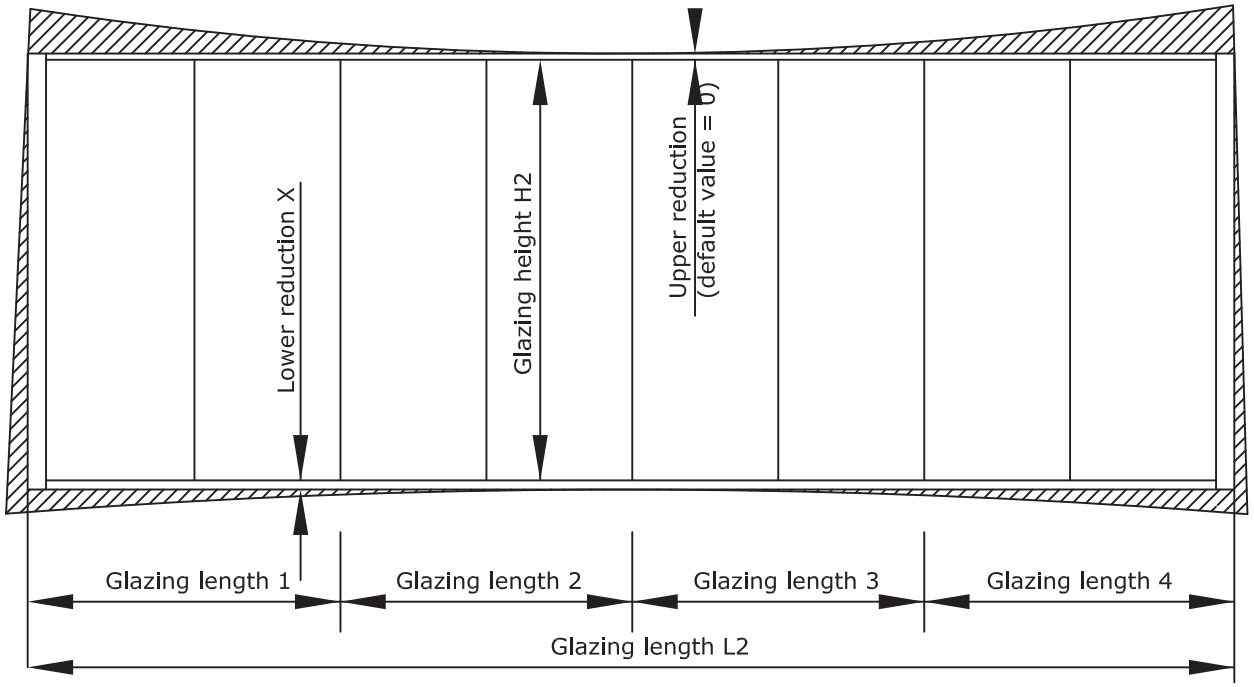


Initial angle 120°

Example:



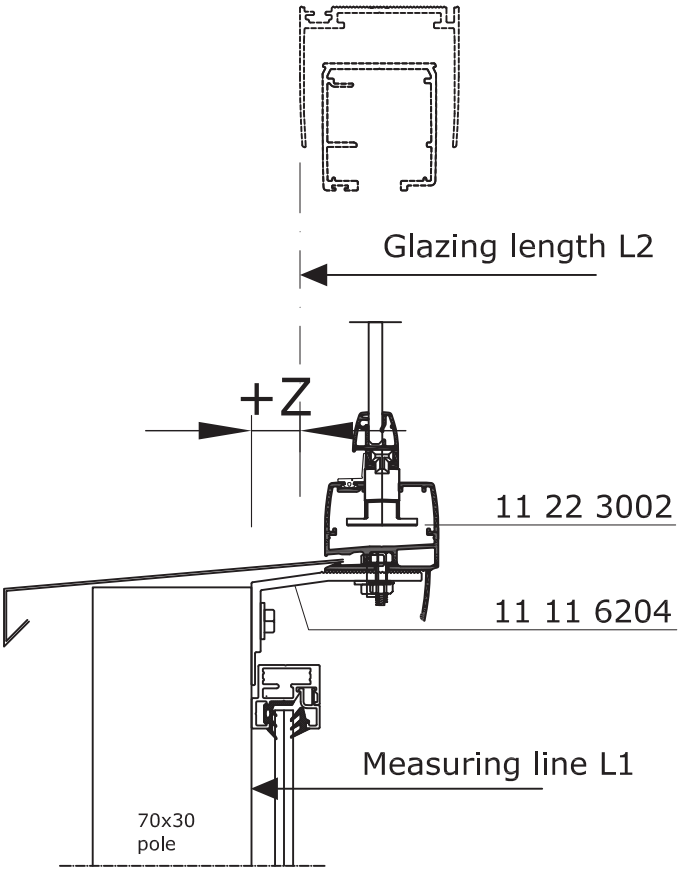
Final angle 45°

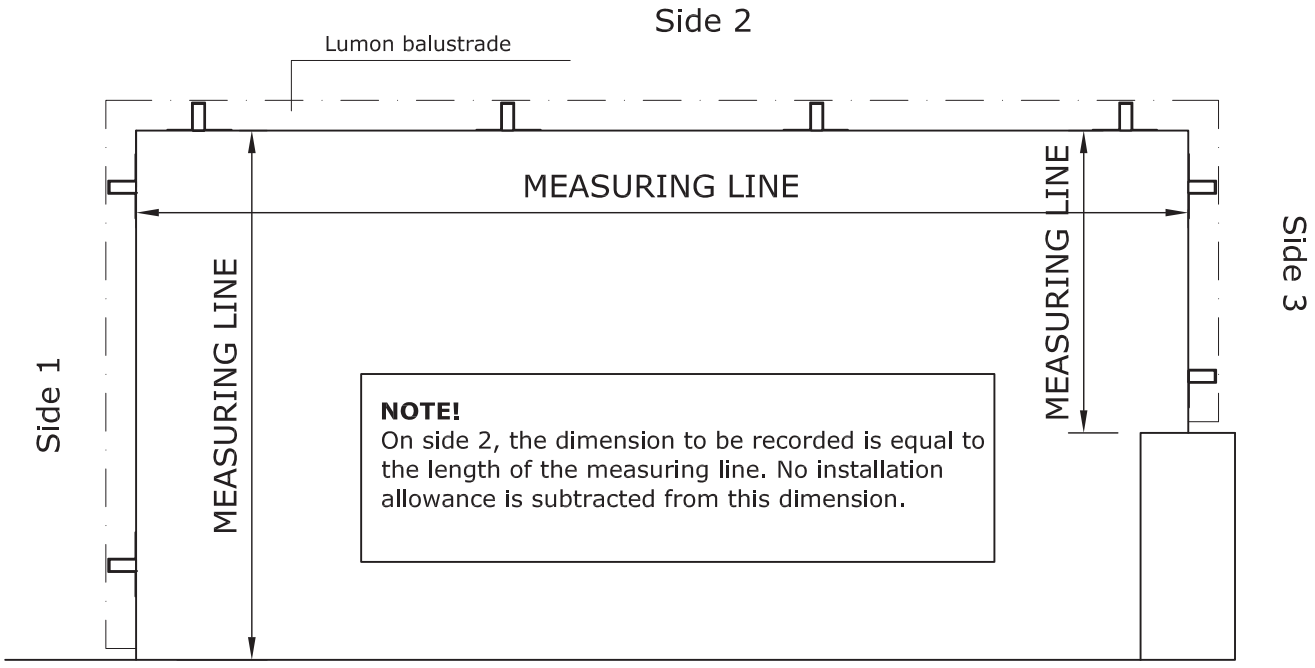


NOTE!
Glazing length includes the end plugs in initial and final angles of 90°.
The end plugs can be adjusted max. 10 mm/end of each profile.

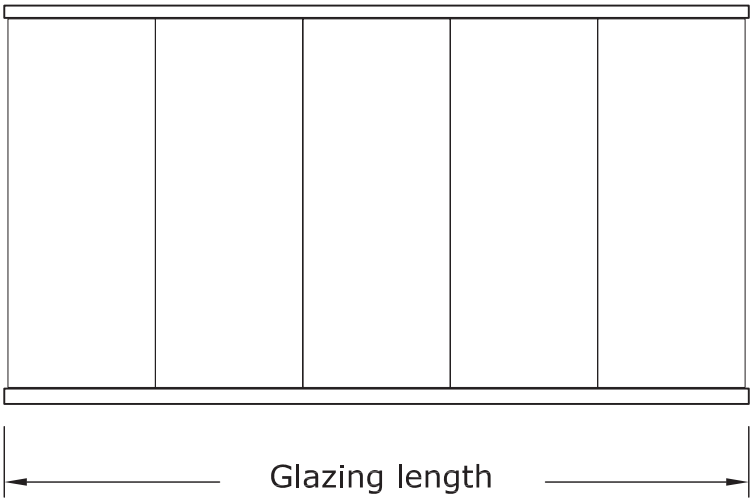
Profiles used in combination with Lumon balustrades

Integrated profile 11 11 6204 can be used in combination with Lumon balustrades in order to join the balustrade and the glazing with a continuous profile.





The recommended pane width is 600 - 800 mm. The pane width can be calculated according to the following example.



Example: Glazing length 3550 mm

$$\text{Number of panes} = \frac{3550}{800} = 4{,}4 \Rightarrow 5 \text{ pcs}$$

The number of panes is rounded to an integer number. In this example the pane width is 710 mm. There are 2 panes of 720 mm and 3 panes of 700 mm.

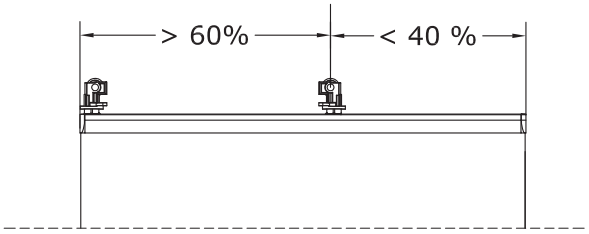
Record the number of panes on each side of the balcony.

IN THE EXAMPLE, NEITHER REDUCTIONS NOR THE GAPS BETWEEN PANES HAVE BEEN TAKEN INTO ACCOUNT.

Maximum number and width of panes : the maximum number and width of panes that can be gathered at the same parking end is indicated in the **table of recommended glass pane sizes,** which is in Chapter 10.

60% principle

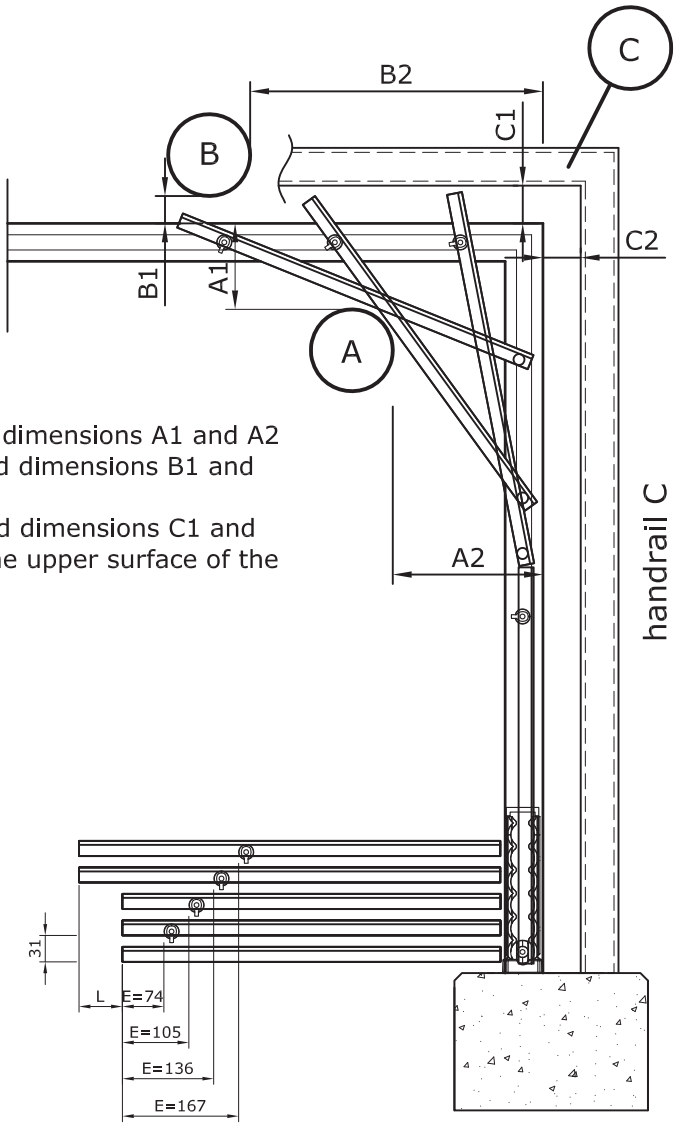
The distance between the upper rail guide and the upper hinge must be at least 60% of the pane width.



Things to consider for corner bypasses:

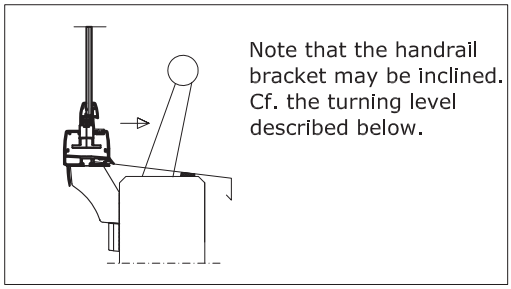
The location of verticals poles, handrail or drainage pipes may prevent panes from sliding round the corner.

A separate drawing of the balcony, including all relevant measures, must be provided with the order, in case the functionality of the glazing has to be examined. The drawing must include the dimensions from the outer edge of the profile to the obstacle and all angles other than 90°.

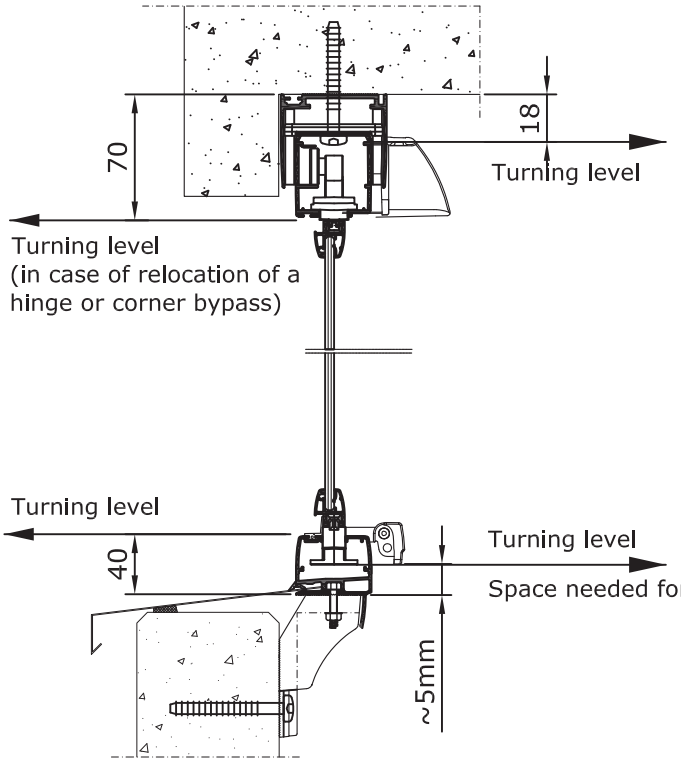


In the figure:

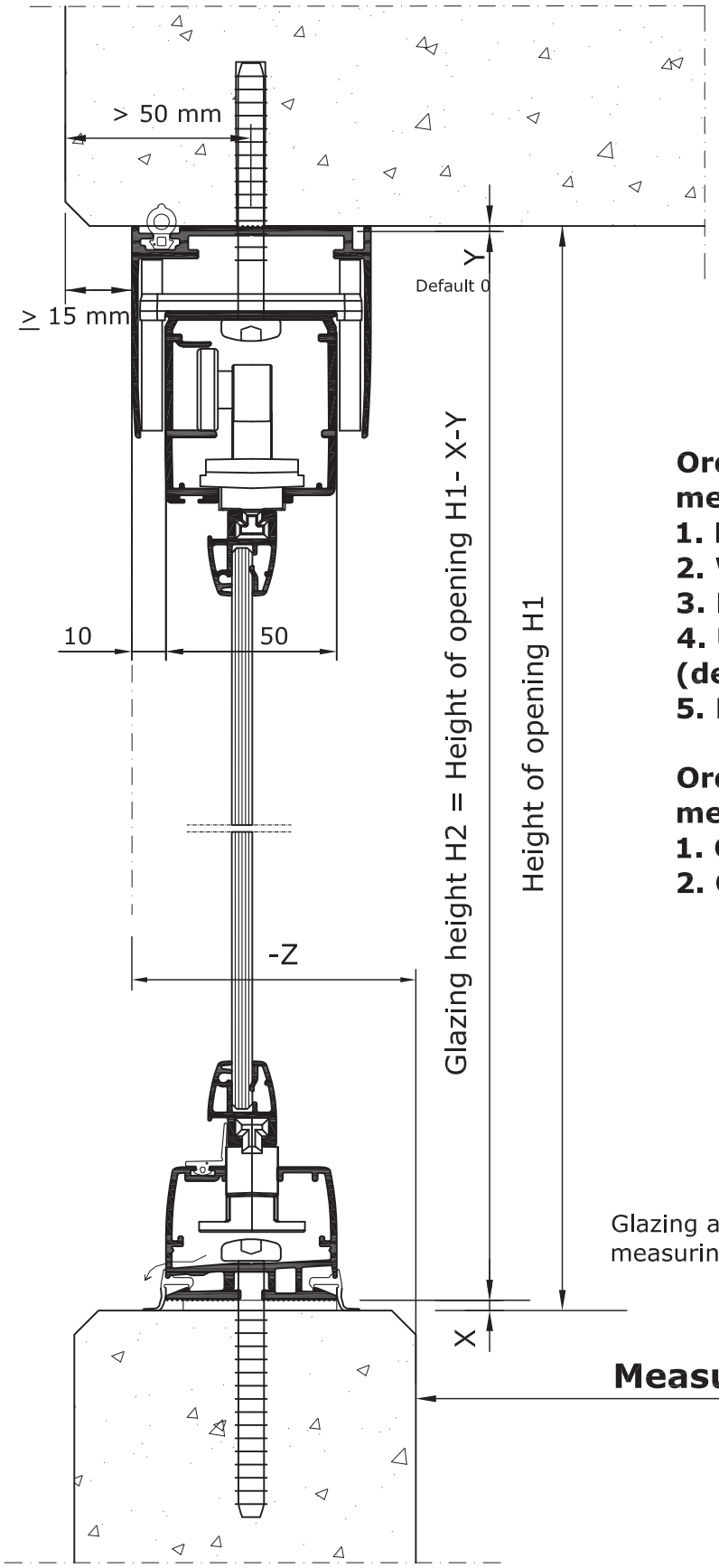
A: obstacle inside the balcony -> record dimensions A1 and A2
B: obstacle outside the balcony -> record dimensions B1 and B2
C: obstacle outside the balcony -> record dimensions C1 and C2 and the height of the balustrade to the upper surface of the handrails



Note that the handrail bracket may be inclined. Cf. the turning level described below.

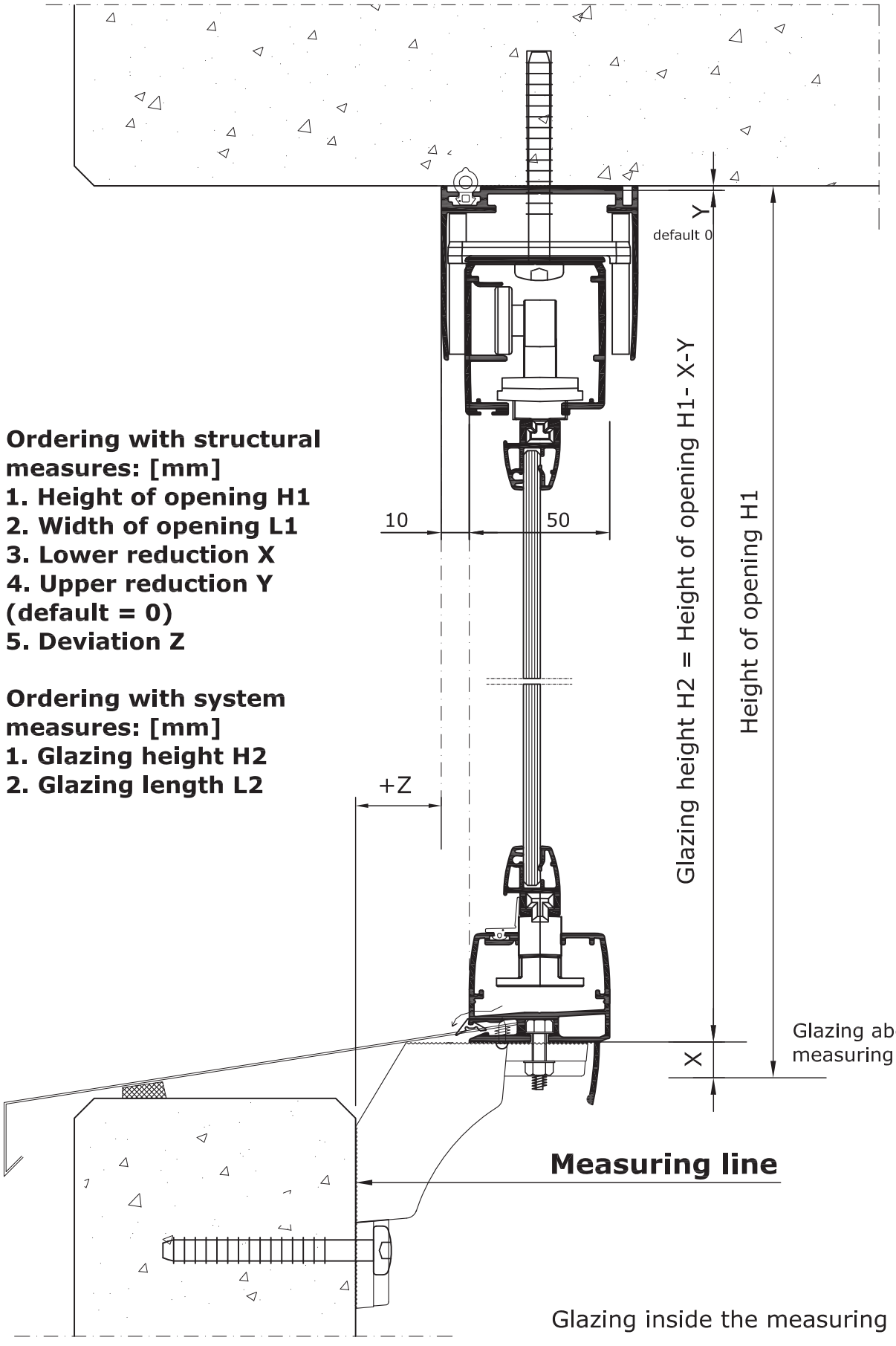


Check that there is nothing on top of the balustrade or at the ceiling to prevent the panes from turning.



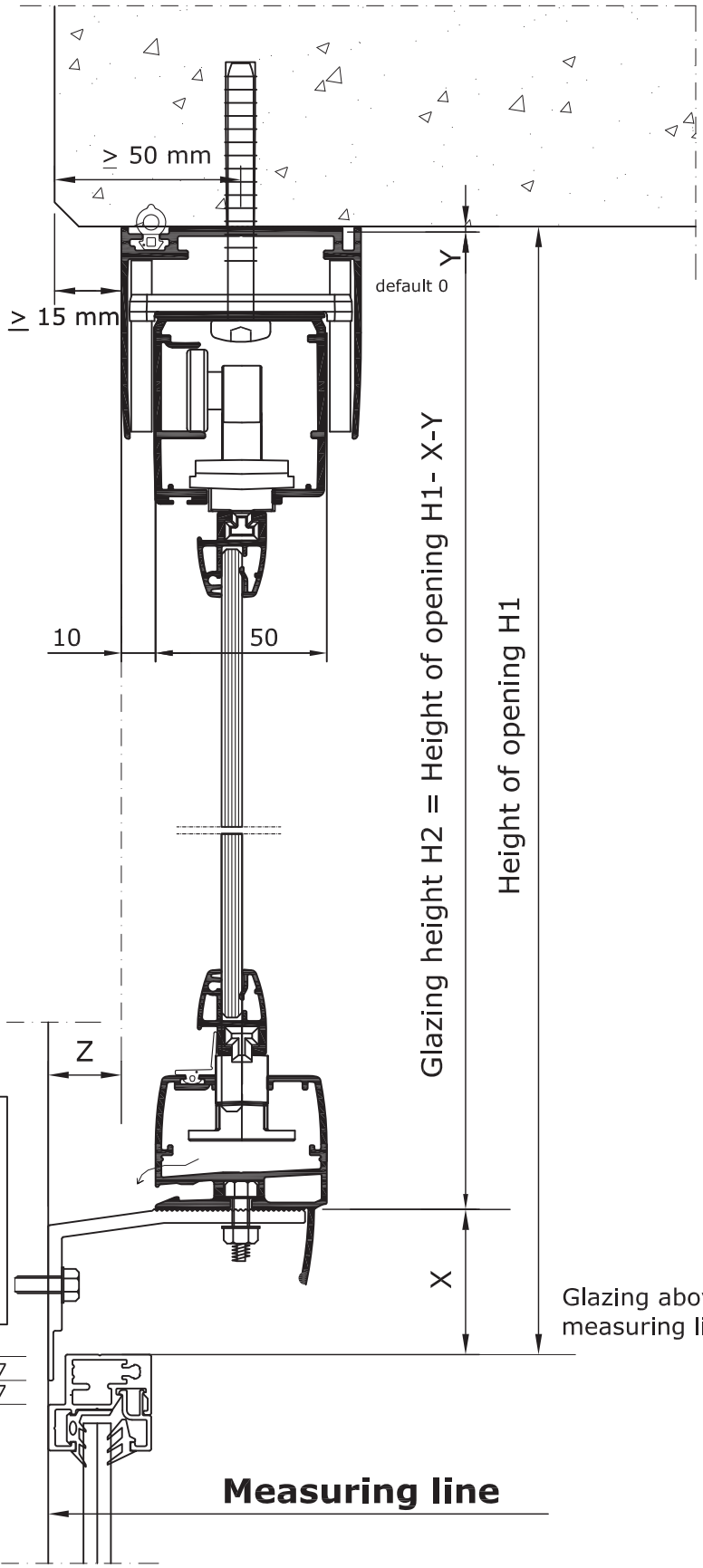
Ordering with structural measures: [mm]
1. Height of opening H1
2. Width of opening L1
3. Lower reduction X
4. Upper reduction Y (default = 0)
5. Deviation Z

Ordering with system measures: [mm]
1. Glazing height H2
2. Glazing length L2



Ordering with structural measures: [mm]
1. Height of opening H1
2. Width of opening L1
3. Lower reduction X
4. Upper reduction Y (default = 0)
5. Deviation Z

Ordering with system measures: [mm]
1. Glazing height H2
2. Glazing length L2



Ordering with structural measures: [mm]
1. Height of opening H1
2. Width of opening L1
3. Lower reduction X
4. Upper reduction Y (default = 0)
5. Deviation Z

Ordering with system measures: [mm]
1. Glazing height H2
2. Glazing length L2

Attaching of continuous bracket 11 11 6204 to glazing bead (X=42mm).
Attaching of continuous bracket 11 6204 to grooveless glazing bead X>49mm. Z=23

Glazing inside the measuring line

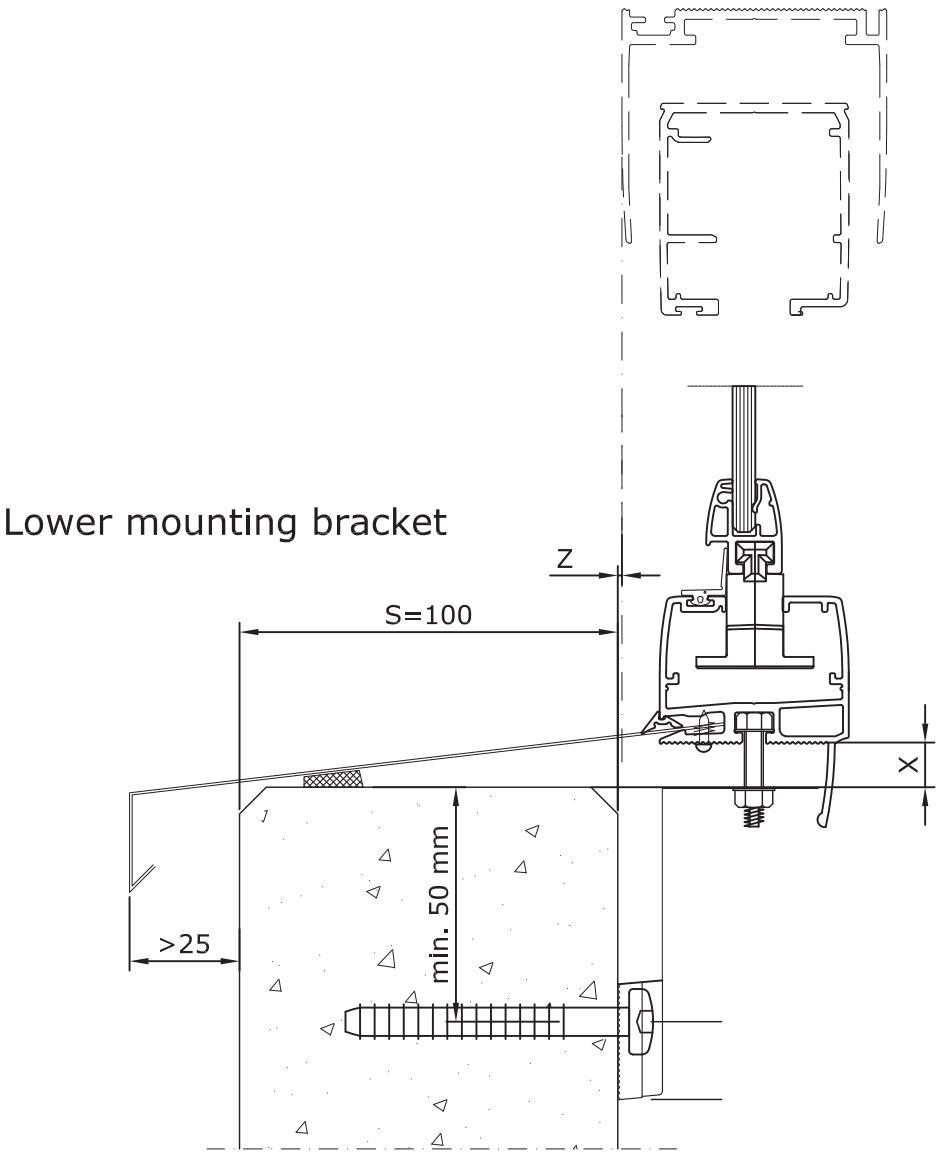
Lower Mounting Bracket	Number	Z min.	Z max.	Z	Reduction X
55 x 65 (6)	50 22 0003 50 22 0203 	1	12	6	10
55 x 118 (6)	50 22 0002 50 22 0202 	1	12	6	15
65 x 55 (16)	50 22 0003 50 22 0203 	11	22	16	12
65 x 108 (16)	50 22 0004 50 22 0204 	11	22	16	17
108 x 65 (37)	50 22 0004 50 22 0204 	20	55	37	11
108 x 118 (37)	50 22 0005 50 22 0205 	20	55	37	20
118 x 55 (42)	50 22 0002 50 22 0202 	20	65	42	15
118 x 108 (42)	50 22 0005 50 22 0205 	20	65	42	20

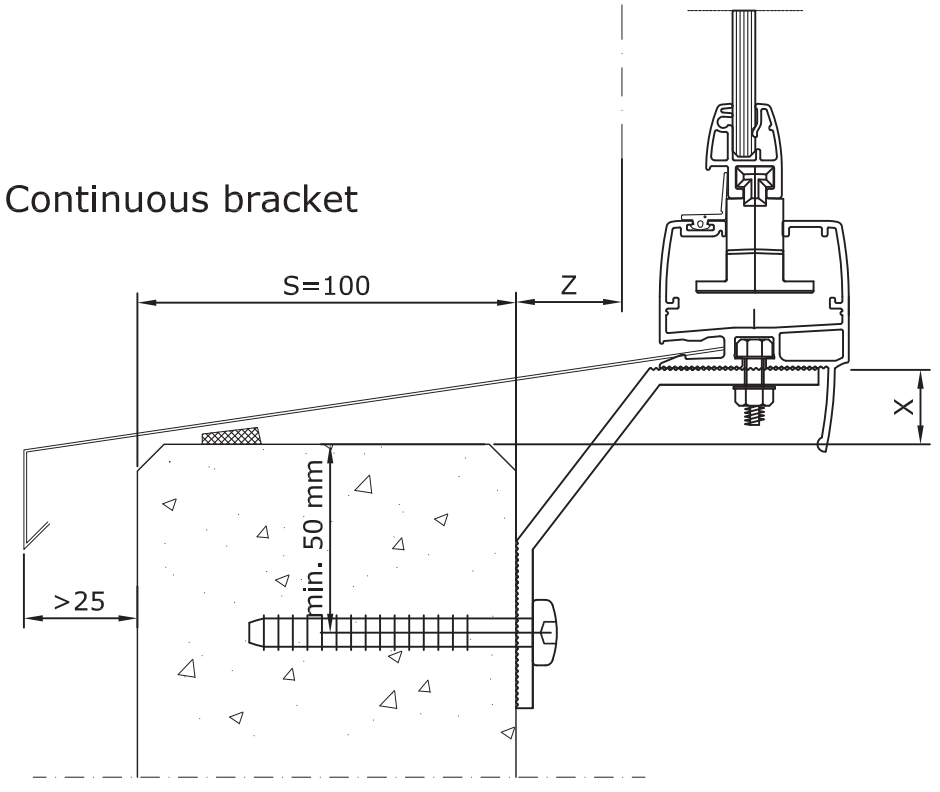
Continuous Bracket (AxB)	Number	Z min.	Z max.	Z	Reduction X
					
120 x 40 (68)	11 06 3161	63	73	68	0

Continuous Bracket (AxB)	Number	Z min.	Z max.	Z	Reduction X
					
60 x 70 (8)	11 06 3130	3	13	8	15
70 x 60 (18)	11 06 3131	13	23	18	15
80 x 50 (28)	11 06 3128	23	33	28	15
100 x 110 (48)	11 06 3150	43	53	48	25
110 x 100 (58)	11 06 3151	53	63	58	25
90 x 60 (38)	11 11 6233	33	43	38	15

Continuous Bracket	Number	Z min.	Z max.	Z	Reduction X
Glazing Bead with Groove (23)	11 11 6204	18	28	23	42
Grooveless Glazing Bead (23)	11 11 6204	18	28	23	49

1:2


Lower mounting bracket
Z
S=100
X
min. 50 mm
>25


Continuous bracket
S=100
Z
X
min. 50 mm
>25

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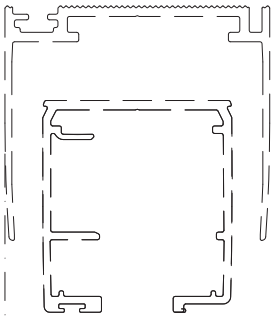
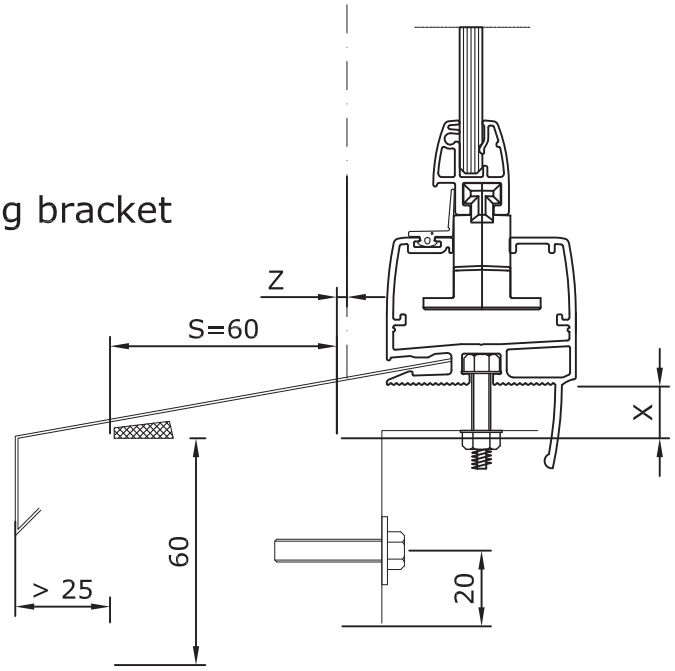


Lower mounting bracket



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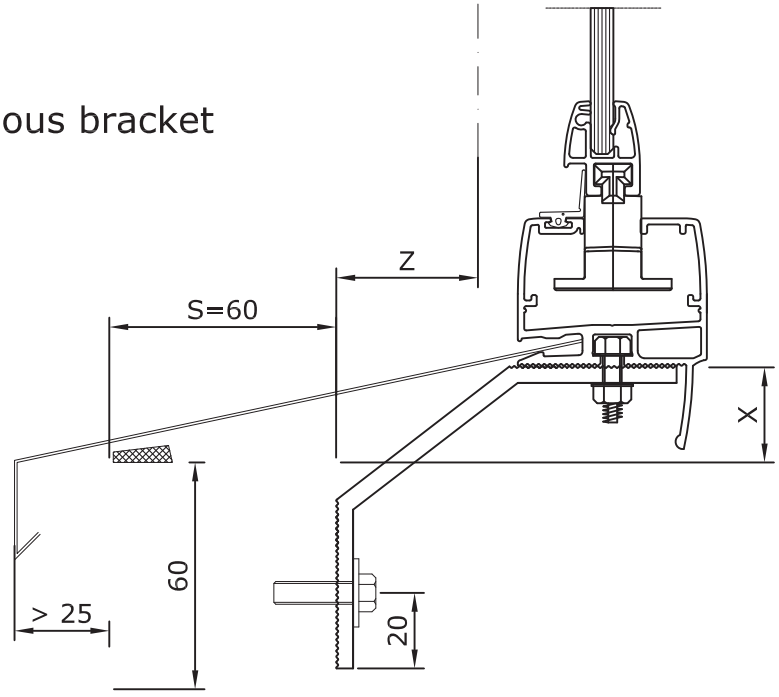

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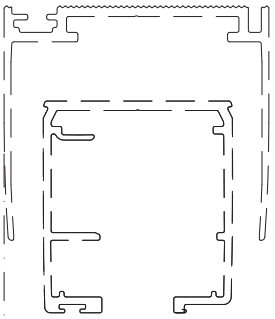
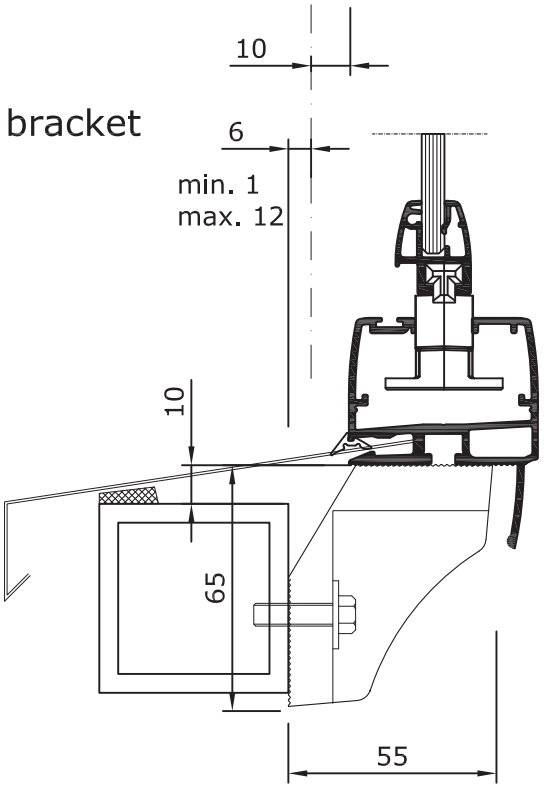
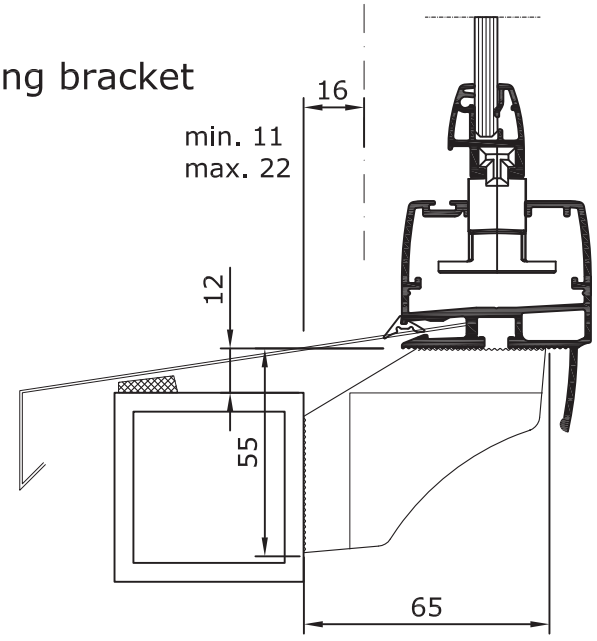


Lower mounting bracket
55x65 (6)
50 22 0003



Lower mounting bracket
65x55 (16)
50 22 0003



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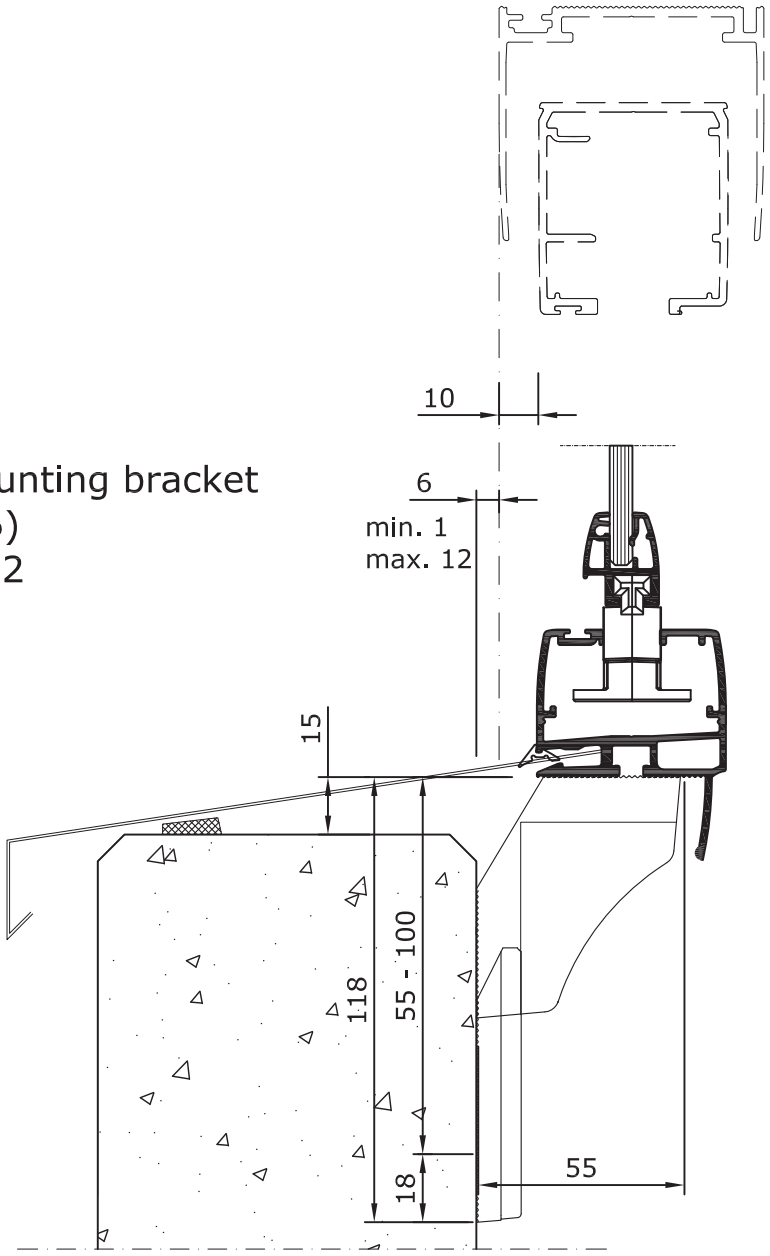
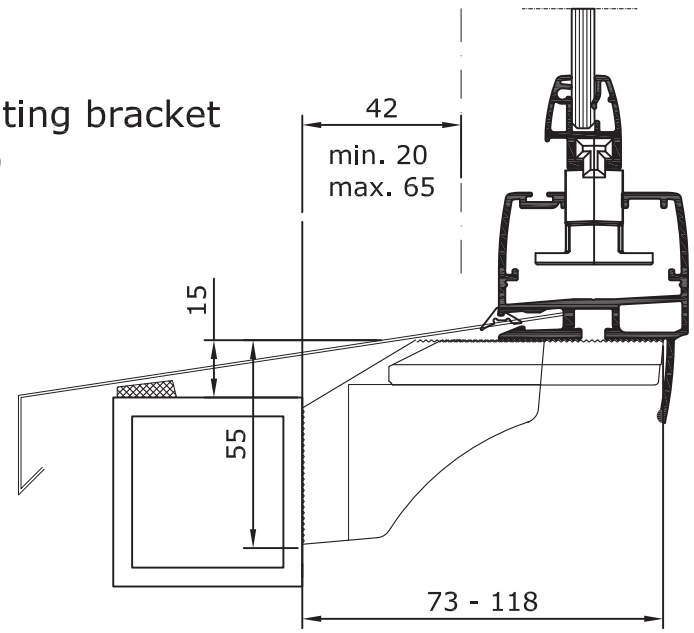
Lower mounting bracket
55x118 (6)
50 22 0002



Lower mounting bracket
118x55 (42)
50 22 0002



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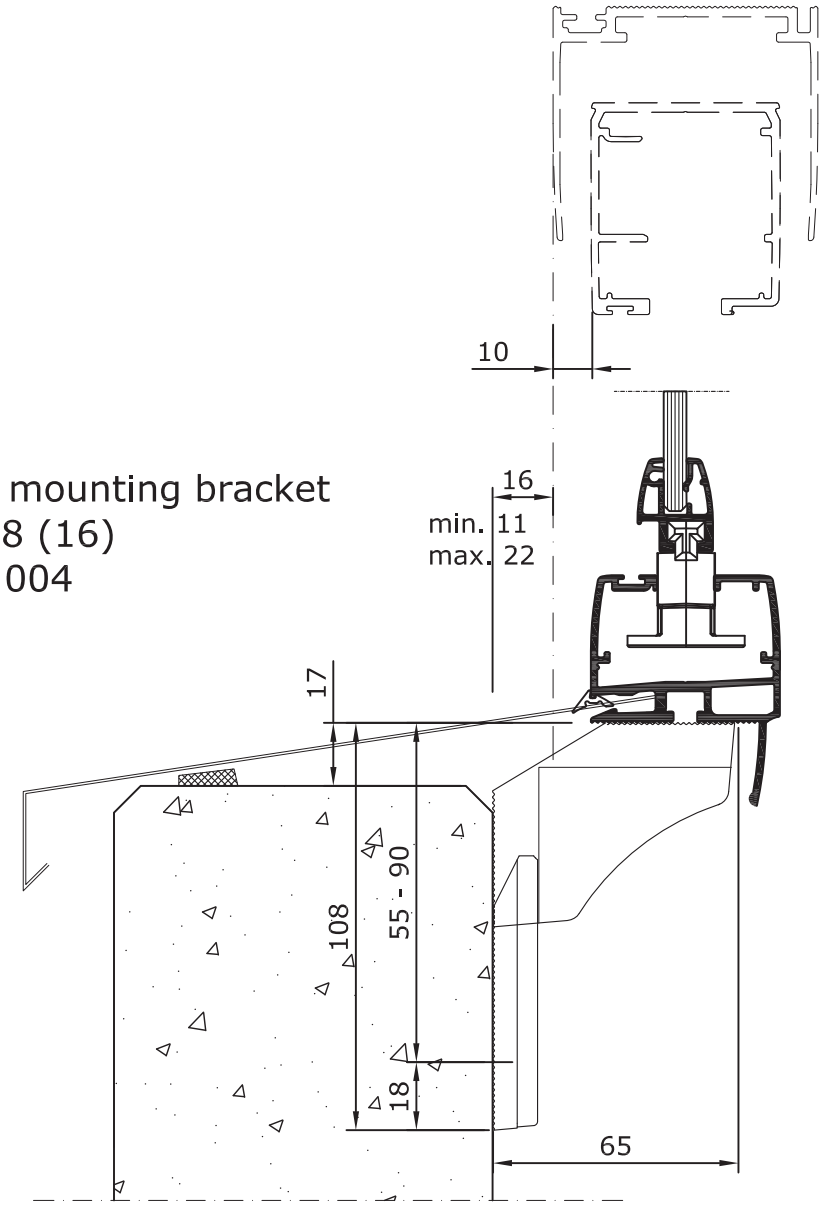
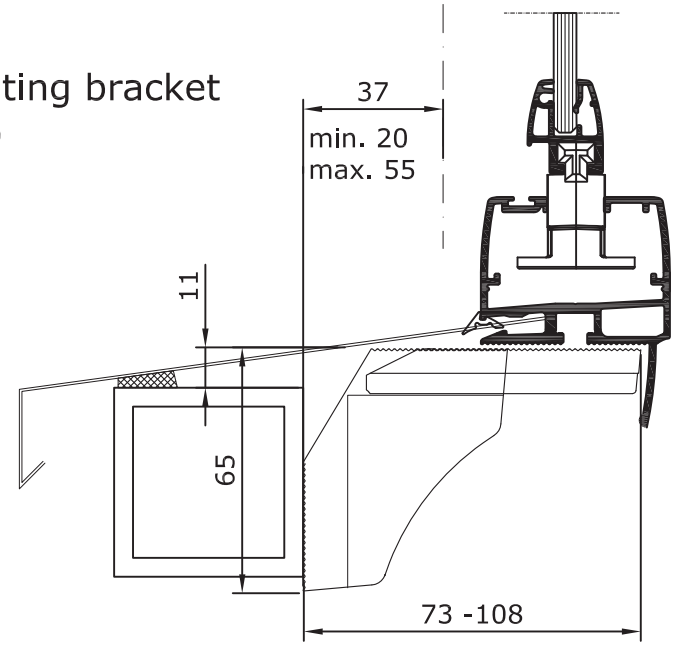
Lower mounting bracket
65x108 (16)
50 22 004



Lower mounting bracket
108x65 (37)
50 22 0004



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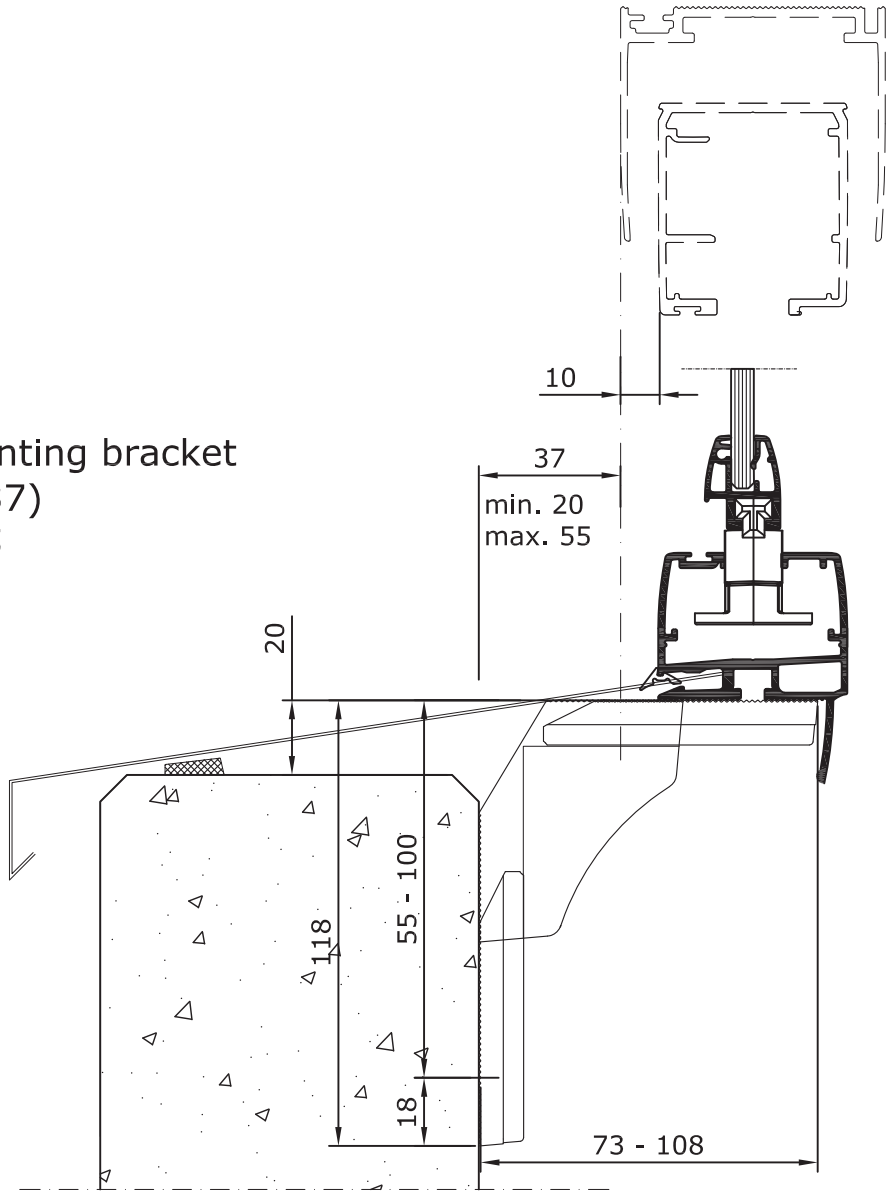
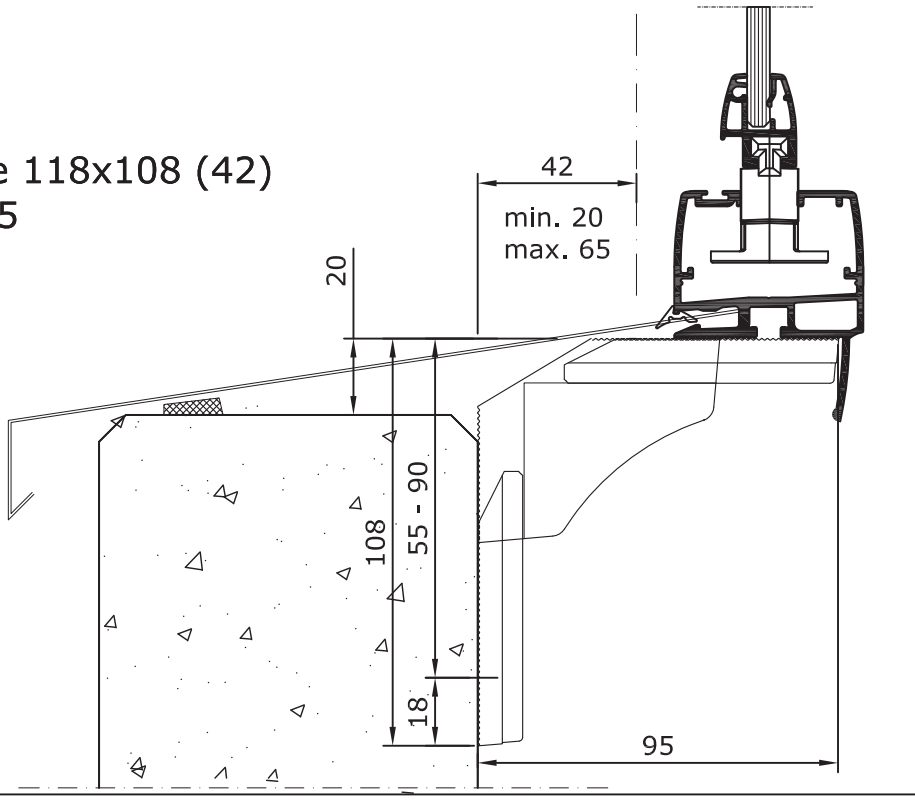
Lower mounting bracket
108x118 (37)
50 22 0005



Alakiinnike 118x108 (42)
50 22 0005



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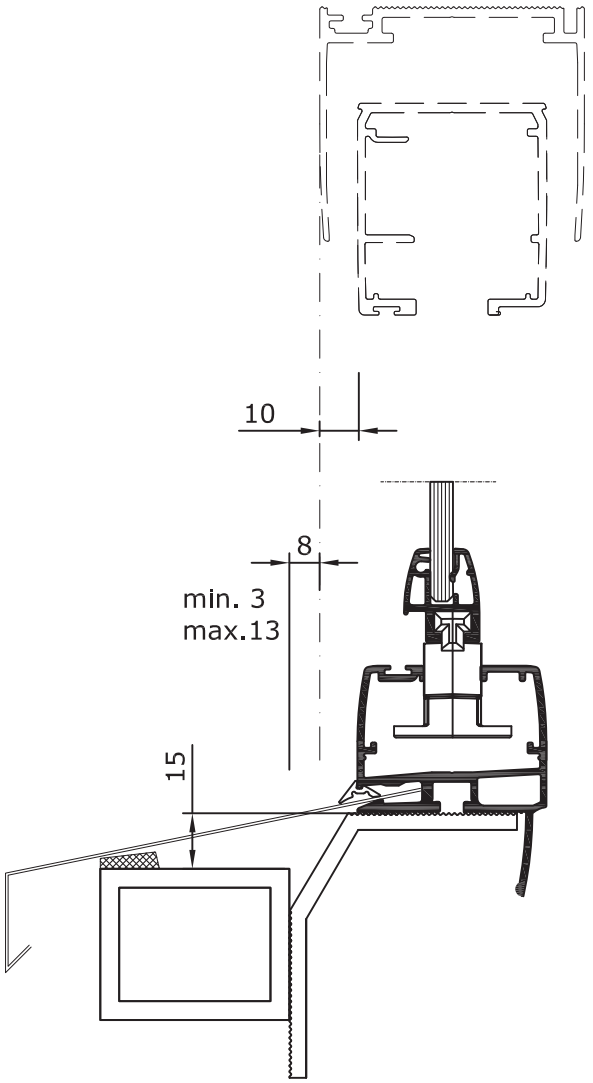
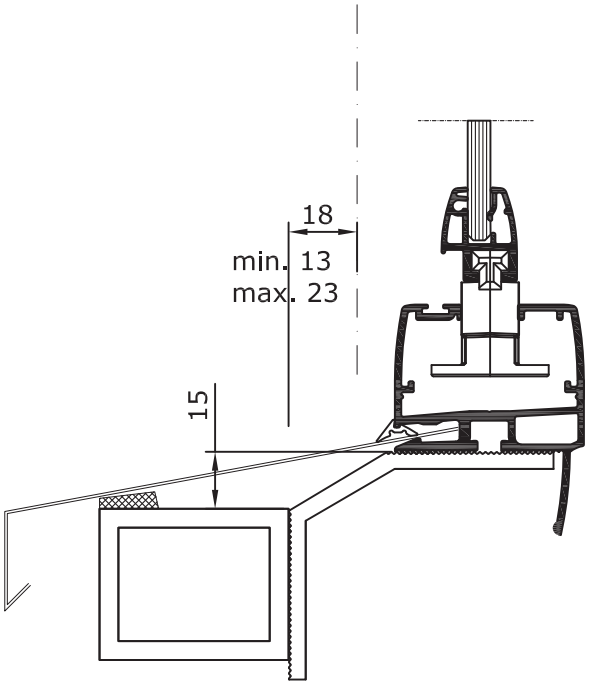
60x70 (8)
11 06 3130



70x60 (18)
11 06 3131



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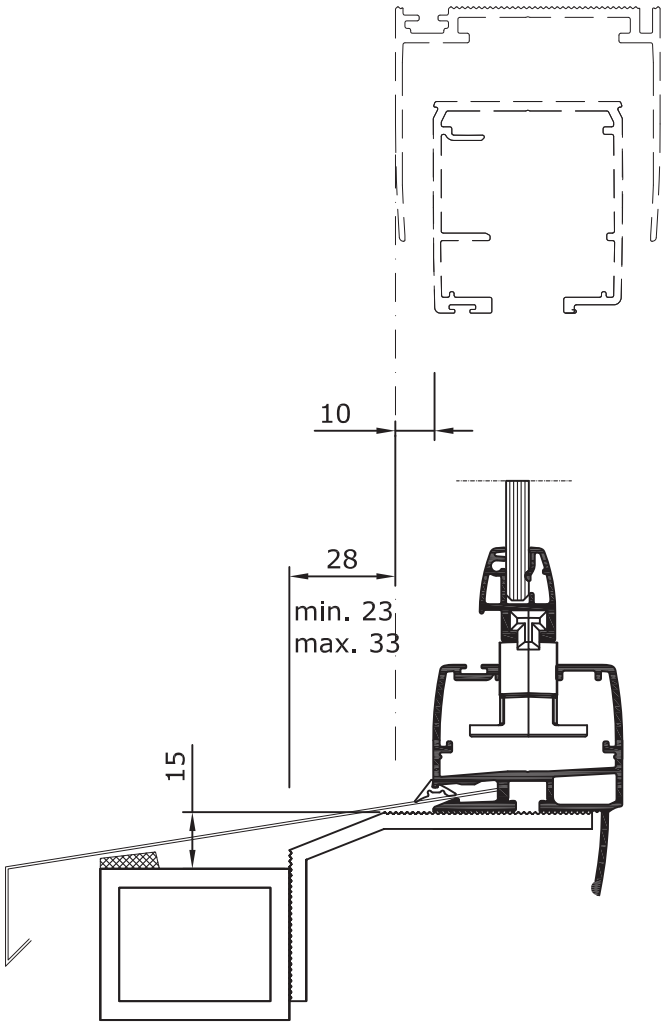
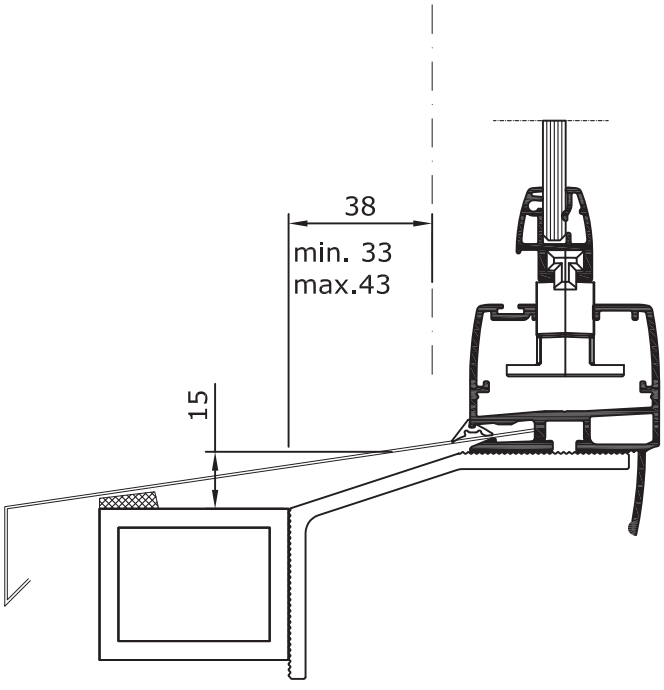
80x50 (28)
11 06 3128



90x60 (38)
11 11 6233



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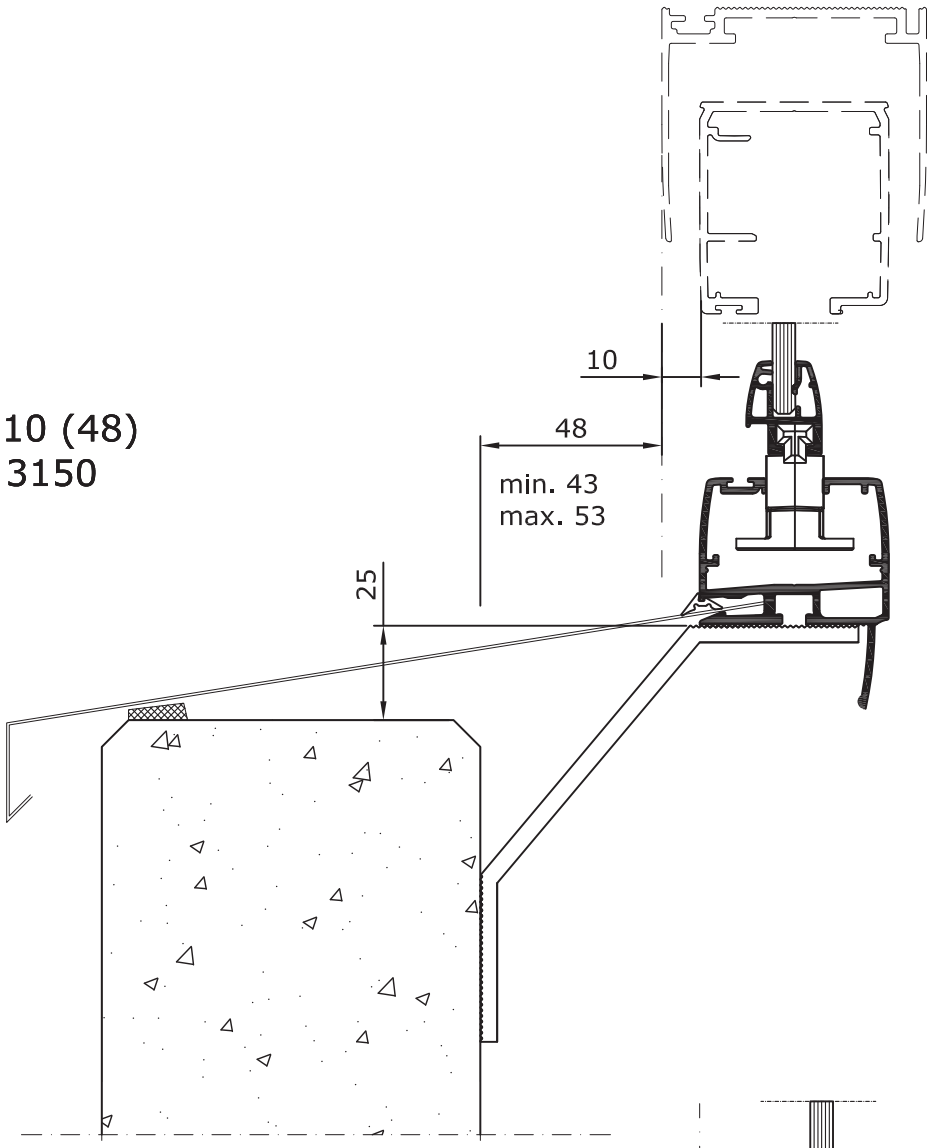
100x110 (48)
11 06 3150



110x100 (58)
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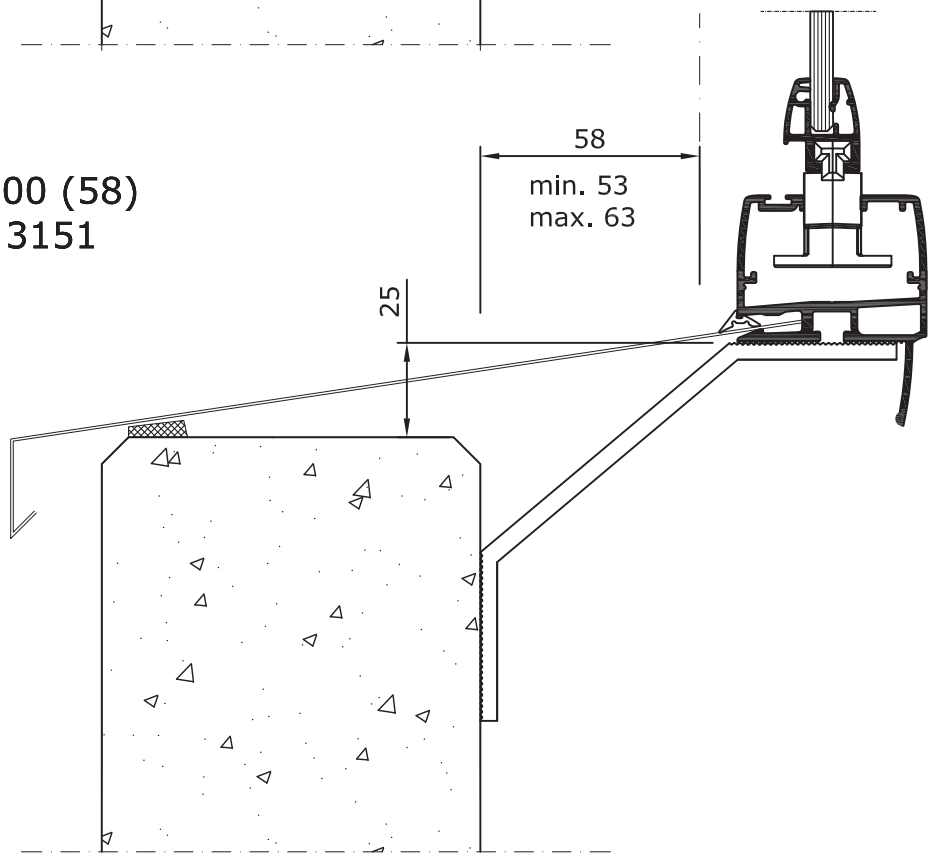

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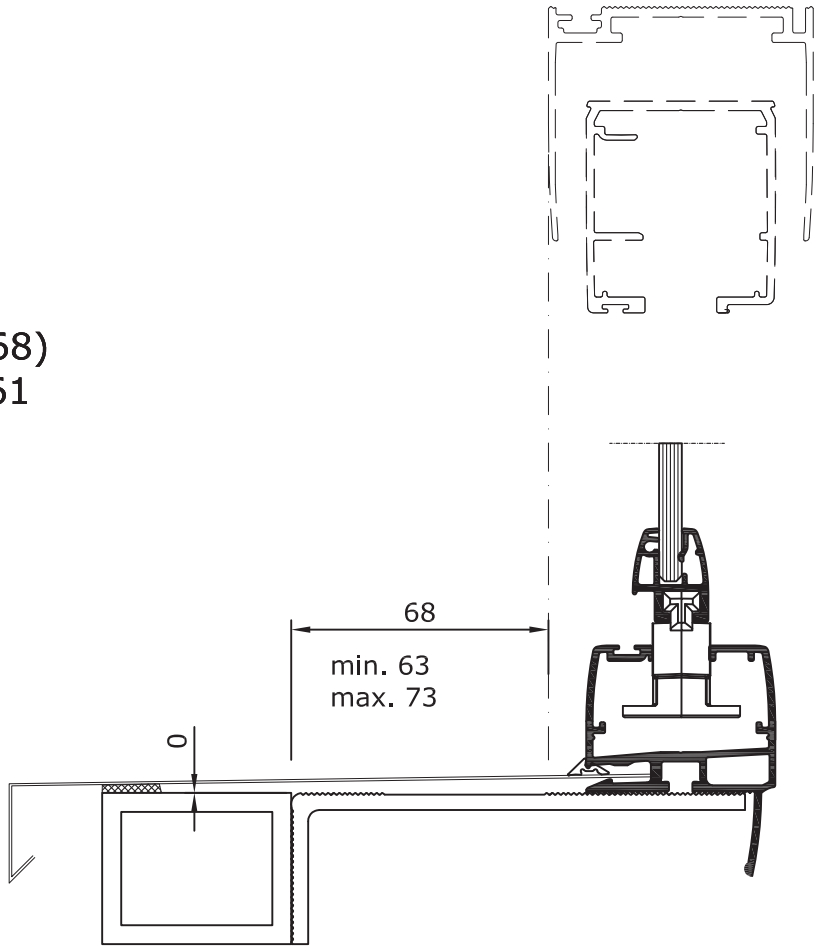
120x40 (68)
11 06 3161



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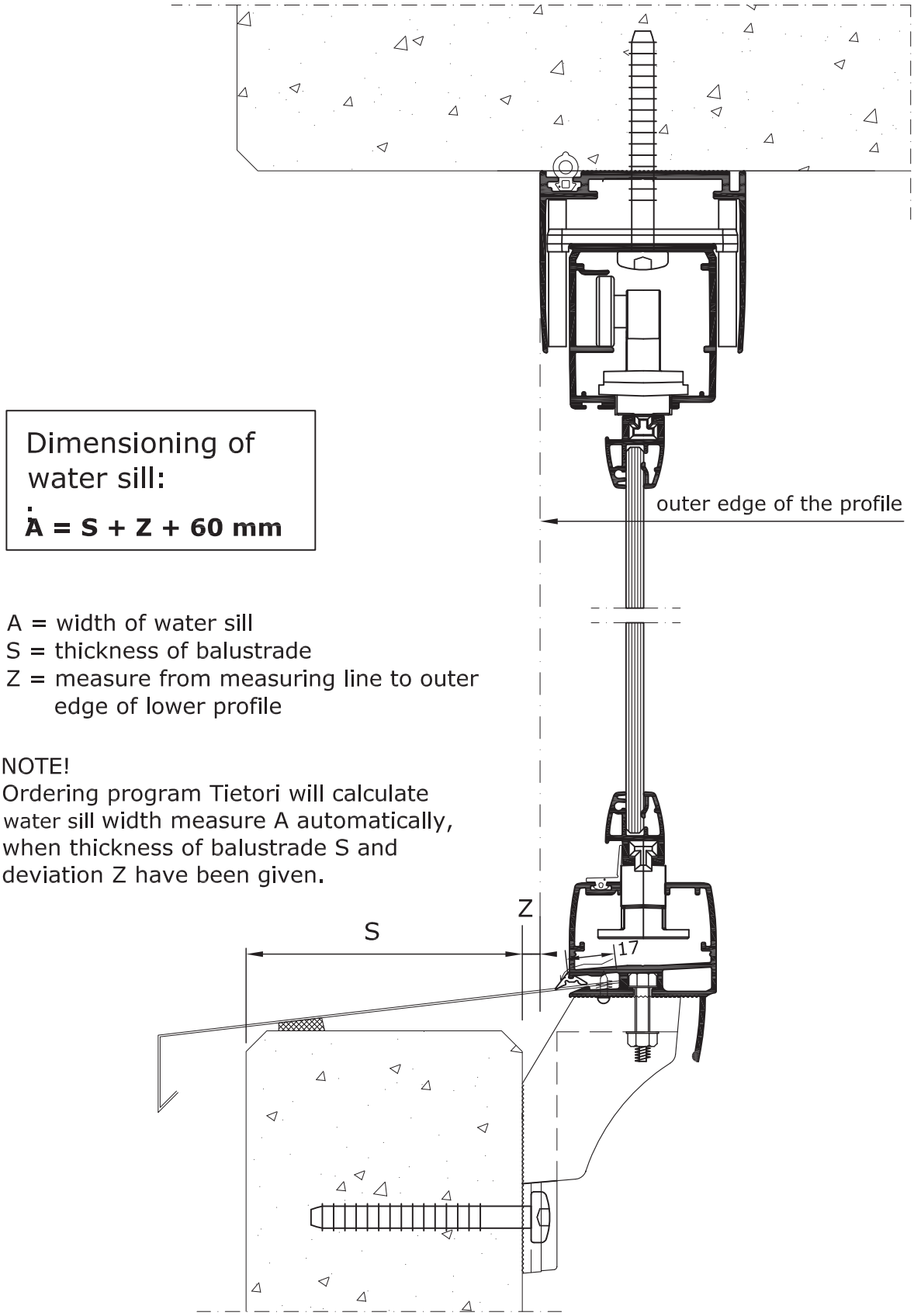


Dimensioning of water sill:

A = S + Z + 60 mm

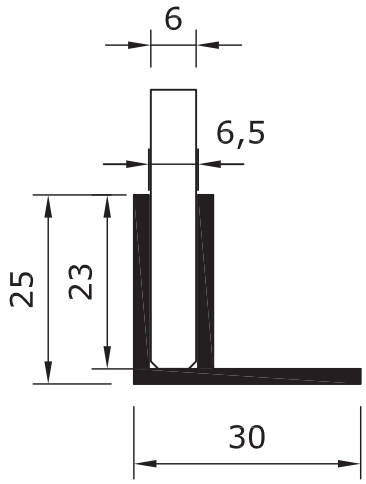
A = width of water sill
S = thickness of balustrade
Z = measure from measuring line to outer edge of lower profile

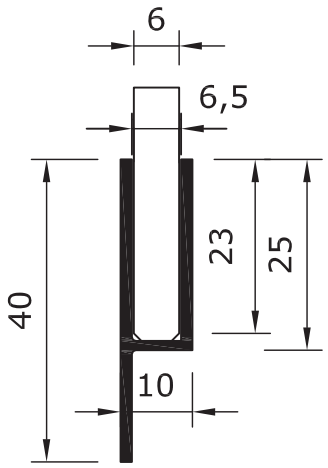
NOTE!
Ordering program Tietori will calculate water sill width measure A automatically, when thickness of balustrade S and deviation Z have been given.

1:1

Profiles that can be used

F- ja h -beads for 6 mm glazing





Sizes of panes for closing an opening

The size of the **fixed panes used for closing an opening** are restricted by factors related to their manufacture and installation. The fixed panes are secured using F- or h-beads around the pane, if necessary.

The sizes of the **hinged panes** available are specified in the following table

Minimum size of glass pane:
100 x 400mm

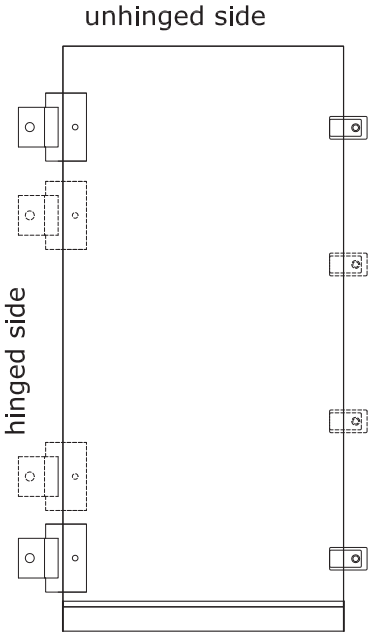
Maximum sizes of glass panes:
- fixed glass pane: 6 and 8 mm: 2,5m²
- hinge glass pane: 6 mm: 2,2 m² (1000x2200)

Length of the hinged side (mm)	Length of the unhinged side (mm)	
	2 hinges	4 hinges
150-200	300-350	
200-300	300-500	
300-400	100-800	
400-600	100-1100	
600-800	100-1200	
800-1000	100-1100	1101-1500
1000-1200	120-1000	1001-1800
1200-1500	150-800	801-1600
1500-2200	220-550	551-1000

Number of latches:

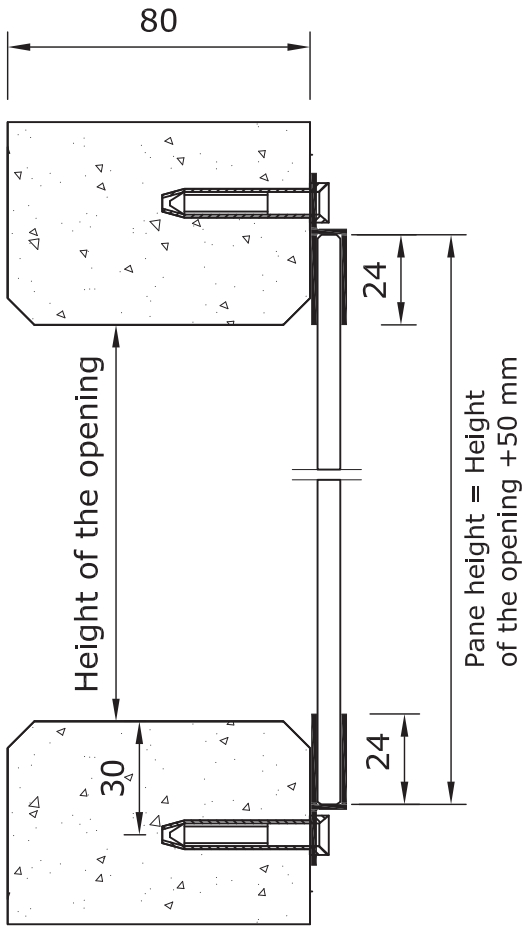
Glass pane size:
Less than 0,6 m²: 2 latches
0.6-1.8 m²: 4 latches

All panes with 4 hinge 8 latches

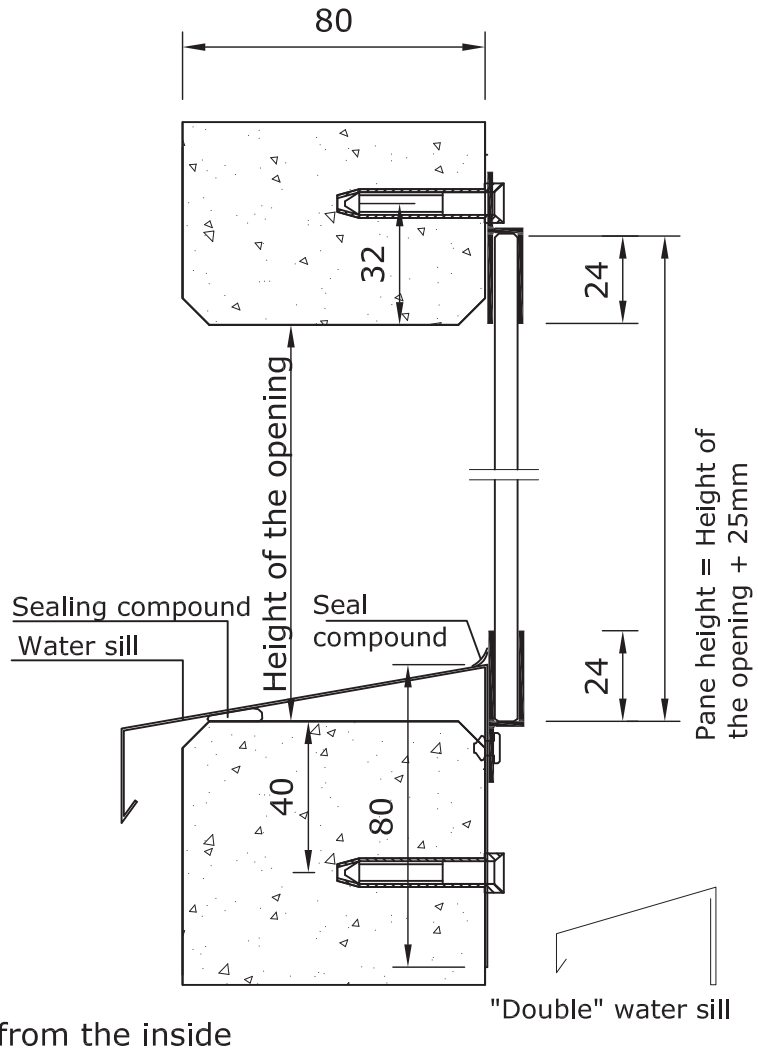


1:2

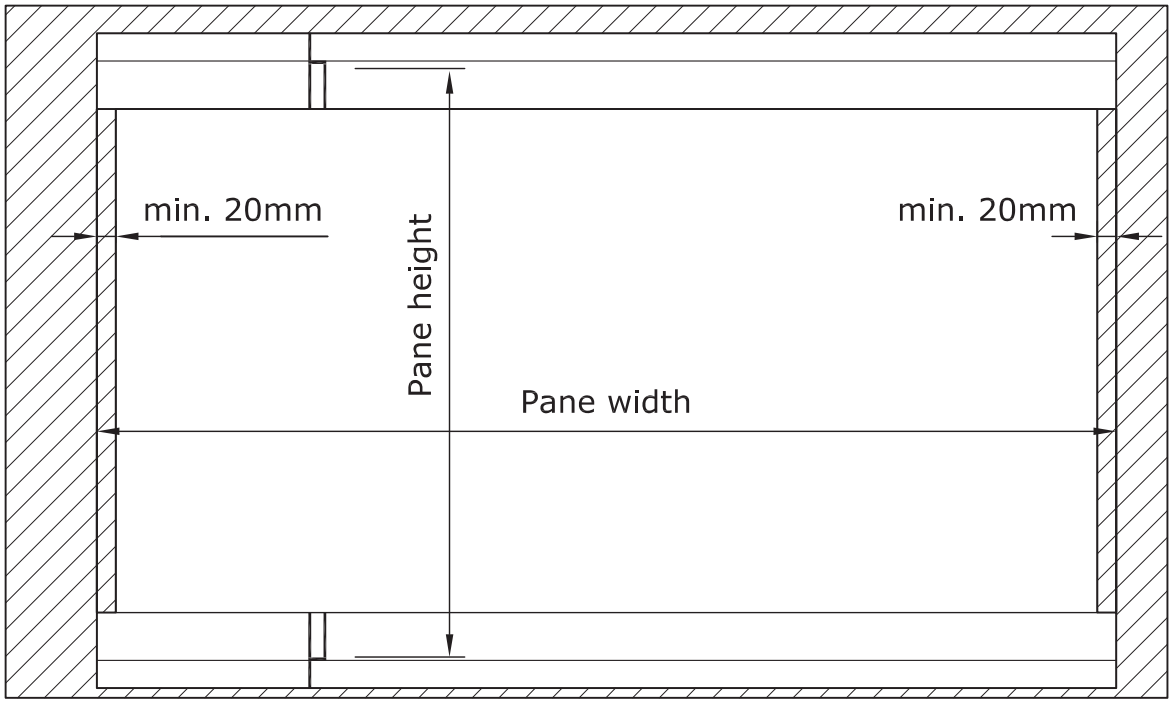
Vertical section; without water sill



Vertical section; with water sill

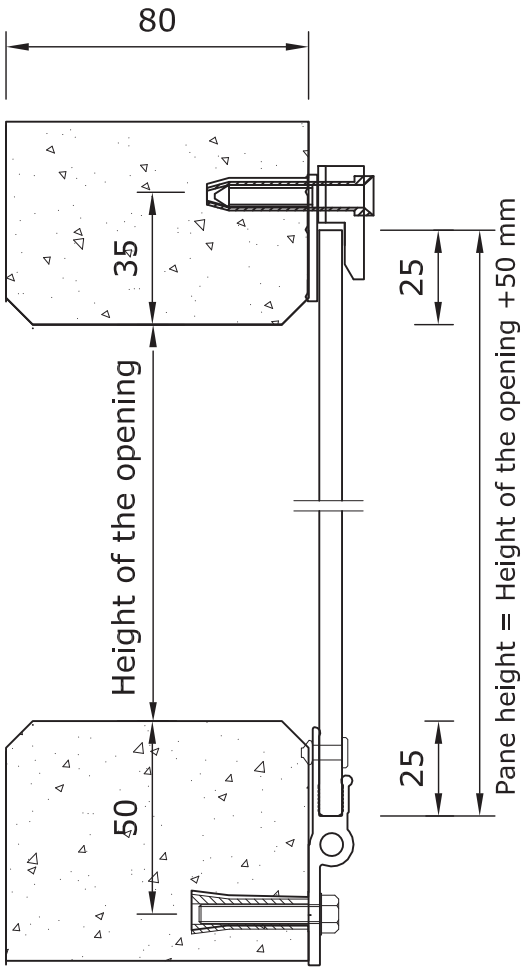


Viewed from the inside

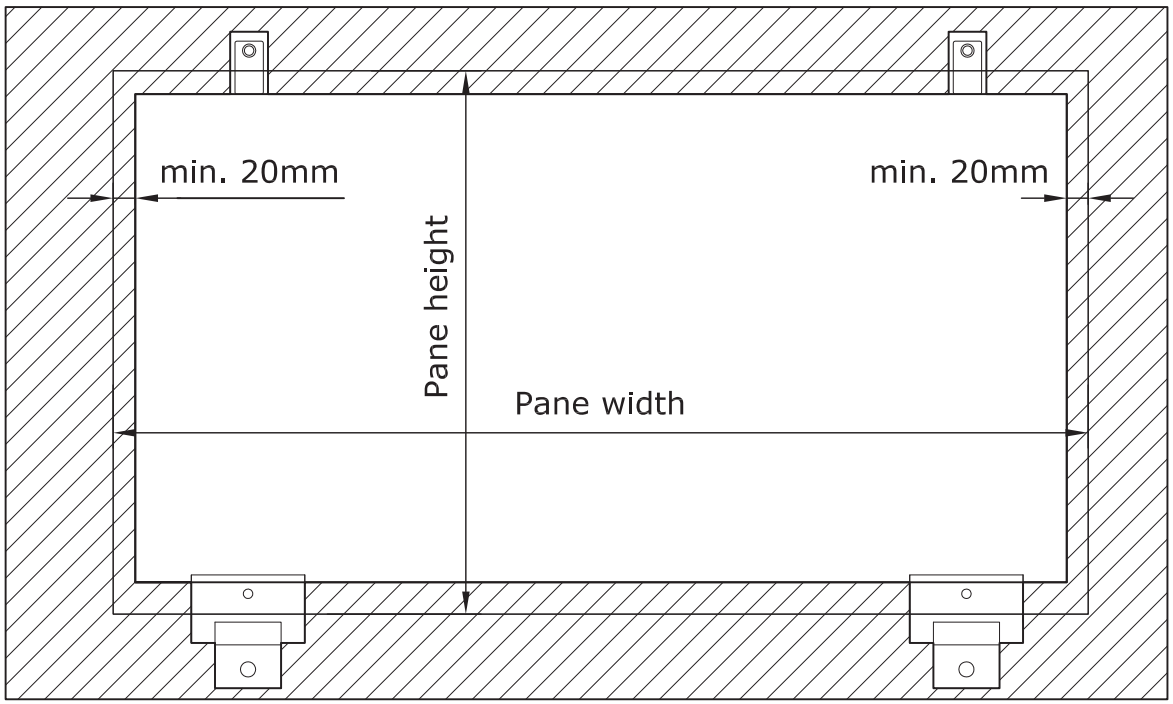


1:2

Vertical section

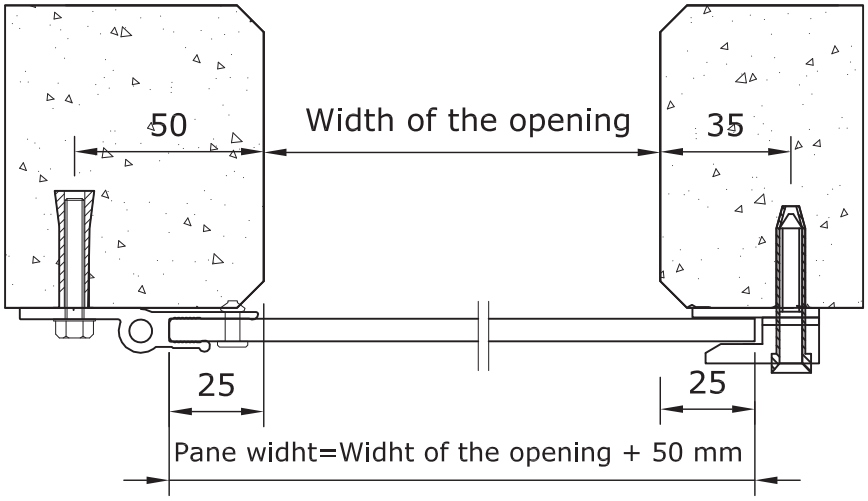


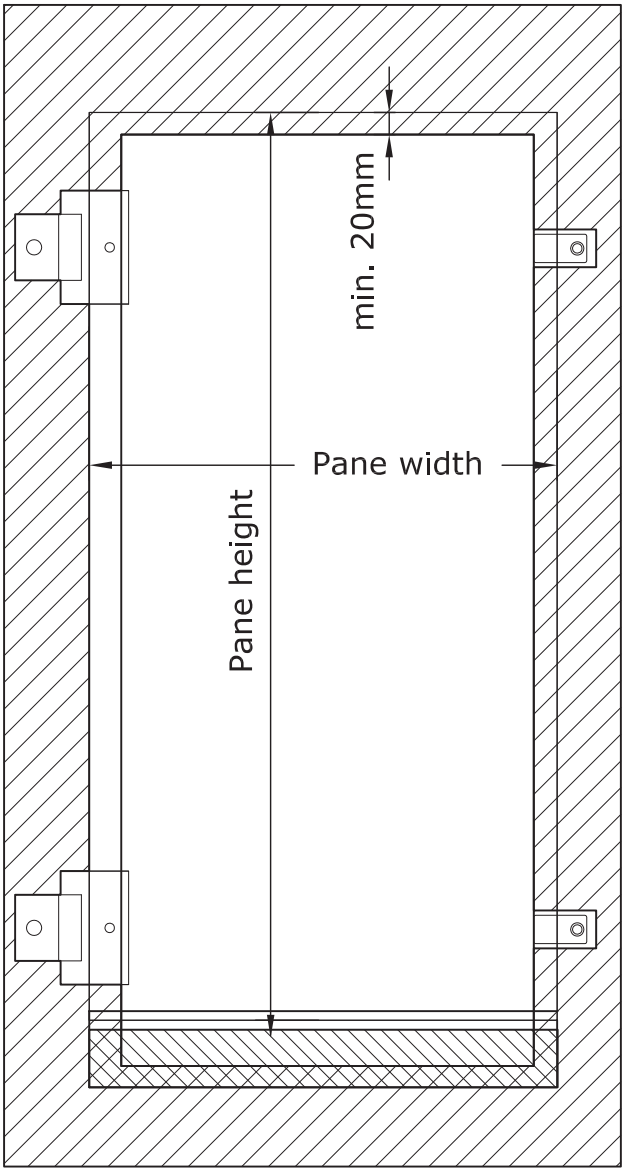
Viewed from the inside



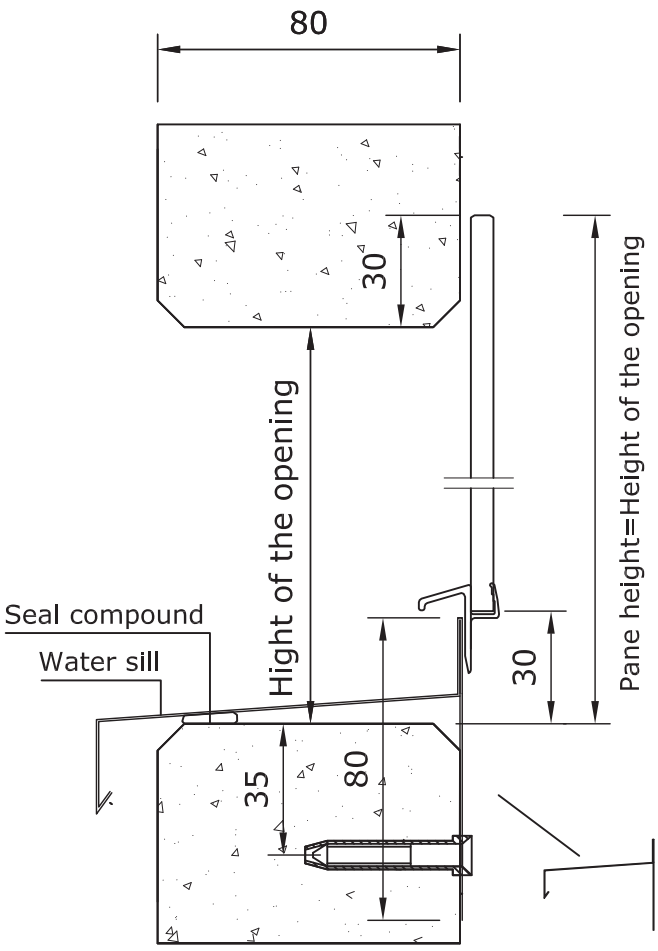
1:2

Horizontal section





Vertical section



NOTE!
According to safety-glass regulations, toughened glass can only be used at a height of less than 700 mm if there is a separate balustrade outside the glass pane.

Tools and equipment required for the installation work

Cordless Impact Wrench
Cordless drill
Hammer drill
Aluminum ladder
Toolbox with compartments
8m cord on a reel (20m extension cord for balustrade installers)
Hearing protectors
Safety harness with quick-release buckles
Reel for safety lanyard
Safety lanyard
Safety goggles and protective case
Tape measure 5 m
Spirit level 600 mm
Spirit level 2000 mm
Carpenter's hammer 20 with steel shaft
Builder's knife
Carpenter's pencil
Pitching borer 5mm, 2 pc
Pitching borer 6mm, 2 pc; drilling depth 150mm
Pitching borer 8mm, 2 pc
140 mm needle-nose pliers
Flat blade screwdriver
Plate shears left/right handed
Plate bending pliers
Pop rivet pliers
Silicone gun
Cover mat
3,2 mm rivet bits, 10 pc
4,1 mm rivet bits, 10 pc
6,5 mm drill bit, 2 pc
9 mm drill bit, 2 pc
13mm drill bit, 2 pc
Maintenance sign
Brush and dust pan

10 mm T -grip
- Screws of lower mounting brackets M6

Torx 30 T -grip
- Concrete screws

Hex key 5 mm T-grip
- Lower latch
- Lower rail guide

Screwdriver Torx 15
- Follower screws
- Upper base screw

Screwdriver Hex key 3 mm
- Lower base screws
- setting block screws
- Pane stop screws
- fastening piece of the opening glass
- Cable wire adjustment screw in the upper lat...

Bit-tips:
Torx 15x75 ("long")
- Follower screws
- fastening piece of the opening glass

Torx 30
- Concrete screws

Hex key 5mm
- Lower latch of high glass pane

Hex key 3x75 mm
- Screws for the fastener for the telescopic profile

10 mm ratchet wrench
- Upper latch screw

Screwdriver PH2/ PZ2
- Facade plug for wall lock

General Information

Lumon 5 balgony glazing system has to be fastened carefully to the balcony or terrace structures in such a way that:

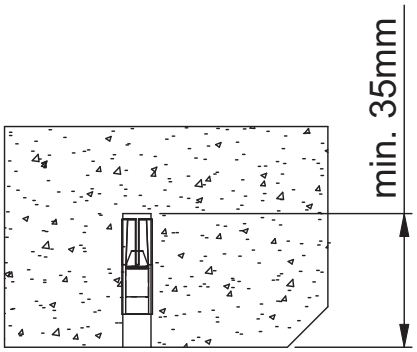
- the structures and fasteners withstand the loads to which thay are subject
- the characteristics of the glass wall system remain unchanrged under design loads
- the official requirements are complied with.

Fastening methods:

- anchoring to concrete
- fastening to steel with screws or through bolts
- fastening to aluminium with screws or through bolts
- fastening to wood structure

Type	Length	Ø External	Thread	Drilling (Ø/depth)	Material	Edge Distance
LAH 8 x 30	30 mm	10 mm	M8	10 / 35 mm	A4	60 mm
LAH 6 x 30	30 mm	8 mm	M6	8 / 35 mm	A4	50 mm
Concrete Screw 7,5 x 50	50 mm	7,5 mm		6 / 65 mm	A4	50 mm
Concrete Screw 7,5 x 65	65 mm	7,5 mm		6 / 80 mm	A4	50 mm
Concrete Screw 7,5 x 115	115 mm	7,5 mm		6 / 110 mm	A4	50 mm
Wood Screw, full thread	120 mm	Ø –core 8 mm		8 / 120 mm	A4	25 mm

The marking of anchor types may vary, depending on the manufacturer.

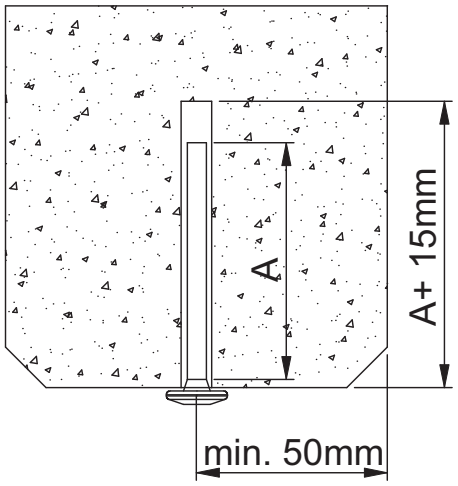


Installing Drop in Anchor to Concrete:

Drive the anchor to the bottom of the hole with suitable tool, for example the level end of a punch. Drive the anchor firmly five or so times with the tapened cylindrical end of the toll so that the wedge like section on expands it.

Installing Concrete Screw to Concrete:

Drill a Ø6mm hole at least 15 mm deeper than the installation screw. Drilled hole will be exhausted and screw tightened. First few turns push harder and if screw is sticking, turn screw ½ lap counterclockwise and screw up again. The top of the screw thread is equipped with gearing and it diminsh friction and at the same time it makes a groove for thread. Concrete screw is possible to use even with 50mm edge distance. At installation percussion screwdriver must be used.



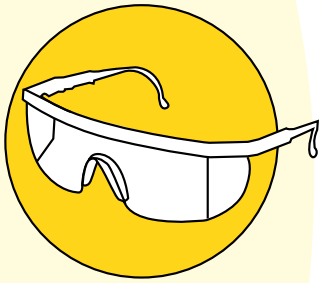
Installing with wood screw

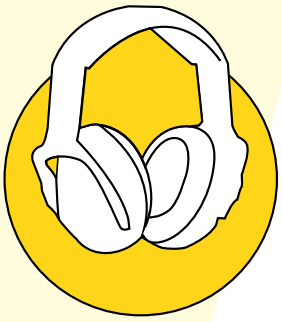
If glazing is installed to wooden structure used full threaded wood screw which core diameter is at least 8 mm mus be used. Manufacturer recommend to use laminated timber or for example heat or pressure threatmented wood with minimun size of 100x50 mm. The load rating of wooden structures and other requirements must be checked on a case by case bases.
Minimun distance from wooden edge is 25 mm and 50 mm respectively.

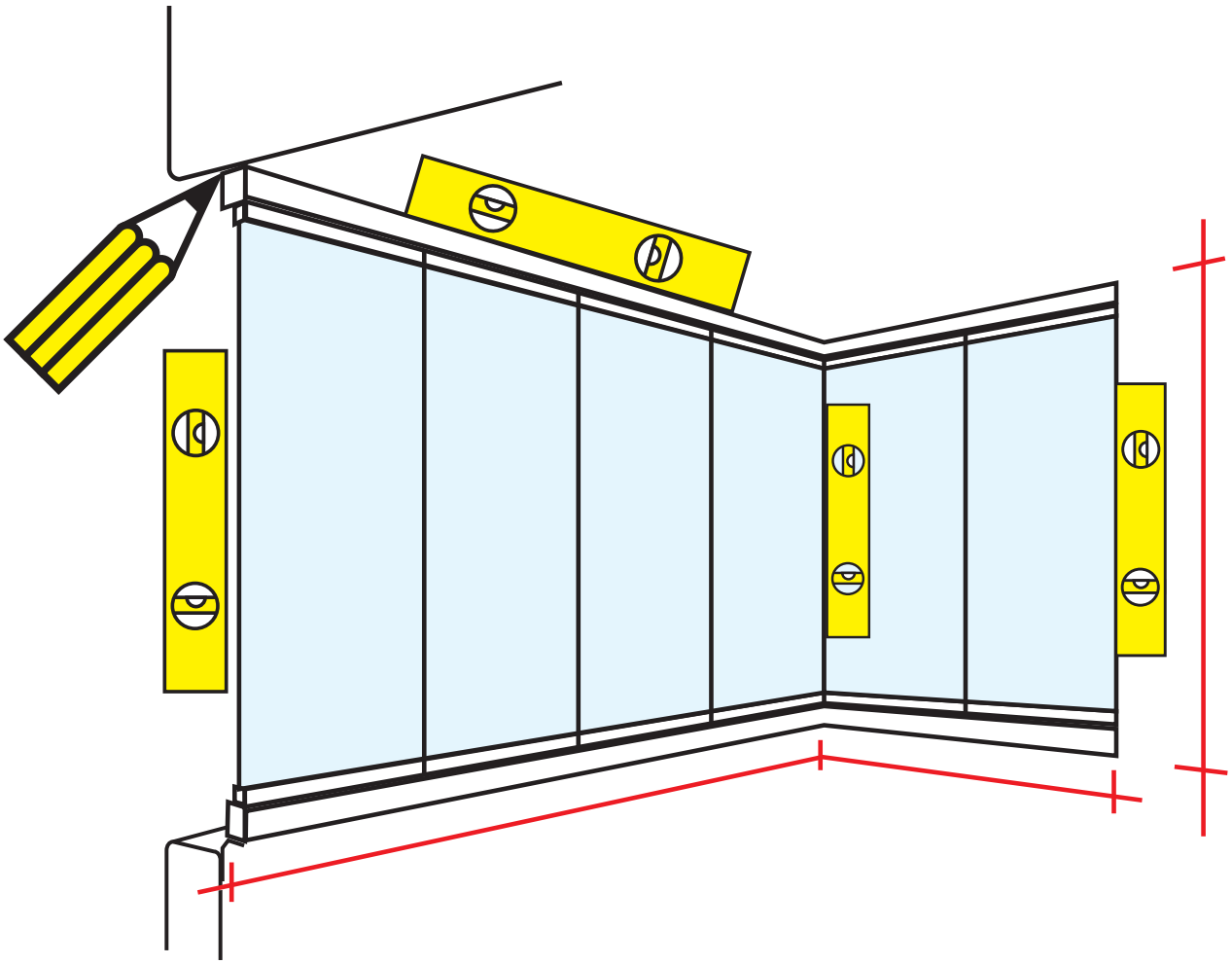
Fastening to aluminium or steel structures with screws

Check that the material thicness is sufficient so that the structures can carry the glazing loads. Material thickness can be increased, if necessary, by attaching shims to the structure. Make sure to fasten the shims in several places. Use lubricant such as cutting oil, silicone spray on the threading.
Aluminium structures: Minimum material thickness 5 mm; pre-punched hole 5,1 mm.
Steel structures: Minimum material thickness 4 mm; pre-punched hole 5,1-5,5 mm.

1500 kg







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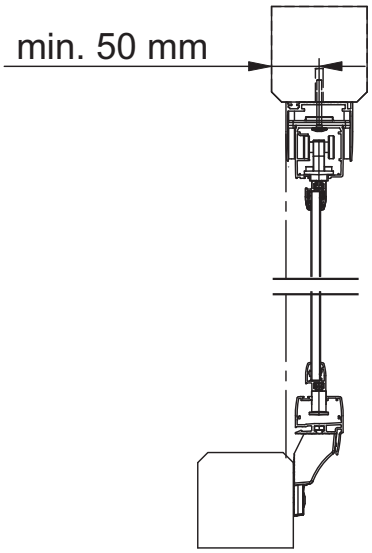

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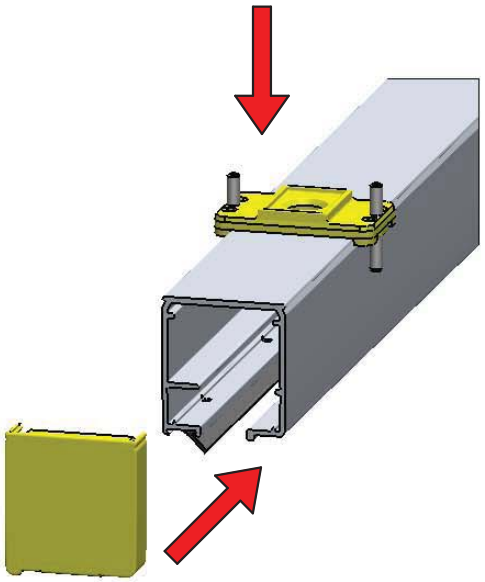

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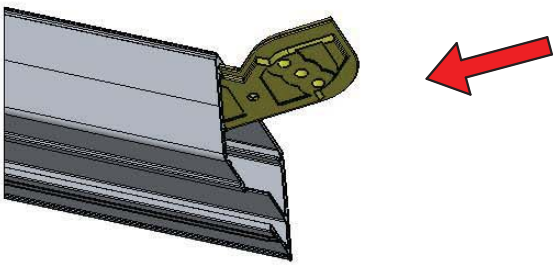

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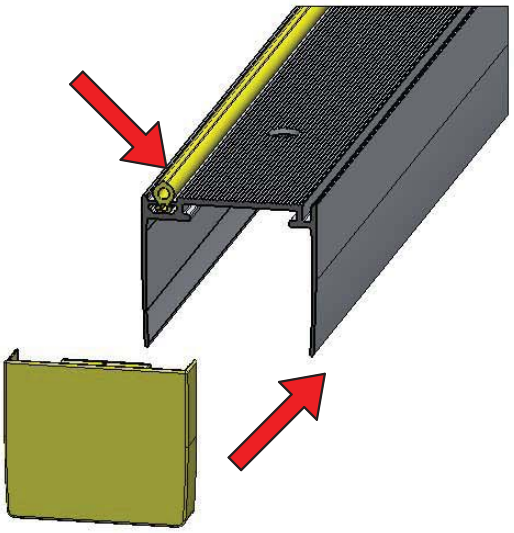

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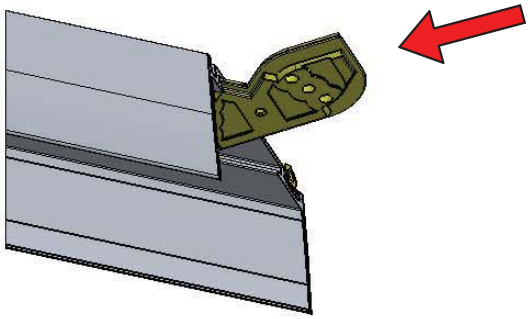
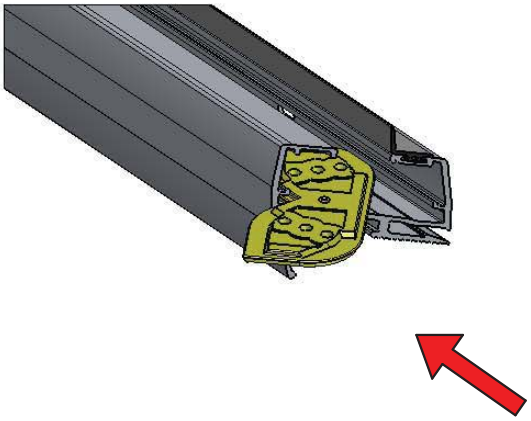


6.



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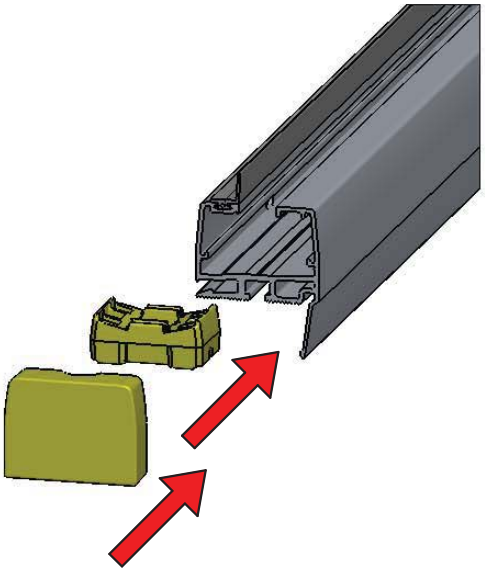

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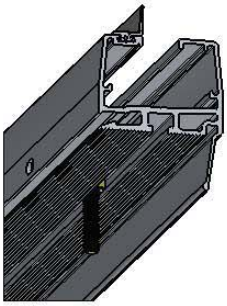

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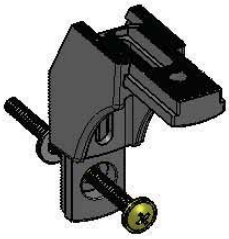

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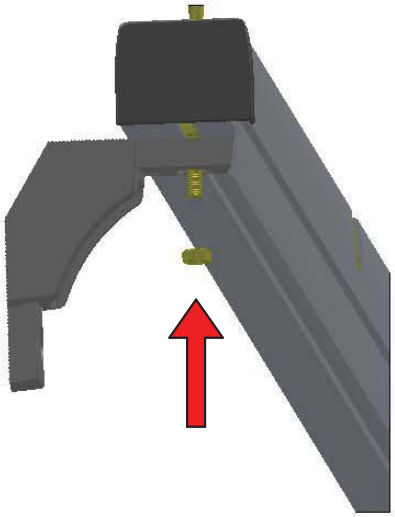

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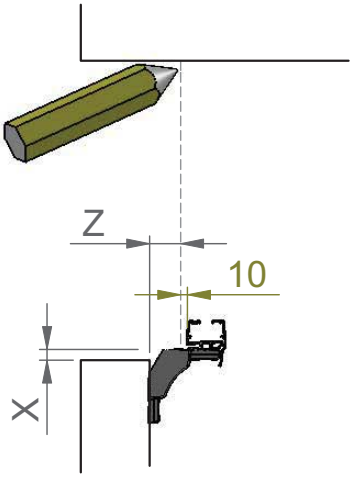

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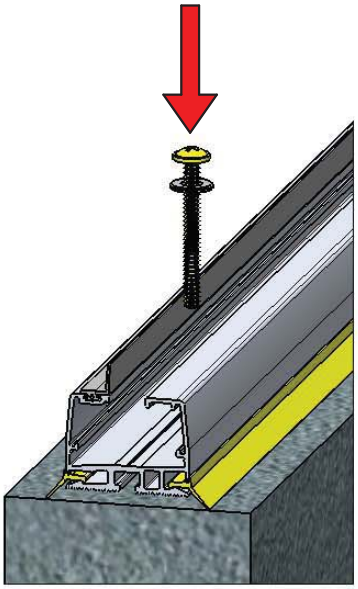

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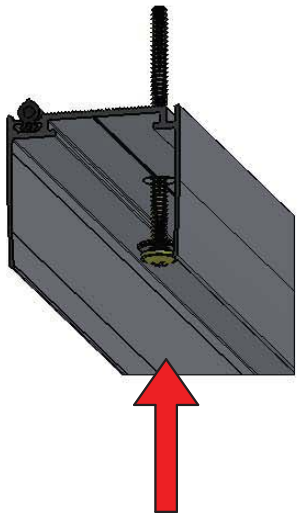

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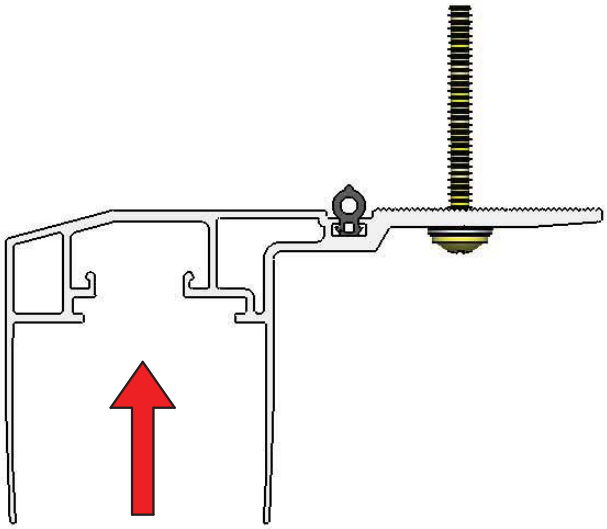

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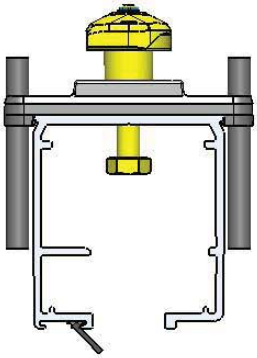

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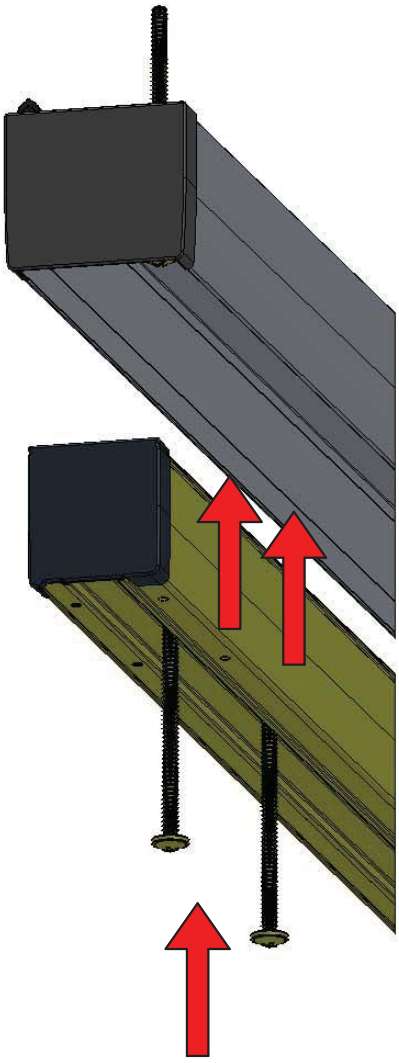

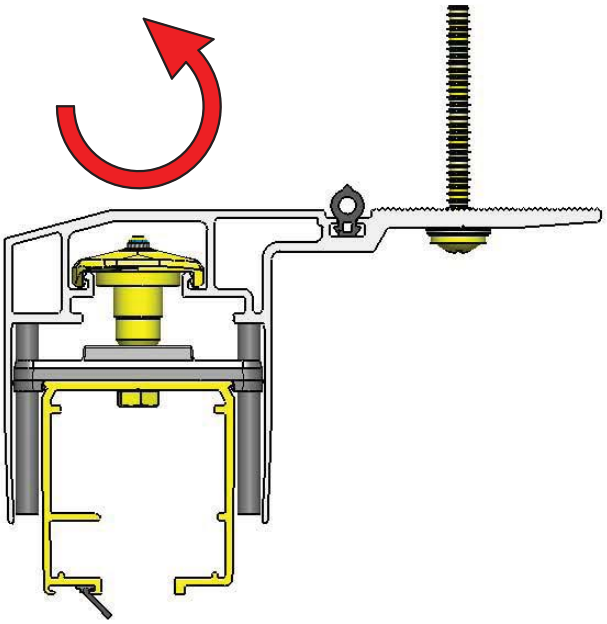

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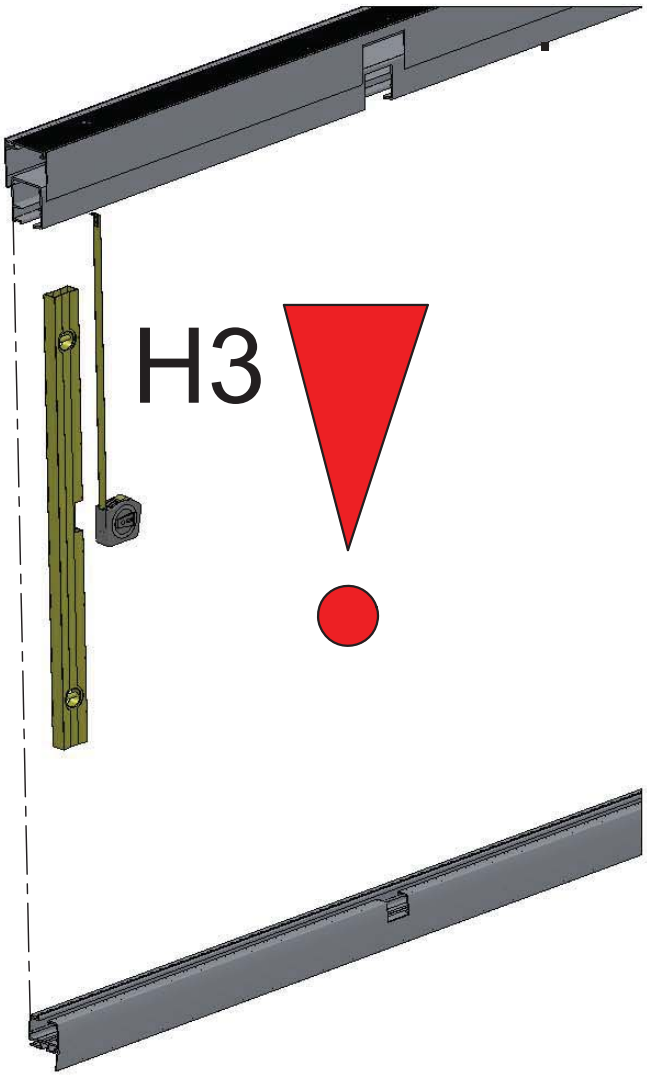

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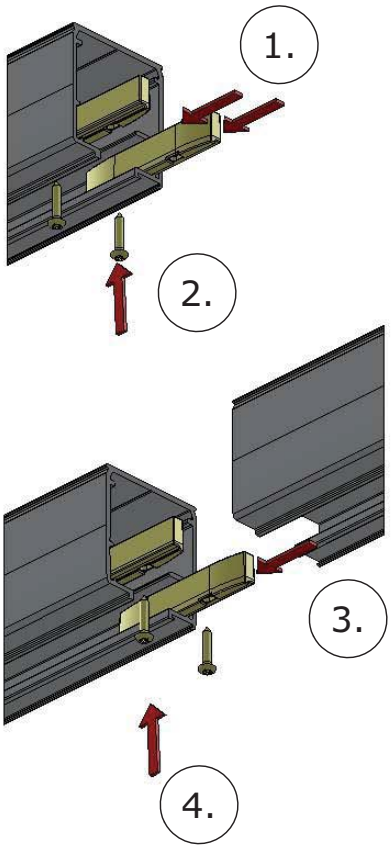

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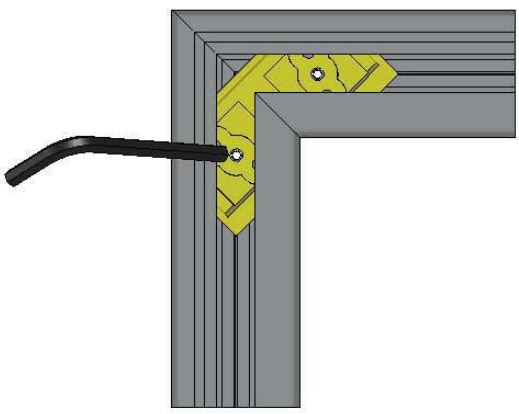

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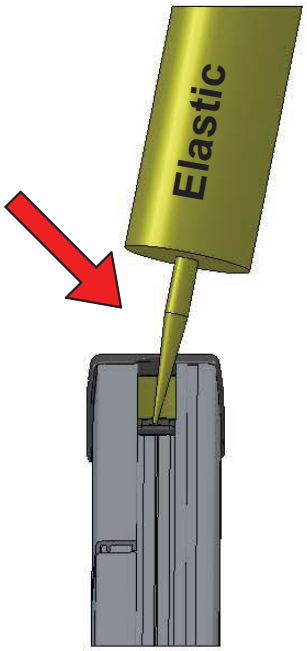

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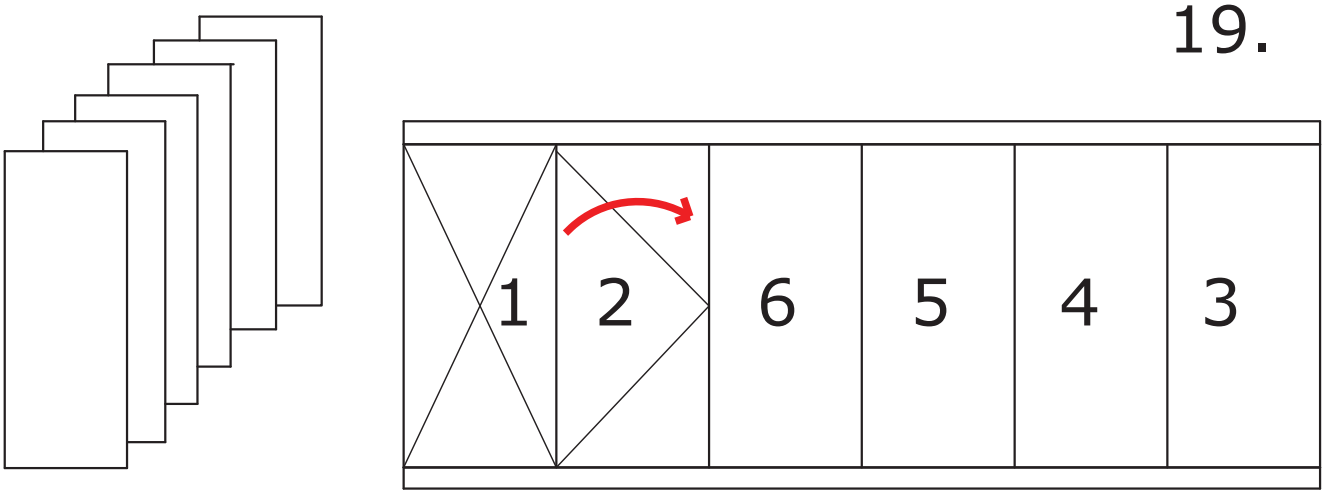

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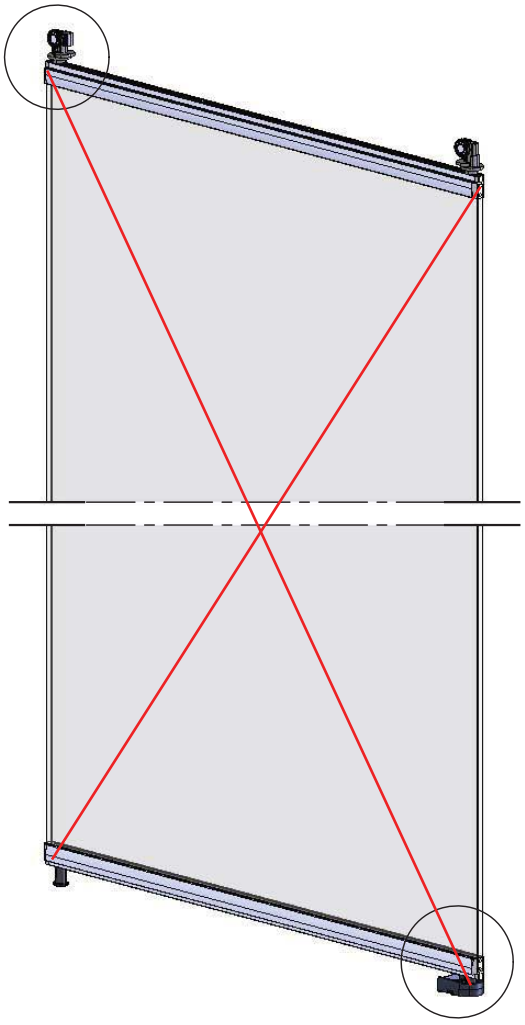

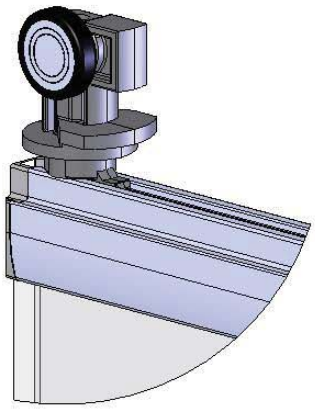

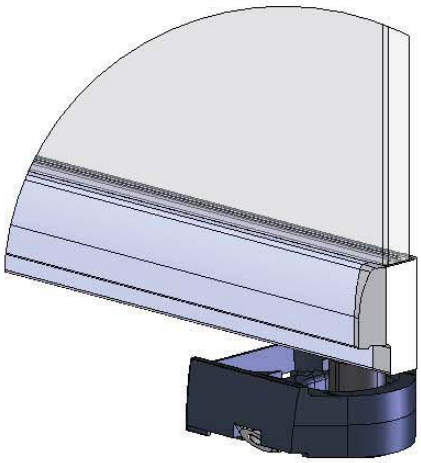

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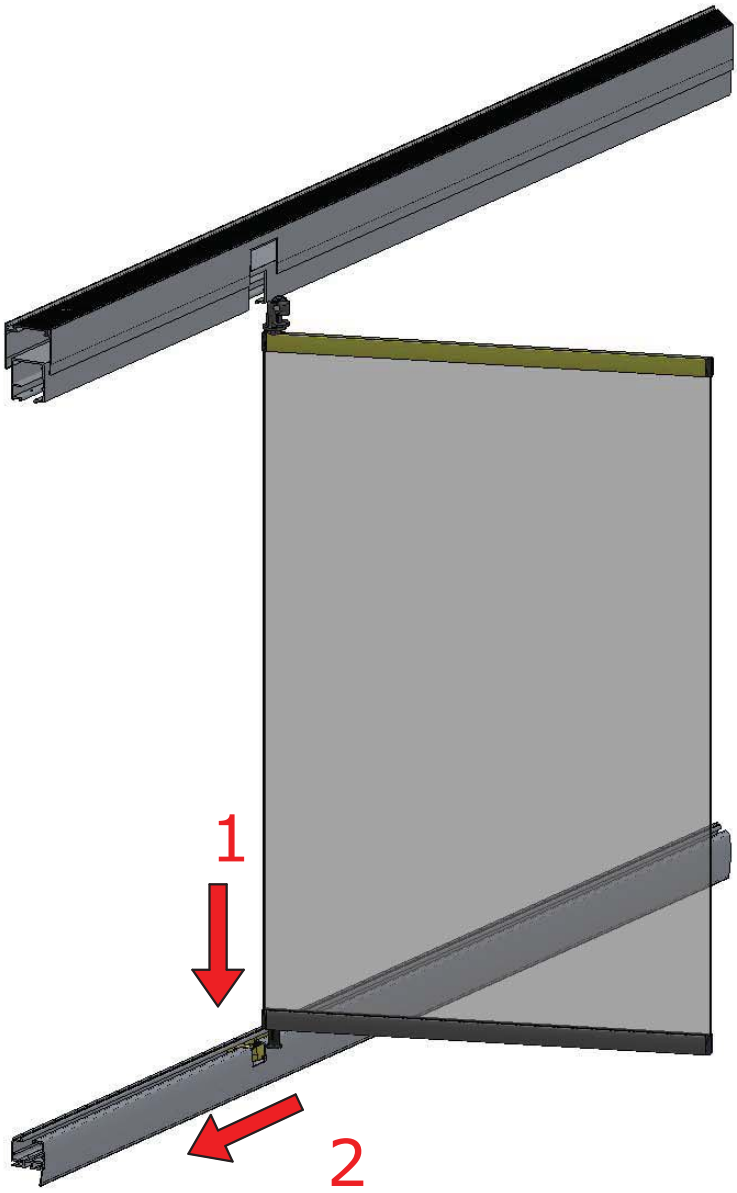

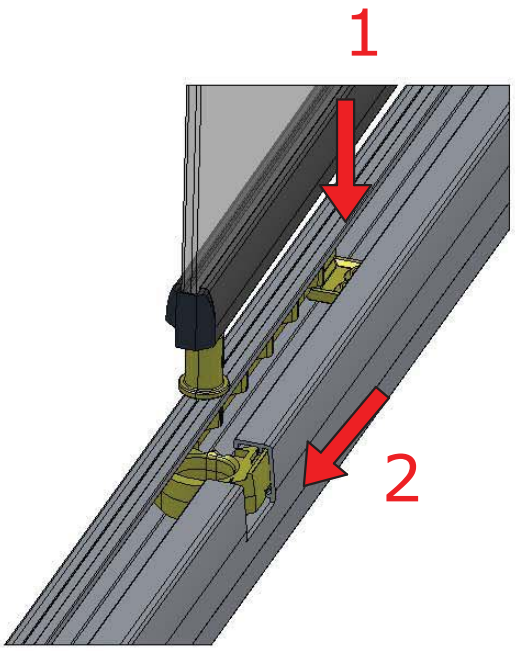

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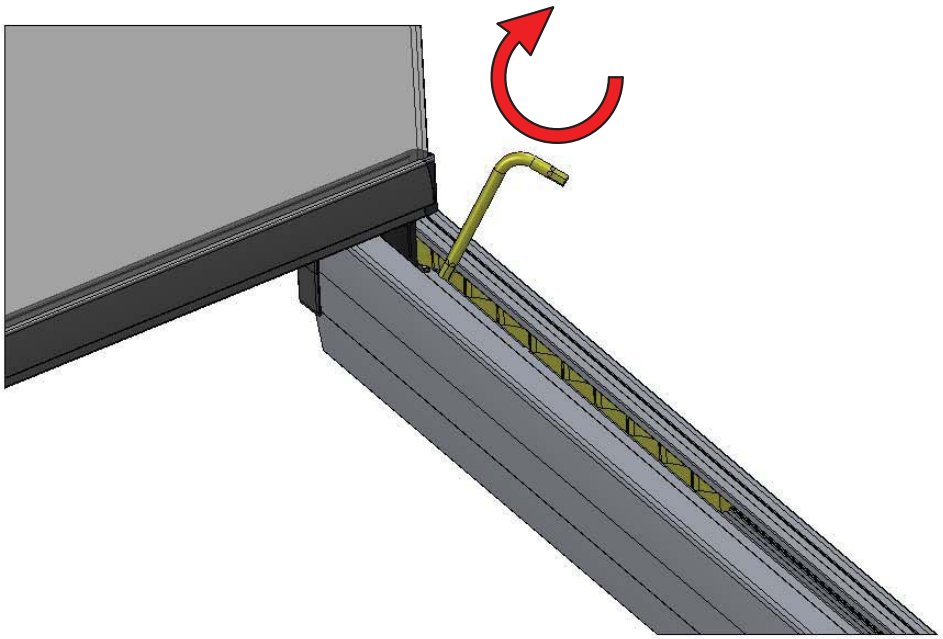

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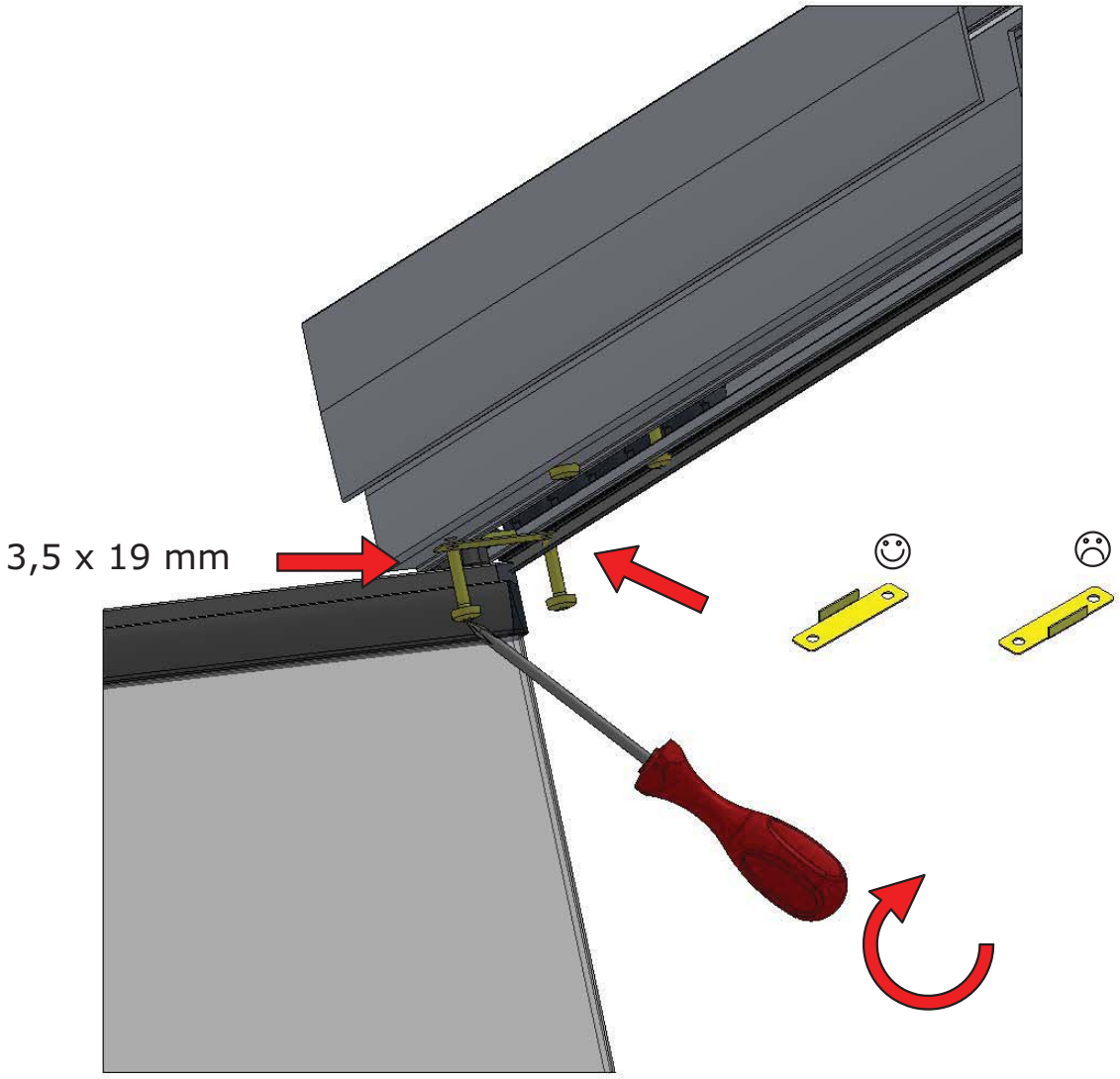

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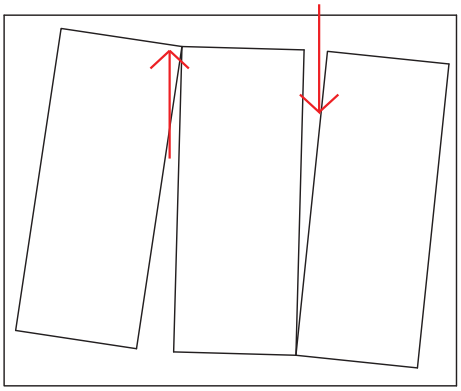

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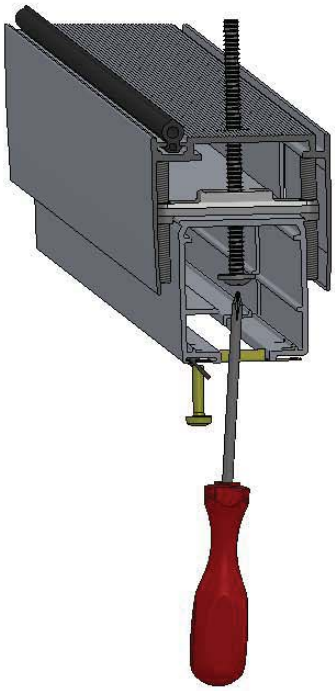

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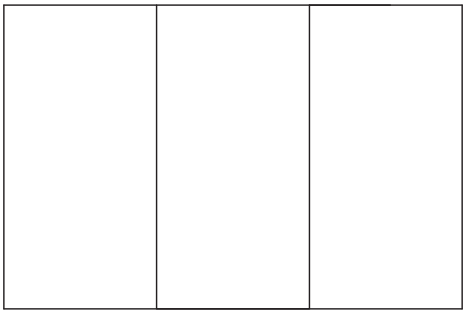

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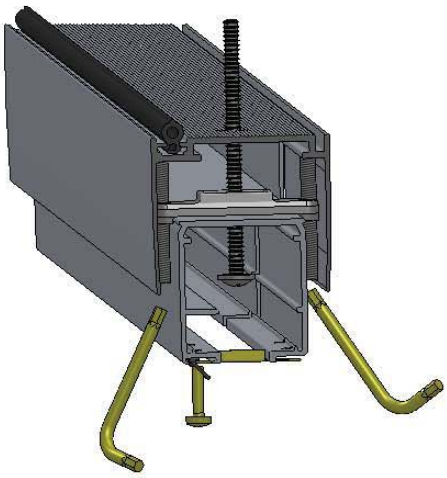

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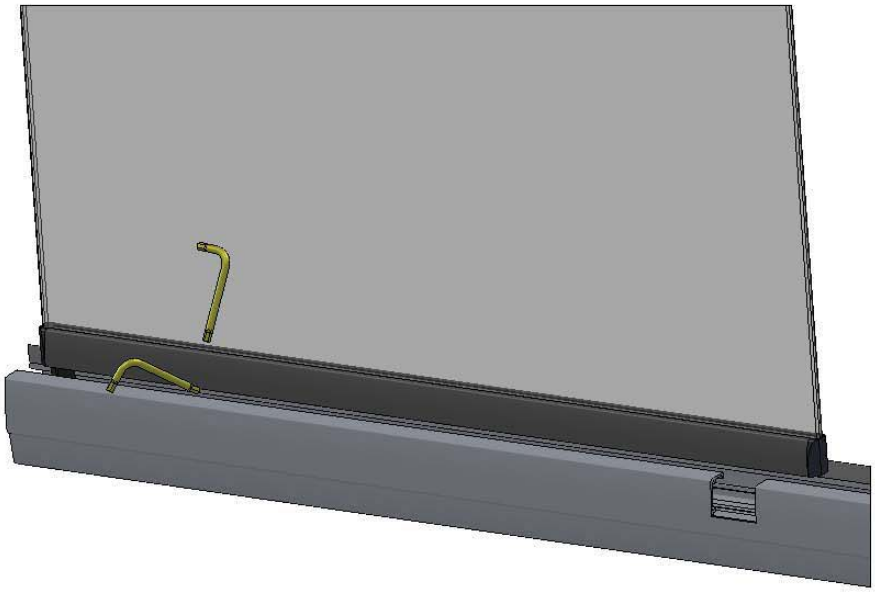

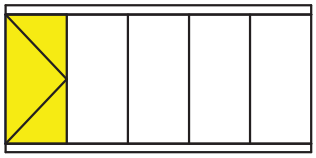

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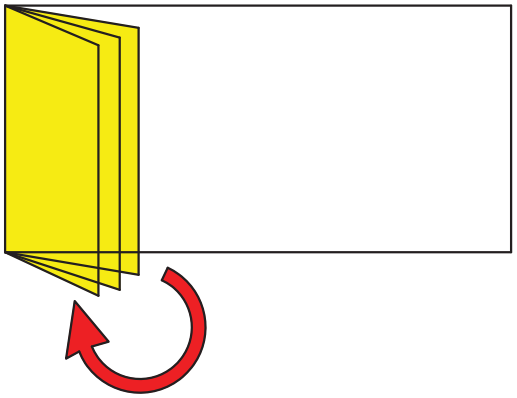

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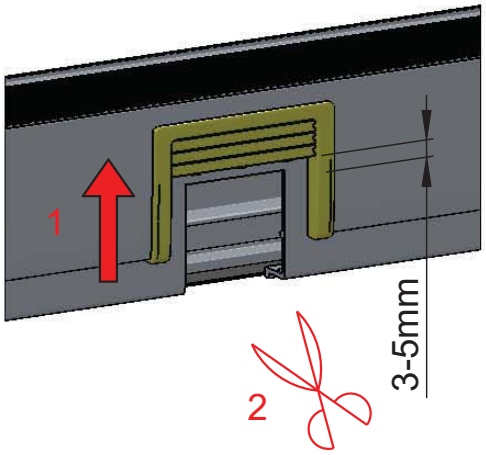

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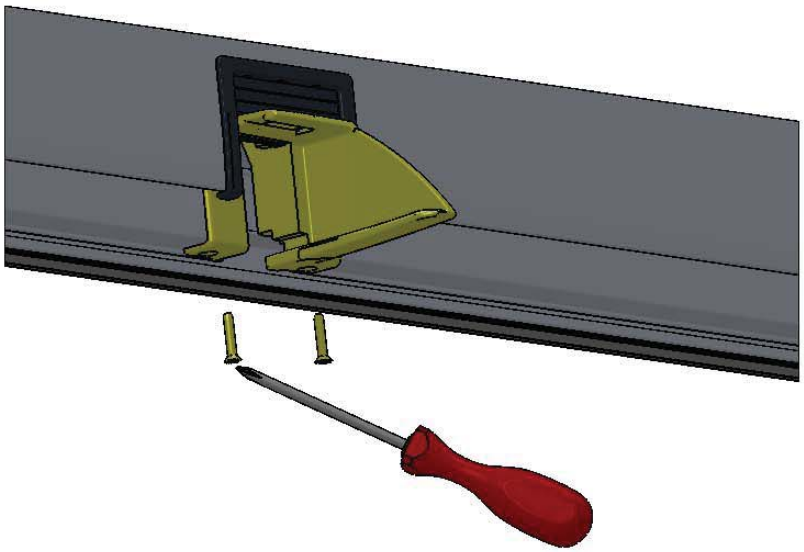

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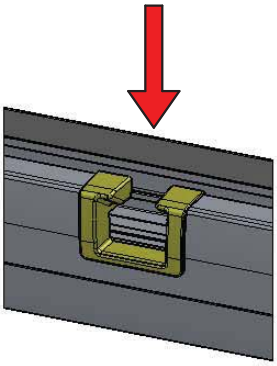

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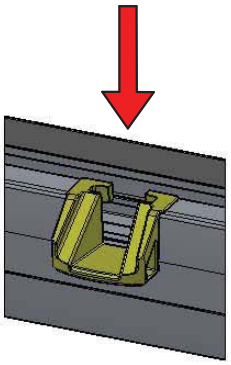

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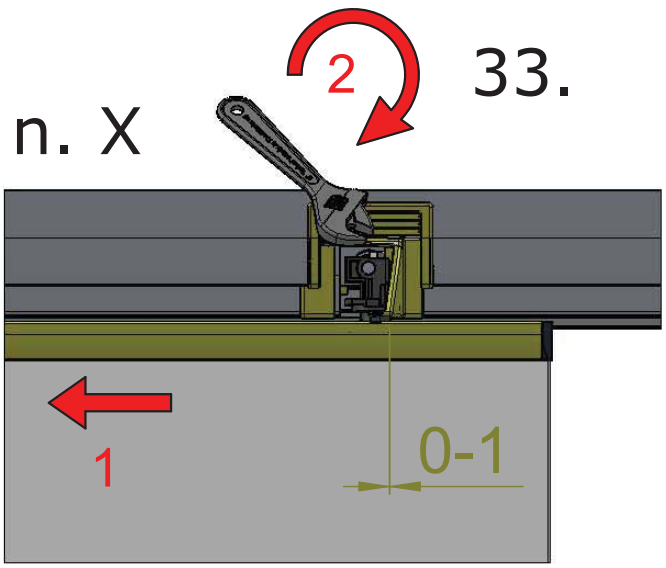

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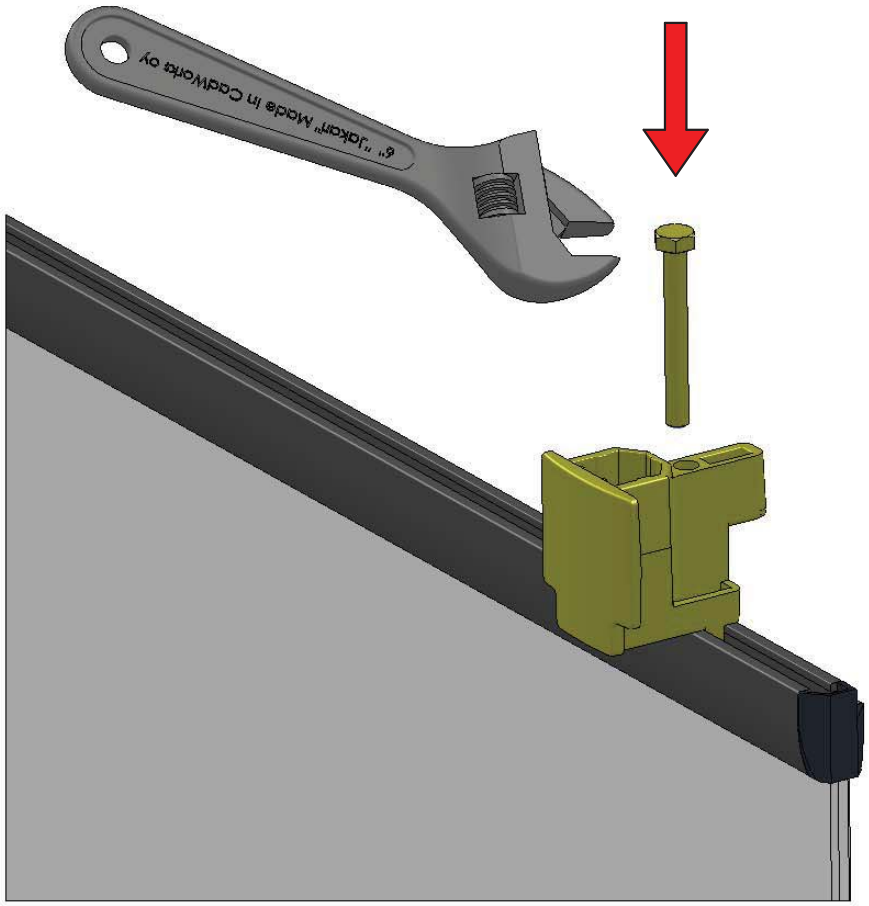

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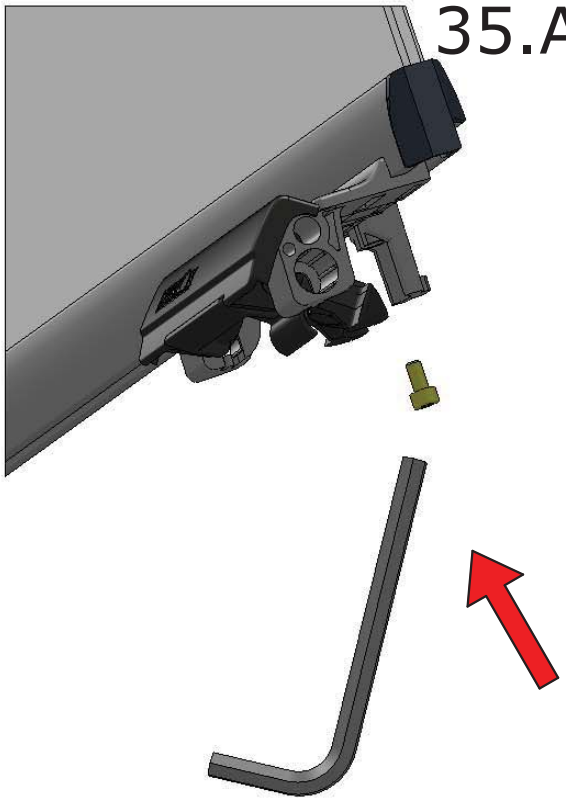

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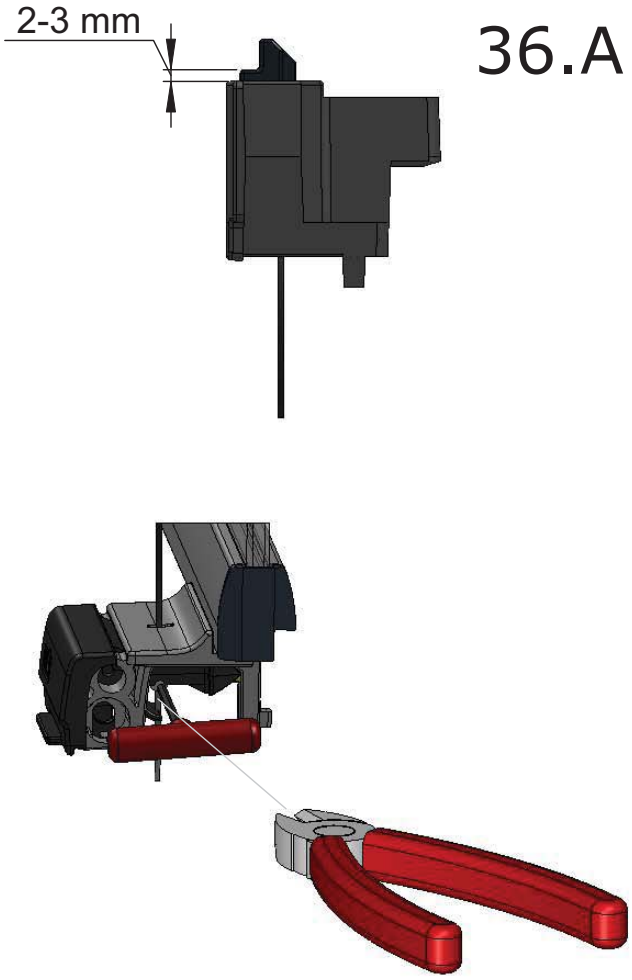

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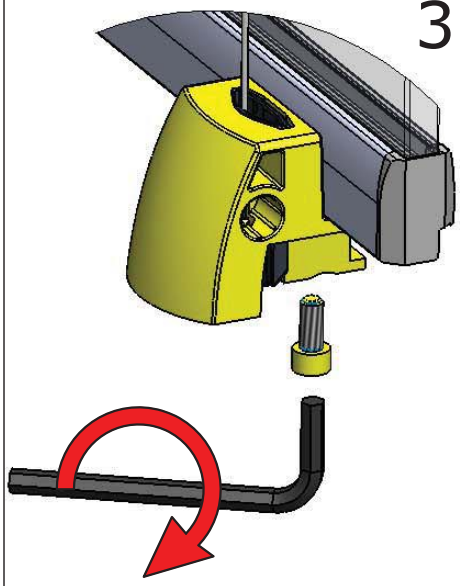

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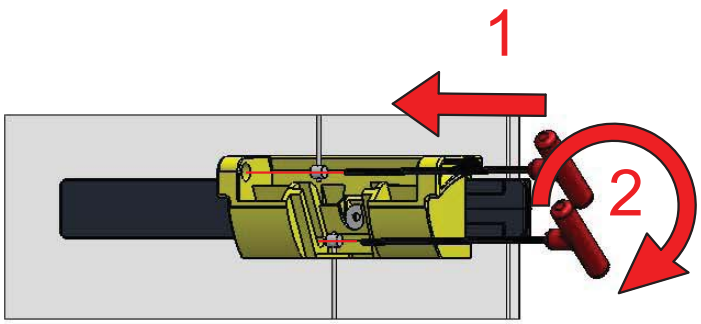

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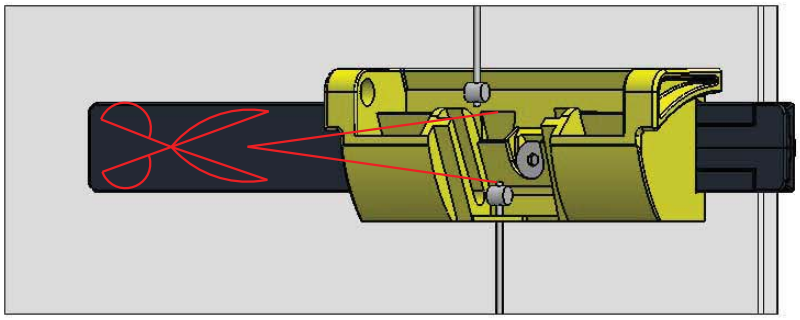

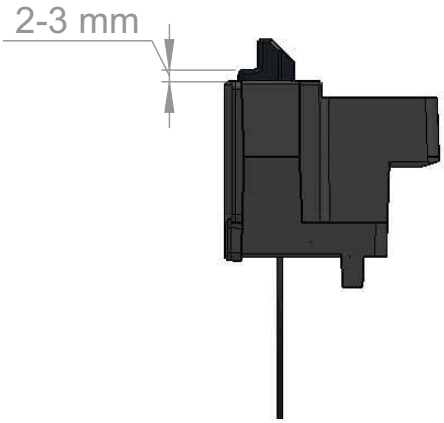

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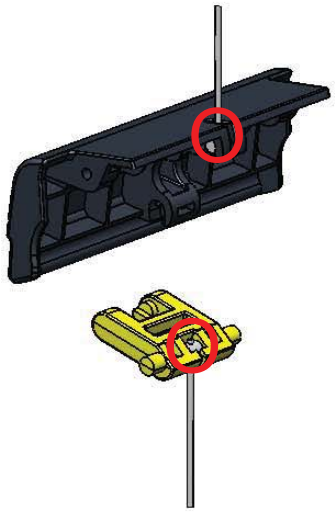

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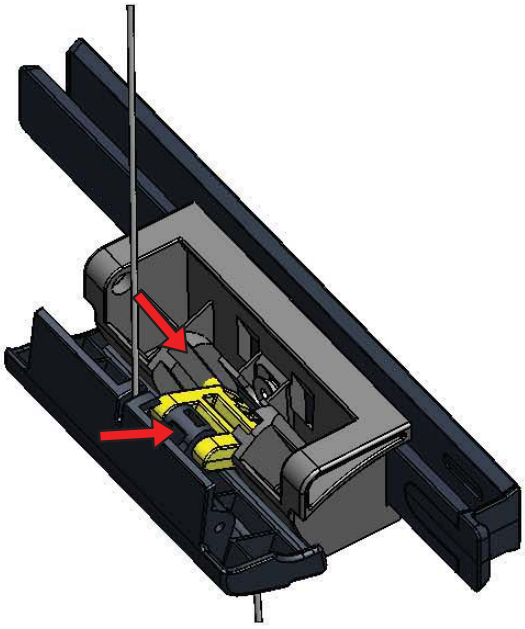

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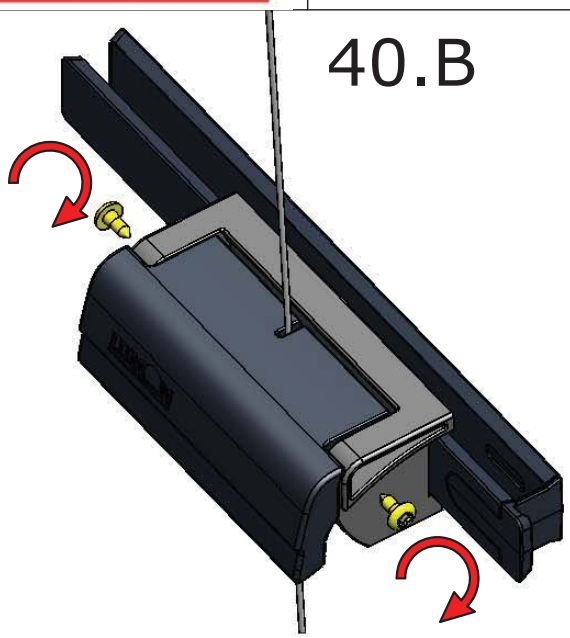

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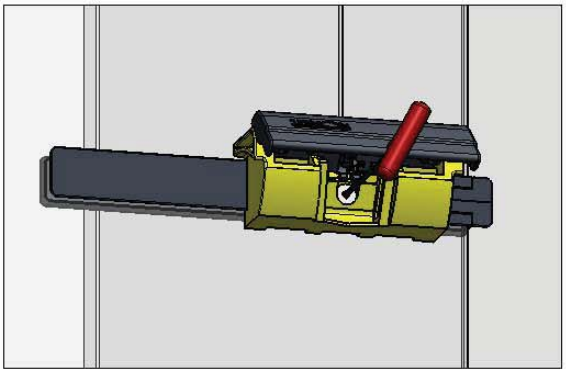

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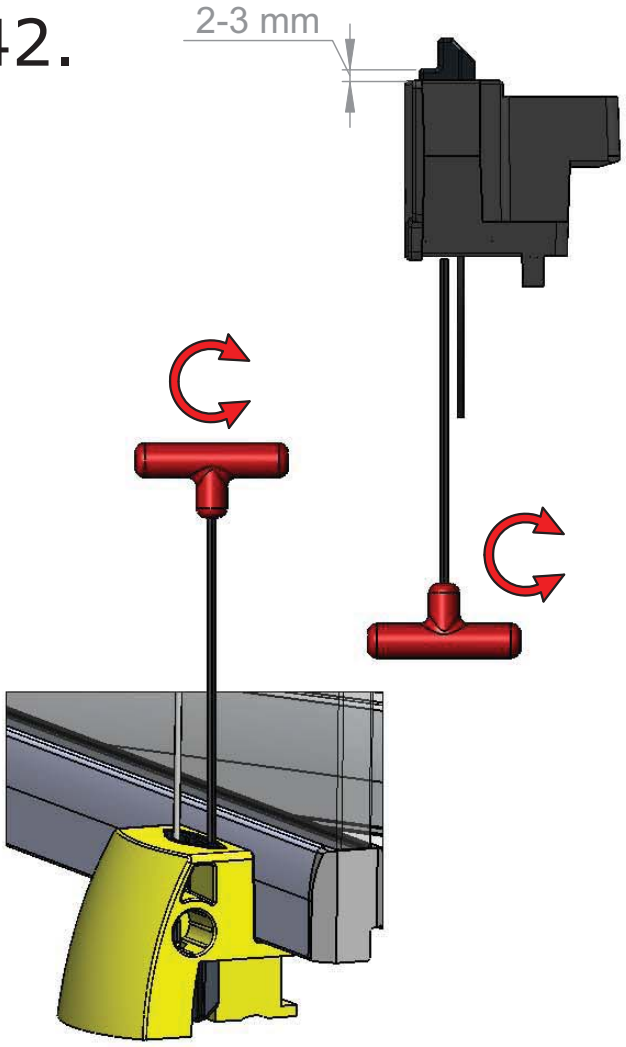

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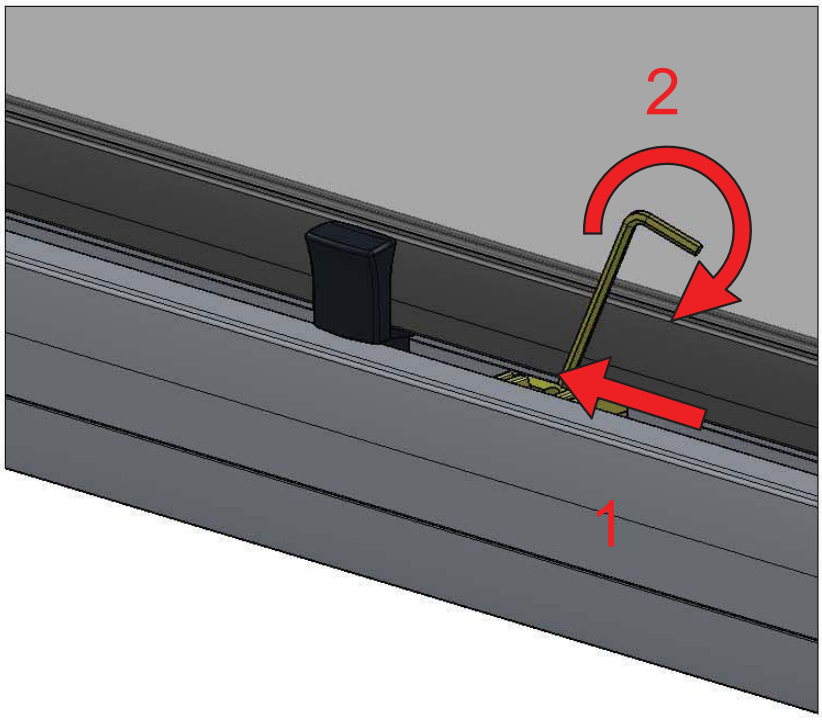

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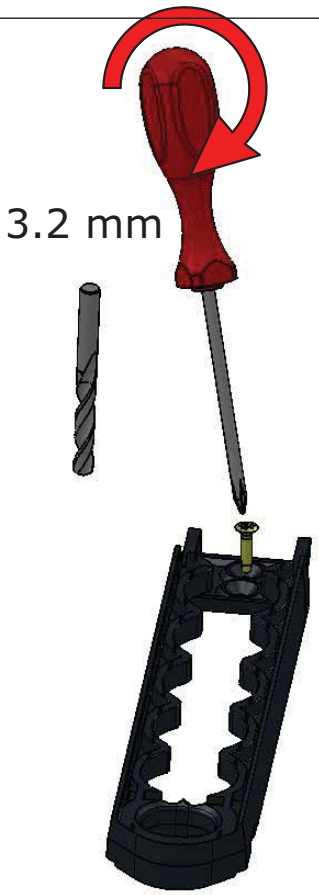

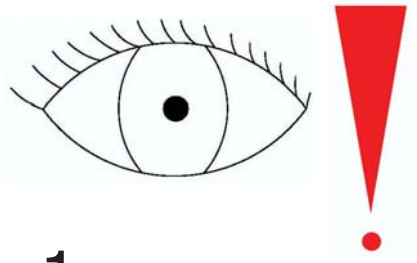

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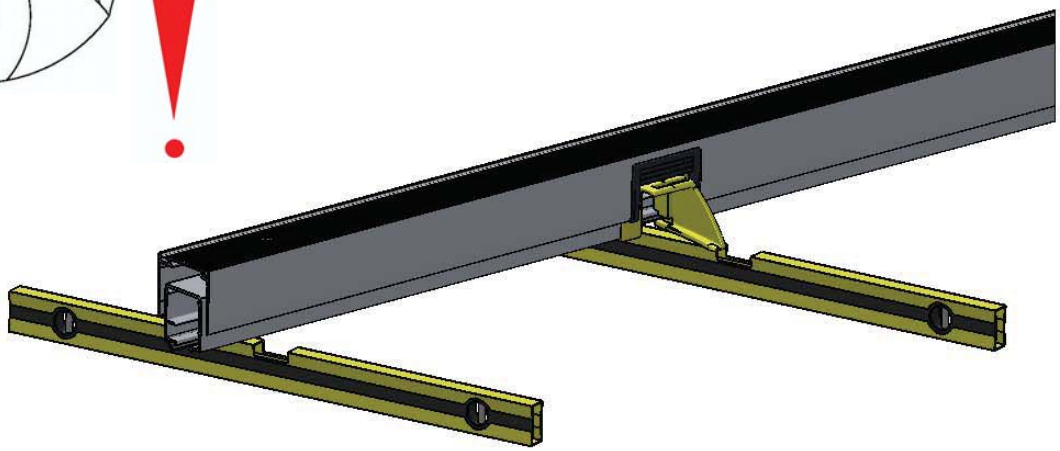

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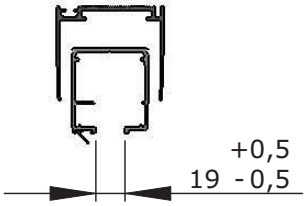

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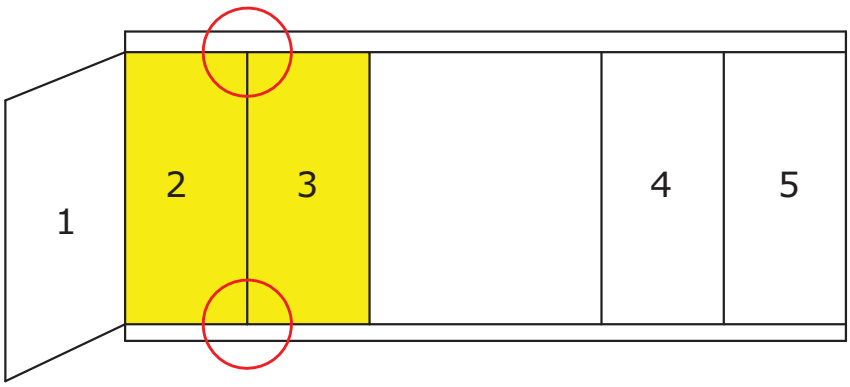

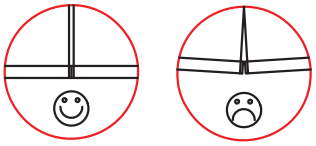

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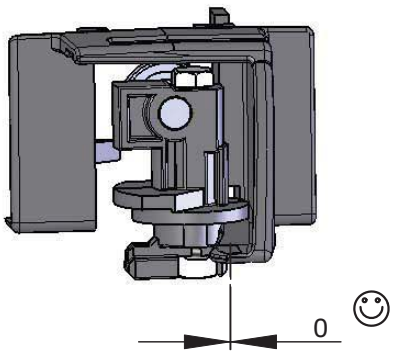
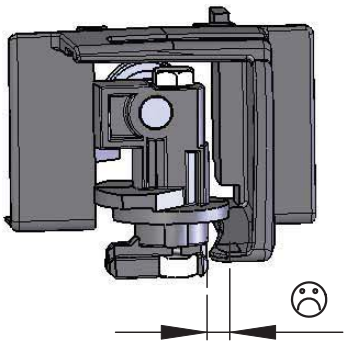
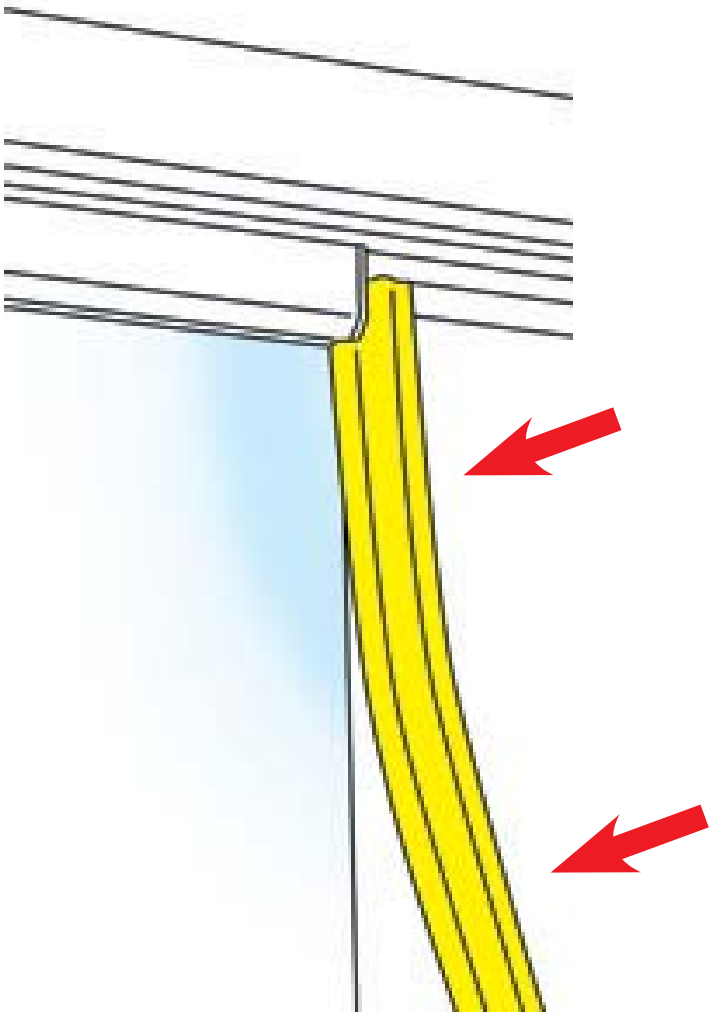
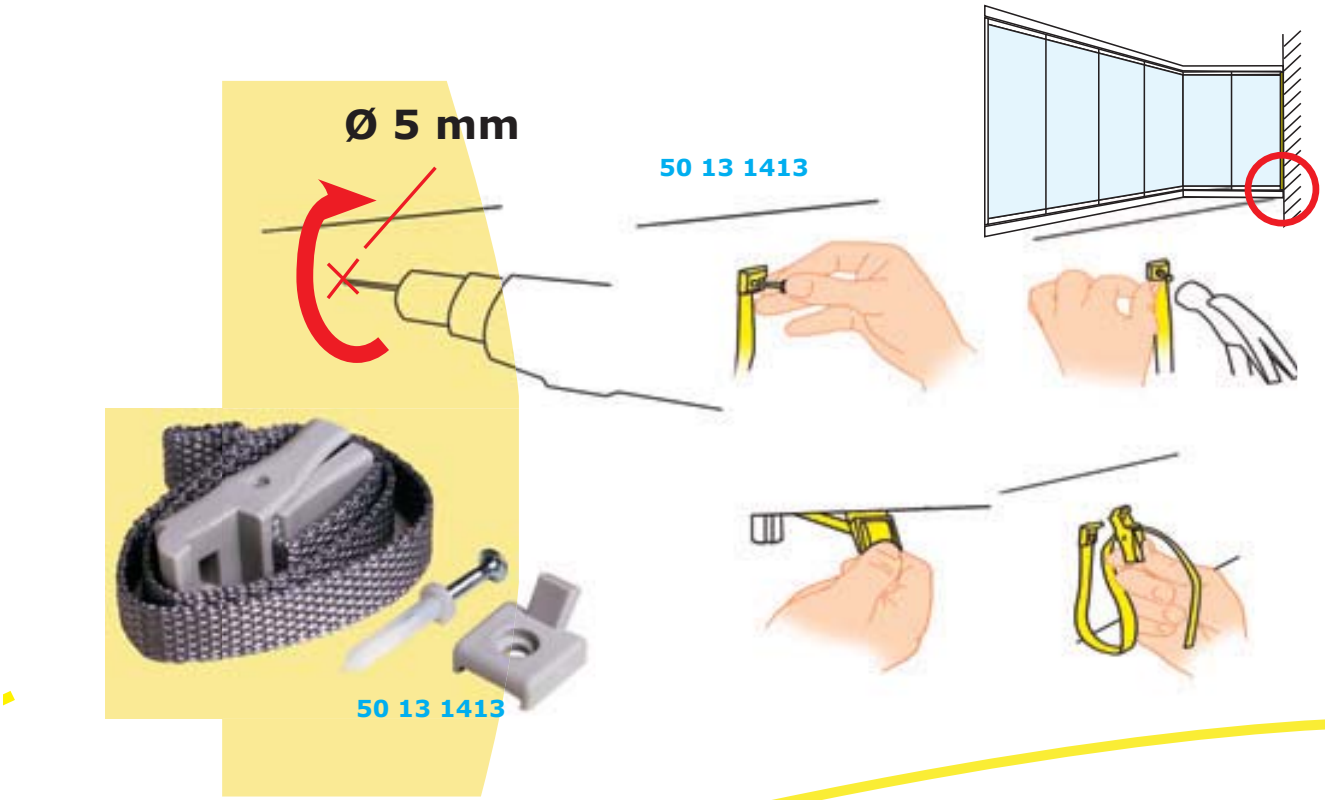
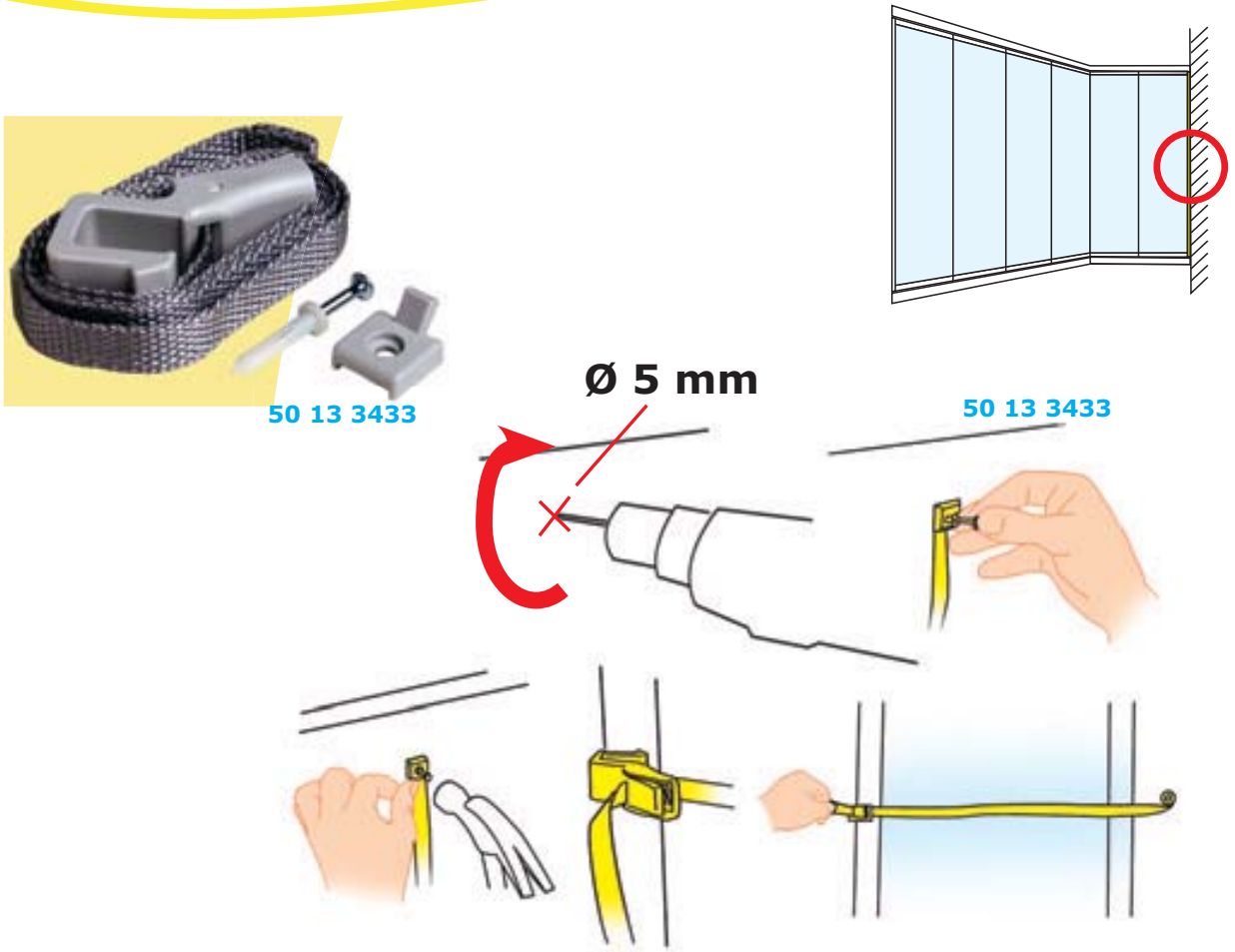







Ø 5 mm
50 13 1413
50 13 1413


50 13 3433
Ø 5 mm
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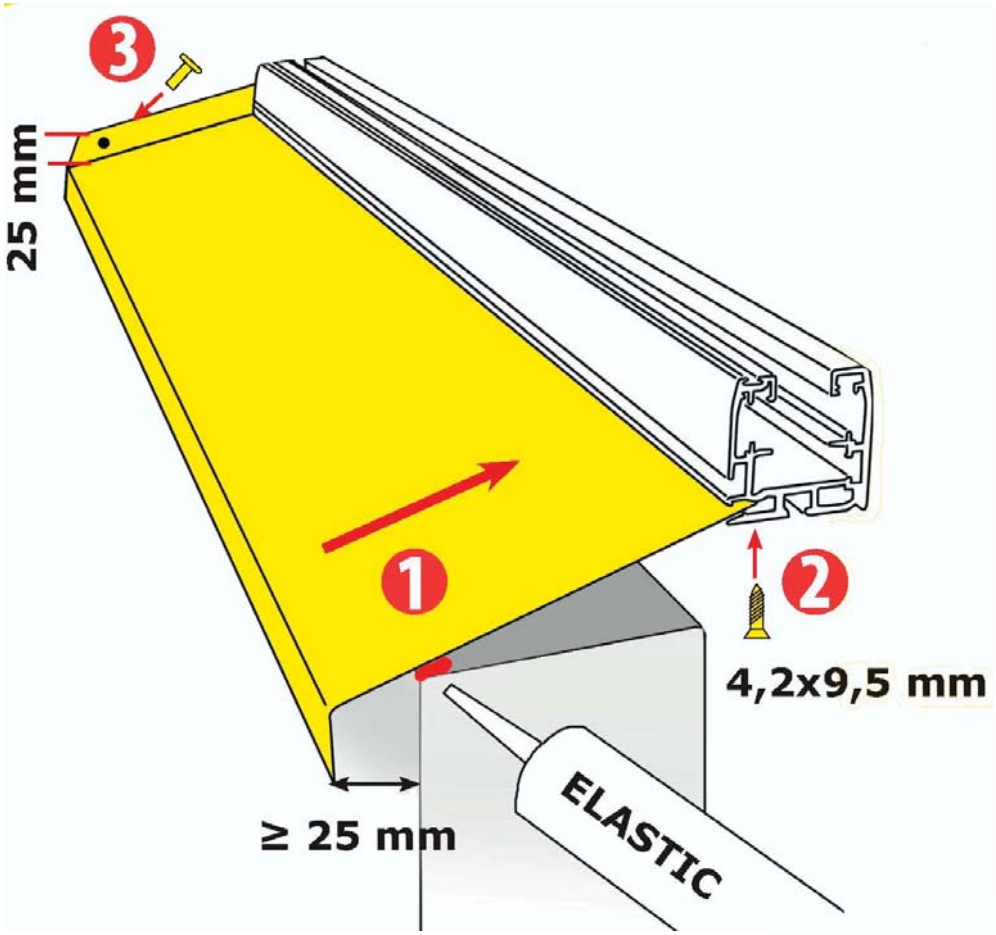
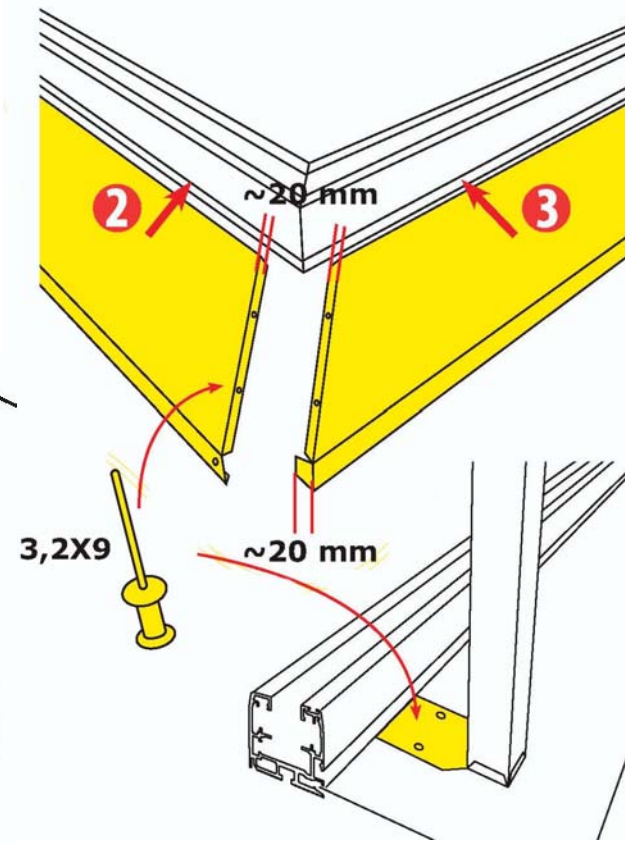
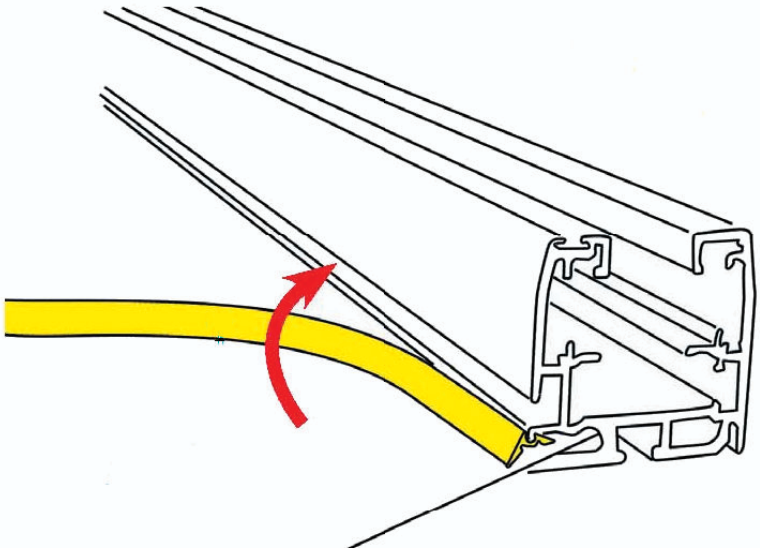
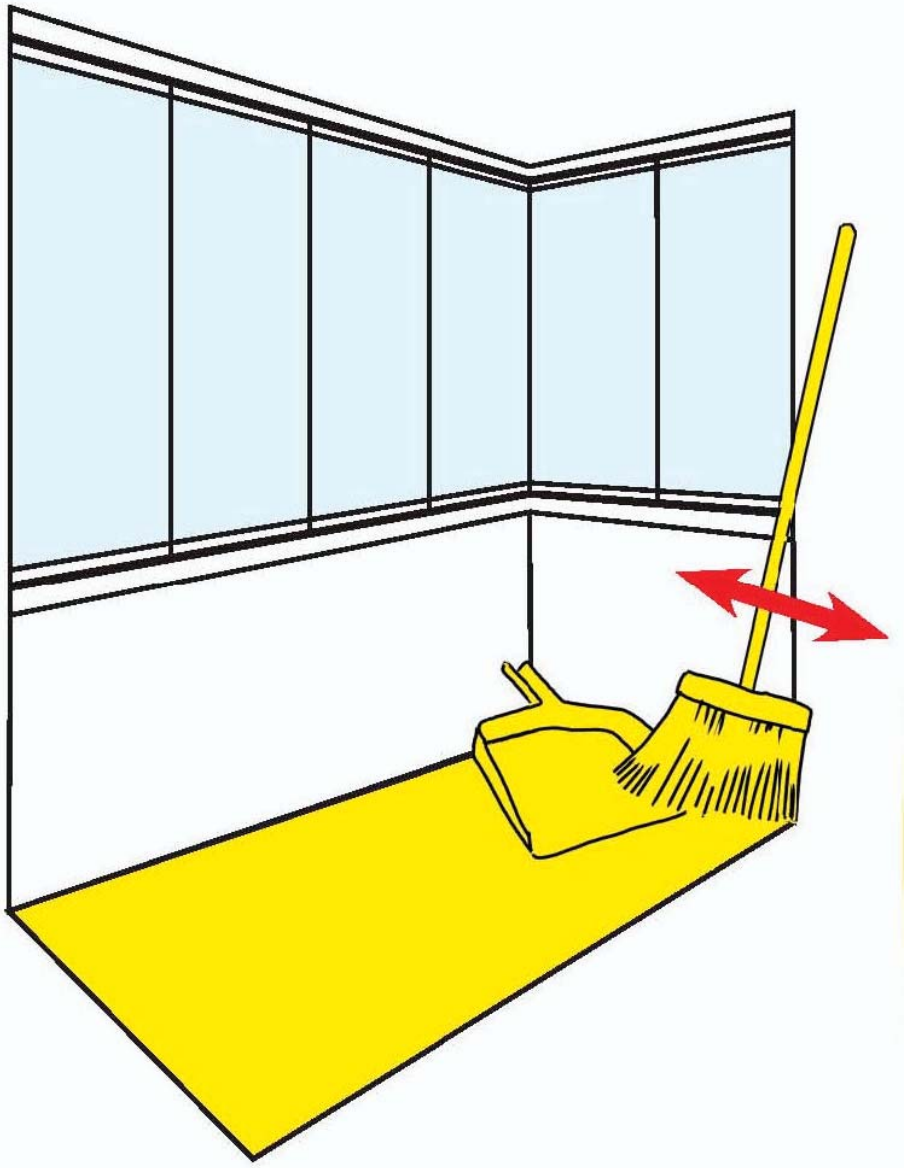
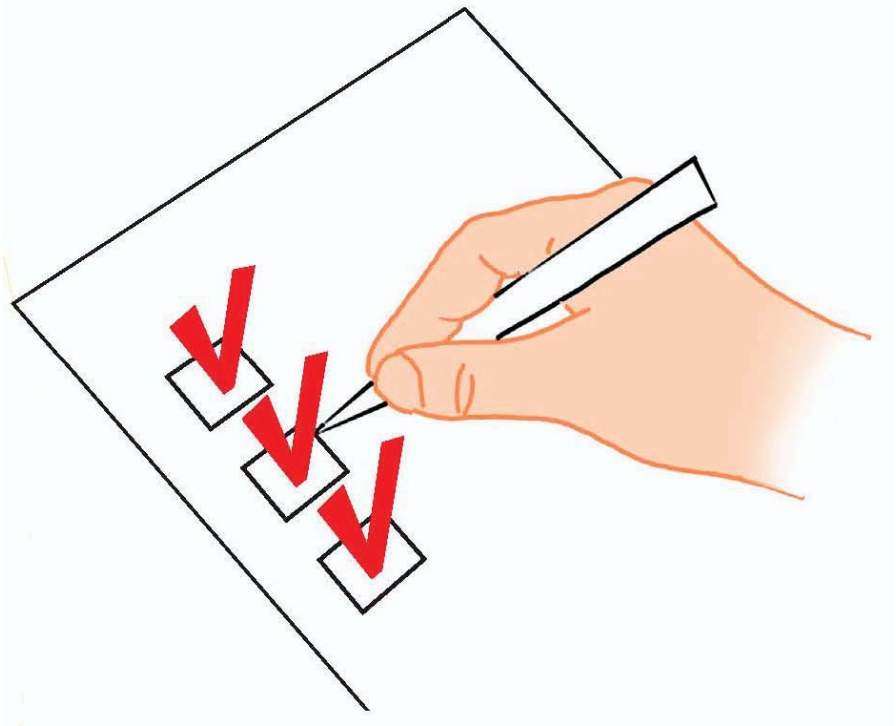
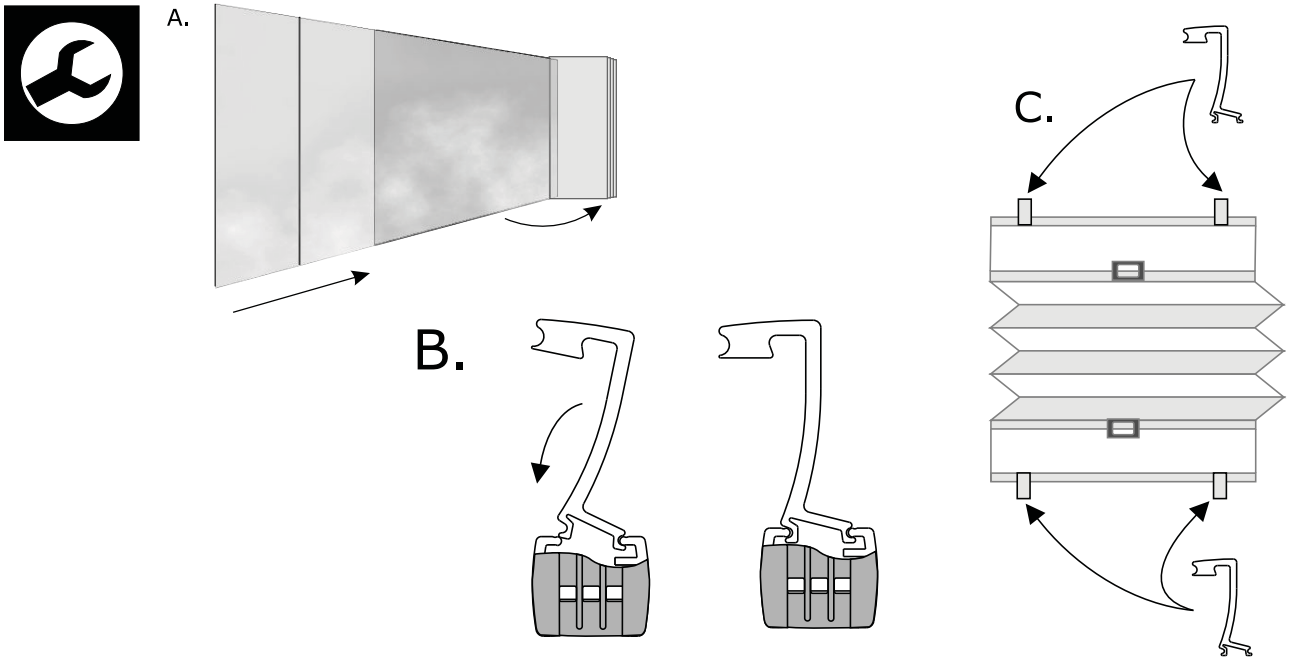

3
25 mm
1
2
4,2x9,5 mm
≥ 25 mm
ELASTIC

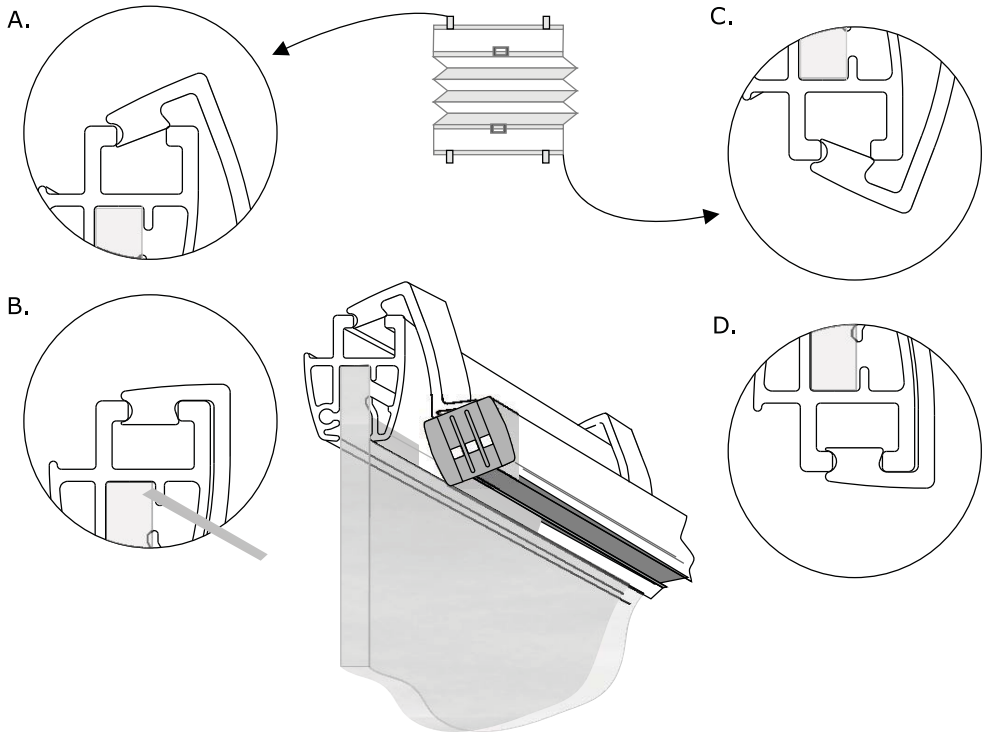

2
~20 mm
3
3,2X9
~20 mm

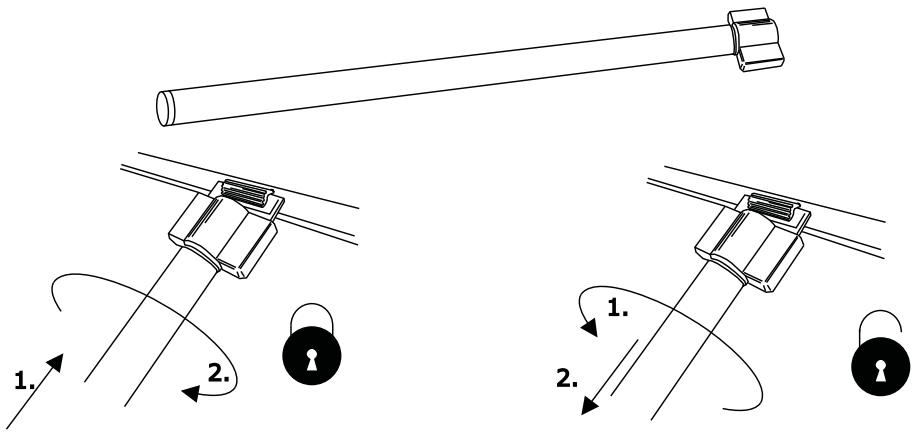







A.
B.
C.


A.
B.
C.
D.


1.
2.
1.
2.

Lumon -balcony glazing delivery content

Balcony glazings are delivered as an installation ready product. Product consists of three different components; profile-, glass- and metal sheet packing.

Profile packing

Upper-, lower and telescopic profile is delivered to the fixed size and corner balconies mitered. Profiles maximum length is 4,7 m.

Upper profile:
- Fastening holes done for structure holding
- Cut for follower and holes for its fastening done
- Upper chamber installed and fastened with two screws (two screws in a plastic bag)

Lower profile:
- Cut for lower latch
- Water removal holes done
- Bottom seal fastened
- Lower chamber installed with screw

Other components:
- seal for water sill, rail seal, and telescopic profile seals

Telescopic profile:
- Fastening holes done for structure holding
- Cut for follower done

h- and F –beads:
- Fixed size (accessory, separately ordering)

Wall profile:
- Fixed size, seal separately (accessory, separately ordering)

Other Components which are delivered with Profile Packing
- edge and corner seals (accessory, separately ordering)
- h –seals between panes (accessory, separately ordering)

Profiles are packed by balcony level or balcony line.

Glass packing

Components which are attached to glass
- Glazing beads
- Installation strips for High Pane Latch Attached to the 1st pane

Components which are attached to glazing bead
- Upper hinge (right and left)
- Lower hinge, Lower Start Hinge and lower guide
- End plugs

Components packed to equipment box
- Item bag
- profile end plugs
- fastening components for lower profile
- fastening for water sill
- Installation and instruction manual
- fastening for telescopic profile

Glasses, glass for opens, equipment box and accessories are packed on the same wooden stage. Package is covered with plastic.

Flashing package

Water sills and flashings are wrapped in plastic.

Extra profiles for Lumon balcony glazing

It is possible to order additional profiles with the balcony glazing order.
Following profiles are provided straight from the factory.

Color: RAL 9016

L- Profiles
- 20x15x2 mm
- 40x40x2 mm
- 40x60x4 mm
- 60x60x6 mm
- 60x85x8 mm

Rectangle Profiles
- 50x50x4 mm
- 100x60x5 mm
- 120x50x5 mm
- 150x50x5 mm

ASTA _____ LATA _____

Supervisor phone:

Unit:

Delivery add: ☐ Stock:

☐ Site:

Representative | Client/mark:

Adderess: | Appartement number

Invoicin adderess/ Information:

. | Phone home: Telephone work:

Place and time:

Seller:

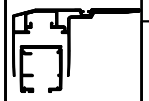
LUMON

Measurement record

LUMON 5 (L5)

Profile color:
- ☐ RAL 9016
- ☐ RAL 9006
- ☐ RAL 7024
- ☐ other color, RAL_____

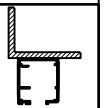
☐  11 22 1205 + 11 22 2206

☐  11 22 1205 + 11 22 2207

Profiles fastened to flange:

☐ 11 22 1205 +50 22 0003 bracket

☐  11 22 1205 + 11 01 0705 L-60x60x6

☐  11 22 1205 + 11 01 0707 L-85x60x8

Glass color code

OF 88 clear
OF 72 green
OF 42 gray
OF 50 brown
OF 87 Stippolyte
OF 85 Satinato

Plastic parts color:
- ☐ Light gray
- ☐ dark gray

Glass:
☐6 mm ☐8 mm ☐10 mm

☐  11 22 3001

☐  11 22 3002

s/s-level rod:
AX-number/size
- ☐ 51 06 3432/10x60x250, light gray
- ☐ 51 06 3433/10x60x250, dark gray
- ☐ 51 06 3434/10x60x300, light gray
- ☐ 51 06 3435/10x60x300, dark gray

LOWER BRACKET:
AX-N° Dark/LightGrey/size/Z
- 50 22 0003/0203/55x65/6 mm
- 50 22 0002/0202/55x118/6 mm
- 50 22 0003/0203/65x55/16 mm
- 50 22 0004/0204/65x108/16 mm
- 50 22 0004/0204/108x65/37 mm
- 50 22 0005/0205/108x118/37 mm
- 50 22 0002/0202/118x55/42 mm
- 50 22 0005/0205/118x108/42 mm

CONTINUOUS BRACKET:
AX-number / size / Z -measure
- 11 06 3130 / 60x70 / 8 mm
- 11 06 3131 / 70x60 / 18 mm
- 11 06 3128 / 80x50 / 28 mm
- 11 06 3150 / 100x110 / 48 mm
- 11 06 3151 / 110x100 / 58 mm
- 11 11 6233 / 90x60 / 38 mm
- 11 06 3161 / 120x40 / 68 mm

CONTINUOUS BRACKET:
AX-nro / koko / Z -measure
- 11 11 6204 / grooved glazing channel / 23 mm
- 11 11 6204 / without groove glazing channel / 23 mm

edge seal

left		right
☐	20 mm	☐
☐	30 mm	☐
☐	+angle	☐
☐	no seal	☐

☐ between glass

Blinds (facing out)
- ☐ 90 22 0200 white transparent
- ☐ 90 22 0201 white non transparent
- ☐ 90 22 0202 gray transparent
- ☐ 90 22 0203 gray non transparent

Blinds

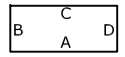
Side of the balcony number (facing out, numbers fron right to left)

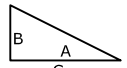
Side number	corner degree Ak/Jk/Lk	Length (mm)	Set-off Z (mm)	Profile ext. (mm)	slides to the end of the profile L	slides to the end of the profile R	change hinge location left	change hinge location right	Hight (mm)	Y-setoff / X-setoff (mm)	opening end (facing out) L	opening end (facing out) R	change hinge location L	change hinge location R	fixed glass width left	fixed glass width right	Upper Bracket / Lower Bracket	glass color code	rail thickness (mm)	extra information	lach with lock	piece
	/ /			left / right			☐	☐							☐	☐						
	/ /			left / right			☐	☐							☐	☐						
	/ /			left / right			☐	☐							☐	☐						
	/ /			left / right			☐	☐							☐	☐						
	/ /			left / right			☐	☐							☐	☐						

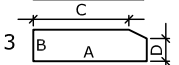
glass panes for opens 6 mm

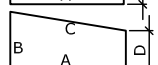
modell (1-4)	type fixed	type hinge	glass color code (OF/IG)	A (mm)	B (mm)	C (mm)	D (mm)	piece	hinges on side (A,B,C,D)	no drip (X)

Models:

1 

2 

3 

4 

beads for the glass panes for opens

F-bead [piece]	h-bead [piece]	lenght [mm]	color

Note:

Adderess: Kaitilankatu 11, 45130 Kouvola
phone. +358(0)20 7403200

Name / mark:

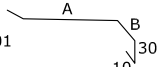
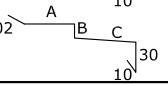
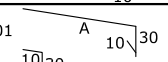
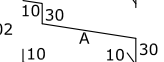
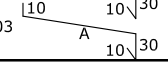
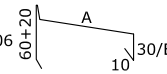
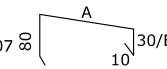
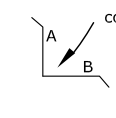
Adderess:

appartemnt num.

Invoice adderess/
Extra information:

Material order

LUMON

	Item	Picture	Code	color RR	Length	piece	A	B	C	railpeg
1	**Upper drip water sill**	25 05 0401 								
2										
3										
4		25 05 0402 								
5										
6	**water sill**	25 05 0101 								
7										
8		25 05 0102 								
9		25 05 0103 								
10										
11	**Water sill for the glass which closes an opening**	25 05 0106 								
12										
13										
14		25 05 0107 								
15										
16	**Corner flashing**									
17		25 05 0501 								
18		25 05 0502								
19										
20		25 05 0503								
21	**Closeing flashing**									
22		25 05 0601								
23										
24		25 05 0602								
25	**Measures A+B+C+D**									
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36		9999								
37										

Installation

- ☐ ceiling
- ☐ flange fastening_____
- ☐ subrack
- ☐ level rod
- ☐ side by the rails
- ☐ on top of the rail

Ceiling

- ☐ steel
- ☐ concrete
- ☐ wood
- ☐ other _____

Rail

- ☐ steel
- ☐ concrete
- ☐ wood
- ☐ other _____

Glass flower board

- ☐ 600 mm_____piece
- ☐ 900 mm_____piece
- ☐ 1400 mm_____piece

Side number: _____

Place: _____ mm
(from the left edge)

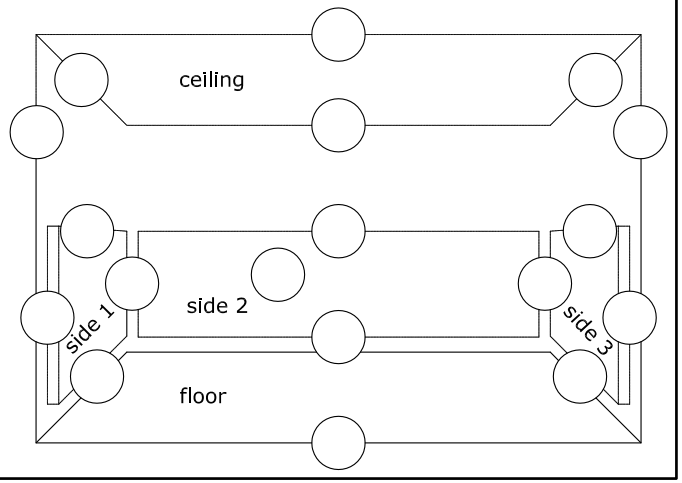
Door stopper

- ☐ floor
- ☐ wall
- ☐ Air rack transfer
- ☐ Hook for hanging flower pot____kpl

water control

- ☐ Pipes___piece_____mm
- ☐ Point____kpl

Note!



Adderess: Kaitilankatu 11, 45130 Kouvola
Phone. +358(0)20 7403200

14.10.01.07.UK 1.12.2008
Made by: JSa Approved by: MLe

☐ Enclosure of order ☐ Confirmation ☐ Introductory delivery enquiry	Is connected to file number Project number / Appartment number	LUMON®
Representative	**Client**	
Adderess		**Page_____ / _____**

Filled with the confirmation / or when needed

PAYMENT CONDITION:	DELIVERY TIME:_____week_____year	PRICE,INCL. VAT 23 %: _____€

PLACE: _____ CLIENT _____

TIME: _____/_____ _____ SELLER: _____

Adderess: Kaitilankatu 11, 45130 Kouvola
Phone. +358(0)20 7403200

RECLAMATION ORDER FORM/ MATERIAL ORDER FORM	BALCONY GLAZINGS	LUMON
Foreman: phone: Installer: phone:	result unit: Delivery adderess: ☐ Stock: ☐ Site: Client/mark:	Order number Date: ☐ **Attachments** _______ **piece**

ORDER INCLUDES: ☐ PROFILES and GLASSES ☐ PROFILES ☐ GLASSES

FILL ALLWAYS

LUMON 5	☐ 11 22 2206	☐ 11 22 2207	☐ 11 22 1205	☐ 11 22 3001	☐ 11 22 3002	☐	Side seal	Blinds
	☐ 11 01 0705 L-60x60x6	☐ 11 01 0707 L-85x60x8	☐	☐	☐ between the glasses	☐	☐ 20 mm ☐ ☐ 30 mm ☐ ☐ ☐ + corner	☐ 90 22 0200 white transparent ☐ 90 22 0201 white non-stransparent ☐ 90 22 0202 gray ltransparent ☐ 90 22 0203 gray non-transparent

Glass: ☐ 6 mm ☐ 8 mm ☐ 10 mm

Profile color: ☐ RAL 9016 ☐ RAL 7024 ☐ RAL 9006 ☐ other color, RAL ________

Plastic color: ☐ Light gray ☐ dark gray

PROFILES AND GLASSES/ PROFILES

Balcony side number (facing out, numbers from left to right)

balcony side number	corner degree Ak/Jk/Lk	Glazing lenght (mm)	Profile lenght (mm)	Slide to end of the profile left	Slide to end of the profile right	Glazing hight (mm)	Opening end (facing out) left	Opening end (facing out) right	bypass the corner	Fixed glass width left /right	Upper mounting / Lower mounting	Glass color code	Latch with lock	Blind (facing out) quant-tity	Blind (facing out) To all glasses	Blind (facing out) Corner glass L / R
	/ /			☐	☐					☐ ☐			☐		☐	☐ ☐
				☐	☐				☐	☐ ☐			☐		☐	☐ ☐
				☐	☐				☐	☐ ☐			☐		☐	☐ ☐
				☐	☐				☐	☐ ☐			☐		☐	☐ ☐

GLASSES

Only glasses; glass dimensions without beads, all information given facing out

Width (mm)	Hight (mm)	Opening end (facing out) vas	Opening end (facing out) oik	peace	glass color code	Glass type 1.glass	Glass type 2.glass→	fixed glass	Seal edge L /R	Seal type	Seal type	Latch with lock	Blinds (facing out) quant-tity	Blinds (facing out) to all glasses	Blinds (facing out) corner glass L /R
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐
		☐	☐			☐	☐	☐	☐ ☐	☐	☐	☐		☐	☐ ☐

Reason for reclamation (X to square)

☐ 1. Measurers /orderers fault ☐ 4. Production ☐ 7. Other
☐ 2. Product plannings fault ☐ 5. Transportation
☐ 3. Glass factorys fault ☐ 6. Installation

Glass color code:
OF 88 clear; OF 72 green; OF 42 gray;
OF 50 brown; OF 87 Stippolyte; OF 85 Satinato

Delivery date

extra information write here more accurate reason

GENERAL INFORMATION

Lumon Balcony Glazing Systems are standardised structural components. Glass thicknesses and fastening methods must be designed in accordance with the conditions at the site.

The Balcony Glazing System are subject to the following loads: the system weight (in vertical direction) and the wind load, including wind pressure and suction (in horizontal direction).

The glass thickness is determined on the basis of the following factors: wind load kN/m² (terrain class and height of the building), width of individual panes and glazing height.

Check before installation that the structure to which the glazing system is to be fastened withstands the additional glazing load. Fastening methods must also be designed in accordance with the conditions at the site.

LOADS:

The Balcony Glazing system's own weight:

- glass panes 6 mm g=0,15 kN/m²
- glass panes 8 mm g=0,20 kN/m²
- glass panes 10 mm g=0,25 kN/m²

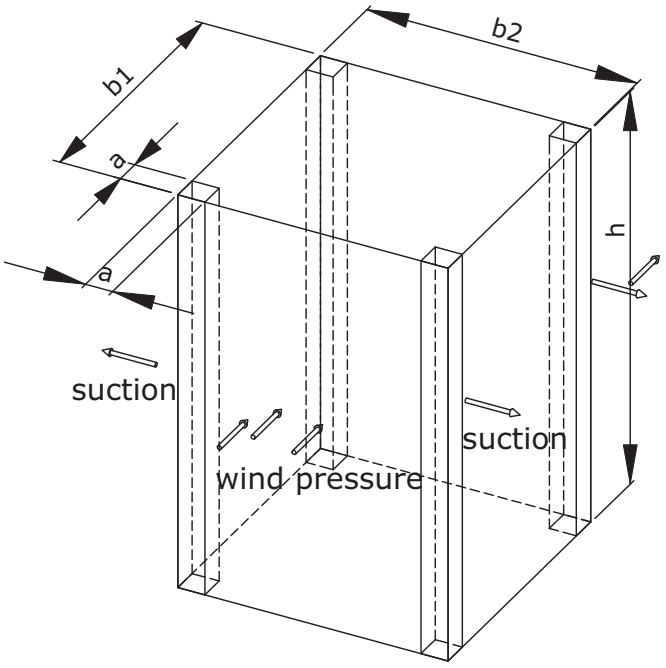
Wind pressure:

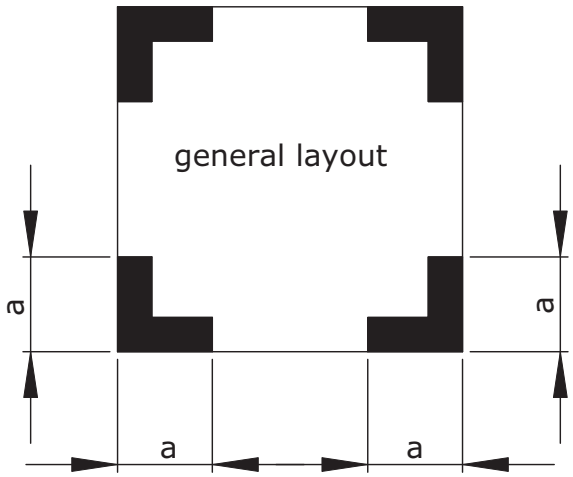
Specified by national wind maps and building regulations.

Wind suction load:

The corners of buildings, show as "a" in the figure below, are subject to wind suction loads higher than in other areas.

- Specified in national building regulations.





Maximum Glass Tension 50 N/mm. Partial Safety Factor for Wind load 1,5												
Panes Width [mm]				300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End				**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glazing Height ≤ 1500	Wind Pressure Qw [kN/m²]	≤ 0,8 kN/m²	Glass [mm]	6	6	6	6	6	6	6	6	6
		≤ 0,9 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,0 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,1 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,2 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,3 kN/m²		8	8	8	8	8	8	8	8	
		≤ 1,4 kN/m²		8	8	8	8	8	8	8		
		≤ 1,5 kN/m²		8	8	8	8	8	8			
		≤ 1,6 kN/m²		10	10	10	10	10				
		≤ 1,7 kN/m²		10	10	10	10	10				
		≤ 1,8 kN/m²		10	10	10	10					
		≤ 1,9 kN/m²		10	10	10	10					
		≤ 2,0 kN/m²		10	10	10						
Panes Width [mm]				300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End				**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glazing Height ≤ 1600	Wind Pressure Qw [kN/m²]	≤ 0,7 kN/m²	Glass [mm]	6	6	6	6	6	6	6	6	6
		≤ 0,8 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 0,9 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,0 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,1 kN/m²		8	8	8	8	8	8	8	8	8
		≤ 1,2 kN/m²		8	8	8	8	8	8	8	8	
		≤ 1,3 kN/m²		8	8	8	8	8	8	8		
		≤ 1,4 kN/m²		10	10	10	10	10	10			
		≤ 1,5 kN/m²		10	10	10	10	10				
		≤ 1,6 kN/m²		10	10	10	10	10				
		≤ 1,7 kN/m²		10	10	10	10					
		≤ 1,8 kN/m²		10	10	10	10					
		≤ 1,9 kN/m²		10	10	10						
		≤ 2,0 kN/m²		10	10	10						
Panes Width [mm]				300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End				**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glazing Height ≤ 1700	Wind Pressure Qw [kN/m²]	≤ 0,6 kN/m²	Glass [mm]	6	6	6	6	6	6	6	6	6
		≤ 0,7 kN/m²		8	8	8	8	8	8	8	8	
		≤ 0,8 kN/m²		8	8	8	8	8	8	8	8	
		≤ 0,9 kN/m²		8	8	8	8	8	8	8	8	
		≤ 1,0 kN/m²		8	8	8	8	8	8	8	8	
		≤ 1,1 kN/m²		8	8	8	8	8	8	8	8	
		≤ 1,2 kN/m²		8	8	8	8	8	8	8		
		≤ 1,3 kN/m²		10	10	10	10	10	10			
		≤ 1,4 kN/m²		10	10	10	10	10				
		≤ 1,5 kN/m²		10	10	10	10	10				
		≤ 1,6 kN/m²		10	10	10	10					
		≤ 1,7 kN/m²		10	10	10	10					
		≤ 1,8 kN/m²		10	10	10						

Check local requirements of Glass Tension, Safety Factor and Wind Pressure.

Maximum Glass Tension 50 N/mm. Partial Safety Factor for Wind load 1,5											
Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glazing Height ≤ 1800	Wind Pressure Qw [kN/m²]	≤ 0,5 kN/m²	6	6	6	6	6	6	6	6	6
		≤ 0,6 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,7 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,8 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,9 kN/m²	8	8	8	8	8	8	8	8	
		≤ 1,0 kN/m²	8	8	8	8	8	8	8	8	
		≤ 1,1 kN/m²	10	10	10	10	10	10	10		
		≤ 1,2 kN/m²	10	10	10	10	10	10			
		≤ 1,3 kN/m²	10	10	10	10	10				
		≤ 1,4 kN/m²	10	10	10	10	10				
		≤ 1,5 kN/m²	10	10	10	10					
		≤ 1,6 kN/m²	10	10	10	10					
		Glass [mm]									
Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glazing Height ≤ 1900	Wind Pressure Qw [kN/m²]	≤ 0,5 kN/m²	6	6	6	6	6	6	6	6	6
		≤ 0,6 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,7 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,8 kN/m²	8	8	8	8	8	8	8	8	
		≤ 0,9 kN/m²	8	8	8	8	8	8	8	8	
		≤ 1,0 kN/m²	10	10	10	10	10	10	10		
		≤ 1,1 kN/m²	10	10	10	10	10	10	10		
		≤ 1,2 kN/m²	10	10	10	10	10	10			
		≤ 1,3 kN/m²	10	10	10	10	10				
		≤ 1,4 kN/m²	10	10	10	10					
		Glass [mm]									
Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
Glasstusk. ≤ 2000	Wind Pressure Qw [kN/m²]	0,4 kN/m²		6	6	6	6	6	6	6	6
		≤ 0,5 kN/m²		8	8	8	8	8	8		
		≤ 0,6 kN/m²		8	8	8	8	8	8		
		≤ 0,7 kN/m²		8	8	8	8	8	8		
		≤ 0,8 kN/m²		8	8	8	8	8	8		
		≤ 0,9 kN/m²		10	10	10	10	10	10		
		≤ 1,0 kN/m²		10	10	10	10	10	10		
		≤ 1,1 kN/m²		10	10	10	10	10			
		≤ 1,2 kN/m²		10	10	10	10				
		≤ 1,3 kN/m²		10	10	10					
		Glass [mm]									

Check local requirements of Glass Tension, Safety Factor and Wind Pressure.

Maximum Glass Tension 50 N/mm. Partial Safety Factor for Wind load 1,5

Glazing Height ≤ 2100 — Wind Pressure Qw [kN/m²]	Glass [mm]	300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
0,4 kN/m²			6	6	6	6	6	6	6	
≤ 0,5 kN/m²			8	8	8	8	8	8		
≤ 0,6 kN/m²			8	8	8	8	8	8		
≤ 0,7 kN/m²			8	8	8	8	8	8		
≤ 0,8 kN/m²			10	10	10	10	10	10		
≤ 0,9 kN/m²			10	10	10	10	10	10		
≤ 1,0 kN/m²			10	10	10	10	10	10		
≤ 1,1 kN/m²			10	10	10	10	10			
≤ 1,2 kN/m²										
≤ 1,3 kN/m²										
≤ 1,4 kN/m²										
≤ 1,5 kN/m²										
≤ 1,6 kN/m²										
≤ 1,7 kN/m²										

Glazing Height ≤ 2200 — Wind Pressure Qw [kN/m²]	Glass [mm]	300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
0,4 kN/m²			8	8	8	8	8	8		
≤ 0,5 kN/m²			8	8	8	8	8	8		
≤ 0,6 kN/m²			8	8	8	8	8	8		
≤ 0,7 kN/m²			10	10	10	10	10			
≤ 0,8 kN/m²			10	10	10	10	10			
≤ 0,9 kN/m²			10	10	10	10	10			
≤ 1,0 kN/m²			10	10	10	10				
≤ 1,1 kN/m²										
≤ 1,2 kN/m²										
≤ 1,3 kN/m²										
≤ 1,4 kN/m²										
≤ 1,5 kN/m²										

Glazing Height ≤ 2300 Lower Profile on the Floor — Wind Pressure Qw [kN/m²]	Glass [mm]	300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End		**3**	**4**	**5**	**6**	**7**	**8**	**9**	**8**	**7**
0,4 kN/m²			8	8	8	8	8	8		
≤ 0,5 kN/m²			8	8	8	8	8	8		
≤ 0,6 kN/m²			8	8	8	8	8	8		
≤ 0,7 kN/m²			10	10	10	10	10			
≤ 0,8 kN/m²			10	10	10	10	10			
≤ 0,9 kN/m²			10	10	10	10	10			
≤ 1,0 kN/m²										
≤ 1,1 kN/m²										
≤ 1,2 kN/m²										
≤ 1,3 kN/m²										
≤ 1,4 kN/m²										

Check local requirements of Glass Tension, Safety Factor and Wind Pressure.

Maximum Glass Tension 50 N/mm. Partial Safety Factor for Wind load 1,5

Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			3	4	5	6	7	8	9	8	7
Glazing Height ≤ 2400 Lower Profile on the	Wind Pressure Qw [kN/m²]	0,4 kN/m²		8	8	8	8	8	8		
		≤ 0,5 kN/m²		8	8	8	8	8	8		
		≤ 0,6 kN/m²		10	10	10	10	10			
		≤ 0,7 kN/m²		10	10	10	10	10			
		≤ 0,8 kN/m²		10	10	10	10	10			
		≤ 0,9 kN/m²		10	10	10	10	10			
		≤ 1,0 kN/m²									
		≤ 1,1 kN/m²									
		≤ 1,2 kN/m²									
	Glass [mm]										

Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			3	4	5	6	7	8	9	8	7
Glazing Height ≤ 2500 Lower Profile on the Floor	Wind Pressure Qw [kN/m²]	0,4 kN/m²			8	8	8	8	8		
		≤ 0,5 kN/m²			8	8	8	8	8		
		≤ 0,6 kN/m²			10	10	10	10			
		≤ 0,7 kN/m²			10	10	10	10			
		≤ 0,8 kN/m²			10	10	10	10			
		≤ 0,9 kN/m²									
		≤ 1,0 kN/m²									
		≤ 1,1 kN/m²									
	Glass [mm]										

Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			3	4	5	6	7	8	9	8	7
Glazing Height ≤ 2600 Lower Profile on the Floor	Wind Pressure Qw [kN/m²]	0,4 kN/m²			8	8	8	8	8		
		≤ 0,5 kN/m²			10	10	10	10			
		≤ 0,6 kN/m²			10	10	10	10			
		≤ 0,7 kN/m²			10	10	10	10			
		≤ 0,8 kN/m²									
		≤ 0,9 kN/m²									
		≤ 1,0 kN/m²									
	Glass [mm]										

Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			3	4	5	6	7	8	9	8	7
G. Height ≤ 2700 L.Prof. on the Floor	Wind Pressure Qw [kN/m²]	0,4 kN/m²			8	8	8	8			
		≤ 0,5 kN/m²			10	10	10				
		≤ 0,6 kN/m²			10	10	10				
		≤ 0,7 kN/m²			10	10	10				
		≤ 0,8 kN/m²									
	Glass [mm]										

Panes Width [mm]			300-380	380-460	460-540	540-620	620-700	700-780	780-840	840-900	900-960
Max. N° of Panes at Opening End			3	4	5	6	7	8	9	8	7
G. Height ≤ 2800 L.Prof. on the Floor	Wind Pressure Qw [kN/m²]	0,4 kN/m²			10	10	10				
		≤ 0,5 kN/m²			10	10	10				
		≤ 0,6 kN/m²			10	10	10				
		≤ 0,7 kN/m²									
		≤ 0,8 kN/m²									
	Glass [mm]										

Check local requirements of Glass Tension, Safety Factor and Wind Pressure.

Standard Colors (price group 1)

RAL 7024 Graphite gray
RAL 9006 White aluminium
RAL 9016 Traffic white

Lumon Colors: (price group 2)

RAL 1013 Oyster white
RAL 3003 Ruby red
RAL 3007 Black red
RAL 3011 Brown red
RAL 5013 Cobalt blue
RAL 6005 Moss green
RAL 7031 Blue gray
RAL 7040 Window gray
RAL 8004 Copper brown
RAL 8016 Mahogany brown
RAL 8019 Gray brown
RAL 9005 Jet black
RAL 9010 Pure white

Other Colors: (price group 3)

RAL 1000	RAL 2000	RAL 3000	RAL 4001	RAL 5000	RAL 6000	RAL 7000	RAL 8000
RAL 1001	RAL 2001	RAL 3001	RAL 4002	RAL 5001	RAL 6001	RAL 7001	RAL 8001
RAL 1002	RAL 2002	RAL 3002	RAL 4003	RAL 5002	RAL 6002	RAL 7002	RAL 8002
RAL 1003	RAL 2003	RAL 3004	RAL 4004	RAL 5003	RAL 6003	RAL 7003	RAL 8003
RAL 1004	RAL 2004	RAL 3005	RAL 4005	RAL 5004	RAL 6004	RAL 7004	RAL 8007
RAL 1005	RAL 2008	RAL 3009	RAL 4006	RAL 5005	RAL 6006	RAL 7005	RAL 8008
RAL 1006	RAL 2009	RAL 3012	RAL 4007	RAL 5007	RAL 6007	RAL 7006	RAL 8011
RAL 1007	RAL 2010	RAL 3013	RAL 4008	RAL 5008	RAL 6008	RAL 7008	RAL 8012
RAL 1011	RAL 2011	RAL 3014	RAL 4009	RAL 5009	RAL 6009	RAL 7009	RAL 8014
RAL 1012	RAL 2012	RAL 3015	RAL 4010	RAL 5010	RAL 6010	RAL 7010	RAL 8015
RAL 1014	RAL 2013	RAL 3016	RAL 4011	RAL 5011	RAL 6011	RAL 7011	RAL 8017
RAL 1015		RAL 3017	RAL 4012	RAL 5012	RAL 6012	RAL 7012	RAL 8022
RAL 1016		RAL 3018		RAL 5014	RAL 6013	RAL 7013	RAL 8023
RAL 1017		RAL 3020		RAL 5015	RAL 6014	RAL 7014	RAL 8024
RAL 1018		RAL 3022		RAL 5017	RAL 6015	RAL 7015	RAL 8025
RAL 1019		RAL 3027		RAL 5018	RAL 6016	RAL 7016	RAL 8028
RAL 1020		RAL 3031		RAL 5019	RAL 6017	RAL 7021	RAL 8029
RAL 1021		RAL 3032		RAL 5020	RAL 6018	RAL 7022	
RAL 1023		RAL 3033		RAL 5021	RAL 6019	RAL 7023	
RAL 1024				RAL 5022	RAL 6020	RAL 7026	RAL 9001
RAL 1027				RAL 5023	RAL 6021	RAL 7030	RAL 9002
RAL 1028				RAL 5024	RAL 6022	RAL 7032	RAL 9003
RAL 1032				RAL 5025	RAL 6024	RAL 7033	RAL 9004
RAL 1033				RAL 5026	RAL 6025	RAL 7034	RAL 9007
RAL 1034					RAL 6026	RAL 7035	RAL 9011
RAL 1035					RAL 6027	RAL 7036	RAL 9017
RAL 1036					RAL 6028	RAL 7037	RAL 9018
					RAL 6029	RAL 7038	RAL 9022
					RAL 6032	RAL 7039	RAL 9023
					RAL 6033	RAL 7042	
					RAL 6034	RAL 7043	
					RAL 6035	RAL 7044	
					RAL 6036	RAL 7045	
						RAL 7046	
						RAL 7047	
						RAL 7048	

SOUND INSULATION

TAUBERT und RUHE
Research report 1675 / 94
Audio-technical test report DIN 52210

Abstract: A Lumon balcony glazing system was tested in Hamburger on a balcony with inside dimensions of 4,900 x 1,550 mm. The width of the 6 mm balcony glazing was 5,350 mm, and its height was 1,450 mm. The test was carried out using sound-wave measuring methods so that the level of noise caused outside the balcony was measured from inside the balcony glazing. The gaps in the balcony glazing were closed for the test. The difference between the noise volume outside the balcony and on the balcony was 12 dB. A 10 dB decrease means that the perceived noise level is lowered by 50 %; the refore, the balcony glazing had a considerable effect on the noise level.

VIATEK Tampere
Field measurements in 2000
Sound insulation of a balcony glazing system

Abstract: Lumon balcony glazing systems were tested in the city of Tamp0ere on five balconies against road traffic noise and on four balconies against rail traffic noise. The glazing systems included straight balconies with glazing on one side only and corner balconies. Glass thicknesses were 6 or 8 mm. The noise measured was real noise. The number of panes and the shape of the balcony (straight vs. corner balcony), the tightness of the structures and the materials used on the balconies had some effect on the measurement results. The difference between the road traffic noise levels measured outside and inside the balconies was 8-10 dB, and for rail traffic it was 8-12 dB. The change of glass thickness from 6 mm to 8 mm has an average effect of 1.8 dB.

ENGINEERING OFFICE Heikki Helimäki Oy
Research report 3371 / 06
Sound insulation of Lumon 3 balcony glazing system

Abstract: Lumon 3 balcony glazing system was tested in the city Vantaa near of road Kehä III. The test was carried out using sound wave measuring methods. Measuring was made according to standard ISO 140-5. The gaps between balustrade facing panels were closed for the test. The difference between the noise levels measured outside and inside the balconies was 15-20 dB.

Warranty Clauses for Lumon Balcony Glazing System

Scope of Warranty
The warranty includes repair of defects caused by material and workmanship and the materials used in the repair.

Warranty Preconditions
The warranty is valid provided that the customer approves the delivery. If the customer is not present at the time of installing and does not make a complaint within seven (7) days of the installation, the delivery is considered as accepted and the warranty period begins.

Warranty Period
The warranty period begins once the warranty preconditions are fulfilled. The warranty period is five (5) years for materials, workmanship and two (2) years for installation (installation only by Lumon Companies) starting from the product acceptance or introduction.
The manufacturer guarantees availability of spare parts for 10 years after having stopped producing the product.

Warranty period of blinds is two (2) years. Blind manufacturer grant a warranty.

Restrictions of Warranty

Warranty does not cover

- cleaning after delivery of work results or actual introduction
- work resulting from the balcony glazing and the associated structures getting dirty in course of time
- breaking caused by incorrect use or malicious damage
- adjustments, repair and replacement of parts due to normal wear and tear, negligence on behalf of the customer or the resident, or incompliance with the user instructions.
- damage due to subsidence of structures, abnormal strain to the glazing, a sudden nonpredictable
event effecting the product, or a natural catastrophe.
- alterations, repair or re-installation unapproved by the manufacturer or the retailer
- blinds or other accessories, or separate complementing structures
- patterns that may occur in the surface of toughened glass
- solutions that do not comply with Lumon technical file

It is not allowed to coat toughened safety glass with film. If the film is attached Lumon Oy is not in charge of costs and damages which is caused of glass panes breaking or dropping.

Glass has been toughened according to standards EN 12150-1 and EN 572-8.

Lumon Oy
Kaitilankatu 11
45130 Kouvola
Finland
Company ID: FI2254449-8
Registered Office: Kouvola

Manufacturer's Warranty Clauses for Lumon Balcony Glazing System

Scope of Warranty
Warranty covers defects resulting from the materials and manufacturing of Lumon Balcony Glazing System. A compensatory components will be shipped free of charge and carriage through standard delivery channels without delay.

Lumon reserves the right to
- inspect the faulty components at the installation site, in the retailer's premises
- send the components on request to the manufacturing plant, carriage forward
- get involved into repair work, product replacement or other related decisions
- charge the costs of any groundless complaints

Warranty preconditions
The warranty is valid provided that the retailer approves the delivery. The delivery is considered as accepted if a complaint report has not been submitted in writing in sevent (7) days of the acceptance of the product.

Warranty period
The warranty period begins once the warranty preconditions are fulfilled. The warranty period is five (5) years for materials and workmanship.
The manufacturer guarantees availability of spare parts for 10 years after having stopped producing the product.

Restrictions of warranty

Warranty does not cover

- damages to the product after the delivery
- original installing work
- breaking or malfunction of componentss as a result of incorrect installation
- alterations unapproved by the manufacturer
- damage due to subsidence or shifting of structures, abnormal strain to the glazing, a sudden non-predictable event effecting the product, or a natural catastrophe.
- damages due to negligent or incorrect use of the product
- warranty repair work or the related travel costs or other indirect costs
- solutions that do not comply with Lumon technical file
- patterns that occur in the surface of toughened glass

It is not allowed to coat toughened safety glass with film. If the film is attached Lumon Oy is not in charge of costs and damages which is caused of glass panes breaking and dropping.

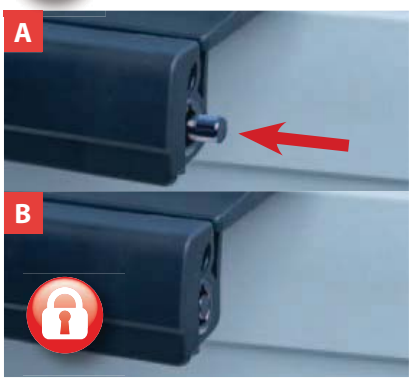
Glass has been toughened according to standards EN 12150-1 and EN 572-8.

Lumon Oy
Kaitilankatu 11
45130 Kouvola
Finland
Company ID: FI2254449-8
Registered Office: Kouvola

Käyttöohjeet Instructions for Use **Manual de uso** Betriebsanweisung
Manual de Instruções Notice d´emploi **Bruksanvisning** Brugervejledning
Leibeiningar Правила эксплуатации и ухода




EXTRA

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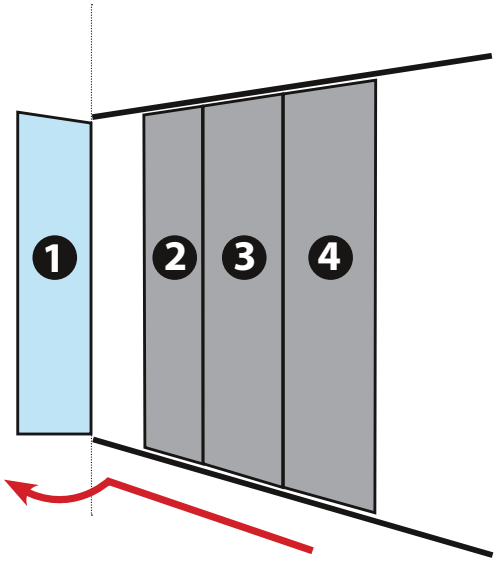
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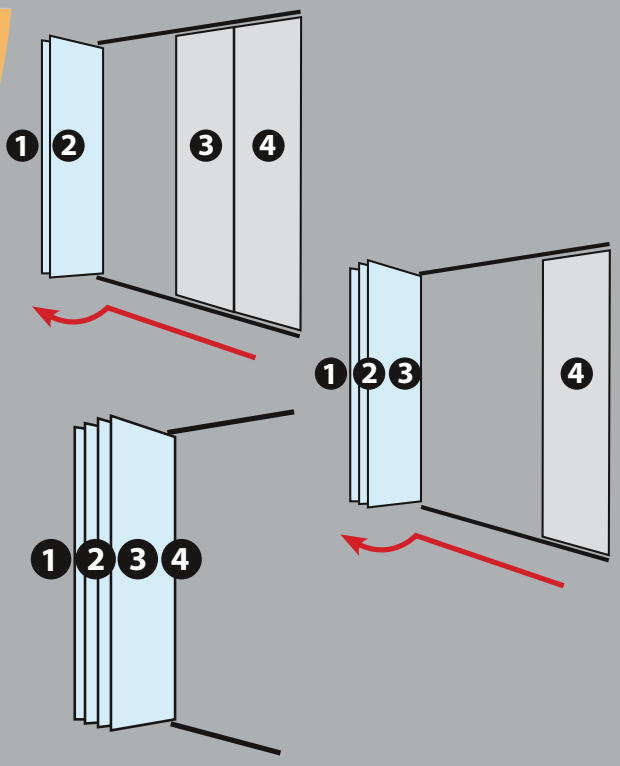
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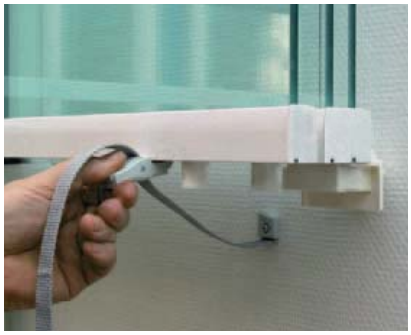


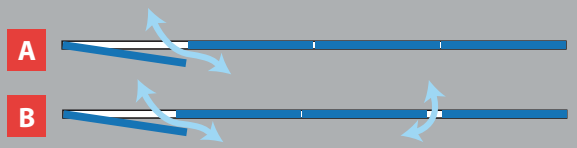
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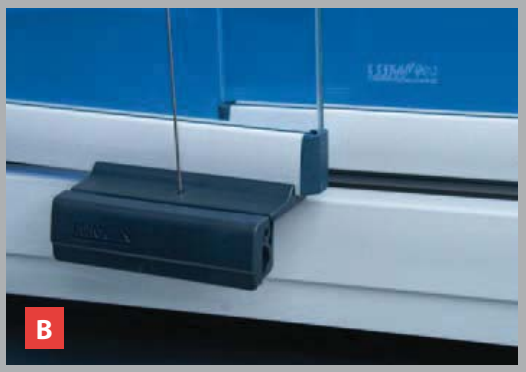
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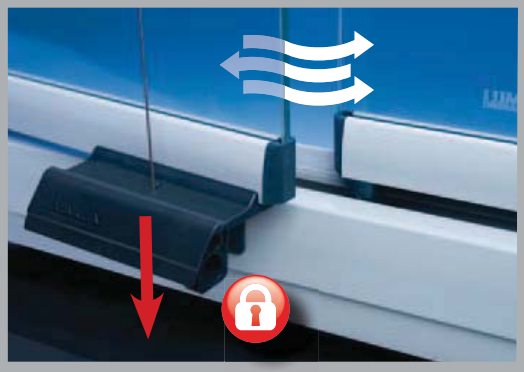

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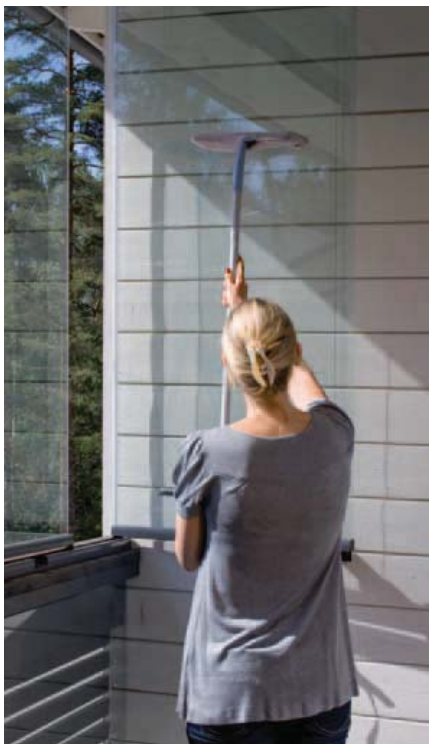


Parvekelasit asensi / Balkonginglasningen har monterats av / Balkonginnglassingen er montert av / Altaninddækningen monteret af / Framkvæmdaraðili / Балконное остекление установил
Your balcony glazing system was installed by / Sus cristales han sido instalados por / Ihre Balkonverglasung wurde montiert durch / Os vidros de sacada foram instalados por / Vitrage de balcon posé par

Jälleenmyyjä / Återförseljare / Videreforhandler / Forhandler / Söluaðili / Партнёр Dealer / El distribuidor oficial / Ihr Wiederverkäufer / Revendedor / Revendeur

Valmistaja / Tillverkare / Produsent / Producent / Framleiðandi / Производитель / Producer / Fabricante / Producent / Fabricante / Fabriqué par
Lumon Oy, Kaitilankatu 11, FIN-45130 Kouvola, Finland,
tel +358 20 7403 200, fax +358 20 7403 393, info@lumon.fi

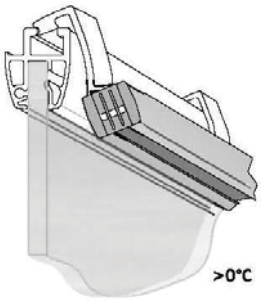
ESII 13-0801-0904 INT

The sun protective curtain

Wash

Blinds are 100% polyester. You can wash them by hand using mild usual home cleaning liquide.

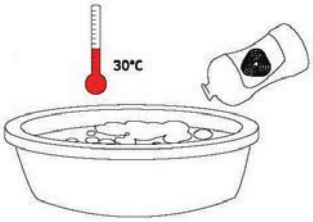
1.- 2.



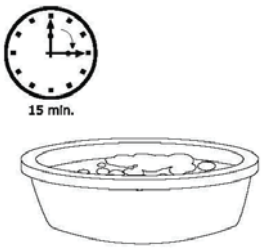
1. Lift blind upright position

2. Blind is loosend from the upper and lower clamp. Slide the blind sideways when it releases.

3.1

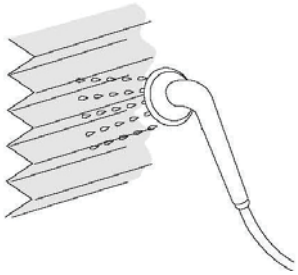


3.2



3. wash the blind in lukewarm 30 degree water and flush it carefully.

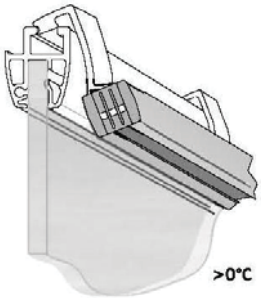
3.3



4.

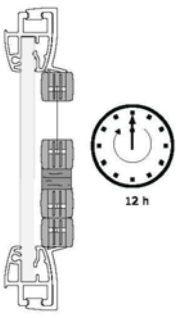
4. Lift the bilnd in closed position.

5.



5. Replace the blind back to the upper clamp.

6.



6. Open and close the blind for drying it. Leave it for 12 hours before fasten it to the lower clamp.

Quality Specifications for Toughened Glass Manufactured by Lumon

1. General

Lumon Oy uses glass that conforms to the standard quality level of building glass, which is regulated with strict quality standards. The currently applied quality assurance instructions are prepared in accordance with standard EN 572-2. The instructions also take into account standard EN 572-8 for cut glass (Supplied and final cut sizes). Lumon manufactures tempered glass according to standard EN 12150-1.

2. Inspection

These instructions are for toughened or laminated glass delivered by Lumon Oy. Unless otherwise specified, the quality of glass is inspected from a distance of two metres in normal daylight, against a homogeneous background, and perpendicularly. Normal daylight refers to sunlight, however, not direct sunlight to the glass. The glass must be inspected when it's dry. Misted glass may show amorphous patterns because of surface tension.

3. Assessment of Quality

3.1 Optical Distortion

When examined in close range, slight optical distortion characteristically occurs in toughened glass. Especially distortion in the fringe areas is allowable.

3.2 Point Defects

Point defects with diameter less than 0.5mm are innate properties of glass.
Two defects with diameter of 0.5-1.0 mm are allowable in any parts of the glass provided that their relative distance is not less than 500 mm. Point defects measuring over 1.0 mm in diameter are not allowable anywhere in the glass.

3.3 Scratches

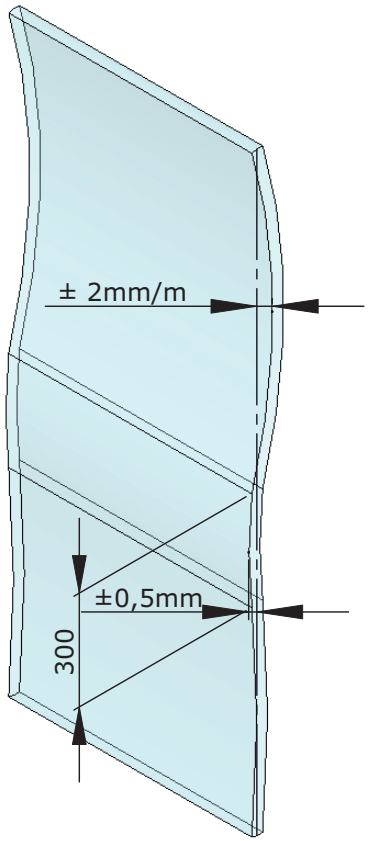
Transparent scratches up to 150 mm are allowable, but not closer than within relative distance of 500 mm.
Deep scratches detectable from a 2 metre distance under the specified conditions shall not be wider than 0.5 mm and/or 5 mm long. One deep scratch per glass is allowable. Scratches that are smaller than the above measurements can be characteristic to glass and therefore allowable**.**

3.4 Edge Finishing

The visible edges of glass are polished to a rounded edge according to standard EN ISO 12543-1. Clearly detectable cracks totalling over 50 mm on each edge are not allowable.

3.5 Overall and Local Bow

Toughened glass has a slight innate bow. Standard EN 12150-1 allows overall bow not exceeding ± 3 mm/m. Local bow of ± 0.5 mm can occur over length of 300 mm. Local bow is measured by using a straight 300 mm metal ruler placed on the surface of the glass. Overall bow can be determined similarly by placing a straight ruler over the entire surface of the glass. Lumon Oy has specified even stricter total dimensional tolerances for balcony glazing, which is measured at the manufacturing plant. Tempered glass delivered by Lumon Oy must have an overall bow of less than ± 2 mm/m.



3.6 Other Defects in Surface

Dimness of glass due to alkali-silicate on the surface is not allowable. Such glass has lost its polish and it is less transparent.
So called anisotropy phenomenon may occur in toughened glass. This is a normal property of glass and therefore allowable. The phenomenon becomes visible in certain conditions as "leopard spots" caused by stress in the glass.
Dirt and stranding are normal, but they should not be visible in a correctly cleaned glass from a distance over 2 metres. If the dirt cannot be removed, the manufacturing plant should be contacted for reference of a suitable detergent.
Misting may show patterns that result from different surface tensions over the glass. Please contact the manufacturing plant for reference of a correct cleaning method.

3.7 Tolerance Limits for Dimensions

The dimensional tolerance of the glass panes is determined according to standard EN 572-8:

Length of Edge	Glass Pane Thickness 3-6mm	8-12mm
≤ 1,5 m	±1,0mm	±1,5 mm
1,5≤ 3,0 m	±1,5 mm	±2,0mm

Lumon Oy has determined the following dimensional tolerances for glass panes applied in glazing system: glass pane thickness 6 mm: **±1.0 mm** and glass pane thickness 8-10 mm: **±1.5 mm.**
Cross-dimensional tolerances for individual panes are: Glass pane thickness 6 mm: **± 2.0 mm** and glass pane thickness 8-10 mm: **± 3.0 mm.**

Quality Specifications for Laminated Glass Manufactured by Lumon Oy

1. General

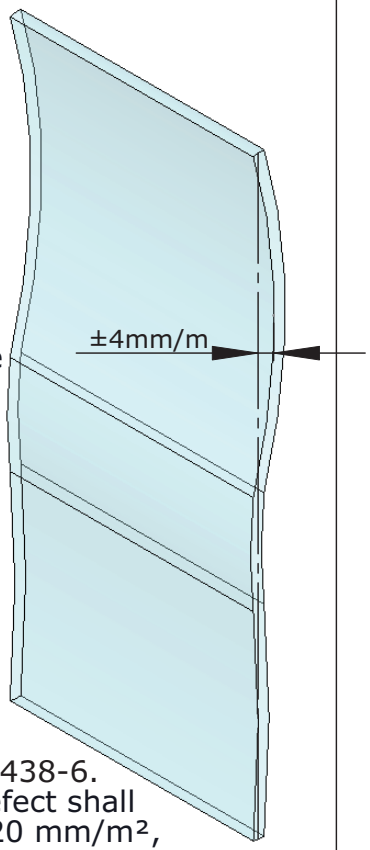
These specifications apply to finished laminated glass panes and the defects on their see-through area.

2. Definitions

Point defects including dull spots, seeds and foreign particles, hairline defects include scratches in glass and film. Other defects include creases, stripes or contract of laminating film.

3. Defects in the See-trough Area

Point defects < 0.5 mm in laminated glass are not observed. Defects >3.0 mm are not allowable. The number of defects < 1.0 mm is not restricted provided that their relative distance is > 400 mm. One point defect measuring 1.0-3.0 mm is allowable per square metre. Hairline defects (i.e. scratches) measuring >30 mm are not allowable. Hairline defects measuring < 30 mm are allowable provided that their relative distance is not shorter than 200 mm.
Any foreign particles such as hairs are not allowable in laminated glass.



4. Defects in the Fringe Area

In laminated glass to be framed, 15 mm from the edge of the glass is deemed the fringe area. Point defects of 5 mm are allowable in the fringe area or around holes. Laminated glass panes not intended for framing must have finished (arrissed edge with blank spots or ground edge with blank spots), polished, or faceted edges according to standard EN ISO 12543-5. Thus seeds, blemishes and contract of laminating film etc. are allowable, if they are not detectable when an upright glass pane is inspected from a distance of two metres, against a pale matte-finished wall in daylight (not in direct sunlight).

5. Overall Bow in Laminated Glass

The tolerance for overall bow in laminated glass is ± 4 mm/m.

Quality Specifications for Building Boards

Quality specifications for building board panes are based on standard EN 438-6. Panes are inspected within distance of 1.5 m. The size of an individual defect shall not exceed 2 mm²/m². The allowable total number of surface defects is 20 mm/m², and the allowable cracks on edges totals 3 mm.

Quality Requirements for Aluminium Profiles Used in Lumon Oy's Products

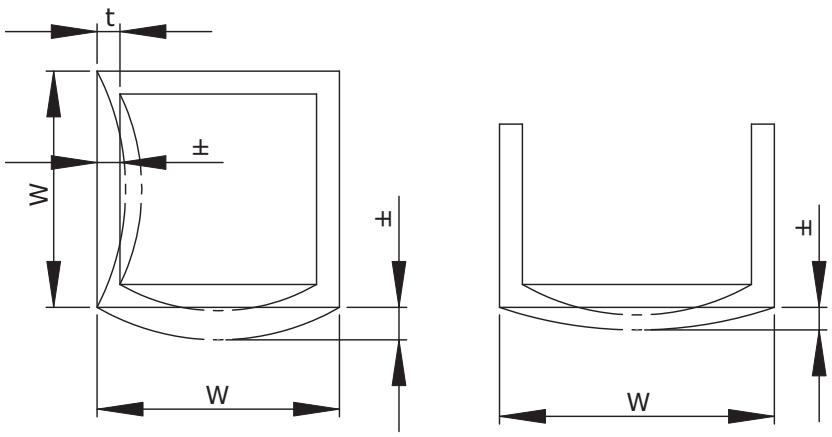
1. Surface Quality

Profiles must not show obtrusive surface defects when inspected from a distance of 5 m. Visible surfaces of the profile at end product must not show obtrusive defects when inspected from an arm's length (60 cm). According to GSB specifications, the thickness of paint coating shall be 60 - 120 µm.
Inspection distances for finished products are:
- 1 m indoors
- 5 m outdoors.

2. Dimensional and Shape Tolerances of Aluminium Profiles

Straightness and shape tolerances for the special profiles used in the products are presented in the profile product cards.
In standard profiles (L-shaped corners, rectangular profiles etc.) the overall straightness tolerance is ±1,5mm/m, and locally not more than 0,6 mm/ 300 mm.
Tolerances for convexity and concavity of profiles are determined according to the shape and width of the profile. The allowable values for open profiles are presented in the last column of the table below.
In closed profiles, another factor contributing to tolerance values in addition to profile width is the thickness of the profile bevel (t). Tolerances for closed profiles are presented in the middle column of the table below. W represents the width of the profile bevel.

W [mm]		t [mm]		⌊
min.	max.	max. 5	min. 5	
0	30	±0,30	±0,20	±0,20
30	60	±0,40	±0,30	±0,30
60	100	±0,60	±0,40	±0,40
100	150	±0,90	±0,60	±0,60
150	200	±1,2	±0,80	±0,80
200	300	±1,8	±1,2	±1,2
300	400	±2,4	±1,6	±1,6



3. Tolerances for Sawing and Tooling, Dimensional Tolerances for a Finished Product

Tolerance in sawing and tooling aluminium profiles is ± 0,5 mm.
Overall dimensional tolerances of finished Lumon products are:
- Lumon balustrade ± 5 mm
- Terrace door pane ± 1 mm.

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