

E1600

E75

TECHNICAL CATALOGUE

GLASS BALUSTRADE SYSTEMS

E85

E68

EB46

Q72

EB49

ES70

EB50

EP30

EB62

E45

E8000



EB46/49/50/62

GLASS BALUSTRADE THE SYSTEMS

TABLE OF CONTENTS

EB46/49/50/62

GENERAL INFORMATION	page 9
TABLES	page 13
PROFILES	page 17
SECTIONS	page 25
GLAZING OPTIONS	page 35
MACHINING	page 39
ACCESSORIES	page 53

ETEM HISTORY

ETEM is a leading aluminium extrusion company. It was founded in 1971 as a part of the largest metal manufacturing holding on the Balkans. With over 40 years of experience ETEM is the first fully integrated designer and producer of architectural systems and aluminium profiles for industrial applications.

Our mission is to listen and promptly respond to our customers' requests and design and manufacture aluminium products and systems, taking into consideration technical and aesthetic requirements.

ETEM focuses on sustainable development and has proven its concern about the protection of the natural environment by making considerable investments in anti-pollution measures and by optimizing production processes via the Optimum Available Techniques of the European Union.

SERVICES WE PROVIDE

▷ **Design & Engineering** - ETEM creates catalogue and tailor made solutions that can be easily combined into entire building envelopes, if needed. We have a broad portfolio of façades, curtain wall module systems, adaptive modular solutions, sunshading systems, claddings, rain screens and other deliberated engineering solutions.

▷ **Testing & Certification** - In order to secure a smooth service life of a building, we don't leave anything to chance. You can be sure that our systems have been tested in advance in every imaginable real-life situation as well as in exceptional extreme circumstances. We produce mock-ups and prototypes of our solutions.

▷ **Analysis & Specification** - Building physics and technical requirements are taken into serious consideration at the very initial project stage. ETEM always minimizes the risk of mistakes at early stage by making analyses and specifications. We are applying the holistic approach while observing the building envelope as a whole and involving all related participants in the process in a multidisciplinary team.

▷ **Development & Innovation** - Thinking ahead starts for us in the present. That's why we make preliminary energy and thermal simulations and calculate energy saving variants like different shading concepts or possibilities for the generation of solar energy from the façade in advance and integrate them already in the construction process of a building, for a future optimization of its energy expenses.

▷ **Communication & Coordination** - Every project's success depends on the skills and ambitions of experts and people from different fields of knowledge. At ETEM we make sure to coordinate suppliers and contractors and facilitate the communication between architects, developers, constructors and investors. We can also act as a supervisor throughout the bidding process to keep all the process controlled, we can supervise the entire installation process and conduct site inspections, whenever required.

ETEM PRODUCTS AND SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS.*

For many, sustainable development is about environmental conservation. This is true but it also includes two other aspects: a social aspect and an economic aspect.

Sustainable development means striking the right balance between economic development, social equity and environmental protection.

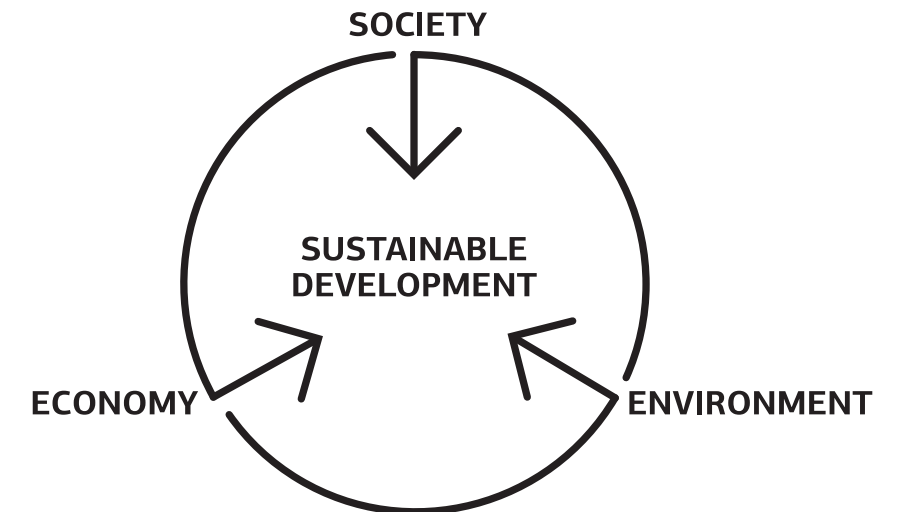
For us meeting this objective translates into the challenge of satisfying market demands at the lowest economic, social and environmental cost possible.

ETEM has always designed architectural systems which are in compliance with all requirements for achieving high energy efficiency.

In order to assure the comfort of the building inhabitants, ETEM systems adapt their functions to the changing environment.

As a moderator between outside and inside our systems provide:

- › ENERGY EFFICIENCY
- › DAYLIGHT
- › SUN-SHADING
- › VENTILATION AND GOOD AIR QUALITY
- › SAFETY AND SECURITY



GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES



EB46 FLOOR INTERGRATED GLASS BALUSTRADE SYSTEM

EB46 IS A GLASS BALUSTRADE SYSTEM WITH A 46mm WIDTH ALUMINIUM BASE ABLE TO BE INTERGRATED INTO THE FLOOR FEATURING A FLASH GROUND RESULT. TWO DIFFERENT THICKNESSES OF GLASS INFILL CAN BE USED.

- Frameless glass balustrade system
- Aluminium base of 46mm width
- Two glass infill options (17.5mm & 21.5mm)
- Flash Installation into the finished floor level
- The base remains covered during concrete's pouring
- Simple installation & easy maintenance
- Ideal for both residential areas and areas susceptible to overcrowding
- Suitable for both internal & external areas



EB49 GLASS BALUSTRADE SYSTEM

EB49 IS A GLASS BALUSTRADE SYSTEM WITH A 49mm WIDTH ALUMINIUM BASE AND WITHOUT ADDITIONAL VERTICAL SUPPORT. TWO DIFFERENT THICKNESSES OF GLASS INFILL CAN BE USED. IT CAN BE INSTALLED ON OR INTO THE FLOOR LEVEL.

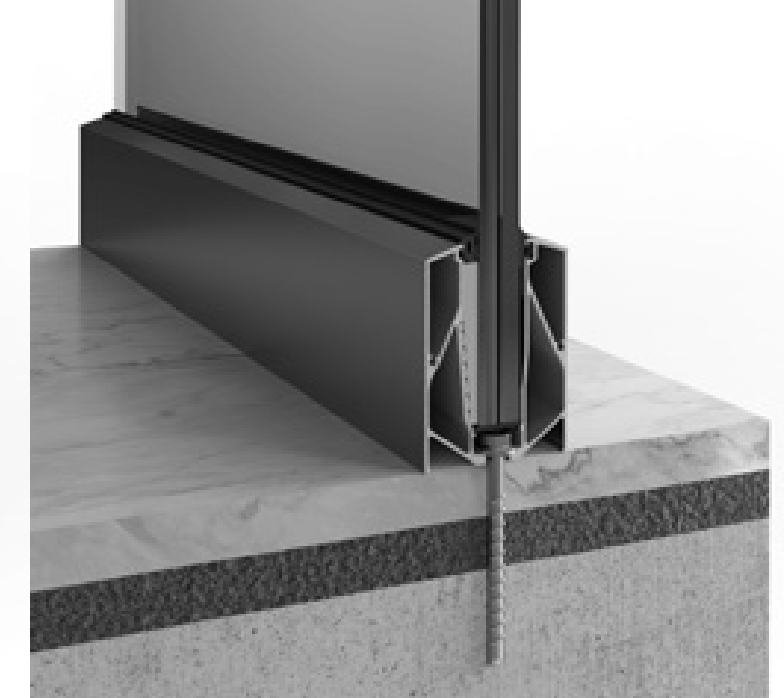
- Frameless glass balustrade system
- Aluminium base of 49mm width
- Two glass infill options (13.5mm & 17.5mm)
- Installation on or into the finished floor level
- Simple installation & easy maintenance
- Ideal for both residential areas and areas not susceptible to overcrowding
- Suitable for both internal & external areas



EB50 GLASS BALUSTRADE SYSTEM

EB50 IS A GLASS BALUSTRADE SYSTEM WITH A 50mm WIDTH ALUMINIUM BASE AND WITHOUT ADDITIONAL VERTICAL SUPPORT. TWO DIFFERENT THICKNESSES OF GLASS INFILL CAN BE USED. IT CAN BE INSTALLED ON OR INTO THE FLOOR LEVEL.

- Frameless glass balustrade system
- Aluminium base of 50mm width
- Two glass infill options (17.5mm & 21.5mm)
- Installation on or into the finished floor level
- Simple installation & easy maintenance
- Ideal for both residential areas and areas susceptible to overcrowding
- Suitable for both internal & external areas



EB62 GLASS BALUSTRADE SYSTEM

EB62 IS A GLASS BALUSTRADE SYSTEM WITH A 62mm WIDTH ALUMINIUM BASE AND WITHOUT ADDITIONAL VERTICAL SUPPORT. TWO DIFFERENT THICKNESSES OF GLASS INFILL CAN BE USED. LIGHT YET STIFF CLAMPING BASE.

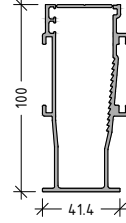

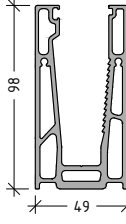
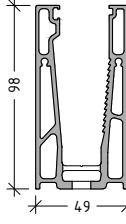
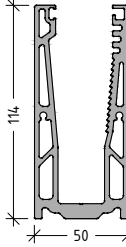
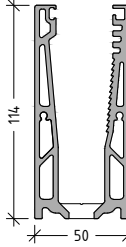
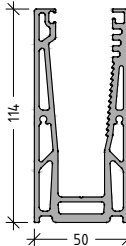
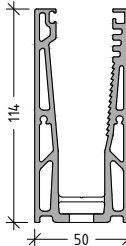
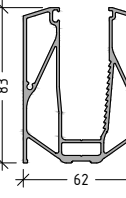
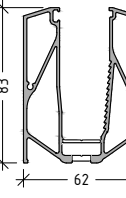
- Frameless glass balustrade system
- Aluminium base of 62mm width
- Two glass infill options (13.5mm & 17.5mm)
- Maximum glass height 0.7m
- Simple installation & easy maintenance
- Ideal for both residential areas and areas not susceptible to overcrowding
- Suitable for both internal & external areas

TABLES

TYPES / LIST OF PROFILES / CHARACTERISTICS

glass balustrade systems

EB

code	Profile	Weight Length	code	Profile	Weight Length
E2046101 EB46 Base profile		1641 g/m L=6.01 m	11094 EB46 & EB50 Spacer		121 g/m L=6.01 m
E2049101 EB49 Base profile		3345 g/m L=6.01 m	E-TR2049101 Pre-drilled EB49 Base profile		Mill Finish L=6.01 m
E2050103 EB50 Base profile		4350 g/m L=5.8 m	E-TR2050103 Pre-drilled EB50 Base profile		Mill Finish L=5.8 m
E2050104 EB50 Base profile		4369 g/m L=5.8 m	E-TR2050104 Pre-drilled EB50 Base profile		Mill Finish L=5.8 m
E2062101 EB62 Base profile		2426 g/m L=6.01 m	E-TR2062101 Pre-drilled EB62 Base profile		Mill Finish L=6.01 m

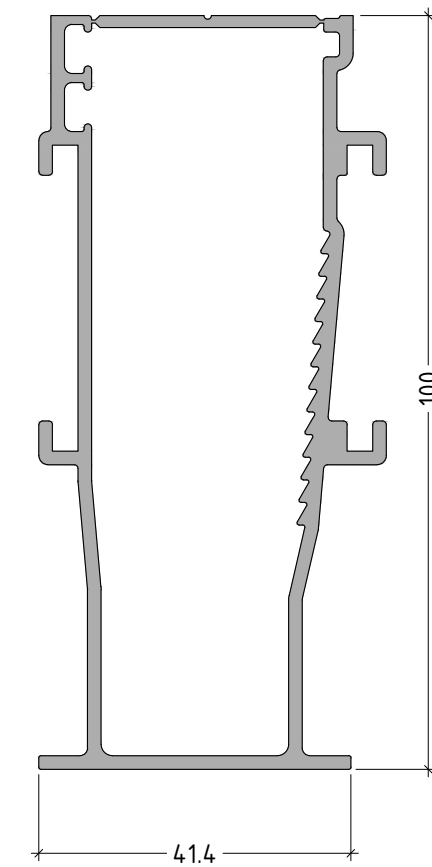
PROFILES

DRAWINGS

E2046101

EB46 Base profile

1641 gr/m

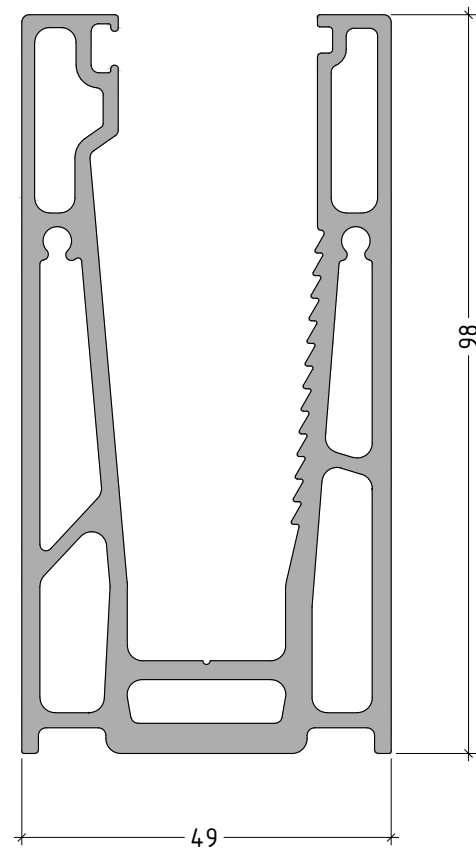


scale : 1:1

E2049101

EB49 Base profile

3345 gr/m



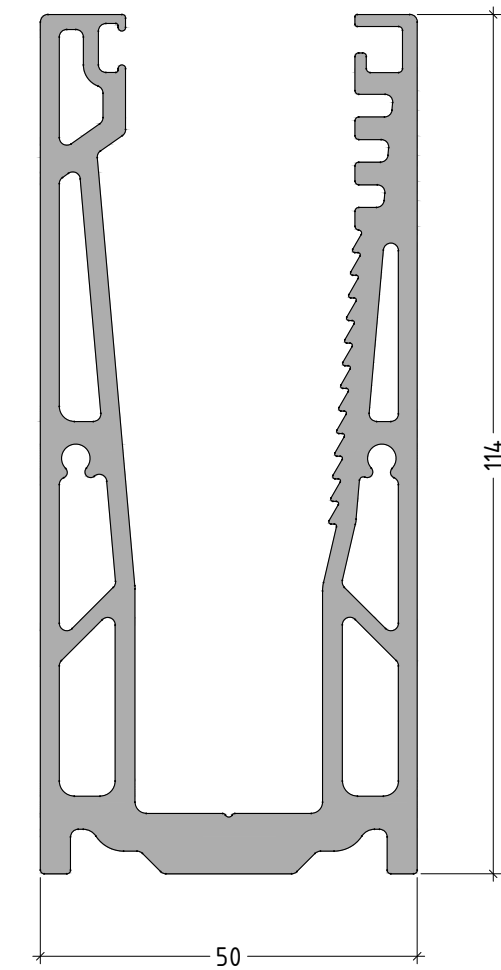
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EB.P02

E2050103

EB50 Base profile

4350 gr/m



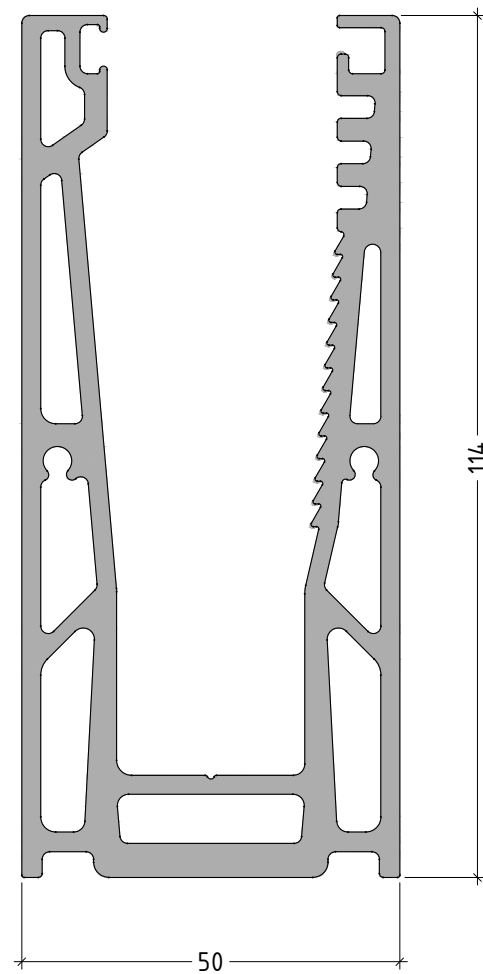
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EB.P03

E2050104

EB50 Base profile

4369 gr/m



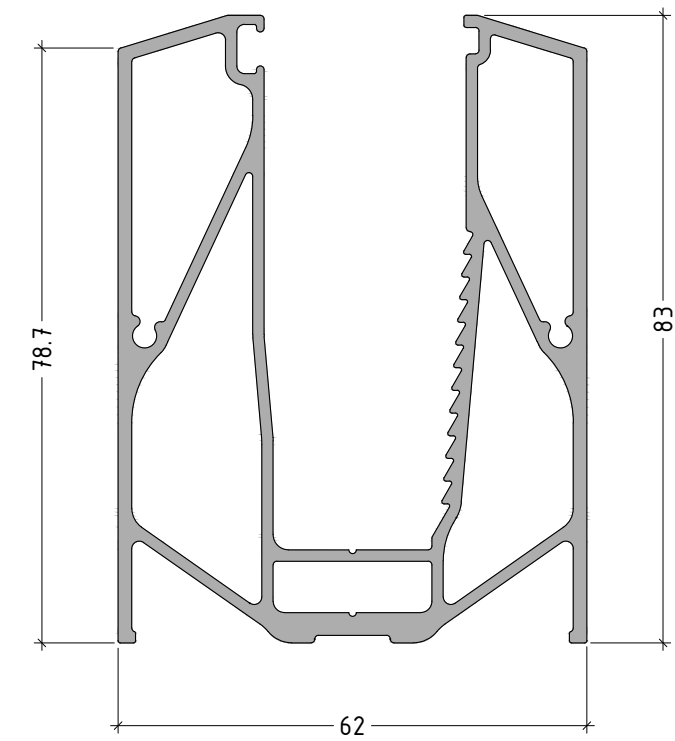
scale : 1:1

EB.P04

E2062101

EB62 Base profile

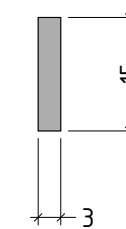
2426 gr/m



11094

EB50 Spacer

121 gr/m



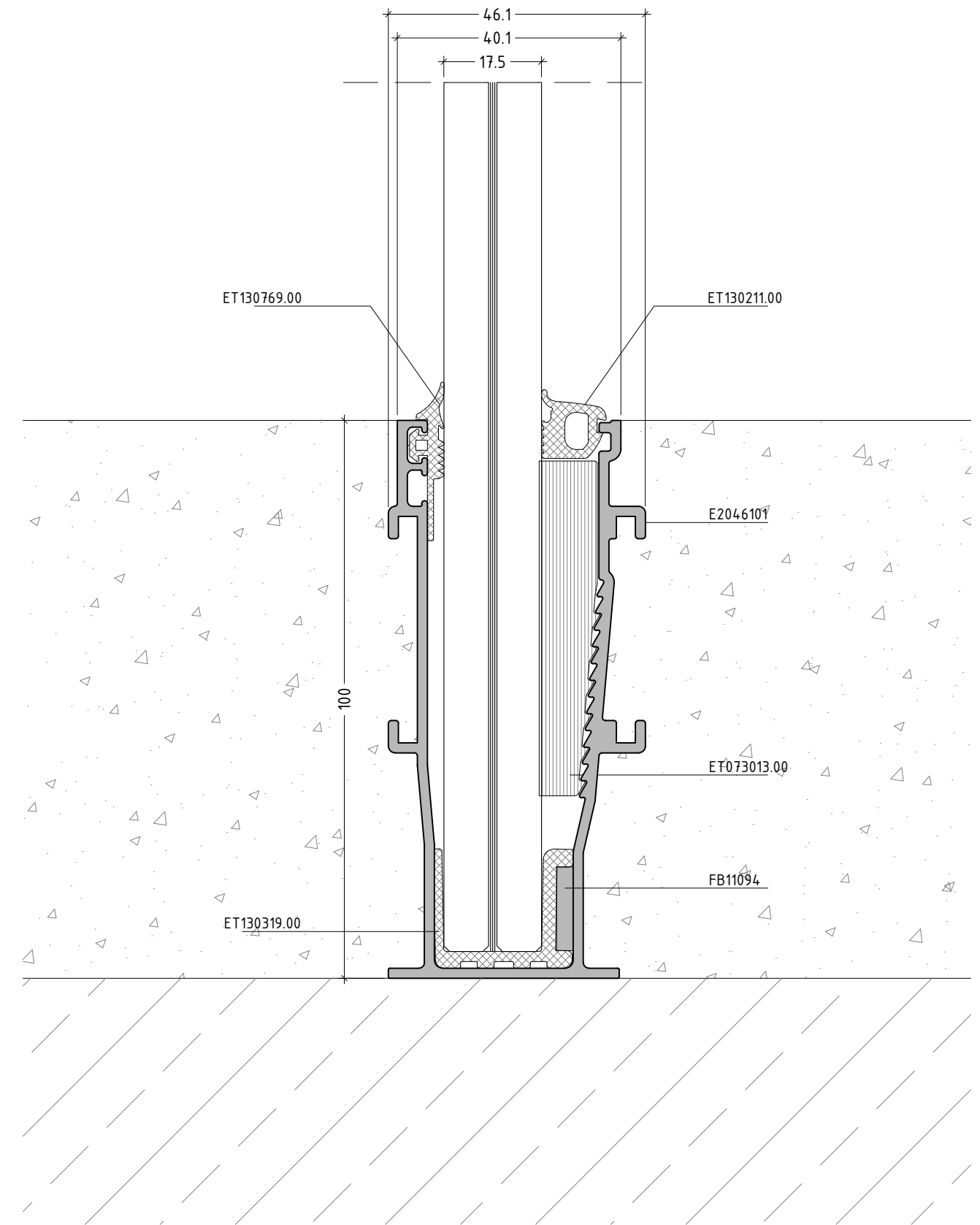
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EB.P05

SECTIONS

SECTIONS / DETAILS

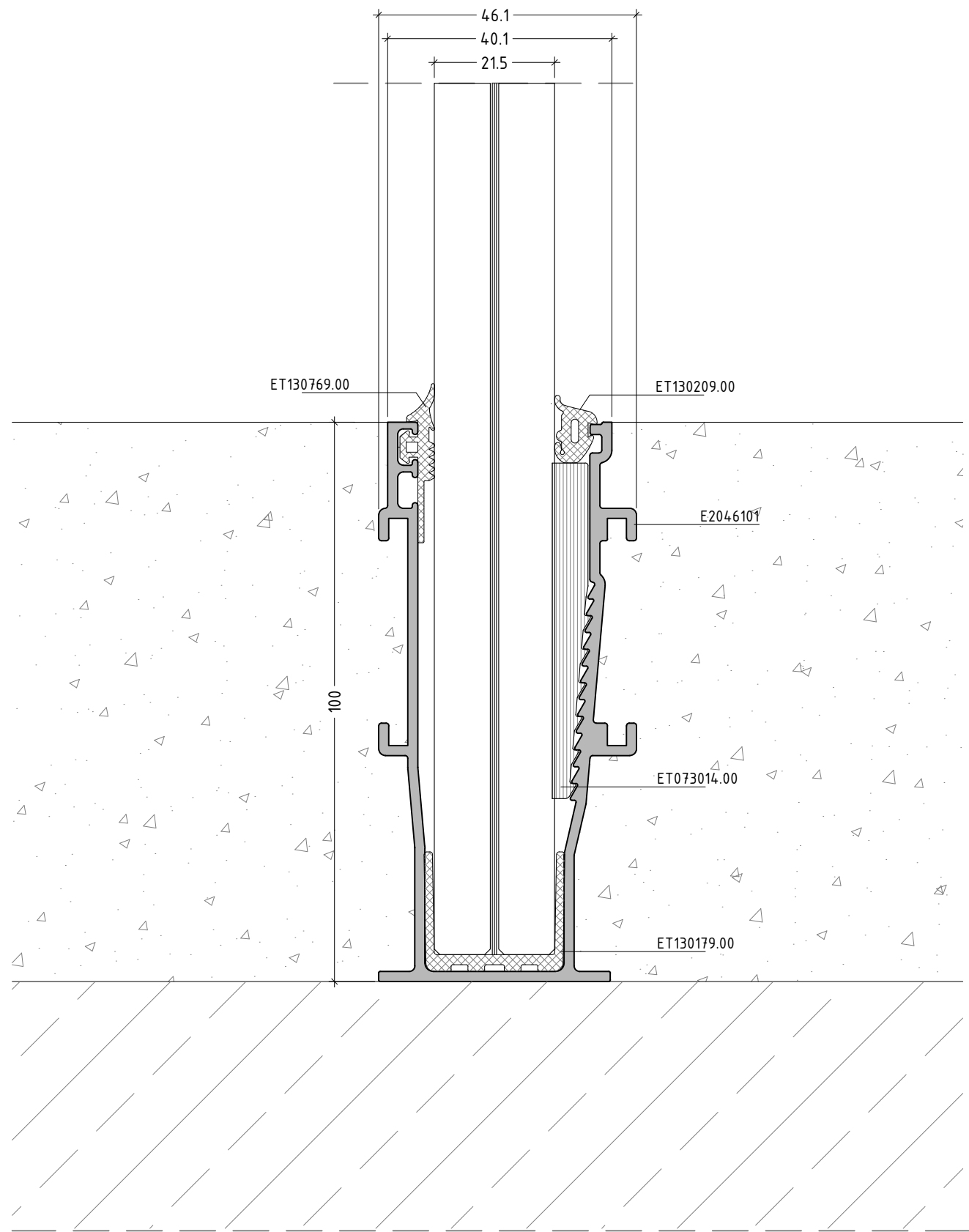
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scale : 1:1

EB.S01

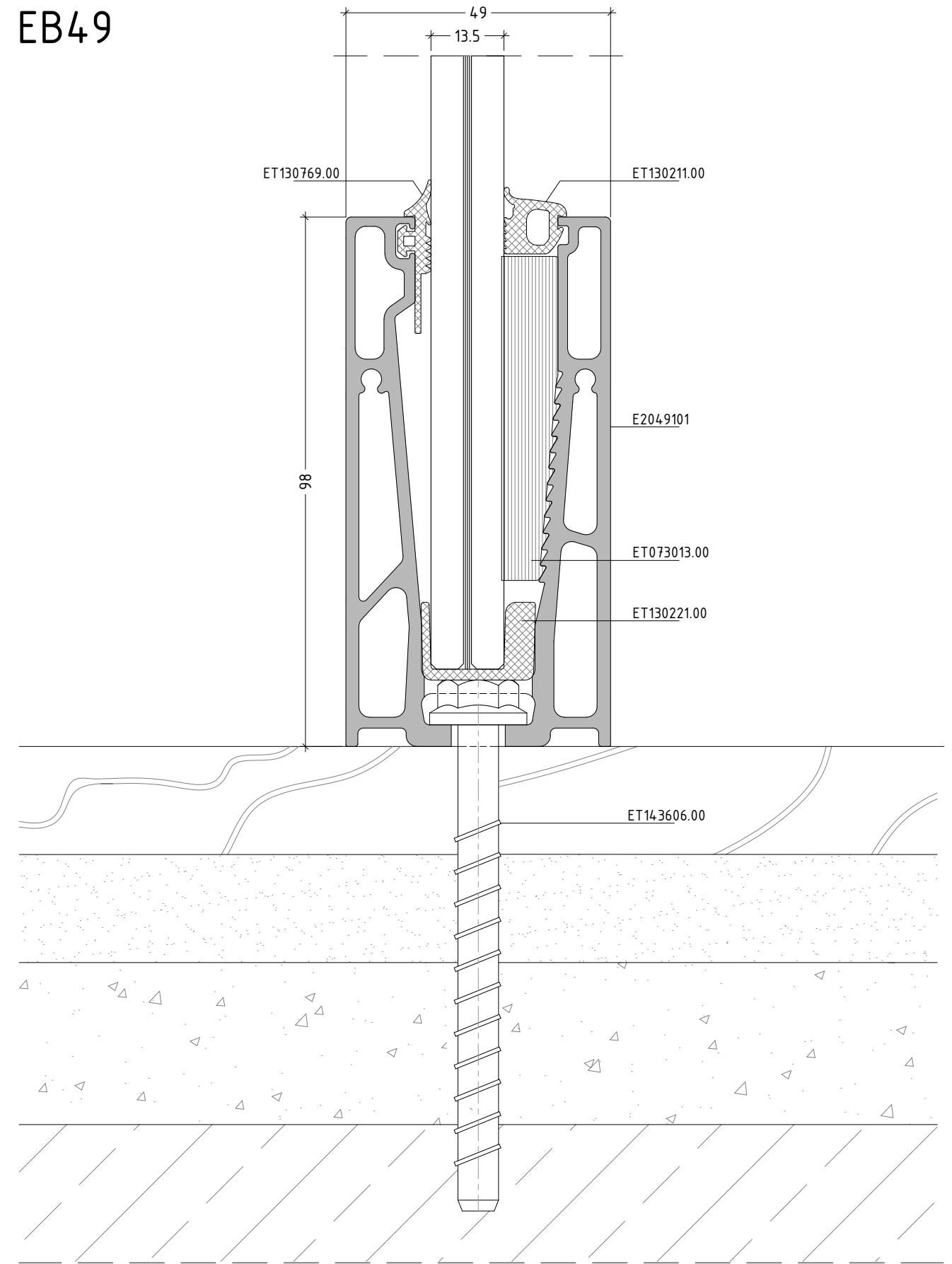
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scale : 1:1

EB.S02

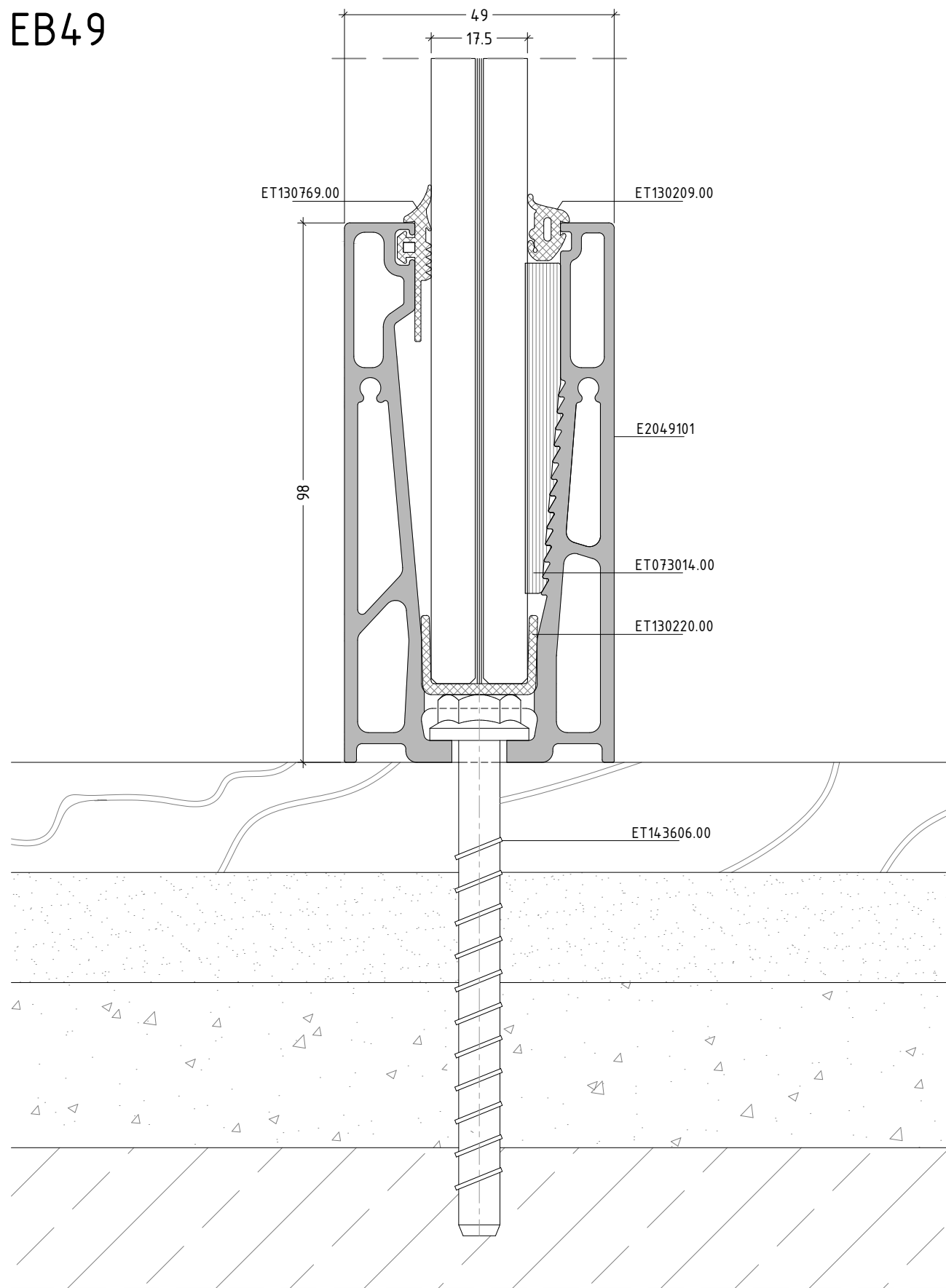
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scale : 1:1

EB.S03

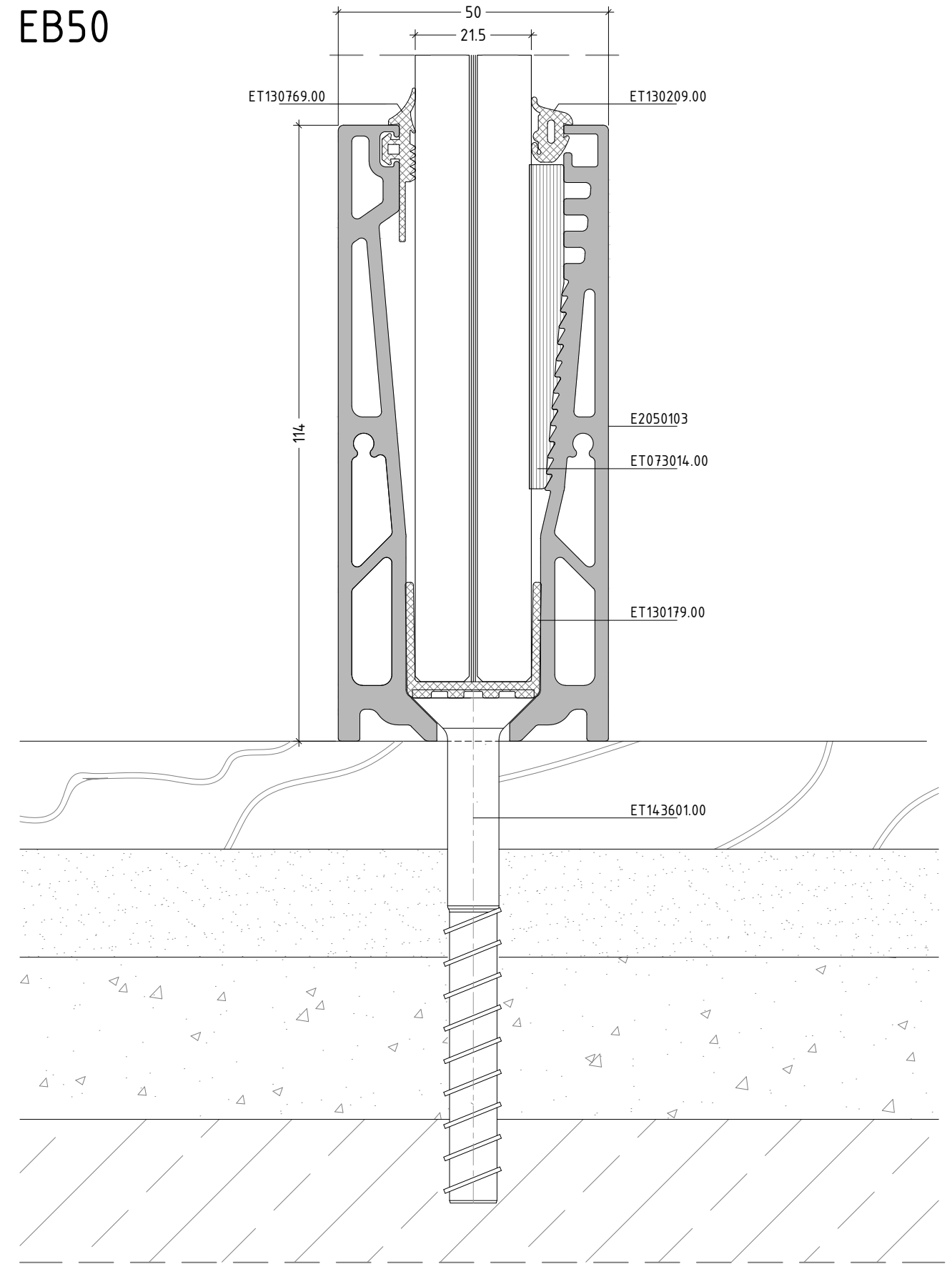
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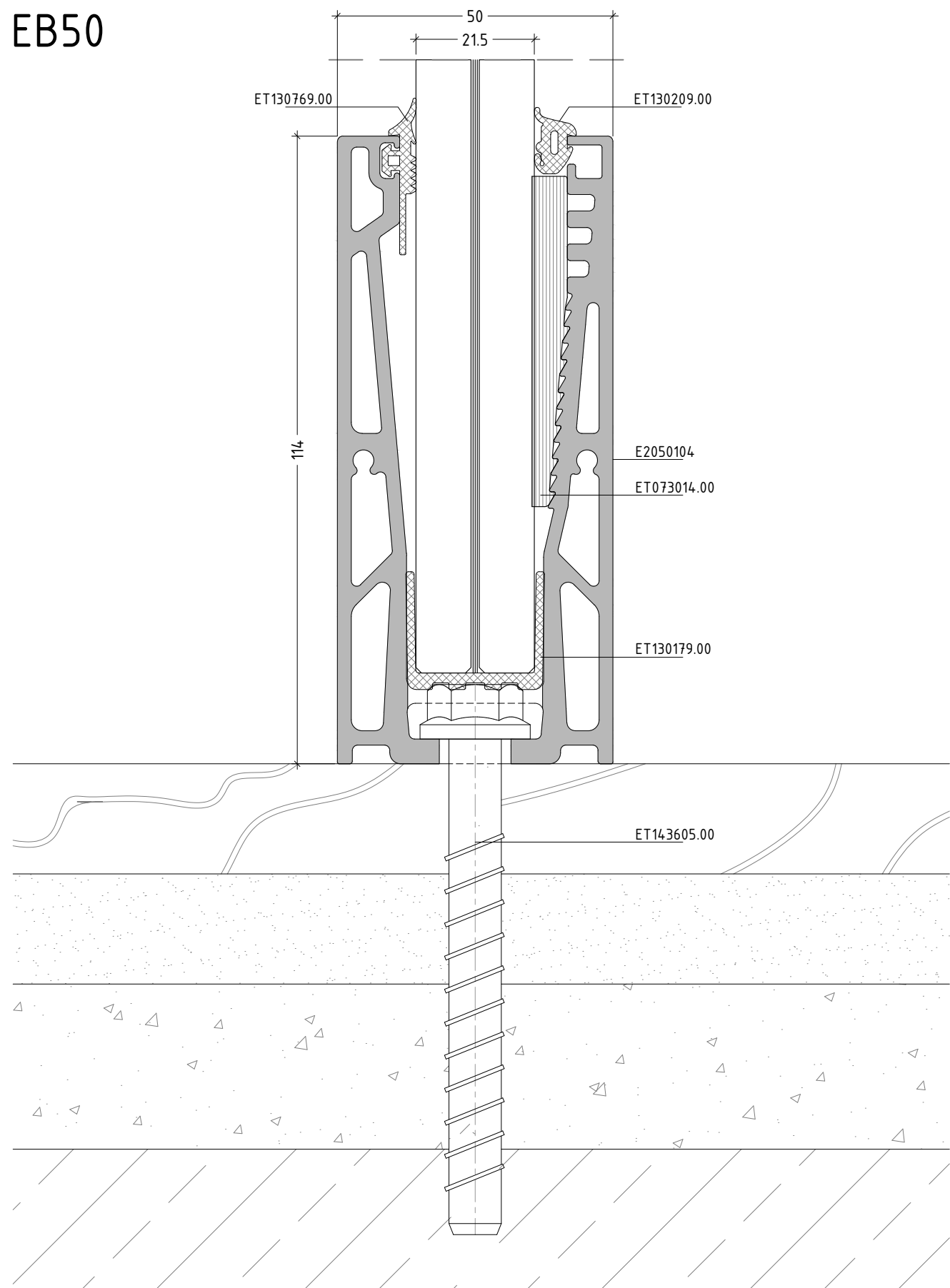
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scale : 1:1

EB.S05

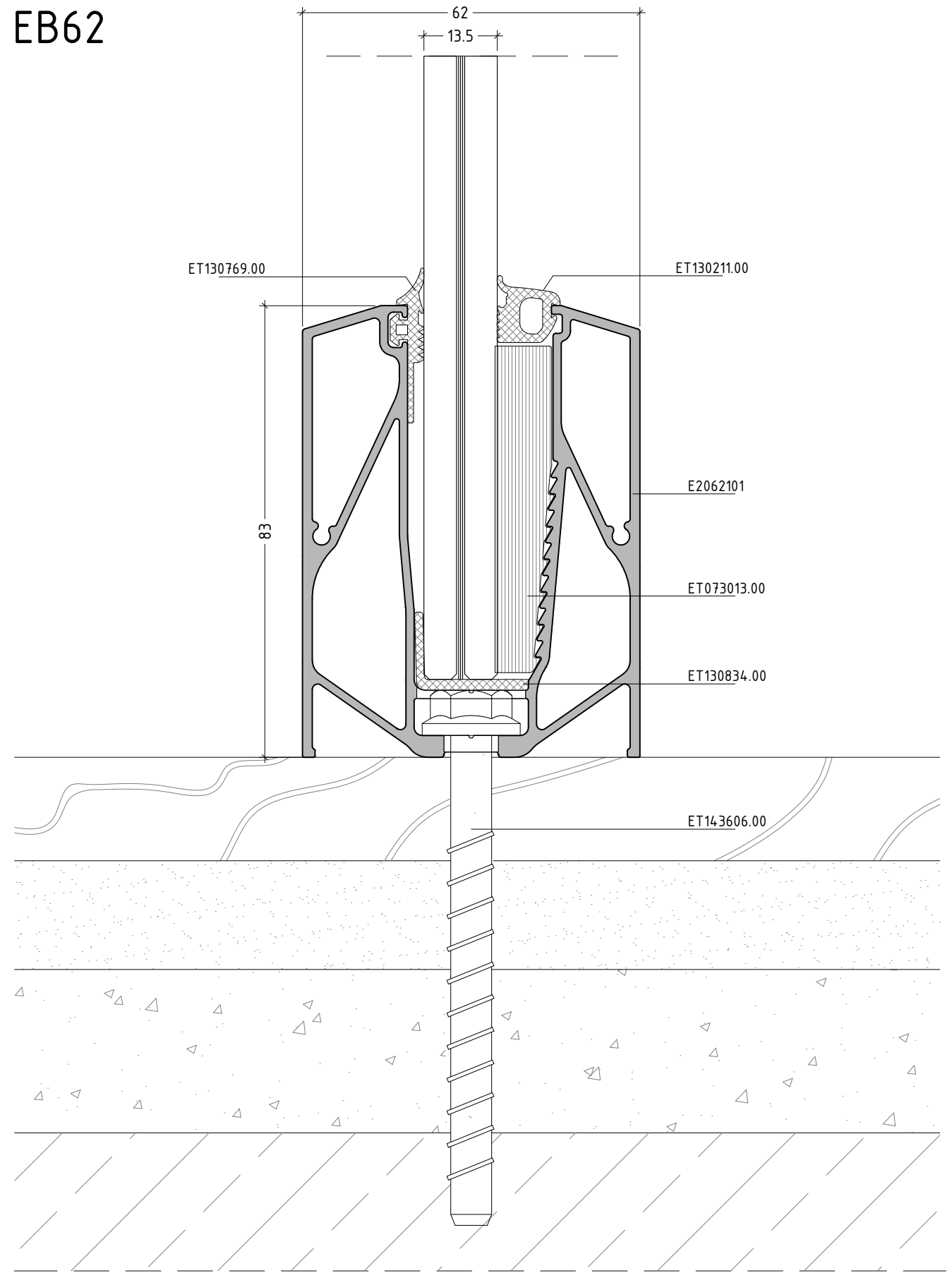
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scale : 1:1

EB.S06

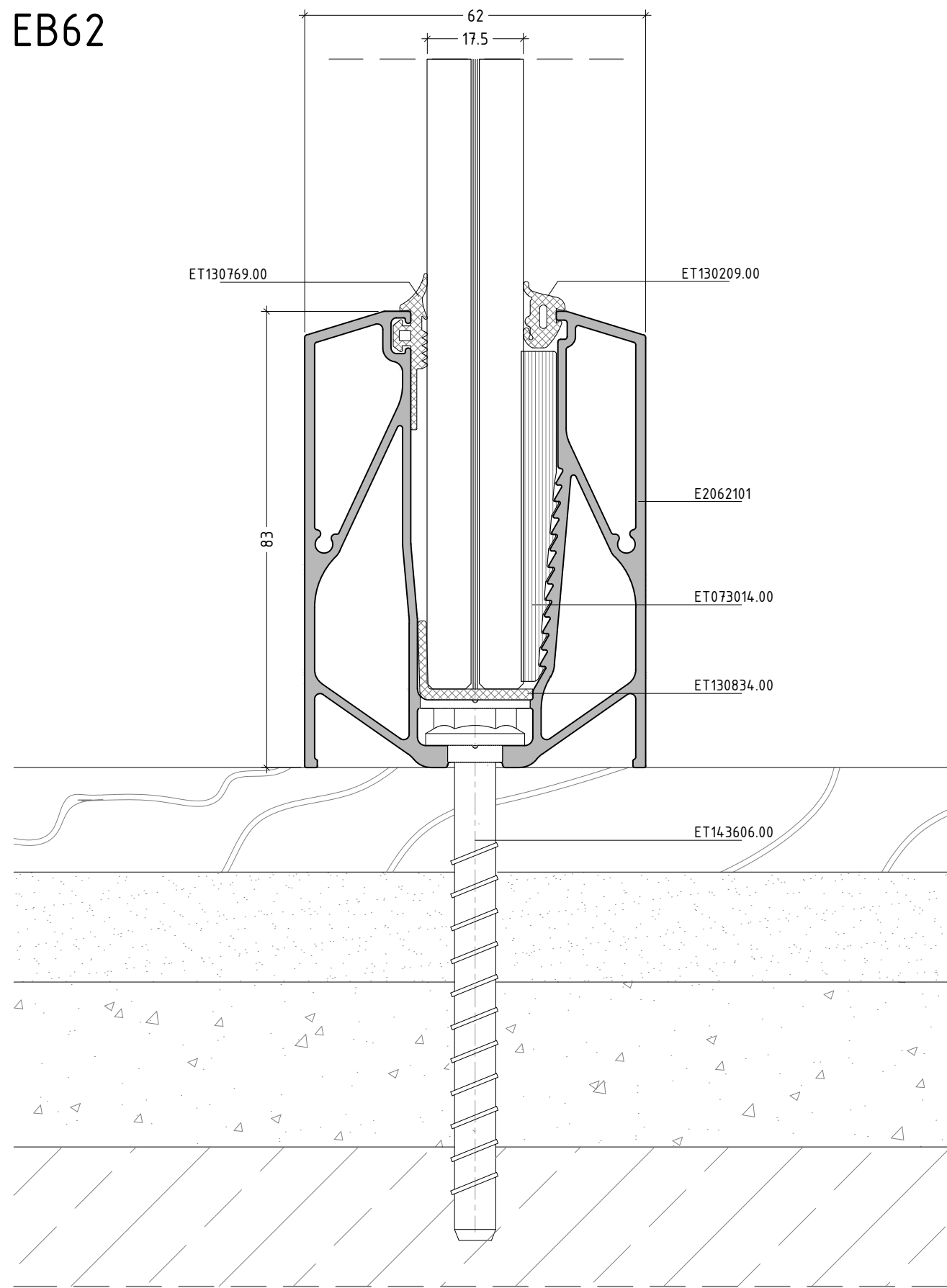
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scale : 1:1

EB.S07

EB62

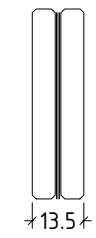


scale : 1:1

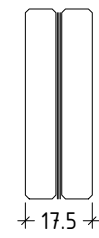
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GLAZING OPTIONS

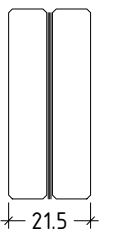
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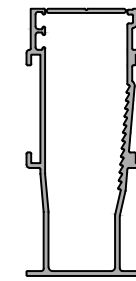
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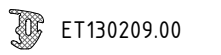
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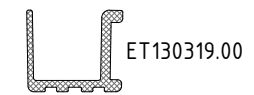
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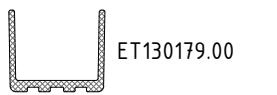
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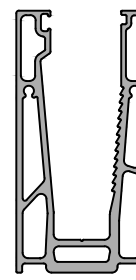


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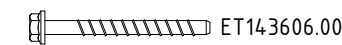
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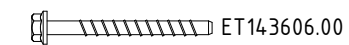
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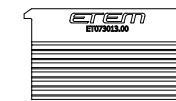
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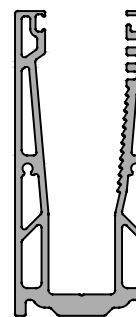


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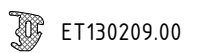
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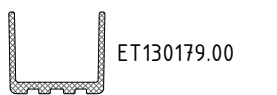
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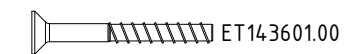
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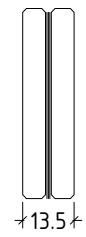


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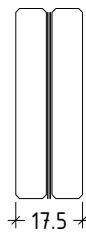
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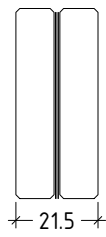
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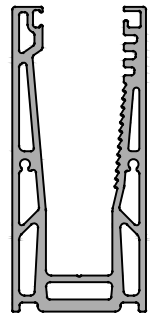
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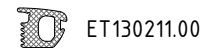


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EB50



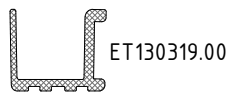
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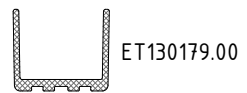
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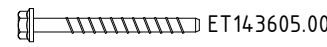
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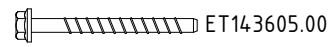
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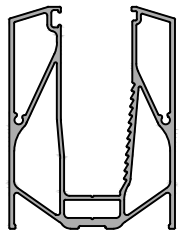


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EB62



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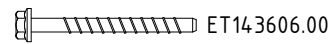
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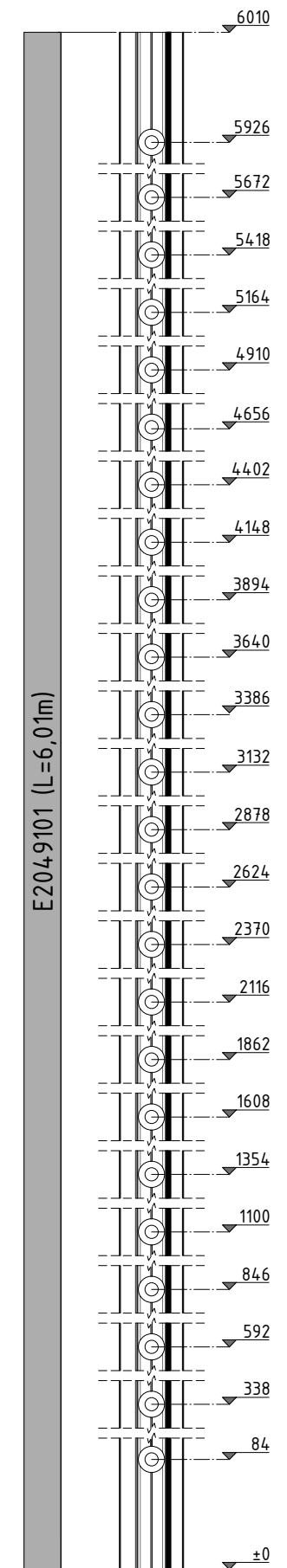
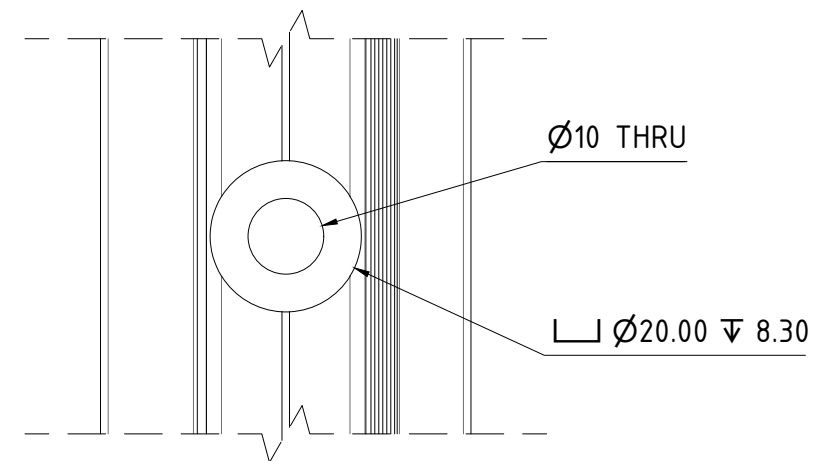
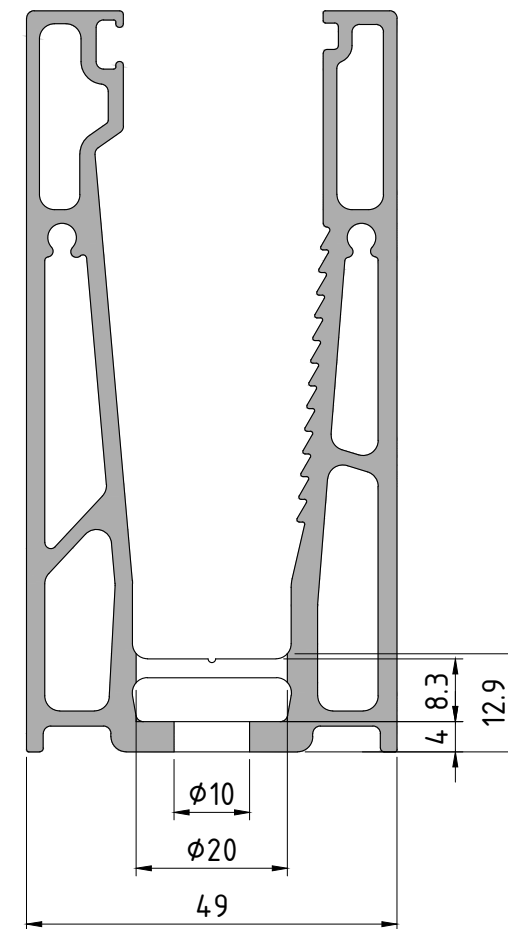
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MACHININGS

MACHININGS / PROCESSING

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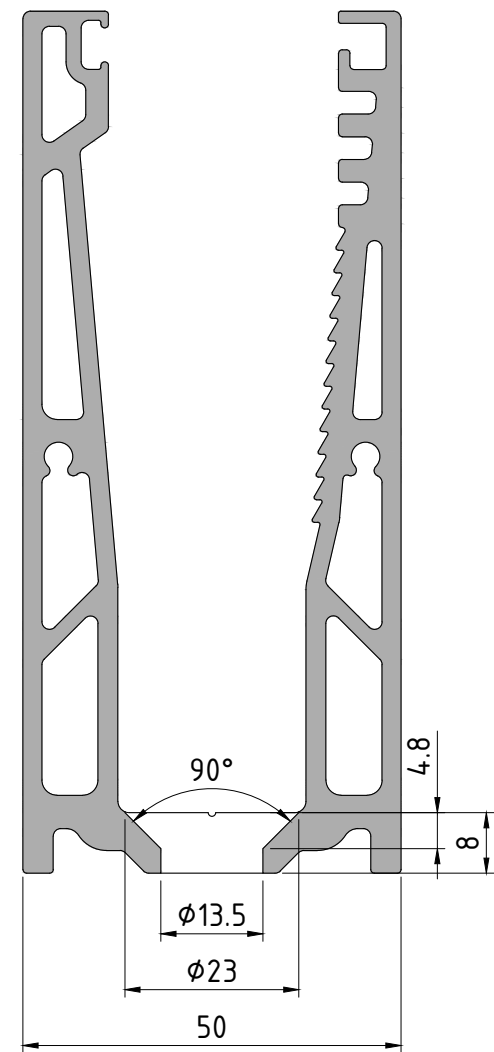
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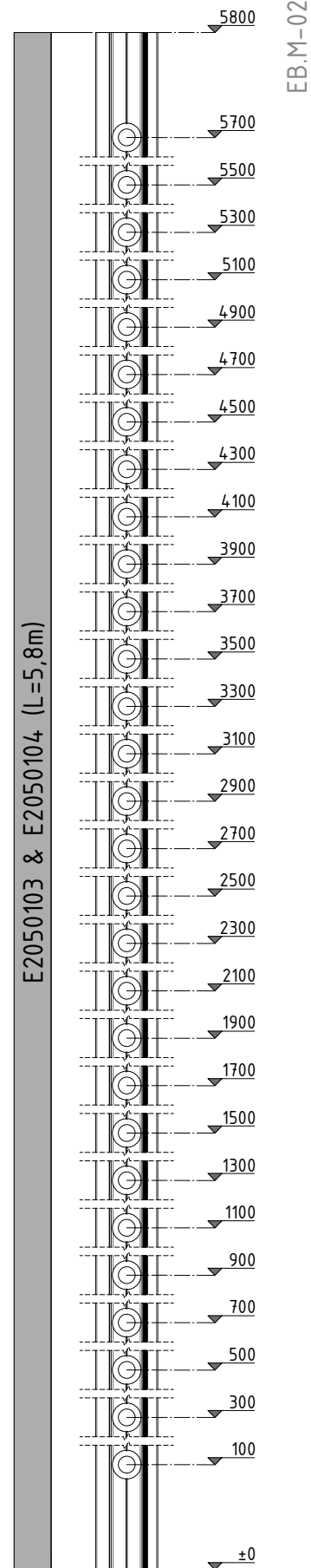
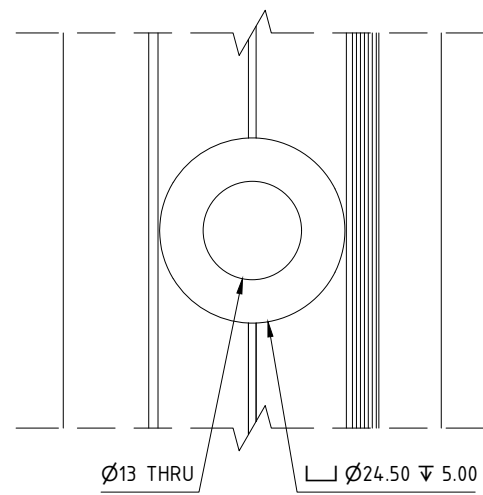
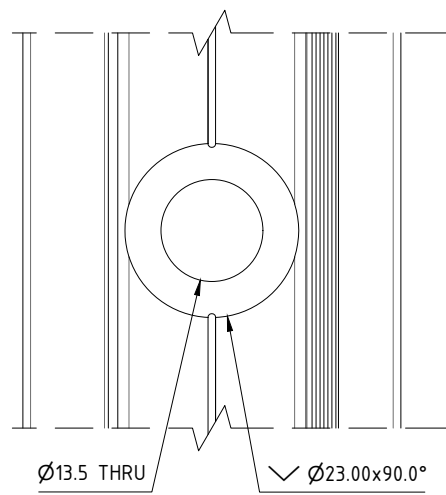
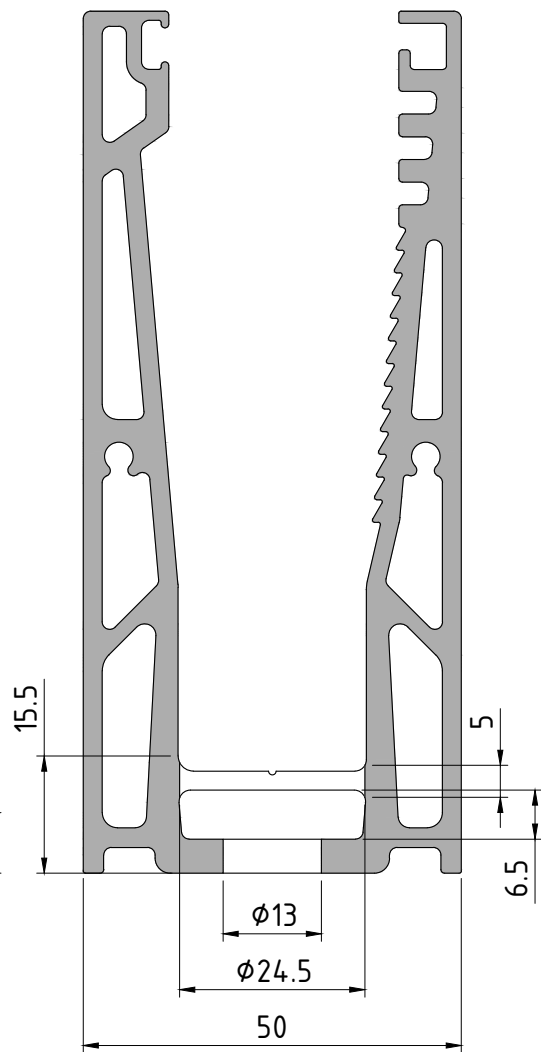
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E2050103

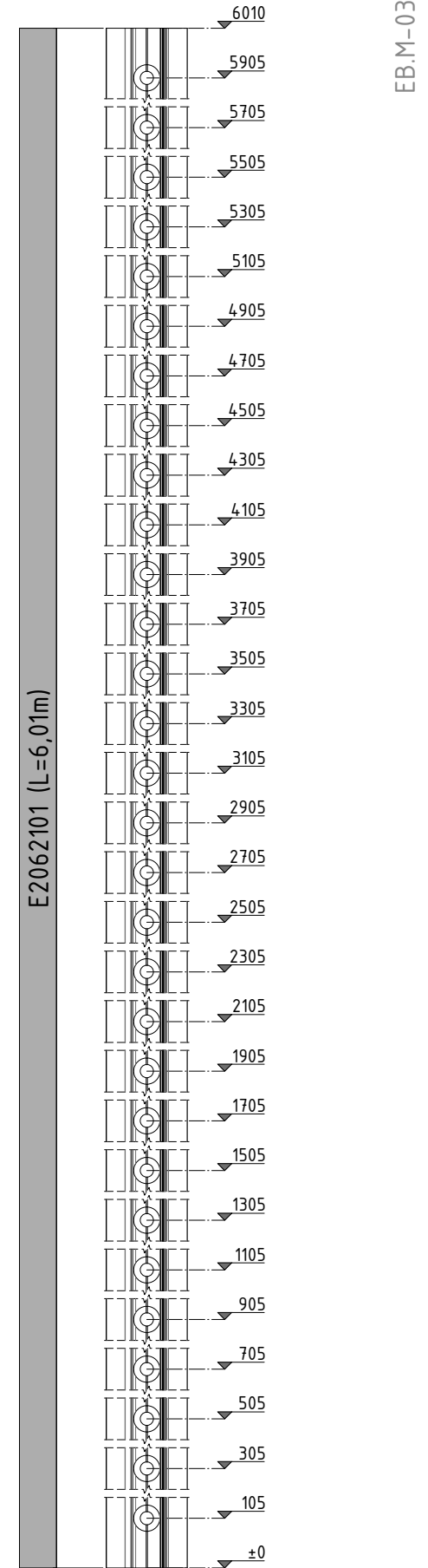
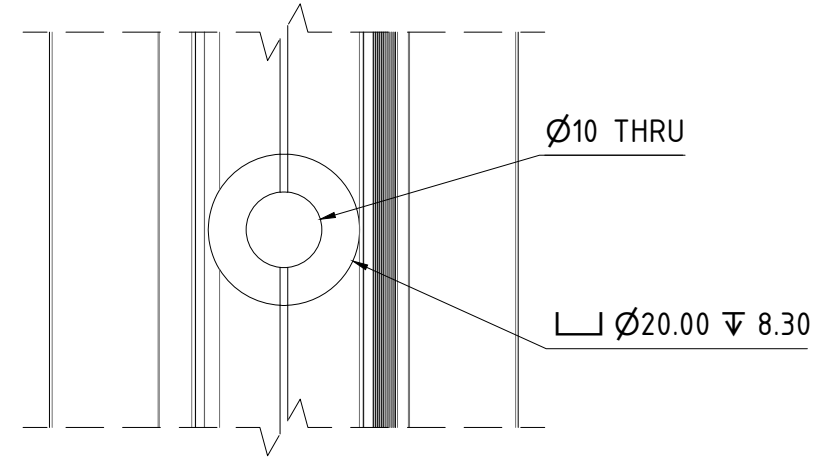
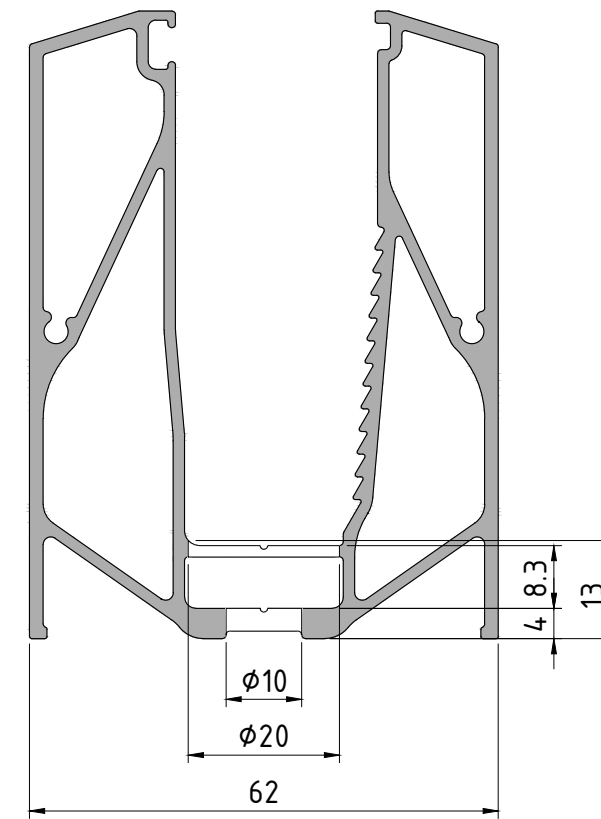


E2050104



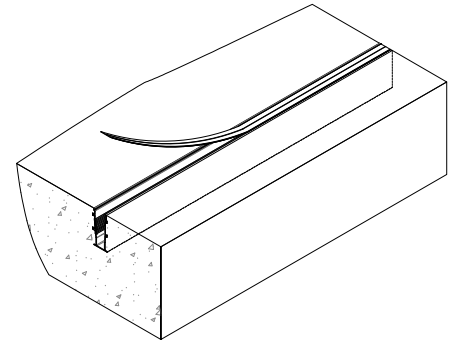
DRILLING INSTRUCTIONS for EB62:

E2049101



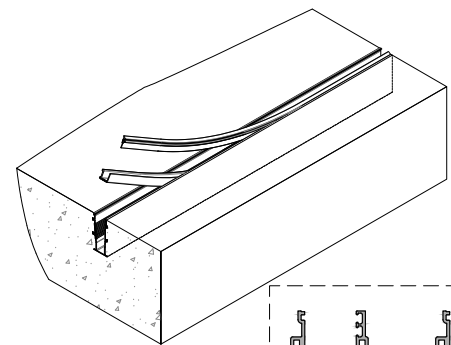
INSTALLATION INSTRUCTIONS FOR EB46:

EB.M-04



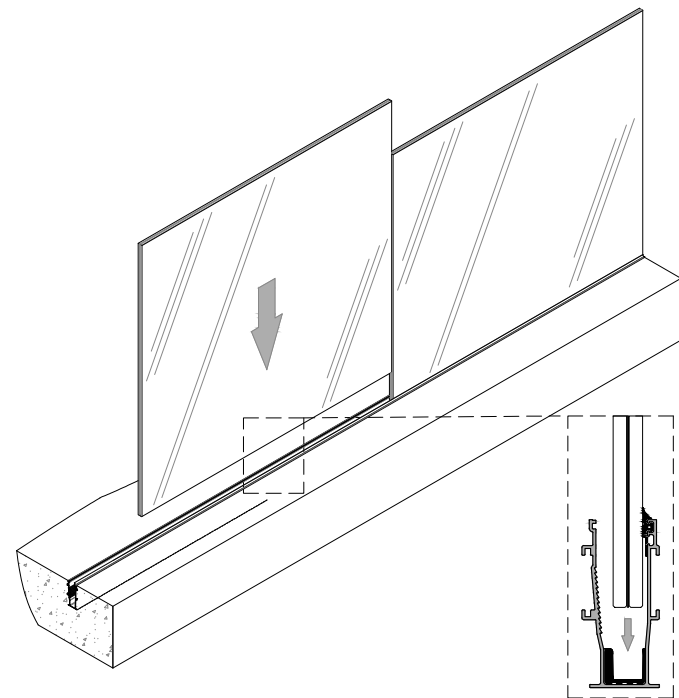
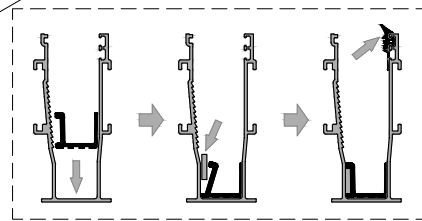
Step 1 : Removing of base cover

The removal of the cover strip must take place only after concrete's curing has finished. The start can be done via the use of side cutter and then it can be pulled with pliers.



Step 2 : Gaskets installation

U-shaped spacer gasket is installed at the bottom of the base. Only in the case of 17.52mm glazing, additional aluminum spacer FB11094 must be inserted afterwards into the corresponding pocket of ET130319 gasket. Following ET130769 glazing gasket is clipped.



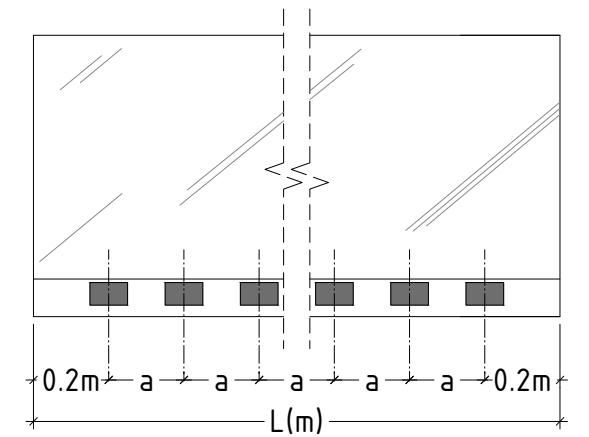
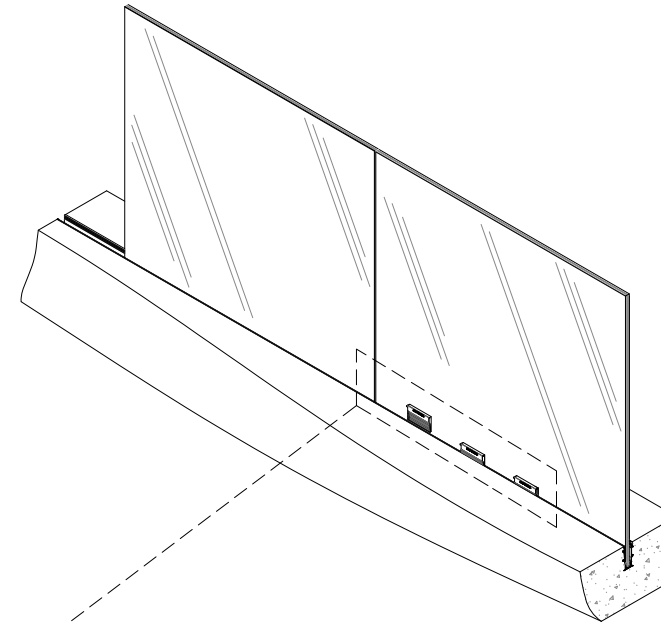
Step 3 : Glazing insertion

Glazing panes are inserted to the base profile and into the spacer gasket. In case of difficult fitting the use of soap-water as lubricant is recommended.

EB.M-05

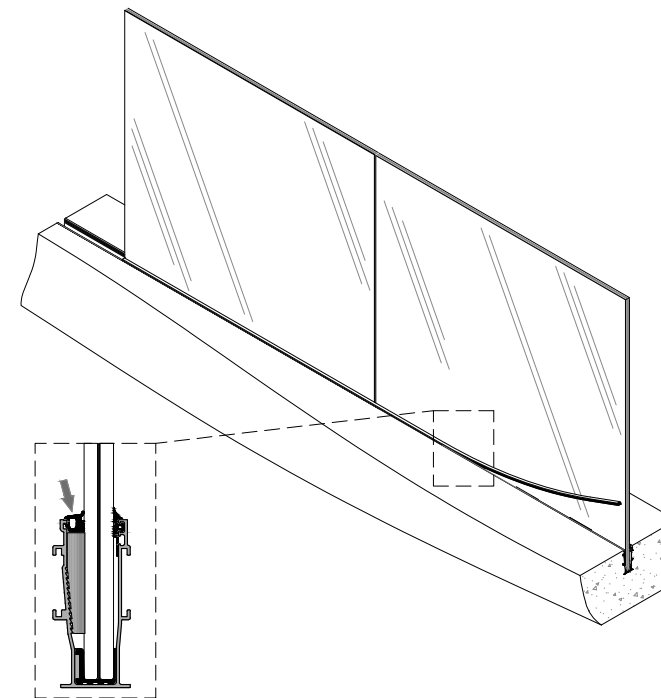
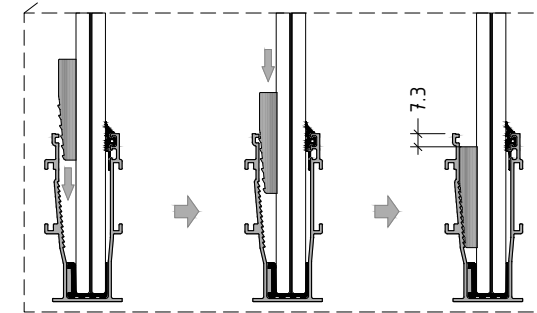
Step 4 : Wedges' fixing

Clamping wedges are fixed gradually with the use of mallet hammer. Once the wedge's upper surface has submerged 7.3mm under the base's surface, wedge's insertion depth is achieved.



Number of wedges = $4 \cdot L$

$$a(m) = \frac{L-0.4}{4L-1}$$

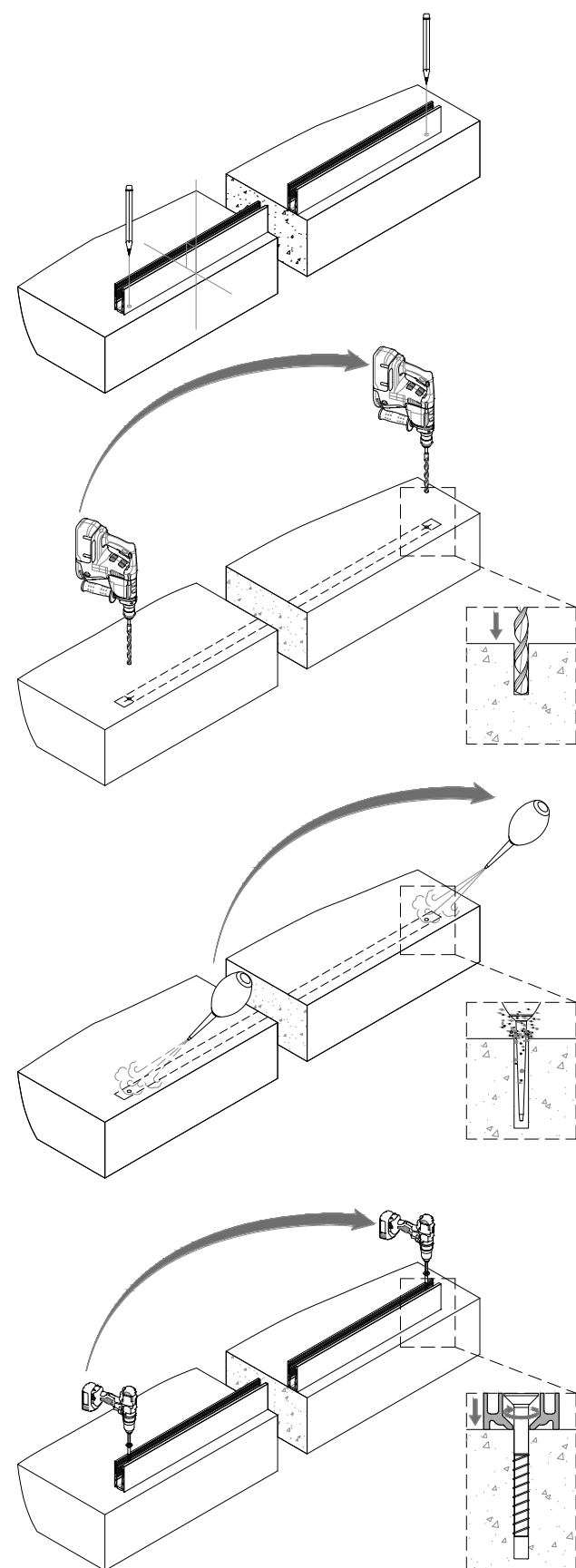


Step 5 : Glazing gasket

Glazing gasket is inserted.

INSTALLATION INSTRUCTIONS FOR EB49, EB50 and EB62:

EB.M-06



Step 1 : Marking of first and last holes

Installation should be done on completely flat surface (otherwise, applying a layer of self-leveling concrete is recommended before installation). The positions of the first and last holes are marked in the designated installation area of each base profile.

Step 2 : Drilling of first and last holes

The base profile is removed and holes are drilled at each mark.

Recommended hole diameters and depths:

- a) For base profiles E2049101 & E2062101, screw ET143606, hole diameter: Ø8mm, hole depth: 100mm
- b) For base profile E2050103, screw ET143601, hole diameter: Ø10mm, hole depth: 105mm
- c) For base profile E2050104, screw ET143605, hole diameter: Ø10mm, hole depth: 100mm

Step 3 : Drill hole cleaning

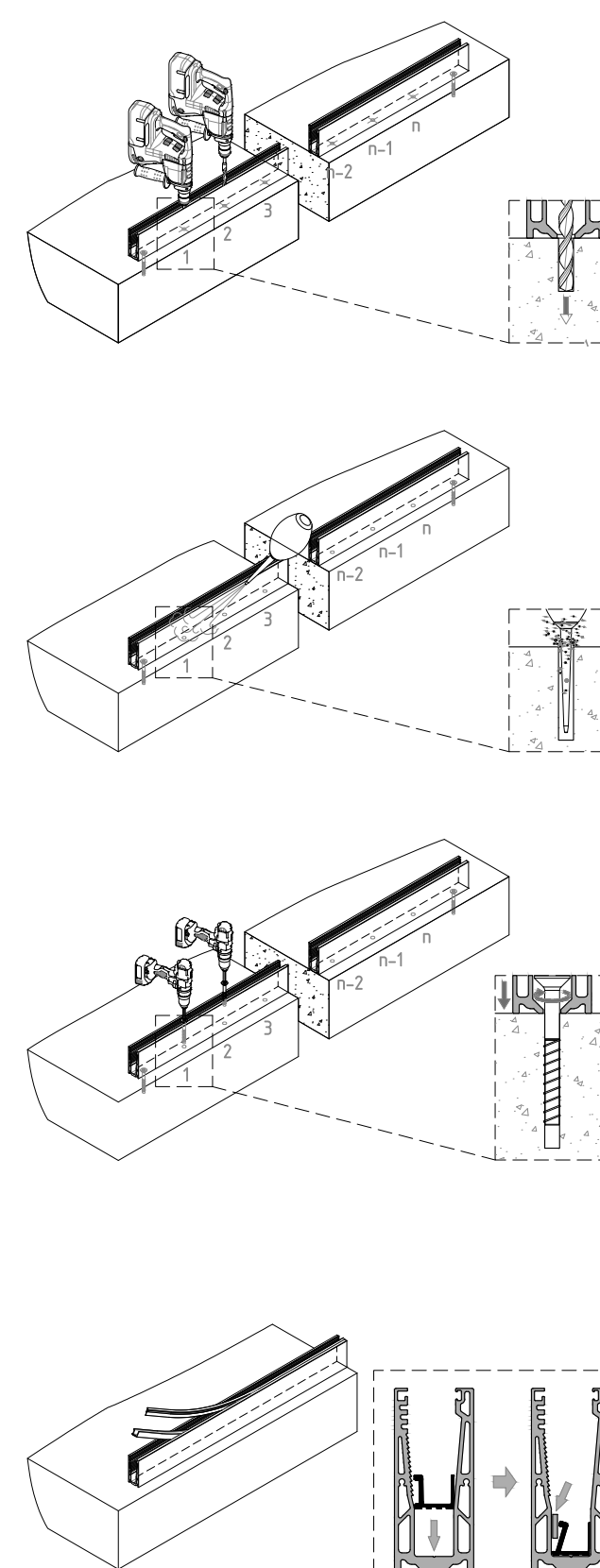
Drill holes should be thoroughly cleaned from concrete residues via air blowing.

Step 4 : Initial base fixing

The base profile is fixed at both edges in the designated area.

- a) For screw ET143606 drive tool TX40 or SW13 $T_{\text{installation}} = 600 \text{ Nm}$ (impact driver)
- b) For screw ET143601 drive tool TX50 $T_{\text{installation}} = 650 \text{ Nm}$ (impact driver)
- c) For screw ET143605 drive tool SW15 $T_{\text{installation}} = 650 \text{ Nm}$ (impact driver)

EB.M-07



Step 5 : Drilling of intermediate holes

Holes are drilled through the base profile in all the intermediate pre-drilled spots.

Recommended hole diameters and depths:

- a) For base profile E2049101 & E2062101, screw ET143606, hole diameter: Ø8mm, hole depth: 100mm
- b) For base profile E2050103, screw ET143601, hole diameter: Ø10mm, hole depth: 105mm
- c) For base profile E2050104, screw ET143605, hole diameter: Ø10mm, hole depth: 100mm

Step 6 : Drill hole cleaning

Drill holes should be thoroughly cleaned from concrete residues via air blowing.

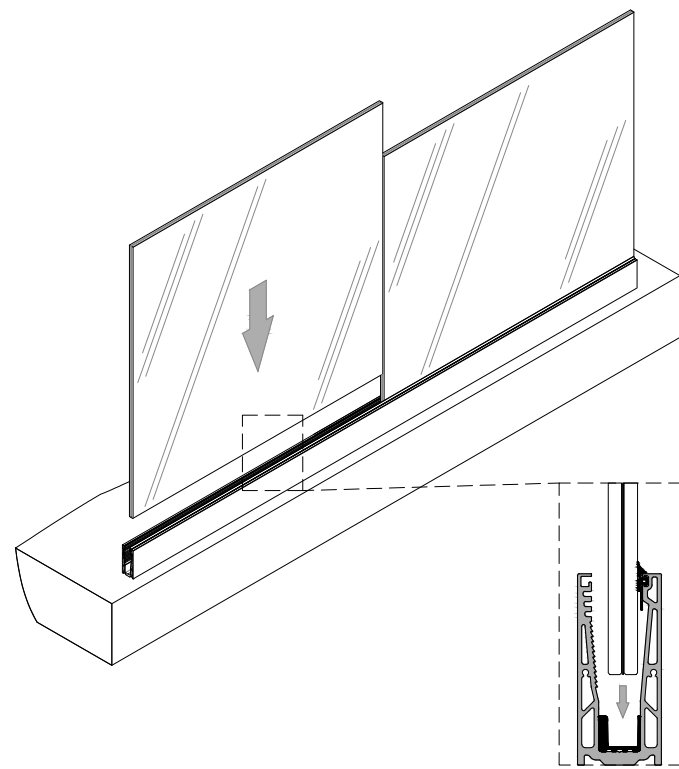
Step 7 : Final base fixing

The base profile is fixed in all the remaining drilled spots.

- a) For screw ET143606 drive tool TX40 or SW13 $T_{\text{installation}} = 600 \text{ Nm}$ (impact driver)
- b) For screw ET143601 drive tool TX50 $T_{\text{installation}} = 650 \text{ Nm}$ (impact driver)
- c) For screw ET143605 drive tool SW15 $T_{\text{installation}} = 650 \text{ Nm}$ (impact driver)

Step 8 : Gaskets installation

U-shaped spacer gasket is installed at the bottom of the base. Only in the case of EB50 for 17.52 mm glazing, additional aluminum spacer FB11094 must be inserted afterwards into the corresponding pocket of ET130319 gasket. Following ET130769 glazing gasket is clipped.

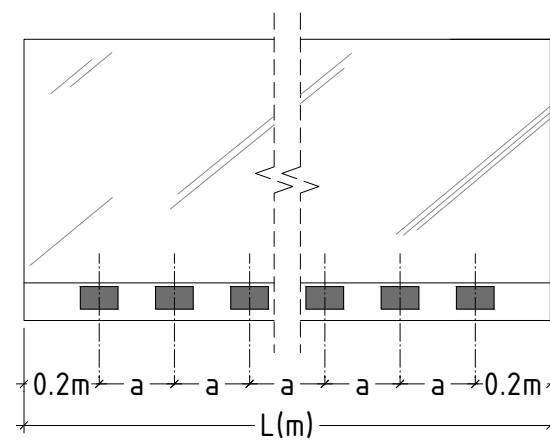
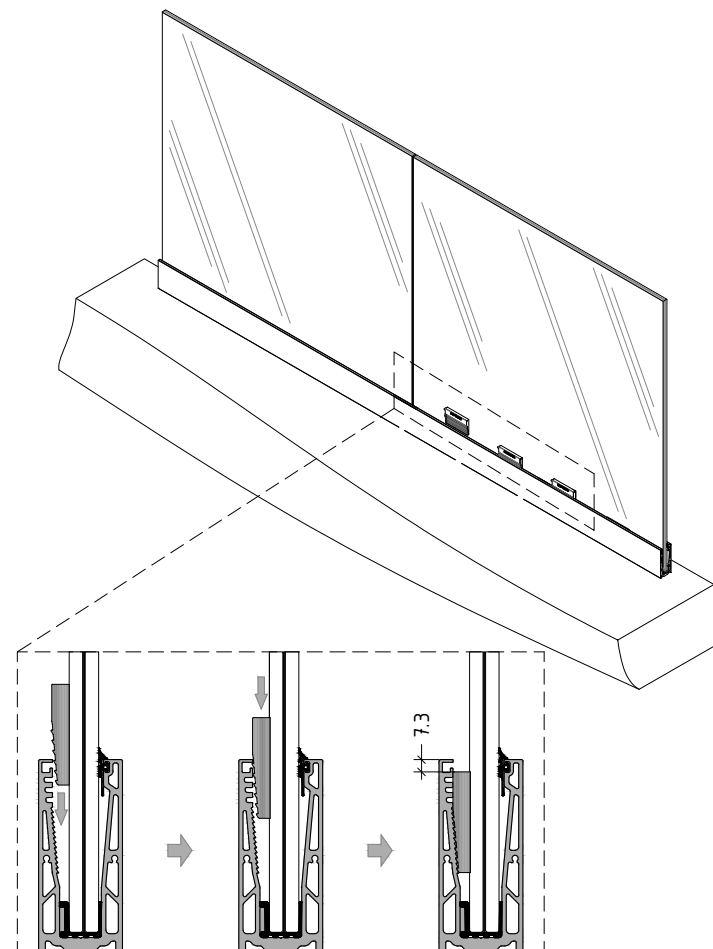


Step 9 : Glazing insertion

Glazing panes are inserted to the base profile and into the spacer gasket. In case of difficult fitting the use of soap-water as lubricant is recommended.

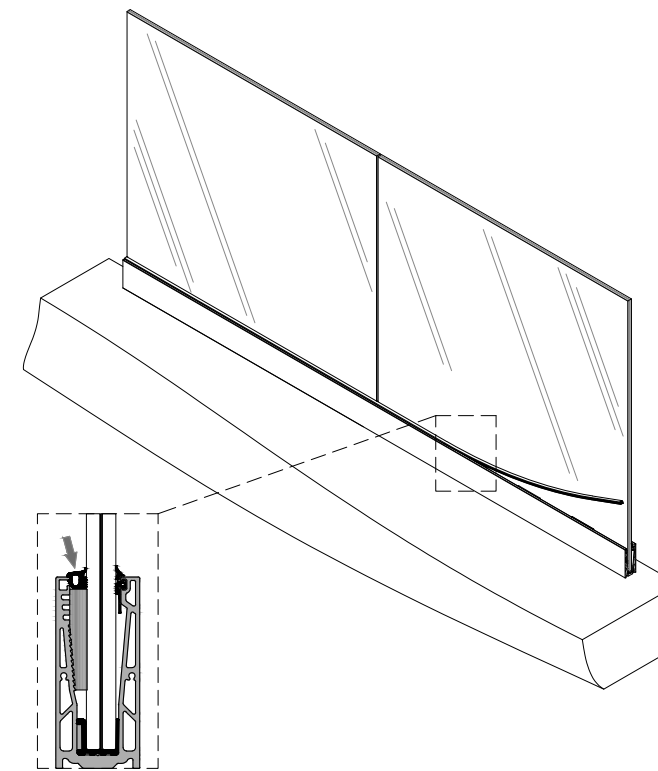
Step 10 : Wedges' fixing

Clamping wedges are fixed gradually with the use of mallet hammer. Once the wedge's upper surface has submerged 7.3mm under the base's surface, wedge's insertion depth is achieved.



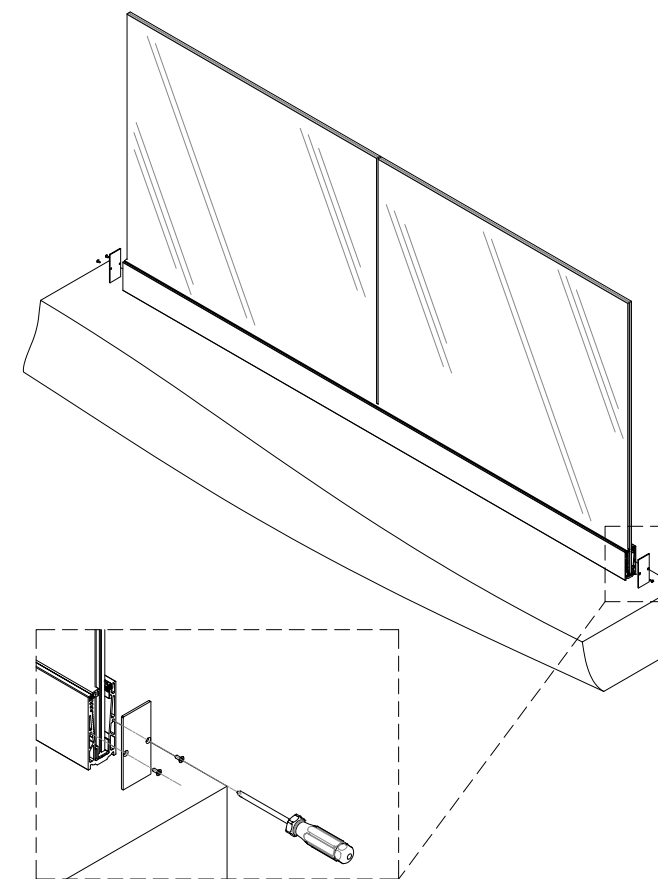
Number of wedges = $4 \cdot L$

$a(m) = \frac{L-0.4}{4L-1}$



Step 11 : Glazing gasket

Glazing gasket is inserted.

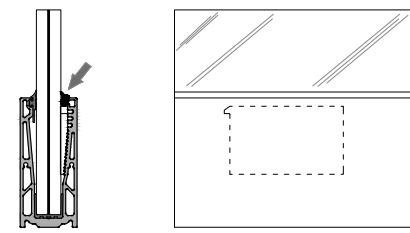


Step 12 : End caps

End caps are screwed to the edges of the base using DIN 7981 ST4.2 tapping screws for base profiles E2049101, E2050103 & E2050104 and DIN 7981 ST3.5 tapping screws for E2062101.

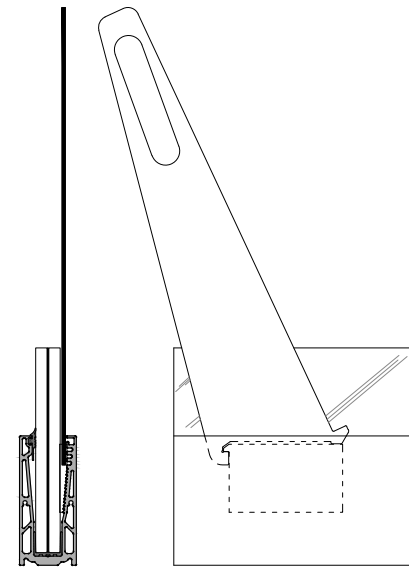
REMOVAL INSTRUCTIONS:

EB.M-010



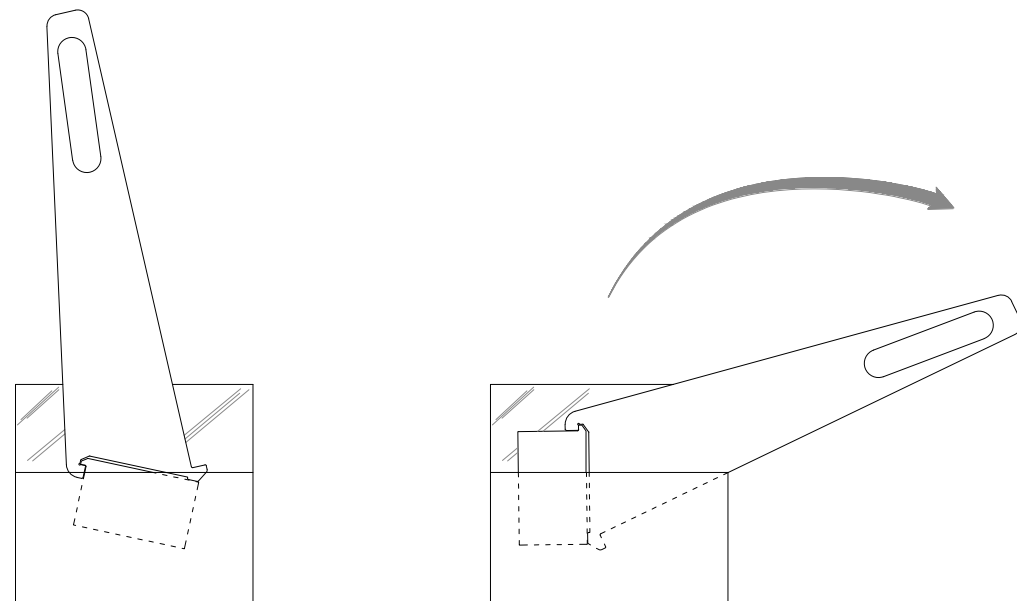
Step 1 :

Remove the glazing gasket.



Step 2 :

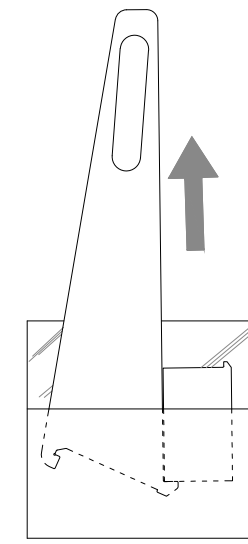
Insert the wedge extractor in the gap between the glass pane and the base. Set the extractor's pocket around the wedge's projection.



Step 3 :

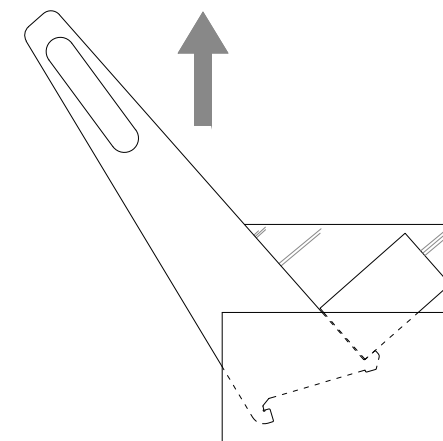
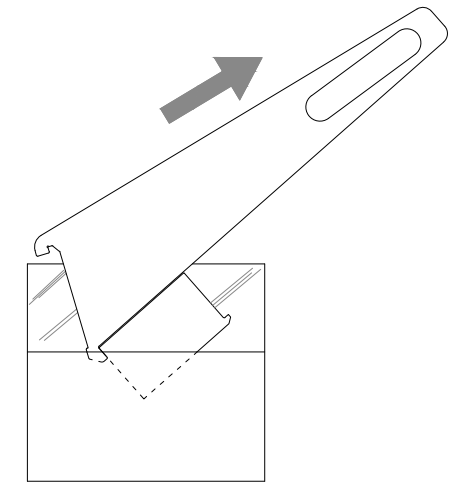
Rotate the extractor to the right, until the wedge is positioned upright.

EB.M-011



Step 4 :

Hook the bottom of the wedge using the extractor. Pull upwards, the wedge will rotate to the right, follow the rotational movement with the extractor.



Step 5 :

Hook for second time the bottom of the wedge using the extractor and pull upwards, till the wedge is removed completely.

ACCESSORIES

IMAGES / DESCRIPTIONS

glass balustrade systems

EB

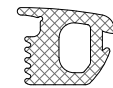
code/description	package/pcs	colour
ET 130209.00	100m	●

Glazing EPDM gasket
press-in 6.0 mm



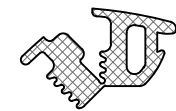
ET 130211.00	70m	●
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Glazing EPDM gasket
press-in 10.0 mm



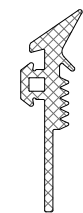
ET 130833.00	70m	●
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Glazing EPDM gasket
press-in 7.2mm and 11.2mm



ET 130769.00	70m	●
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Elongated glazing EPDM
gasket 3.0mm

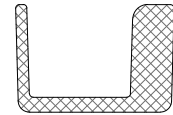


glass balustrade systems

EB

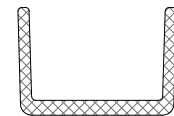
code/description	package/pcs	colour
ET 130221.00	24m	●

EB49
U-shape EPDM spacer for
66.4 (13.5mm) glazing width



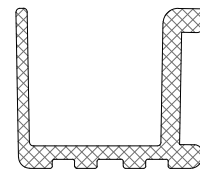
ET 130220.00	24m	●
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EB49
U-shape EPDM spacer for
88.4 (17.5mm) glazing width



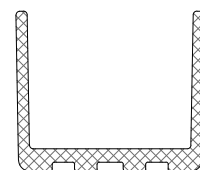
ET 130319.00	24m	●
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EB50
U-shape EPDM spacer for
88.4 (17.5mm) glazing width



ET 130179.00	24m	●
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EB50
U-shape EPDM spacer for
1010.4 (21.5mm) glazing width



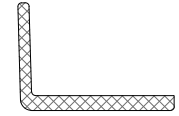
EB.A02

glass balustrade systems

EB

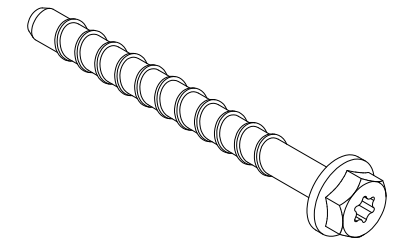
code/description	package/pcs	colour
ET 130834.00	24m	●

EB62
L-shape EPDM spacer for
66.4 (13.5mm) and 88.4
(17.5mm) glazing widths



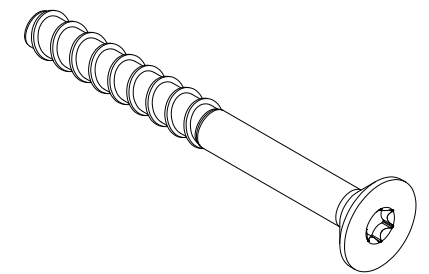
ET 143606.00	50	
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Concrete screw M8x90



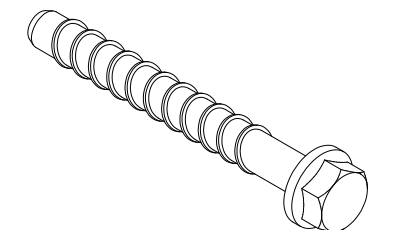
ET 143601.00	50	
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Concrete screw M10x95



ET 143605.00	50	
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Concrete screw M10x90

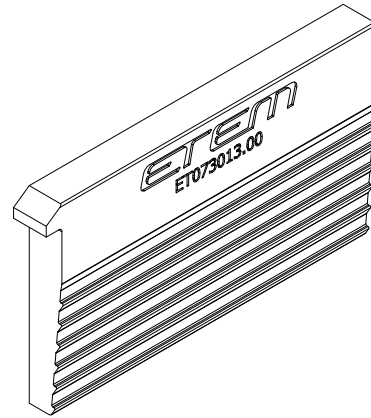


EB.A03

glass balustrade systems

EB

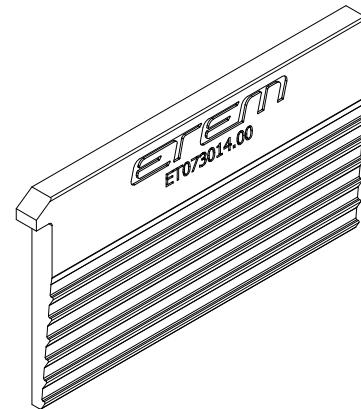
code/description	package/pcs	colour
ET 073013.00	24	●



Wedge for EB49 glazing 66.4 (13.5mm)

Wedge for EB50 glazing 88.4 (17.5mm)

ET 073014.00	24	●
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Wedge for EB49 glazing 88.4 (17.5mm)

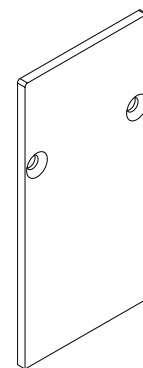
Wedge for EB50 glazing 1010.4 (21.5mm)

ET 073017.00	24	●
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PVC spacer 1.0mm

ET 074051.00	1	MF
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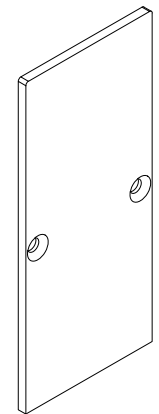
End cap for EB49 base

EB.A04

glass balustrade systems

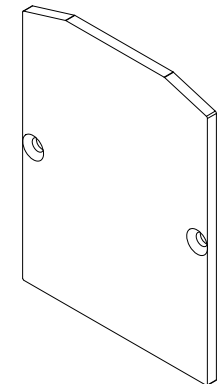
EB

code/description	package/pcs	colour
ET 074050.00	1	MF



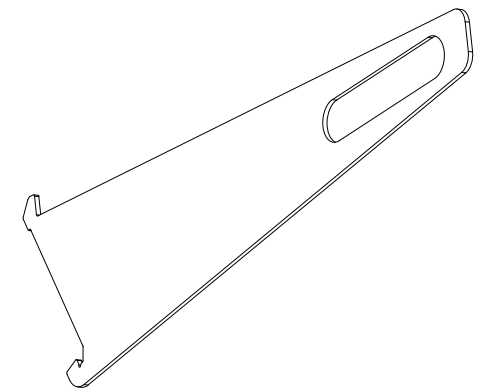
End cap for EB50 base

ET 074052.00	1	MF
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End cap for EB62 base

ET 990542.00	1	
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Wedge extractor

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EB.A05



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The specific conditions and technical details of every particular project have to be taken into consideration.

The right choice of all elements as well as any special requirements regarding stability of the structure must always be considered by the structural/façade engineer, responsible for the project.

The solutions presented in these pages are indicative and can not cover all possible project cases. Because of that every single project has to be evaluated by the structural/facade engineer in charge taking into consideration the specific features, such as climate conditions, location, orientation, etc.

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