

## **Installation manual for fire-resistant profile product Forster Fuego Light EI60**



### **Attention! General warnings!**

A Series of precautions must be taken to install this product. For safety reasons pay attention to following warnings and instructions! In case of doubt contact the supplier. This manual is meant for experienced installer.



Read this manual carefully before installation.



Protective gloves are recommended.



Parts of the product are heavy.



All that is necessary to install this product is included in the package except insulation material between the wall and the frame and support blocks. Adding other elements may affect safety and warranty.



Make sure that there is enough light in the installation area. Remove items not necessary and dirt. Unauthorized persons (especially children!) may get hurt if present.



Make sure that the wall is strong enough for installation. In case of doubt contact the constructor.



If the installation is not in accordance with the instructions and if locks and materials not specified by the manufacturer are used for the door set, the door will lose its performance properties. In this case, the door does not meet its certification and declared properties, and the marking referring to the certificate must be removed from the product by the responsible of the works.

In case of questions contact AS Saku Metall Uksetehas.

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## 1 PRODUCT TYPES

This installation manual covers only following fire-resistant steel profile products:

1. Internal fire-resistant steel profile Forster Fuego Light EI60 products.
2. External fire-resistant steel profile Forster Fuego Light EI60 products.

## 2 INSTALLATION

### 2.1 Fixtures

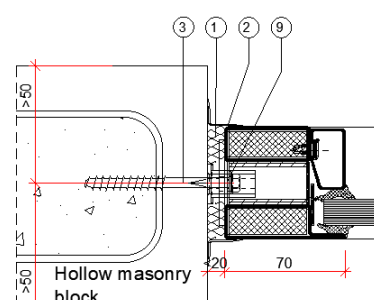
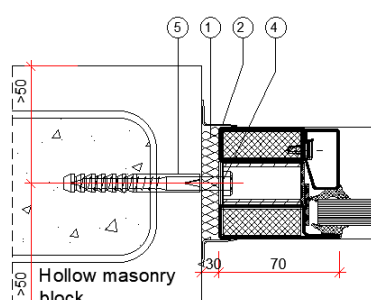
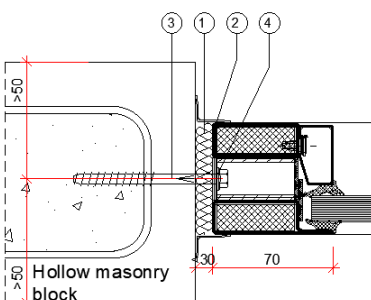
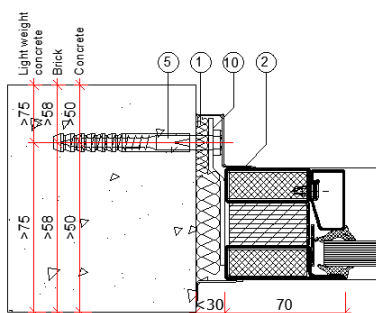
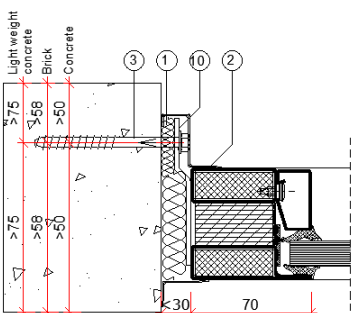
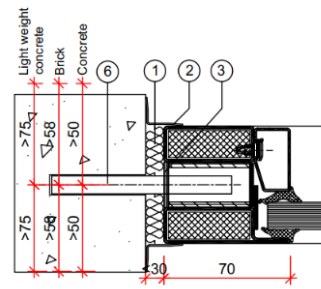
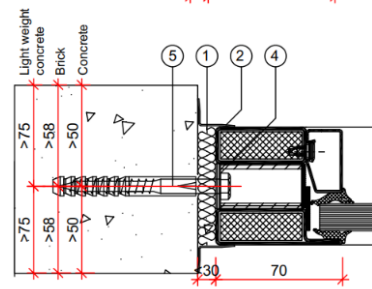
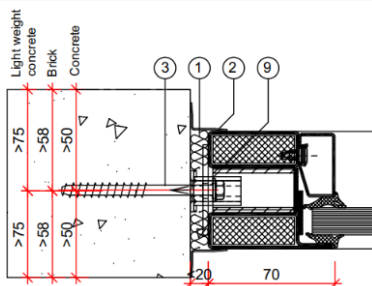
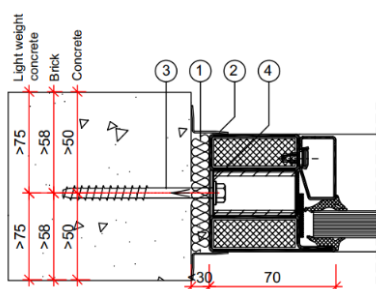
Materials used for installation must be non-flammable. **For sealing material between construction aperture and profile frame use stone wool with fire resistant class A1 and density 30 kg/m<sup>3</sup>.** Typical fastener variants according to the wall types are shown in Table 1. When fixing into concrete, concrete masonry, brick, lightweight concrete, or wood, select the length of the screw so that the screw thread reaches at least 50 mm into the wall. The door or window frame must be positioned in the wall so that the wall mounting screws are at least 50 mm from the wall edge for a concrete wall, 75 mm for a lightweight concrete wall and 58 mm for a brick wall.

When installing the product between steel construction of light walls made of gypsum or stone wool, the frame may be also fixed with self-tapping screws, with a minimum diameter of 6 mm. The length of the screws must be selected so that its thread passes through the steel profile by at least 10 mm. Typical fastening methods are shown in figures 1 and 2.

**Table 1** Typical fasteners variants according to wall types

Wall type	Fastener variants
<b>Concrete, concrete masonry or brick</b>	Steel sleeve M18 + concrete screw $\varnothing 7.5 \times 92$ (e.g. Essve 105287)
	Concrete screw $\varnothing 7.5 \times 92$ (e.g. Essve 105287)
	Screw $\varnothing 8 \times 100$ (e.g. Würth W-1192-8-100) + plastic wall plug
	Steel anchor $\varnothing 10$
<b>Lightweight concrete</b>	Steel sleeve M18 + concrete screw $\varnothing 7.5 \times 92$ (e.g. Essve 105287)
	Steel sleeve M18 + light concrete screw $\varnothing 8 \times 120$ (e.g. Essve 105232)
	Concrete screw $\varnothing 7.5 \times 92$ (e.g. Essve 105287)
	Light concrete screw $\varnothing 8 \times 120$ (e.g. Essve 105232)
	Screw $\varnothing 8 \times 100$ (e.g. Würth W-1192-8-100) + plastic wall plug
<b>Steel</b>	Steel sleeve M18 + self-tapping screw $\varnothing 7 \times 45$ (e.g. Essve 105379)
	Self-tapping screw $\varnothing 7 \times 45$ (e.g. Essve 105379)
	Self-tapping screw $\varnothing 6.3 \times 50$ hexagon (e.g. Würth W-0214-63-50)
<b>Wood</b>	Steel sleeve M18 + wood screw $\varnothing 6 \times 65$ (e.g. Essve 105294)
	Wood screw $\varnothing 6 \times 65$ TX30 (e.g. Essve 105294)

1	Stone wool density $\geq 30 \text{ kg/m}^3$
2	Cover, steel sheet 0,7 mm
3	Screw
4	Fixing plate, steel sheet 2 mm
5	Screw + wall plug
6	Steel anchor $\varnothing 10 \text{ mm}$
7	Wood screw
8	Self-tapping screw
9	Steel sleeve M18 with plate
10	Fixing plate, steel sheet 3 mm

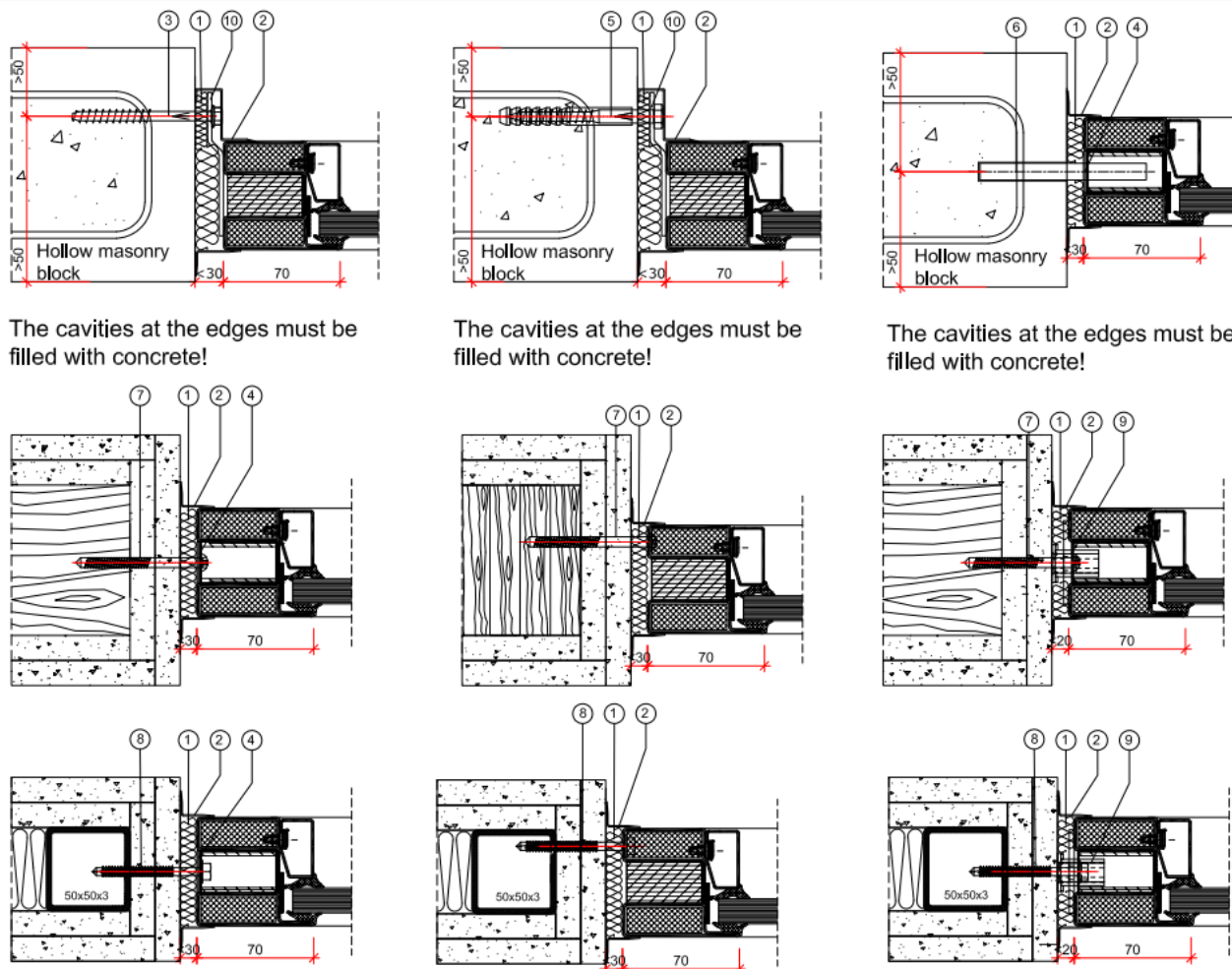


The cavities at the edges must be filled with concrete!

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**Figure 1** Typical fastening methods



**Figure 2** Typical fastening methods

## 2.2 Order of installation for door

1. Check the preparation of construction aperture. The greatest allowed width of construction aperture from frame is +60 mm (with steel sleeves +40 mm) and height +25 mm (with steel sleeves +20 mm). In case of larger gaps bring the construction aperture into compliance with the required dimensions.
2. Check the presence of fixings and tools.
3. Prepare the support blocks. The support blocks must be made of non-flammable material (e.g. promatect, concrete or steel sheet). The thickness of the support block must be 10 mm, width 45 mm and maximum length 100 mm.
4. Place the frame without the leaf into the construction aperture. Ensure that the frame is supported at the bottom to prevent deformation of the frame during operation. Check levelling of upper profile of the frame. Support the threshold as close as possible to the fixing points, to avoid its excessive bending upon stepping.
5. Level the hinge side of the frame and drill the first fixing point through frame. Correct sequence of the fixing points is shown in the figure 3.
- 5.1. Frame without steel sleeves.

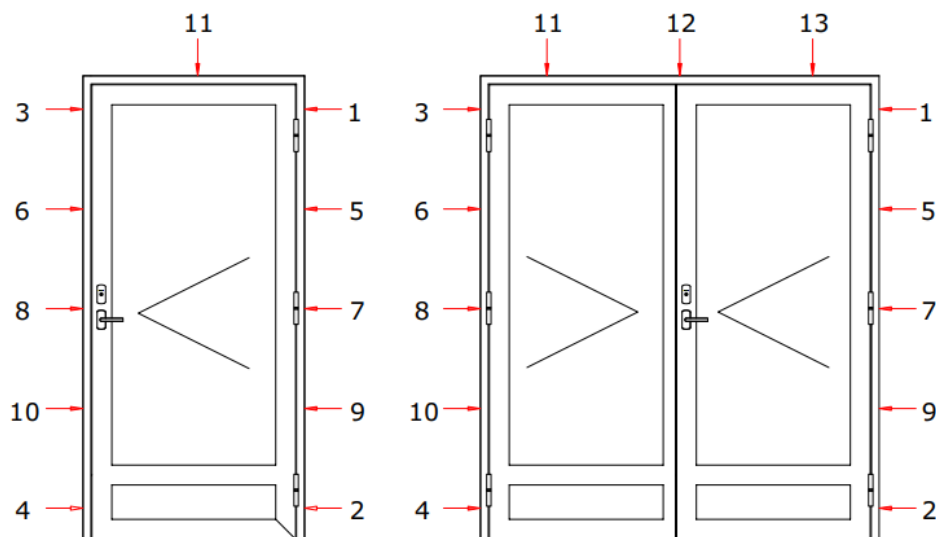
Make sure that the gaps between the frame and wall are equal when tightening the screws. Place support blocks in the gap against screw, to support every fixing point, then tighten the screws. Check vertical position of the frame side surface. If necessary, loosen the screw and correct position of the frame.



### 5.2. Frame with steel sleeves.

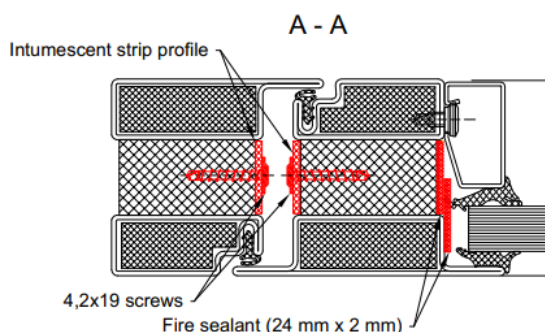
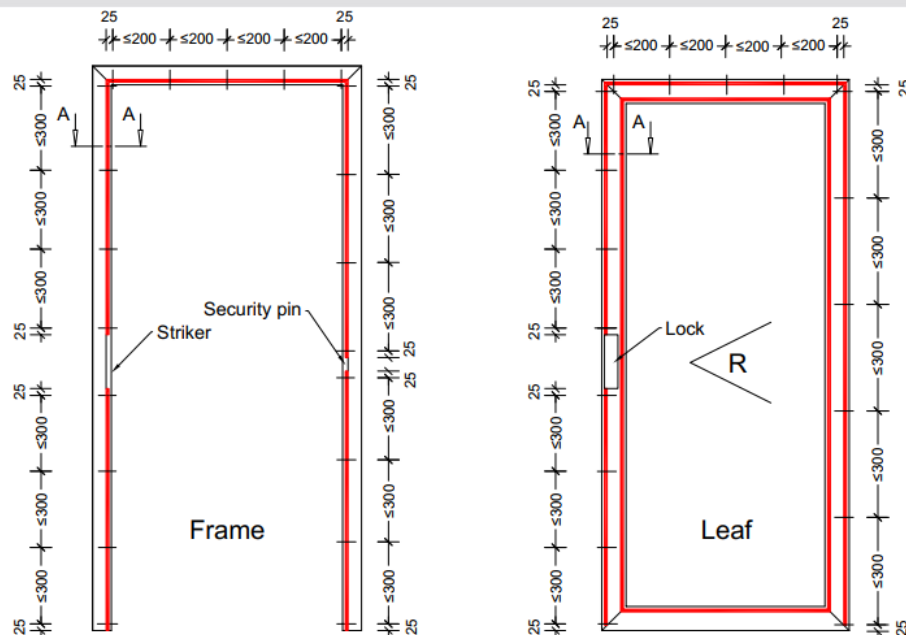
Tighten the sleeves against the wall. Frames with sleeves do not require support blocks between the frame and the wall. If the sleeve does not extend to the wall, use additional fire-resistant plates. Use proper fixings for ESSVE sleeves (section 1 Fixtures). Tighten the screws.

Do the same with fixing spots number 2 and 3. Check vertical position of the frame side surface.

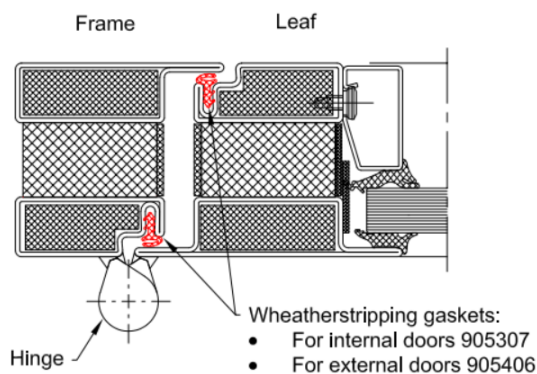


**Figure 3** Sequence of the fixing points for doors

6. Lift the door leaf on to the hinges and check the parallelity between leaf and frame. If necessary, adjust the screws (or steel sleeves) and width of the support blocks.
7. Fix the frame with remaining fixing points (Figure 3). Support blocks must be added next to every fixing point. Tighten the screws.
8. Install intumescent strip profile onto the frame. The surface must be first cleaned of dust and dirt with cleaning agent and cleaning paper, especially the surfaces of the ends of the seal and inner corners of the frame. Make sure the seal is glued properly, fix the seal with 4.2x19 mm screws according to the screw pitch shown in Figure 4.  
If the product is not glazed, then clean the dust and dirt from the glazing opening with cleaning agent and cleaning paper and install two layers of fire sealant (24 mm x 2 mm) (Figure 4). Glass installation is described in the section 2.4.


**Figure 4** Installation of fire sealants

9. Seal the gaps between wall and frame. **For sealing material between construction aperture and profile frame use stone wool with fire resistant class A1 and density 30 kg/m<sup>3</sup>.**
10. Sealed gaps must be covered with steel sheets, plaster mixture or construction boards. For external products use fire-resistant silicone for the gaps between threshold or wall section and base surface.
11. During installation, make sure that the weatherstripping gasket is installed in the right direction (Figure 5).


**Figure 5** Installation of weatherstripping gaskets



12. Install locks (and other hardware) according to the installation manual. Fix handles to the lock and check closure and operation of the lock tumbler (and latch bolt) with opening and closing of door. Check opening of lock with keys. **NB! Make sure that all the hardware is suitable with the products fire-resistance class.**
13. Check with induction tester that the product is not under voltage. Otherwise switch off the power and ground the product. Electrical operations can be performed only by a qualified electrician. AS Saku Metall Uksetehas does not perform electrical operations.

### 2.3 Order of installation for window/wall

1. Check the preparation of construction aperture. The greatest allowed width of construction aperture from frame is +60 mm (with steel sleeves +40 mm) and height +25 mm (with steel sleeves +20 mm). In case of larger gaps bring the construction aperture into compliance with the required dimensions.
2. Check the presence of fixings and tools.
3. Prepare the support blocks. The support blocks must be made of non-flammable material (e.g. promatect, concrete or steel sheet). The thickness of the support block must be 10 mm, width 45 mm and maximum length 100 mm.
4. Place the frame without the glass into the construction aperture. Check levelling of horizontal and vertical profiles of the frame.
5. Level the right side of the frame and drill the first fixing point through frame. The correct sequence of the fixing points is shown in the figure 6.

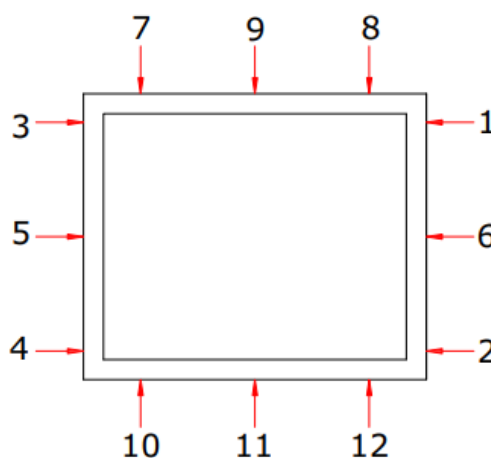
#### 5.1. Frame without steel sleeves.

Make sure that the gaps between the frame and wall are equal when tightening the screws. Place support blocks in the gap against screw, to support every fixing point, then tighten the screws. Check vertical position of the frame side surface. If necessary, loosen the screw and correct position of the frame.

#### 5.2. Frame with steel sleeves.

Tighten the sleeves against the wall. Frames with sleeves do not require support blocks between the frame and the wall. If the sleeve does not extend to the wall, use additional fire-resistant plates. Use proper fixings for ESSVE sleeves (section 1 Fixtures). Tighten the screws.

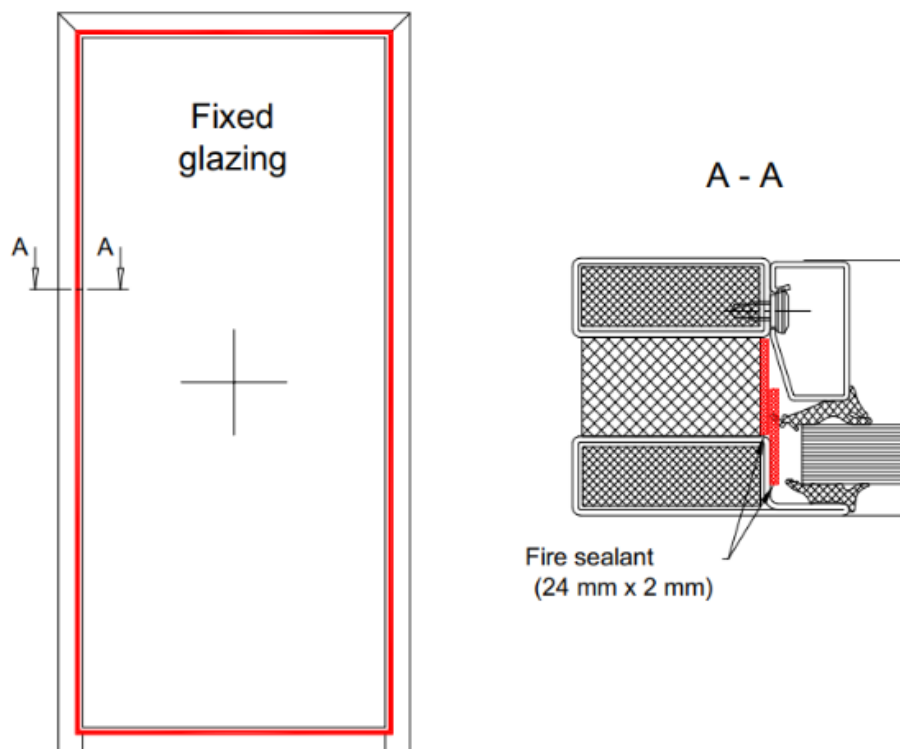
Do the same with fixing spots number 2 and 3. Check vertical position of the frame side surface.



**Figure 6** Sequence of the fixing points for fixed glazing



6. Fix the frame with remaining fixing points (Figure 6). Support blocks must be added next to every fixing point. Tighten the screws.
7. Clean the dust and dirt from the glazing opening with cleaning agent and cleaning paper. Install two layers of fire sealant (24 mm x 2 mm) (Figure 7).



**Figure 7** Installation of fire sealant

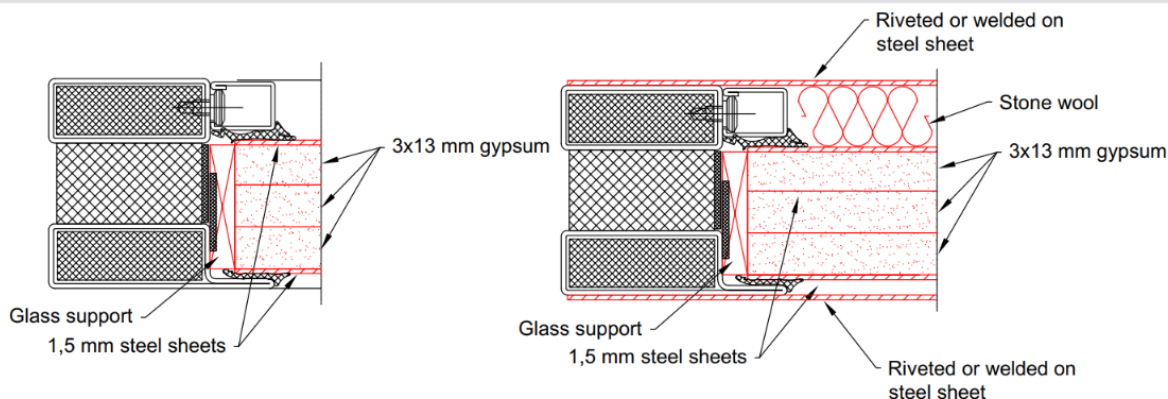
8. Now install the glass. See section 2.4.
9. Seal the gaps between wall and frame. **For sealing material between construction aperture and profile frame use stone wool with fire resistant class A1 and density 30 kg/m<sup>3</sup>.**
10. Sealed gaps must be covered with steel sheets, plaster mixture or construction boards. For external products use fire-resistant silicone for the gaps between threshold or wall section and base surface.

## 2.4 Glazing

Fire-resistant doors are glazed at AS Saku Metall Uksetehas, windows and walls are glazed on the construction site. Forster fire-proof rubber or Keraband seals are used for glazing. Window and wall products glazing bead screws are already installed at the factory, maximum distance between two screws may be 300 mm.

Glass may be replaced by panel. Panels must consist of three 13 mm thick gypsum plates (e.g. Gyproc GN) surrounded by 1,5 mm steel sheets. In addition, it is possible to add riveted or welded on steel sheets on to the frame, but then the panel consisting of gypsum and steel sheets must also be used. Empty space must be filled with stone wool (Figure 8).



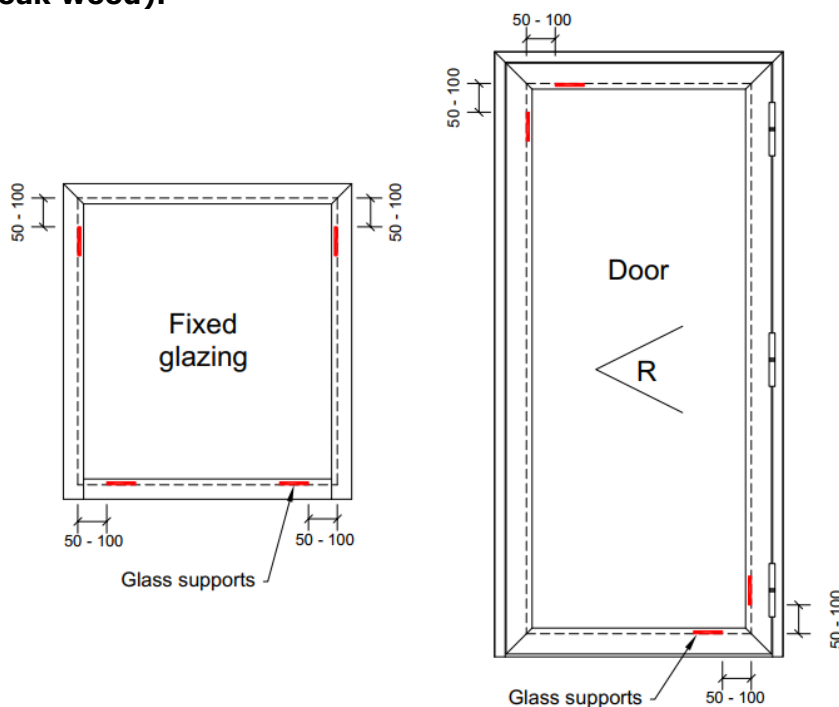


**Figure 8** Panel variants for EI60 product

Glazing installation sequence:

1. Clean the dust and dirt from the glazing opening.
2. Place glass supports on to the frame (Figure 9).

Height of the glass supports must be 10 mm and thickness must be equal to the glass thickness. **NB! Glass supports must be made of non-flammable material (e.g., Promatect, oak wood).**



**Figure 9** Glass supports locations

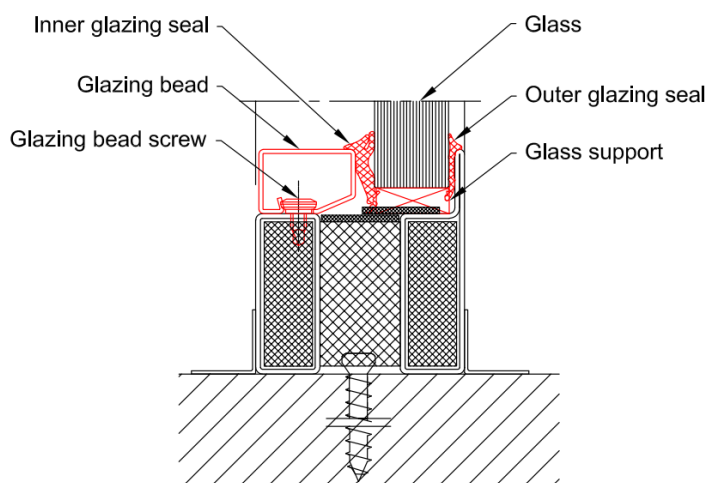
3. When using **Forster fire-proof rubber seals**:

- 3.1. Lift the glass on to the glass supports, then check that the gaps between the frame and glass is equal at both sides. Maximum allowed gaps on the sides are 8 mm and at the top 6 mm. Be sure to follow the instructions provided by the glass manufacturer (e.g. for insulating glass units, it is important to check which side of the glass is facing outwards / inwards; fire protection glass may be afraid of cold and direct sunlight)
- 3.2. Install the glazing beads using rubber or plastic hammer.
- 3.3. After that rubber seals need to be pressed between glazing beads and glass, that can be done with sealing roll.



### 4. When using **Keraband seals**:

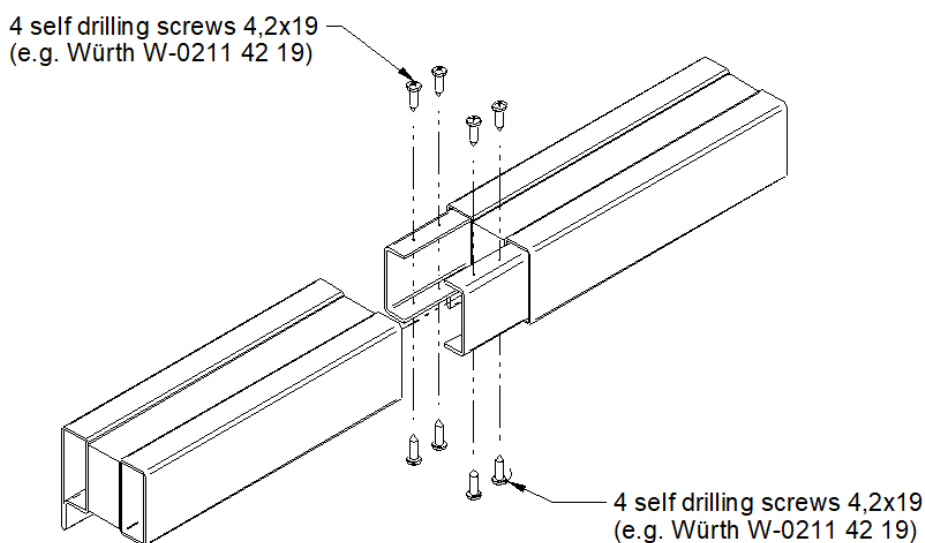
- 4.1. Glue the outer seal on to the frame and inner seal onto the glazing bead.
- 4.2. Lift the glass on to the glass supports, then check that the gaps between the frame and glass is equal at both sides. Maximum allowed gaps on the sides are 8 mm and at the top 6 mm. Be sure to follow the instructions provided by the glass manufacturer (e.g. for insulating glass units, it is important to check which side of the glass is facing outwards / inwards; fire protection glass may be afraid of cold and direct sunlight)
- 4.3. Install the glazing beads using rubber or plastic hammer. First install the top glazing bead, then the bottom and after that, the sides.
- 4.4. If Keraband seals are used for exterior product, then they must be covered with fire-proof silicone.



**Figure 10** Glass installation

## 2.5 Connecting profiles by using guides

Products with large dimensions are produced by using connecting profiles. Different parts of the frame are assembled at the construction site using self-tapping screws (Figure 11).



**Figure 11** Assembling with connecting profiles