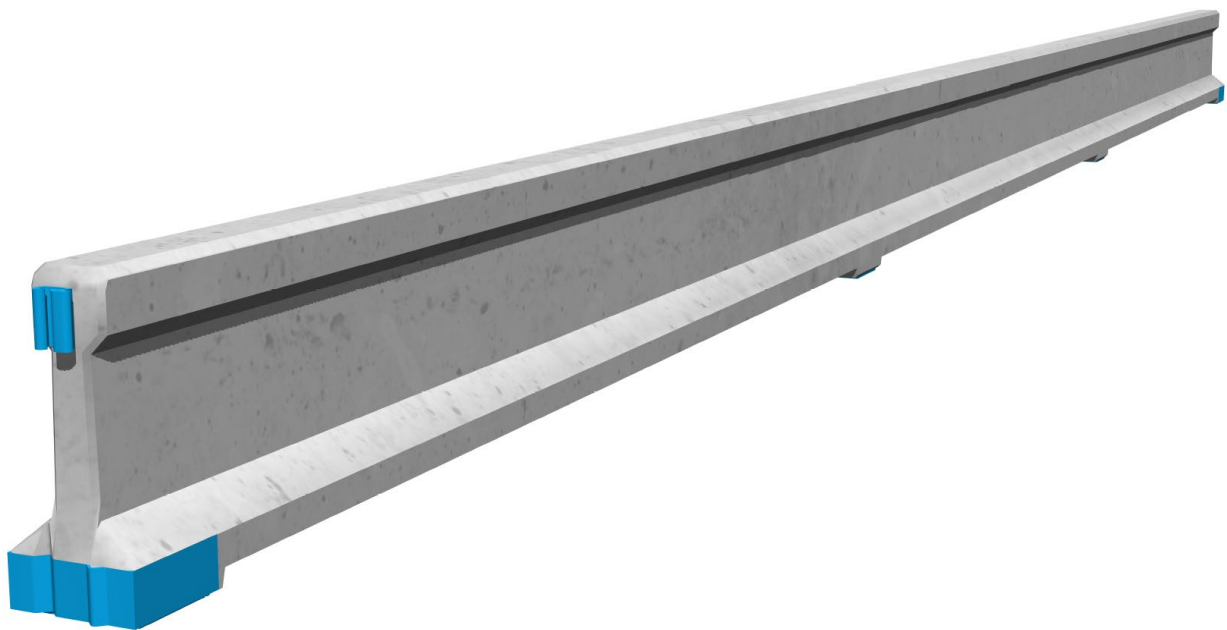


## INSTALLATION INSTRUCTIONS

### REBLOC PRECAST CONCRETE SAFETY BARRIER

REBLOC 60H\_4 - free-standing

REBLOC 60H\_12 - free-standing



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## 1. Important remarks

These installation instructions are intended to assist with the installation of REBLOC precast concrete safety barrier. Before commencing any installation work, it is essential to familiarize oneself thoroughly with the compliance of all relevant specific regulations and standards (construction, installation, safety, etc.), and similar applies for the machinery and equipment used during the installation procedure e.g. all lifting equipment or cranes.

When working in the vicinity of high-voltage power lines, all relevant accident prevention regulations must be observed.

When elements cannot be placed on a level or paved surface for short or long time intervals (e.g. for intermediate storage during system installation), appropriate measures must be taken to prevent overturning of the elements (e.g. use wooden underlayment to ensure a level foundation).

Ensure that this installation instruction is the current and valid edition (see identification number). Information about any changes to these installation instructions must be obtained independently.

## 2. Protective clothing and accessories

The following personal protective equipment must be worn during the installation of the safety barrier:



High visibility clothing



Head protection



Hearing protection



Hand protection



Foot protection



Danger of crushing!

### **3. General**

To ensure the effective functionality of the individual systems, it must be ensured that only matching elements are connected. In case of exceptional local conditions, it is important to refer to the national regulations and / or to consult the system manufacturer, regarding installation methods.

Information on the product characteristics of this system can be found in the technical data sheet, see chapter Further documents.

### **4. Choice of appropriate system**

The selection of the appropriate REBLOC system is undertaken by the contractor or road designer according to the national requirements, the local conditions, and the tender requirements based on EN 1317. The principal criteria are the containment level, the working width, and the impact severity level.

### **5. Delivery of elements**

The elements are delivered to the construction site by suitable vehicles (preferably open semitrailer trucks). Unobstructed access and exit routes must be provided. Conformity with the prescribed traffic management safety procedures must be ensured in the case of construction sites on roads/motorways. The installation work must be carried-out in the direction of traffic flow.

For the transport of the elements, the corresponding transport instructions from REBLOC must be followed.

### **6. Unloading the elements**

Before lifting elements, check the lifting device for damage (e.g. corrosion) and wear. Persons must not be in the danger zone of the suspended load.

After removing the securing belts/devices, the elements must be individually lifted from the vehicle. Lifting of the elements with a suitable crane (truck mounted crane, mobile crane or excavator/JCB). Use lifting devices with appropriate lifting capacity. When using two-strand lifting gear (e.g. chain slings), make sure that the angle between the two strands (spread angle) is a maximum of 60°. The length of the lifting device must be adjusted to achieve this angle.

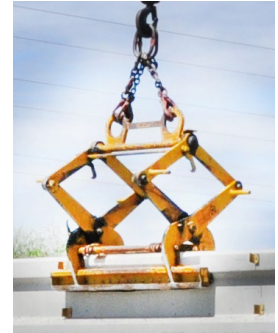
Base elements are equipped with integrated lifting anchors. Use lifting devices with appropriate lifting capacity. All technical information provided by the manufacturer of the lifting device must be fully implemented.

The lifting anchors built into the elements are designed for dynamic forces that can occur when carefully lifting and moving the elements using a mobile crane (dynamic factor 1.3). The lifting anchors are not designed for dynamic forces that occur when elements are transported over the area, suspended from the lifting anchors.

A suitable moulded grab (e.g. clamp) can also be used for lifting and moving the elements.

Use moulded grabs with sufficient load-bearing capacity! The manufacturer's specifications for the corresponding moulded grabs must be observed.

Example: VINCENT moulded grab type 1507



- Check the lifting equipment for integrity and functionality before moving/lifting the elements.
- The installation work should only be carried-out by experienced and appropriately trained employees.
- A minimum working width of 7 m for crane and installation work is recommended, exclusive of any of national regulations and guidelines for work on motorways. At least 5 m on the traffic side, where the crane and installation work will be carried out, and at least 2 m on the opposite traffic flow direction.
- Elements must always be individually lifted, one after the other. Never attempt to lift two or more concrete elements at the same time.
- Elements of the safety barrier should be guided horizontally and vertically, as much as possible, and no swinging of an element is allowed. At all times, it must be ensured that at construction sites on busy roads, no parts of the elements or the vehicles involved (truck and crane) protrude into the traffic area.
- When lifting the elements, damage to the same must be avoided.

## 7. Dilatation

Depending on the local site conditions REBLOC recommends installing a dilatation approximately every 400 m. These elements take up movements of the bridge caused by temperature fluctuations.

Product features, construction and installation instructions see REBLOC standard drawing 60H Dilatation.

## 8. Safety instructions and further information

- The location and alignment of safety barrier should be marked-out by the contractor and adhered to in the installation of the elements. Ensure a continuous and visual alignment.
- Elements of the safety barrier must be installed in accordance with the installation plan.
- The work should be carried out on the traffic-free side of the safety barrier, and an appropriate safety distance from flowing traffic must be maintained.
- When working in places where there is a risk of falling, appropriate safety protection for assembly personnel, devices and tools must be ensured.

## 9. Further documents

Technical datasheet REBLOC 60H\_4

Technical datasheet REBLOC 60H\_12

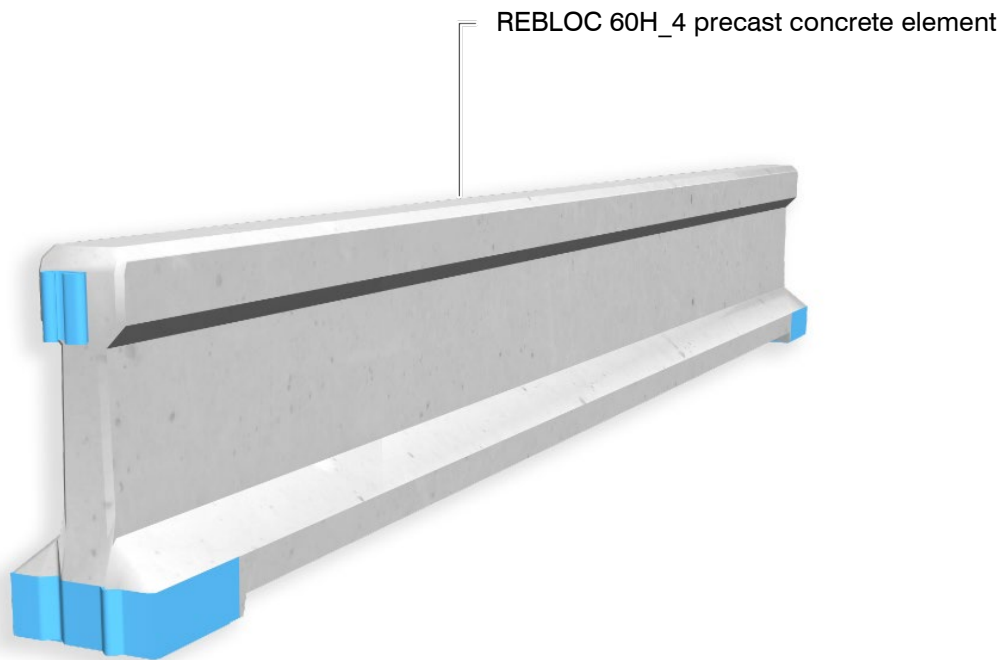
Standard drawing REBLOC 60H Dilatation

## 10. REBLOC 60H\_4 – free standing

### 10.1 Applications

- Free-standing
- Safety barrier for single-sided and double-sided application

### 10.2 System components



### 10.3 Minimum installation length

To ensure the functionality of the various REBLOC Systems, the conforming minimum installation length is required. This differs, and depends on the system and the containment level, and is specified in the technical data sheet.

#### 10.4 Specification for radii and angles

	Curve	Crest	Sag	Torsion
Maximum longitudinal angle between two adjacent elements	3.4 °	0.8 °	4.7 °	-
Radius	≥ 65 m	≥ 270 m	≥ 50 m	-
Maximum angle in transverse direction between two adjacent elements	-	-	-	1.2 °

Any further requirements can be met with individual solutions after consultation with REBLOC. Crest/sag/torsion leads to situations, where elements do not have full contact to the ground. Shorter elements reduce this effect.

#### 10.5 Initial-/end anchorage

In this application the safety barrier requires anchoring at the beginning and at the end of the system. Possible installation of terminals is listed in the technical datasheet and must be clarified with REBLOC. Requirements for anchoring are listed in the anchor chart. If the safety barrier is connected force closed to suitable other safety barriers or structures, no terminals are needed.

#### 10.6 Anchorage of the standard route section

In this application the safety barrier is free-standing. The elements are not anchored with the ground.

#### 10.7 Continuous element chain

The restraining function is achieved through the coupling connection between each element to form a continuous element chain. It is therefore important to ensure that the individual elements are correctly connected by means of built-in couplings.



### 10.8 Ground

Possible ground:

- Asphalt
- Concrete

Other possible types of ground must be clarified with the manufacturer!

Further criteria:

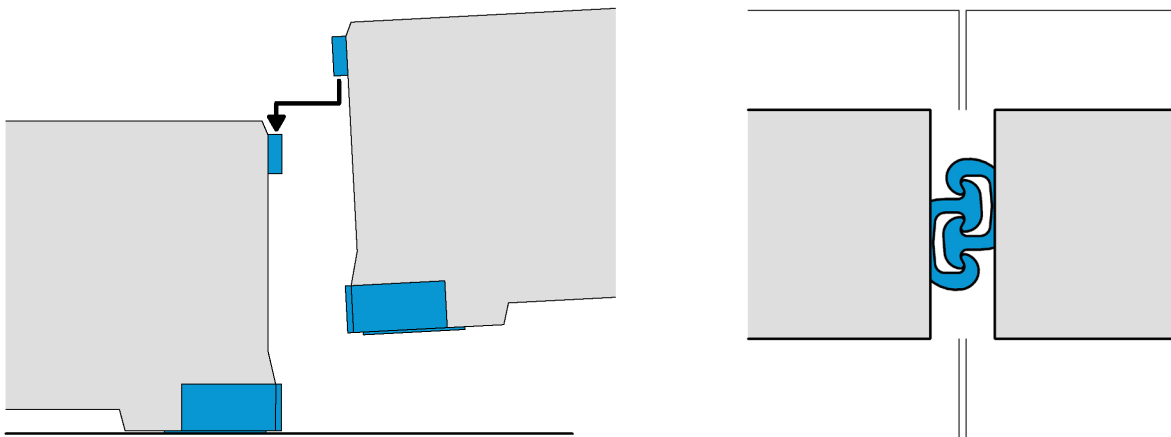
- The flatness of the substrate shall not exceed  $\pm 1.5$  cm per 8 m measuring length (lengthways)
- Maximum cross slope: 10 %
- Load-bearing capacity: minimum 200 kN/m<sup>2</sup>
- Subgrade: deformation modulus  $E_{v2}$  min. 45 MN/m<sup>2</sup>
- Installation surface must be free from foreign objects, ice and snow
- Condition of the underground according to national regulations and standards.

### 10.9 Tooling/assembly accessories

- 2 pcs. mounting irons

### 10.10 Positioning and connection of the elements

Place the elements along the pre-marked alignment line. The face sides of the concrete elements are equipped with steel shoes that have protrusions and indentations. Connect each element from above to the previously placed element, ensuring that the protruding couplings interlock with one another. When connecting the elements, make sure that the couplings interlock positively and form a continuous element chain.



Continue the process described above until the desired number of elements has been placed.

The safety barrier must be placed level with the carriageway, and there must be no obstacles within the working width of the safety barrier.

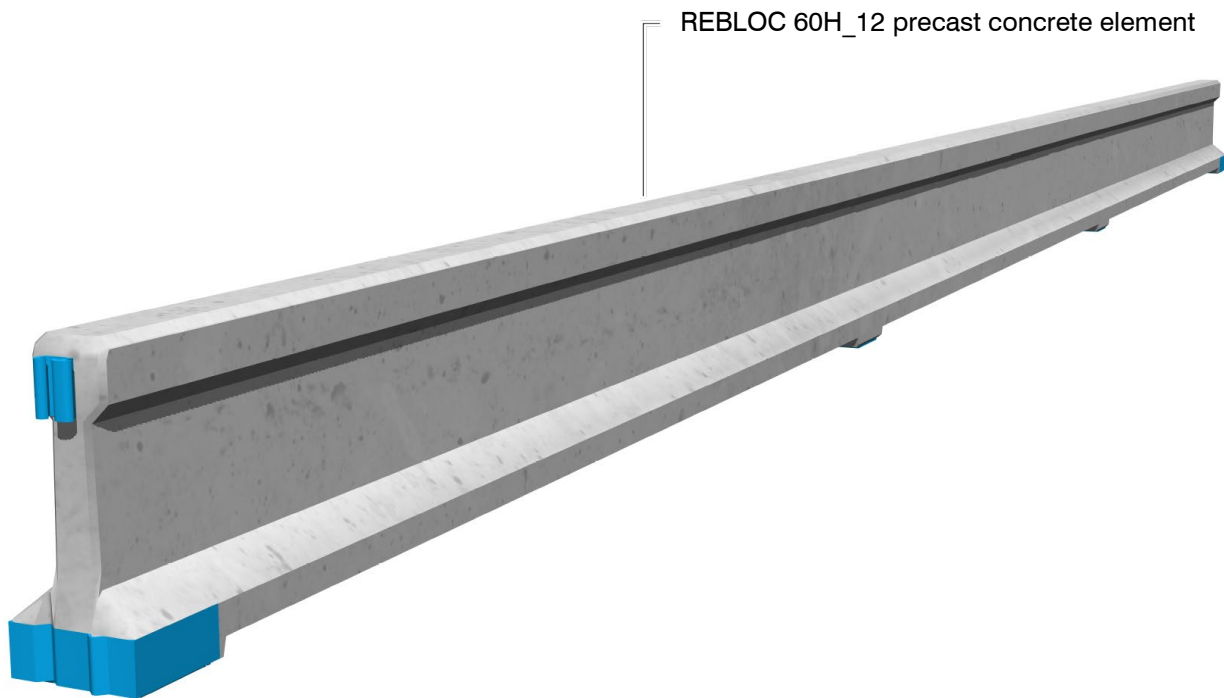
When positioning and connecting the elements, make sure that no parts of clothing or body are between or under the elements. Danger of crushing!

## 11. REBLOC 60H\_12 – free standing

### 11.1 Applications

- Free-standing
- Safety barrier for single-sided and double-sided application

### 11.2 System components



### 11.3 Minimum installation length

To ensure the functionality of the various REBLOC Systems, the conforming minimum installation length is required. This differs, and depends on the system and the containment level, and is specified in the technical data sheet.

#### 11.4 Specification for radii and angles

	<b>Curve</b>	<b>Crest</b>	<b>Sag</b>	<b>Torsion</b>
Maximum longitudinal angle between two adjacent elements	3.4 °	0.8 °	4.7 °	-
Radius	≥ 200 m	≥ 820 m	≥ 150 m	-
Maximum angle in transverse direction between two adjacent elements	-	-	-	1.2 °

Any further requirements can be met with individual solutions after consultation with REBLOC. Crest/sag/torsion leads to situations, where elements do not have full contact to the ground. Shorter elements reduce this effect.

#### 11.5 Initial-/end anchorage

For containment level N2:

In this application the safety barrier requires anchoring at the beginning and at the end of the system. Possible installation of terminals is listed in the technical datasheet and must be clarified with REBLOC. Requirements for anchoring are listed in the anchor chart. If the safety barrier is connected force closed to suitable other safety barriers or structures, no terminals are needed.

For containment level T3:

In this application the safety barrier does not require additional anchoring at the beginning and at the end of the system. Possible installation of terminals must be clarified with REBLOC.

#### 11.6 Anchorage of the standard route section

In this application the safety barrier is free-standing. The elements are not anchored with the ground.

#### 11.7 Continuous element chain

The restraining function is achieved through the coupling connection between each element to form a continuous element chain. It is therefore important to ensure that the individual elements are correctly connected by means of built-in couplings.

### 11.8 Ground

Possible ground:

- Asphalt
- Concrete

Other possible types of ground must be clarified with the manufacturer!

Further criteria:

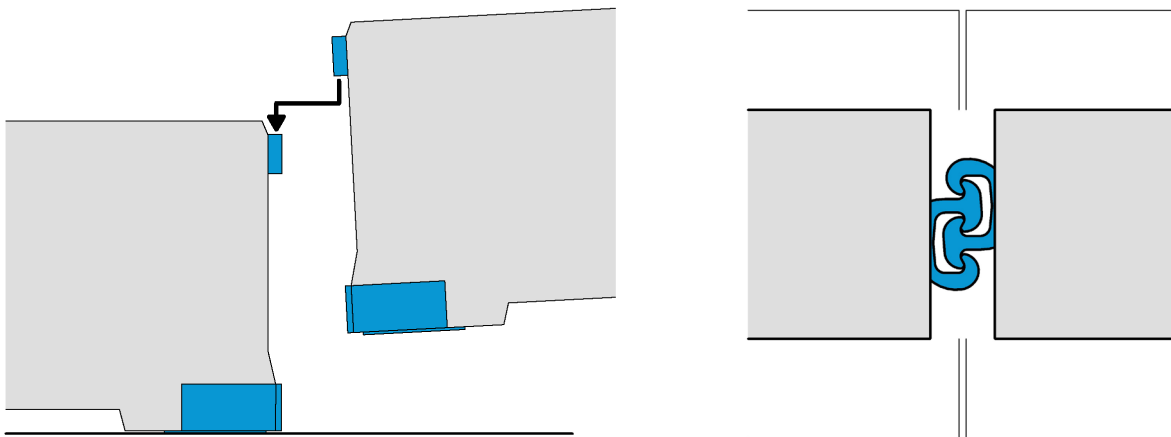
- The flatness of the substrate shall not exceed  $\pm 1.5$  cm per 8 m measuring length (lengthways)
- Maximum cross slope: 10 %
- Load-bearing capacity: minimum 200 kN/m<sup>2</sup>
- Subgrade: deformation modulus  $E_{v2}$  min. 45 MN/m<sup>2</sup>
- Installation surface must be free from foreign objects, ice and snow
- Condition of the underground according to national regulations and standards.

### 11.9 Tooling/assembly accessories

- 2 pcs. mounting irons

### 11.10 Positioning and connection of the elements

Place the elements along the pre-marked alignment line. The face sides of the concrete elements are equipped with steel shoes that have protrusions and indentations. Connect each element from above to the previously placed element, ensuring that the protruding couplings interlock with one another. When connecting the elements, make sure that the couplings interlock positively and form a continuous element chain.



Continue the process described above until the desired number of elements has been placed.

The safety barrier must be placed level with the carriageway, and there must be no obstacles within the working width of the safety barrier.

When positioning and connecting the elements, make sure that no parts of clothing or body are between or under the elements. Danger of crushing!