

## Prestatieverklaring nr.: DOP\_IL\_ETA-17-0773\_v3\_BE-nl

### 1. Unieke identificatiecode van het producttype:

Schöck Isolink® type C voor betonnen sandwichwanden

### 2. Gebruiksdoeleinde:

Verbinder van glasvezelversterkte kunststof (GVK) voor het gebruik in sandwich- en elementwanden van beton

### 3. Fabrikant:

Schöck Bauteile GmbH, Schöckstraße 1, 76534 Baden-Baden

### 4. Systeem/systemen voor de beoordeling en verificatie van de prestatiebestendigheid:

Systeem 2+

### 5. Technische beoordeling:

Europees beoordelingsdocument/geharmoniseerde norm/nationale norm:

EAD 330387-00-0601, uitgave 02/2023

Europese technische beoordeling/goedkeuring:

ETA-17/0773, opgesteld op 27 oktober 2023

Technische keurings-/certificeringsinstantie:

Deutsches Institut für Bautechnik (DIBt), Kolonnenstr. 30B, 10829 Berlin

Aangemelde instantie/instantie externe controle:

IFBT GmbH – Institut für Fassaden- und Befestigungstechnik, Leipzig

NB 1109

### 6. Aangegeven prestatie(s):

| Essentiële kenmerken                            | Prestaties     |
|---|----------------|
| Druksterkte van de GVK                          | Zie bijlage C1 |
| Betondruksterkte                                | Zie bijlage C1 |
| Treksterkte van de GVK                          | Zie bijlage C1 |
| Betontreksterkte                                | Zie bijlage C1 |
| Weerstand van de GVK tegen dwarsbelasting       | Zie bijlage C1 |
| Weerstand van het beton tegen dwarsbelasting    | Zie bijlage C1 |
| Maximale toegestane vervorming in dwarsrichting | Zie bijlage C1 |
| Minimale Rand- en hart-op-hartafstand           | Zie bijlage B2 |
| Elasticiteitsmodulus                            | Zie bijlage B2 |
| Geometrische gegevens                           | Zie bijlage B2 |

### 7. Toepasselijke technische documentatie en/of specifiek technische documentatie:

De technische documentatie met betrekking tot de technische beoordeling van Schöck Isolink® type C voor betonnen sandwichwanden is ingediend bij het DIBt.

De prestatie(s) van het voornoemde product zijn conform de aangegeven prestatie(s). Verantwoordelijk voor het opstellen van de prestatieverklaring in overeenstemming met de verordening (EU) nr. 305/2011 is uitsluitend de bovengenoemde fabrikant. Ondertekend voor en namens de fabrikant door:

Baden-Baden, 15.11.2023

(Plaats, datum)



(Dr.-Ing. Niklas Puttendörfer, Head of R&D)

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-17/0773**  
**of 27 October 2023**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Schöck Isolink type C for multi-layer concrete panels

Product family  
to which the construction product belongs

Glass fibre reinforced plastics connectors for use in  
sandwich and element walls made of concrete

Manufacturer

Schöck Bauteile GmbH  
Schöckstraße 1  
76534 Baden-Baden

Manufacturing plant

Schöck Werk  
Ringstraße 2  
06188 Landsberg

This European Technical Assessment  
contains

15 pages including 3 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

330387-00-0601, Edition 02/2023

This version replaces

ETA-17/0773 issued on 21 December 2020

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## Specific Part

### 1 Technical description of the product

The Schöck Isolink type C with nominal diameter of 12 mm is an anchor which consists of a glass fibre reinforce plastic bar. The anchor has a profile in the shape of a trapezoidal thread with a profile depth of 0,60 to 0,75 mm and a pitch of 8 mm. The ends of the anchor are inclined.

The anchor is embedded on both sides in the concrete. It is orientated perpendicular to the wall. The product description is given in Annex A.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the GFRP connector is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the GFRP connector of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Mechanical resistance and stability (BWR 1)

| Essential characteristic   | Performance  |
|--|--------------|
| Resistance to GFRP failure under compression load                                  | See Annex C1 |
| Resistance to concrete failure under compression load                              | See Annex C1 |
| Resistance to GFRP failure under tension load                                      | See Annex C1 |
| Resistance to concrete failure (cracked and uncracked concrete) under tension load | See Annex C1 |
| Resistance to GFRP failure under shear load  | See Annex C1 |
| Resistance to concrete failure under shear load                                    | See Annex C1 |
| Maximum acceptable shear deformation   | See Annex C1 |
| Minimum edge distances and spacing   | See Annex B2 |
| Modulus of Elasticity  | See Annex B2 |
| Geometric parameters   | See Annex B2 |

English translation prepared by DIBt

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

In accordance with EAD No. 330387-00-0601, the applicable European legal act is: [2000/273/EC].

The system to be applied is: 2+

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

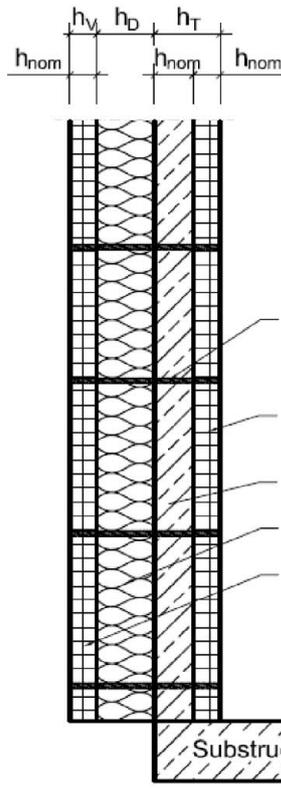
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 27 October 2023 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock  
Head of Section

*beglaubigt:*  
Müller

Element wall with  
Schöck Isolink® Type C



Sandwich wall with  
Schöck Isolink® Type C

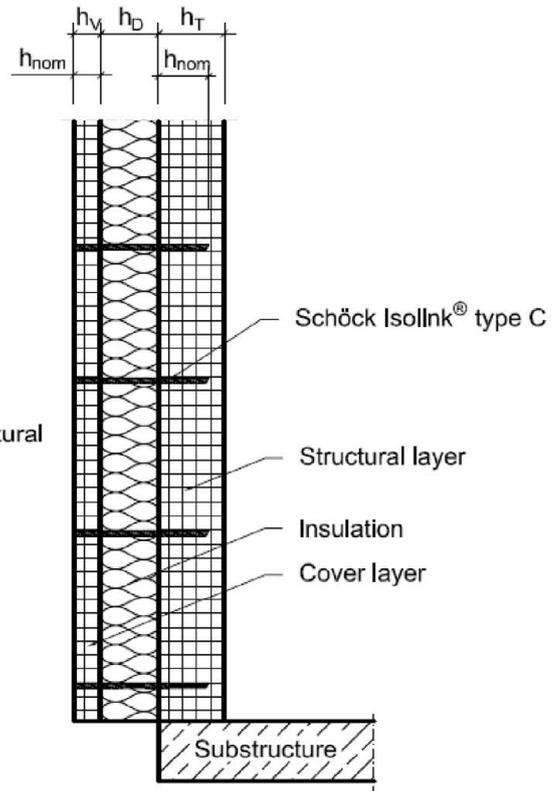
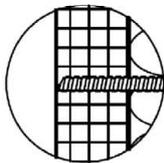


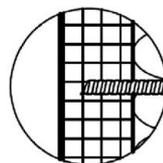
Fig. 1: Schöck Isolink® type C  
Wall with non-supported cover layer

Schöck Isolink® type C can be used in the version type C-SH as well as type C-EH

Detail Schöck Isolink® in cover layer



Isolink® Typ C-EH



Isolink® Typ C-SH

**Schöck Isolink® for multi-layer concrete panels**

**Product description**

Installed condition with Schöck Isolink® Type C-EH and Type C-SH

**Annex A1**

Element wall  
Schöck Isolink® Type C

Sandwich wall  
Schöck Isolink® Type C

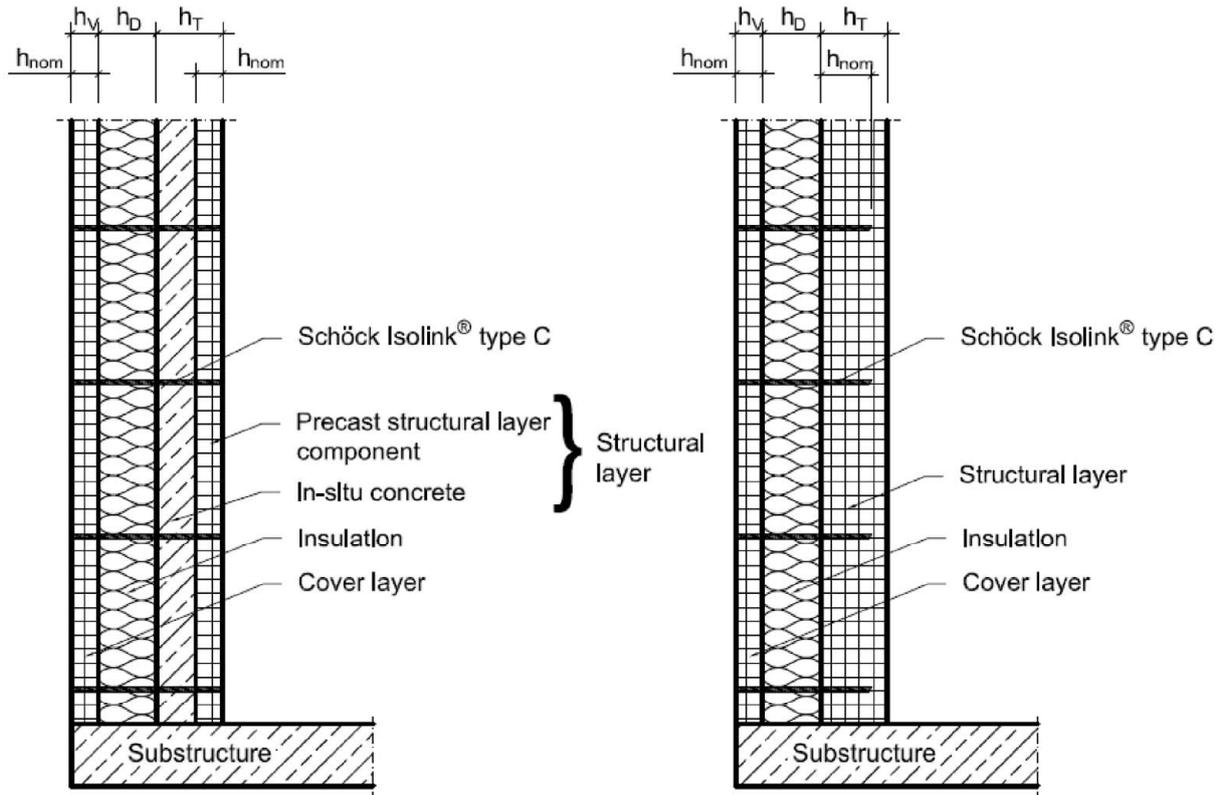
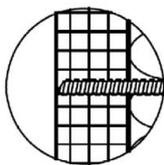


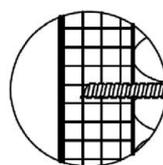
Fig. 2: Schöck Isolink® type C  
Wall with non-supported cover layer

The Schöck Isolink® type C can be used in the version type C-SH as well as type C-EH

Detail Schöck Isolink® in cover layer



Isolink® Typ C-EH



Isolink® Typ C-SH

**Schöck Isolink® for multi-layer concrete panels**

**Product description**

Installed condition with Schöck Isolink® Type C-EH and Type C-SH

**Annex A2**

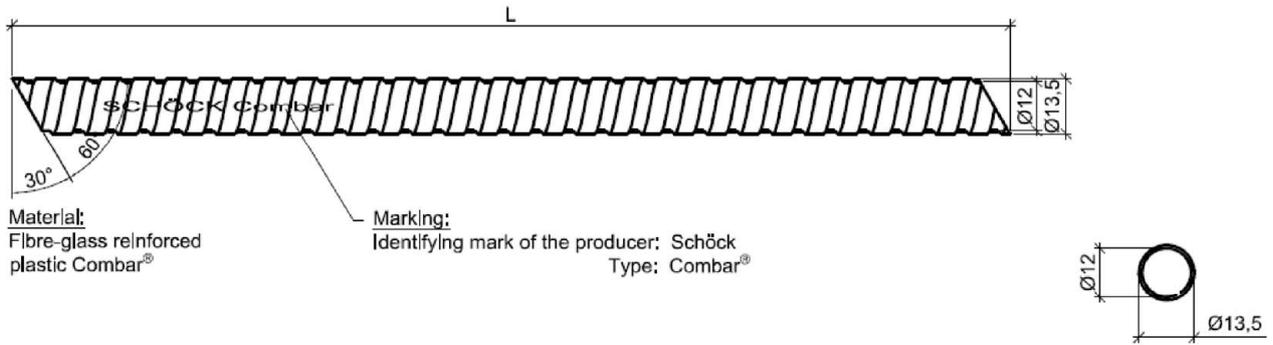


Fig. 3: Schöck Isolink® type C-EH

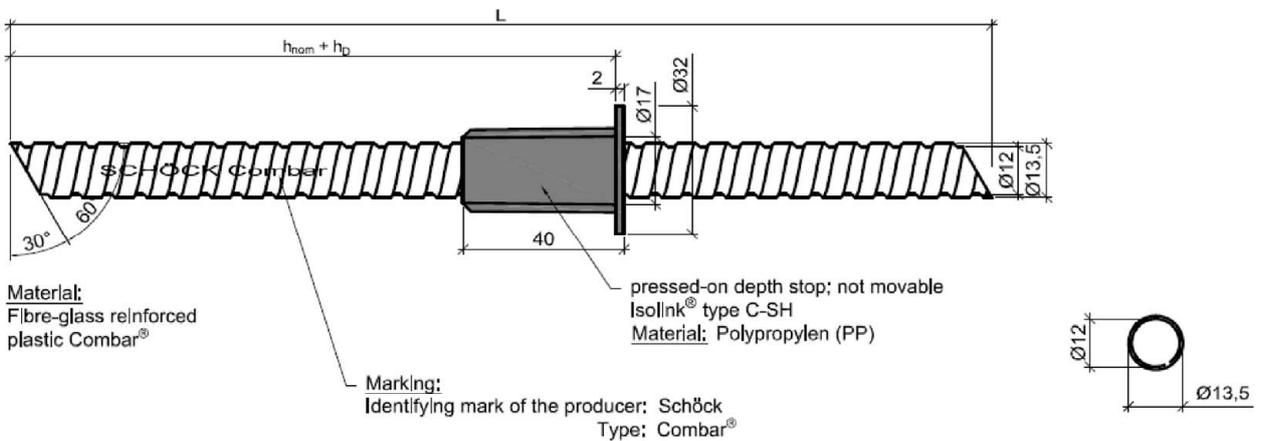


Fig. 4: Schöck Isolink® type C-SH

Schöck Isolink® for multi-layer concrete panels

Product description  
Material and dimensions

Annex A3

## Specifications for intended use

### B.1 Connectors subject to:

- Static and quasi-static tension, compression and shear.

#### B.1.1 Base materials

- Compacted reinforced normal-weight concrete without fibres according to EN 206:2013 +A2:2001.
- Strength classes C20/25 to C50/60 according to EN 206:2013 + A2:2021
- Cracked or uncracked concrete

#### B.1.2 Use conditions (Environmental conditions)

- The connector is intended to be used with a temperature on the surface of the concrete cover layer between +65 °C and -20 °C (maximum short-term temperature of +65 °C and maximum long-term temperature of 40°C).

#### B.1.3 Design

- Connectors are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The positions of the connectors are indicated on the design drawings (e.g. position of the connector relative to the reinforcement or to supports).
- The connectors are intended to be used for design analogous to EN 1992-4:2018.
- The actual shear deformation is limited to the maximum acceptable shear deformation according Annex C1.

#### B.1.4 Installation requirements

- The installation of the connectors is carried out by appropriately qualified personnel under the supervision of the person responsible for the technical matters on site.
- Use of the connector as supplied by the manufacturer only – without manipulations or repositioning.
- Installation in accordance with the manufacturer's specifications given in Annex B4 to B7.

Schöck Isolink® for multi-layer concrete panels

Intended use  
Specifications

Annex B1

Table B.1: Installation parameters and layer thickness

| Description                                       | Abbreviation / Unit | Value             |                               |
|---|---------------------|-------------------|-------------------------------|
| Overall embedment depth of the anchor in concrete | $h_{nom}$ [mm]      | $\geq 40$         |                               |
| Minimum thickness of cover layer                  | $h_{v,min}$ [mm]    | 40                |                               |
| Minimum thickness of insulation                   | $h_{D,min}$ [mm]    | 60                |                               |
| Maximum thickness of insulation                   | $h_{D,max}$ [mm]    | 350 <sup>1)</sup> |                               |
| Minimum thickness of structural layer             | Element wall        | 40 (PC)           | 140 (In-situ concrete and PC) |
|   | Sandwich wall       | 70                |                               |

<sup>1)</sup> For shear  $h_{D,max} = 140\text{mm}$

Table B.2: Calculation values for connector Schöck Isolink®

| Description                                     | Abbreviation / Unit           | Value |
|---|-------------------------------|-------|
| Nominal diameter                                | $d$ [mm]                      | 12    |
| Nominal cross section                           | $A$ [mm <sup>2</sup> ]        | 113   |
| Area moment of inertia in y and z direction     | $I_y, I_z$ [mm <sup>4</sup> ] | 1161  |
| Modulus of elasticity for tension / compression | $E_N$ [N/mm <sup>2</sup> ]    | 60000 |
| Modulus of elasticity for bending               | $E_M$ [N/mm <sup>2</sup> ]    | 60000 |

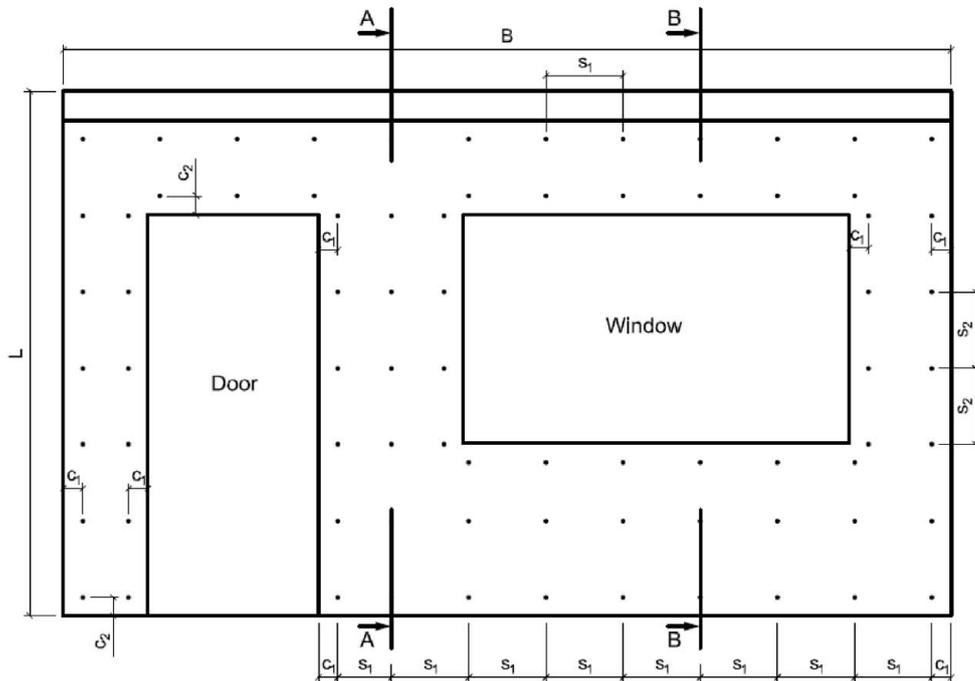
Table B.3: Minimum edge distances and spacing

| Description                             | Abbreviation / Unit | Overall embedment depth of the anchor in concrete $h_{nom}$ |       |        |
|---|---------------------|---|-------|--------|
|   |                     | 40 mm   | 60 mm | 100 mm |
| Minimum spacing ( $=3,0 h_{nom}$ )      | $s_{min}$ [mm]      | 120   | 180   | 300    |
| Minimum edge spacing ( $=1,5 h_{nom}$ ) | $c_{min}$ [mm]      | 60  | 90    | 150    |

Schöck Isolink® for multi-layer concrete panels

Intended use  
Installation parameters

Annex B2



- Arrangement of Schöck Isolink® in a grid accordance with structural calculations.

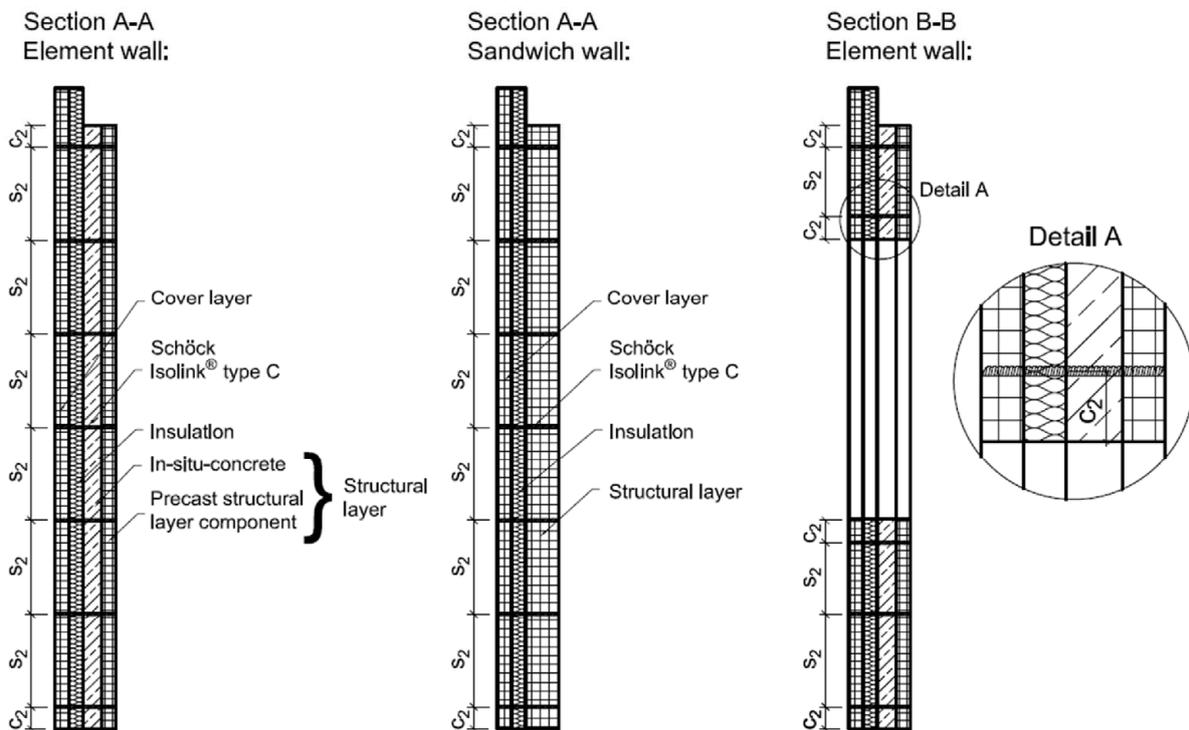


Fig. 5: Example of view of precast wall cover layer  
(Installation parameters and layer thickness in accordance with Annex B2)

**Schöck Isolink® for multi-layer concrete panels**

**Intended use**  
Example of wall with connectors

**Annex B3**

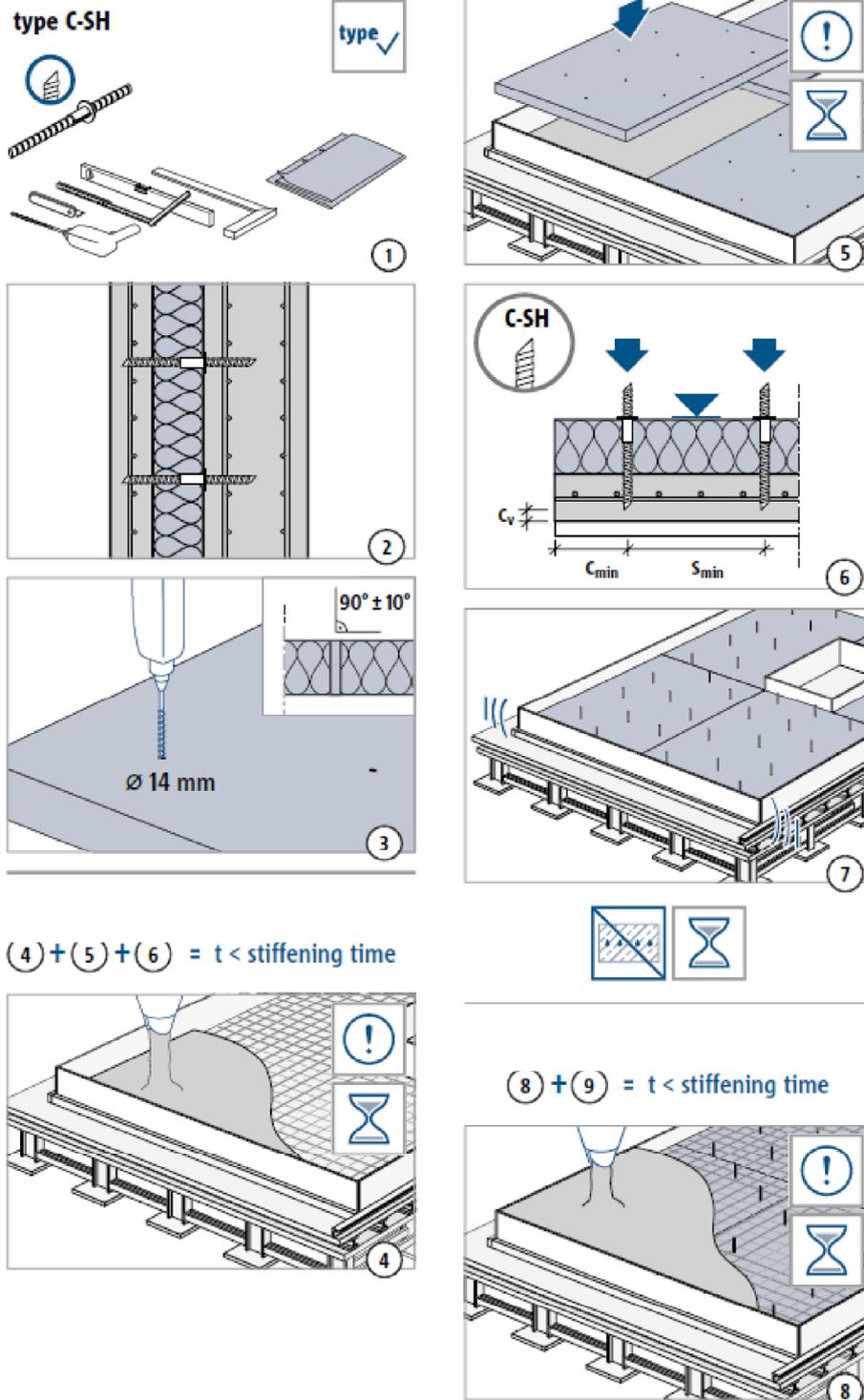


Fig. 6: Installation instruction - Schöck Isolink® for sandwich wall – page 1

Schöck Isolink® for multi-layer concrete panels

Intended use  
Installation instruction sandwich wall, type C-SH

Annex B4

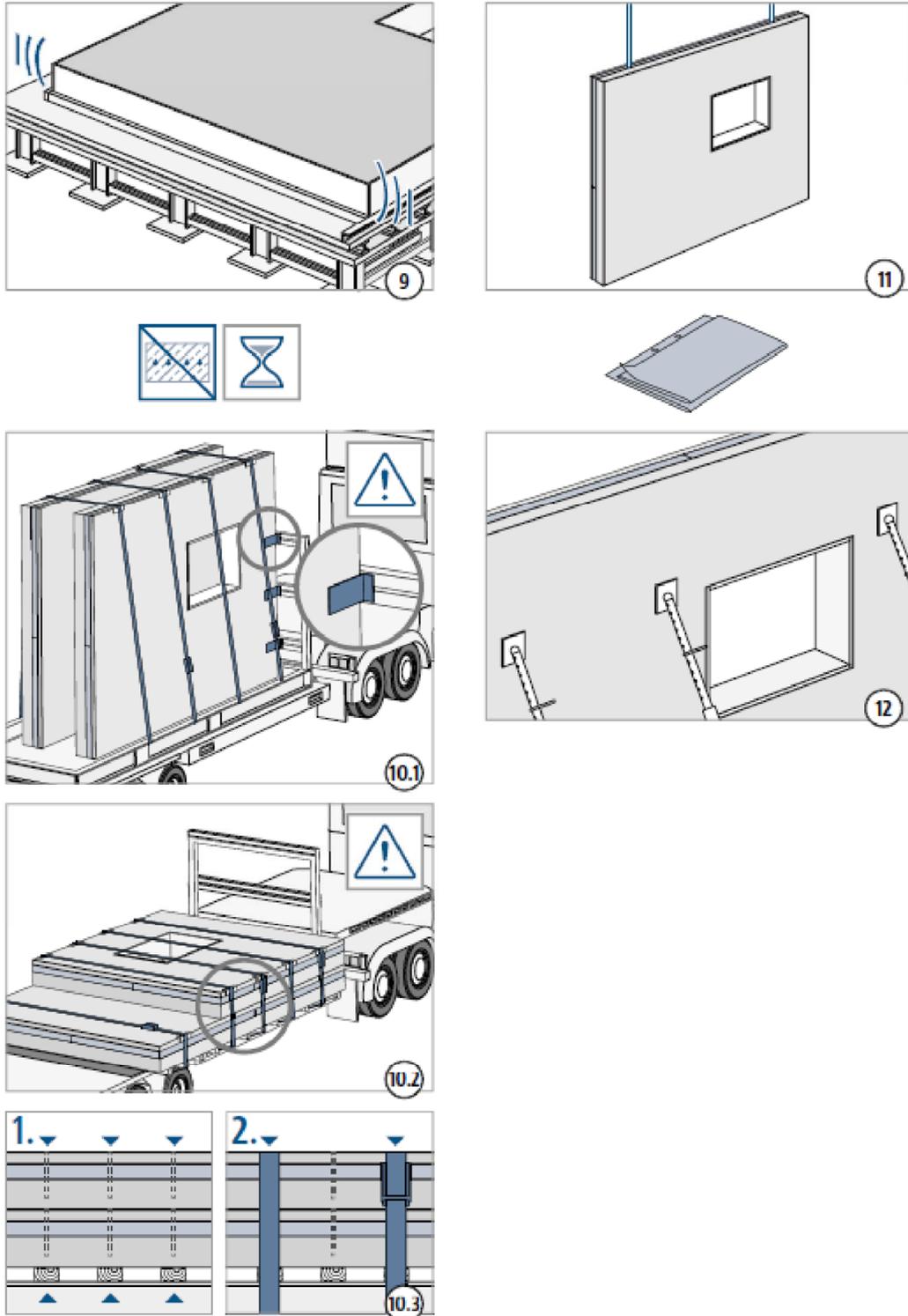


Fig. 7: Installation instruction - Schöck Isolink® for sandwich wall – page 2

Schöck Isolink® for multi-layer concrete panels

Intended use  
Installation instruction sandwich wall, type C-SH

Annex B5

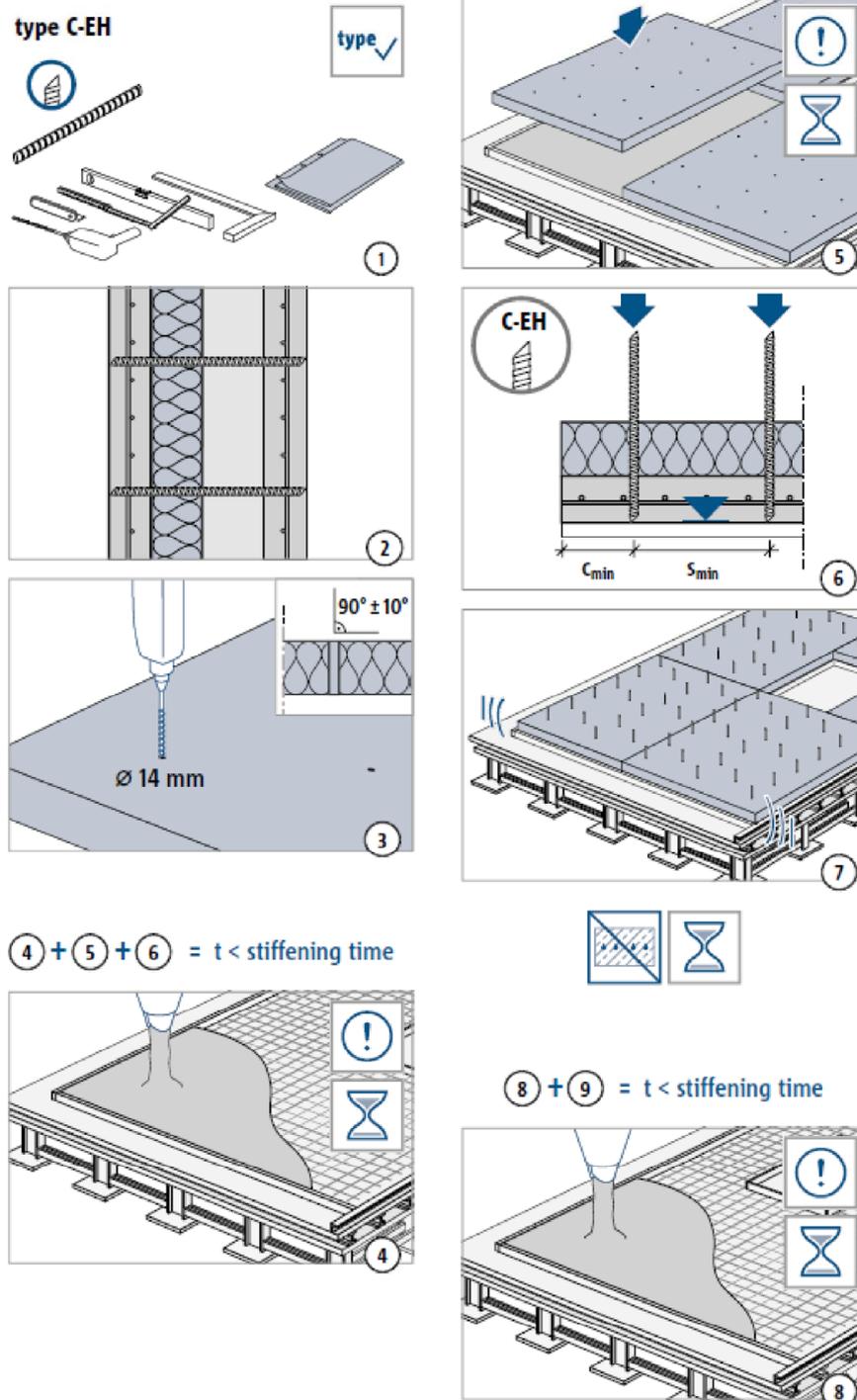


Fig. 8: Installation instruction - Schöck Isolink® for element wall – page 1

Schöck Isolink® for multi-layer concrete panels

Intended use  
Installation instruction element wall, type C-EH

Annex B6

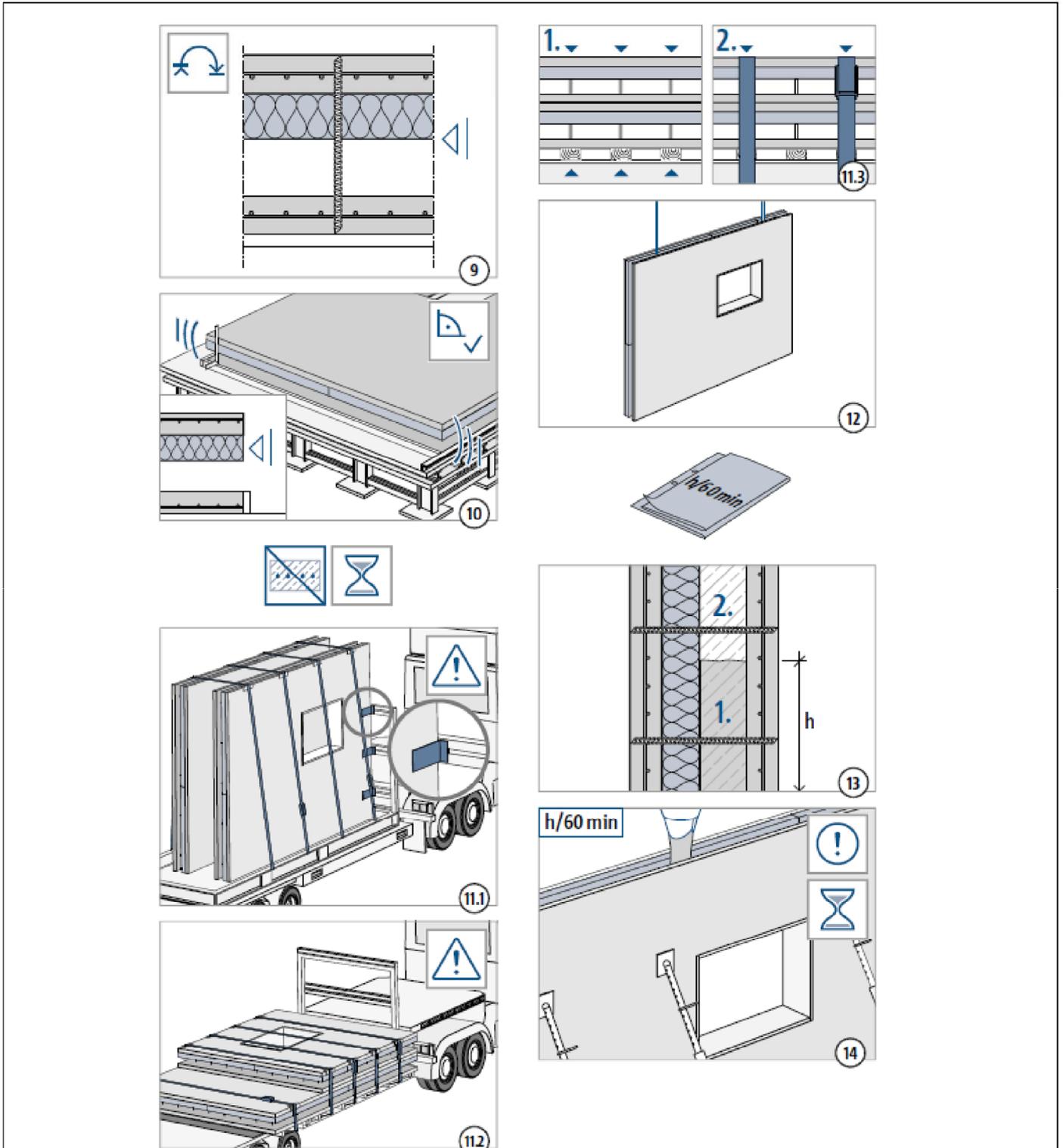


Fig. 9: Installation instruction - Schöck Isolink® for element wall – page 2

Schöck Isolink® for multi-layer concrete panels

Intended use  
Installation instruction element wall, type C-EH

Annex B7

Table C.4: Characteristic resistance under tension, compression or shear and acceptable shear deformation

| Essential characteristic   | Abbreviation    | Strength class   | Thickness of insulation $h_D$ | Overall embedment depth of the anchor in concrete $h_{nom}$ |         |         |
|--|-----------------|------------------|-------------------------------|---|---------|---------|
|  |                 |                  |                               | 40 mm   | 60 mm   | 100 mm  |
| Resistance to GFRP failure under compression load                      | $N_{Rk,GFRP,D}$ | C20/25 to C50/60 | 250 mm                        | 31,5 kN   |         |         |
|  |                 |                  | 350 mm                        | 17,2 kN   |         |         |
| Resistance to concrete failure under compression load                  | $N_{Rk,c,D}$    | C20/25 to C50/60 | 60 mm to 350 mm               | 6,5 kN  | 20,4 kN |         |
| Resistance to GFRP failure under tension load                          | $N_{Rk,GFRP}$   | C20/25 to C50/60 | 60 mm to 350 mm               | 8,5 kN  | 14,9 kN | 24,5 kN |
| Resistance to concrete failure under tension load (uncracked concrete) | $N_{Rk,c,ucr}$  | C20/25           | 60 mm to 350 mm               | 6,6 kN  | 11,2 kN | 25,5 kN |
|  |                 | C50/60           |                               | 9,9 kN  | 19,0 kN | 42,4 kN |
| Resistance to concrete failure under tension load (cracked concrete)   | $N_{Rk,c,cr}$   | C20/25           | 60 mm to 350 mm               | 3,2 kN  | 6,1 kN  | 16,5 kN |
|  |                 | C50/60           |                               | 4,6 kN  | 13,3 kN | 20,7 kN |
| Resistance to GFRP failure under shear load                            | $V_{Rk,GFRP}$   | C20/25 to C50/60 | 60 mm                         | 2,5 kN  |         |         |
|  |                 |                  | 140 mm                        | 1,5 kN  |         |         |
| Resistance to concrete failure under shear load (cracked concrete)     | $V_{Rk,c}$      | C20/25 to C50/60 | 60 mm to 350 mm               | 3,4 kN  |         |         |
| Maximum acceptable shear deformation                                   | $w_{max}$       | C20/25 to C50/60 | 60 mm                         | 2,0 mm  |         |         |
|  |                 |                  | 100 mm                        | 5,0 mm  |         |         |

Schöck Isolink® for multi-layer concrete panels

**Performance**  
Characteristic resistances and acceptable shear deformation

**Annex C1**