Ydeevnedeklaration nr.: DOP_IL_ETA-17-0773_v3_DK

1. Varetypens unikke identifikationskode:
Schöck Isolink® type C til betonplader i flere lag

2. Tilsigtet anvendelse:
Forbindelsesstykke lavet af glasfiberforstærket kunststof (GFK) til brug i sandwich- og elementvægge af beton

3. Fabrikant:
Schöck Bauteile GmbH, Schöckstraße 1, 76534 Baden-Baden

4. System eller systemer til vurdering og kontrol af konstansen af ydeevnen:
System 2+

5. Teknisk vurdering:
Europæisk vurderingsdokument/harmoniseret standard/national standard:
EAD 330387-00-0601, Edition 02/2023
Europæisk teknisk vurdering/godkendelse:
ETA-17/0773, udarbejdet d. 27. oktober 2023
Teknisk vurderingsorgan:
Deutsches Institut für Bautechnik (DIBt), Kolonnenstr. 30B, 10829 Berlin
Notificeret organ/notificerede organer:
IFBT GmbH – Institut für Fassaden- und Befestigungstechnik, Leipzig
NB 1109

6. Deklareret ydeevne/deklarerede ydeevner:

Væsentlige kendetegn	Ydeevne
Modstandsdygtighed mod GFK-svigt under tryk	Se bilag C1
Modstandsdygtighed mod betonsvigt under tryk	Se bilag C1
Modstandsdygtighed mod GFK-svigt under træk	Se bilag C1
Modstandsdygtighed mod betonsvigt under træk	Se bilag C1
Modstandsdygtighed mod GFK-svigt under tværbelastning	Se bilag C1
Modstandsdygtighed mod betonsvigt under tværbelastning	Se bilag C1
Maksimal, tilladt deformering i tværretningen	Se bilag C1
Minimale kant- og akselafstande	Se bilag B2
E-modul	Se bilag B2
Geometriske egenskaber	Se bilag B2

7. Relevant teknisk dokumentation og/eller specifik teknisk dokumentation:
Teknisk dokumentation til den europæiske tekniske vurdering af Schöck Isolink® type C til betonplader i flere lag – er arkiveret hos DIBt.

Ydeevnen for den vare, der er anført ovenfor, er i overensstemmelse med den deklarerede ydeevne. Denne ydeevnedeklaration er udarbejdet i overensstemmelse med forordning (EU) nr. 305/2011 på eneansvar af den fabrikant, der er anført ovenfor. Underskrevet for fabrikanten og på dennes vegne af:

Baden-Baden, 15.11.2023
(Sted, dato)

i.V. N. Cuntz
(Dr.-Ing. Niklas Puttendörfer, Head of R&D)

Deutsches Institut für Bautechnik

Member of EOTA
www.eota.eu

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

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

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

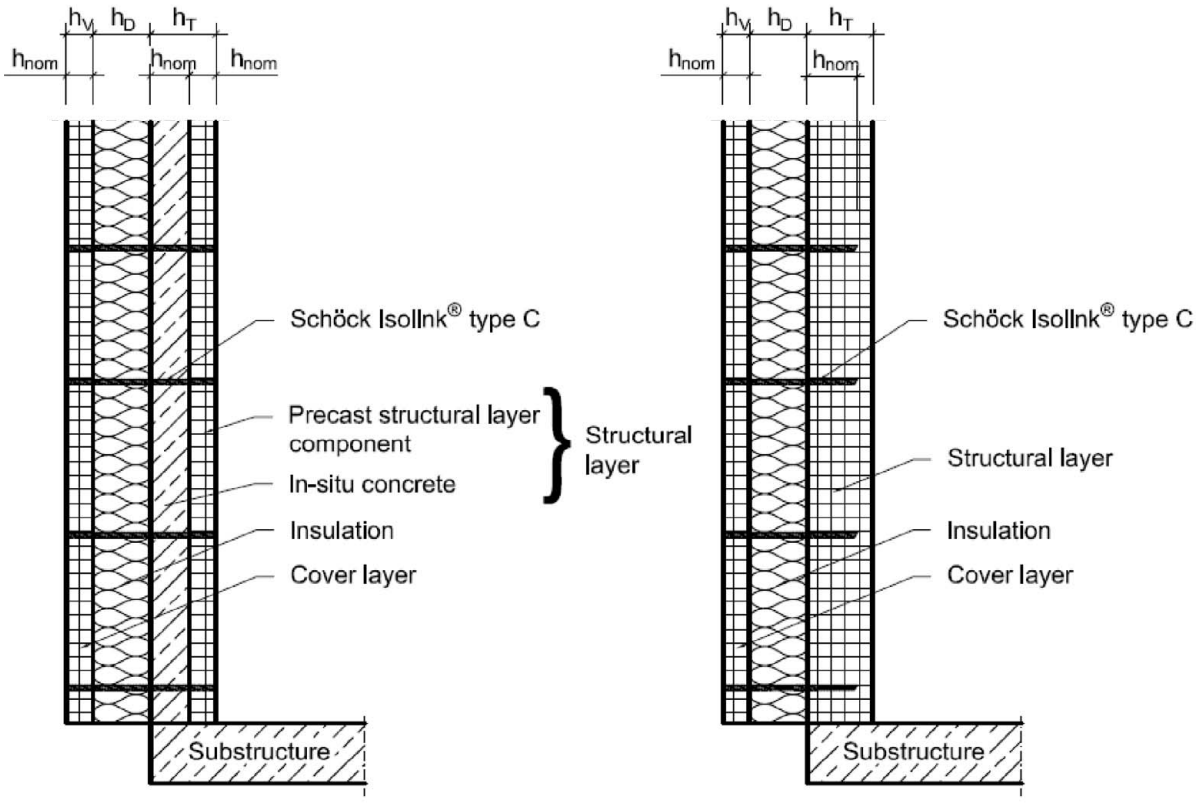
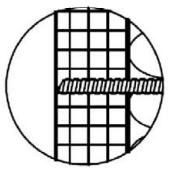


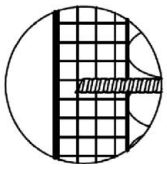
Fig. 1: Schöck Isolink® type C
Wall with non-supported cover layer

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	**Annex A1**
Product description Installed condition with Schöck Isolink® Type C-EH and Type C-SH	

Deutsches Institut für Bautechnik DIBt

Element wall
Schöck Isolink® Type C

Sandwich wall
Schöck Isolink® Type C

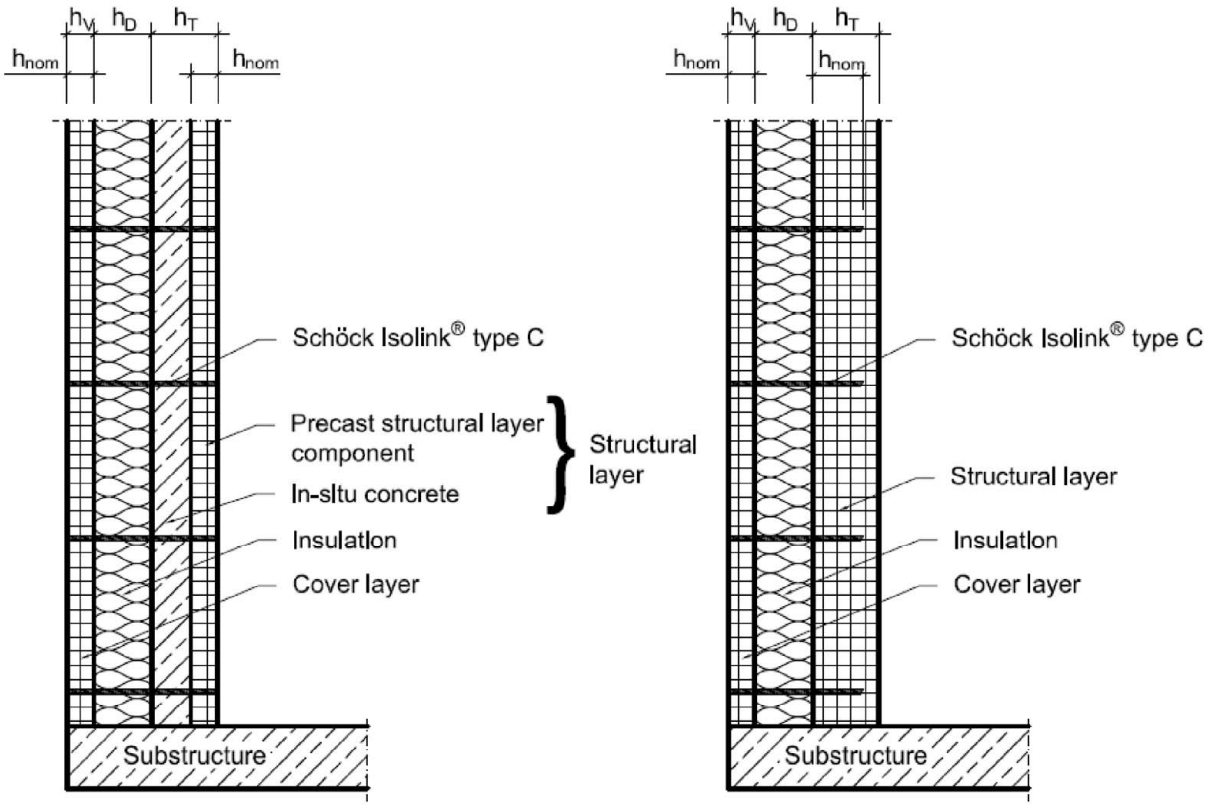
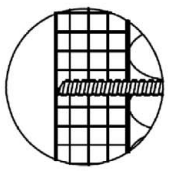


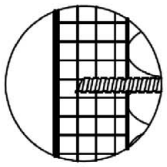
Fig. 2: Schöck Isolink® type C
Wall with non-supported cover layer

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	**Annex A2**
Product description Installed condition with Schöck Isolink® Type C-EH and Type C-SH	

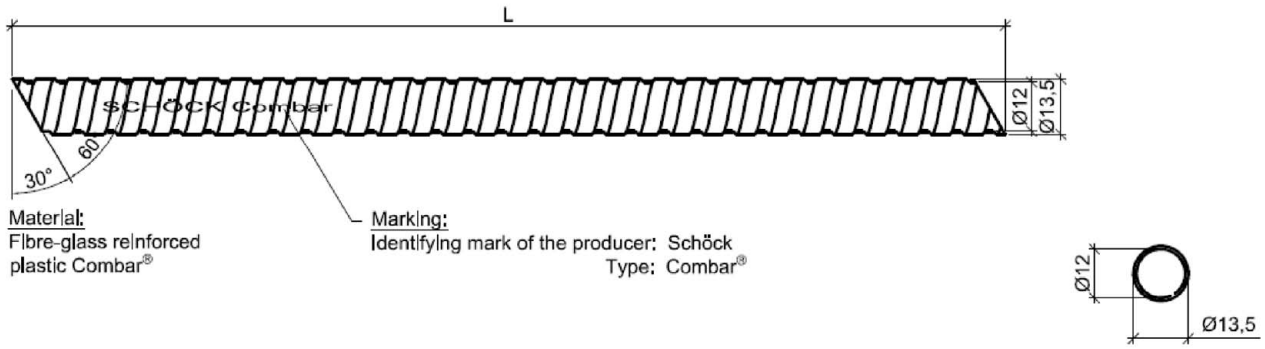


Fig. 3: Schöck Isolink® type C-EH

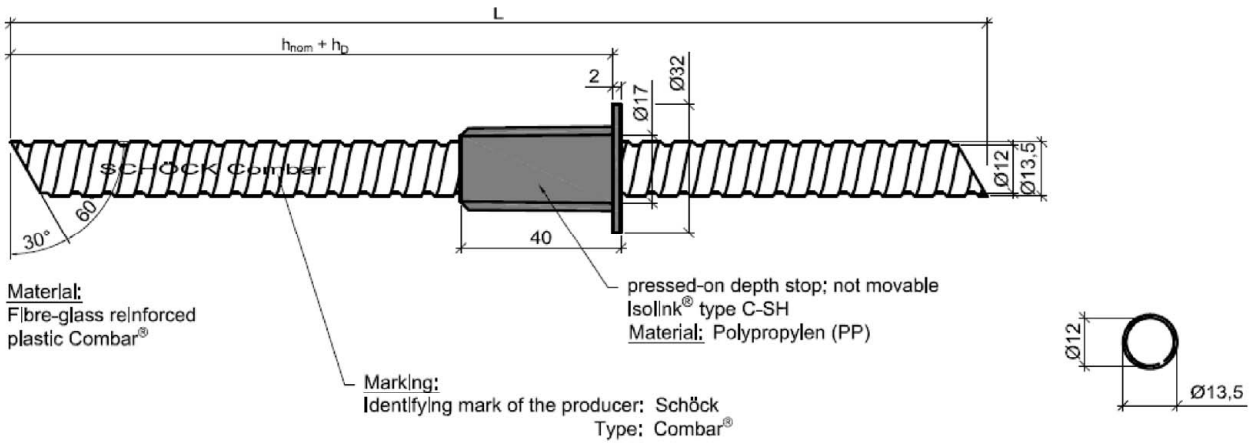


Fig. 4: Schöck Isolink® type C-SH

Schöck Isolink® for multi-layer concrete panels	**Annex A3**
Product description Material and dimensions	

Deutsches Institut für Bautechnik DIBt

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	Annex B1
Intended use Specifications	

Table B.1: Installation parameters and layer thickness

Description		Abbreviation / Unit	Value	
Overall embedment depth of the anchor in concrete		h_{nom} [mm]	≥ 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[1)]	
Minimum thickness of structural layer	Element wall	$h_{T,min}$ [mm]	40 (PC)	140 (In-situ concrete and PC)
	Sandwich wall		70	

1) For shear $h_{D,max}$ = 140mm

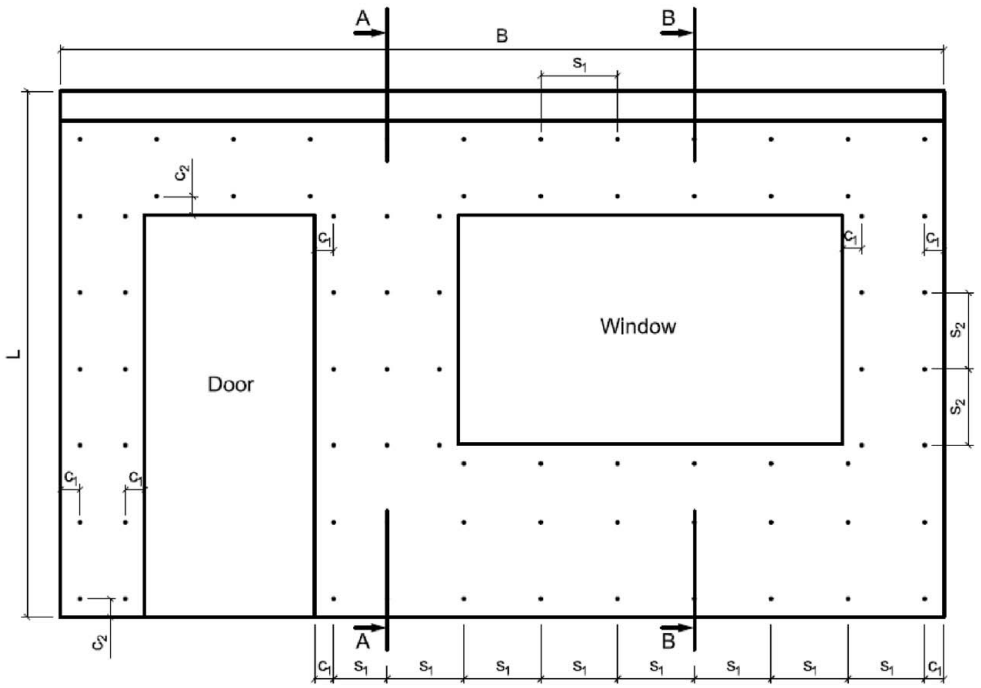
Table B.2: Calculation values for connector Schöck Isolink®

Description	Abbreviation / Unit	Value
Nominal diameter	d [mm]	12
Nominal cross section	A [mm²]	113
Area moment of inertia in y and z direction	Iy, Iz [mm⁴]	1161
Modulus of elasticity for tension / compression	E_N [N/mm²]	60000
Modulus of elasticity for bending	E_M [N/mm²]	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	Annex B2
Intended use Installation parameters	



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

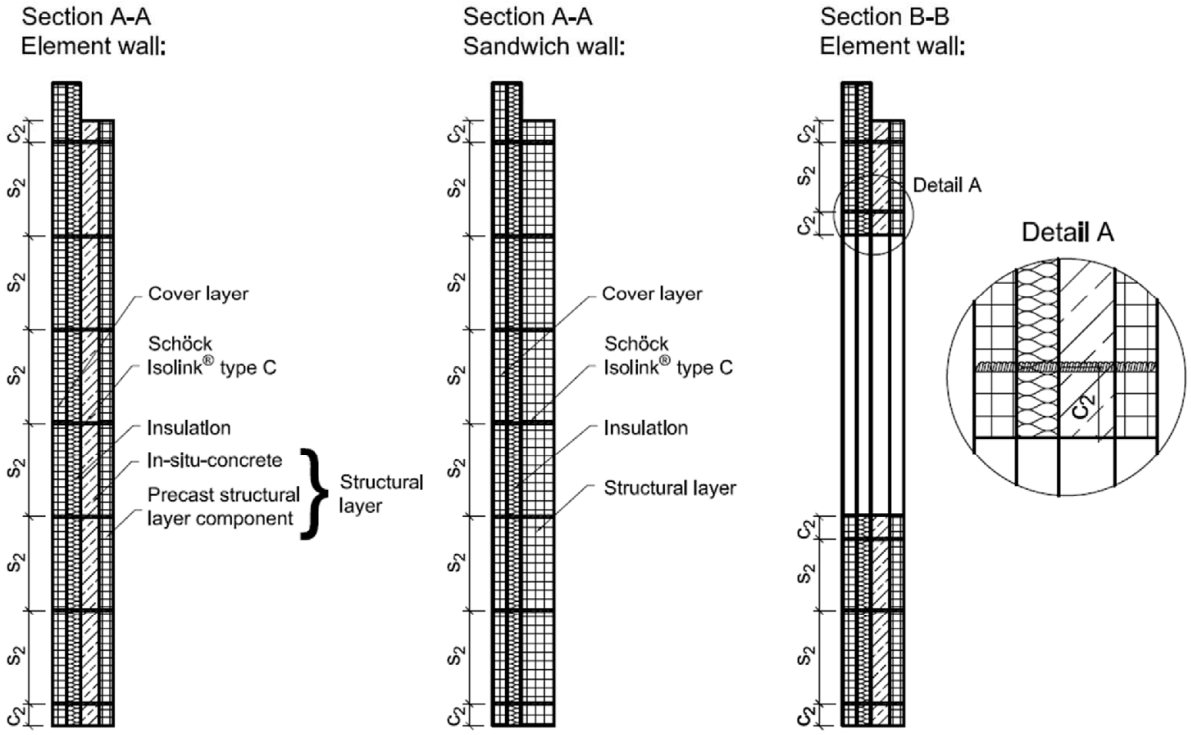


Fig. 5: Example of view of precast wall cover layer
(Installation parameters and layer thickness in accordance with Annex B2)

Schöck Isolink® for multi-layer concrete panels	**Annex B3**
Intended use Example of wall with connectors	

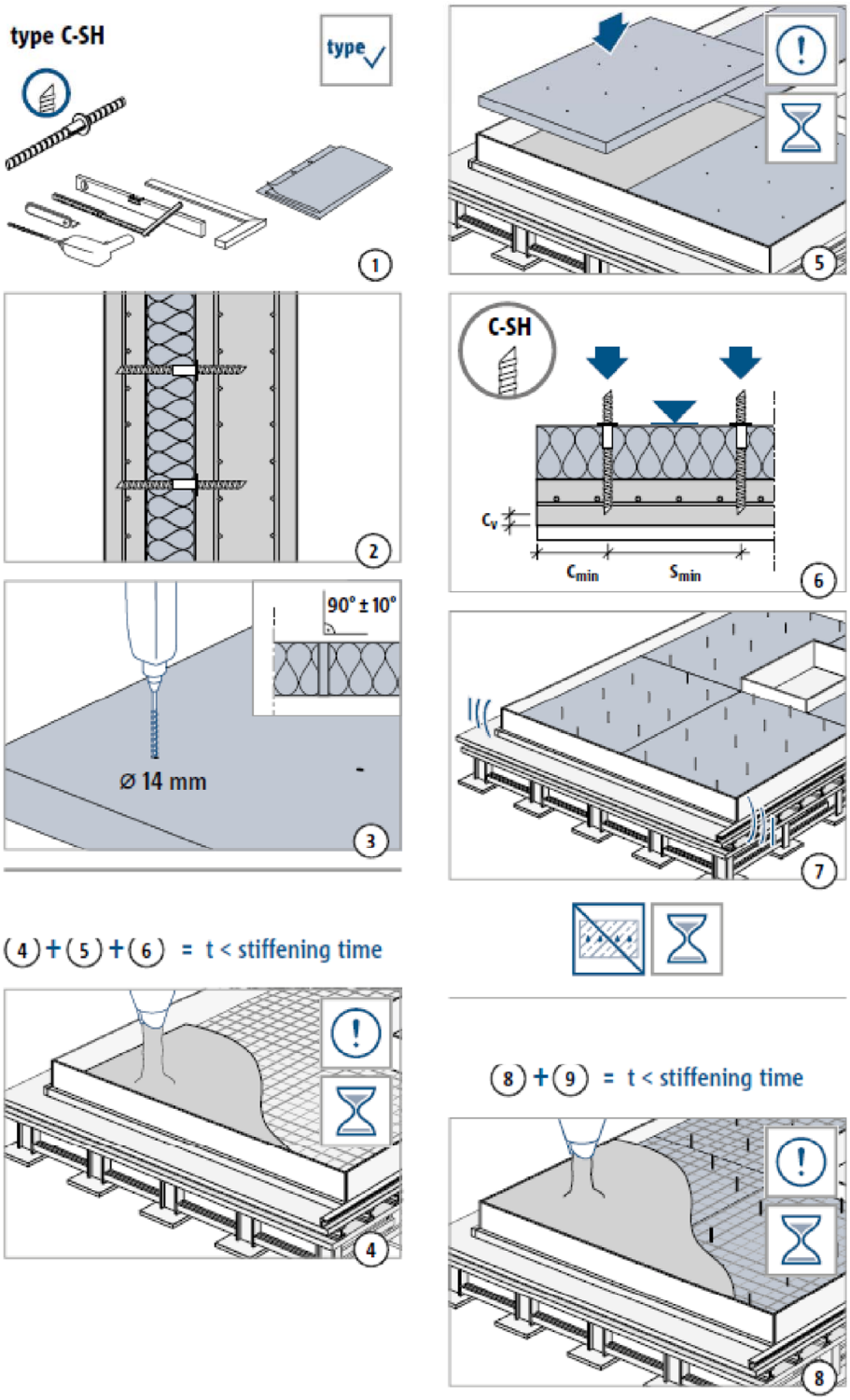


Fig. 6: Installation instruction - Schöck Isolink® for sandwich wall – page 1

Schöck Isolink® for multi-layer concrete panels	**Annex B4**
Intended use Installation instruction sandwich wall, type C-SH	

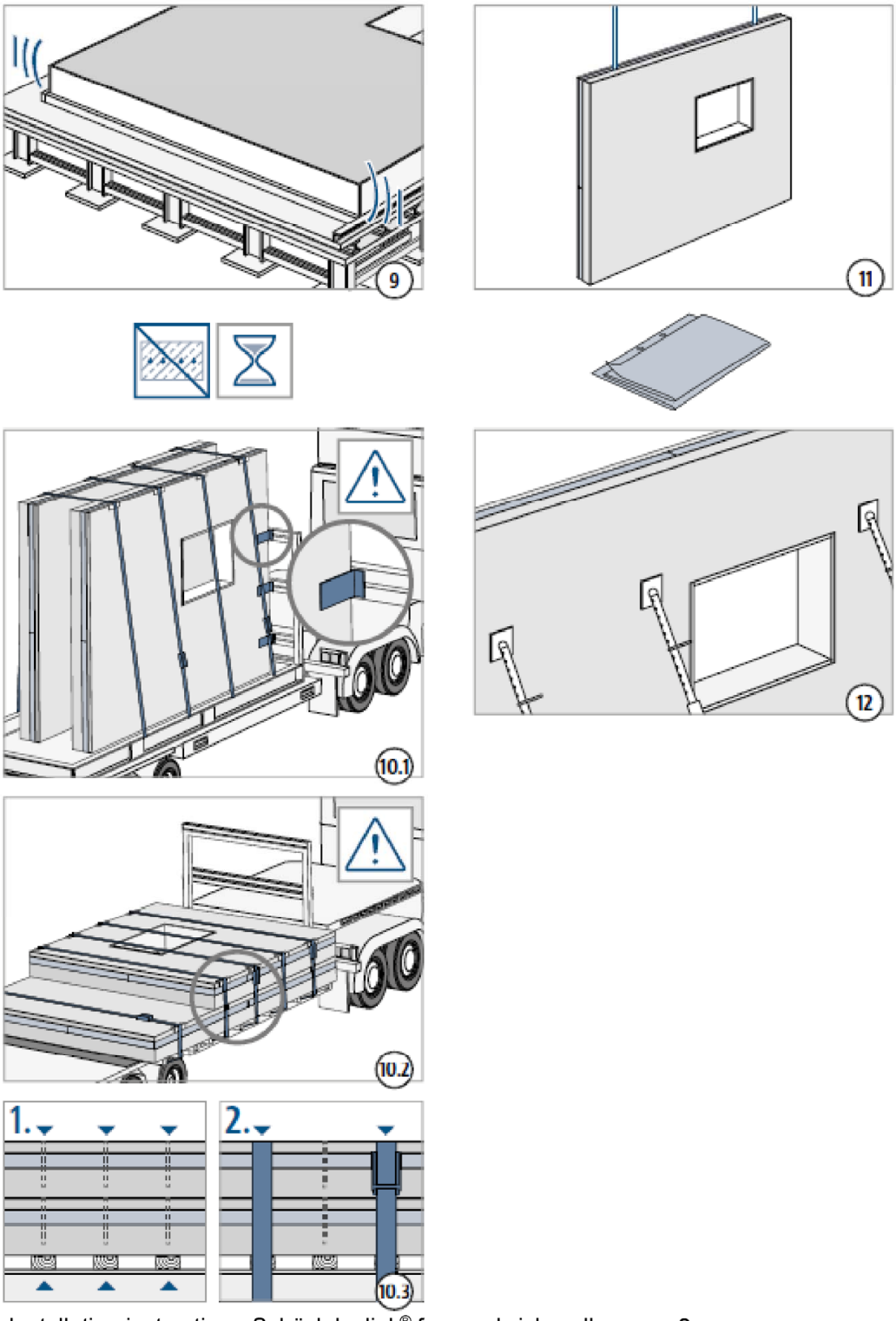


Fig. 7: Installation instruction - Schöck Isolink® for sandwich wall – page 2

Schöck Isolink® for multi-layer concrete panels	**Annex B5**
Intended use Installation instruction sandwich wall, type C-SH	

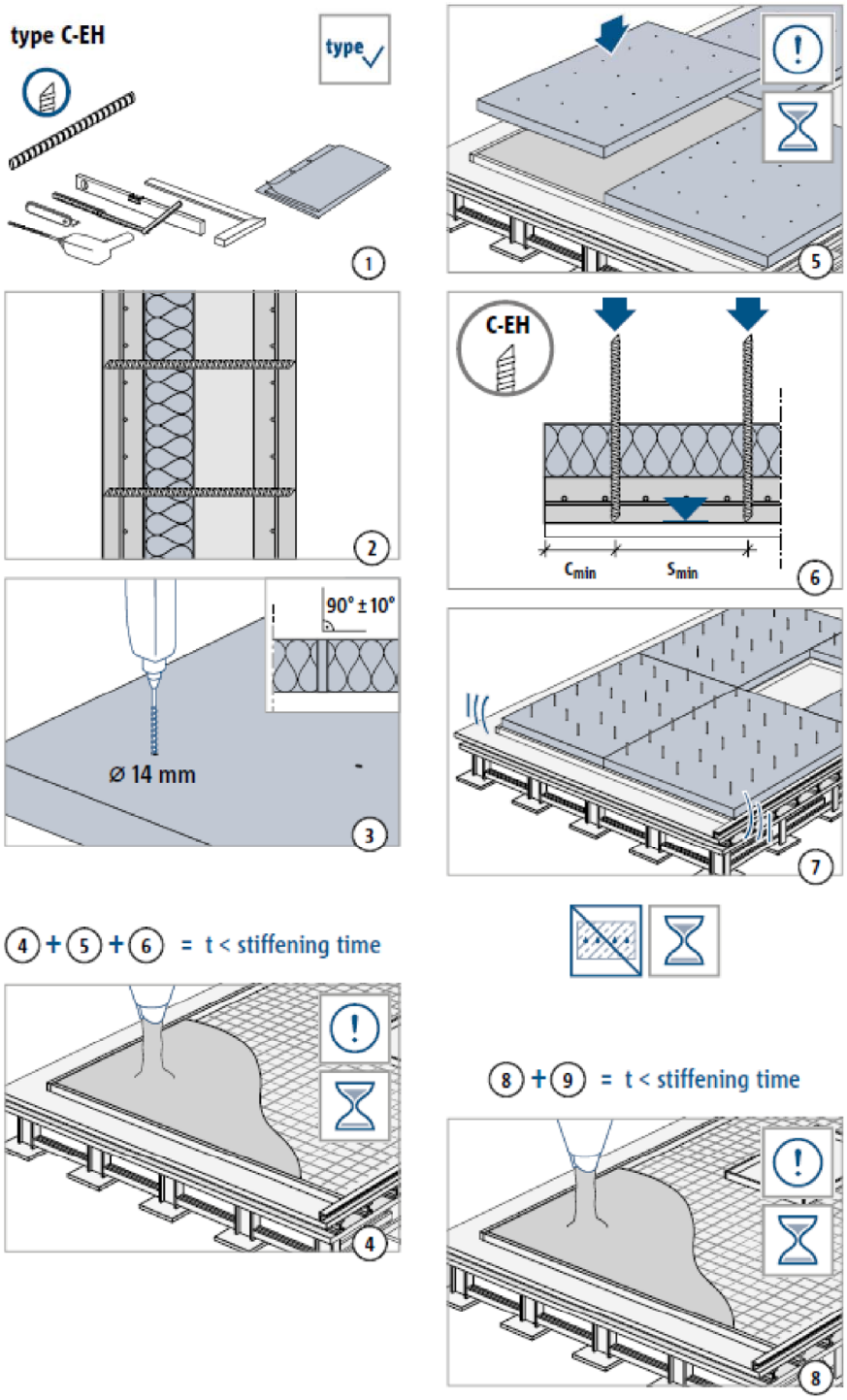


Fig. 8: Installation instruction - Schöck Isolink® for element wall – page 1

Schöck Isolink® for multi-layer concrete panels	**Annex B6**
Intended use Installation instruction element wall, type C-EH	

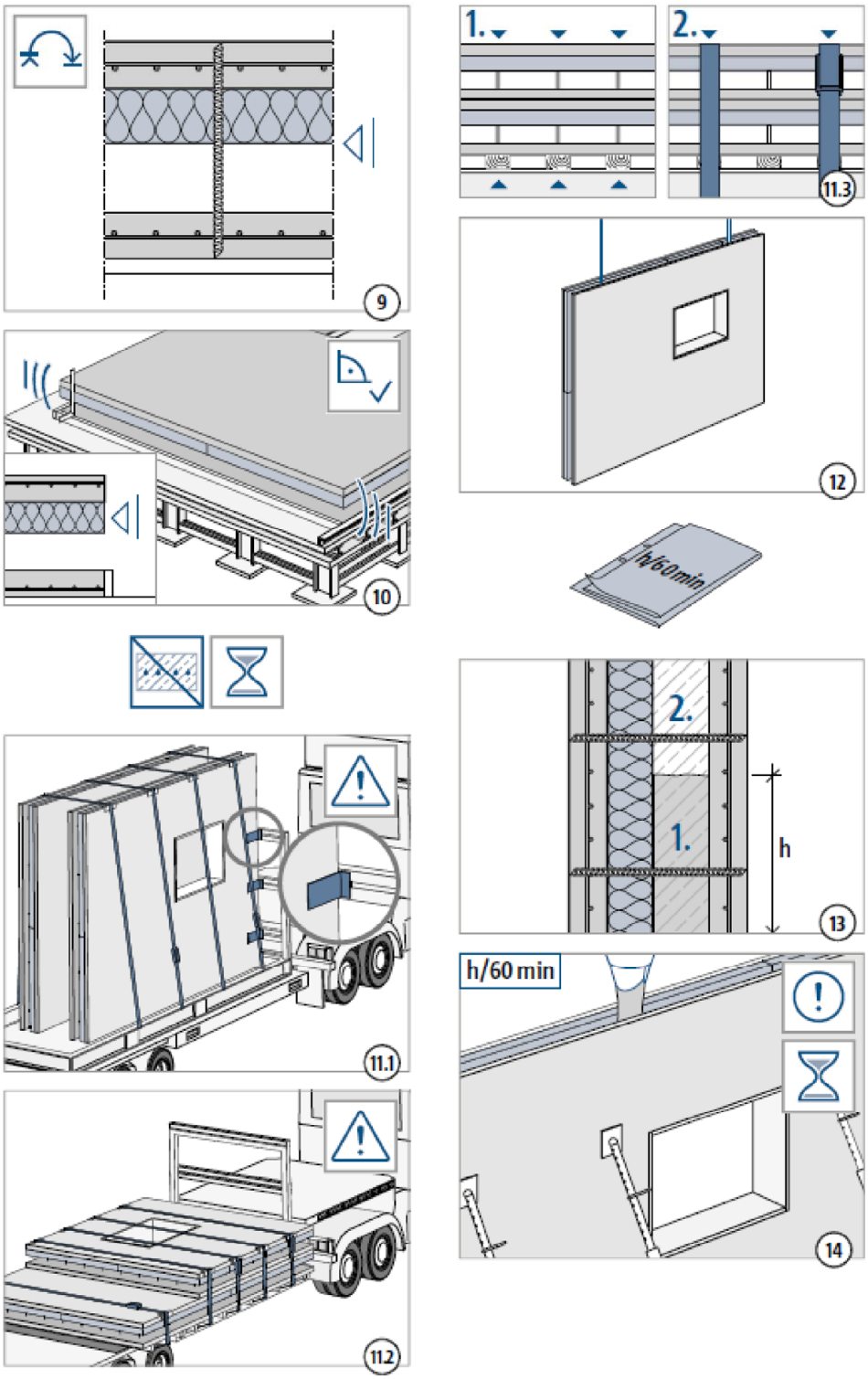


Fig. 9: Installation instruction - Schöck Isolink® for element wall – page 2

Schöck Isolink® for multi-layer concrete panels	**Annex B7**
Intended use Installation instruction element wall, type C-EH	

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

Annex C1

Performance
Characteristic resistances and acceptable shear deformation