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**European Technical Assessment Body
for construction products**



European Technical Assessment

**ETA-17/0261
of 20 July 2026**

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 Isokorb with compression elements made of
concrete or steel

Product family
to which the construction product belongs

Load bearing thermal insulation elements which form a
thermal break between balconies and internal floors

Manufacturer

Schöck Bauteile GmbH
Schöckstraße 1
76534 Baden-Baden
DEUTSCHLAND

Manufacturing plant

Schöck manufacturing plants

This European Technical Assessment
contains

70 pages including 65 annexes which form an integral
part of this assessment

This European Technical Assessment is
issued in accordance with Article 95(4) of
Regulation (EU) 2024/3110, on the basis of

EAD 050001-01-0301

This version replaces

ETA-17/0261 issued on 2 January 2025

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Specific Part

1 Technical description of the product

Schöck Isokorb with compression elements made of concrete or steel is used as load-bearing thermal insulation element to connect reinforced concrete slabs.

The product description is given in Annex A.

The characteristic material values, dimensions and tolerances of Schöck Isokorb compression elements made of concrete or steel not indicated in Annexes A1 to A19 shall correspond to the respective values laid down in the technical documentation^[1] of this European Technical Assessment.

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

The performances given in Section 3 are only valid if Schöck Isokorb with compression elements made of concrete or steel 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 Schöck Isokorb with compression elements made of concrete or steel 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
Vertical load-bearing capacity	f_{yk} ; Z_{Rk} ; $Z_{Rk,c}$ see Annex C1 – C6 and C8 V_{Rk} ($Z_{v,Rk}$) see Annex C6 D_{Rk} ($D_{Rk,s}$; $D_{Rk,c}$; $D_{Rk,CCE}$) see Annex C8 – C10
Horizontal load-bearing capacity	H_{tk} ($H_{ll,k}$; $H_{\perp,k}$; $H_{llpl,k}$) see Annex C7, C11 and C12 and q_a see Annex C13

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	See Annex A19
Resistance to fire	See Annex C14 – C17
Propensity to undergo continuous smouldering	No performance assessed

^[1] The technical documentation of this European technical approval is deposited at the Deutsches Institut für Bautechnik and, as far as relevant for the tasks of the approved bodies involved in the attestation of conformity procedure, is handed over to the approved bodies.

3.3 Protection against noise (BWR 5)

Essential characteristic	Performance
Impact sound insulation	ΔL_w see Annex C21 – C26
Flanking sound transmission	No performance assessed

3.4 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance	$R_{eq,Tl}$ see Annex C19 – C20

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

In accordance with EAD No. 050001-01-0301, the applicable European legal act is: 97/597/EC.
The systems to be applied is: 1+

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.

The following technical specifications are referred to:

EN 206:2013+A2:2021	Concrete - Specification, performance, production and conformity
EN 1992-1-1:2023	Eurocode 2 - Design of concrete structures - Part 1-1: General rules and rules for buildings, bridges and civil engineering structures
EN 1992-1-2:2023	Eurocode 2: Design of concrete structures – Part 1-2: General rules – Structural fire design
EN 1993-1-1:2022	Eurocode 3: Design of steel structures – Part 1-1: General design rules and rules for buildings
EN 1993-1-4:2025	Eurocode 3: Design of steel structures – Part 1-4: Stainless steel structures
EN 1998-1-2:2026	Eurocode 8: Design of structures for earthquake resistance - Part 1-2: Buildings
EN 10025-2:2019	Hot rolled products of structural steels – Part 2: Technical delivery conditions for non-alloy structural steels
EN 10088-1:2023	Stainless steels – Part 1: List of stainless steels
EN 12664:2001	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Dry and moist products of medium and low thermal resistance
EN 13163:2012+A2:2016	Thermal insulation products for buildings – Factory made expanded polystyrene (EPS) products – Specification
EN 13245-1:2025	Plastics – Unplasticized poly (vinyl chloride) (PVC-U) profiles for building applications – Part 1: Designation of PVC-U profiles
EN 13245-2:2008 + AC:2009	Plastics – Unplasticized poly (vinyl chloride) (PVC-U) profiles for building applications – Part 2: PVC-U profiles and PVC-UE profiles for internal and external wall and ceiling finishes

EN 13501-1:2018	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests
EN 13501-2:2023	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests and/or smoke control tests, excluding ventilation services
EN ISO 6946:2017	Building components and building elements – Thermal resistance and thermal transmittance – Calculation method (ISO 6946:2017)
EN ISO 10211:2017	Thermal bridges in building construction – Heat flows and surface temperatures – Detailed calculations (ISO 10211:2017)
EN ISO 10456:2007+AC:2009	Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007 + Cor. 1:2009)
EN ISO 12354-2:2017	Building acoustics – Estimation of acoustic performance of buildings from the performance of elements - Part 2: Impact sound insulation between rooms (ISO 12354-2:2017)
EN ISO 17855-1:2014	Plastics – Polyethylene (PE) moulding and extrusion materials – Part 1: Designation system and basis for specifications (ISO 17855-1:2014)
EN ISO 17855-2:2024	Plastics – Polyethylene (PE) moulding and extrusion materials – Part 2: Preparation of test specimens and determination of properties (ISO 17855-2:2024)

Issued in Berlin on 20 July 2026 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Kisan

A Product description

A.1 Type overview

A.1.1 Schöck Isokorb with concrete compression elements (CCE in accordance with section A.2.5):
HTE-Modul, HTE-Compact 20 or HTE-Compact 30

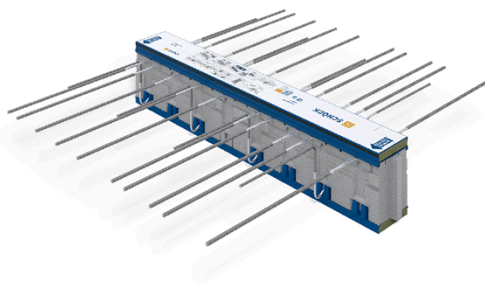
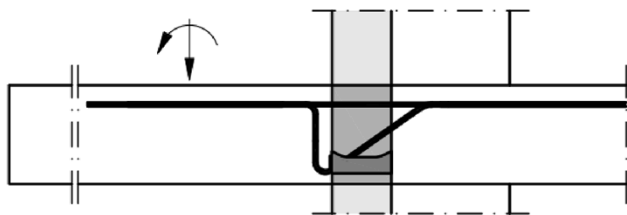


Fig. A.1: Schöck Isokorb K for freely cantilevered balconies

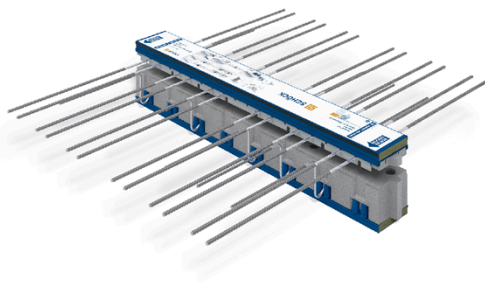
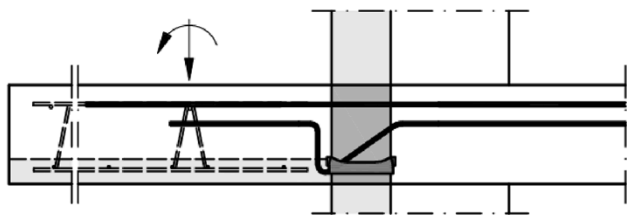


Fig. A.2: Schöck Isokorb K-F for freely cantilevered balconies in element construction (multi-part version)

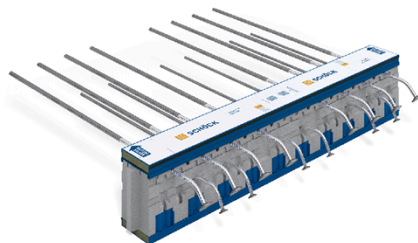
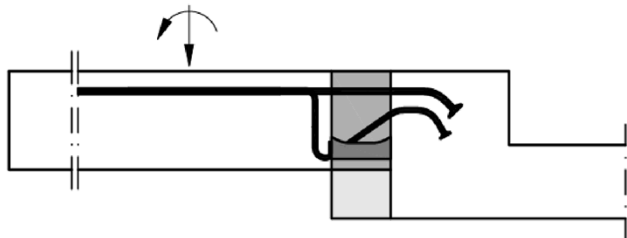


Fig. A.3: Schöck Isokorb K-O, K-O-F for freely cantilevered balconies with or without height offset upwards or wall connection

Schöck Isokorb with compression elements made of concrete or steel		Annex A1
Product description Type overview Schöck Isokorb with concrete compression elements (CCE)		

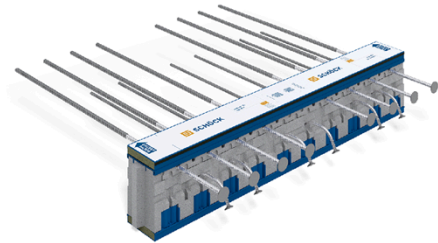
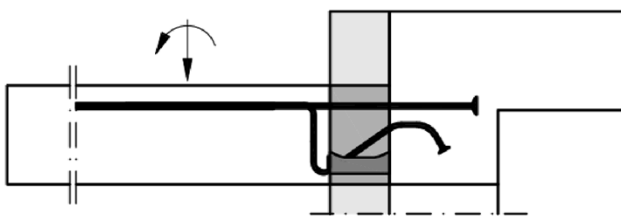


Fig. A.4: Schöck Isokorb K-U, K-U-F for freely cantilevered balconies with height offset downwards or wall connection

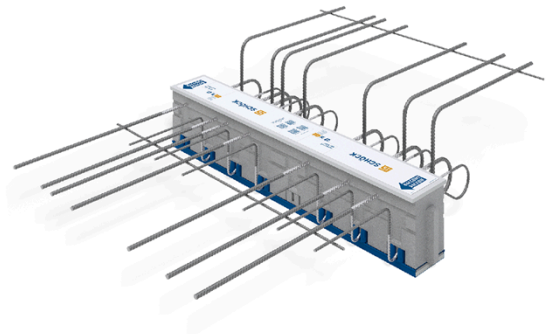
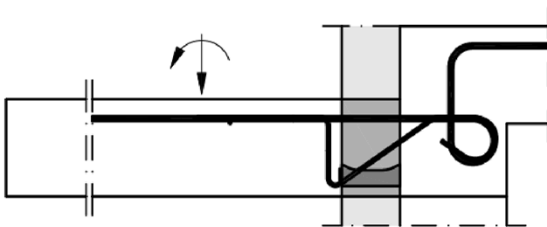


Fig. A.5: Schöck Isokorb K-HV for freely cantilevered balconies with height offset downwards or wall connection

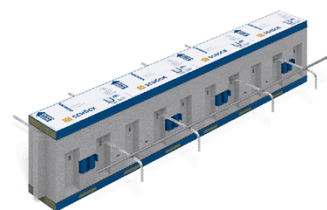
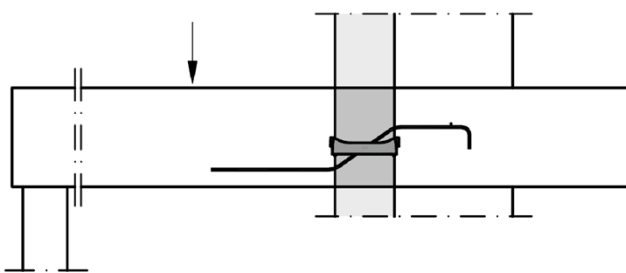


Fig. A.6: Schöck Isokorb Q for supported balconies, for example shear force bar with bent bar end on the ceiling side (alternatively with straight bar end on the ceiling side);
Schöck Isokorb Q-Z (without compression element) for constraint-free applications, for example loggias with opposite slab connections, see Fig. B.3

Schöck Isokorb with compression elements made of concrete or steel

Product description

Type overview Schöck Isokorb with concrete compression elements (CCE)

Annex A2

**A.1.2 Schöck Isokorb with steel compression elements (SCE in accordance with section A.2.4):
Steel compression elements with welded-on compression plates or compression bars**

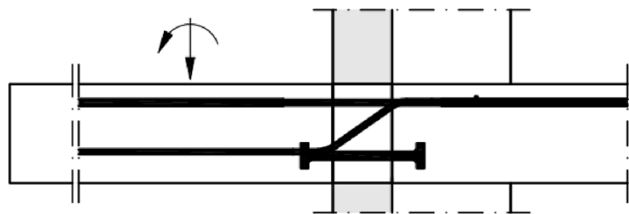


Fig. A.7: Schöck Isokorb K, K-F (multi-part version) for freely cantilevered balconies with steel compression elements with welded-on compression plates



Fig. A.8: Schöck Isokorb K, K-F (multi-part version) for freely cantilevered balconies with steel compression bars

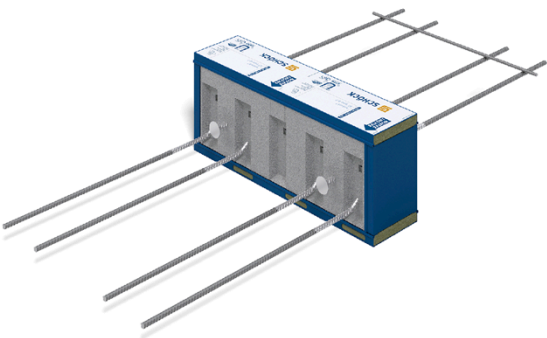
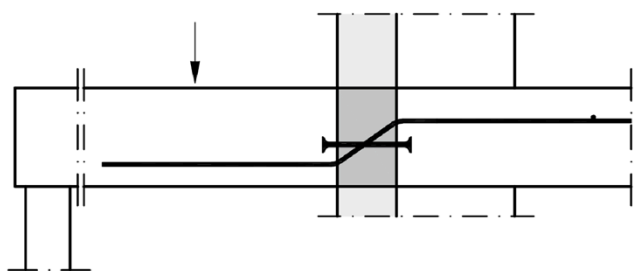


Fig. A.9: Schöck Isokorb Q, Q-P for supported balconies (alternatively with bent bar end on the ceiling side);
Schöck Isokorb Q-Z, Q-PZ (without compression element) for constraint-free applications, for
example loggias with opposite slab connections, see Fig. B.3

Schöck Isokorb with compression elements made of concrete or steel	
Product description Type overview Schöck Isokorb with steel compression elements (SCE)	Annex A3

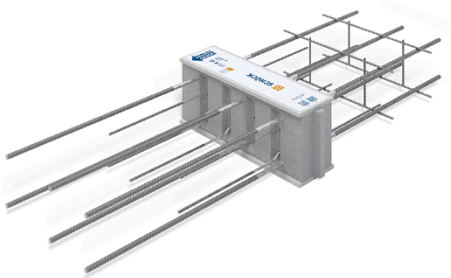
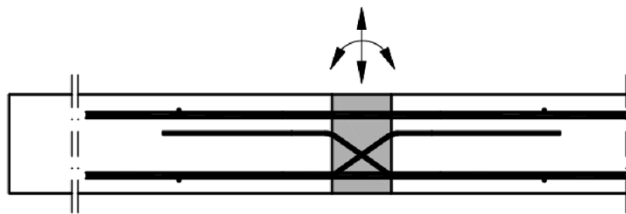


Fig. A.10: Schöck Isokorb D for continuous slabs

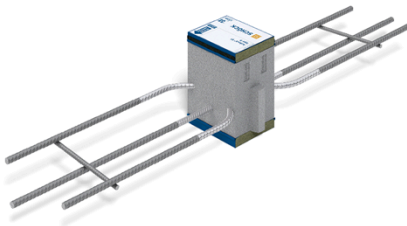
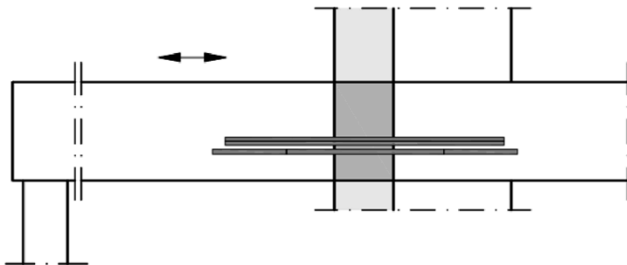


Fig. A.11: Schöck Isokorb H, supplement for horizontal loads perpendicular and parallel to the insulation joint

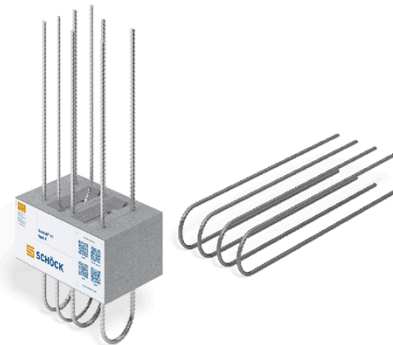
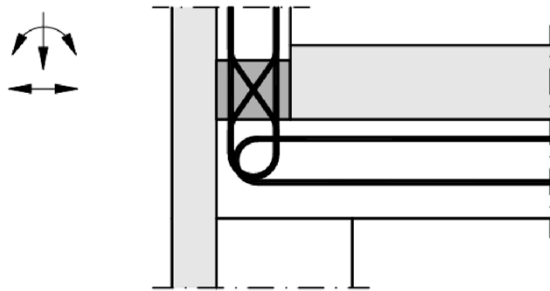


Fig. A.12: Schöck Isokorb A for parapets and attics

Schöck Isokorb with compression elements made of concrete or steel	
Product description Type overview Schöck Isokorb with steel compression elements (SCE)	Annex A4

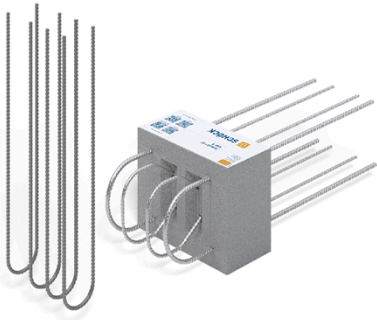
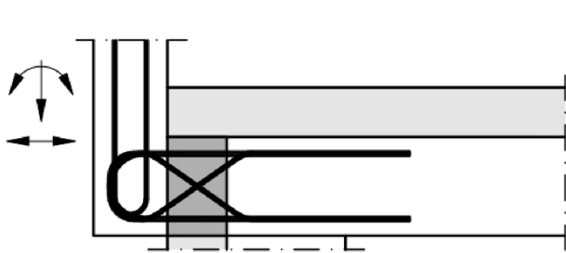


Fig. A.13: Schöck Isokorb F for facing parapets

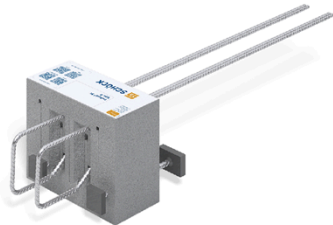
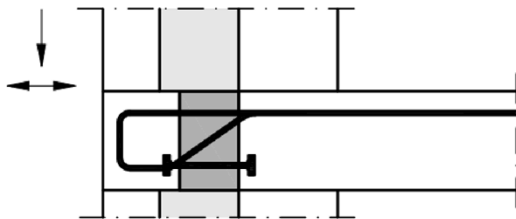


Fig. A.14: Schöck Isokorb O for consoles

Schöck Isokorb with compression elements made of concrete or steel	
Product description Type overview Schöck Isokorb with steel compression elements (SCE)	Annex A5

A.2 Dimensions and position of the bars and compression elements in the area of the insulation joint

General:

- Element height: $160 \text{ mm} \leq H \leq 500 \text{ mm}$
- Insulation thickness: 80 mm or 120 mm with concrete compression elements (CCE)
60 mm to 120 mm with steel compression elements (SCE)

Tension bars in accordance with section A.2.1:

- Diameter: $\varnothing \leq 20 \text{ mm}$
graded nominal diameter in accordance with section A.2.1
- Number per meter: $n \geq 4/\text{m}$
- Axial distance: $\leq 300 \text{ mm}$, on average $\leq 250 \text{ mm}$
- Embedded length of stainless steel $\geq 100 \text{ mm}$ within the adjacent concrete components

Shear force bars in accordance with section A.2.2:

- Diameter: $\varnothing \leq 8 \text{ mm}$ when arranged between individual elements of the compression bearing pairs CCE (Schöck Isokorb K, K-F with CCE) with integrated reinforcement stirrups (see Fig. A.21 to Fig. A.23)
 $\varnothing \leq 14 \text{ mm}$ for all other types
graded nominal diameter are permitted
- Number per meter: $n \geq 4/\text{m}$ when arranged between individual elements of the compression bearing pairs CCE (Schöck Isokorb K, K-F with CCE)
 $n \geq 2/\text{m}$ for $\varnothing < 8 \text{ mm}$
 $n \geq 4/\text{m}$ for $\varnothing \geq 8 \text{ mm}$
- Axial distance: $\leq 300 \text{ mm}$, on average $\leq 250 \text{ mm}$ when arranged between individual elements of the compression bearing pairs CCE (Schöck Isokorb K)
 $\leq 600 \text{ mm}$, on average $\leq 500 \text{ mm}$ for $\varnothing < 8 \text{ mm}$
 $\leq 300 \text{ mm}$, on average $\leq 250 \text{ mm}$ for $\varnothing \geq 8 \text{ mm}$
- Embedded length of stainless steel: $\geq 100 \text{ mm}$ within the adjacent concrete components
- Inclination in the insulation joint: $\alpha = 45^\circ$ for 60 mm or 80 mm insulation thickness,
 $\alpha = 35^\circ$ at 120 mm insulation thickness for simplified calculation or
 $30^\circ \leq \alpha \leq 70^\circ$ for detailed calculation in accordance with section C.1.1.2
- Concrete-free area: bars shall not have any bends
- Bends start point: $\geq 2 \times \varnothing$ inside the concrete, measured in bar direction
- Mandrel diameter: $\varnothing_{BR} \geq 10 \times \varnothing$ for simplified calculation or
 $\varnothing_{BR} \geq 4 \times \varnothing$ for detailed calculation in accordance with section C.1.1.2
- Bending roll diameter in the area of the concrete compression element (CCE): in accordance with section A.2.2 and Fig. A.48 and in compliance with the simplified calculation (section C.1.1.2)

Schöck Isokorb with compression elements made of concrete or steel

Product description Dimensions

Annex A6

Horizontally inclined bars in accordance with section A.2.3:

- Diameter: $\varnothing \leq 12 \text{ mm}$
- Stainless steel embedded length: $\geq 100 \text{ mm}$ within the adjacent concrete components
- Inclination in the insulation joint: $\alpha = 45^\circ$
- Concrete-free area: Bars shall not have curvature
- Mandrel diameter: $\varnothing_{BR} \geq 10 \times \varnothing$
- Starting point of internal curvature: $\geq 2 \times \varnothing$ of free concrete surface, measured in bar direction

Steel compression elements (SCE) in accordance with section A.2.4:

- Diameter: $\varnothing \leq 20 \text{ mm}$
- Number per meter: $n \geq 4 / \text{meter}$; $n \geq 1 / \text{connection element}$;
 $n = 0$ for constraint-free applications
(Schöck Isokorb Q-Z, Q-PZ)
- Axial distance within the connection element:
 $\leq 300 \text{ mm}$, on average $\leq 250 \text{ mm}$
- Three variants:
 - 1) Compressive forces are transmitted via the composite effect of the reinforcing steel
 - embedded length stainless steel $\geq 100 \text{ mm}$ within the adjacent concrete components
 - 2) Forwarding via a compression plate
 - Compression plate is made of structural steel
embedded length stainless steel $\geq 50 \text{ mm}$ within the adjacent concrete components
 - Compression plate is made of stainless steel
embedded length Stainless steel can be flush
 - Compression plates are welded to the front sides of the compression bars in a force-locking manner
 - 3) Forwarding via a compressed head
 - $\varnothing_2 = 10 \text{ mm}, 12 \text{ mm}, 14 \text{ mm}$ or 16 mm ; $\varnothing_K \geq 3 \times \varnothing_2$ (see Fig. A.43)

Concrete compression elements (CCE) in accordance with section A.2.5:

- Number per meter: $n \geq 4 / \text{meter}$; $n \geq 4 / \text{connection element}$;
 $n = 0$ for constraint-free applications
(Schöck Isokorb Q-Z)
- Clear spacing within the connection element:
 $\leq 250 \text{ mm}$

Schöck Isokorb with compression elements made of concrete or steel

Product description
Dimensions

Annex A7

A.2.1 Tension bar variants

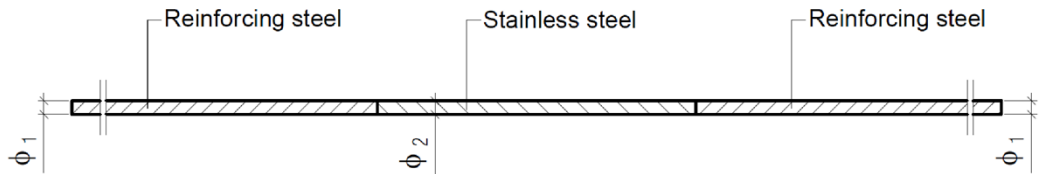


Fig. A.15: Tension bar without diameter combination

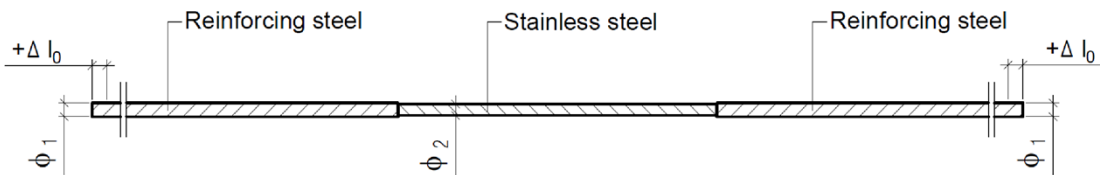


Fig. A.16: Tension bar with diameter combination

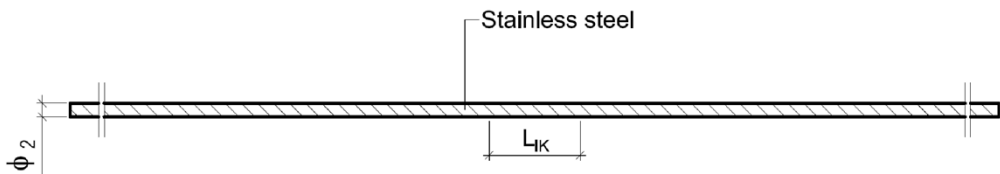


Fig. A.17: Tension bar made of stainless steel

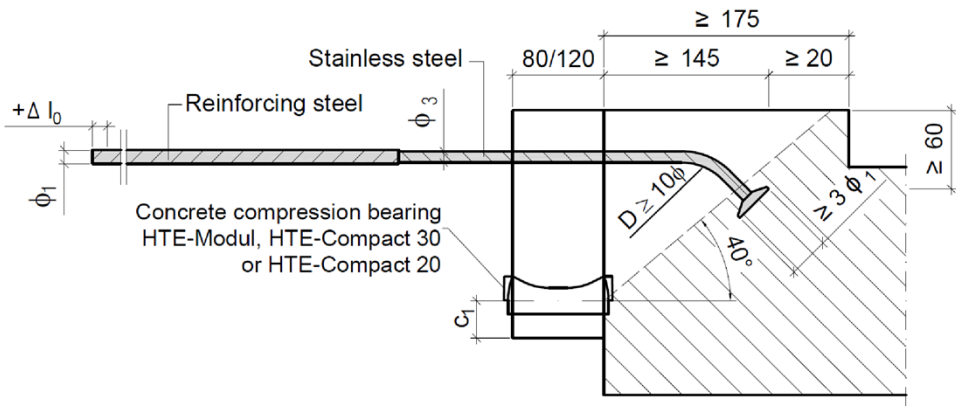


Fig. A.18: Tension bar for Schöck Isokorb K-O and K-O-F with diameter combination and position of the anchor head

Schöck Isokorb with compression elements made of concrete or steel	
Product description Tension bar variants	Annex A8

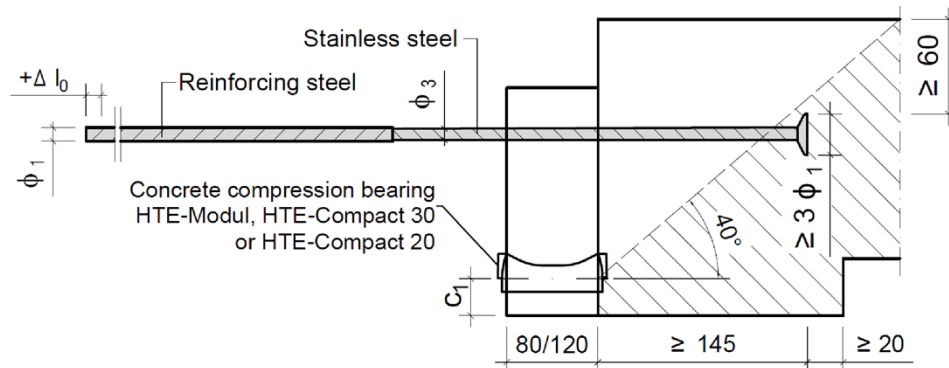


Fig. A.19: Tension bar for Schöck Isokorb K-U and K-U-F with diameter combination and position of the anchor head

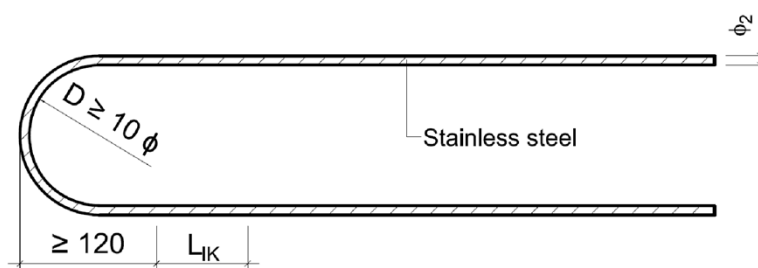


Fig. A.20: Tension bar for Schöck Isokorb A and F

Table A.1: Diameter combinations and additions to the overlap length for tension bars according to Fig. A.16

Graded tension bars $\phi_1 - \phi_2 - \phi_1$	$R_{p0,2}$ [N/mm ²] for reinforcing steel with ϕ_1 [mm]	$R_{p0,2}$ [N/mm ²] for stainless steel with ϕ_2 [mm]	Δl_0 [mm]
8 - 6,5 - 8	500	800	20
8 - 7 - 8	500	700	13
10 - 8 - 10	500	700 / (820 optional)	20
12 - 9,5 - 12	500	820	20
12 - 10 - 12	500	700	17
12 - 11 - 12	500	700	9
14 - 12 - 14	500	700	14

Table A.2: Diameter combinations and additions to the overlap length for tension bars according to Fig. A.18 and Fig. A.19

Graded tension bars $\phi_1 - \phi_3$	$R_{p0,2}$ [N/mm ²] for reinforcing steel with ϕ_1 [mm]	$R_{p0,2}$ [N/mm ²] for stainless steel with ϕ_3 [mm]	Δl_0 [mm]
12 - 10	500	700	17

Schöck Isokorb with compression elements made of concrete or steel

Product description
Tension bar variants

Annex A9

A.2.2 Shear force bar variants

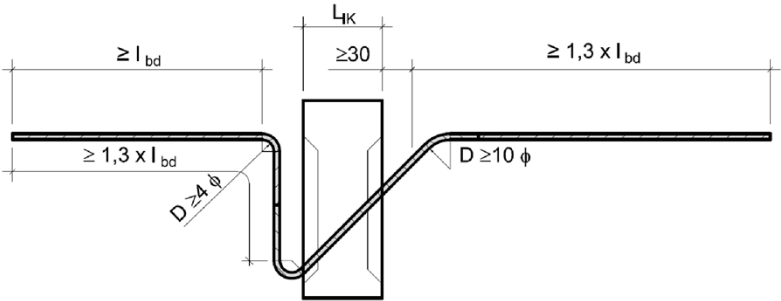


Fig. A.21: Shear force bar for Schöck Isokorb K, K-F with bent up bar end on the balcony side

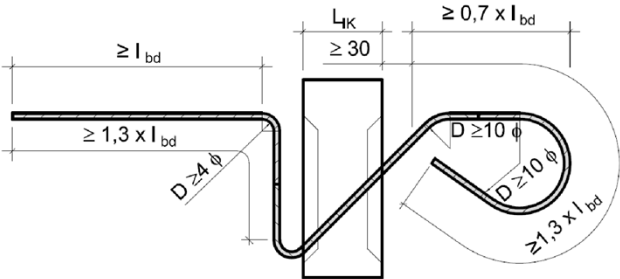


Fig. A.22: Shear force bar for Schöck Isokorb K, K-F with bent up bar end on the balcony side and bent bar end on the ceiling side

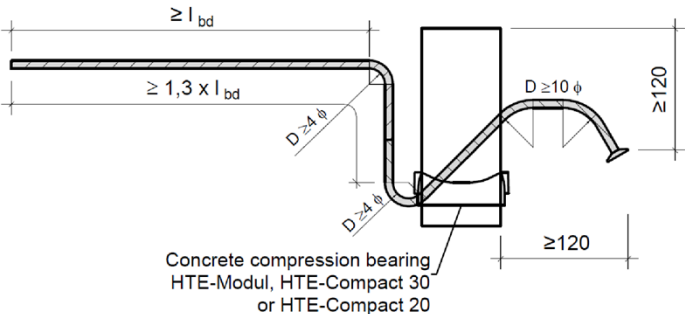


Fig. A.23: Shear force bar for Schöck Isokorb K-U, K-U-F, K-O and K-O-F

where $l_{bd} \geq l_{b,min}$ as per EN 1992-1-1

Schöck Isokorb with compression elements made of concrete or steel	
Product description Shear force bar variants	Annex A10

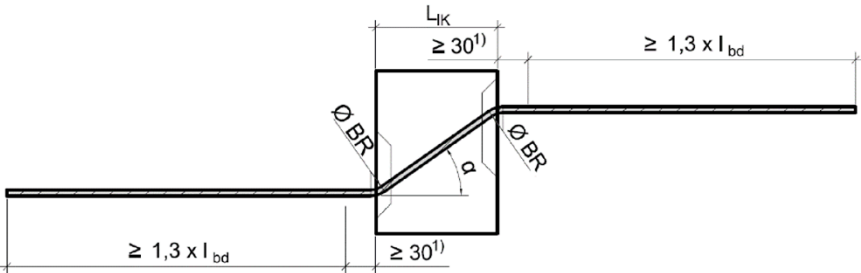


Fig. A.24: Shear force bar with straight bar ends

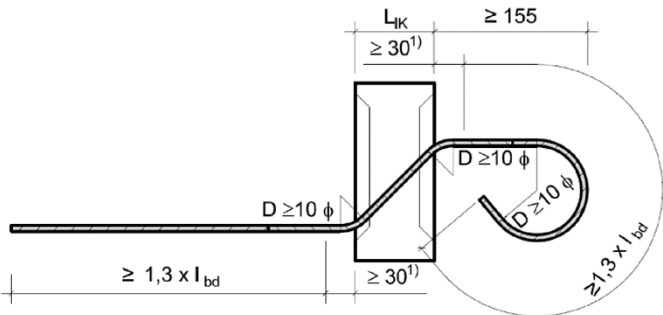


Fig. A.25: Shear force bar for Schöck Isokorb Q with bent bar end on the ceiling side

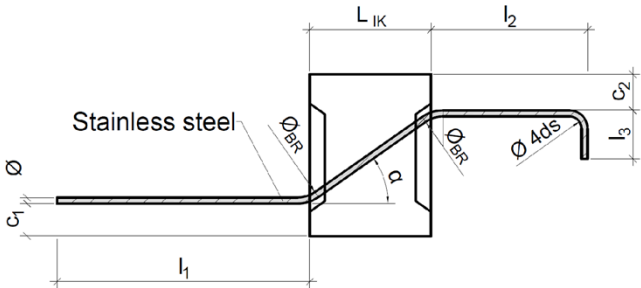


Fig. A.26: Shear force bar for Schöck Isokorb Q, Q-P; Ø 6 mm, Ø 8 mm, Ø 10 mm with shortened bar ends; balcony and slab sides arbitrarily combinable in straight and/or bent form; geometric constraints see Table A.3

Table A.3: Geometric constraints for shear force bar for Schöck Isokorb Q, Q-P; Ø 6 mm, Ø 8 mm and Ø 10 mm with shortened bar ends according to Fig. A.26

Ø	l ₁ [mm]	l ₂ [mm]	l ₃ [mm]	c ₁ [mm]	c ₂ [mm]	Ø _{BR} [mm]	α [°]	L _{IK} [mm]
6	≥ 250	≥ 155	≥ 48	≥ 30	≥ 30	≥ 30	30 - 70	80 or 120
8	≥ 250	≥ 170	≥ 64	≥ 30	≥ 30	≥ 32	30 - 70	80 or 120
10	≥ 350	≥ 220	≥ 80	≥ 30	≥ 30	≥ 40	30 - 70	80 or 120

where l_{bd} ≥ l_{b,min} as per EN 1992-1-1
1) for bars to be anchored value ≥ 0; otherwise ≥ 30

Schöck Isokorb with compression elements made of concrete or steel

Product description
Shear force bar variants

Annex A11

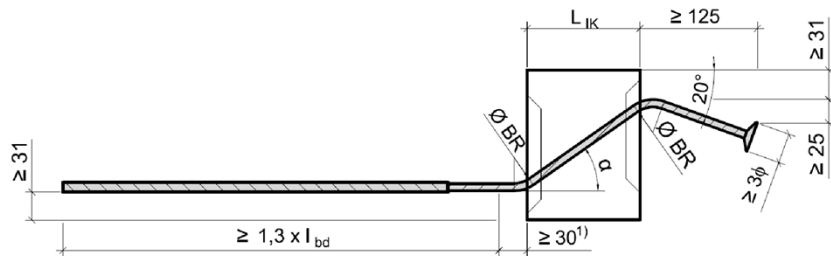


Fig. A.27: Shear force bar for Schöck Isokorb Q, Q-P; Ø 8 mm with anchor head, one-sided; balcony and slab sides arbitrarily combinable in straight and/or bent form with compressed head

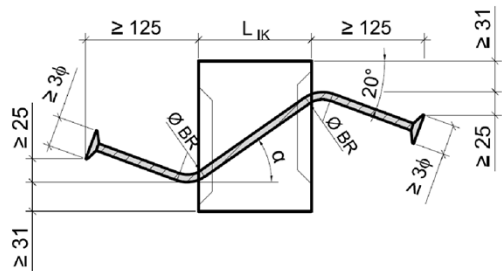


Fig. A.28: Shear force bar for Schöck Isokorb Q, Q-P; Ø 8 mm with anchor heads, on both sides

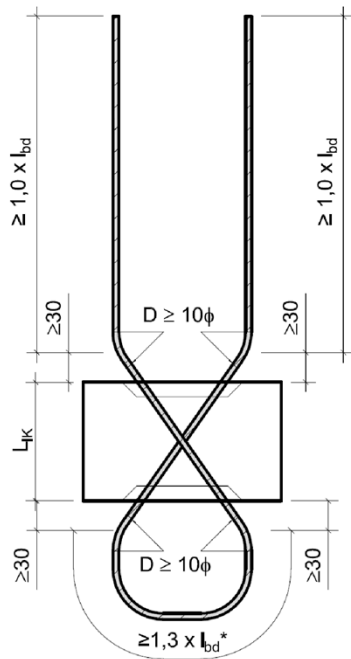


Fig. A.29: Shear force bar for Schöck Isokorb A

where $l_{bd} \geq l_{b,min}$ as per EN 1992-1-1
* with $\alpha_1 = 0,7$
¹) for bars to be anchored value ≥ 0 ; otherwise ≥ 30

Schöck Isokorb with compression elements made of concrete or steel	
Product description Shear force bar variants	Annex A12

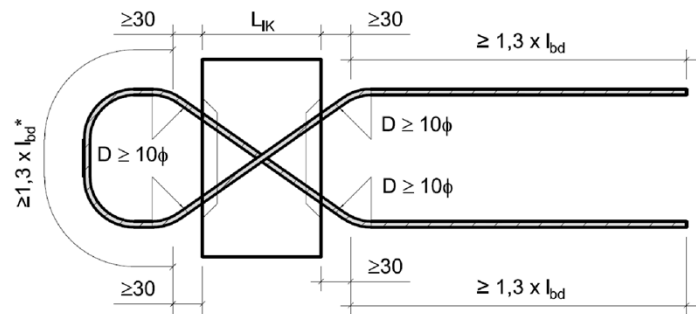


Fig. A.30: Shear force bar for Schöck Isokorb F

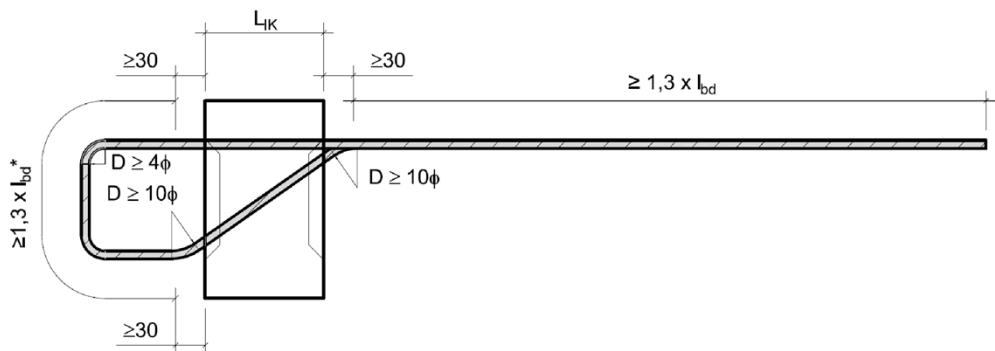


Fig. A.31: Shear force bar for Schöck Isokorb O

where $l_{bd} \geq l_{b,min}$ as per EN 1992-1-1
* with $\alpha_1 = 0,7$

Schöck Isokorb with compression elements made of concrete or steel	
Product description Shear force bar variants	Annex A13

A.2.3 Horizontal bar variants

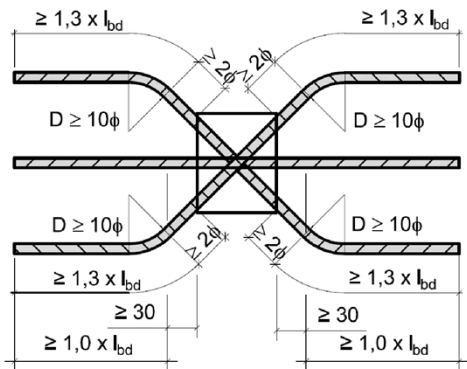


Fig. A.32: Horizontal inclined bars and straight bar for Schöck Isokorb H-VV-NN, top view

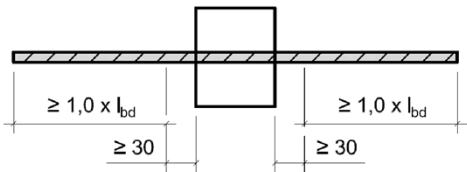


Fig. A.33: Horizontal straight bar for Schöck Isokorb H-NN, top view

where $l_{bd} \geq l_{b,min}$ as per EN 1992-1-1

Schöck Isokorb with compression elements made of concrete or steel	
Product description Horizontal bar variants	Annex A14

A.2.4 Steel compression element variants (SCE)

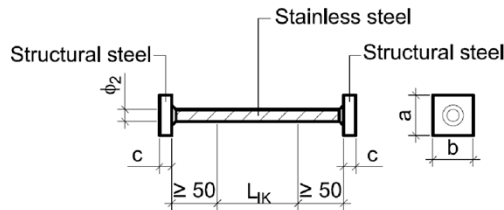


Fig. A.34: Steel compression element with welded-on compression plates, embedding at least 50 mm on both sides

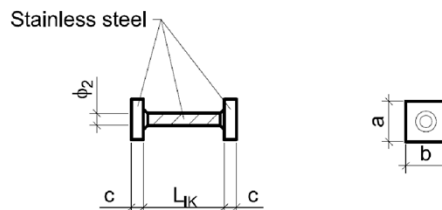


Fig. A.35: Steel compression element with welded-on compression plates, flush on both sides

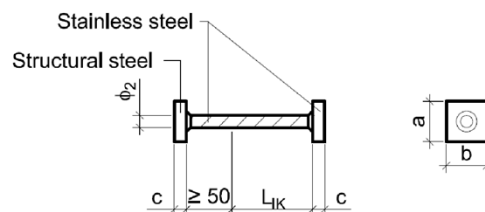


Fig. A.36: Steel compression element with welded-on compression plates, flush on one side, embedding at least 50 mm on one side (e.g. for Schöck Isokorb K-ID, Schöck Isokorb RT K)

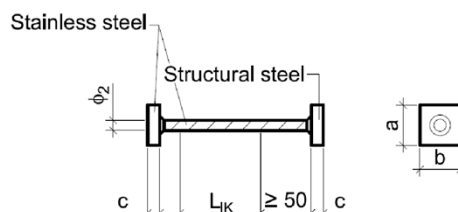


Fig. A.37: Steel compression element with welded-on compression plates, embedding at least 50 mm on one side, less than 50 mm on the other side (e.g. for Schöck Isokorb O)

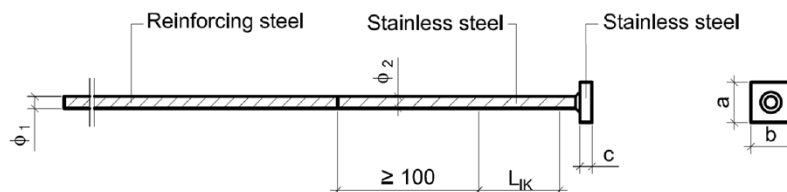


Fig. A.38: Steel compression element with welded-on compression plate and welded reinforcing steel

Schöck Isokorb with compression elements made of concrete or steel

Product description
Steel compression element variants (SCE)

Annex A15

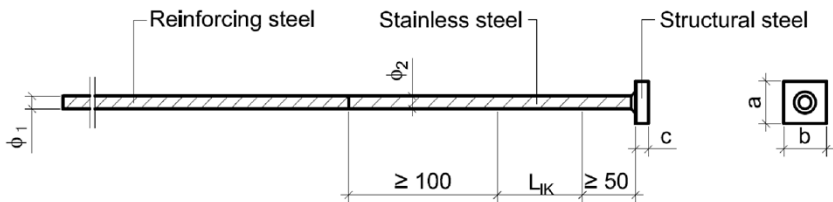


Fig. A.39: Steel compression element with welded-on compression plate and welded reinforcing steel

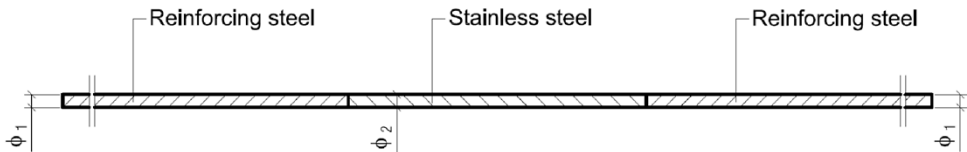


Fig. A.40: Steel compression element with reinforcing steel welded on both sides

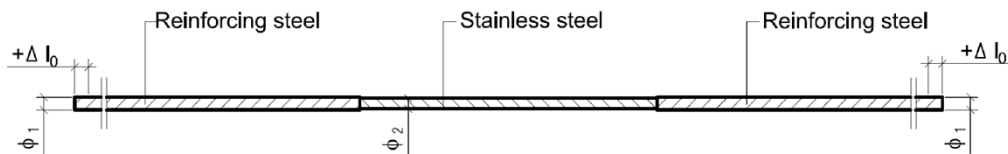


Fig. A.41: Steel compression element with reinforcing steel welded on both sides, with diameter combination, Table A.1 also applies this steel compression element

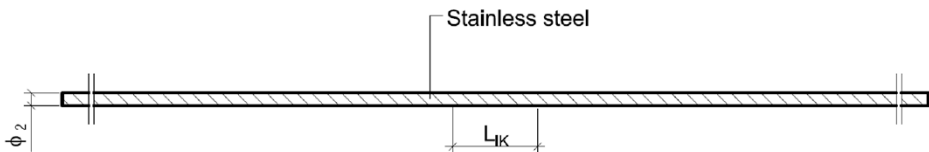


Fig. A.42: Steel compression element made of stainless reinforcing steel

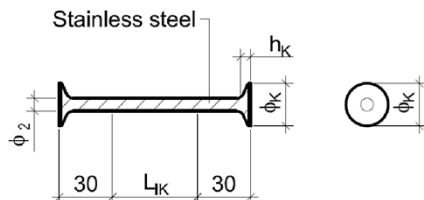


Fig. A.43: Steel compression element made of steel with compressed heads

Schöck Isokorb with compression elements made of concrete or steel

Product description
Steel compression element variants (SCE)

Annex A16

A.2.5 Concrete compression element variants (CCE)

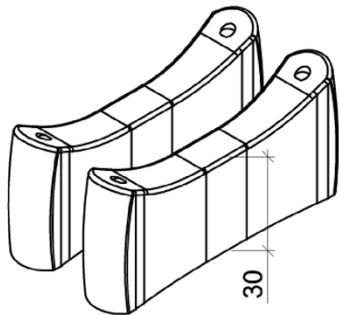


Fig. A.44: Concrete compression element HTE-Modul and HTE-Compact 30, insulation thickness 80 mm

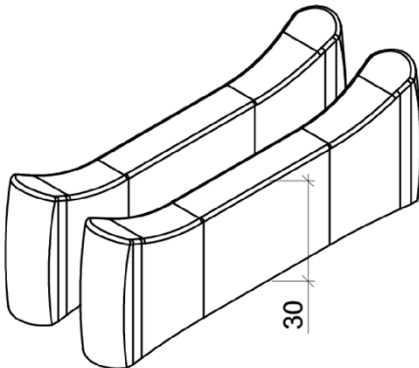


Fig. A.45: Concrete compression element HTE-Modul and HTE-Compact 30, insulation thickness 120 mm

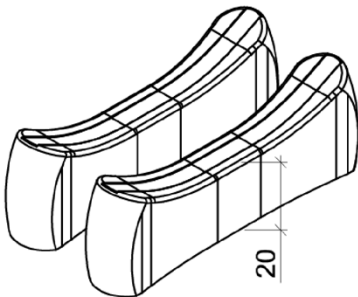


Fig. A.46: Concrete compression element HTE-Compact 20, insulation thickness 80 mm

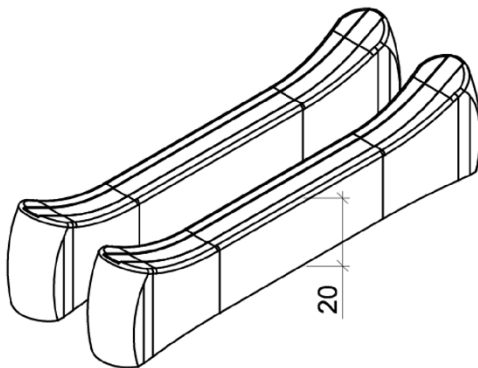


Fig. A.47: Concrete compression element HTE-Compact 20, insulation thickness 120 mm

Schöck Isokorb with compression elements made of concrete or steel	
Product description Concrete compression element variants (CCE)	Annex A17

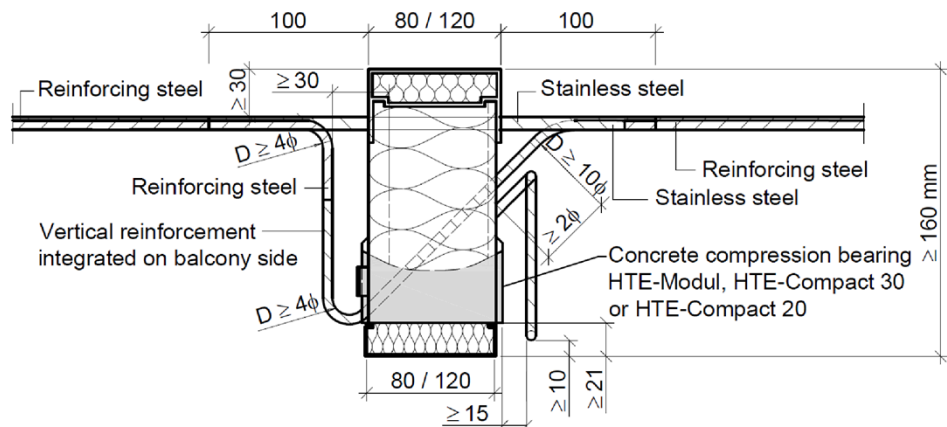


Fig. A.48: Schöck Isokorb K with CCE with integrated reinforcement stirrups and special stirrup

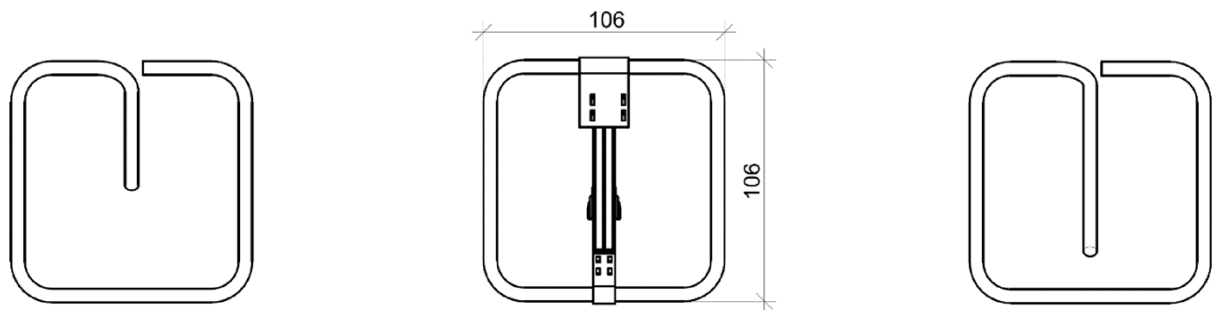


Fig. A.49: Stainless steel special stirrup

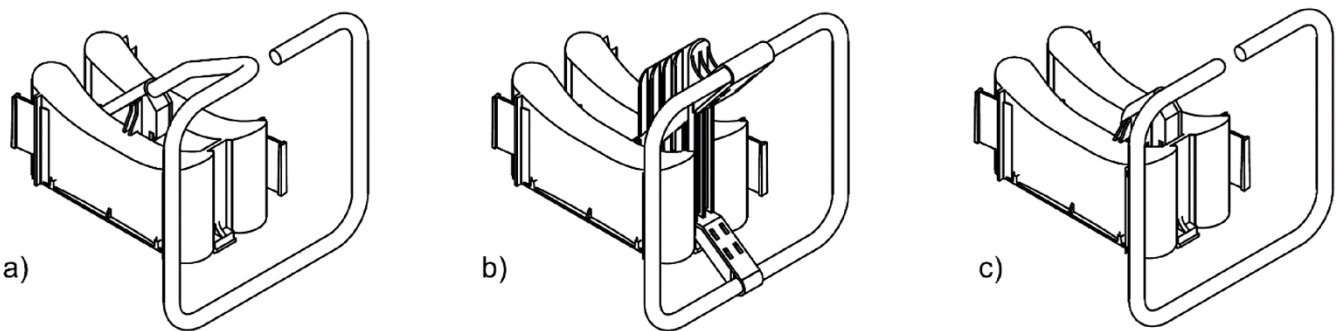


Fig. A.50: Concrete compression elements with special stirrup

Schöck Isokorb with compression elements made of concrete or steel	
Product description Concrete compression element variants (CCE)	Annex A18

A.3 Materials

Reinforcing steel:	B500B, class A1 in accordance with EN 13501-1
Stainless steel:	Stainless reinforcing steel, stainless steel round bars (S355, S460, S690), stainless flat steel for compression plates (S235, S275, S460) with corrosion resistance class III in accordance with EN 1993-1-4, class A1 in accordance with EN 13501-1
Structural steel:	S235JR, S235J0, S235J2, S355JR, S355J2 or S355J0 in accordance with EN 10025-2 for compression plates, class A1 in accordance with EN 13501-1
Concrete for compression element CCE:	High-performance fine-grained concrete, class A1 in accordance with EN 13501-1
Insulation joint:	Polystyrene rigid foam (EPS) in accordance with EN 13163, class E in accordance with EN 13501-1
Fire protection material:	Moisture repellent, weather-resistant and UV-resistant panels, class A1 in accordance with EN 13501-1
Plastic formwork CCE:	PE-HD plastic in accordance with EN ISO 17855-1 and EN ISO 17855-2, class E in accordance with EN 13501-1
Plastic rail:	PVC-U in accordance with EN 13245-1 and EN 13245-2, class E in accordance with EN 13501-1

Schöck Isokorb with compression elements made of concrete or steel

Product description
Materials

Annex A19

B Intended use

B.1 Conditions of use

This product can be used to connect exterior slabs as well as vertical components such as consoles, walls, parapets or attics. The forces are transferred to the adjacent components by bonding or surface pressure. Mainly the product is to be used:

- for minimizing thermal bridges in structures,
- for the transmission of static or quasi-static action loads,
- for the transmission of seismic loads,
- for structural members with fire resistance requirements,
- for structural members with sound insulation requirements,
- for reinforced concrete components to be connected made of normal strength concrete of the minimum concrete strength class in accordance with EN 206: C20/25, for exterior components C25/30,
- for connection for 160 mm to 500 mm thick slabs made of reinforced concrete
- for connection for 150 mm to 500 mm thick vertical components made of reinforced concrete

B.1.1 Design

The provisions of EN 1992-1-1 in connection with EN 1993-1-1 and in accordance with Annex C shall apply.

- Shear reinforcement only receive tensile forces
- Compression elements with welded-on compression plates or compressed heads:
Introduction of the compressive stresses into the concrete as a partial surface load shall be verified.
For compressed heads: $b_1 = d_1 = \varnothing_K$; $\alpha_{cc} = 0,85$
- The connected slab shall be divided by joints to reduce thermal loads, see section B.2.1.
- The transfer of forces between Schöck Isokorb elements and the connected reinforced concrete in accordance with Annex C.
- The deviations from the strain of a structurally identical slab without an insulation joint are limited to the joint area and the connecting edges through compliance with the provisions of this European Technical Assessment.
- The undistributed strain may then be assumed to exist at a distance h from the joint edge.
- Variable moments and shear forces along a connected edge shall be considered in the structural analysis.
- Strain on the slab connections due to local twisting moments (torques) shall be excluded.
- Normal constraining forces in the direction of the bars of the slab connections shall be excluded (see section B.2.1 for example).
- If the slabs to be connected to the load bearing thermal insulating elements are implemented as prefabricated concrete slabs, Fig. B.7 shall be observed.
- The ratio of height / width of the adjacent structural members should not exceed the ratio 1/3, if no special verification is provided for the transfer of the transverse tensile stresses.
- Cutting of the elements is allowed. The conditions according to section A.2 shall be met after cutting.

Schöck Isokorb with compression elements made of concrete or steel

Intended use
Conditions of use

Annex B1

B.2 Installation requirements

B.2.1 Centre and joint spacing

- Tensile and compression members, shear force bars (additional provisions in accordance with section C.1.1.2):
 $50\text{ mm} \leq s_1 \leq \frac{1}{2} s_{2,\text{max}}$
with:
 s_1 center distance from the free edge or the expansion joint
 $s_{2,\text{max}}$ permissible maximum distance between the bars
- External reinforced concrete components: expansion joints shall be placed in a right angle to the insulation joint (see Fig. B.2)
- Joint spacing: Table B.1
- Schöck Isokorb Types H-VV-NN, in accordance with Fig. A.11 and Fig. A.32, are to be arranged in the area of the displacement rest point (compare Fig. B.1)

Table B.1: Permitted joint spacing in [m]*

Thickness of the insulation joint [mm]	Bar diameter in the joint [mm]						
	≤ 9,5	10	11	12	14	16	20
60	8,1	7,8	7,3	6,9	6,3	5,6	5,1
80	13,5	13,0	12,2	11,7	10,1	9,2	8,0
120	23,0	21,7	20,6	19,8	17,0	15,5	13,5

*Linear interpolation is allowed for intermediate values.

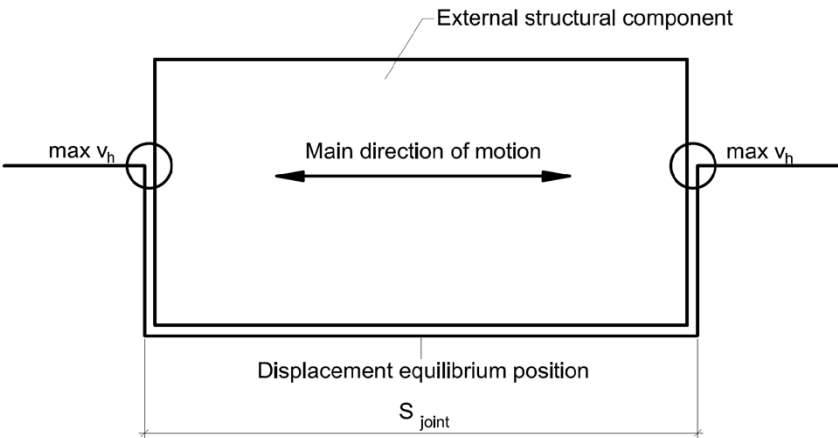


Fig. B.1: Installation situation with support on opposite edges

Schöck Isokorb with compression elements made of concrete or steel

Intended use
Installation requirements

Annex B2

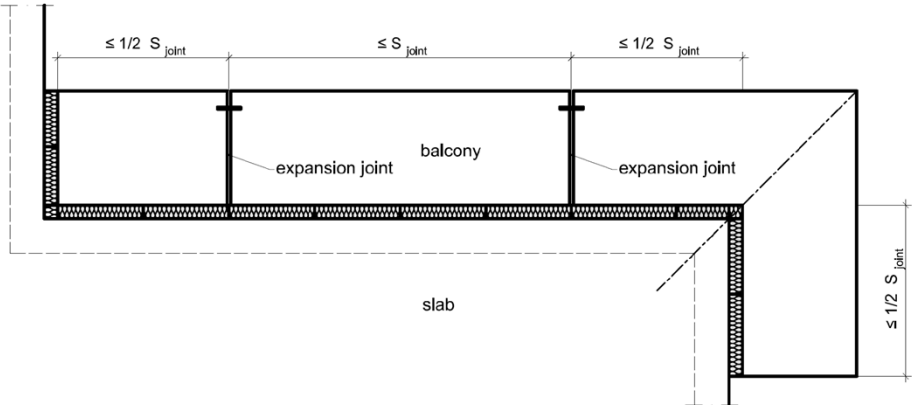


Fig. B.2: Installation situation with expansion joints

B.2.2 Installation situation: Exclusion of constrained normal forces in the compression elements of the slab connections

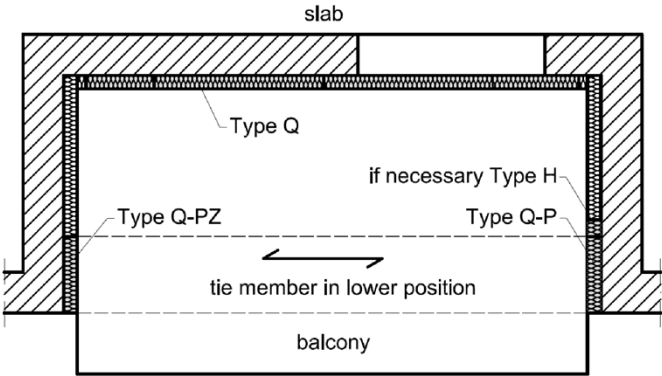


Fig. B.3: Constraint-free application: Example Schöck Isokorb Q-Z, Q-PZ (without compression elements) with opposing slab connections Schöck Isokorb Q, Q-P (if necessary with Schöck Isokorb H)

Schöck Isokorb with compression elements made of concrete or steel		Annex B3
Intended use Installation requirements		

B.2.3 Structural design

The minimum concrete cover in accordance with EN 1992-1-1 shall be observed. This applies to tensile bars, shear reinforcement or existing installation reinforcement. The reinforcement of the concrete structures connected to the load bearing thermal insulation elements shall be extended to the insulation joint in consideration of the required concrete cover in accordance with EN 1992-1-1.

The transverse bars of the upper connection reinforcement shall generally lie on the outside on the longitudinal bars of the slab connections. In the case of bars with a nominal diameter $\varnothing < 16$ mm an exception may be made if the following conditions are respected:

- The installation of the shear force bars directly underneath the longitudinal bars of the slab connection is possible.
- The installation is monitored, e.g. by construction engineer.
- The necessary installation steps shall be described in the installation instructions (see Annex B5).

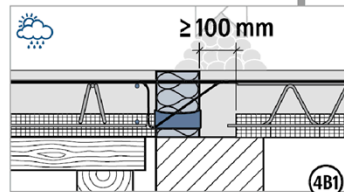
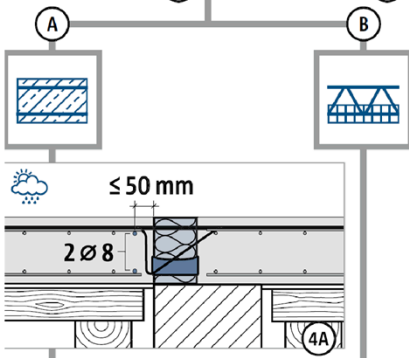
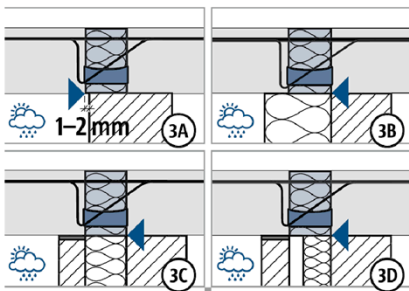
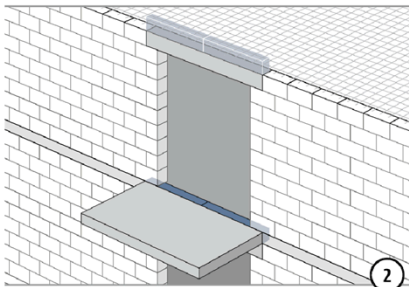
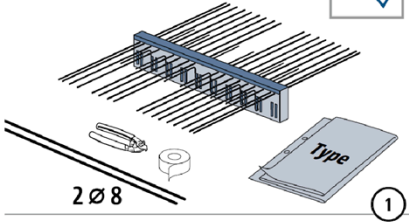
The front surface of the components to be connected shall receive edge reinforcement in accordance with EN 1992-1-1, Figure 12.4, e.g. in the form of stirrups with at least $\varnothing \geq 6$ mm, $s \leq 250$ mm and 2 longitudinal bars each with $\varnothing \geq 8$ mm. The vertical legs of the shear force bars for Schöck Isokorb Types K, K-F, K-O, K-U and HV (see Fig. A.21 to Fig. A.23) as well as lattice girders with a maximum distance of 100 mm from the insulation joint in accordance with Fig. B.7 shall be permitted.

Subsequent bending of the bars of the load bearing thermal insulation element is not permissible.

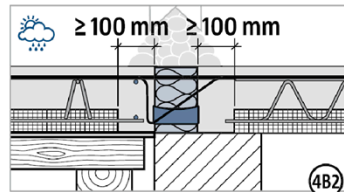
Schöck Isokorb with compression elements made of concrete or steel	Annex B4
Intended use Installation requirements	

Isokorb® XT K (M1-M10)
Isokorb® T K (M1-M11)

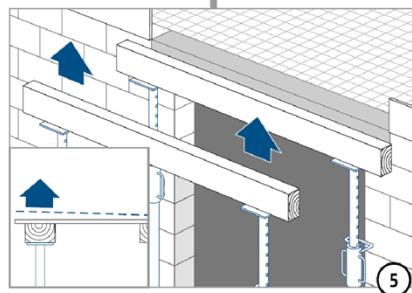
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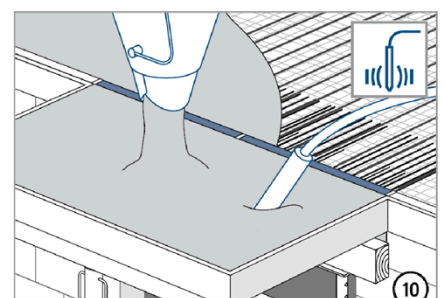
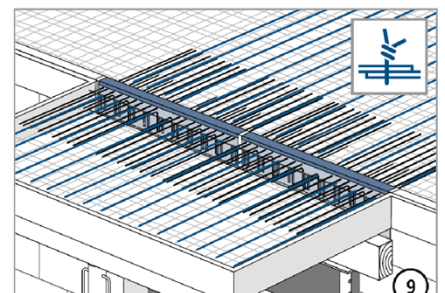
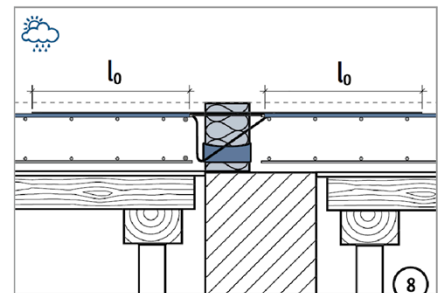
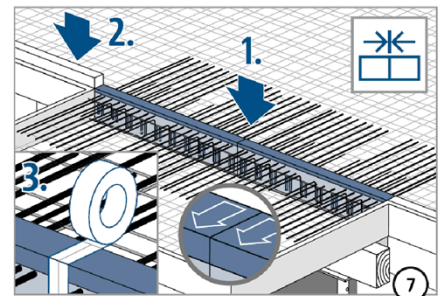
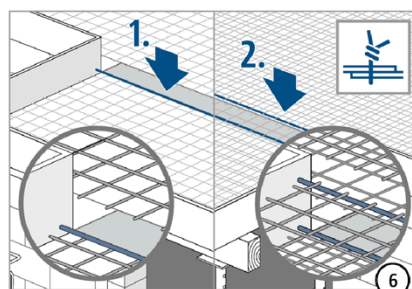
Be sure to fill the compression joint with in-situ concrete! Joint width ≥ 100 mm.



Be sure to fill the compression joint with in-situ concrete! Joint width ≥ 100 mm.



Step formwork in accordance with work plan.



Schöck Isokorb with compression elements made of concrete or steel

Intended use
Installation instructions Schöck Isokorb K

Annex B5

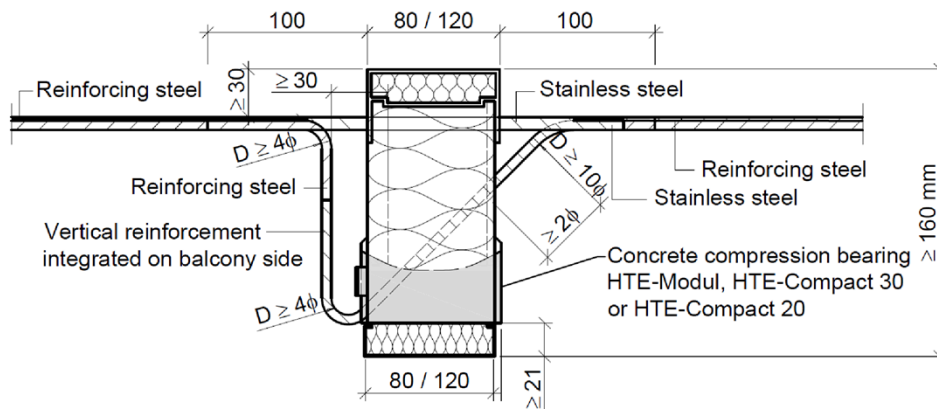


Fig. B.4: Example of Schöck Isokorb K with CCE

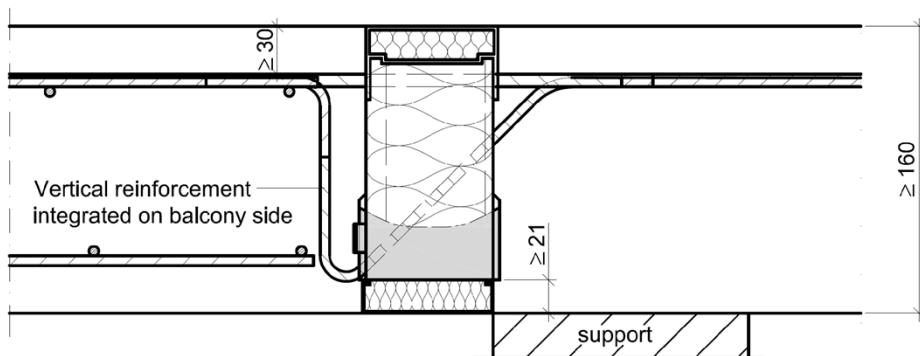


Fig. B.5: Example of Schöck Isokorb K with CCE in installed condition

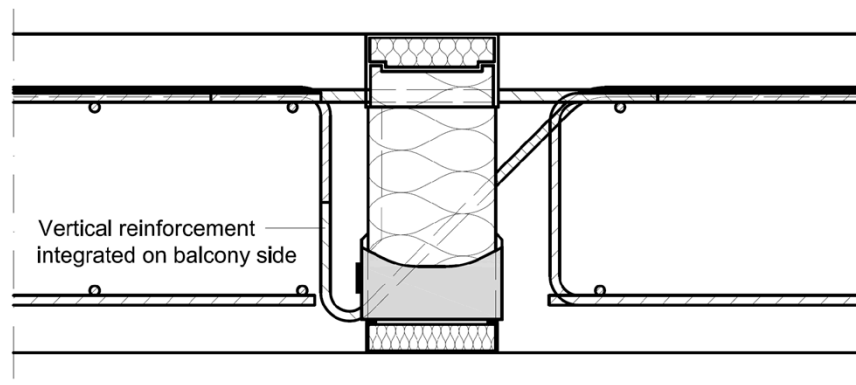


Fig. B.6: Example of Schöck Isokorb K according to Fig. B.4 with CCE with indirect support

Schöck Isokorb with compression elements made of concrete or steel	Annex B6
Intended use Installation requirements	

If the slabs connected to the load bearing thermal insulation elements are implemented as prefabricated concrete slabs, the following conditions should be respected:

- In-situ concrete section in accordance with Fig. B.7 with a width of at least 100 mm shall be carried out between the load bearing thermal insulation element and the prefabricated concrete slab
- The concrete composition of the in-situ concrete area (maximum aggregate size d_g) shall be matched with this distance

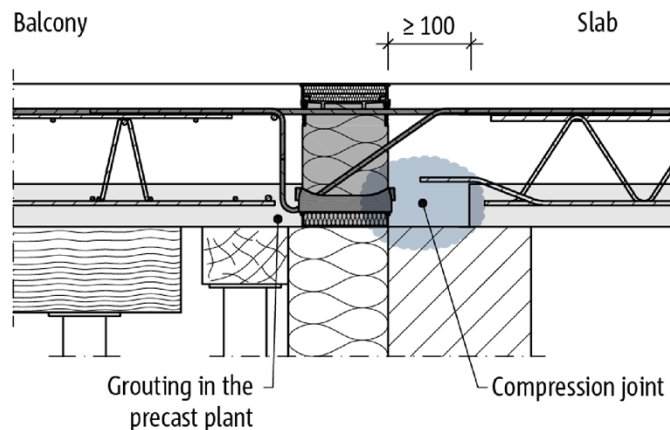


Fig. B.7: Schöck Isokorb K with CCE or SCE and prefabricated concrete slab, compression joint

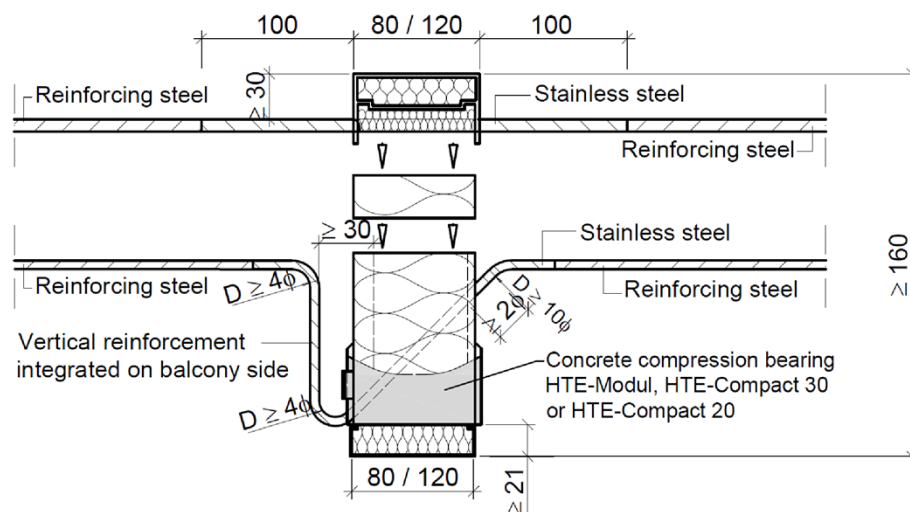


Fig. B.8: Example of Schöck Isokorb K-F (multi-part version) with CCE

Schöck Isokorb with compression elements made of concrete or steel

Intended use
Installation requirements

Annex B7

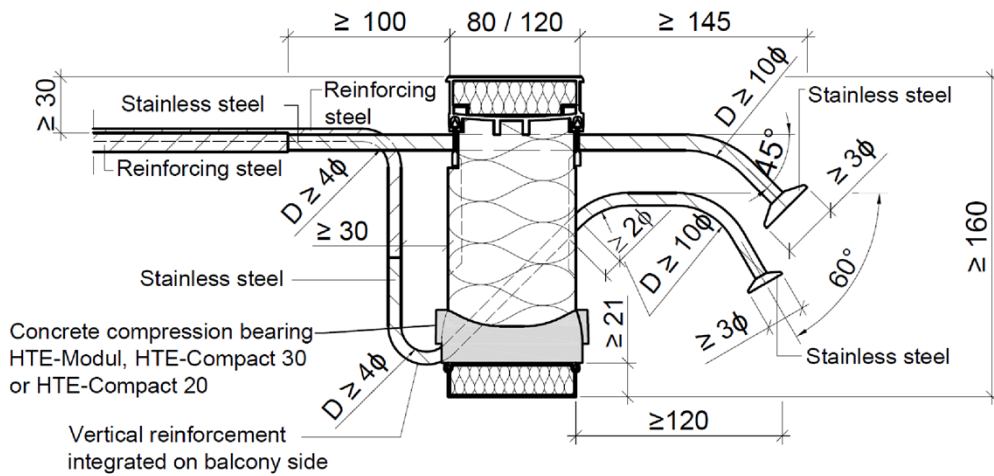


Fig. B.9: Example of Schöck Isokorb K-O with CCE

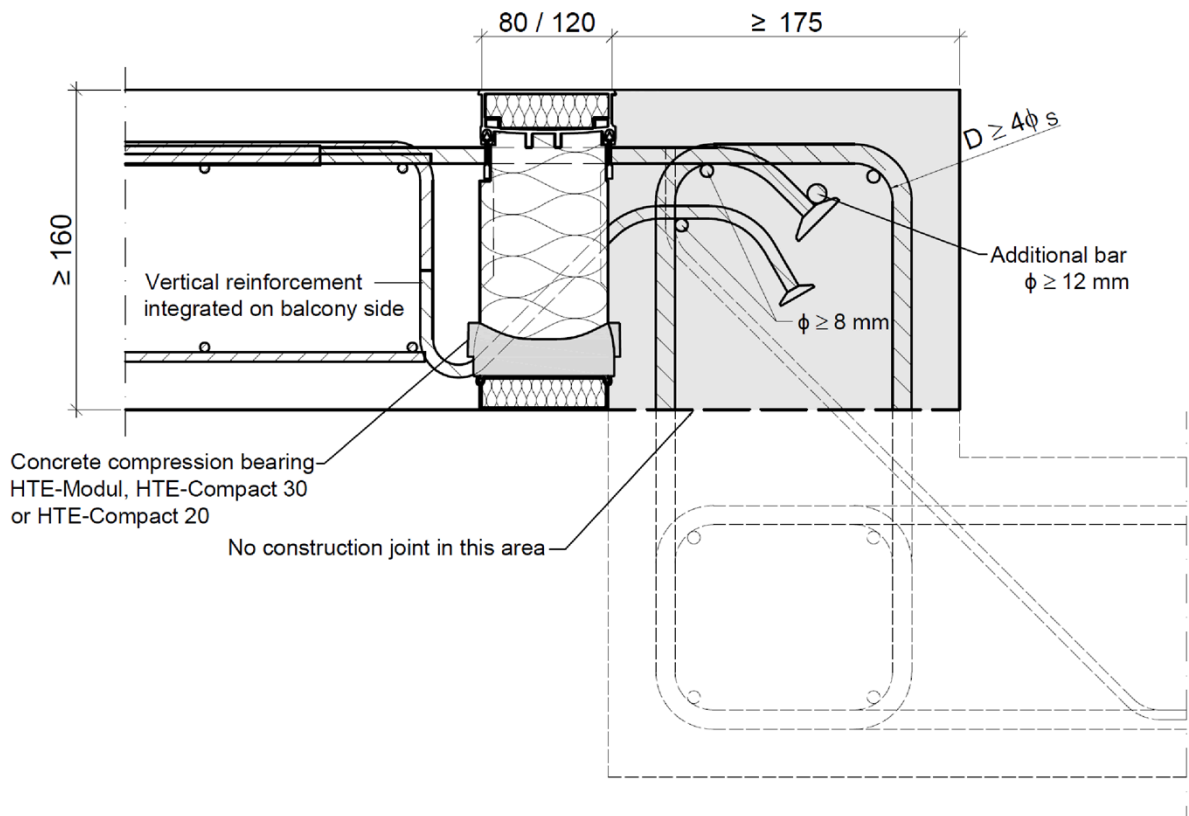


Fig. B.10: Example of Schöck Isokorb K-O with CCE in installed condition with connection to wall or height offset

Schöck Isokorb with compression elements made of concrete or steel

Intended use
Installation requirements

Annex B8

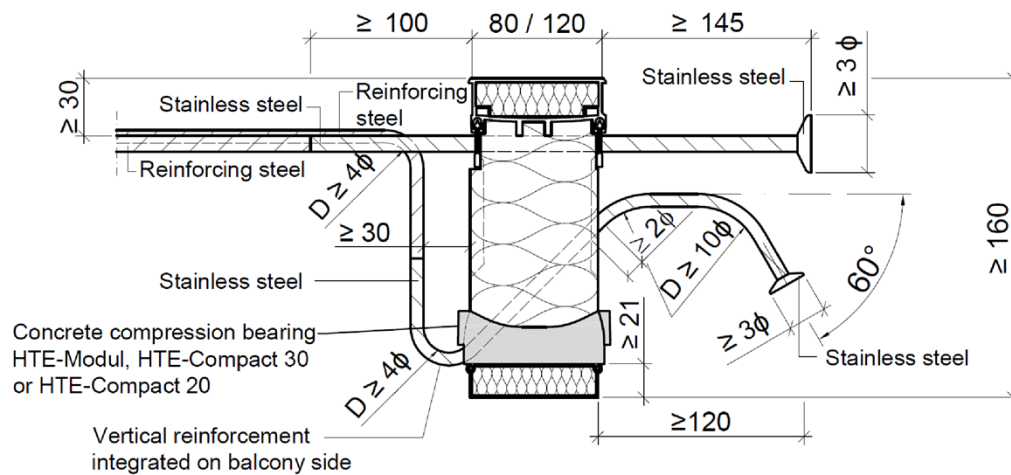


Fig. B.11: Example of Schöck Isokorb K-U with CCE

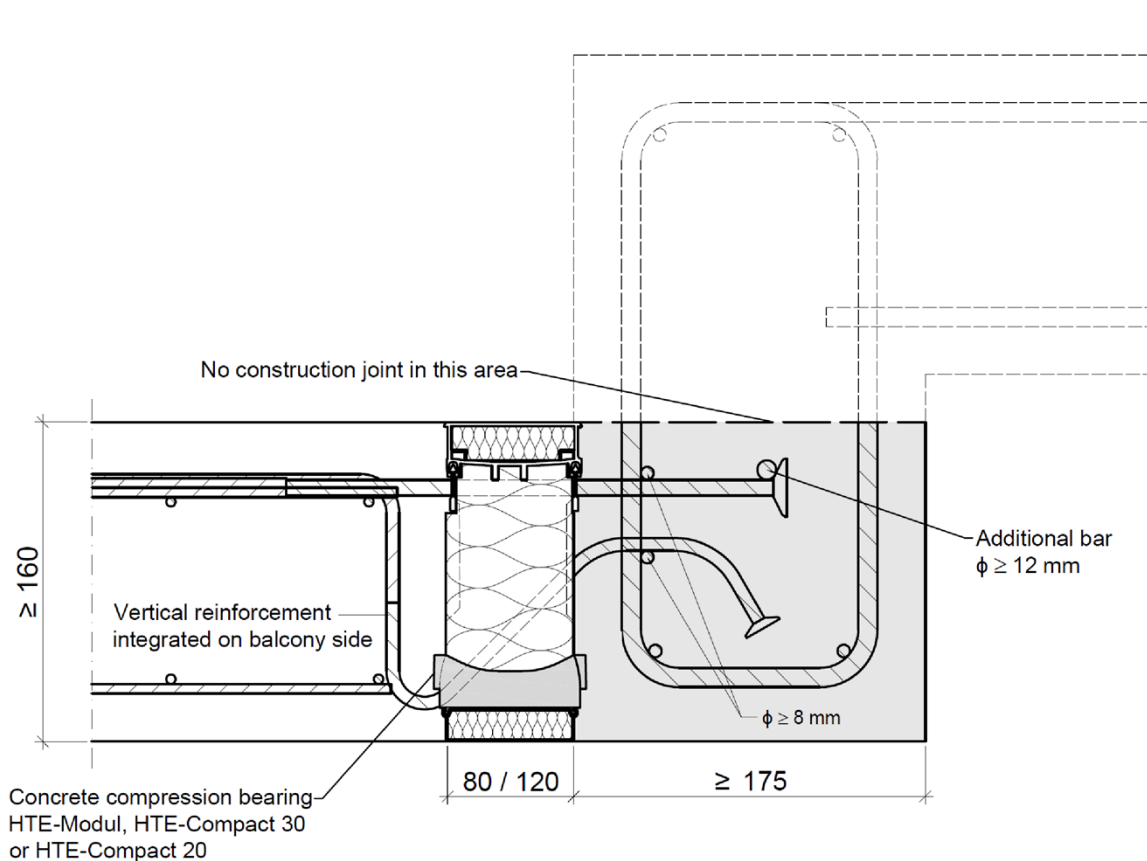


Fig. B.12: Example of Schöck Isokorb K-U with CCE in installed condition with connection to wall or height offset

Schöck Isokorb with compression elements made of concrete or steel

Intended use
Installation requirements

Annex B9

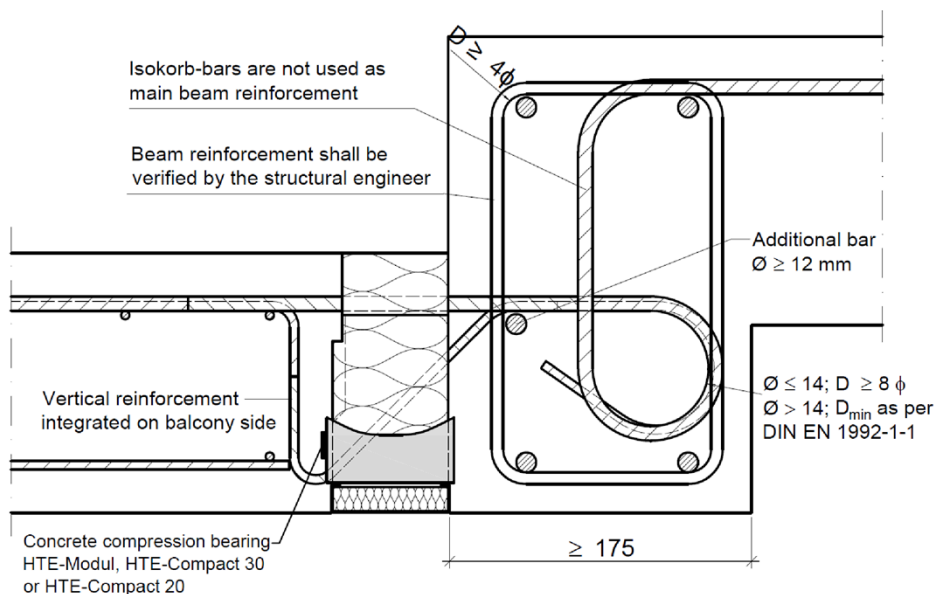


Fig. B.13: Example of Schöck Isokorb K-HV with CCE

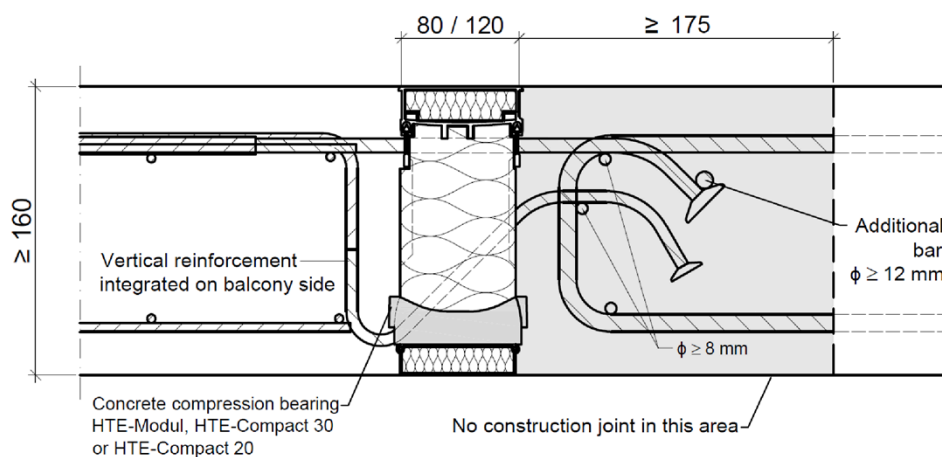


Fig. B.14: Example of Schöck Isokorb K-O with CCE in ceiling connection without offset

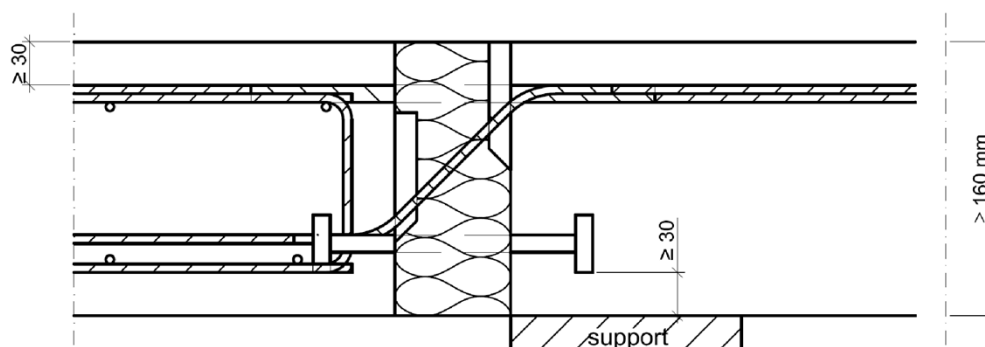


Fig. B.15: Example of Schöck Isokorb K with SCE with vertical reinforcement

Schöck Isokorb with compression elements made of concrete or steel	Annex B10
Intended use Installation requirements	

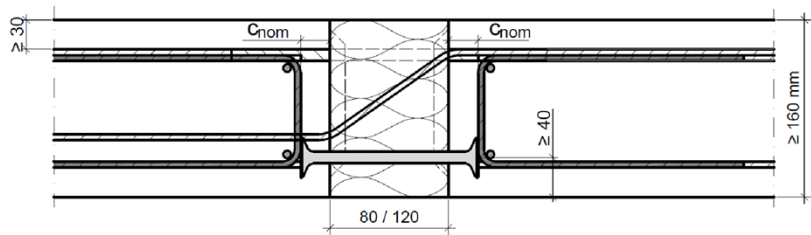


Fig. B.16: Example of Schöck Isokorb K with SCE with vertical reinforcement

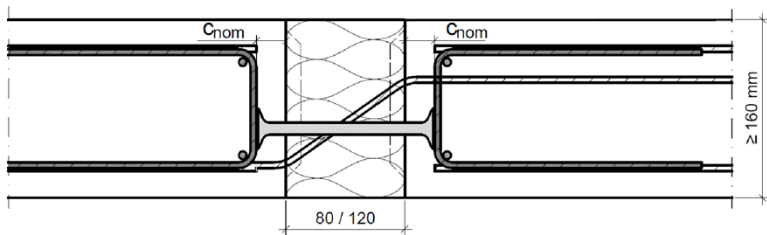


Fig. B.17: Example of Schöck Isokorb Q with SCE (or CCE) with shear force bar with straight bar ends

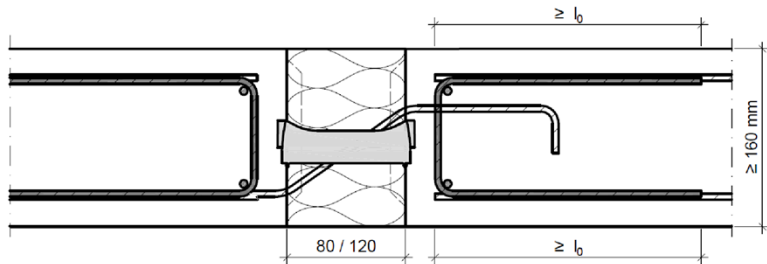


Fig. B.18: Example of Schöck Isokorb Q with CCE (or SCE) and shear force bar Ø 6 mm with shortened bar ends according to Fig. A.26 and with stirrups ≥ 8 mm on each shear force bar on the side with the bent form

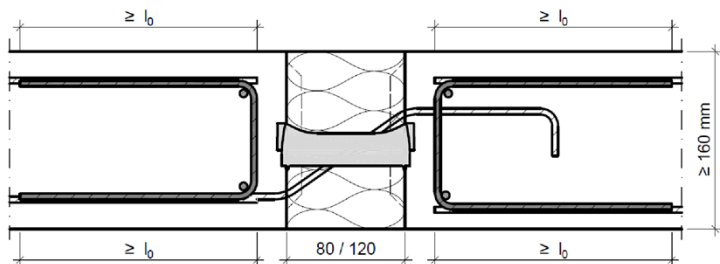


Fig. B.19: Example of Schöck Isokorb Q with CCE (or SCE) and shear force bar Ø 8 mm or Ø 10 mm with shortened bar ends according to Fig. A.26 and with stirrups ≥ 10 mm on each shear force bar on the side with the bent form and straight from

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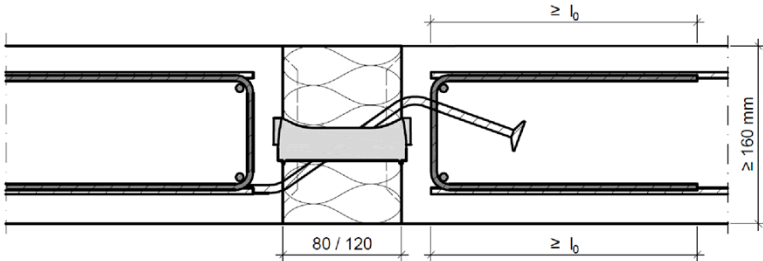


Fig. B.20: Example of Schöck Isokorb Q with CCE (or SCE) and shear force bar Ø 8 mm with anchor head (one-sided) according to Fig. A.27 and with stirrups ≥ 8 mm on each shear force bar on the side with anchor head

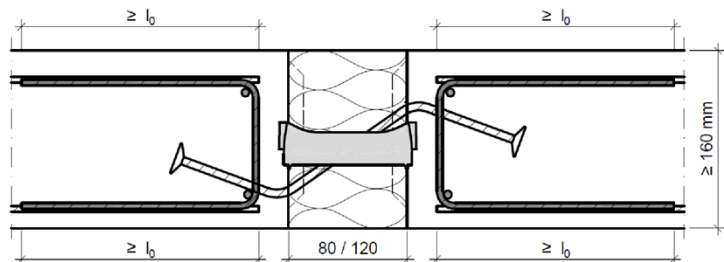


Fig. B.21: Example of Schöck Isokorb Q with CCE (or SCE) and shear force bar Ø 8 mm with anchor head (on both sides) according to Fig. A.28 and with stirrups ≥ 8 mm on each shear force bar

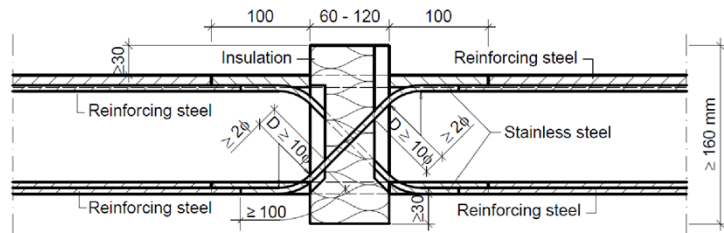


Fig. B.22: Example of Schöck Isokorb D with SCE

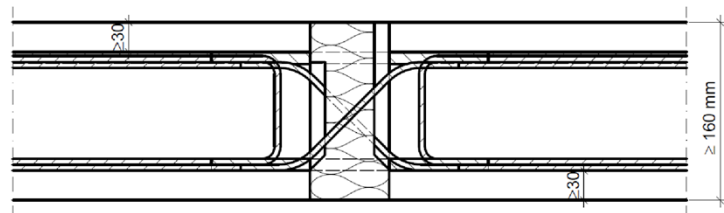


Fig. B.23: Example of Schöck Isokorb D with SCE with on-site reinforcement

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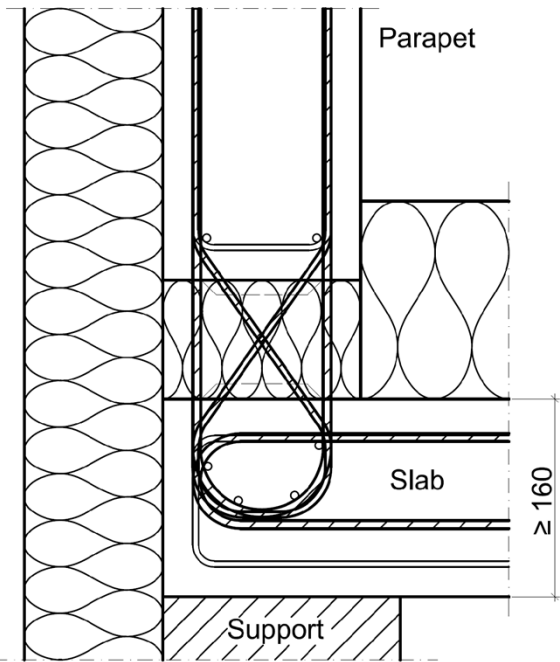


Fig. B.24: Example of Schöck Isokorb A with SCE with on-site reinforcement

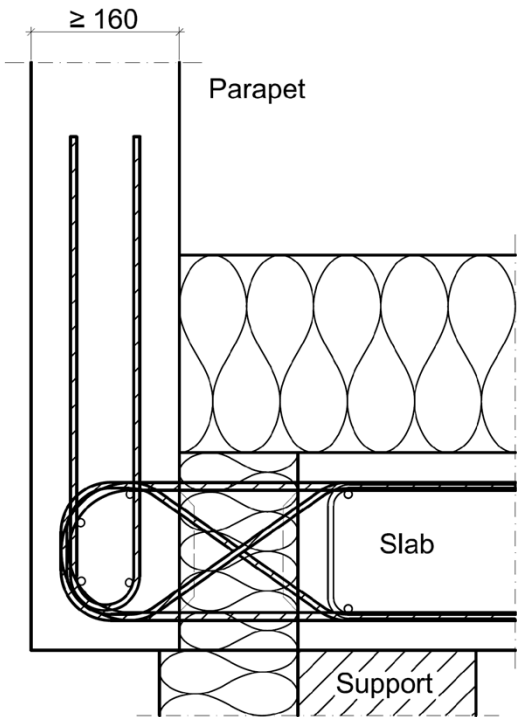


Fig. B.25: Example of Schöck Isokorb F with SCE with on-site reinforcement

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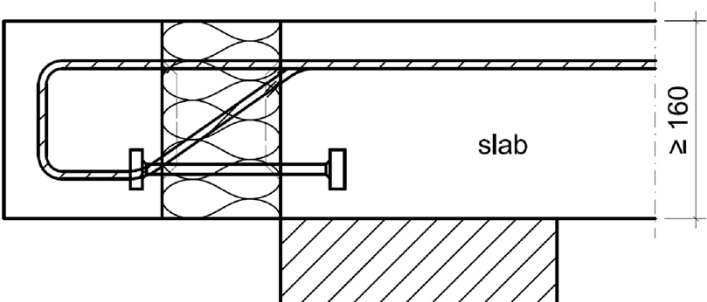


Fig. B.26: Example of Schöck Isokorb O with SCE

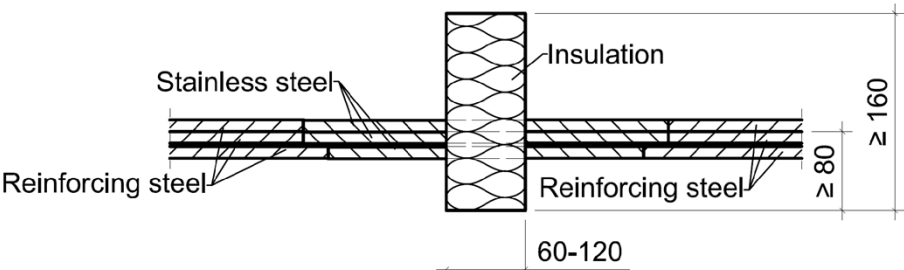


Fig. B.27: Example of Schöck Isokorb H with SCE

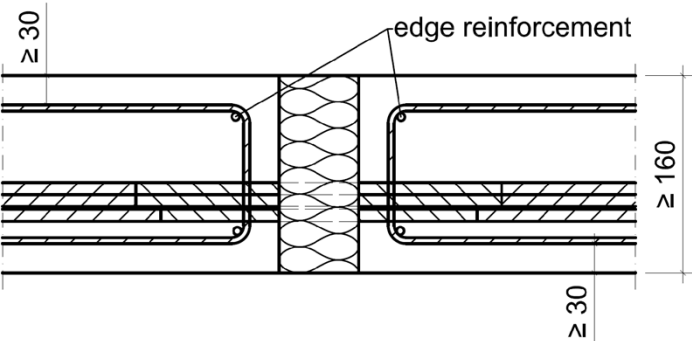


Fig. B.28: Example of Schöck Isokorb H with SCE and on-site reinforcement

B.2.4 Notes on use with fire protection requirements

When using the elements to connect reinforced concrete components (slabs) that are subject to fire protection requirements, the provisions of section C.3 shall be observed.

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C Performance parameters

C.1 Essential characteristics under static and quasi-static loading

C.1.1 Load bearing capacity of bars

C.1.1.1 Tension bars according to section A.2.1

Table C.1: Characteristic yield strengths f_{yk} for tension loads

Staff from	f_{yk} [N/mm ²]
Stainless reinforcing steel ($R_{p0.2} = 500$ N/mm ²)	500 ($\gamma_m = 1,15^*)$)
Stainless reinforcing steel ($R_{p0.2} = 700$ N/mm ²)	700 ($\gamma_m = 1,15^*)$)
Stainless reinforcing steel ($R_{p0.2} = 800$ N/mm ²)	800 ($\gamma_m = 1,21^*)$)
Stainless reinforcing steel ($R_{p0.2} = 820$ N/mm ²)	820 ($\gamma_m = 1,21^*)$)
Stainless steel round bars S355	355 ($\gamma_m = 1,1^*)$)
Stainless steel round bars S460	460 ($\gamma_m = 1,1^*)$)
Stainless steel round bars S690	690 ($\gamma_m = 1,1^*)$)

C.1.1.2 Shear force bars according to section A.2.2

Table C.2: Characteristic yield strengths f_{yk} for tension loads ($\gamma_m = 1,15^*)$

Calculation method	f_{yk} [N/mm ²]
Simplified calculation	500 for stainless reinforcing steel ($R_{p0.2} \geq 500$ N/mm ²) and shear force bar variants according to Fig. A.21 to Fig. A.25, Fig. A.29 to Fig. A.31
Detailed calculation	$\sigma_B \cdot AF \cdot \alpha_{Head} \cdot \left(\frac{f_{ck}}{25}\right)^{0,5} \leq 700$ for stainless reinforcing steel ($R_{p0.2} \geq 700$ N/mm ²) and shear force bar variants according to Fig. A.24, Fig. A.26 to Fig. A.28

^{*)} unless otherwise provided by national regulations

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with:

σ_B Base tension stress in N/mm² according to Table C.4 to Table C.9, depending on $\emptyset$, α and $\emptyset_{BR}$
Linear interpolation may be used for intermediate values.

AF Distance factor see Fig. C.1, as a function of c_d

$$c_d = \min \left\{ \begin{array}{l} \text{clear edge distance } c_x \\ \text{half clear centre distance } \frac{c_s}{2} \end{array} \right\}$$

Table C.3: Minimum values for c_d depending on the shear force bar diameter

Shear force bar diameter [mm]	6	8	10	12	14
c_d [mm]	15	20	25	30	35

$$\alpha_{\text{Head}} = \left\{ \begin{array}{l} 1,0 \text{ for straight bar ends} \\ 1,0 \text{ for bent bar ends } \emptyset 6 \text{ mm} \\ 0,85 \text{ for bent bar ends } \emptyset 8 \text{ mm and } \emptyset 10 \text{ mm} \\ 0,7 \text{ for bent bars ends } \emptyset > 10 \text{ mm} \\ 0,7 \text{ for bars with anchor heads} \end{array} \right\}$$

f_{ck} Characteristic compressive strength of concrete in N/mm²; 20 N/mm² $\leq f_{ck} \leq$ 50 N/mm²

Bar variants acc. to Fig. A.26: $\emptyset 6 \text{ mm}$ $c_d \geq 25 \text{ mm}$, min. C20/25, $f_{yk} \leq 690 \text{ N/mm}^2$
 $\emptyset 8 \text{ mm}$ $c_d \geq 42 \text{ mm}$, min. C20/25, $f_{yk} \leq 552 \text{ N/mm}^2$
 $\emptyset 10 \text{ mm}$ $c_d \geq 40 \text{ mm}$, min. C20/25, $f_{yk} \leq 500 \text{ N/mm}^2$
Bar variants acc. to Fig. A.27 and Fig. A.28: $\emptyset 8 \text{ mm}$ $c_d \geq 46 \text{ mm}$, min. C20/25

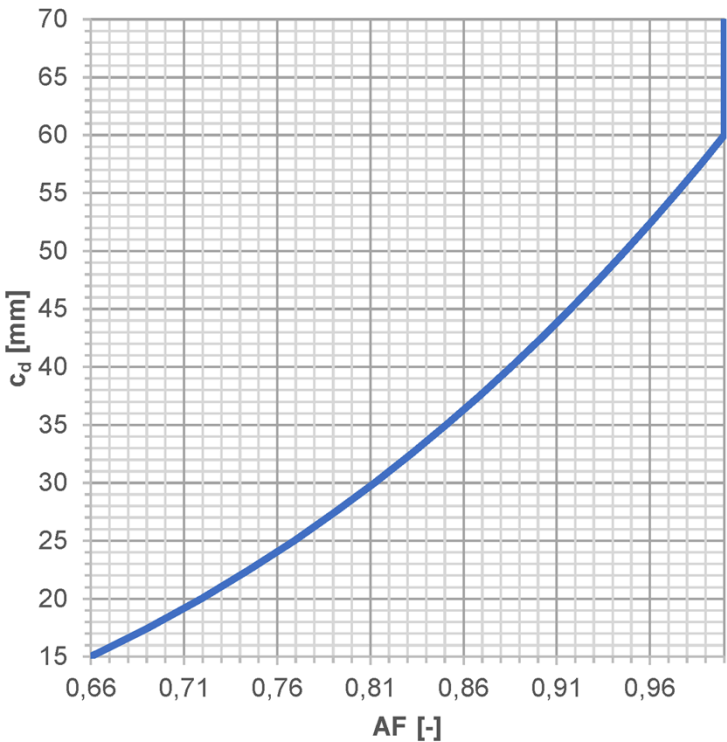


Fig. C.1: Distance factor AF as a function of c_d

Schöck Isokorb with compression elements made of concrete or steel

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Table C.4: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 6 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																						
		30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300
α [°]	30	581	607	628	645	660	673	685	696	706	716	724	732	740	747	754	760	767	773	784	794	804	813	821
	32	587	613	634	651	666	680	692	703	713	723	731	739	747	754	761	768	774	780	791	802	811	821	829
	34	592	618	639	657	673	686	698	710	720	729	738	746	754	761	768	775	781	787	799	809	819	828	837
	35	595	621	642	660	675	689	701	713	723	732	741	749	757	765	772	778	785	791	802	813	822	832	840
	36	597	624	645	663	678	692	704	716	726	735	744	753	760	768	775	782	788	794	805	816	826	835	844
	38	602	629	650	668	684	698	710	721	732	741	750	759	767	774	781	788	794	800	812	823	833	842	851
	40	607	634	655	673	689	703	716	727	737	747	756	765	773	780	787	794	800	807	818	829	839	848	857
	42	611	638	660	678	694	708	721	732	743	753	762	770	778	786	793	800	806	813	824	835	845	855	864
	44	616	643	665	683	699	713	726	737	748	758	767	776	784	791	799	805	812	818	830	841	851	861	870
	45	618	645	667	685	701	716	728	740	751	760	770	778	786	794	801	808	815	821	833	844	854	864	873
	46	620	647	669	688	704	718	731	742	753	763	772	781	789	797	804	811	817	824	836	847	857	866	875
	48	624	651	673	692	708	723	735	747	758	768	777	786	794	802	809	816	823	829	841	852	862	872	881
	50	628	655	678	696	713	727	740	752	763	773	782	791	799	807	814	821	828	834	846	857	868	877	886
	55	637	665	687	706	723	737	751	763	774	784	793	802	810	818	826	833	840	846	858	870	880	890	899
	60	645	673	696	716	732	747	760	773	784	794	804	813	821	829	837	844	851	857	870	881	892	902	911
	65	653	682	705	724	741	756	770	782	793	804	813	822	831	839	847	854	861	868	880	892	902	913	922
	70	660	689	713	732	749	765	778	791	802	813	822	832	840	848	856	864	871	877	890	902	913	923	932

Table C.5: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 6,5 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																						
		30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300
α [°]	30	565	590	610	627	642	655	666	677	687	696	704	712	720	727	733	739	746	751	762	772	781	790	798
	32	571	596	616	633	648	661	673	684	694	703	711	719	727	734	740	747	753	759	769	780	789	798	806
	34	576	601	622	639	654	667	679	690	700	709	718	726	733	740	747	753	760	765	777	787	796	805	813
	35	578	604	624	642	657	670	682	693	703	712	721	729	736	744	750	757	763	769	780	790	800	809	817
	36	581	606	627	645	660	673	685	696	706	715	724	732	739	747	753	760	766	772	783	793	803	812	821
	38	586	611	632	650	665	678	691	702	712	721	730	738	746	753	760	766	772	778	790	800	810	819	827
	40	590	616	637	655	670	684	696	707	717	727	735	744	751	759	765	772	778	784	796	806	816	825	834
	42	594	621	642	660	675	689	701	712	722	732	741	749	757	764	771	778	784	790	802	812	822	831	840
	44	599	625	646	664	680	694	706	717	727	737	746	754	762	769	777	783	790	796	807	818	828	837	846
	45	601	627	648	666	682	696	708	720	730	739	748	757	765	772	779	786	792	798	810	821	830	840	848
	46	603	629	651	669	684	698	711	722	732	742	751	759	767	775	782	788	795	801	813	823	833	842	851
	48	606	633	655	673	689	703	715	727	737	747	756	764	772	780	787	793	800	806	818	828	838	848	857
	50	610	637	659	677	693	707	720	731	742	751	760	769	777	784	792	798	805	811	823	834	844	853	862
	55	619	646	668	687	703	717	730	742	752	762	771	780	788	796	803	810	816	823	835	846	856	865	874
	60	627	655	677	696	712	727	739	751	762	772	781	790	798	806	813	821	827	834	846	857	867	877	886
	65	635	663	685	704	721	735	748	760	771	781	791	800	808	816	823	830	837	844	856	867	878	887	897
	70	642	670	693	712	729	744	757	769	780	790	800	809	817	825	833	840	847	853	865	877	887	897	907

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Table C.6: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 8 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																						
		32	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300
α [°]	30	531	549	567	583	597	609	620	630	639	647	655	662	669	676	682	688	693	699	709	718	727	735	742
	32	536	554	573	589	603	615	626	636	645	653	661	669	676	682	688	694	700	705	716	725	734	742	750
	34	541	559	578	594	608	620	631	642	651	659	667	675	682	688	695	701	706	712	722	732	740	749	756
	35	543	562	581	597	611	623	634	644	654	662	670	678	685	691	698	704	709	715	725	735	744	752	760
	36	545	564	583	599	613	626	637	647	656	665	673	681	688	694	701	707	712	718	728	738	747	755	763
	38	550	569	588	604	618	631	642	652	662	670	679	686	693	700	706	712	718	724	734	744	753	761	769
	40	554	573	592	609	623	636	647	657	667	676	684	691	699	705	712	718	724	729	740	750	759	767	775
	42	558	577	597	613	628	640	652	662	672	681	689	696	704	711	717	723	729	735	745	755	764	773	781
	44	562	581	601	618	632	645	656	667	676	685	694	701	709	716	722	728	734	740	751	760	770	778	786
	45	564	583	603	620	634	647	659	669	679	688	696	704	711	718	725	731	737	742	753	763	772	781	789
	46	566	585	605	622	636	649	661	671	681	690	698	706	713	720	727	733	739	745	756	766	775	783	792
	48	569	589	609	626	640	653	665	676	685	694	703	711	718	725	732	738	744	750	760	770	780	788	797
	50	573	592	613	630	644	657	669	680	690	699	707	715	722	729	736	742	748	754	765	775	785	793	802
	55	581	601	621	639	654	667	679	690	699	709	717	725	733	740	747	753	759	765	776	786	796	805	813
	60	589	609	630	647	662	676	688	699	709	718	727	735	742	750	756	763	769	775	786	797	806	815	824
	65	596	616	637	655	670	684	696	707	717	727	735	744	751	759	766	772	778	785	796	806	816	825	834
	70	603	623	644	662	678	691	704	715	725	735	744	752	760	767	774	781	787	793	805	815	825	834	843

Table C.7: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 10 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																						
		40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	
α [°]	30	508	525	539	552	563	573	582	591	598	606	612	619	625	631	636	641	646	655	664	672	680	687	
	32	512	530	545	557	569	579	588	596	604	612	618	625	631	637	642	647	652	662	670	679	686	693	
	34	517	535	550	562	574	584	593	602	610	617	624	631	637	643	648	653	658	668	677	685	692	700	
	35	519	537	552	565	576	587	596	605	612	620	627	633	639	645	651	656	661	671	680	688	695	703	
	36	522	539	554	567	579	589	598	607	615	622	629	636	642	648	654	659	664	674	682	691	698	706	
	38	526	544	559	572	583	594	603	612	620	628	635	641	647	653	659	664	669	679	688	696	704	711	
	40	530	548	563	576	588	598	608	617	625	632	639	646	652	658	664	669	675	684	693	702	710	717	
	42	534	552	567	581	592	603	612	621	629	637	644	651	657	663	669	674	680	689	698	707	715	722	
	44	538	556	571	585	596	607	617	626	634	641	649	655	662	668	674	679	684	694	703	712	720	727	
	45	539	558	573	587	598	609	619	628	636	644	651	658	664	670	676	681	687	697	706	714	722	730	
	46	541	560	575	589	600	611	621	630	638	646	653	660	666	672	678	684	689	699	708	717	725	732	
	48	545	563	579	592	604	615	625	634	642	650	657	664	670	677	682	688	693	703	713	721	729	737	
	50	548	567	582	596	608	619	629	638	646	654	661	668	675	681	687	692	698	708	717	726	734	741	
	55	556	575	591	605	617	628	638	647	655	663	671	678	684	691	697	702	708	718	727	736	744	752	
	60	563	582	598	612	625	636	646	655	664	672	680	687	693	700	706	711	717	727	737	746	754	762	
	65	570	589	606	620	632	644	654	663	672	680	688	695	702	708	714	720	726	736	746	755	763	771	
	70	576	596	612	627	639	651	661	671	680	688	695	703	710	716	722	728	734	744	754	763	772	780	

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Table C.8: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 12 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																					
		48	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300
α [°]	30	489	492	506	518	528	538	546	554	561	568	575	581	586	592	597	602	606	615	623	631	638	644
	32	494	497	511	523	533	543	552	560	567	574	580	586	592	597	602	607	612	621	629	637	644	650
	34	499	502	516	528	538	548	557	565	572	579	585	592	597	603	608	613	618	627	635	642	650	656
	35	501	504	518	530	541	550	559	567	575	582	588	594	600	605	611	616	620	629	638	645	652	659
	36	503	506	520	532	543	553	561	570	577	584	591	597	602	608	613	618	623	632	640	648	655	662
	38	507	510	524	537	547	557	566	574	582	589	595	602	607	613	618	623	628	637	645	653	661	667
	40	511	514	528	541	552	561	570	579	586	593	600	606	612	618	623	628	633	642	650	658	666	673
	42	515	518	532	545	556	566	575	583	591	598	604	611	617	622	628	633	638	647	655	663	671	678
	44	518	521	536	548	560	570	579	587	595	602	609	615	621	627	632	637	642	651	660	668	675	682
	45	520	523	538	550	561	571	581	589	597	604	611	617	623	629	634	639	644	653	662	670	678	685
	46	522	525	540	552	563	573	582	591	599	606	613	619	625	631	636	641	646	656	664	672	680	687
	48	525	528	543	556	567	577	586	595	602	610	617	623	629	635	640	645	650	660	668	677	684	691
	50	528	532	546	559	570	581	590	598	606	613	620	627	633	639	644	649	654	664	673	681	688	695
	55	536	539	554	567	579	589	598	607	615	622	629	636	642	648	653	659	664	673	682	691	698	705
	60	543	546	561	575	586	597	606	615	623	631	638	644	650	656	662	667	673	682	691	700	707	715
	65	550	553	568	582	593	604	613	622	631	638	645	652	658	664	670	675	681	691	700	708	716	723
	70	556	559	575	588	600	611	620	629	638	645	652	659	666	672	678	683	688	698	707	716	724	731

Table C.9: Base tension stress σ_B [N/mm²] for shear force bars $\varnothing$ 14 mm depending on α und $\varnothing_{BR}$

σ_B [N/mm ²]		$\varnothing_{BR}$ [mm]																				
		56	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300
α [°]	30	475	479	491	501	510	518	525	532	538	544	550	555	561	565	570	574	583	590	597	604	610
	32	479	484	495	505	514	523	530	537	544	550	555	561	566	571	575	580	588	596	603	610	616
	34	483	489	500	510	519	527	535	542	549	555	561	566	571	576	581	585	594	601	609	616	622
	35	486	491	502	512	521	530	537	544	551	557	563	568	574	579	583	588	596	604	611	618	625
	36	488	493	504	514	524	532	540	547	553	560	565	571	576	581	586	590	599	607	614	621	627
	38	492	497	508	519	528	536	544	551	558	564	570	575	581	586	591	595	604	612	619	626	632
	40	495	501	512	523	532	540	548	555	562	568	574	580	585	590	595	600	608	616	624	631	637
	42	499	504	516	526	536	544	552	560	566	573	579	584	590	595	599	604	613	621	628	635	642
	44	503	508	520	530	540	548	556	563	570	577	583	588	594	599	604	608	617	625	633	640	646
	45	504	510	521	532	541	550	558	565	572	579	585	590	596	601	606	610	619	627	635	642	649
	46	506	511	523	534	543	552	560	567	574	580	587	592	598	603	608	612	621	629	637	644	651
	48	509	514	526	537	547	555	563	571	578	584	590	596	601	607	612	616	625	633	641	648	655
	50	512	518	530	540	550	559	567	574	581	588	594	600	605	610	615	620	629	637	645	652	659
	55	520	525	537	548	558	567	575	583	590	596	602	608	614	619	624	629	638	646	654	662	668
	60	526	532	544	555	565	574	583	590	597	604	610	616	622	627	632	637	646	655	663	670	677
	65	533	538	551	562	572	581	590	597	605	611	618	624	629	635	640	645	654	663	671	678	685
	70	539	544	557	568	579	588	596	604	611	618	625	631	636	642	647	652	662	670	678	686	693

Schöck Isokorb with compression elements made of concrete or steel

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Annex C5

C.1.1.3 Tension bars with anchor head according to Fig. A.18 and Fig. A.19 (Schöck Isokorb K-O, K-U)

The maximum characteristic tension force Z_{Rk} per bar results from the concrete strength class and anchorage of the anchor head according to Table C.10. A maximum of ten tension bars with anchor head shall be placed per meter.

Table C.10: Characteristic tension capacity Z_{Rk} of tension bars with anchor head depending on the anchorage ($\gamma_m = 1,15^*)$)

Concrete strength class	Anchoring of the anchor head	Z_{Rk} [kN]
C25/30	According to Fig. A.18 and Fig. A.19, within the hatched area	55,0
	According to Fig. A.18 and Fig. A.19 outside the hatched area	39,2
C20/25	According to Fig. A.18 and Fig. A.19 within the hatched area	49,5
	According to Fig. A.18 and Fig. A.19 outside the hatched area	35,3

C.1.1.4 Shear force bars with anchor head according to Fig. A.23 (Type K-O, K-U)

A maximum of six shear force bars with a nominal diameter of 8 mm with anchor head shall be arranged per meter. The characteristic tension force $Z_{V,Rk}$ per bar are shown in Table C.11.

Table C.11: Characteristic tension capacity $Z_{V,Rk}$ per shear force bar ($\gamma_m = 1,15^*)$)

Concrete strength class	$Z_{V,Rk}$ [kN]
C25/30	25,1
C20/25	22,5

^{*)} unless otherwise provided by national regulations

Schöck Isokorb with compression elements made of concrete or steel

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Annex C6

C.1.1.5 Horizontal bars according to section A.2.3

Table C.12: Characteristic horizontal force parallel to the joint $H_{II,k}$ for horizontal inclined pairs of bars ($\gamma_m = 1,15^*)$)

Number and diameter	Insulation thickness	Inclination of the bars	Vertical edge spacing according to Fig. B.27	$1.3 \cdot I_{bd}$ according to Fig. A.32	$H_{II,k}$ C20/25	$H_{II,k}$ C25/30
mm	mm	°	mm	mm	kN	kN
2 Ø 10	80	45	≥ 80	160	$\pm 11,8$	$\pm 14,0$
2 Ø 10	120	45	≥ 80	136	$\pm 10,1$	$\pm 12,0$
2 Ø 12	80	45	≥ 80	457	$\pm 36,1$	$\pm 45,1$
2 Ø 12	120	45	≥ 80	431	$\pm 36,1$	$\pm 45,1$

Table C.13: Characteristic horizontal force perpendicular to joint $H_{\perp,k}$ for horizontal straight bars ($\gamma_m = 1,15^*)$)

Diameter	Insulation thickness	$1.0 \cdot I_{bd}$ according to Fig. A.33	$H_{\perp,k}$ C20/25	$H_{\perp,k}$ C25/30
mm	mm	mm	kN	kN
10	80	155	$\pm 12,9$	$\pm 15,3$
10	120	135	$\pm 11,3$	$\pm 13,3$
12	80	500	$\pm 50,0$	$\pm 56,6$
12	120	480	$\pm 48,1$	$\pm 56,6$

^{*)} unless otherwise provided by national regulations

Schöck Isokorb with compression elements made of concrete or steel

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Annex C7

C.1.1.6 Steel compression elements (SCE) according to section A.2.4

Table C.14: Characteristic compression force $D_{Rk,s}$ for stainless steels

$\emptyset$	Insulation thickness	Stainless reinforcing steel $R_{p0,2} 500$ ($\gamma_m = 1,15^{*)}$)	Stainless reinforcing steel $R_{p0,2} 700$ ($\gamma_m = 1,15^{*)}$)	Stainless steel round bars S460 ($\gamma_m = 1,1^{*)}$)	Stainless steel round bars S690 ($\gamma_m = 1,1^{*)}$)
mm	mm	kN	kN	kN	kN
6	60	-	12,7	-	-
	80	-	12,3	-	-
	120	-	9,4	-	-
8	60	-	24,5	-	-
	80	-	25,0	-	-
	120	-	20,5	-	-
10	60	-	40,3	30,1	-
	80	-	41,7	28,6	-
	120	-	36,2	25,6	-
12	60	-	59,9	44,6	-
	80	-	61,6	42,7	-
	120	-	56,9	38,9	-
14	80	61,4	82,2	59,5	77,8
	120	56,6	77,4	55,1	70,8
16	80	-	-	79,3	110,8
	120	-	-	74,1	104,9
20	80	-	-	127,3	167,6
	120	-	-	121,0	157,3

Table C.15: Characteristic tensile force $Z_{Rk,c}$ of steel compression elements acc. to Fig. A.34 and Fig. A.39 ($\gamma_m = 1,5^{*)}$)

		Embedded length h_{ef}	Edge distance c_o, c_u top, bottom	Characteristic tensile force $Z_{Rk,c}$
		mm	mm	kN/SCE
Concrete strength class	C20/25	≥ 50	≥ 75	$0,107 \cdot c$
	C25/30			$0,119 \cdot c$

with:

c $\min\{c_1; c_2; S_n/2; 75\}$ in mm

c_1, c_2 Lateral edge distance of steel compression elements SCE, left or right in mm

S_n Minimal centre distance of steel compression elements SCE in mm

^{*)} unless otherwise provided by national regulations

Schöck Isokorb with compression elements made of concrete or steel

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Annex C8

C.1.2 Load bearing capacity of Concrete Compression Elements (CCE) according to section A.2.5

C.1.2.1 General

The transmittable characteristic compression force D_{Rk} is calculated depending on the compression bearing variant:

$$D_{Rk} = \min \left\{ \begin{array}{l} n \cdot D_{Rk,c} \\ n \cdot D_{Rk,CCE} \end{array} \right.$$

with:

- D_{Rk} Transmittable characteristic compression force in kN/m
 n Existing number of compression bearings per meter
 $D_{Rk,c}$ Characteristic concrete edge bearing capacity in kN/bearing pair ($\gamma_m = 1,875^*)$
 $D_{Rk,CCE}$ Characteristic compression bearing capacity in kN/bearing pair ($\gamma_m = 1,875^*)$

C.1.2.2 HTE Modul

$$D_{Rk,CCE} = 64,5 \text{ kN}$$

Table C.16: Characteristic concrete edge bearing capacity $D_{Rk,c}$ for HTE-Modul (alternatively HTE-Compact 30) ($\gamma_m = 1,875^*)$

Minimum centre distance CCE, compression bearing number/m	Concrete strength class	$D_{Rk,c}$ [kN/bearing pair]
50 mm 11 - 18	C20/25	47,8
	C25/30	59,6
	$\geq C30/37$	64,5
55 mm 11 - 16	C20/25	49,9
	C25/30	62,4
	$\geq C30/37$	64,5
60 mm 11 - 14	C20/25	52,1
	C25/30	64,5
	$\geq C30/37$	64,5
100 mm 4-10	C20/25	64,5
	C25/30	64,5
	$\geq C30/37$	64,5

For connection situations as shown in Fig. B.12 and Fig. B.13 the characteristic concrete edge bearing capacity $D_{Rk,c}$ according to Table C.16 shall be determined under consideration of $a_{c,uz}$ and $a_{c,z}$ and a maximum of 16 compression bearings shall be used.

with:

- $a_{c,uz}$... see Table C.17
 $a_{c,z}$... see Table C.18

If the characteristic compression force exceed 656 kN/m, four special stirrups per meter shall be installed evenly on the bearing side in accordance with Fig. A.49 and Fig. A.50 along the length of the connection.

^{*)} unless otherwise provided by national regulations

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C.1.2.3 HTE-Compact 20 or HTE-Compact 30

$$D_{Rk,c} = \frac{1}{1000} \cdot a_{ck} \cdot a_{c,uz} \cdot a_{c,z} \cdot c_1 \cdot \min\left\{\frac{a}{2 \cdot c_1} + 44 \text{ mm}\right\} \cdot (f_{ck,cube})^{1/2} \quad (\gamma_m = 1,875^*)$$

with:

a_{ck}	see Table C.19
c_1	edge distance of the load resultant in mm, according to Annexes C27 and C28
a	centre distance of the compression bearings in mm
$f_{ck,cube}$	characteristic cube compressive strength in $\text{N/mm}^2 \leq \text{C30/37}$
$a_{c,uz}$	see Table C.17
$a_{c,z}$	see Table C.18

Table C.17: Factor $a_{c,uz}$ for consideration of the beam width for height offsets

Connection situation	Beam width [mm]	$a_{c,uz}$
Fig. B.12 and Fig. B.13	$175 \leq b \leq 240$	$0,0245 \cdot b^{2/3}$
	$b > 240$	0,95
others	-	1,0

Table C.18: Factor $a_{c,z}$ to take into account the inner lever arm

Characteristic compression force D_{Rk} [kN/m]	Connection situation	internal lever arm z [mm]	$a_{c,z}$
≥ 656	Fig. B.12 and Fig. B.13	$80 \leq z \leq 150$	1,0
		$z > 150$	$150/z$
	others	-	1,0
< 656	general	-	1,0

Table C.19: Characteristic compression bearing capacity $D_{Rk,CCE}$ for HTE-Compact 20 and HTE-Compact 30

	CCE HTE-Compact 20	CCE HTE-Compact 30	
	without special stirrups	without special stirrups	with special stirrups*
a_{ck}	3,19	3,38	4,18
Minimum centre distance, compression element number/m	100 mm 4 - 10	100 mm 4 - 10	80 mm 9 - 12
$D_{Rk,CCE}$ [kN/bearing pair]	71,3	84,4	84,4

* four special stirrups per meter shall be installed evenly on the bearing side in accordance with Annex A18

If the number of compression bearings is exceeded or the minimum distance between the compression bearings not reached according to Table C.19, the bearing capacity for HTE-Compact 30 can be taken from Table C.16.

*) unless otherwise provided by national regulations

Schöck Isokorb with compression elements made of concrete or steel

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Annex C10

C.2 Essential characteristics under seismic loads

C.2.1 Plastic horizontal capacity of bars

Table C.20: Characteristic plastic horizontal force parallel to the joint $H_{IIpl,k}$ in the earthquake design case for stainless steel bars; tension bars according to section A.2.1 and steel compression elements (SCE) according to section A.2.4

$\emptyset$	Insul. thick- ness	Stainl. reinf. st. $R_{p0,2}$ 500 ($\gamma_m = 1,15^*)$)	Stainl. reinf. st. $R_{p0,2}$ 700 ($\gamma_m = 1,15^*)$)	Stainl. reinf. st. $R_{p0,2}$ 800 ($\gamma_m = 1,21^*)$)	Stainl. reinf. st. $R_{p0,2}$ 820 ($\gamma_m = 1,21^*)$)	Stainl. round st. S460 ($\gamma_m = 1,1^*)$)	Stainl. round st. S690 ($\gamma_m = 1,1^*)$)
mm	mm	kN	kN	kN	kN	kN	kN
6	80	0,22	0,31	0,35	0,36	0,21	0,31
	120	0,15	0,21	0,24	0,25	0,14	0,21
6,5	80	0,28	0,39	0,45	0,46	0,25	0,39
	120	0,20	0,26	0,30	0,31	0,18	0,26
7	80	0,35	0,48	0,56	0,57	0,32	0,48
	120	0,24	0,33	0,39	0,39	0,22	0,33
8	80	0,52	0,72	0,82	0,85	0,47	0,72
	120	0,36	0,49	0,57	0,58	0,33	0,48
9,5	80	0,85	1,18	1,36	1,39	0,78	1,17
	120	0,59	0,82	0,93	0,96	0,54	0,80
10	80	0,98	1,38	1,57	1,61	0,90	1,35
	120	0,68	0,95	1,09	1,11	0,63	0,94
11	80	1,30	1,82	2,07	2,12	1,19	1,78
	120	0,90	1,25	1,44	1,48	0,83	1,24
12	80	1,66	2,32	2,66	2,72	1,53	2,29
	120	1,16	1,62	1,85	1,90	1,07	1,60
14	80	2,59	3,61	4,13	4,24	2,38	3,56
	120	1,82	2,54	2,90	2,98	1,67	2,50
16	80	-	-	-	-	3,48	5,21
	120	-	-	-	-	2,45	3,67
20	80	-	-	-	-	6,51	9,77
	120	-	-	-	-	4,65	6,97

^{*)} unless otherwise provided by national regulations

Schöck Isokorb with compression elements made of concrete or steel

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Essential characteristics under seismic loads

Annex C11

Table C.21: Characteristic plastic horizontal force parallel to the joint $H_{IIpl,k}$ in the earthquake design case for stainless steel bars; shear force bars according to section A.2.2

$\emptyset$	Insulation thickness (inclination)	Stainl. reinf. st. $R_{p0,2} 500$ ($\gamma_m = 1,15^{(1)}$)	Stainl. reinf. st. $R_{p0,2} 700$ ($\gamma_m = 1,15^{(1)}$)	Stainl. reinf. st. $R_{p0,2} 800$ ($\gamma_m = 1,21^{(1)}$)	Stainl. reinf. st. $R_{p0,2} 820$ ($\gamma_m = 1,21^{(1)}$)
mm	mm	kN	kN	kN	kN
6	80 ($\alpha = 45^\circ$)	0,16	0,23	0,25	0,27
	120 ($\alpha = 35^\circ$)	0,13	0,17	0,21	0,21
6,5	80 ($\alpha = 45^\circ$)	0,21	0,29	0,33	0,34
	120 ($\alpha = 35^\circ$)	0,16	0,22	0,25	0,27
7	80 ($\alpha = 45^\circ$)	0,25	0,36	0,40	0,41
	120 ($\alpha = 35^\circ$)	0,20	0,28	0,31	0,33
8	80 ($\alpha = 45^\circ$)	0,38	0,53	0,59	0,62
	120 ($\alpha = 35^\circ$)	0,29	0,41	0,47	0,48
9,5	80 ($\alpha = 45^\circ$)	0,62	0,86	0,99	1,02
	120 ($\alpha = 35^\circ$)	0,48	0,68	0,77	0,80
10	80 ($\alpha = 45^\circ$)	0,71	1,00	1,15	1,17
	120 ($\alpha = 35^\circ$)	0,56	0,79	0,91	0,93
11	80 ($\alpha = 45^\circ$)	0,94	1,32	1,51	1,56
	120 ($\alpha = 35^\circ$)	0,75	1,05	1,20	1,22
12	80 ($\alpha = 45^\circ$)	1,22	1,71	1,96	2,01
	120 ($\alpha = 35^\circ$)	0,97	1,35	1,55	1,59
14	80 ($\alpha = 45^\circ$)	1,91	2,67	3,05	3,13
	120 ($\alpha = 35^\circ$)	1,52	2,12	2,42	2,48

C.2.2 Plastic horizontal capacity of concrete compression elements (CCE)

Table C.22: Characteristic plastic horizontal force parallel to the joint $H_{IIpl,k}$ in the earthquake design case for concrete compression elements (CCE) according to section A.2.5 ($\gamma_m = 1,875^{(1)}$)

Concrete compression element variants (CCE)	Insulation thickness	$H_{IIpl,k}$
	mm	kN
HTE-Compact 20, HTE-Compact 30, THE-Modul	80	$0,015 \cdot D_{Rk}$ in accordance with C.1.2
	120	$0,010 \cdot D_{Rk}$ in accordance with C.1.2

Schöck Isokorb with compression elements made of concrete or steel

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Annex C12

C.2.3 Behavior factor q_a

Behavior factor q_a in the earthquake design case according to EN 1998-1-2:

- $q_a = 1,5$ Connection with one connection line with Schöck Isokorb types K, K-F, K-O, K-O-F, K-U, K-U-F, K-HV, Q, Q-Z, Q-P, Q-PZ, D, A, F, O in combination with the characteristic plastic horizontal forces parallel to the joint $H_{IIpl,k}$ according to Table C.20 to Table C.22 (application example: free cantilever balcony)
- $q_a = 1,0$ Connection with more than one connection line (application example: balcony over corner, loggia)
- $q_a = 1,0$ by transferring the seismic load with Schöck Isokorb H in combination with the characteristic horizontal forces parallel to joint $H_{II,k}$ according to Table C.12 and Table C.13

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C.3 Fire resistance

C.3.1 Performance parameters regarding load bearing capacity in case of fire

If the performance characteristics specified in Annexes C1 to C10 are met for verification under normal temperatures, the load bearing capacity in the event of a fire as shown in Fig. C.2 to Fig. C.11 using Schöck Isokorb may be assumed to be satisfied under the following conditions, although the fire resistance rating varies depending on the design variant Table C.24.

- Fire exposure according to the standard temperature-time curve specified in EN 1992-1-2,
- The ratio of the action in the event of a fire (E_{fi}) to the load under normal temperatures (E) satisfies the following condition: $E_{fi} / E \leq 0,7$.

The relevant action at normal temperatures is the one for which the load bearing capacity at normal temperatures has been verified in accordance with Annex C1 to C10.

In addition, the following constraints shall be observed:

- The connection joint provided with Schöck Isokorb is completely covered on the top or top and bottom with fire protection boards in accordance with section A.3 (see Annexes C15 to C17).
- For variants shown in Fig. C.4, Fig. C.6, Fig. C.9 and Fig. C.11, within the area subject to planned tensile stresses the lateral overhang of fire protection boards shall extend 10 mm beyond the edge.
- The required minimum axis spacing u , edge distances v and the minimum concrete cover c_{nom} of the reinforcing steel are given in Table C.23.

Table C.23: Minimum dimensions of c_{nom} , u and v and required thickness of fire protection board t in [mm]

c_{nom} [mm]	according to exposure class EN 1992-1-1
min u [mm]	35
min v_1/v_2 * [mm]	20/21

* see Fig. C.2, Fig. C.5 to Fig. C.9

Table C.24: Fire resistance period (load capacity)

Design variant in accordance with	Fire resistance period (load bearing capacity) in minutes
Fig. C.2	120
Fig. C.3 and Fig. C.4	120
Fig. C.5 and Fig. C.6	120
Fig. C.7	60
Fig. C.8 and Fig. C.9	60
Fig. C.10 and Fig. C.11	120

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters
Performance in case of fire

Annex C14

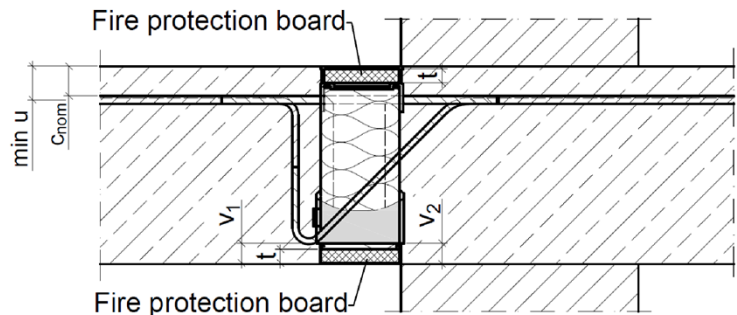


Fig. C.2: Example of Schöck Isokorb K, K-F with CCE

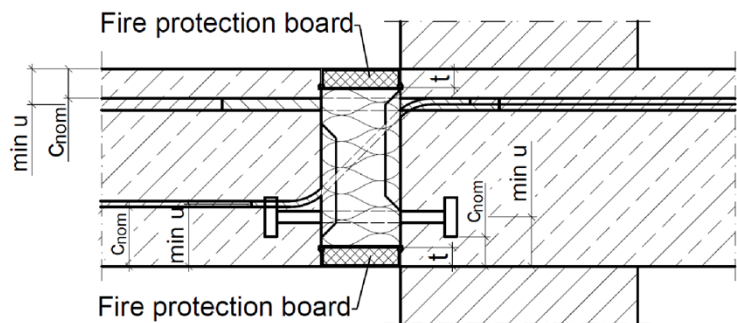


Fig. C.3: Example of Schöck Isokorb K, K-F (analog to Schöck Isokorb O) with SCE

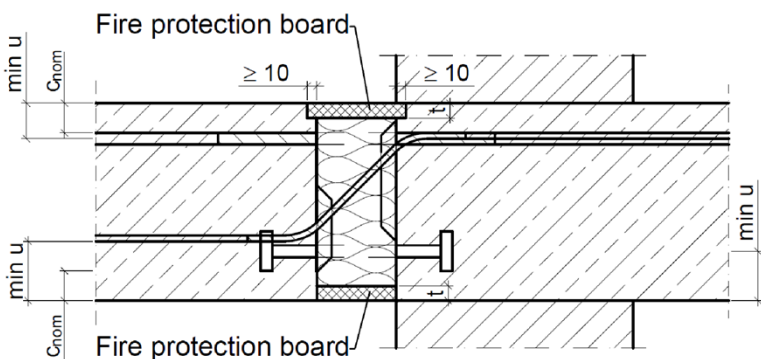


Fig. C.4: Example of Schöck Isokorb K, K-F (analog to Schöck Isokorb O) with SCE

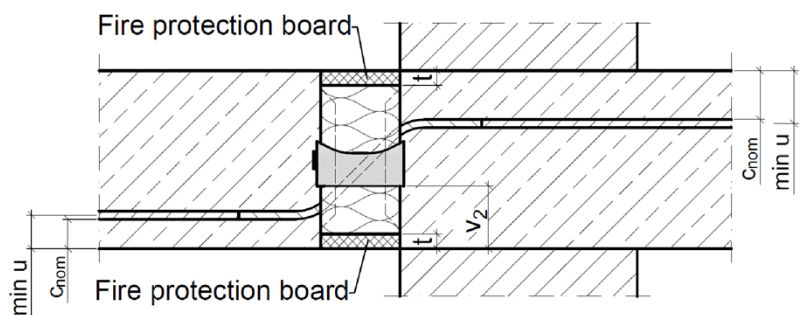


Fig. C.5: Example of Schöck Isokorb Q with CCE (or SCE)

Schöck Isokorb with compression elements made of concrete or steel	
Performance parameters Performance in case of fire	Annex C15

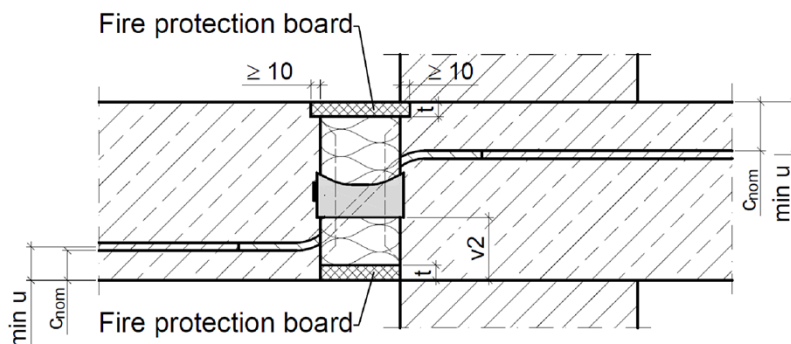


Fig. C.6: Example of Schöck Isokorb Q with CCE (or SCE)

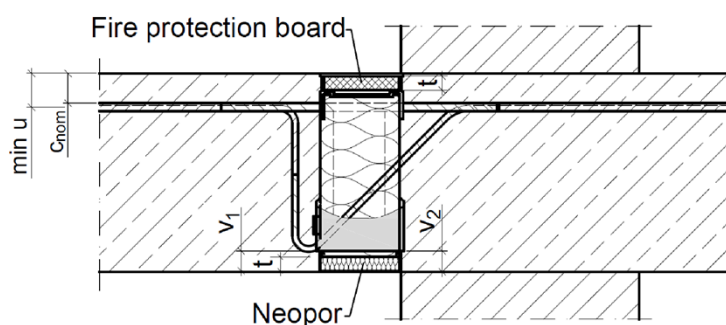


Fig. C.7: Example of Schöck Isokorb K, K-F with CCE (or SCE)

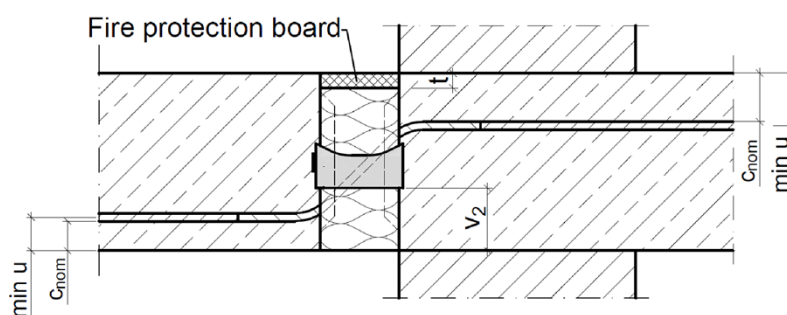


Fig. C.8: Example of Schöck Isokorb Q with CCE

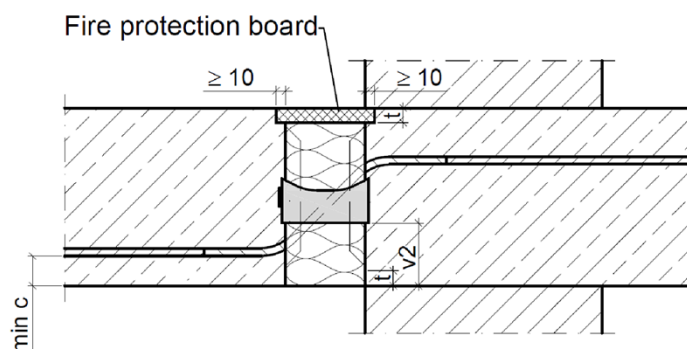


Fig. C.9: Example of Schöck Isokorb Q with CCE

Schöck Isokorb with compression elements made of concrete or steel	Annex C16
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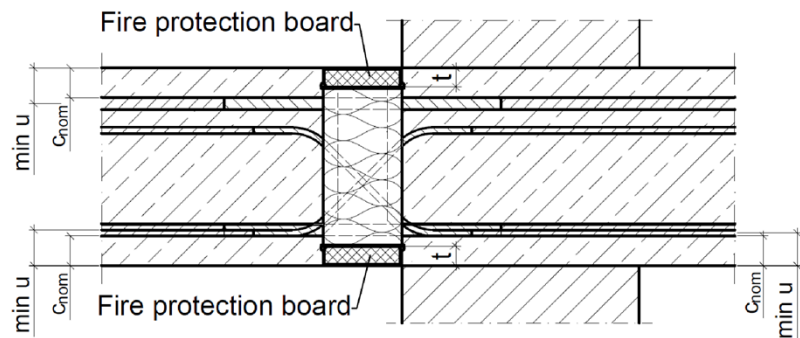


Fig. C.10: Example of Schöck Isokorb D (analog to Schöck Isokorb A and F) with SCE

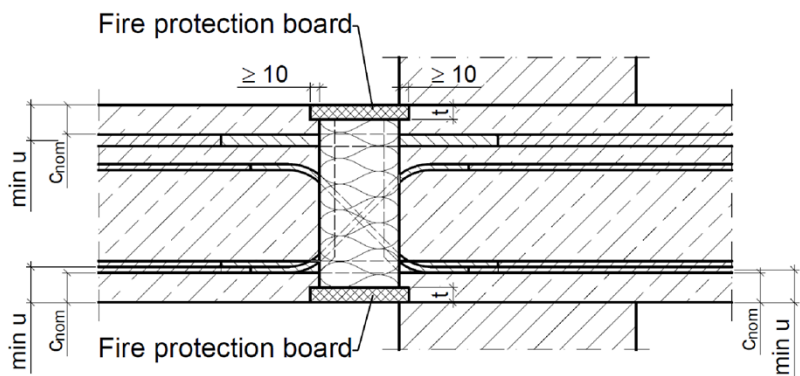


Fig. C.11: Example of Schöck Isokorb D (analog to Schöck Isokorb A and F) with SCE

Schöck Isokorb with compression elements made of concrete or steel	
Performance parameters Performance in case of fire	Annex C17

C.3.2 Resistance to fire of structural components (informative)

Floor or roof structures as well as balconies and walkways connected to reinforced concrete components with Schöck Isokorb as per intended use – shown in Annexes C15 to C17 – can be classified in terms of fire resistance in accordance with EN 13501-2 as specified in Table C.25. The following boundary conditions shall be observed:

- The load bearing capacity in case of fire has been declared for Schöck Isokorb.
- See Section C.3.1, indent 4 and 5 and Table C.23.
- Verification of the floor and roof construction was performed.
- Connections of the remaining edges of floor and roof structures, which are not connected with Schöck Isokorb to adjacent or supporting components, shall be verified in accordance with the provisions of the Member States for the corresponding fire resistance.

Table C.25: Component classification

Design variant	Floor or roof construction with fire separating function	Balcony and walkway, parapets
Fig. C.2	REI 120	R 120
Fig. C.3 and Fig. C.4	REI 120	R 120
Fig. C.5 and Fig. C.6	REI 120	R 120
Fig. C.7	REI 60	R 60
Fig. C.8 and Fig. C.9	REI 60	R 60
Fig. C.10 and Fig. C.11	REI 120	R 120

Schöck Isokorb with compression elements made of concrete or steel

Resistance to fire of structural components (informative)

Annex C18

C.4 Thermal resistance

The equivalent thermal resistance $R_{eq,TI}$ of the Schöck Isokorb determined according to EN ISO 6946 and EN ISO 10211 by using finite element method and a detailed 3D model of the thermal insulation element for the configuration shown in Fig. C.12 (with concrete compression elements (CCE)) respectively Fig. C.13 (with steel compression elements (SCE)):

$$R_{cal} = R_{eq,TI} + R_{con}$$
$$R_{eq,TI} = R_{cal} - R_{con} = R_{cal} - \frac{0,06\text{ m}}{2,3\text{ W/(m}\cdot\text{K)}}$$
$$\lambda_{eq,TI} = \frac{d_{n,TI}}{R_{eq,TI}}$$

- with:
- R_{cal} calculated thermal resistance for configuration shown in Fig. C.12 or Fig. C.13
 - $R_{eq,TI}$ equivalent thermal resistance of thermal insulation element
 - R_{con} thermal resistance of concrete block
 - $d_{n,TI}$ nominal thickness of thermal insulation element
 - $\lambda_{eq,TI}$ equivalent thermal conductivity of thermal insulation element

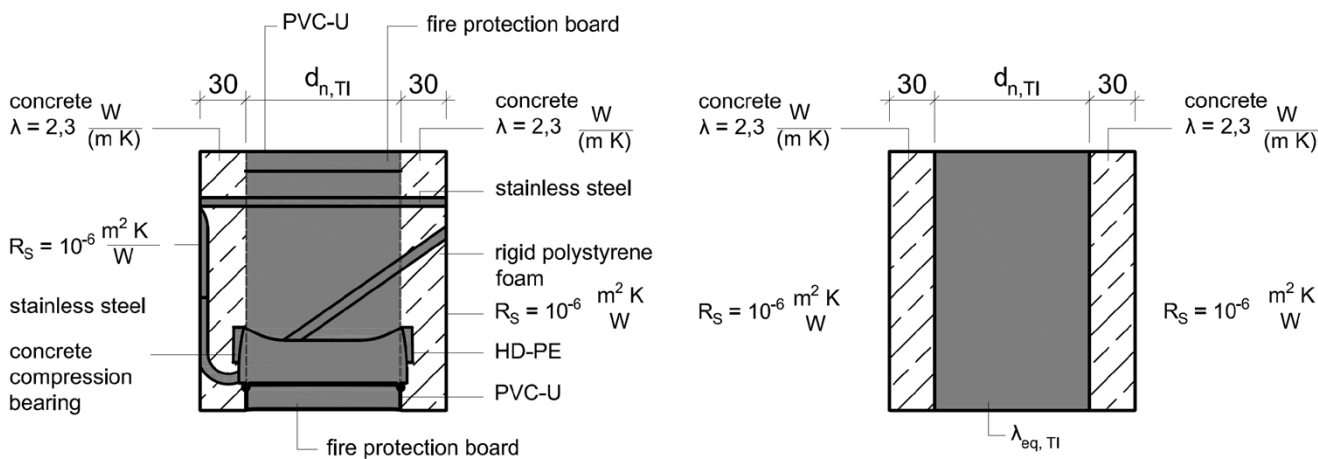


Fig. C.12: Cross section of the configuration with concrete compression elements (CCE) to calculate the equivalent thermal resistance $R_{eq,TI}$ and simplified model with $\lambda_{eq,TI}$

Schöck Isokorb with compression elements made of concrete or steel	Annex C19
Performance parameters Thermal resistance	

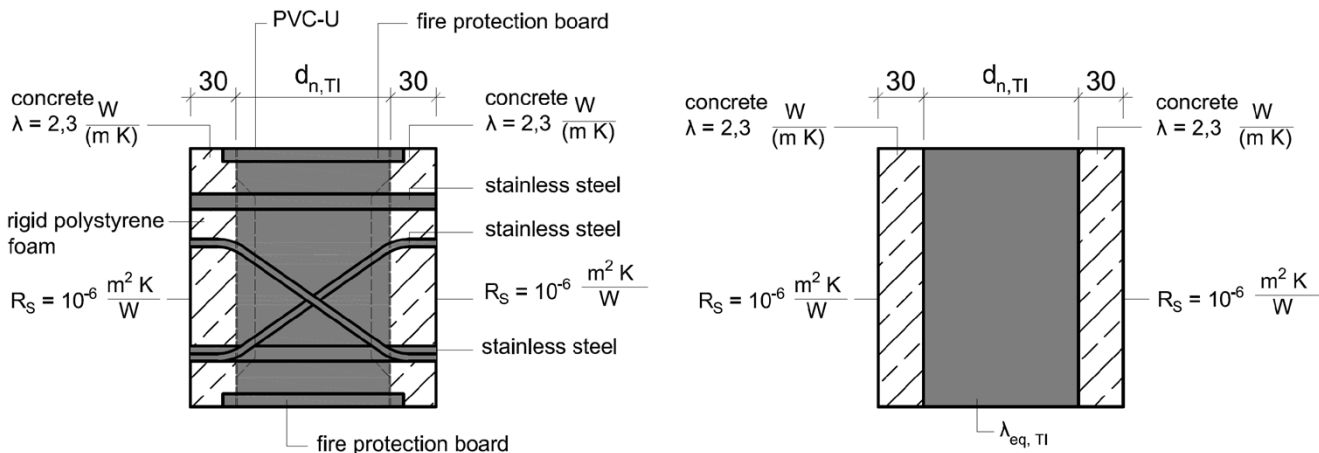


Fig. C.13: Cross section of the configuration with steel compression elements (SCE) to calculate the equivalent thermal resistance $R_{eq,TI}$ and simplified model with $\lambda_{eq,TI}$

The thermal conductivities of the components are given in Table C.26.

Table C.26: Thermal conductivity

Material	Thermal conductivity λ [W/(m·K)]	Source of data
High-performance fine-grained concrete	according to technical documentation	EN 12664 and EN ISO 10456
Rigid polystyrene foam (EPS)	0,031	ISO 13163 and EN ISO 10456
Stainless steel	13-15	EN 10088-1
PE-HD	0,5	EN ISO 10456
PVC-U	0,17	EN ISO 10456
Fire protection board	according to technical documentation	ISO 12664 and EN ISO 10456

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters
Thermal resistance

Annex C20

C.5 Weighted reduction of impact sound pressure level ΔL_w

The weighted reduction of impact sound pressure level ΔL_w serves as input variable for the computational prediction of the impact sound insulation in the building according to EN ISO 12354-2. The values for ΔL_w according to Table C.27 to Table C.41 apply both to a design with and without fire protection boards.

Table C.27: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	name	
13	10	10	8	18	HTE30	8
8		10		18		8
8		10		11		11
8		8		11		11
4		8		11		11
4		8		5		13
4		4		5		15
2		4		5		15
2		4		2		17
2		2		2		18
¹ Concrete compression elements (CCE) in accordance with section A.2.5, HTE30 = concrete compression element HTE-Compact 30 or HTE-Modul						

Table C.28: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	name	
7	6,5	4	8	6	HTE20	17
4		4		4		18
4		2		4		20
¹ Concrete compression elements (CCE) in accordance with section A.2.5, HTE20 = concrete compression element HTE-Compact 20						

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters

Reduction of impact sound pressure level

Annex C21

Table C.29: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars (positiv / negativ)		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
11	10	7/4	8	17	HTE30	10
8		4/4		13		12
6		4/4		8		13
4		4/1		5		16
3		4/0		4		16
2		4/0		3		18

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE30 = concrete compression element HTE-Compact 30 or HTE-Modul

Table C.30: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 180 mm						
Insulation thickness 80 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
12	10	9	8	18	HTE30	6
7		8		10		7
5		5		6		11
2		4		3		13

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE30 = concrete compression element HTE-Compact 30 or HTE-Modul

Table C.31: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 220 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
12	6,5	5	8	8	HTE20	14
7		4		6		15
4		4		4		16
2		4		2		17
2		2		2		20
2		1		2		24

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters

Reduction of impact sound pressure level

Annex C22

Table C.32: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 220 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 50 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
12	6,5	5	8	8	HTE20	16
7		4		6		17
4		4		4		18
2		4		2		19
2		2		2		21

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Table C.33: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 250 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
12	6,5	5	8	8	HTE20	16
7		4		6		18
4		4		4		19
2		4		2		20
2		2		2		21

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Table C.34: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 220 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	name	
13	10	9	8	18	HTE30	10
12		9		18		10
9		7		12		11
8		6		11		12
6		3		8		14
6		3		7		14
5		3		6		15
4		2		5		16
3		2		4		16
2		2		3		17

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE30 = concrete compression element HTE-Compact 30 or HTE-Modul

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters

Reduction of impact sound pressure level

Annex C23

Table C.35: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb K

Element height H 220 mm						
Insulation thickness 80 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	name	
13	10	9	8	18	HTE30	6
12		8		18		7
10		7		16		8
9		7		12		9
8		6		11		10
6		3		8		11
6		3		7		12
5		3		6		12
4		3		5		12
3		2		4		14
2		2		3		15
¹ Concrete compression elements (CCE) in accordance with section A.2.5, HTE30 = concrete compression element HTE-Compact 30 or HTE-Modul						

Table C.36: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb Q

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	name	
-		8	10	6	HTE20	10
-		5		4		13
-		3		4		14
-		2		4		15
-		2		1		17
¹ Concrete compression elements (CCE) in accordance with section A.2.5, HTE20 = concrete compression element HTE-Compact 20						

Table C.37: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb Q

Element height H 180 mm						
Insulation thickness 80 mm, Element length 1000 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	name	
-		6	10	4	HTE20	10
-		4				12
-		2				16
-		1				17

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters

Reduction of impact sound pressure level

Annex C24

Table C.38: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb Q

Element height H 180 mm						
Insulation thickness 120 mm, Element length 500 mm m						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	n	$\varnothing$ [mm]	n	$\varnothing$ [mm]	
-		4	10	2	14	12
-		2		1		14

¹ Steel compression elements (SCE) in accordance with section A.2.4

Table C.39: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb Q

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm						
Tension bars		Shear force bars		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	N	$\varnothing$ [mm]	n	name	
-		8	6	4	HTE20	14
-		6		4		16
-		5		4		16
-		2		2		20

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Table C.40: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb Q

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm						
Tension bars		Shear force bars (total number of equal number pos. und neg.)		Compression elements ¹		ΔL_w [dB]
n	$\varnothing_2$ [mm]	N	$\varnothing$ [mm]	n	name	
-		16	10	6	HTE20	7
-		10		4		10
-		4		4		13
-		0		4		16

¹ Concrete compression elements (CCE) in accordance with section A.2.5,
HTE20 = concrete compression element HTE-Compact 20

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters

Reduction of impact sound pressure level

Annex C25

Table C.41: Weighted reduction of impact sound pressure level ΔL_w , Schöck Isokorb D

Element height H 180 mm						
Insulation thickness 120 mm, Element length 1000 mm, concrete cover of tension bars 35 mm						
Tension bars		Shear force bars (total number of equal number pos. und neg.)		Compression elements ¹		ΔL _w [dB]
n	Ø ₂ [mm]	n	Ø [mm]	n	Ø [mm]	
12	12	12	10	12	12	8
7		12		7		8
7		4		7		11
4		4		4		11
¹ Steel compression elements (SCE) in accordance with section A.2.4						

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters
Reduction of impact sound pressure level

Annex C26

C.6 Determination of internal forces – truss models

The internal forces M_E , V_E und N_E are determined at the reference axis using truss models according to Fig. C.14 to Fig. C.29.

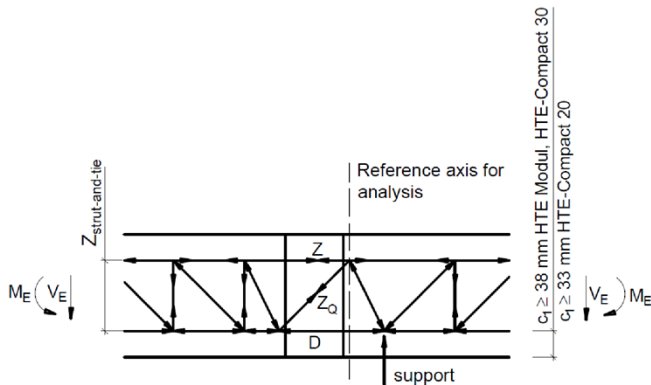


Fig. C.14: Schöck Isokorb K, K-F (multi-part version) with concrete compression elements

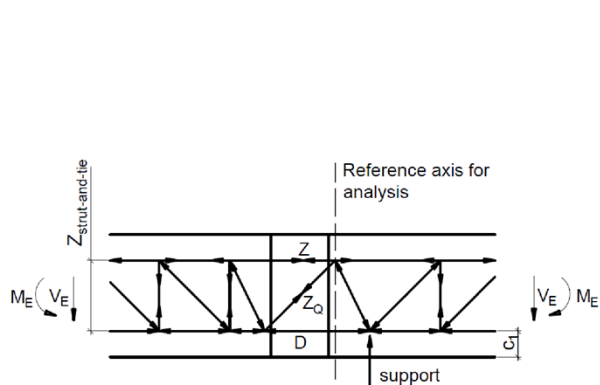


Fig. C.15: Schöck Isokorb K, K-F (multi-part version) with steel compression elements

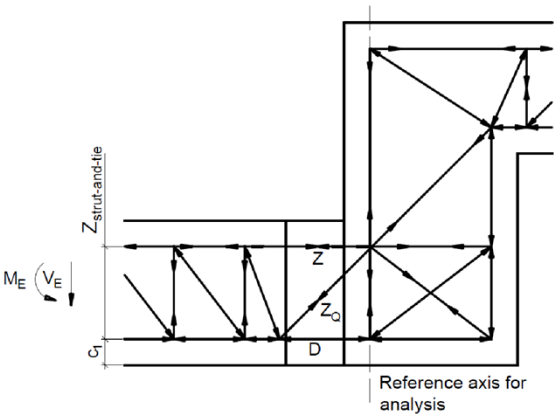


Fig. C.16: Schöck Isokorb K-HV

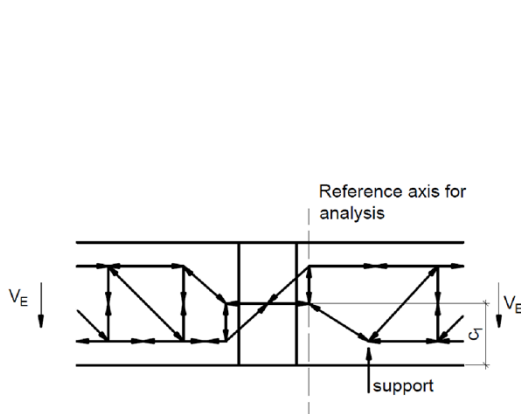


Fig. C.17: Schöck Isokorb Q, Q-P

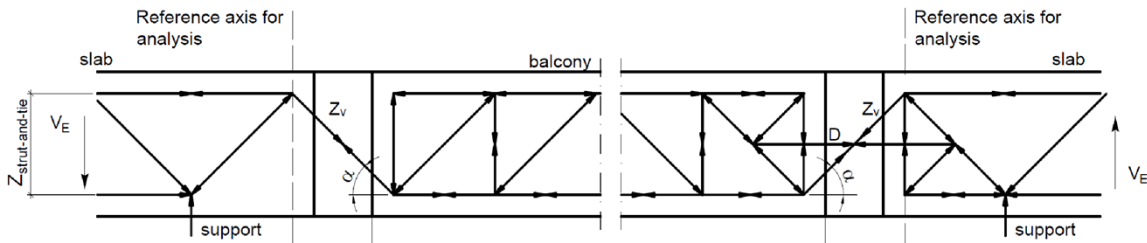


Fig. C.18: Schöck Isokorb Q-Z and Q as well as Q-PZ and Q-P used in constraint-free application with opposing slab connections (compare Fig. B.3)

Schöck Isokorb with compression elements made of concrete or steel	
Performance parameters and boundary conditions Determination of internal forces – truss models	Annex C27

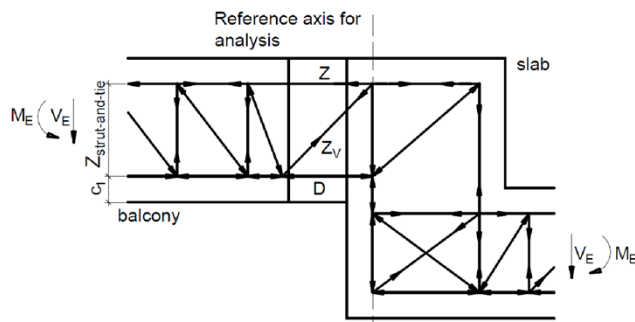


Fig. C.19: Schöck Isokorb K-O and K-O-F with connection to height offset

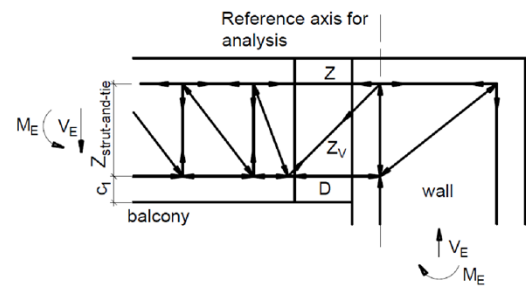


Fig. C.20: Schöck Isokorb K-O and K-O-F with connection to wall

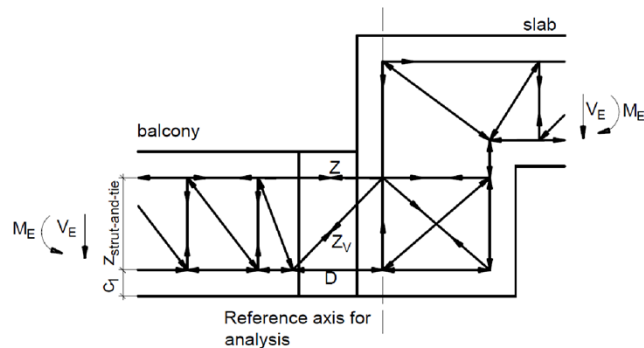


Fig. C.21: Schöck Isokorb K-U and K-U-F with connection to height offset

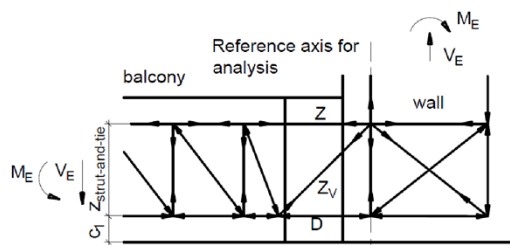


Fig. C.22: Schöck Isokorb K-U and K-U-F with connection to wall

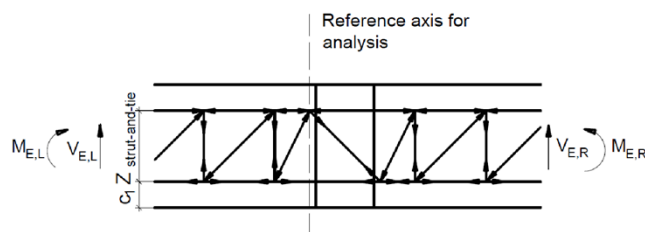


Fig. C.23: Schöck Isokorb D*

* The reference axis can alternatively be taken at the middle of the joint.

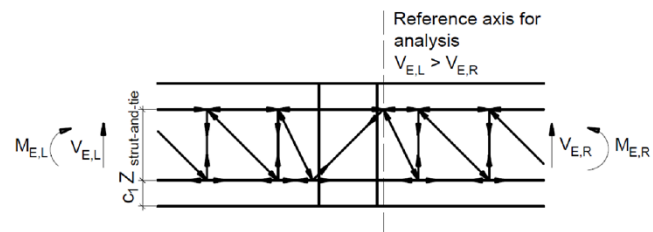


Fig. C.24: Schöck Isokorb D*

Schöck Isokorb with compression elements made of concrete or steel

Performance parameters and boundary conditions
Determination of internal forces – truss models

Annex C28

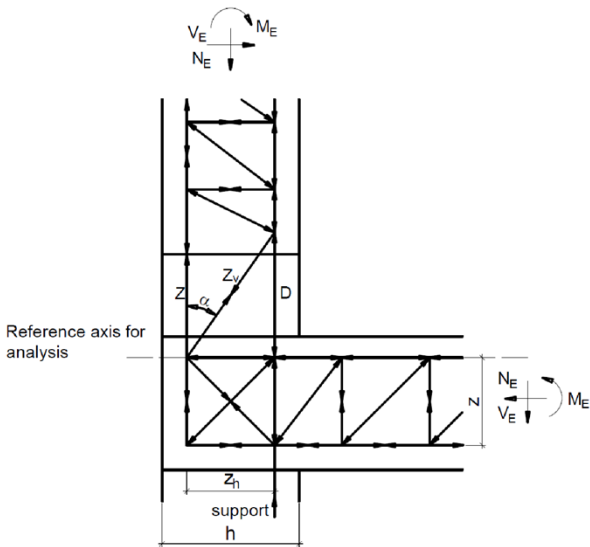


Fig. C.25: Schöck Isokorb A

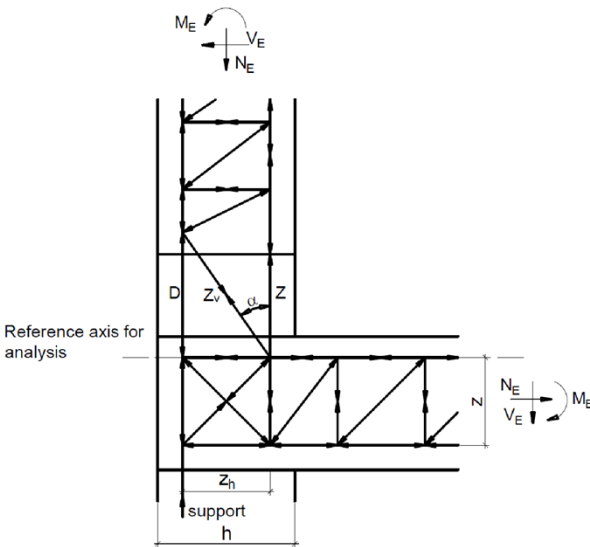


Fig. C.26: Schöck Isokorb A

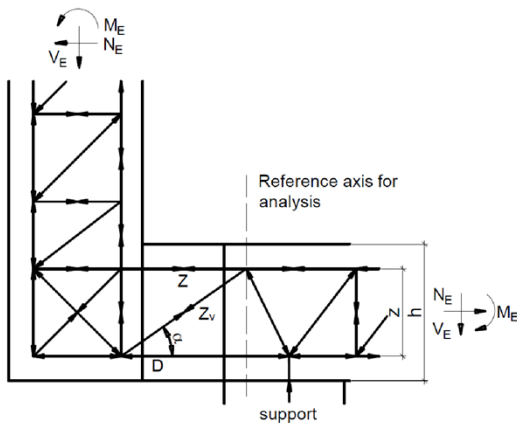


Fig. C.27: Schöck Isokorb F

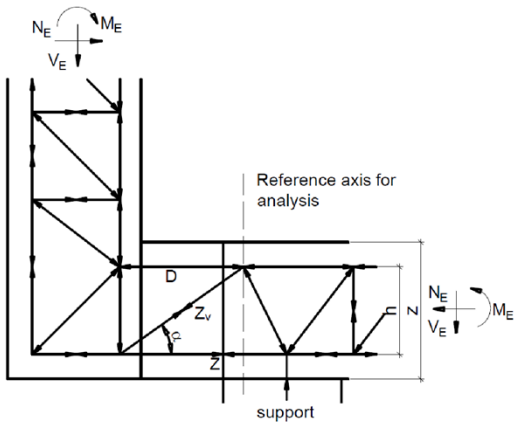


Fig. C.28: Schöck Isokorb F

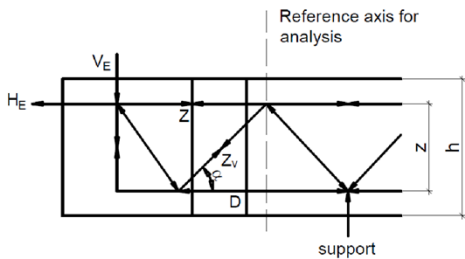


Fig. C.29: Schöck Isokorb O

Schöck Isokorb with compression elements made of concrete or steel		Annex C29
Performance parameters and boundary conditions Determination of internal forces – truss models		

C.7 Limiting deformation

For the determination of deformations, the following influencing factors shall be taken into account:

- elastic deformations of the load bearing thermal insulation element, taking into account the elastic deformations of the tension bars as well as the elastic deformations of the compression elements made of concrete or steel
- elastic deformation of the adjacent slab concrete
- thermal expansion

Tension strap:

$$\Delta l_t = \epsilon_t \cdot l_{\text{eff},t} = \frac{\sigma_t}{E_t} \cdot l_{\text{eff},t}$$

with $E_t = 160.000 \text{ N/mm}^2$ for stainless reinforcing steel
with $E_t = 200.000 \text{ N/mm}^2$ for stainless round steel

Concrete compression bearings (CCE):

$$\Delta l_{d1} = \epsilon_d \cdot l_{\text{eff},d} = \frac{\sigma_d}{E_d} \cdot l_{\text{eff},d}$$

with $E_d = 45.000 \text{ N/mm}^2$

Adjacent materials:

$$\Delta l_{d2,GZG} = -0,275 \text{ mm}$$

Compression flange:

$$\Delta l_d = \Delta l_{d1} + \Delta l_{d2,GZG}$$

Steel compression bearings (SCE):

$$\Delta l_d = \epsilon_d \cdot l_{\text{eff},d} = \frac{\sigma_d}{E_d} \cdot l_{\text{eff},d}$$

with $E_d = 160.000 \text{ N/mm}^2$ for stainless reinforcing steel
with $E_d = 200.000 \text{ N/mm}^2$ for stainless round steel

Angle of rotation in the joint:

$$\tan \alpha_{\text{Fuge}} = \frac{\Delta l_t - \Delta l_d}{z}$$

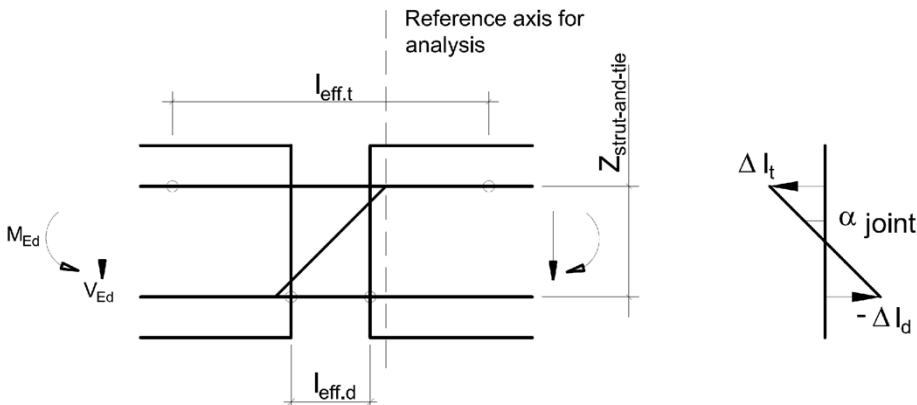


Fig. C.30: Model for determining the bending deformation in the joint

Schöck Isokorb with compression elements made of concrete or steel	Annex C30
Performance parameters and boundary conditions Limitation of deformation	

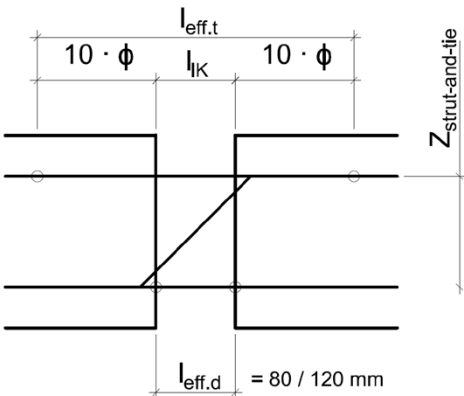


Fig. C.31: l_{eff} for tension bars made of stainless reinforcing steel in the joint and concrete compression elements (CCE)

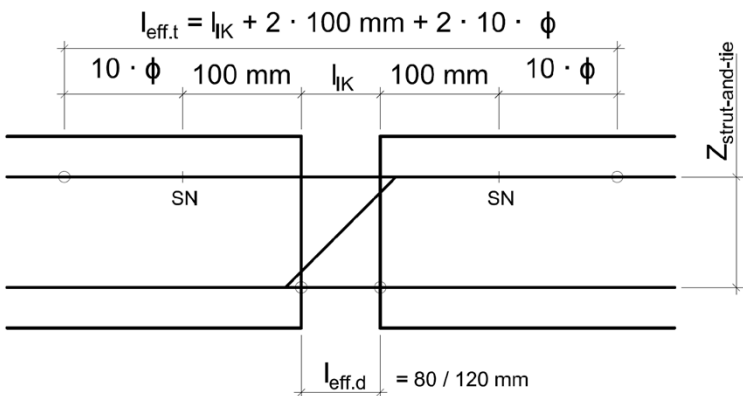


Fig. C.32: l_{eff} for tension bars made of stainless steel round bars in the joint and concrete compression elements (CCE)

Schöck Isokorb with compression elements made of concrete or steel	Annex C31
Performance parameters and boundary conditions Limitation of deformation	

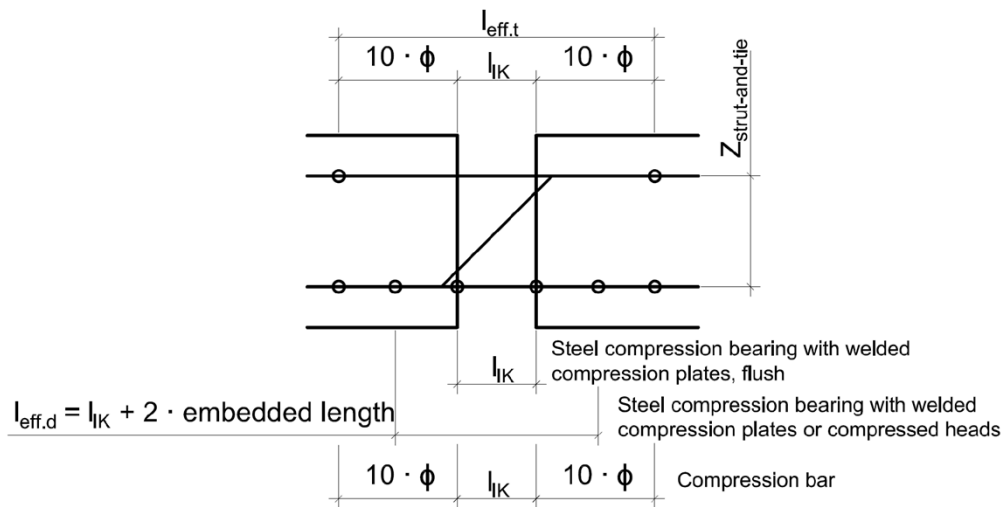


Fig. C.33: l_{eff} for tension bars and steel compression elements (SCE) made of stainless reinforcing steel in the joint

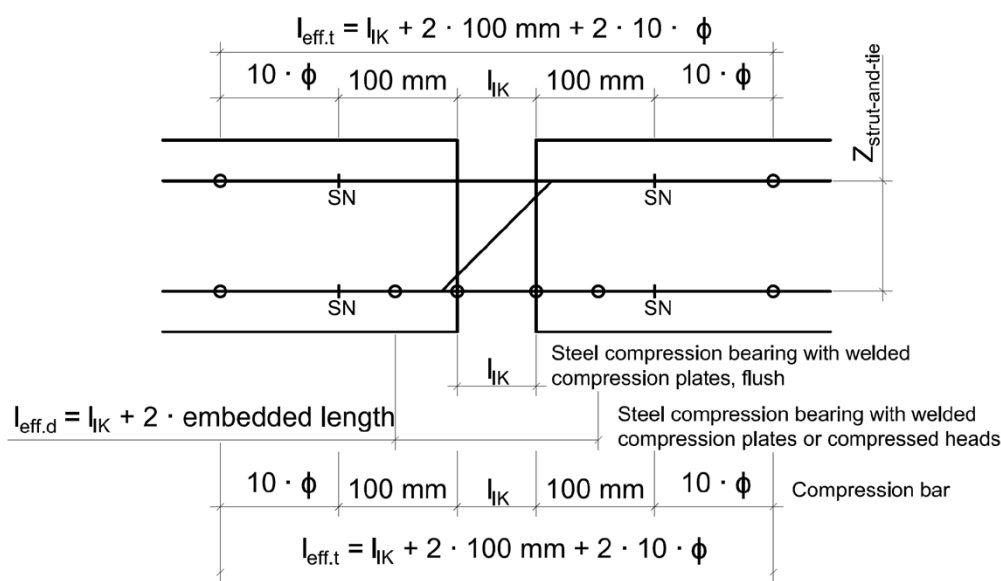


Fig. C.34: l_{eff} for tension bars and steel compression elements (SCE) made of stainless steel round bars in the joint

Tension strap and compression flange can consist of combinations of stainless reinforcing steel and stainless steel round bars.

Schöck Isokorb with compression elements made of concrete or steel	Annex C32
Performance parameters and boundary conditions Limitation of deformation	