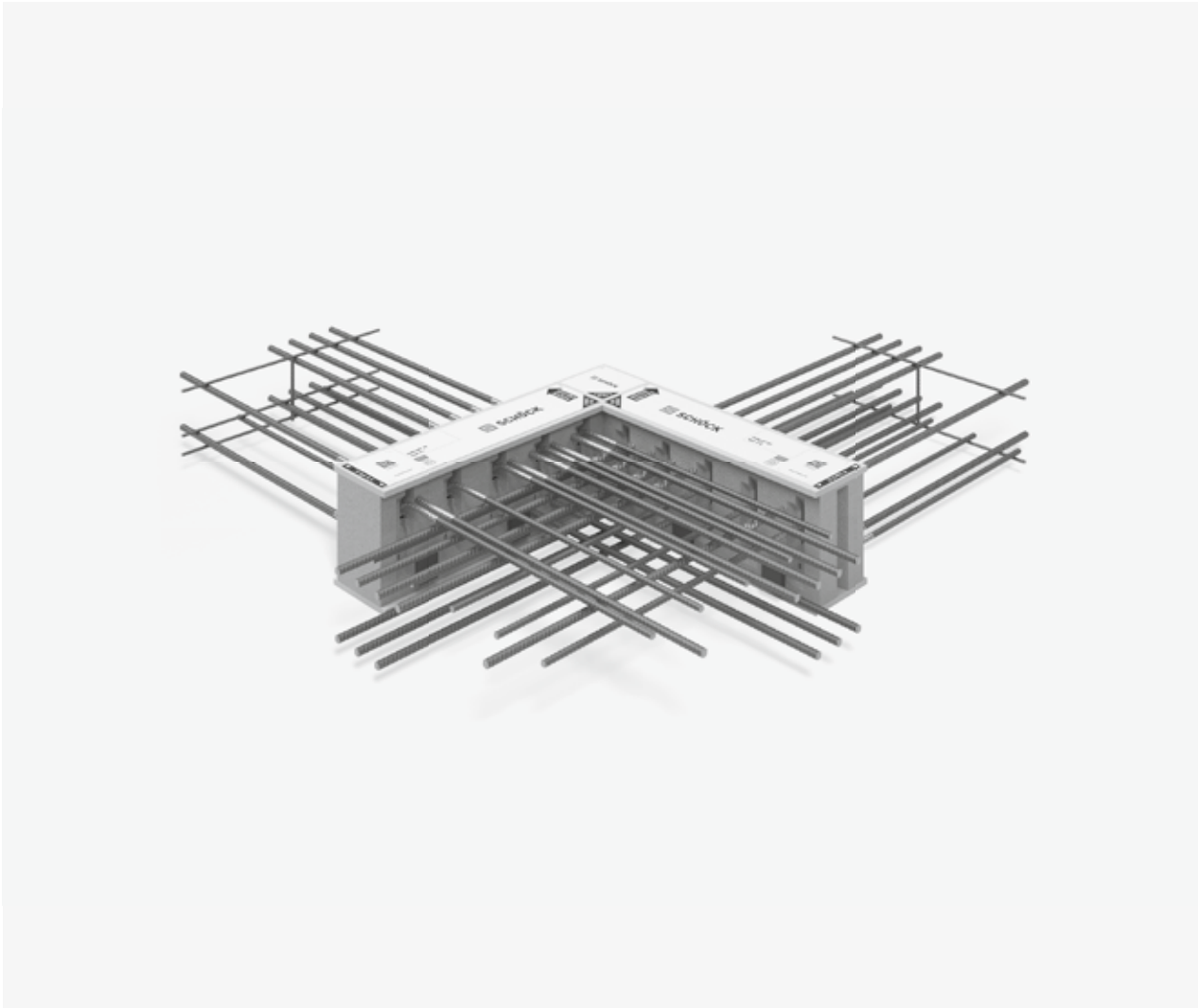


Schöck Isokorb® XT type C



Schöck Isokorb® XT type C

Load-bearing thermal insulation element for freely cantilevered corner balconies. The element transfers negative moments and positive shear forces.

XT
type C

Reinforced concrete – reinforced concrete

Element arrangement

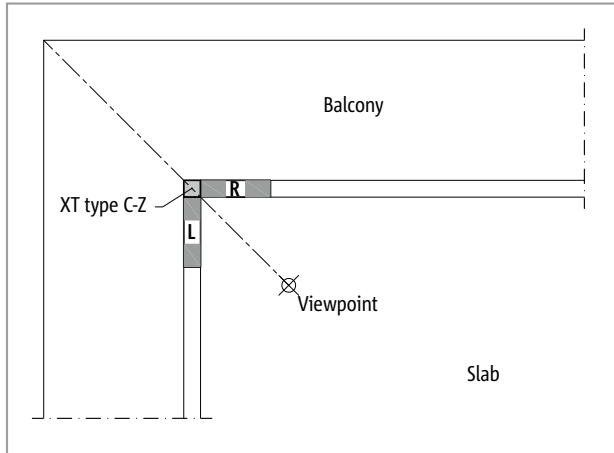


Fig. 180: Schöck Isokorb® XT type C: Arrangement XT type C-L left from viewpoint, arrangement XT type C-R right from viewpoint

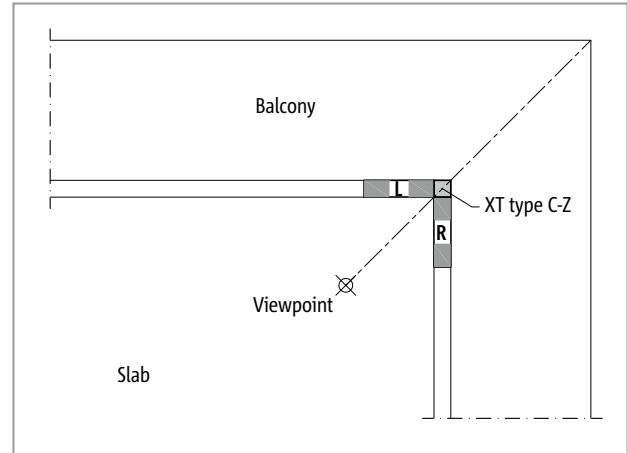


Fig. 181: Schöck Isokorb® XT type C: Arrangement XT type C-L left from viewpoint, arrangement XT type C-R right from viewpoint

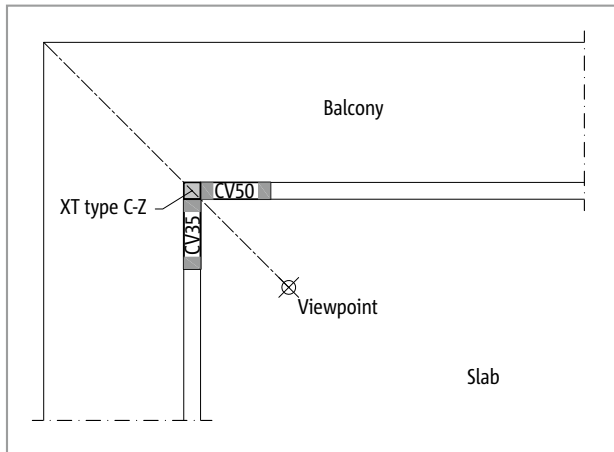


Fig. 182: Schöck Isokorb® XT type C: Concrete cover selectable: Here CV35 left from viewpoint, concrete cover CV50 right from viewpoint

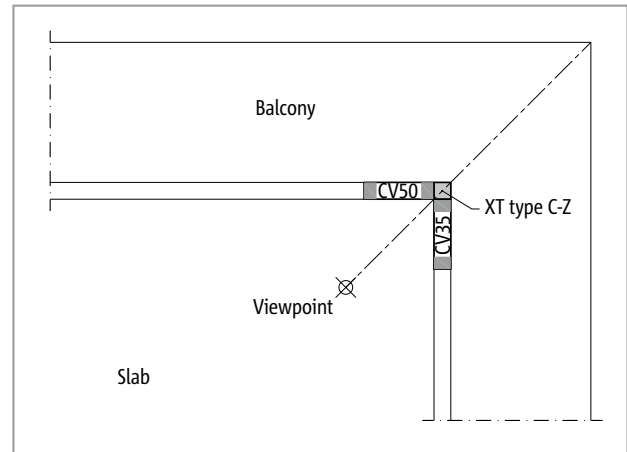


Fig. 183: Schöck Isokorb® XT type C: Concrete cover selectable: Here CV50 left from viewpoint, concrete cover CV35 right from viewpoint

Element arrangement

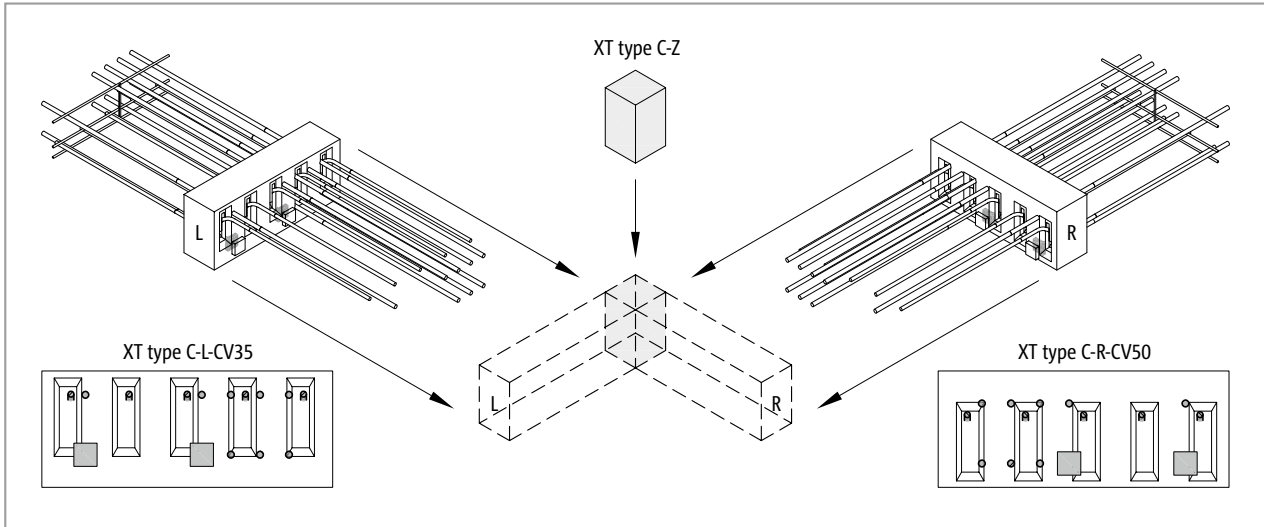


Fig. 184: Schöck Isokorb® XT type C-L-CV35, XT type C-R-CV50: Arrangement at the corner using corner insulating element

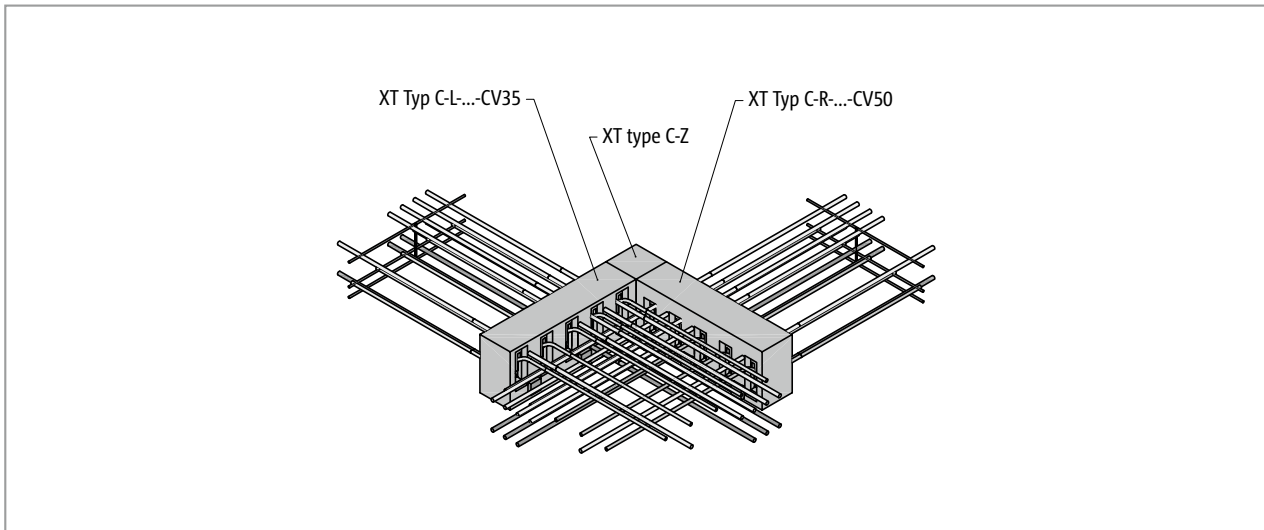


Fig. 185: change representation to illustration Schöck Isokorb® XT type C-L-CV35, XT type C-R-CV50: Isometric representation

Element arrangement

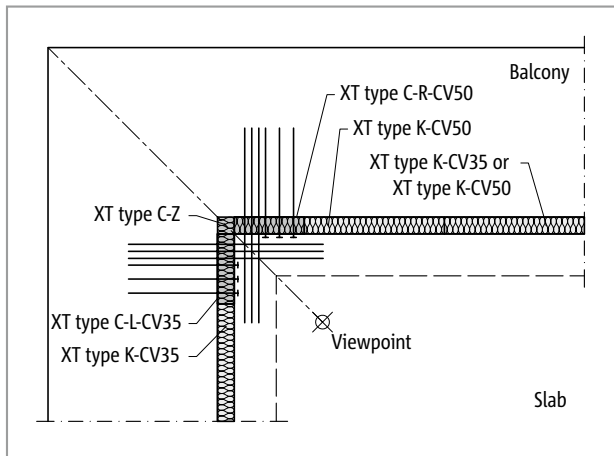


Fig. 186: Schöck Isokorb® XT type C: Balcony with outer corner freely cantilevered (application XT type C-L-CV35, XT type C-R-CV50)

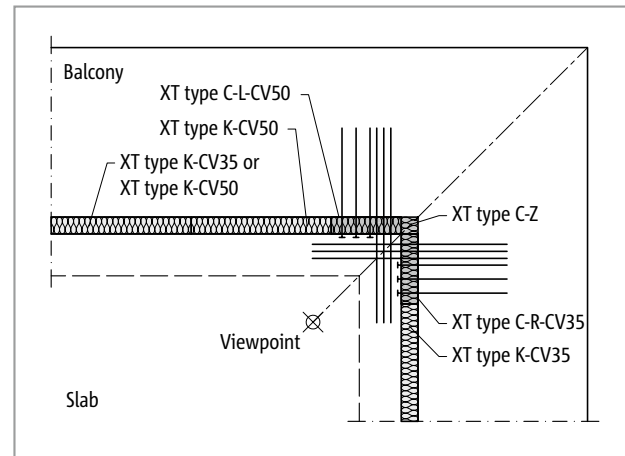


Fig. 187: Schöck Isokorb® XT type C: Balcony with outer corner freely cantilevered (application XT type C-L-CV50, XT type C-R-CV35)

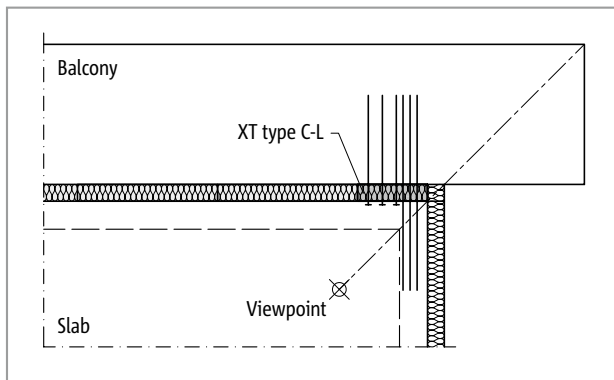


Fig. 188: Schöck Isokorb® XT type C: Balcony projecting over corner of building (application XT type C-L)

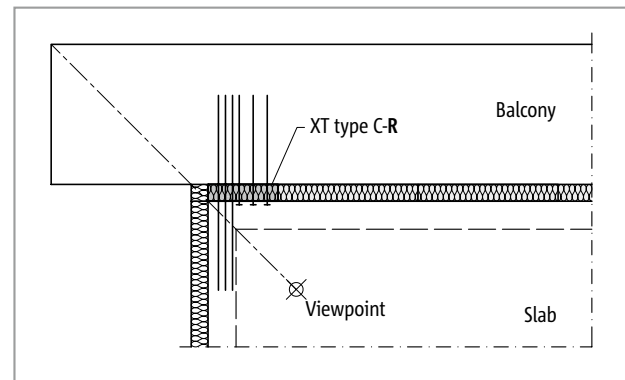


Fig. 189: Schöck Isokorb® XT type C: Balcony projecting over corner of building (application XT type C-R)

i Element arrangement

- The Schöck Isokorb® XT type C, with small lengths can also be replaced by Schöck Isokorb® XT type K.
- The corner insulating element (XT type C-Z) is supplied with each Schöck Isokorb® XT type C. The corner insulating element can be ordered separately for use with small cantilever lengths in combination with the Schöck Isokorb® XT type K.
- A Schöck Isokorb® XT type K-CV50 is required in the connection to the Schöck Isokorb® XT type C-CV50. Accordingly both a Schöck Isokorb® XT type K-CV35 or XT type K-CV50 can be positioned. The reinforcement arrangement of the outer corner balcony can be simplified through the selection of a Schöck Isokorb® XT type K-CV50.

Installation cross sections

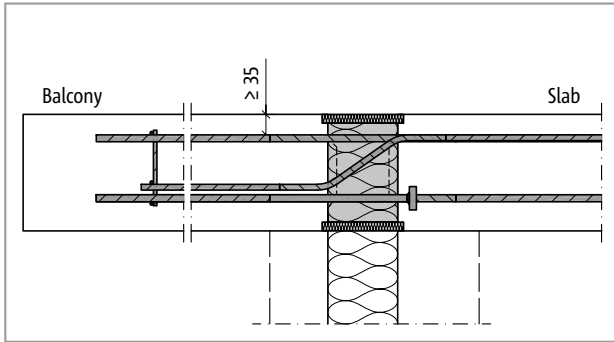


Fig. 190: Schöck Isokorb® XT type C-CV35: Connection with non-load-bearing cavity wall masonry

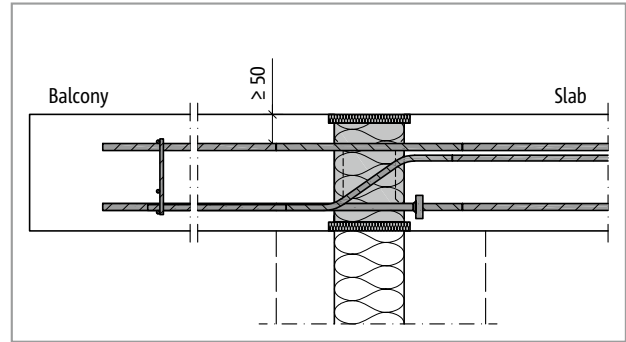


Fig. 191: Schöck Isokorb® XT type C-CV50: Connection with non-load-bearing cavity wall masonry

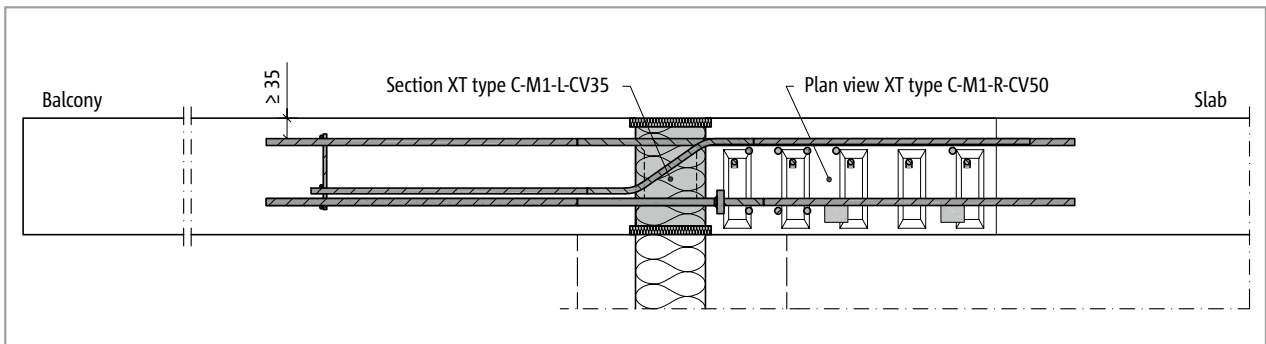


Fig. 192: Schöck Isokorb® XT type C: Outer corner with non-load-bearing cavity wall masonry (section XT type C-L-CV35; view XT type C-R-CV50)

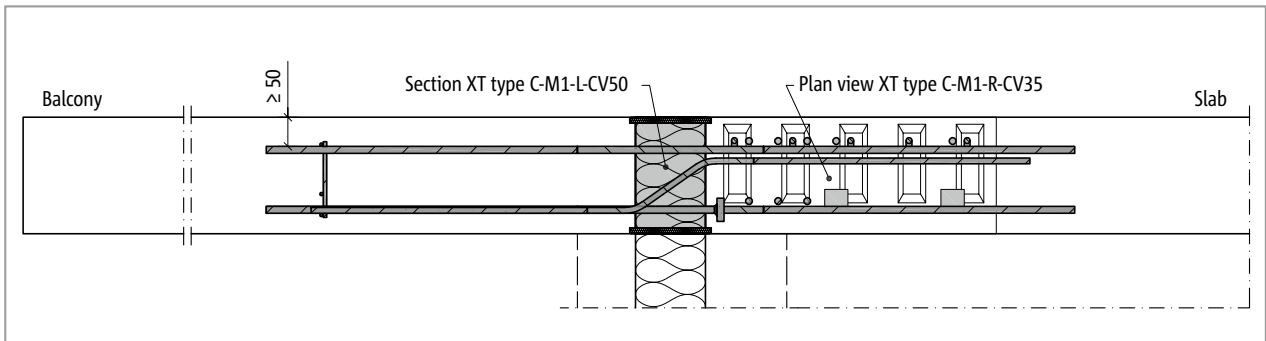


Fig. 193: Schöck Isokorb® XT type C: Outer corner with non-load-bearing cavity wall masonry (view XT type C-L-CV50; section XT type C-R-CV35)

Product selection | Type designations | Special designs

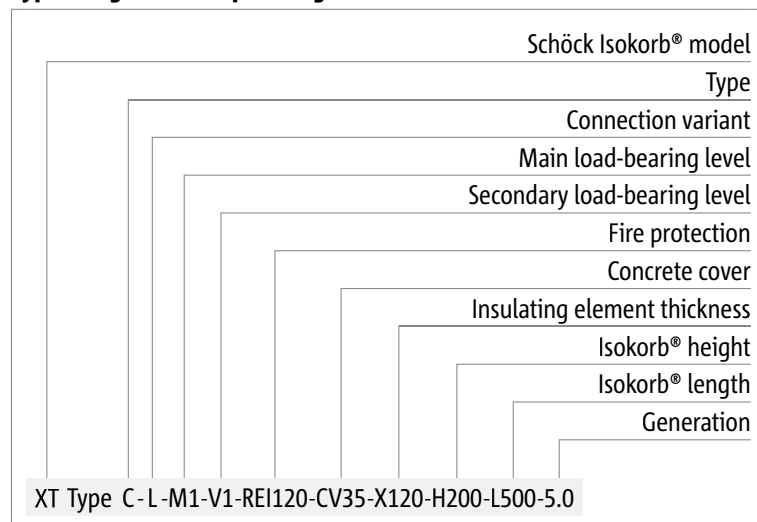
Schöck Isokorb® XT type C variants

An outer corner balcony is made using a Schöck Isokorb® XT type C-L, an XT type C-R and an XT type C-Z. The corner insulating element (XT type C-Z) is supplied with each Schöck Isokorb® XT type C.

The configuration of the Schöck Isokorb® XT type C can be varied as follows:

- Connection variants:
 - L: Left from the viewpoint on the floor
 - R: Right from the viewpoint on the floor
- Main load-bearing level: M1 and M2
- Secondary load-bearing level: V1 and V2
- Concrete cover of the tension bars: CV35 = 35 mm, CV50 = 50 mm
- Insulating element thickness:
 - X120 = 120 mm
- Isokorb® height:
 - H = 180 to 250 mm for secondary load-bearing level V1
 - H = 200 to 250 mm for secondary load-bearing level V2
- Isokorb® length: L = 500 mm
- Possible combination of arrangements of the Schöck Isokorb® XT type C and concrete cover of the tension bars CV:
 - XT type C-L-CV35 with XT type C-R-CV50 and XT type C-Z
 - XT type C-L-CV50 with XT type C-R-CV35 and XT type C-Z
- Generation:
 - 5.0

Type designations in planning documents



i Special designs

Please contact the design support department if you have connections that are not possible with the standard product variants shown in this information (contact details on page 3).

In accordance with approval heights up to 500 mm are possible.

C25/30 design

Schöck Isokorb® XT type C-L/R		M1	M2
Design values with		Concrete strength class \geq C25/30	
		$M_{Rd,y}$ [kNm/element]	
Isokorb® height H [mm]	180	-18.2	-23.4
	190	-20.4	-26.2
	200	-22.6	-29.0
	210	-24.7	-31.8
	220	-26.9	-34.7
	230	-29.1	-37.5
	240	-31.3	-40.3
	250	-33.5	-43.1
		$V_{Rd,z}$ [kN/element]	
Secondary load-bearing level	V1	97.9	97.9
	V2	141.0	141.0

Schöck Isokorb® XT type C-L/R		M1	M2
Placement with		Isokorb® length [mm]	
		500	500
Tension bars		5 \varnothing 12	6 \varnothing 12
Compression bars		3 \varnothing 12	3 \varnothing 12
Pressure bearing bars		2 \varnothing 12	3 \varnothing 14
Shear force bars V1		5 \varnothing 10	5 \varnothing 10
Shear force bars V2		5 \varnothing 12	5 \varnothing 12
H_{min} with V2 [mm]		200	200

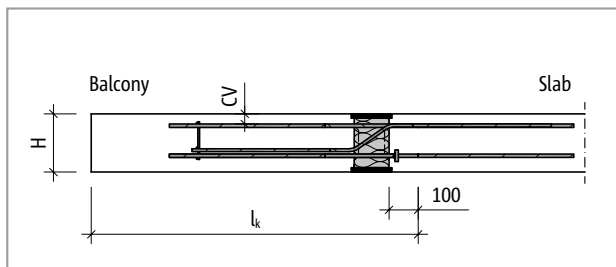


Fig. 194: Schöck Isokorb® XT type C: Static system

Notes on design

- Minimum height Schöck Isokorb® XT type C with V2: $H_{min} = 200$ mm
- The Schöck Isokorb® XT type C, with small lengths can also be replaced by Schöck Isokorb® XT type K.
- The indicative minimum concrete strength class of the external structural component is C32/40.
- Note FEM guidelines if a FEM program is to be used for design.

Deflection/Camber

Deflection

The deflection factors given in the table ($\tan \alpha$ [%]) result alone from the deflection of the Schöck Isokorb® under 100% steel utilisation. They serve for the estimation of the required camber. The total arithmetic camber of the balcony slab formwork results from the calculation according to BS EN 1992-1-1 (EC2) and BS EN 1992-1-1/NA plus the deflection from Schöck Isokorb®. The camber of the balcony slab formwork to be given by the structural engineer/designer in the implementation plans (Basis: Calculated total deflection from cantilever slab + floor rotation angle + Schöck Isokorb®) should be so rounded that the scheduled drainage direction is maintained (round up: with drainage to the building facade, round down: with drainage towards the cantilever slab end).

Deflection (p) as a result of Schöck Isokorb®

$$p = \tan \alpha \cdot l_k \cdot (m_{pd} / m_{Rd}) \cdot 10 \text{ [mm]}$$

Factors to be applied

$\tan \alpha$ = apply value from table

l_k = cantilever length [m]

m_{pd} = relevant bending moment [kNm/m] in the ultimate limit state for the determination of the p [mm] from Schöck Isokorb®.

The load combination to be applied for the deflection is determined by the structural engineer.

(Recommendation: Load combination for the determination of the camber p : determine $g+q/2$, m_{pd} in the ultimate limit state)

m_{Rd} = maximum design moment [kNm/m] of the Schöck Isokorb®

Calculation example see page 43

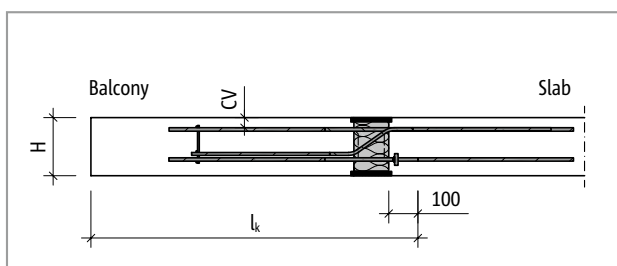


Fig. 195: Schöck Isokorb® XT type C: Static system

Schöck Isokorb® XT type C-L/R		M1, M2
Deflection factors when		CV35/CV50
		$\tan \alpha$ [%]
Isokorb® height H [mm]	180	1.2
	190	1.1
	200	1.0
	210	0.9
	220	0.8
	230	0.8
	240	0.7
	250	0.7

Slenderness

Slenderness

In order to safeguard the serviceability limit state we recommend the limitation of the slenderness to the following maximum cantilever lengths l_k [m]:

Schöck Isokorb® XT type C-L/R		M1, M2
Maximum cantilever length with		CV35/CV50
		$l_{k,max}$ [m]
Isokorb® height H [mm]	180	1.89
	190	2.00
	200	2.12
	210	2.23
	220	2.34
	230	2.50
	240	2.65
	250	2.78

Maximum cantilever length

The tabular values are based on the following assumptions:

- Accessible balcony
- Concrete weight density $\gamma = 25 \text{ kN/m}^3$
- Dead weight of the balcony surfacing $g_2 \leq 1.2 \text{ kN/m}^2$
- Balcony rail $g_R \leq 0.75 \text{ kN/m}$
- Service load $q = 4.0 \text{ kN/m}^2$ with the coefficient $\psi_{2,i} = 0.3$ for the quasi-permanent combination

i Maximum cantilever length

- The maximum cantilever length, depending on the length of flange of the outer corner with the employment of the Schöck Isokorb® XT type C, can be limited by the load-bearing capacity.

Expansion joint spacing

The shear force transmission in the expansion joint can be ensured using a longitudinally displaceable shear force dowel, e.g. Schöck Stacon®.

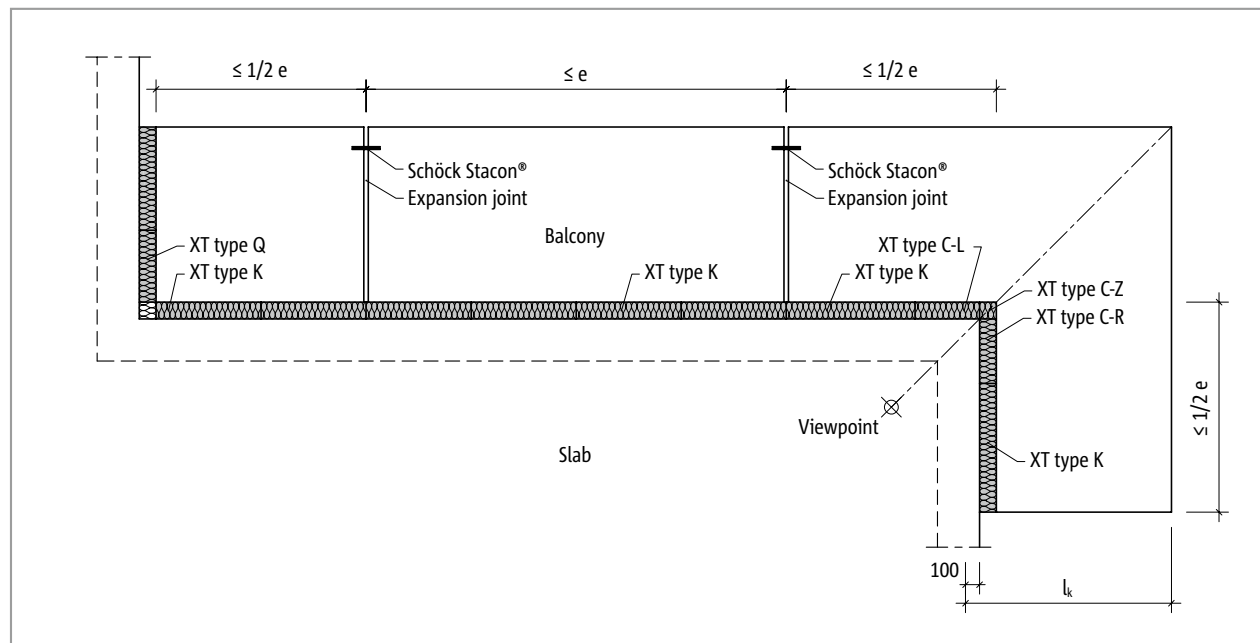


Fig. 196: Schöck Isokorb® XT type C: Expansion joint arrangement

Schöck Isokorb® XT type C-R/L		M1	M2
Maximum expansion joint spacing		e [m]	
Insulating element thickness [mm]	120	19.8	17.0

Schöck Isokorb® XT type C combined with	XT type K	XT type Q, XT type Q-VV	XT type Q-P, XT type Q-P-VV, XT type Q-PZ	XT type D
maximum expansion joint spacing from fixed point e/2 [m]	≤ e/2 see page 33	≤ e/2 see page 91	≤ e/2 see page 109	≤ e/2 see page 165

Edge distances

The Schöck Isokorb® must be so arranged at the expansion joint that the following conditions are met:

- For the centre distance of the tension bars from the free edge or from the expansion joint: $e_R \geq 50$ mm and $e_R \leq 150$ mm applies.
- For the centre distance of the compression elements from the free edge or expansion joint the following applies: $e_R \geq 50$ mm and $e_R \leq 150$ mm.
- For the centre distance of the shear force bars from the free edge or from the expansion joints the following applies: $e_R \geq 100$ mm and $e_R \leq 150$ mm.

Product description

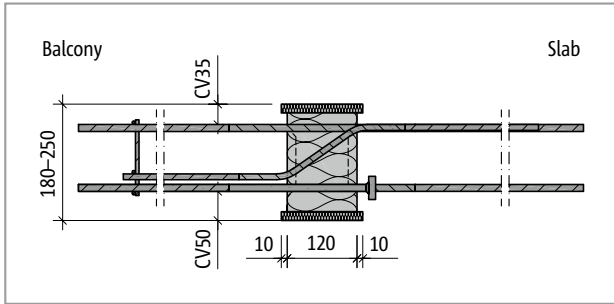


Fig. 197: Schöck Isokorb® XT type C-L-CV35: Product section

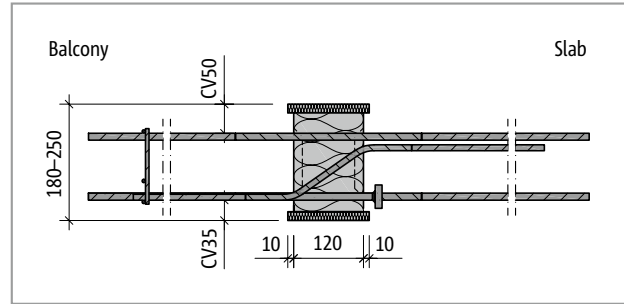


Fig. 198: Schöck Isokorb® XT type C-L-CV50: Product section

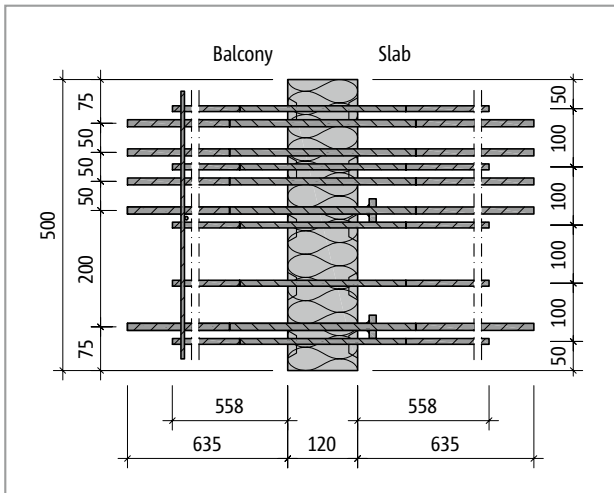


Fig. 199: Schöck Isokorb® XT type C-L-M1-V1: Product plan view

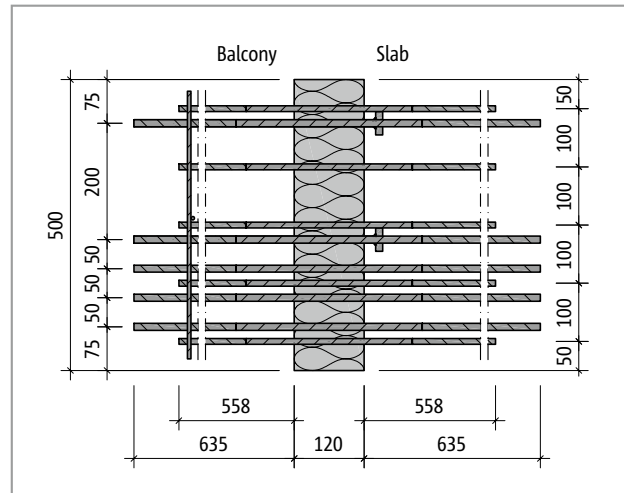


Fig. 200: Schöck Isokorb® XT type C-R-M1-V1: Product plan view

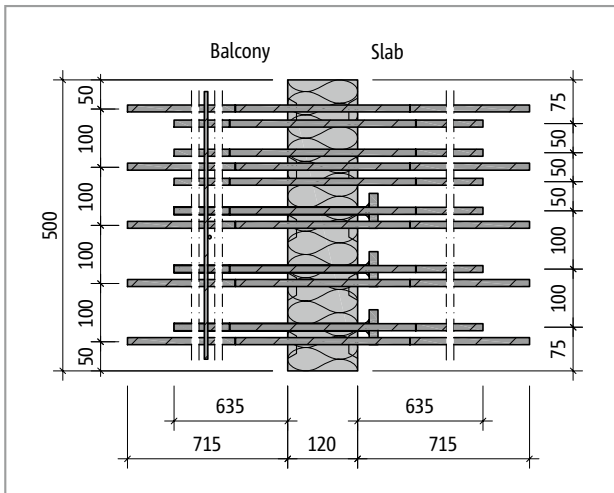


Fig. 201: Schöck Isokorb® XT type C-L-M2-V2: Product plan view

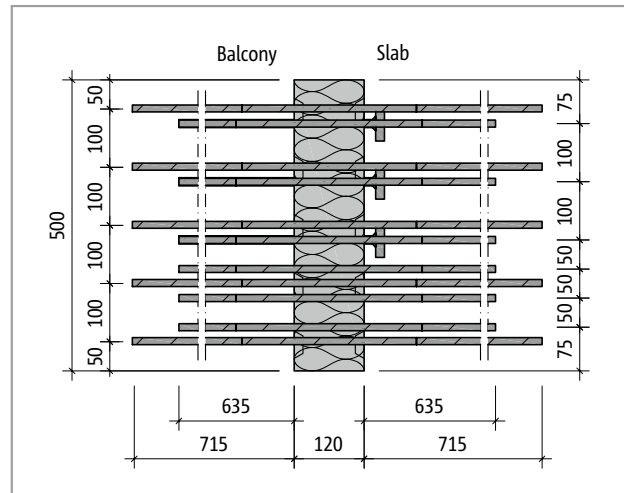


Fig. 202: Schöck Isokorb® XT type C-R-M2-V2: Product plan view

Product information

- Download further product plan views and cross-sections at cad.schoeck.co.uk
- Minimum height Schöck Isokorb® XT type C with V2: $H_{\min} = 200 \text{ mm}$
- Concrete cover of the tension bars: CV35 = 35 mm, CV50 = 50 mm
- The Schöck Isokorb® XT type C is also available as variant XT type C-F for use with precast slabs.

On-site reinforcement

Direct support, outer corner balcony XT type C-L-CV35

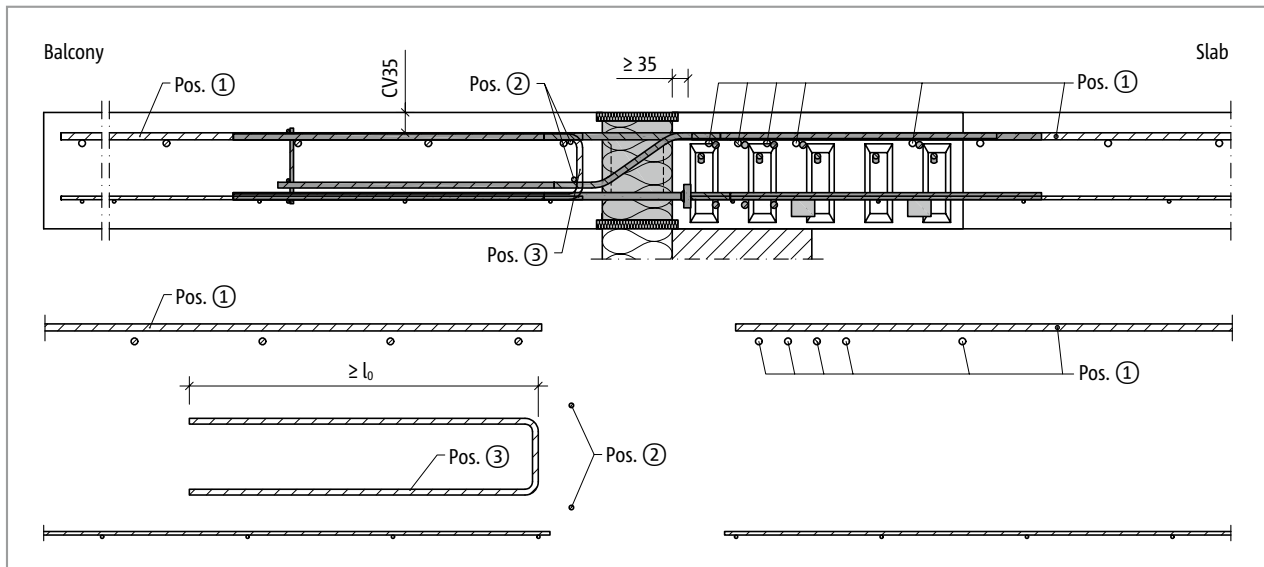
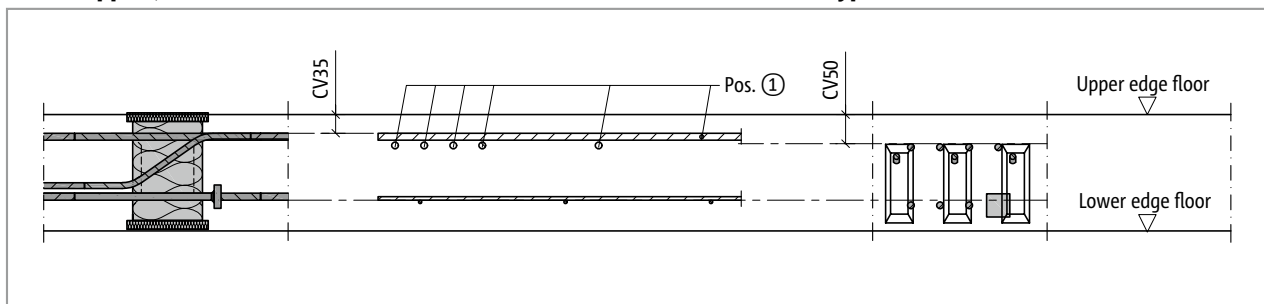


Fig. 203: Schöck Isokorb® XT type C: On-site reinforcement outer corner balcony (section XT type C-L-CV35, view XT type C-R-CV50)

Direct support, elevation of the on-site reinforcement with Schöck Isokorb® XT type C-L-CV35



The reinforcement in the reinforced concrete slab is determined from the structural engineer's design. With this both the effective moment and the effective shear force should be taken into account.

In addition, it is to be ensured that the tension bars of the Schöck Isokorb® are 100% lapped. The existing inner slab reinforcement can be taken into account as long as the maximum separation to the tension bars of the Schöck Isokorb® of 4ϕ is maintained. Additional reinforcement may be required.

i Information about on-site reinforcement

- Alternative connection reinforcements are possible. The rules as per BS EN 1992-1-1 (EC2) and BS EN 1992-1-1/NA apply for the determination of the lap length. A reduction of the required lap length with m_{Ed}/m_{Rd} is permitted.
- The indicative minimum concrete strength class of the external structural component is C32/40.

On-site reinforcement

Direct support, outer corner balcony XT type C-L-CV50

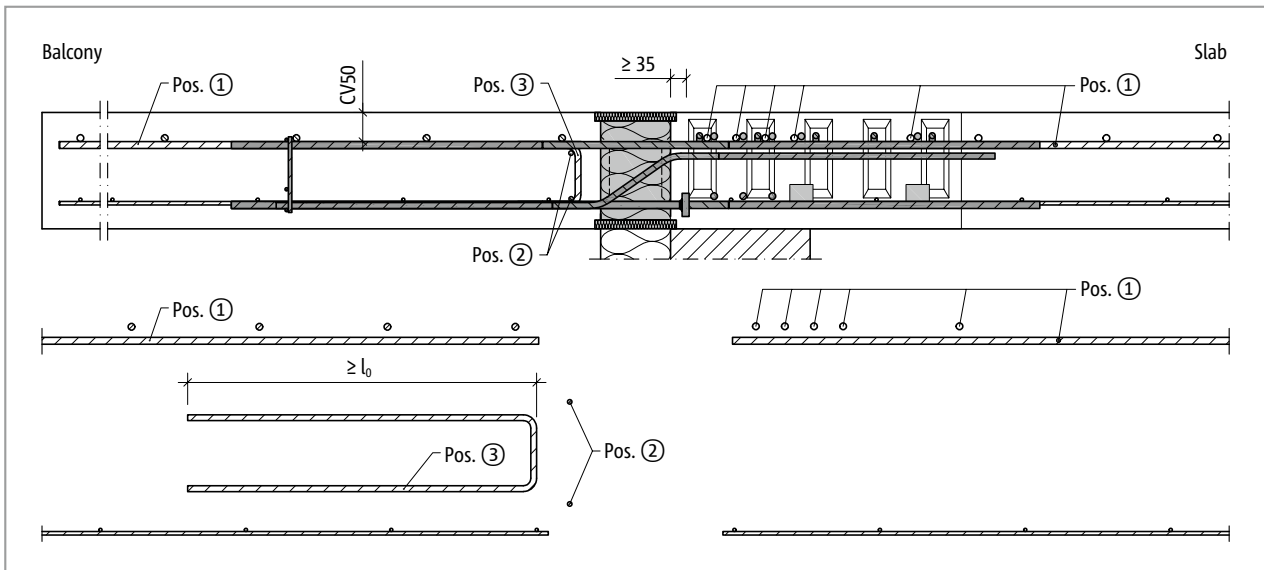
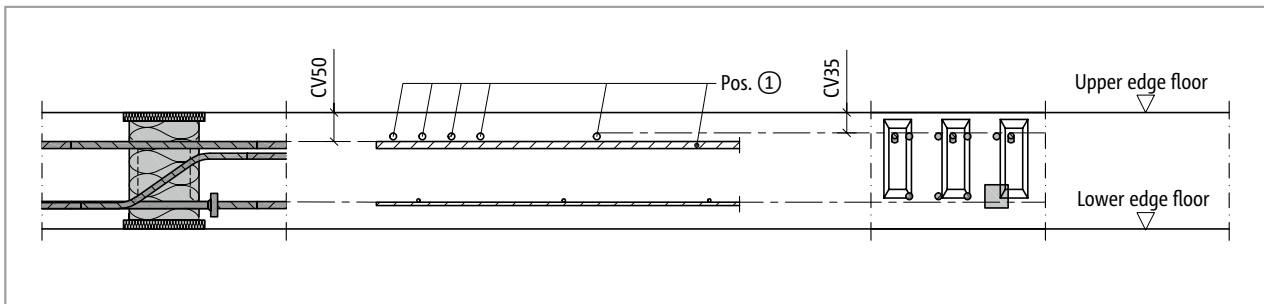


Fig. 204: Schöck Isokorb® XT type C: On-site reinforcement outer corner (section XT type C-L-CV50, view XT type C-R-CV35)

Direct support, elevation of the on-site reinforcement with Schöck Isokorb® XT type C-L-CV50



Recommendation for the on-site connection reinforcement

Details of the lapping reinforcement for Schöck Isokorb® with a loading of 100 % of the maximum design moment with C25/30; positively selected: a_s lapping reinforcement ≥ a_s Isokorb® tension bars.

Schöck Isokorb® XT type C-L/R		M1-V1	M1-V2	M2-V1	M2-V2
On-site reinforcement	Concrete strength class	Concrete strength class ≥ C25/30			
Overlapping reinforcement					
Pos. 1 [mm ² /Element]		565	565	678	678
Pos. 1 Variant		5 · H12	5 · H12	6 · H12	6 · H12
Steel bars along the insulation joint					
Pos. 2		2 · H8	2 · H8	2 · H8	2 · H8
Slip in bracket					
Pos. 3 [mm ² /Element]	C25/30	225	325	225	325
Pos. 3 Variant		3 · H10	5 · H10	3 · H10	5 · H10
Lap length l ₀ [mm]		680	680	680	680

On-site reinforcement

Indirect support, outer corner balcony XT type C-L-CV35

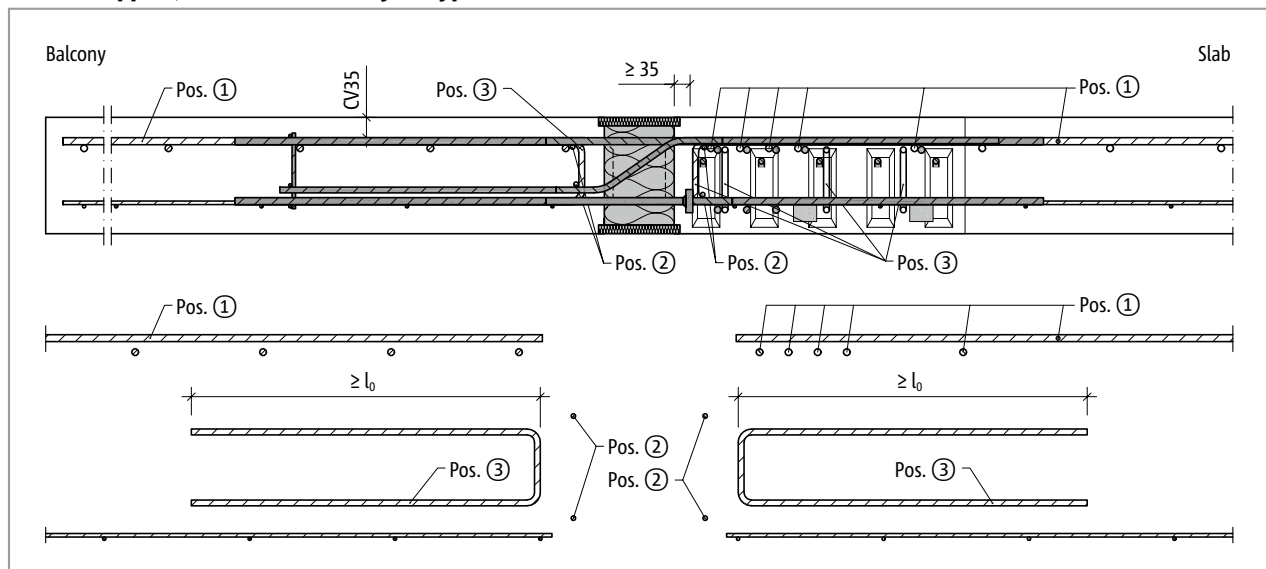
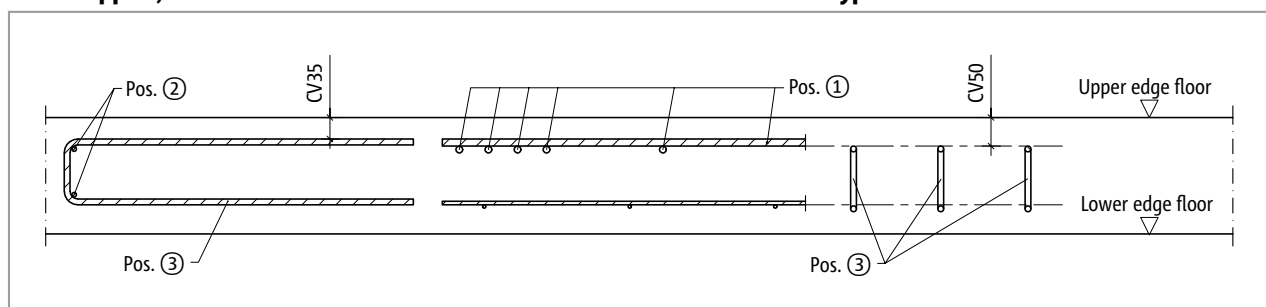


Fig. 205: Schöck Isokorb® XT type C: On-site reinforcement outer corner (section XT type C-L-CV35, view XT type C-R-CV50)

Direct support, elevation of the on-site reinforcement with Schöck Isokorb® XT type C-L-CV35



The reinforcement in the reinforced concrete slab is determined from the structural engineer's design. With this both the effective moment and the effective shear force should be taken into account.

In addition, it is to be ensured that the tension bars of the Schöck Isokorb® are 100% lapped. The existing inner slab reinforcement can be taken into account as long as the maximum separation to the tension bars of the Schöck Isokorb® of 4ϕ is maintained. Additional reinforcement may be required.

Information about on-site reinforcement

- Alternative connection reinforcements are possible. The rules as per BS EN 1992-1-1 (EC2) and BS EN 1992-1-1/NA apply for the determination of the lap length. A reduction of the required lap length with m_{Ed}/m_{Rd} is permitted.
- The indicative minimum concrete strength class of the external structural component is C32/40.

On-site reinforcement

Indirect support, outer corner balcony XT type C-L-CV50

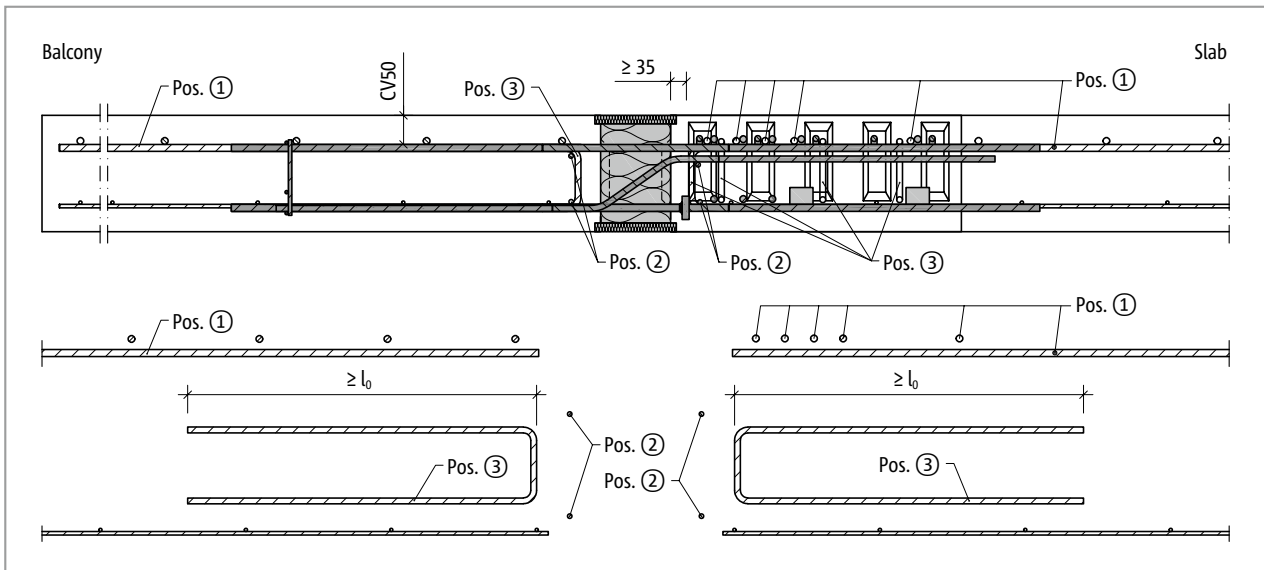
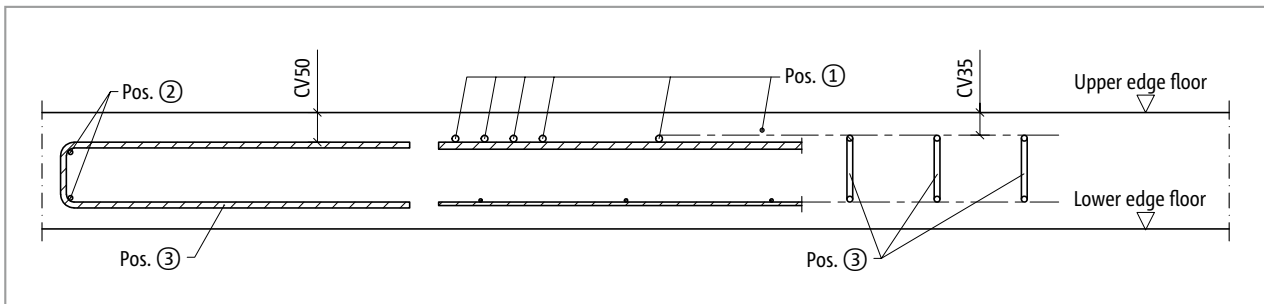


Fig. 206: Schöck Isokorb® XT type C: On-site reinforcement outer corner (section XT type C-L-CV50, view XT type C-R-CV35)

Direct support, elevation of the on-site reinforcement with Schöck Isokorb® XT type C-L-CV50



Recommendation for the on-site connection reinforcement

Details of the lapping reinforcement for Schöck Isokorb® with a loading of 100 % of the maximum design moment with C25/30; positively selected: a_s lapping reinforcement $\geq a_s$ Isokorb® tension bars.

Schöck Isokorb® XT type C-L/R		M1-V1	M1-V2	M2-V1	M2-V2
On-site reinforcement	Concrete strength class	Concrete strength class \geq C25/30			
Overlapping reinforcement					
Pos. 1 [mm ² /Element]		565	565	678	678
Pos. 1 Variant		5 · H12	5 · H12	6 · H12	6 · H12
Steel bars along the insulation joint					
Pos. 2		2 · 2 · H8	2 · 2 · H8	2 · 2 · H8	2 · 2 · H8
Slip in bracket					
Pos. 3 [mm ² /Element]	C25/30	225	325	225	325
Pos. 3 Variant		3 · H10	5 · H10	3 · H10	5 · H10
Lap length l_0 [mm]		680	680	680	680

Precast construction | Installation instructions

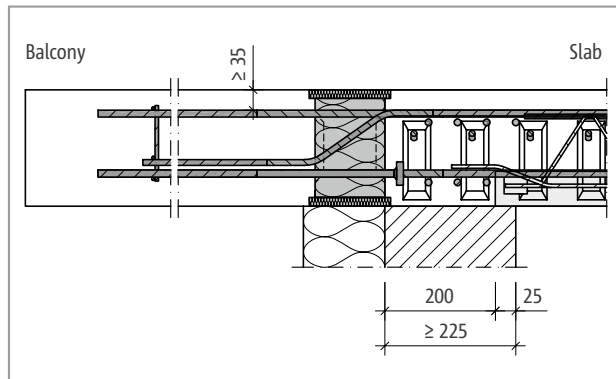


Fig. 207: Schöck Isokorb® XT type C: Prefabricated slab without edge support with TICS (section XT type C-L-CV35, view XT type C-R-CV50)

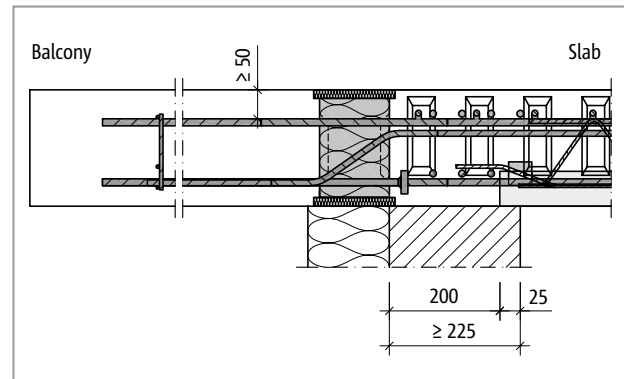


Fig. 208: Schöck Isokorb® XT type C: Prefabricated slab without edge support with TICS (section XT type C-R-CV50, view XT type C-L-CV35)

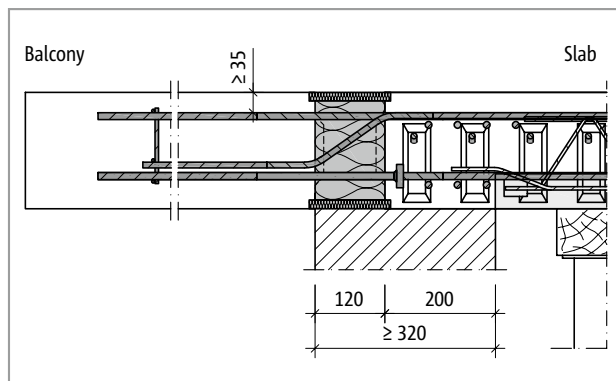


Fig. 209: Schöck Isokorb® XT type C: Prefabricated slab with edge support with thermal insulating masonry (section XT type C-L-CV35, view XT type C-R-CV50)

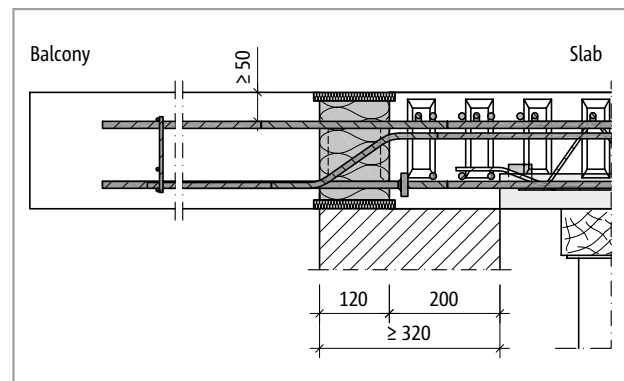


Fig. 210: Schöck Isokorb® XT type C: Prefabricated slab with edge support with thermal insulating masonry (section XT type C-R-CV50, view XT type C-L-CV35)

i Precast construction

- The Schöck Isokorb® XT type C requires, in combination with precast slabs, a block-out in the area of the compression rods of at least 190 mm from the insulating element edge.

i Installation instructions

The current installation instruction can be found online under:
www.schoeck.com/view/5380

✓ Check list

- Is the combination possibility (XT type C-R-CV35 and XT type C-L-CV50 or vice versa) taken into account with the corner balcony?
Is a Schöck Isokorb® XT type K-CV50 planned in the connection to the Schöck Isokorb® XT type C-L-CV50 or XT type C-R-CV50?
- Is the minimum slab thickness ($H_{\min} = 180$ mm, or with V2 $H_{\min} = 200$ mm) of the Schöck Isokorb® XT type C taken into account?
- Are the maximum allowable expansion joint spacings taken into account?
- Are the requirements with regard to fire protection explained and is the appropriate addendum entered in the Isokorb® type description in the implementation plans?
- Is the in-situ concrete strip (width ≥ 190 mm from insulating element of the Schöck Isokorb® XT type C) required in connection with prefabricated floors indicated in the implementation plans?
- Has the cantilevered system length or the system support width been taken as a basis?
- Are the Schöck FEM guidelines taken into account with the calculation using FEM?
- Have the loads on the Schöck Isokorb® connection been specified at design level?
- With the selection of the design table is the relevant concrete cover taken into account?
- Has the additional deformation due to the Schöck Isokorb® been taken into account?
- Is the drainage direction taken into account with the resulting camber information? Is the degree of camber entered in the working drawings?
- Have existing horizontal loads e.g. from wind pressure, been taken into account as planned? Are additional Schöck Isokorb® XT type H required for this?
- Have the requirements for on-site reinforcement of connections been defined in each case?
- For fully precast balconies, are possibly necessary gaps for the frontal transport anchors and rainwater downpipes for internal drainage taken into account? Is the maximum centre distance of 300 mm of the Isokorb® bars observed?
- Is the XT type K-U, K-O or a special construction required instead of Schöck Isokorb® XT type K due to the connection with height offset or to a wall?