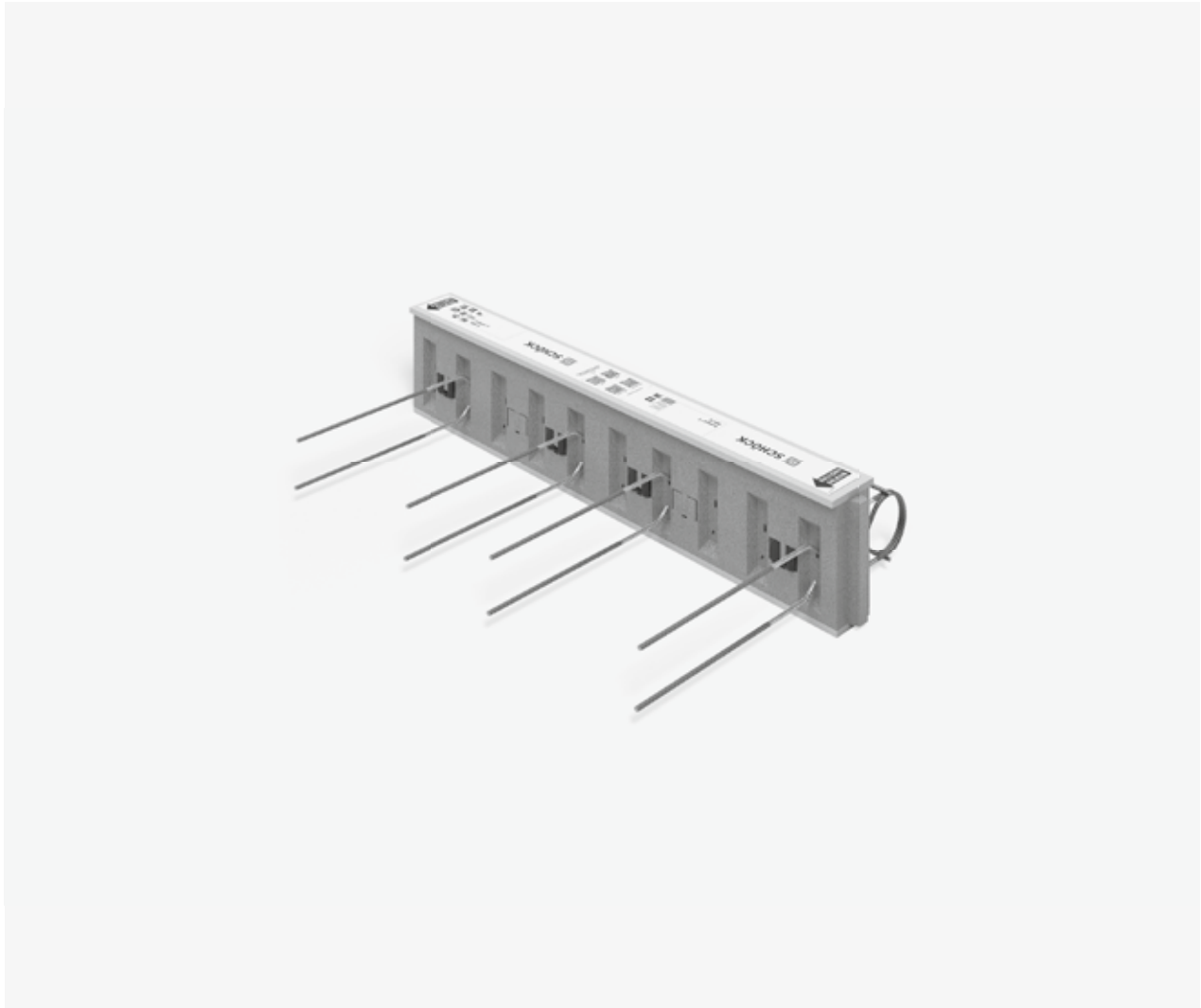


## Schöck Isokorb® T type Q-E, Q-T



### Schöck Isokorb® T type Q-E, Q-T

Load-bearing thermal insulation element for supported balconies. The element transfers positive shear forces. The element with the load-bearing level VV additionally transfers negative shear forces.

### Schöck Isokorb® T type Q-E-Z, Q-T-Z

Load-bearing thermal insulation element for supported balconies in constraint-free connection. The element transfers positive shear forces.

T  
type Q-E

Reinforced concrete – reinforced concrete

## Element arrangement

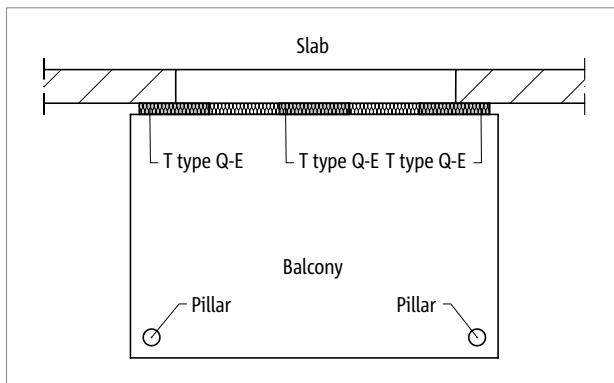


Fig. 73: Schöck Isokorb® T type Q-E: Balcony with pillar support

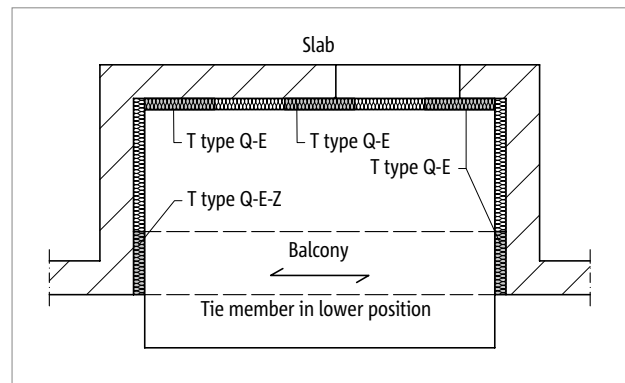


Fig. 74: Schöck Isokorb® T type Q-E, Q-E-Z: Recessed balcony supported on three sides with tie member

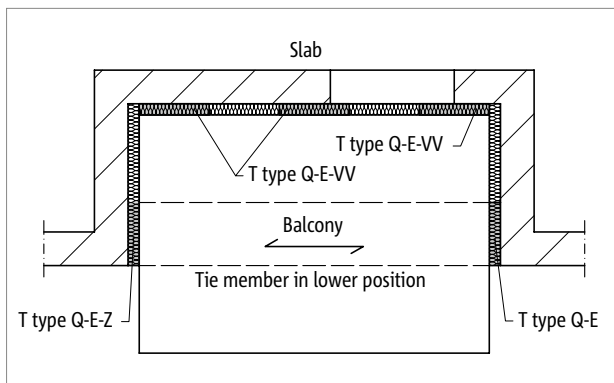


Fig. 75: Schöck Isokorb® T type Q-E, Q-E-Z and Q-E-VV: Recessed balcony supported on three sides with tie member

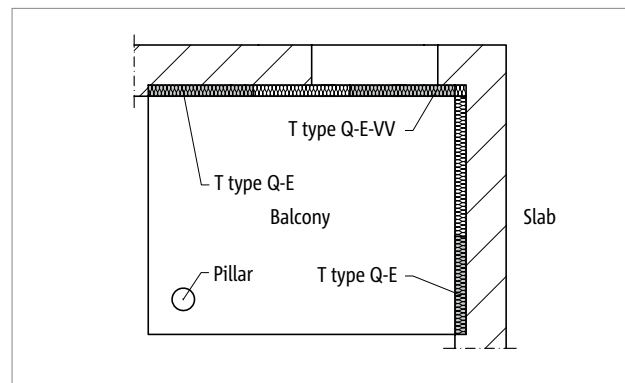


Fig. 76: Schöck Isokorb® T type Q-E, Q-E-VV: Balcony supported on two sides with pillar and positive shear forces

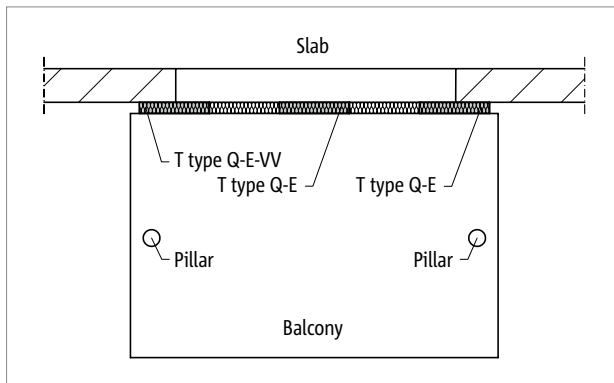


Fig. 77: Schöck Isokorb® T type Q-E, Q-E-VV: Balcony with pillar support

## Installation cross sections

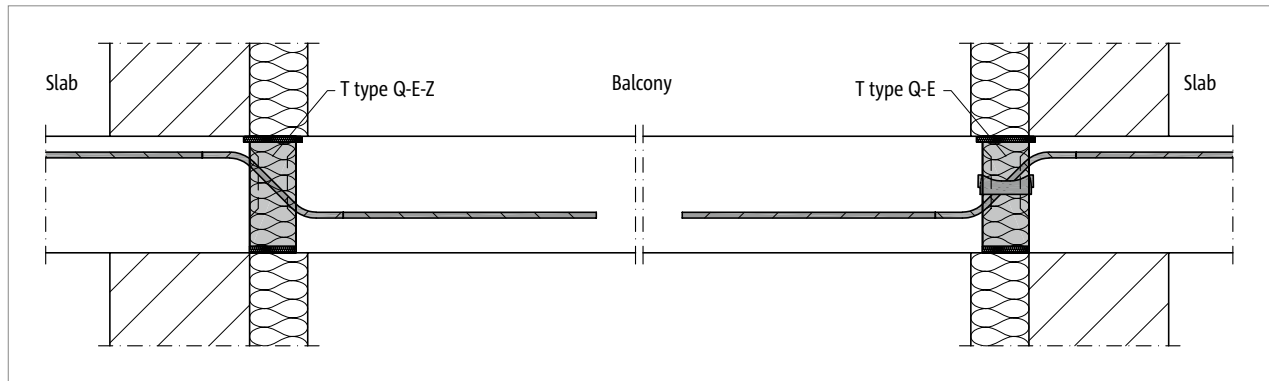


Fig. 78: Schöck Isokorb® T type Q-E-Z, Q-E: Application case one-way reinforced concrete slab

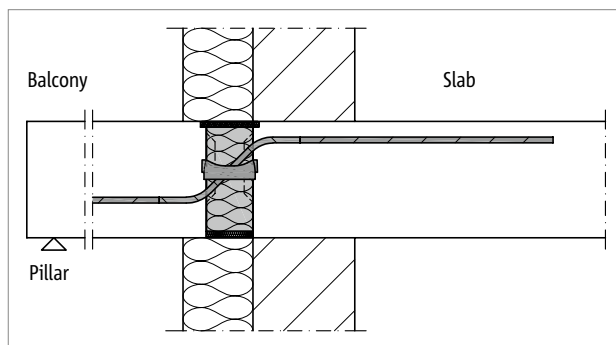


Fig. 79: Schöck Isokorb® T type Q-E: Connection for exterior insulation

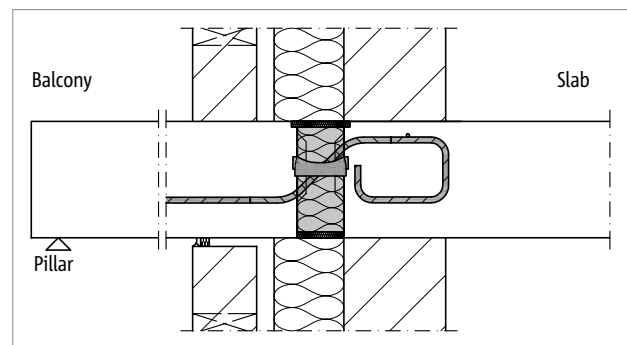


Fig. 80: Schöck Isokorb® T type Q-E-W-V: Connection for core insulation

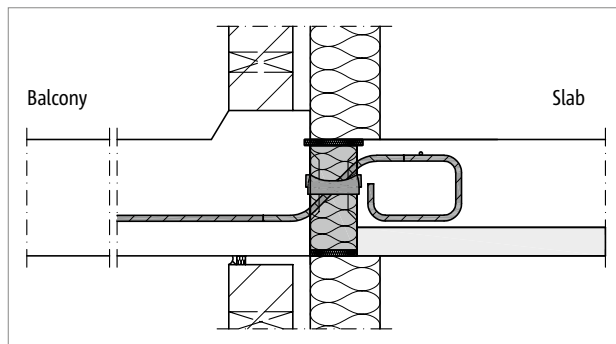


Fig. 81: Schöck Isokorb® T type Q-E-W-V: Point connection

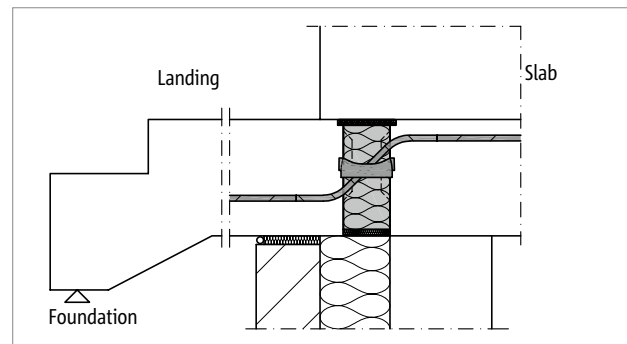


Fig. 82: Schöck Isokorb® T type Q-E-V: Stair flight connection

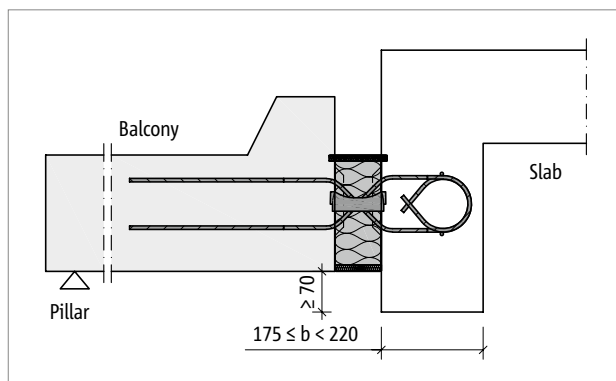


Fig. 83: Schöck Isokorb® T type Q-E-W-VV: Installation situation "pre-cast balcony slab" (e.g. T type Q-E-W-VV1 to VV3)

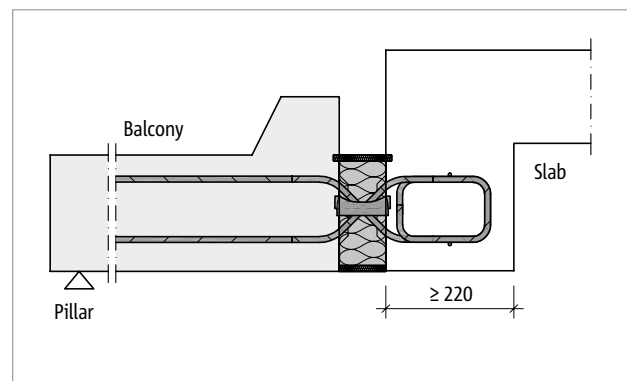


Fig. 84: Schöck Isokorb® T type Q-E-W-VV: Installation situation "pre-cast balcony slab"

T  
type Q-E

Reinforced concrete – reinforced concrete

## Product selection | Type designations | Special designs

### Variants of Schöck Isokorb® T type Q-E, Q-T

All variants have shear force bars for positive shear force. The shear force bars are straight on the balcony side. The configuration of the Schöck Isokorb® T type Q can be varied as follows:

type Q-E/T: Shear force bar for positive shear force and pressure bearing

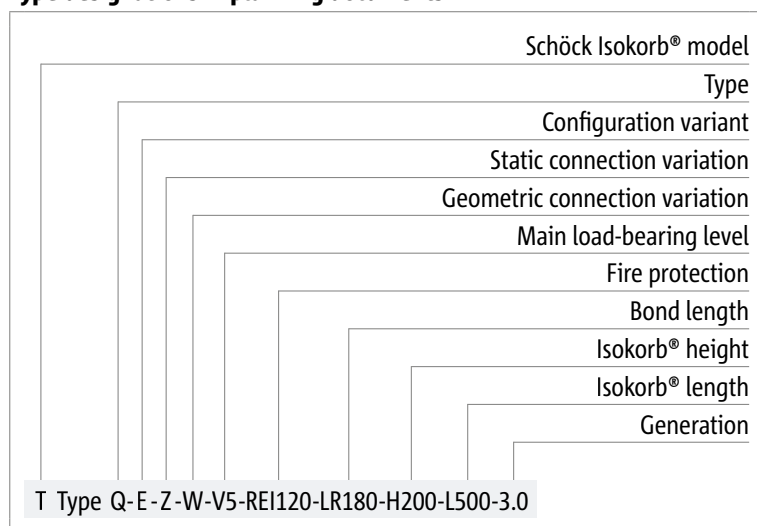
type Q-E/T-Z: Shear force bar for positive shear force, free of constraint forces without pressure bearing

type Q-E/T-VV: Shear force bars for positive and negative shear force, pressure bearings

type Q-E: can be used with Schöck IDock®

- Geometric connection variation:
  - W: Shear force bar on floor side bent, balcony side straight
- Main load-bearing level:
  - V1 to V7: Shear force bar straight on the floor side, straight on the balcony side
  - VV1 to VV7: Shear force bar straight on the floor side, straight on the balcony side
  - W-V1 to W-V5: Shear force bar bent on floor side, straight on balcony side
  - W-VV1 to W-VV5: Shear force bar bent on floor side, straight on balcony side
- type Q-T with main load-bearing level V1 to V2
- type Q-E with main load-bearing level V3 to V7
- Bond length LR: Dimensions for Schöck Isokorb® T type Q-E-W, Q-E-Z-W, Q-E-W-VV see page 59
- Concrete cover of the shear force bars:
  - bottom:  $CV \geq 30 \text{ mm}$  (depending on the type and height of the Isokorb®)
  - top:  $CV \geq 21 \text{ mm}$
  - top:  $CV \geq 31 \text{ mm}$  for type Q-E-VV, Q-E-W-VV
- Isokorb® height:
  - $H = H_{\min}$  up to 250 mm (note minimum slab height depending on load bearing capacity and fire protection)
- Isokorb® length:
  - L250, L500, L1000, info in mm
- Generation:
  - 3.0

### Type designations in planning documents



### Special designs

Please contact the Technical Design Department if you cannot achieve the connections you require using the standard product variants shown in this technical information (contact details on page 3).

Bond length

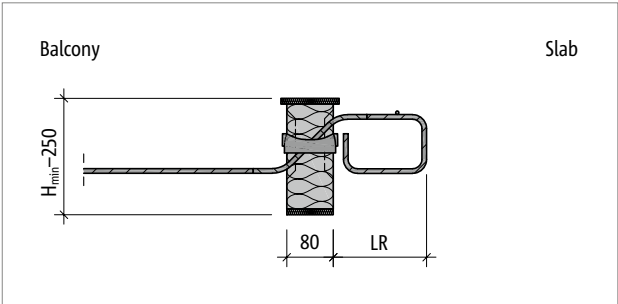


Fig. 85: Schöck Isokorb® type Q-E-W: Product section, representation of bond length LR

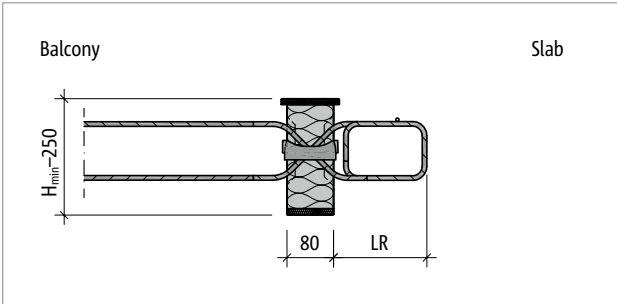


Fig. 86: Schöck Isokorb® type Q-E-W-VV: Product section, representation of bond length LR

Schöck Isokorb® T type Q-T-W, Q-T-Z-W, Q-E-W, Q-E-Z-W 3.0		Q-E-W-V1 Q-E-W-VV1 Q-E-Z-W-V1 Q-E-Z-W-VV1	Q-E-W-V2 Q-E-W-VV2 Q-E-Z-W-V2 Q-E-Z-W-VV2	Q-E-W-V3 Q-E-W-VV3 Q-E-Z-W-V3 Q-E-Z-W-VV3	Q-E-W-V4 Q-E-W-VV4 Q-E-Z-W-V4 Q-E-Z-W-VV4	Q-E-W-V5 Q-E-W-VV5 Q-E-Z-W-V5 Q-E-Z-W-VV5
Bond length for		LR [mm]				
Isokorb® height H [mm]	$H_{min}-250$	155	155	155	160	180

Design

Design table T type Q-E, Q-T in length L1000

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-V1 Q-T-W-V1	Q-T-V2 Q-T-W-V2	Q-E-V3 Q-E-W-V3	Q-E-V4 Q-E-W-V4	Q-E-V5 Q-E-W-V5	Q-E-V6	Q-E-V7
Design values with		$V_{Rd,z}$ [kN/m]						
Concrete strength class	C25/30	34.8	52.2	69.5	123.6	193.2	278.2	328.0

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-V1 Q-T-W-V1	Q-T-V2 Q-T-W-V2	Q-E-V3 Q-E-W-V3	Q-E-V4 Q-E-W-V4	Q-E-V5 Q-E-W-V5	Q-E-V6	Q-E-V7
Placement with		Isokorb® length [mm]						
		1000	1000	1000	1000	1000	1000	1000
Shear force bars		4 Ø 6	6 Ø 6	8 Ø 6	8 Ø 8	8 Ø 10	8 Ø 12	8 Ø 14
Pressure bearing [piece]		4	4	4	4	8	8	8
$H_{min}$ [mm]		160	160	160	160	170	180	190

Design table T type Q-E in length L500

Schöck Isokorb® T type Q-E 3.0		Q-E-V4, Q-E-W-V4	Q-E-V5, Q-E-W-V5	Q-E-V6	Q-E-V7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C25/30	61.8	96.6	139.1	164.0

Schöck Isokorb® T type Q-E 3.0		Q-E-V4, Q-E-W-V4	Q-E-V5, Q-E-W-V5	Q-E-V6	Q-E-V7
Placement with		Isokorb® length [mm]			
		500	500	500	500
Shear force bars		4 Ø 8	4 Ø 10	4 Ø 12	4 Ø 14
Pressure bearing [piece]		4	4	4	4
$H_{min}$ [mm]		160	170	180	190

Design table T type Q-E in length L250

Schöck Isokorb® T type Q-E 3.0		Q-E-V4, Q-E-W-V4	Q-E-V5, Q-E-W-V5	Q-E-V6	Q-E-V7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C25/30	30.9	48.3	69.5	82.0

Schöck Isokorb® T type Q-E 3.0		Q-E-V4, Q-E-W-V4	Q-E-V5, Q-E-W-V5	Q-E-V6	Q-E-V7
Placement with		Isokorb® length [mm]			
		250	250	250	250
Shear force bars		2 Ø 8	2 Ø 10	2 Ø 12	2 Ø 14
Pressure bearing [piece]		2	2	2	2
$H_{min}$ [mm]		160	170	180	190

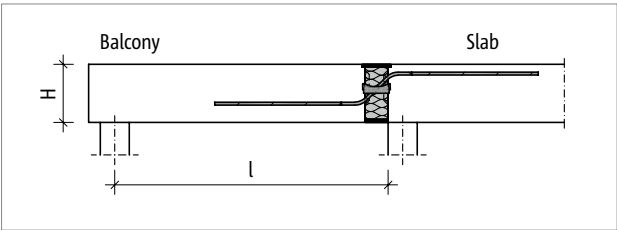


Fig. 87: Schöck Isokorb® T type Q-E-V: Static system

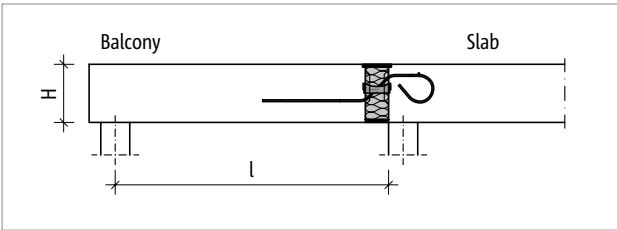


Fig. 88: Schöck Isokorb® T type Q-E-W-V1 up to V3: Static system

## Design

**Design table T type Q-E-Z, Q-T-Z in length L1000**

Schöck Isokorb® T type Q-T-Z, Q-T-Z-W, Q-E-Z, Q-E-Z-W 3.0		Q-T-Z-V1 Q-T-Z-W-V1	Q-T-Z-V2 Q-T-Z-W-V2	Q-E-Z-V3 Q-E-Z-W-V3	Q-E-Z-V4 Q-E-Z-W-V4	Q-E-Z-V5 Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
Design values with		$V_{Rd,z}$ [kN/m]						
Concrete strength class	C25/30	34.8	52.2	69.5	123.6	193.2	278.2	378.6

Schöck Isokorb® T type Q-T-Z, Q-T-Z-W, Q-E-Z, Q-E-Z-W 3.0		Q-T-Z-V1 Q-T-Z-W-V1	Q-T-Z-V2 Q-T-Z-W-V2	Q-E-Z-V3 Q-E-Z-W-V3	Q-E-Z-V4 Q-E-Z-W-V4	Q-E-Z-V5 Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
Placement with		Isokorb® length [mm]						
		1000	1000	1000	1000	1000	1000	1000
Shear force bars		4 Ø 6	6 Ø 6	8 Ø 6	8 Ø 8	8 Ø 10	8 Ø 12	8 Ø 14
Pressure bearing [piece]								
$H_{min}$ [mm]		160	160	160	160	170	180	190

**Design table T type Q-E-Z in length L500**

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-W-V4	Q-E-Z-V5, Q-E-W-V5	Q-E-Z-V6	Q-E-Z-V7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C25/30	61.8	96.6	139.1	189.3

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-Z-W-V4	Q-E-Z-V5, Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
Placement with		Isokorb® length [mm]			
		500	500	500	500
Shear force bars		4 Ø 8	4 Ø 10	4 Ø 12	4 Ø 14
Pressure bearing [piece]		-	-	-	-
$H_{min}$ [mm]		160	170	180	190

**Design table T type Q-E-Z in length L250**

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-W-V4	Q-E-Z-V5, Q-E-W-V5	Q-E-Z-V6	Q-E-Z-V7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C25/30	30.9	48.3	69.5	94.6

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-Z-W-V4	Q-E-Z-V5, Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
Placement with		Isokorb® length [mm]			
		250	250	250	250
Shear force bars		2 Ø 8	2 Ø 10	2 Ø 12	2 Ø 14
Pressure bearing [piece]		-	-	-	-
$H_{min}$ [mm]		160	170	180	190

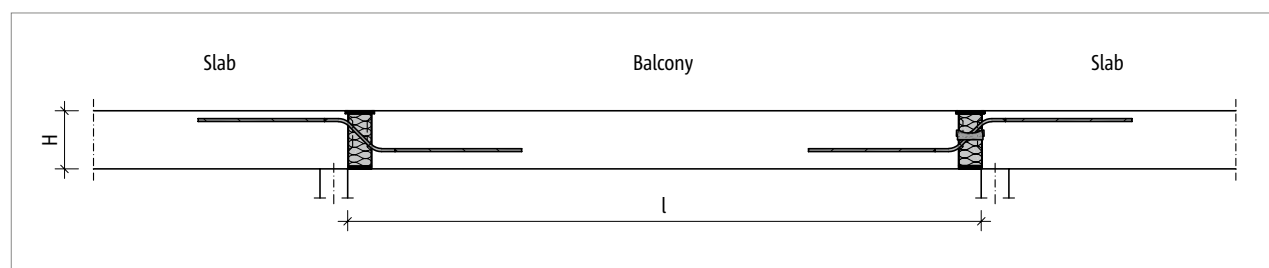


Fig. 89: Schöck Isokorb® T type Q-E-V, Q-E-Z-V: Static system

# Design

**Design table T type Q-E, Q-T in length L1000**

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-VV1 Q-T-W-VV1	Q-T-VV2 Q-T-W-VV2	Q-E-VV3 Q-E-W-VV3	Q-E-VV4 Q-E-W-VV4	Q-E-VV5 Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Design values with		$V_{Rd,z}$ [kN/m]						
Concrete strength class	C25/30	±34.8	±52.2	±69.5	±123.6	±193.2	±278.2	±328.0

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-VV1 Q-T-W-VV1	Q-T-VV2 Q-T-W-VV2	Q-E-VV3 Q-E-W-VV3	Q-E-VV4 Q-E-W-VV4	Q-E-VV5 Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Placement with		Isokorb® length [mm]						
		1000	1000	1000	1000	1000	1000	1000
Shear force bars		2 × 4 Ø 6	2 × 6 Ø 6	2 × 8 Ø 6	2 × 8 Ø 8	2 × 8 Ø 10	2 × 8 Ø 12	2 × 8 Ø 14
Pressure bearing [piece]		4	4	4	4	8	8	8
$H_{min}$ for REI 60 [mm]		160	160	160	170	180	190	200
$H_{min}$ for REI120 [mm]		160	160	160	170	180	190	200

**Design table T type Q-E in length L500**

Schöck Isokorb® T type Q-E 3.0		Q-E-VV4, Q-E-W-VV4	Q-E-VV5, Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C20/25	±61.8	±96.6	±139.1	±164.0

Schöck Isokorb® T type Q-E 3.0		Q-E-VV4, Q-E-W-VV4	Q-E-VV5, Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Placement with		Isokorb® length [mm]			
		500	500	500	500
Shear force bars		4 Ø 8 + 4 Ø 8	4 Ø 10 + 4 Ø 10	4 Ø 12 + 4 Ø 12	4 Ø 14 + 4 Ø 14
Pressure bearing [piece]		4	4	4	4
$H_{min}$ [mm]		170	180	190	200

T  
type Q-E



## Design

### Design table T type Q-E in length L250

Schöck Isokorb® T type Q-E 3.0		Q-E-VV4, Q-E-W-VV5	Q-E-VV5, Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Design values with		$V_{Rd,z}$ [kN/element]			
Concrete strength class	C20/25	±30.9	±48.3	±69.5	±82.0

Schöck Isokorb® T type Q-E 3.0		Q-E-VV4, Q-E-W-VV4	Q-E-VV5, Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Placement with		Isokorb® length [mm]			
		250	250	250	250
Shear force bars		2 Ø 8 + 2 Ø 8	2 Ø 10 + 2 Ø 10	2 Ø 12 + 2 Ø 12	2 Ø 14 + 2 Ø 14
Pressure bearing [piece]		2	2	2	2
$H_{min}$ [mm]		170	180	190	190

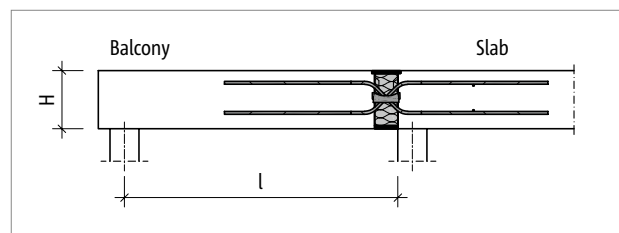


Fig. 90: Schöck Isokorb® T type Q-E-VV: Static system

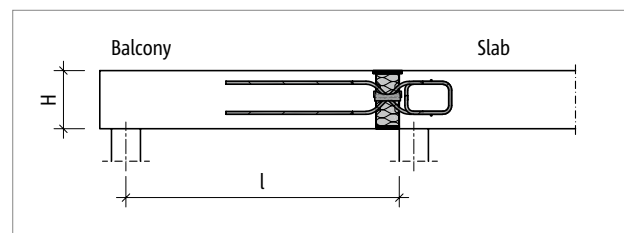


Fig. 91: Schöck Isokorb® T type Q-E-W-VV: Static system

### Notes on design

- A static verification is to be provided for the adjacent reinforced concrete structural component on both sides of the Schöck Isokorb®.
- Due to the excentric force application of the Schöck Isokorb®, an offset moment is generated at the adjacent slab edges. This is to be taken into account with the design of the slabs.

# Moments from excentric connection

## Moments from excentric connection

Moments from excentric connection for the Schöck Isokorb® are to be taken into account for the design of the connection reinforcement for each balcony and slab side. These moments are respectively to be overlaid with the moments from the ordinary loading, if they have the same sign.

The following table values  $\Delta M_{Ed}$  have been calculated for 100 % utilisation of  $v_{Rd}$ .

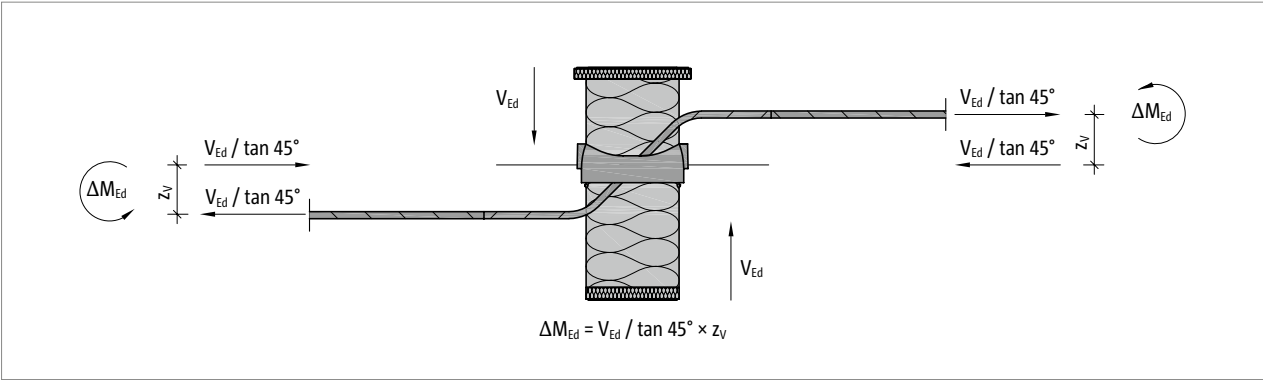


Fig. 92: Schöck Isokorb® T type Q-E, Q-E-W: Moments from excentric connection

## Design table T type Q-E, Q-T in length L1000

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-V1 Q-T-W-V1	Q-T-V2 Q-T-W-V2	Q-E-V3 Q-E-W-V3	Q-E-V4 Q-E-W-V4	Q-E-V5 Q-E-W-V5	Q-E-V6	Q-E-V7
Design values with		$M_{Ed}$ [kNm/element]						
Concrete strength class	C25/30	1.7	2.6	3.5	6.3	10.8	15.9	20.5

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-VV1 Q-T-W-VV1	Q-T-VV2 Q-T-W-VV2	Q-E-VV3 Q-E-W-VV3	Q-E-VV4 Q-E-W-VV4	Q-E-VV5 Q-E-W-VV5	Q-E-VV6	Q-E-VV7
Design values with		$M_{Ed}$ [kNm/element]						
Concrete strength class	C25/30	1.7	2.6	3.5	6.3	10.8	15.9	20.5

## Design table T type Q-E in length L500

Schöck Isokorb® T type Q-E 3.0		V4, W-V4	V5, W-V5	V6	V7
Design values with		$M_{Ed}$ [kNm/element]			
Concrete strength class	C25/30	3.2	5.4	7.9	10.3

Schöck Isokorb® T type Q-E 3.0		VV4, W-VV4	VV5, W-VV5	VV6	VV7
Design values with		$M_{Ed}$ [kNm/element]			
Concrete strength class	C25/30	3.2	5.4	7.9	10.3

## Design table T type Q-E in length L250

Schöck Isokorb® T type Q-E 3.0		V4, W-V4	V5, W-V5	V6	V7
Design values with		$M_{Ed}$ [kNm/element]			
Concrete strength class	C25/30	1.6	2.7	4.0	5.1

Schöck Isokorb® T type Q-E 3.0		VV4, W-VV4	VV5, W-VV5	VV6	VV7
Design values with		$M_{Ed}$ [kNm/element]			
Concrete strength class	C25/30	1.6	2.7	4.0	5.1

T  
type Q-E

Reinforced concrete – reinforced concrete

## Expansion joint spacing

### Maximum expansion joint spacing

If the component length exceeds the maximum expansion joint spacing  $e$ , then expansion joints must be incorporated into the external concrete components at right angles to the insulating layer in order to limit the effect as a result of temperature changes. Because the layout of the Isokorb® is only possible along the side of the component due to the installation in conjunction with the external concrete precast element, corners of balconies, parapets and balustrades cannot form any fixed points. The shear force transmission in the expansion joint can be ensured using a longitudinally displaceable shear force dowel, e.g. Schöck Stacon®.

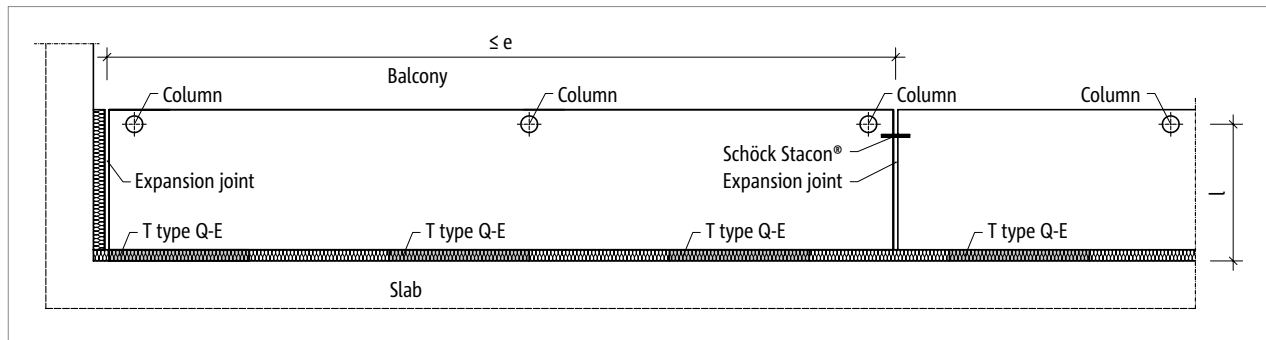


Fig. 93: Schöck Isokorb® T type Q-E: Expansion joint spacing

Schöck Isokorb® T type Q-T , Q-T-Z 3.0		V1, VV1 W-V1, W-VV1	V2, VV2 W-V2, W-VV2
Maximum expansion joint spacing when		$e$ [m]	
Insulating element thickness [mm]	80	11.0	11.0

Schöck Isokorb® T type Q-E, Q-E-Z 3.0		V3, VV3 W-V3, W-VV3	V4, VV4 W-V4, W-VV4	V5, VV5 W-V5, W-VV5	V6, VV6	V7, VV7
Maximum expansion joint spacing when		$e$ [m]				
Insulating element thickness [mm]	80	11.0	11.0	10.6	9.5	8.3

### i 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 compression bars from the free edge resp. expansion joint:  $e_R \geq 100$  mm applies.

T  
type Q-E

Reinforced concrete – reinforced concrete

## Product description

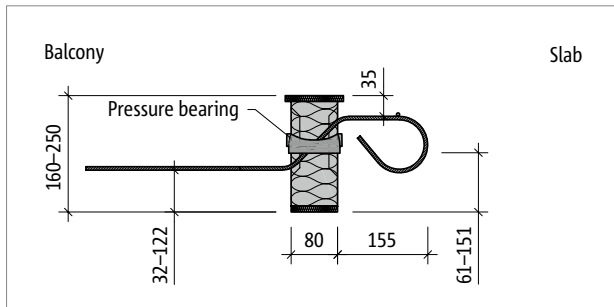


Fig. 94: Schöck Isokorb® T type Q-T-W-V1 to V2: product section

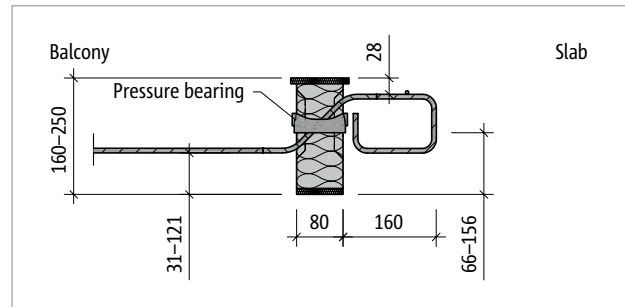


Fig. 95: Schöck Isokorb® T type Q-E-W-V4: Product section

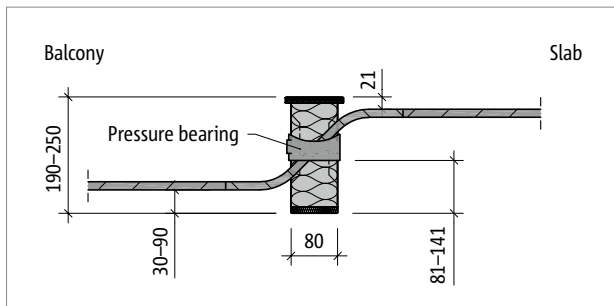


Fig. 96: Schöck Isokorb® T type Q-E-V7: Product section

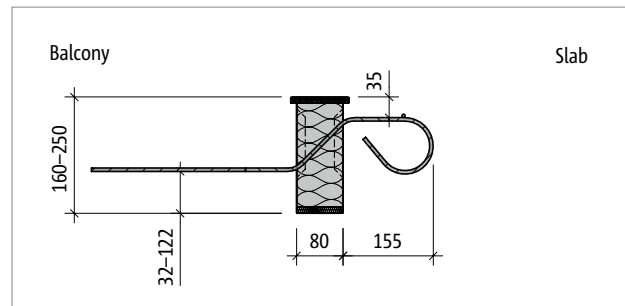


Fig. 97: Schöck Isokorb® T type Q-T-Z-W-V1 to V2: product section

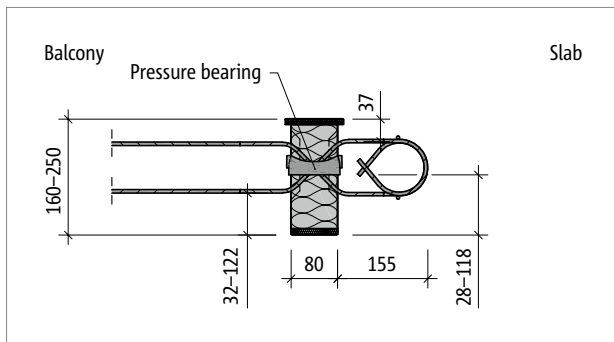


Fig. 98: Schöck Isokorb® T type Q-T-W-VV1 to VV2: product section

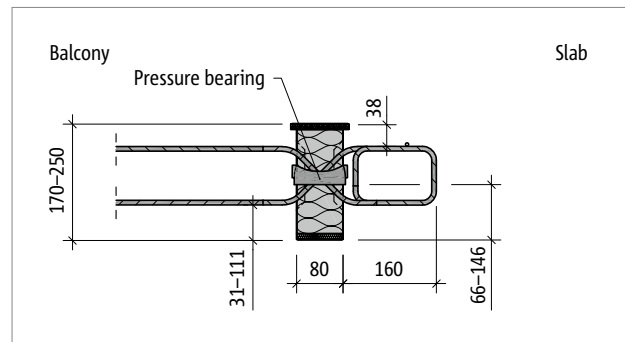


Fig. 99: Schöck Isokorb® T type Q-E-W-VV4: Product section

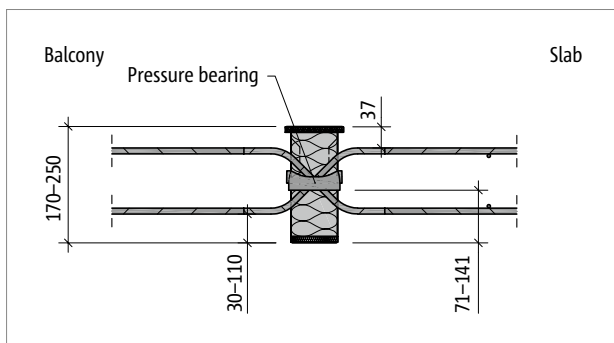


Fig. 100: Schöck Isokorb® T type Q-E-VV5: Product section

### Product information

- For additional 2D and 3D product drawings contact our Design Support department.
- Observe min. height  $H_{\min}$  Schöck Isokorb® T type Q-E, Q-E-Z.

Product description

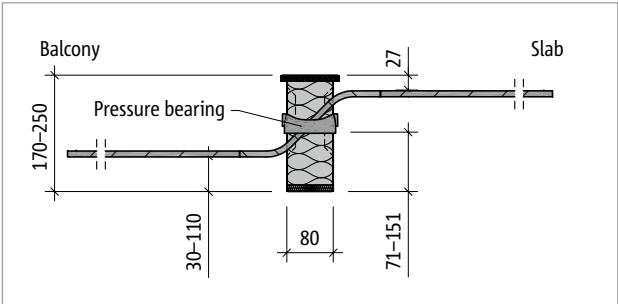


Fig. 101: Schöck Isokorb® T type Q-E-V5: Product section

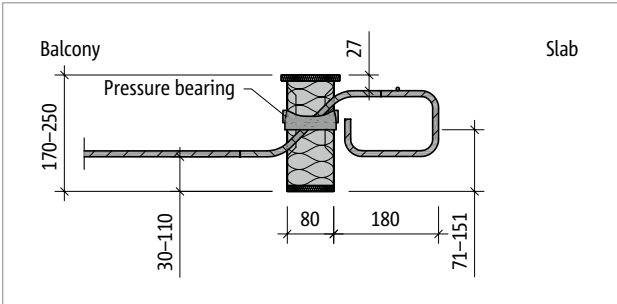


Fig. 102: Schöck Isokorb® T type Q-E-W-V5: Product section

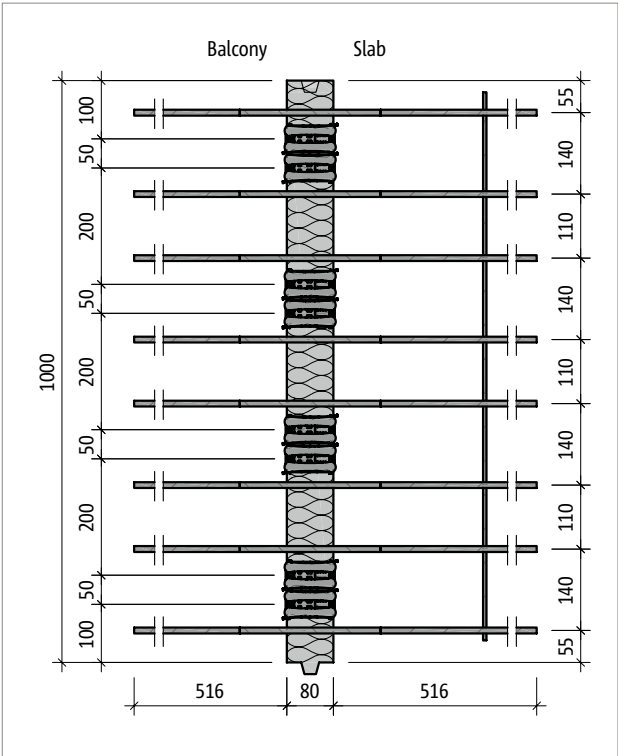


Fig. 103: Schöck Isokorb® T type Q-E-V5: Product layout

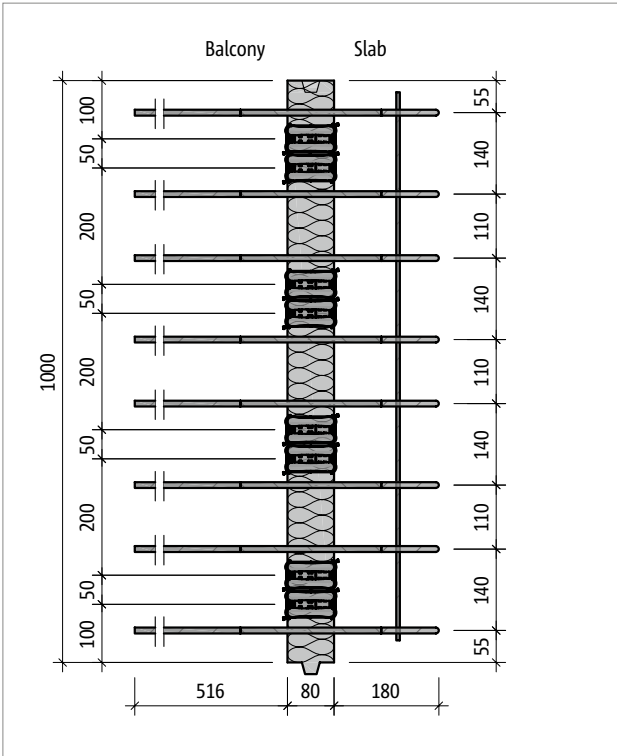


Fig. 104: Schöck Isokorb® T type Q-E-W-V5: Product layout

## Product description

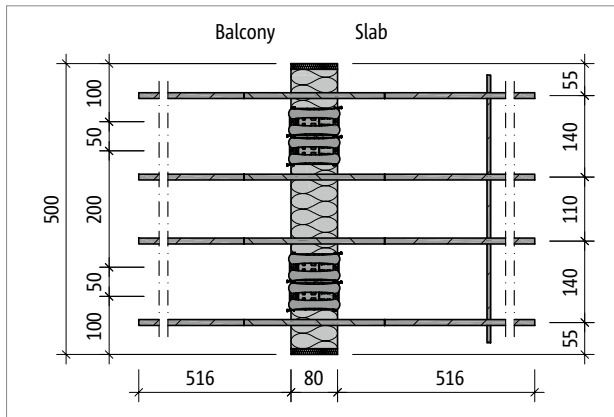


Fig. 105: Schöck Isokorb® T type Q-E-V5-L500: Product layout

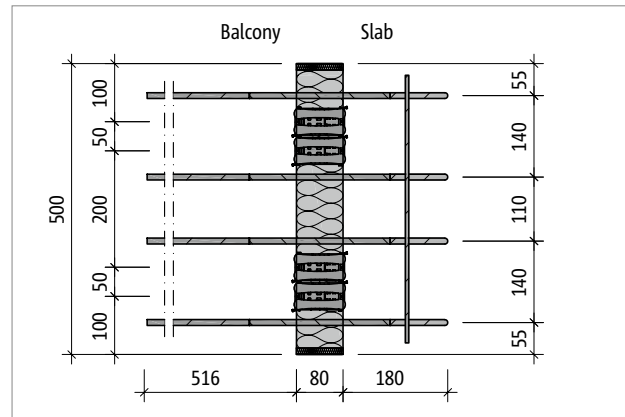


Fig. 106: Schöck Isokorb® T type Q-E-W-V5-L500: Product layout

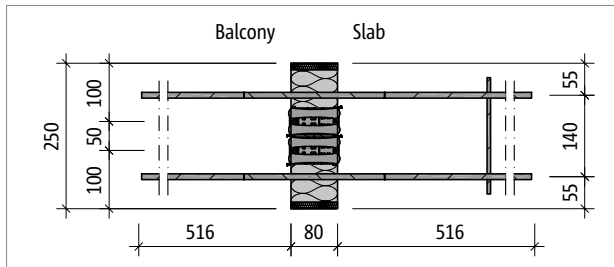


Fig. 107: Schöck Isokorb® T type Q-E-V5-L250: Product layout

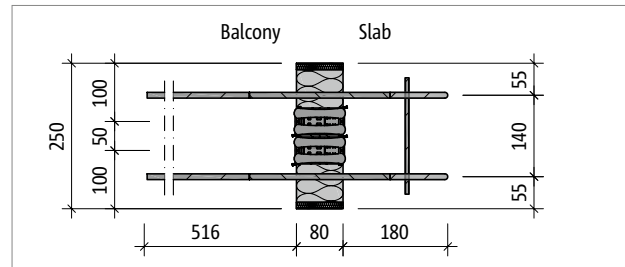


Fig. 108: Schöck Isokorb® T type Q-E-W-V5-L250: Product layout

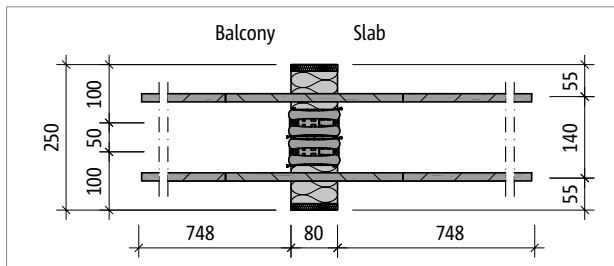


Fig. 109: Schöck Isokorb® T type Q-E-V7-L250: Product layout

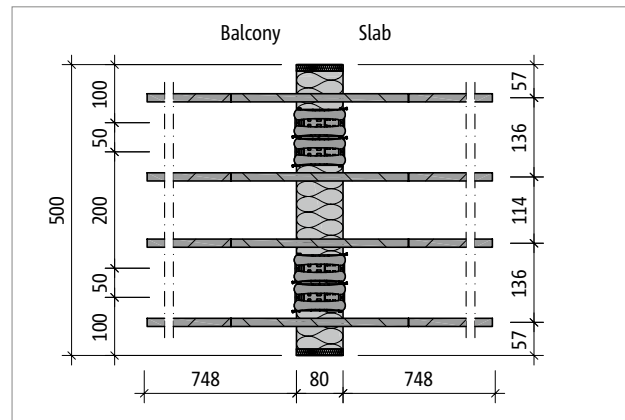


Fig. 110: Schöck Isokorb® T type Q-E-V7-L500: Product layout

### Product information

- For additional 2D and 3D product drawings contact our Design Support department.
- Observe min. height  $H_{min}$  Schöck Isokorb® T type Q-E, Q-E-Z.
- Schöck Isokorb® T type Q-E can be planned in combination with Schöck IDock®, see Schöck IDock® technical information.
- Schöck Isokorb® T type Q-E in lengths L250 and L500 with lateral fire protection boards

Product description

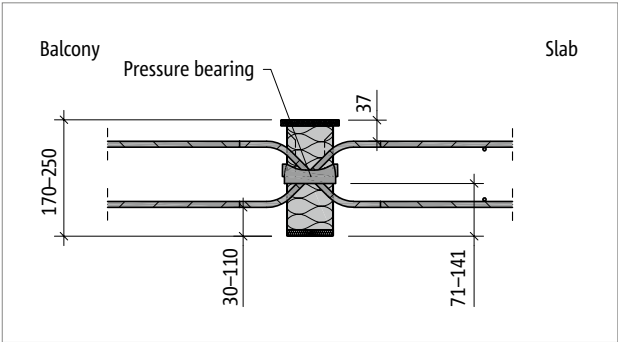


Fig. 111: Schöck Isokorb® T type Q-E-VV5: Product section

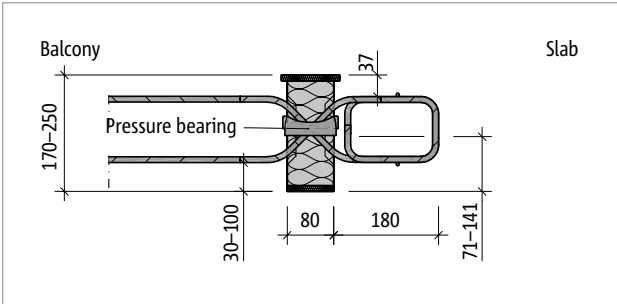


Fig. 112: Schöck Isokorb® T type Q-E-W-VV5: Product section

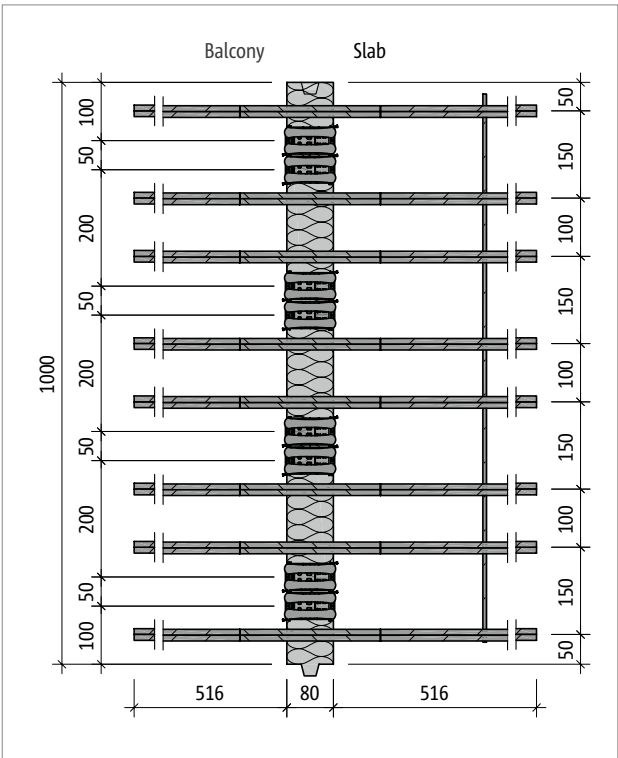


Fig. 113: Schöck Isokorb® T type Q-E-VV5: Product layout

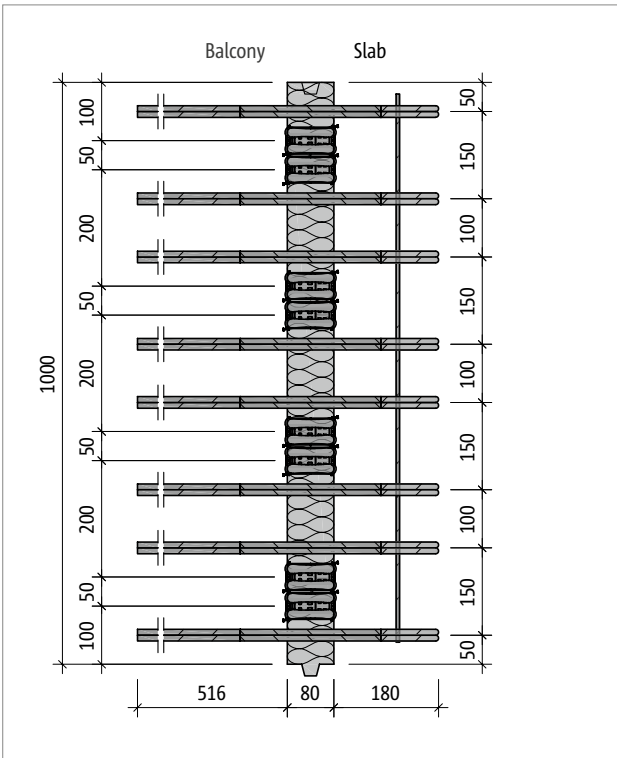


Fig. 114: Schöck Isokorb® T type Q-E-W-VV5: Product layout

T  
type Q-E

Reinforced concrete – reinforced concrete

## Product description

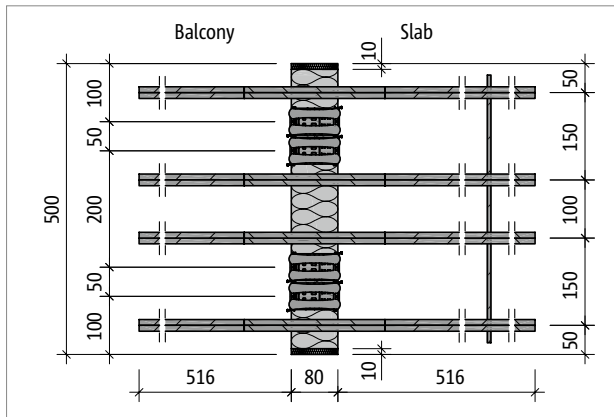


Fig. 115: Schöck Isokorb® T type Q-E-VV5: Product layout; lateral fire protection boards

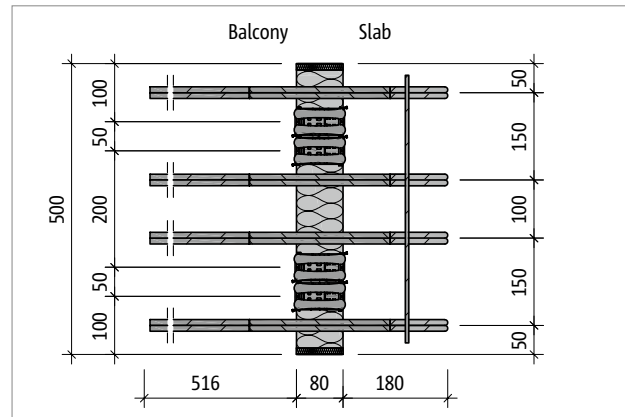


Fig. 116: Schöck Isokorb® type Q-E-W-VV5: Product layout

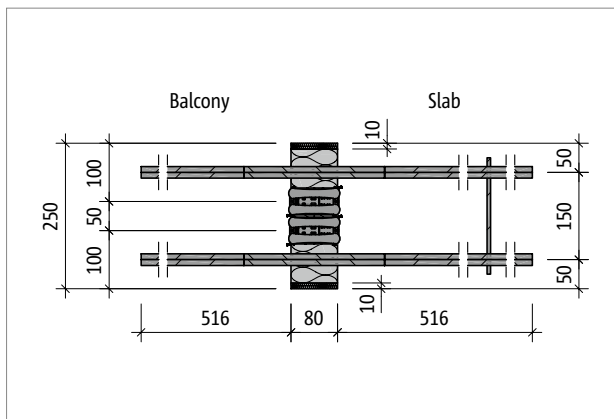


Fig. 117: Schöck Isokorb® T type Q-E-VV5: Product layout; lateral fire protection boards

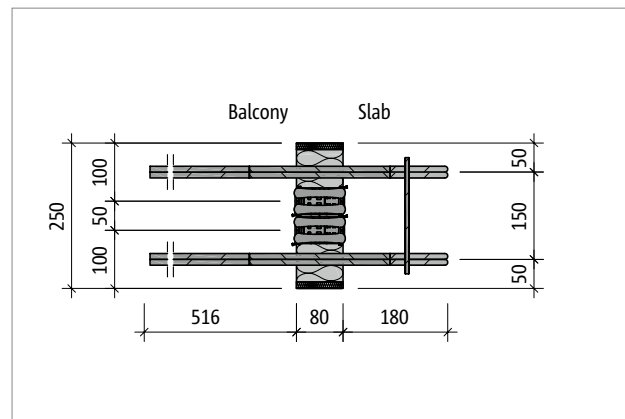


Fig. 118: Schöck Isokorb® T type Q-E-W-VV5: Product layout

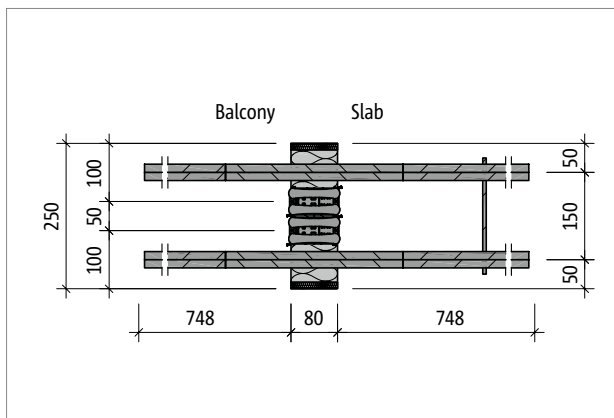


Fig. 119: Schöck Isokorb® T type Q-E-VV7: Product layout

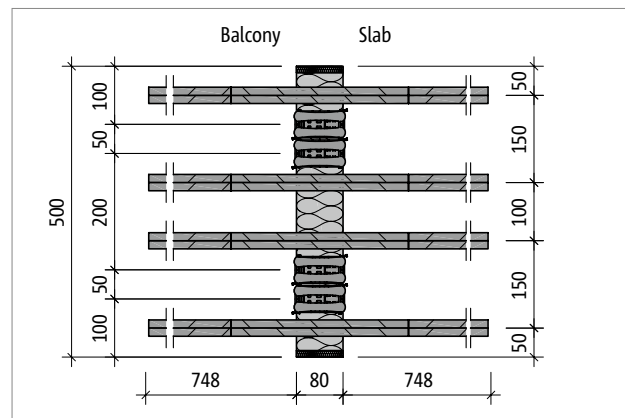


Fig. 120: Schöck Isokorb® T type Q-E-VV7: Product layout

### Product information

- For additional 2D and 3D product drawings contact our Design Support department.
- Observe min. height  $H_{min}$  Schöck Isokorb® T type Q-E-VV, Q-E-W-VV.
- Schöck Isokorb® T type Q-E in lengths L250 and L500 with lateral fire protection boards



## On-site reinforcement

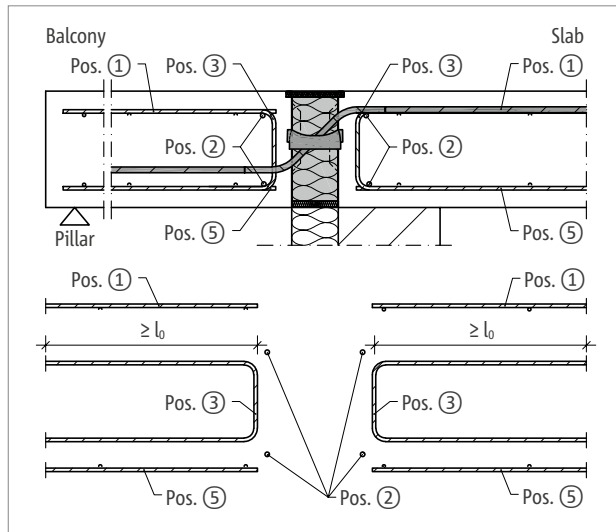


Fig. 121: Schöck Isokorb® T type Q-E-V: On-site reinforcement

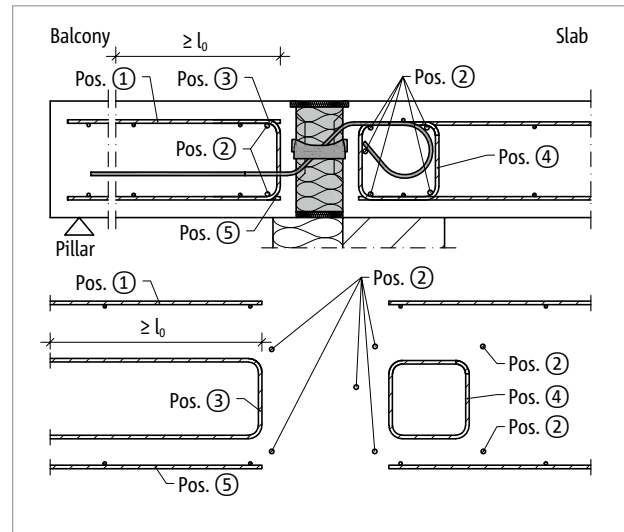


Fig. 122: Schöck Isokorb® T type Q-E-W-V: On-site reinforcement

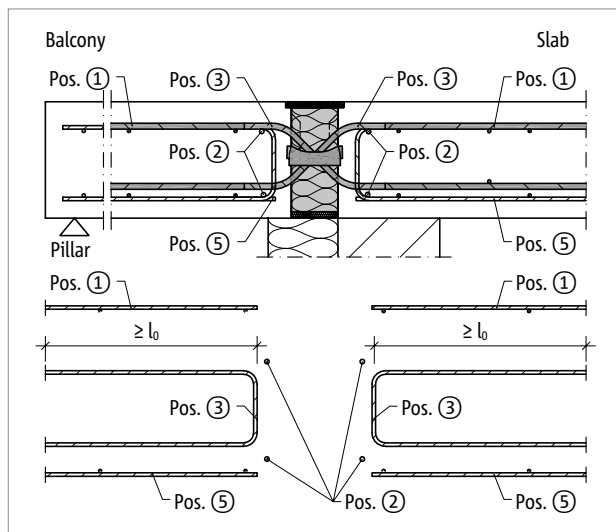


Fig. 123: Schöck Isokorb® T type Q-E-VV: On-site reinforcement

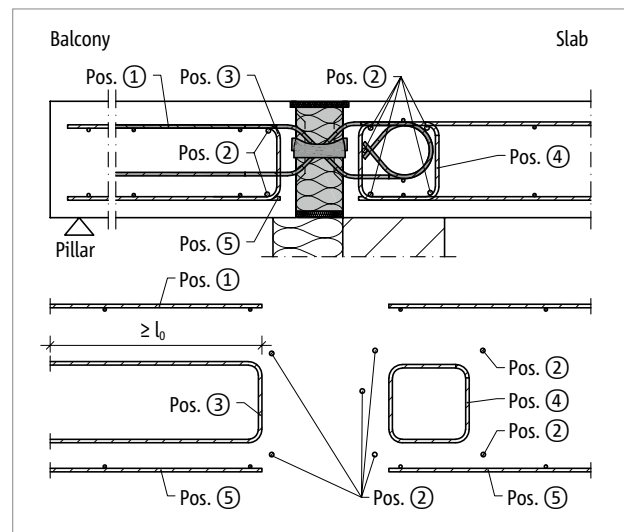


Fig. 124: Schöck Isokorb® type Q-E-W-VV: On-site reinforcement

T  
type Q-E

Reinforced concrete – reinforced concrete

On-site reinforcement

Schöck Isokorb® T type Q-T, Q-T-Z, Q-E, Q-E-Z 3.0		Q-T-V1 Q-T-VV1 Q-T-Z-V1 Q-T-Z-VV1	Q-T-V2 Q-T-VV2 Q-T-Z-V2 Q-T-Z-VV2	Q-E-V3 Q-E-VV3 Q-E-Z-V3 Q-E-Z-VV3	Q-E-V4 Q-E-VV4 Q-E-Z-V4 Q-E-Z-VV4
On-site reinforcement for	Location	Floor (XC1) concrete strength class ≥ C25/30 Balcony (XC4) concrete strength class ≥ C25/30			
Overlapping reinforcement					
Pos. 1	Balcony/floor side	acc. to the specifications of the structural engineer			
Steel bars along the insulation joint					
Pos. 2	Balcony/floor side	acc. to the specifications of the structural engineer			
Vertical reinforcement					
Pos. 3 [mm²/m]	Balcony/floor side	80	120	160	284
Lapping reinforcement					
Pos. 5	Balcony/floor side	necessary in the tension zone, as specified by the structural engineer			
Side reinforcement at the free edge					
Pos. 6		Edging as per SS-EN 1992-1-1 (EC2), 9.3.1.4			

Schöck Isokorb® T type Q-E, Q-E-Z 3.0		Q-E-V5, Q-E-Z-V5, Q-E-VV5, Q-E-Z-VV5	Q-E-V6, Q-E-Z-V6, Q-E-VV6, Q-E-Z-VV6	Q-E-V7, Q-E-Z-V7, Q-E-VV7, Q-E-Z-VV7
On-site reinforcement for	Location	Floor (XC1) concrete strength class ≥ C25/30 Balcony (XC4) concrete strength class ≥ C25/30		
Overlapping reinforcement				
Pos. 1	Balcony/floor side	acc. to the specifications of the structural engineer		
Steel bars along the insulation joint				
Pos. 2	Balcony/floor side	acc. to the specifications of the structural engineer		
Vertical reinforcement				
Pos. 3 [mm²/m]	Balcony/floor side	444	640	871
Lapping reinforcement				
Pos. 5	Balcony side	necessary in the tension zone, as specified by the structural engineer		
Side reinforcement at the free edge				
Pos. 6		Edging as per SS-EN 1992-1-1 (EC2), 9.3.1.4		

T  
type Q-E

## On-site reinforcement

Schöck Isokorb® T type Q-T, Q-T-W, Q-E, Q-E-W 3.0		Q-T-W-V1 Q-T-W-VV1 Q-T-Z-W-V1 Q-T-Z-W-VV1	Q-T-W-V2 Q-T-W-VV2 Q-T-Z-W-V2 Q-T-Z-W-VV2	Q-E-W-V3 Q-E-W-VV3 Q-E-Z-W-V3 Q-E-Z-W-VV3	Q-E-W-V4 Q-E-W-VV4 Q-E-Z-W-V4 Q-E-Z-W-VV4	Q-E-W-V5 Q-E-W-VV5 Q-E-Z-W-V5 Q-E-Z-W-VV5
On-site reinforcement for	Location	Floor (XC1) concrete strength class ≥ C25/30 Balcony (XC4) concrete strength class ≥ C25/30				
Overlapping reinforcement						
Pos. 1	Balcony side	acc. to the specifications of the structural engineer				
Steel bars along the insulation joint						
Pos. 2	Balcony side	acc. to the specifications of the structural engineer				
Vertical reinforcement						
Pos. 3 [mm²/m]	Balcony side	80	120	160	284	444
Pos. 4	Floor side	acc. to the specifications of the structural engineer				
Lapping reinforcement						
Pos. 5	Balcony side	necessary in the tension zone, as specified by the structural engineer				
Side reinforcement at the free edge						
Pos. 6	Edging as per SS-EN 1992-1-1 (EC2), 9.3.1.4					

### **i** Information about on-site reinforcement

- Lapping of the reinforcement in the connecting reinforced concrete components must be applied as close as possible to the insulating element of the Schöck Isokorb®, the required concrete cover must be observed.
- The structural edging Pos. 6 should be selected so low that it can be arranged between the upper and lower reinforcement position.

# Application example reinforced concrete slab spanning in one direction

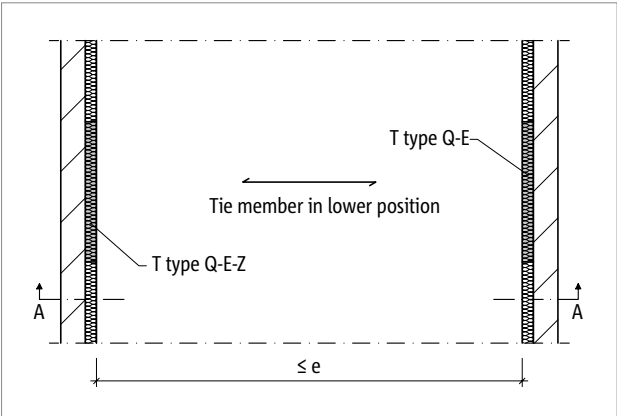


Fig. 125: Schöck Isokorb® T type Q-E, Q-E-Z: Reinforced concrete slab tensioned in a single axis

A type Q-E-Z, Q-E-Z-W without pressure bearing is to be arranged on one side for support free of constraint forces. A type Q-E, Q-E-W with pressure bearing is then required on the opposite side. In order to maintain the balance of forces, a tie member, which overlaps the Schöck Isokorb® shear force bars, is to reinforce between the T type Q-E-Z, Q-E-Z-W and T type Q-E, Q-E-W.

## 1 Expansion joints

- Expansion joint spacing e, see page 43.

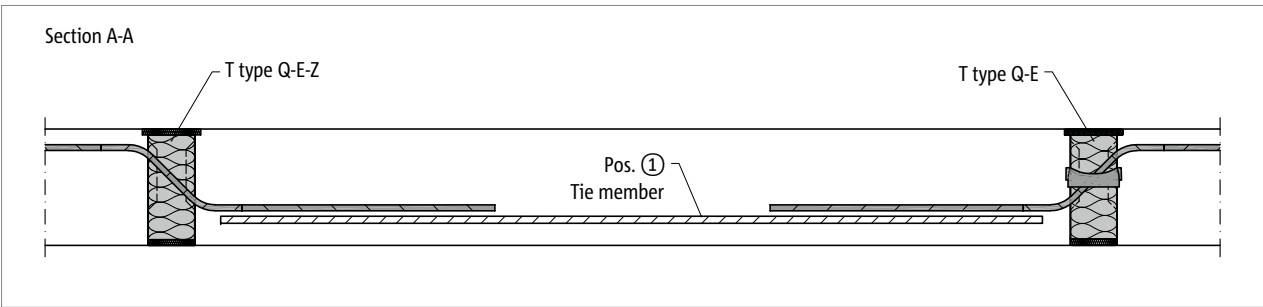


Fig. 126: Schöck Isokorb® T type Q-E, Q-E-Z: Section A-A; one-way reinforced concrete slab

Schöck Isokorb® T type Q-T, Q-T-Z, Q-T-W, Q-T-Z-W, Q-E, Q-E-Z, Q-E-W, Q-E-Z-W 3.0	Q-T-V1, Q-T-Z-V1 Q-T-W-V1 Q-T-Z-W-V1	Q-T-V2, Q-T-Z-V2 Q-T-W-V2 Q-T-Z-W-V2	Q-E-V3, Q-E-Z-V3 Q-E-W-V3 Q-E-Z-W-V3	Q-E-V4, Q-E-Z-V4 Q-E-W-V4 Q-E-Z-W-V4
On-site reinforcement for	Concrete strength class ≥ C25/30			
Tie				
Pos. 1	Ø 6/250 mm	Ø 6/166 mm	Ø 6/125 mm	Ø 8/125 mm

Schöck Isokorb® T type Q-E, Q-E-Z 3.0	Q-E-V5, Q-E-Z-V5, Q-E-W-V5, Q-E-Z-W-V5	Q-E-V6, Q-E-Z-V6	Q-E-V7, Q-E-Z-V7
On-site reinforcement for	Concrete strength class ≥ C25/30		
Tie			
Pos. 1	Ø 10/125 mm	Ø 12/125 mm	Ø 14/125 mm

## i Information about on-site reinforcement

- The required suspension reinforcement and the on-site slab reinforcement are not shown here.
- On site reinforcement for Schöck Isokorb® T type Q-E, see page 71.

## Application case recessed balcony

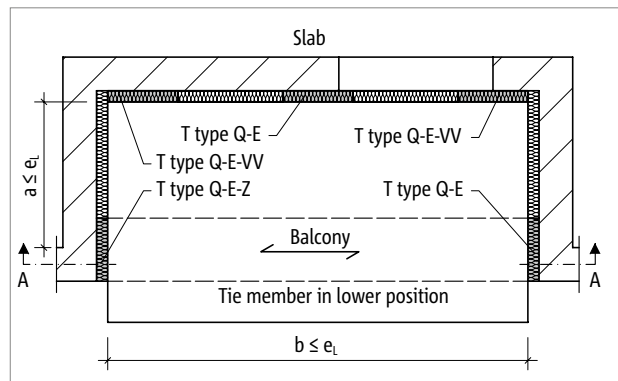


Fig. 127: Schöck Isokorb® T type Q-E-Z, Q-E: Layout of recessed balcony

A type Q-E-Z, Q-E-Z-W without pressure bearing is to be arranged on one side for support free of constraint forces. A type Q-E, Q-E-W with pressure bearing is then required on the opposite side. In order to maintain the balance of forces, a tie member, which overlaps the Schöck Isokorb® shear force bars, is to reinforce between the T type Q-E-Z, Q-E-Z-W and T type Q-E, Q-E-W.

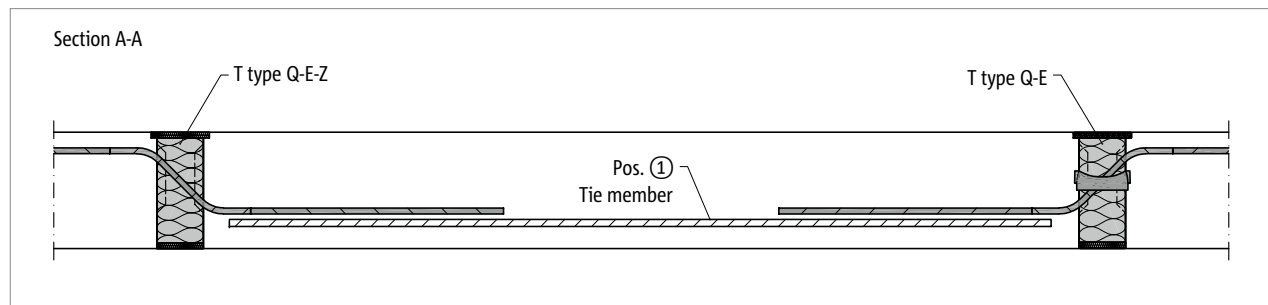


Fig. 128: Schöck Isokorb® T type Q-E, Q-E-Z: Section A-A; one-way reinforced concrete slab

Schöck Isokorb® T type Q-E, Q-E-Z 3.0		Q-E-V4, Q-E-Z-V4 Q-E-W-V4 Q-E-Z-W-V4	Q-E-V5, Q-E-Z-V5, Q-E-W-V5, Q-E-Z-W-V5	Q-E-V6, Q-E-Z-V6	Q-E-V7, Q-E-Z-V7
On-site reinforcement for	Isokorb® length [mm]	Floor (XC1) concrete strength class ≥ C25/30 Balcony (XC4) concrete strength class ≥ C25/30			
Tie					
Pos. 1	250	2 ∅ 8	2 ∅ 10	2 ∅ 12	2 ∅ 14
Pos. 1	500	4 ∅ 8	4 ∅ 10	4 ∅ 12	4 ∅ 14

Schöck Isokorb® T type Q-E, Q-E-Z 3.0		Q-E-V4, Q-E-Z-V4 Q-E-W-V4 Q-E-Z-W-V4	Q-E-V5, Q-E-Z-V5, Q-E-W-V5, Q-E-Z-W-V5	Q-E-V6, Q-E-Z-V6	Q-E-V7, Q-E-Z-V7
Fixed point separation recessed balcony		$e_L$ [m]			
$a, b \leq$	80	5.5	5.3	4.8	4.2

### **i** Information on tie bar

- The fixed point separations  $a, b$  are to be selected with  $a \leq e_L$  and  $b \leq e_L$ .
- The required suspension reinforcement and the on-site slab reinforcement are not shown here.

## Application example recessed balcony – symmetrical

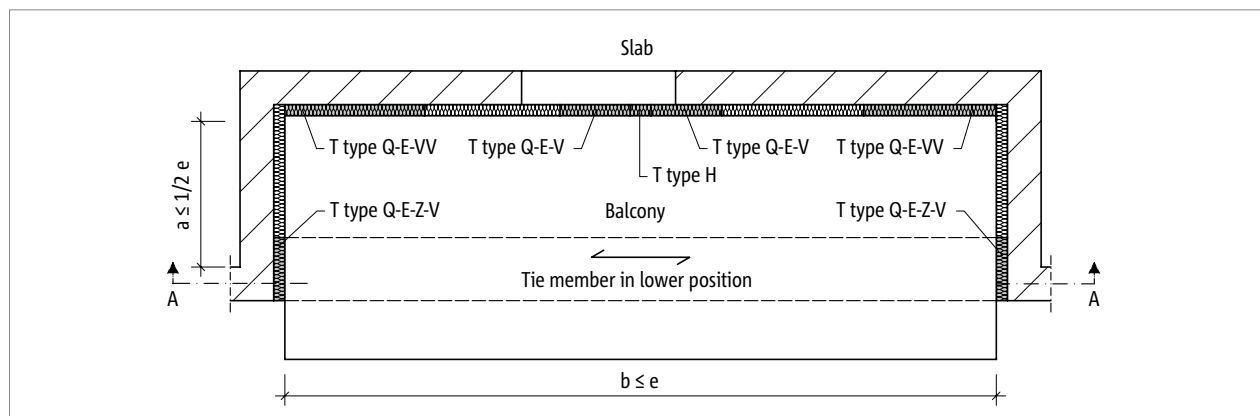


Fig. 129: Schöck Isokorb® T type Q-E-Z-V: Layout of recessed balcony - symmetrical

Under symmetrical loads, a Schöck Isokorb® T type Q-E-Z-V without pressure bearing is to be arranged on both sides for support free of constraint forces. In order to maintain the balance of forces a tie member, which overlaps the shear force bars of both Schöck Isokorb®, is to be used.

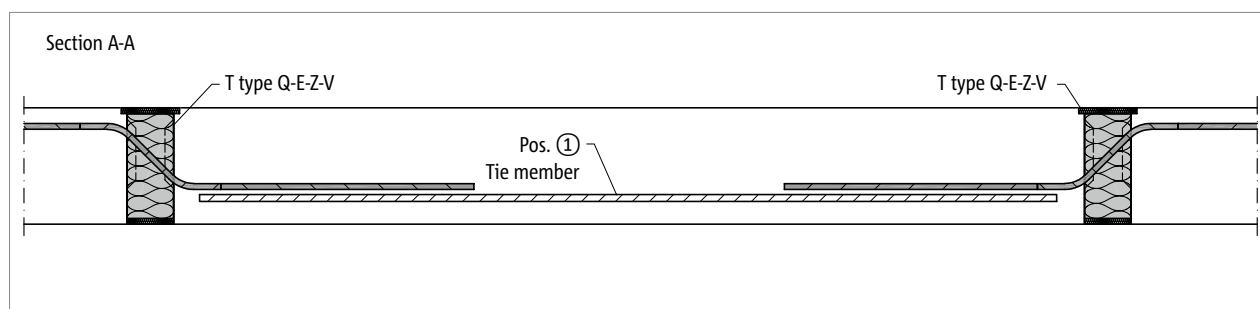


Fig. 130: Schöck Isokorb® T type Q-E-Z-V: Tie member connection

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-Z-W-V4	Q-E-Z-V5, Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
On-site reinforcement for	Isokorb® length [mm]	Floor (XC1) concrete strength class ≥ C25/30 Balcony (XC4) concrete strength class ≥ C25/30			
Tie					
Pos. 1	250	2 Ø 8	2 Ø 10	2 Ø 12	2 Ø 14
Pos. 1	500	4 Ø 8	4 Ø 10	4 Ø 12	4 Ø 14

Schöck Isokorb® T type Q-E-Z 3.0		Q-E-Z-V4, Q-E-Z-W-V4	Q-E-Z-V5, Q-E-Z-W-V5	Q-E-Z-V6	Q-E-Z-V7
Fixed point separation recessed balcony		$e$ [m]			
$b \leq$	80	11.0	10.6	9.5	8.3

### Recessed balcony

- The fixed point spacings  $a$ ,  $b$  are to be selected as  $a \leq 1/2 e$  and  $b \leq e$ .
- The required suspension reinforcement and the on-site slab reinforcement are not shown here.
- This arrangement of the Schöck Isokorb® (T type Q-E-Z opposing) is only suitable for symmetrical layouts only, if the asymmetrical load case is not relevant.
- The horizontal stability of the balcony is to be verified, possibly using a Schöck Isokorb® T type H.

## Type of bearing: supported

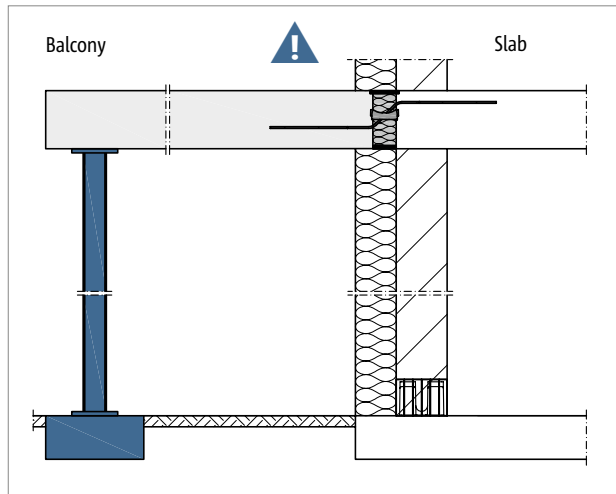


Fig. 131: Schöck Isokorb® T type Q-E-V, Q-E-W-V: Support required at all times

### **i** Supported balconies

The Schöck Isokorb® T type Q-E is developed for supported balconies. It transfers exclusively shear forces, no bending moments.

#### **⚠** Warning – omitting the pillars

- The balcony will collapse if not supported.
- At all stages of construction, the balcony must be supported with statically suitable pillars or supports.
- Even when completed, the balcony must be supported with statically suitable pillars or supports.
- A removal of temporary support is permitted only after installation of the final support.

## ✓ Check list

- ☐ Is the same height level planned for the balcony and floor in relation to the upper edges of the shell?
- ☐ For fully precast balconies, are any necessary gaps for the frontal transport anchors and rainwater downpipes for internal drainage taken into account?
- ☐ Has the right type of Schöck Isokorb® been selected for the static system? T Type Q-E is a connection purely for shear force (moment joint).
- ☐ Have the loads on the Schöck Isokorb® connection been specified at design level?
- ☐ Has the cantilevered system length or the system support width been taken as a basis?
- ☐ Have the requirements for on-site reinforcement of connections been defined in each case?
- ☐ Have the maximum permitted expansion joint spacings been taken into account with regards to the fixed points?
- ☐ Has the danger warning regarding a missing support been included in the construction drawings?
- ☐ Have the fire protection requirements been clarified?
- ☐ Is the required component geometry present with the connection to a floor or a wall? Is a special design required?
- ☐ Have existing horizontal loads e.g. from wind pressure been taken into account as planned? Are additional Schöck Isokorb® T type H required for this?
- ☐ Has a Schöck Isokorb® T type Q-E-Z been selected for a connection free of constraint forces for 2- or 3-sided support?
- ☐ Has a soft elastic joint been taken into account between the upper edge of the facing shell and the balcony?
- ☐ Is the length  $e_L < b \leq e$  for the recessed balcony application example? Then the Schöck Isokorb® T type Q-E-Z without pressure bearings should be arranged on both sides of the tie member. The horizontal stability is to be verified, possibly with a Schöck Isokorb® T type H-VV-NN.