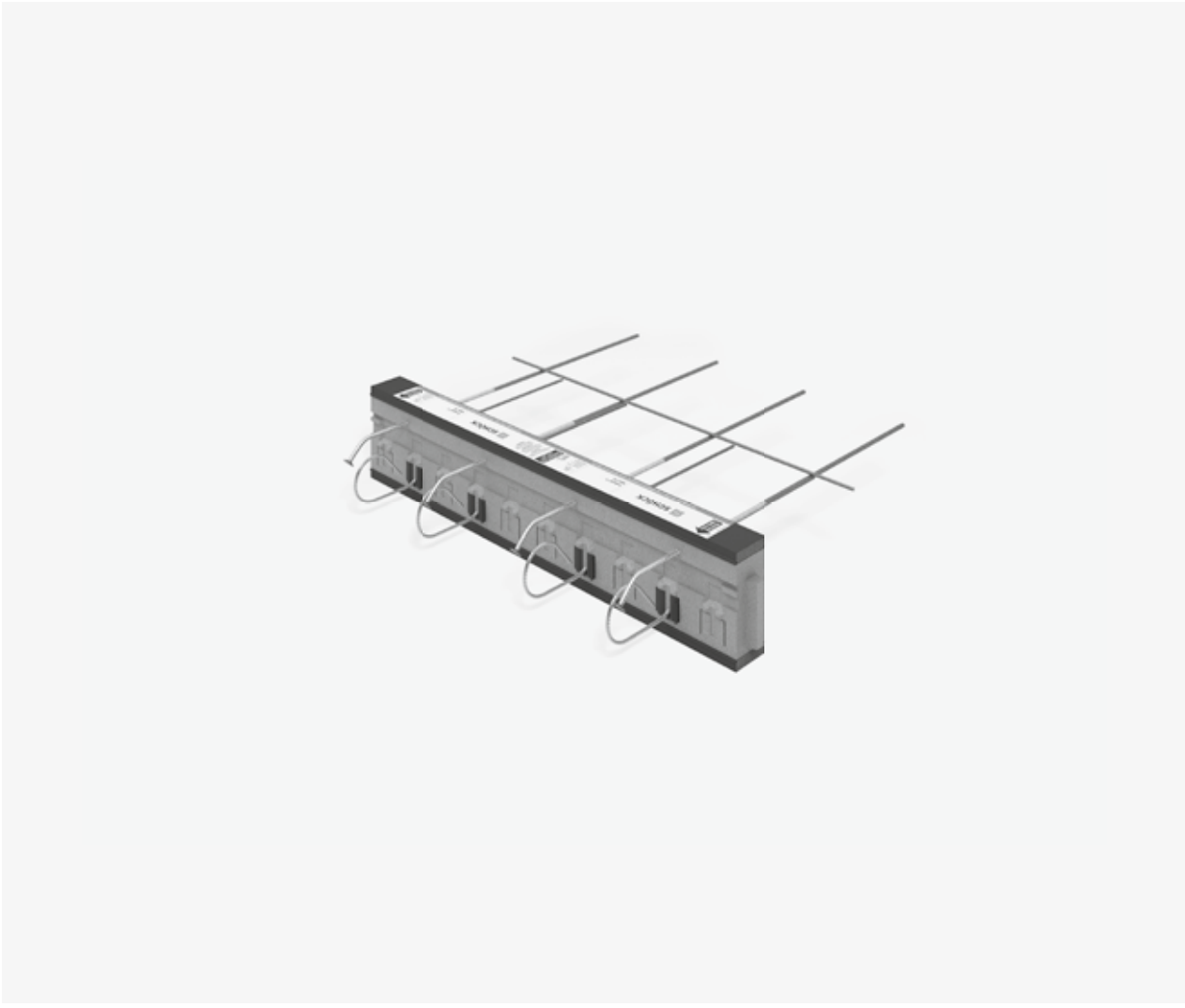
Schöck Isokorb® T type CO



Schöck Isokorb® T Type CO
Load-bearing thermal insulation element for slab edge & corbels. The element transfers positive shear forces and normal forces.

Assembly Section Details | Element Arrangement

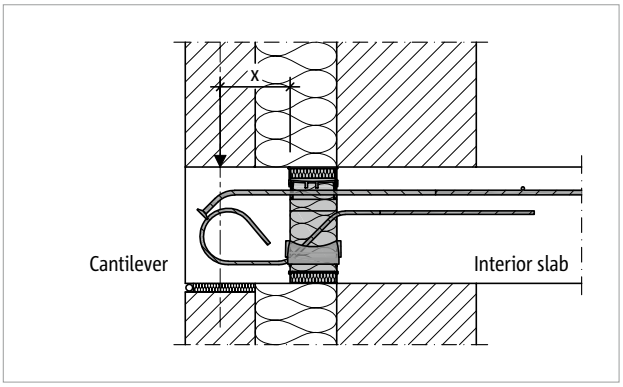


Fig. 1: Schöck Isokorb® T Type CO: Corbel with faced masonry

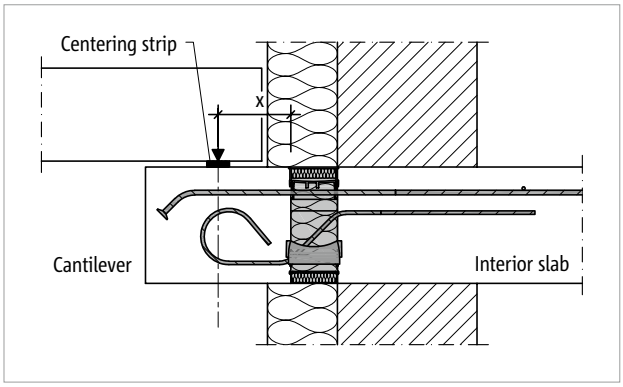


Fig. 2: Schöck Isokorb® T Type CO: Connection of a console as floor support; centring battens prevent a displacement of the load application point

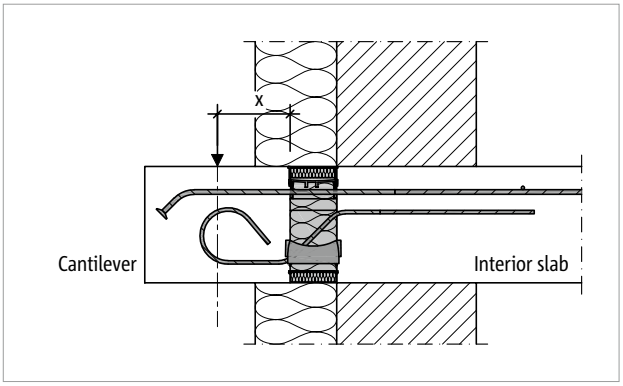


Fig. 3: Schöck Isokorb® T Type CO: Continuous Cornice

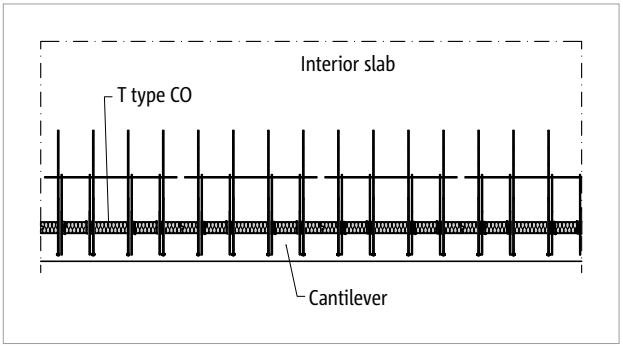


Fig. 4: Schöck Isokorb® T Type CO, Z: Corbel

Position of Schöck Isokorb®

For optimal thermal performance the Schöck Isokorb® should be aligned with the insulation layer.

Orientation of Schöck Isokorb®

- The Schöck Isokorb® does not have a symmetrical design in all cases.
- Ensure proper installation orientation as shown in the cross-section view on the design drawings and product labels.

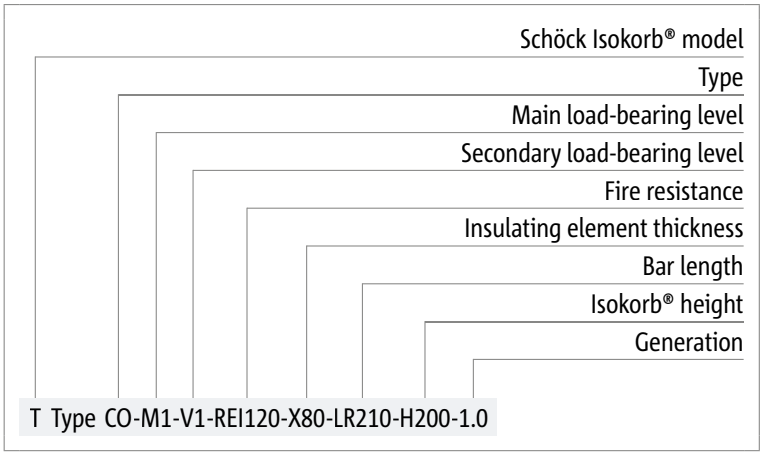
Notes

- If the Schöck Isokorb® is used in precast concrete construction, a cast-in-place strip of concrete (width = bar length from insulating element) must be allowed for sufficient connection bar anchorage.

Type Designation

Type designation

The following product naming system is used to specify the attributes of the Schöck Isokorb® product as required in the structural design. This naming system ensures that the product is manufactured in accordance with the required specification. There is also a short-form of each product name to facilitate recognition of the product on the construction site during installation. Every Schöck Isokorb® product comes with both its full production designation and short-form name printed on the label on each unit to ensure the product type is clearly represented.



Product Description

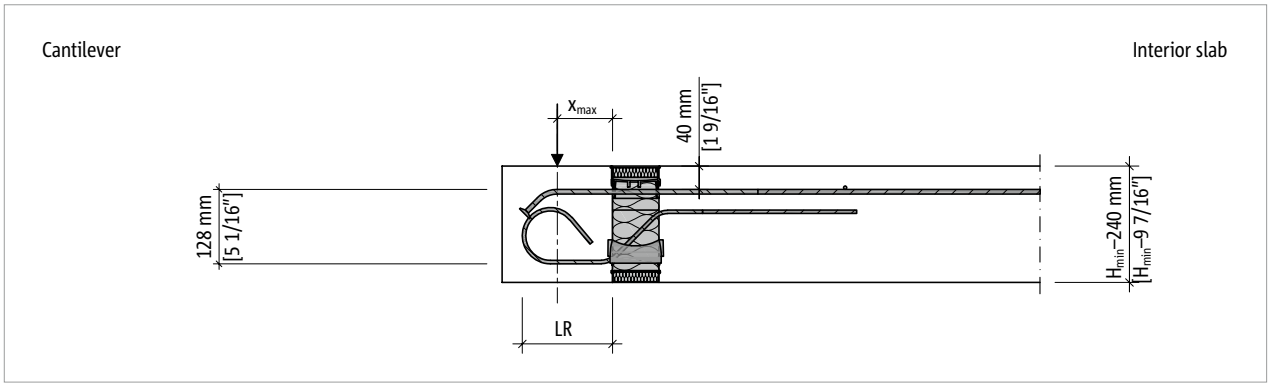


Fig. 5: Schöck Isokorb® T Type CO-...-LR160: Product cross-section

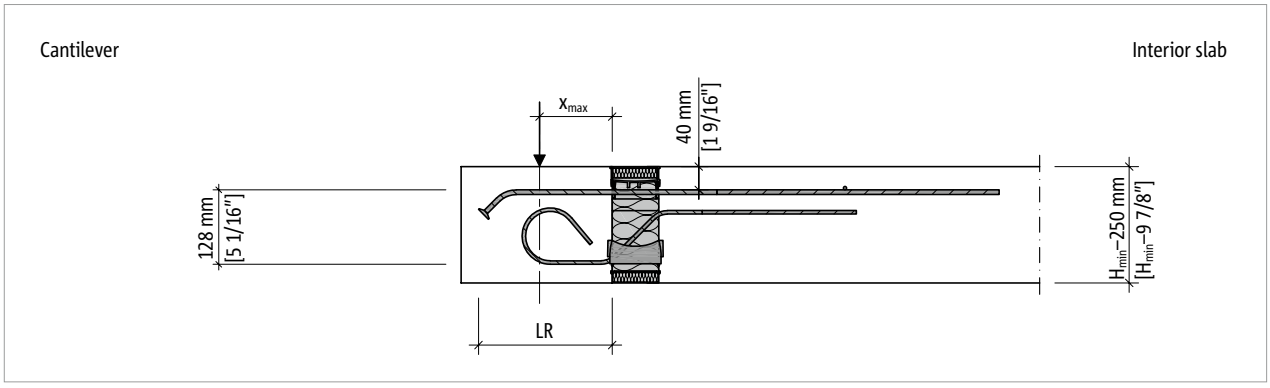


Fig. 6: Schöck Isokorb® T Type CO-...-LR180 to LR230: Product cross-section

Schöck Isokorb® T Type CO 1.0	M1-V1-LR160	M1-V1-LR180	M1-V1-LR210	M1-V1-LR230
Placement with	Isokorb® length [mm]			
	1000	1000	1000	1000
Isokorb® length [in]	3'-3 3/8"	3'-3 3/8"	3'-3 3/8"	3'-3 3/8"
Tension bars	4 ⌀ 8	4 ⌀ 8	4 ⌀ 8	4 ⌀ 8
Shear force bars	4 ⌀ 6	4 ⌀ 6	4 ⌀ 6	4 ⌀ 6
Pressure bearing [piece]	4	4	4	4
Maximum distance x_{max} [mm]	90	100	115	125
Maximum distance x_{max} [in]	3 9/16"	3 15/16"	4 1/2"	4 15/16"
Anchorage length LR [mm]	160	180	210	230
Anchorage length LR [in]	6 5/16"	7"	8 1/4"	9"
H_{max} [mm]	240	250	250	250
H_{max} [in]	9 1/2"	9 7/8"	9 7/8"	9 7/8"

Notes

- The Schöck Isokorb® consists of metric components.
- Reinforcement bars ⌀6 correspond to 1/4" diameter, approximately
- Reinforcement bars ⌀8 correspond to 5/16" diameter, approximately

Product Description

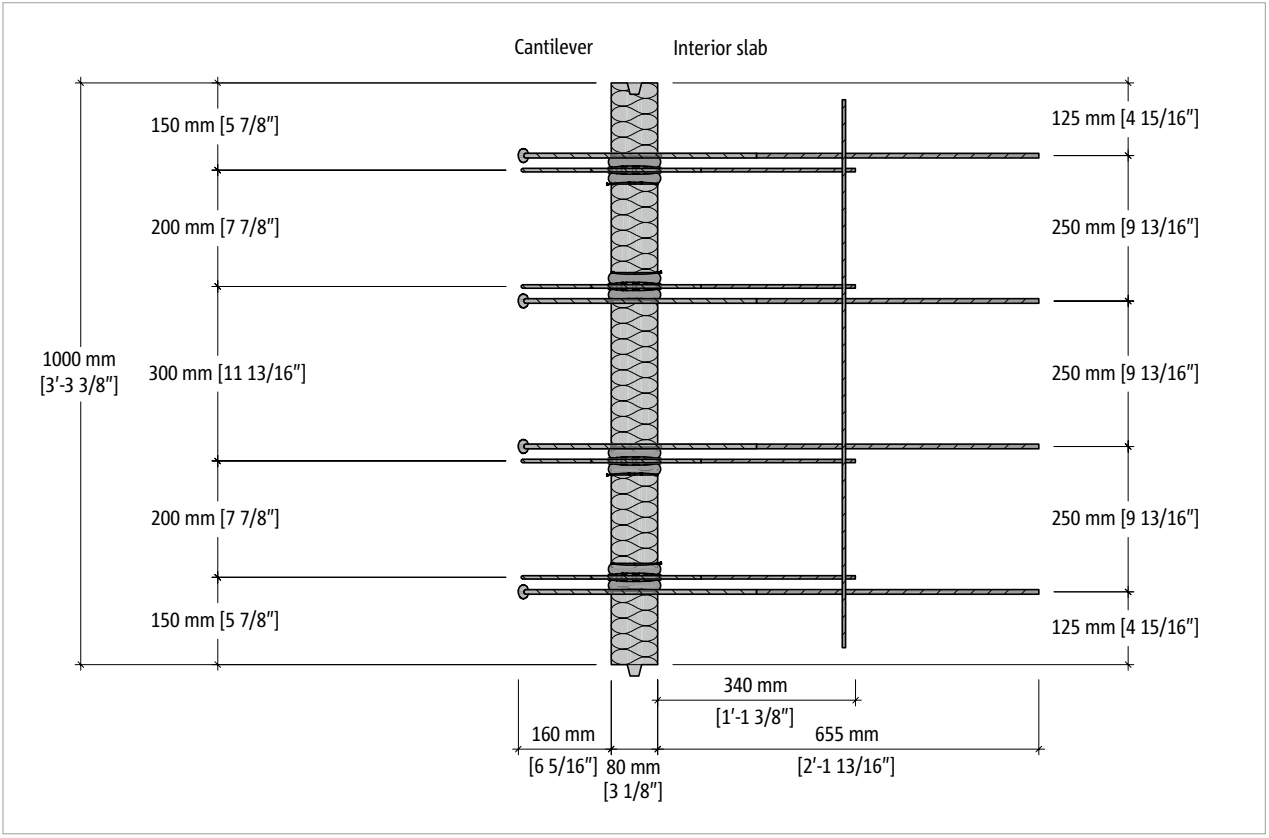


Fig. 7: Schöck Isokorb® T Type CO-...-LR160: Top view of the product

Product Description

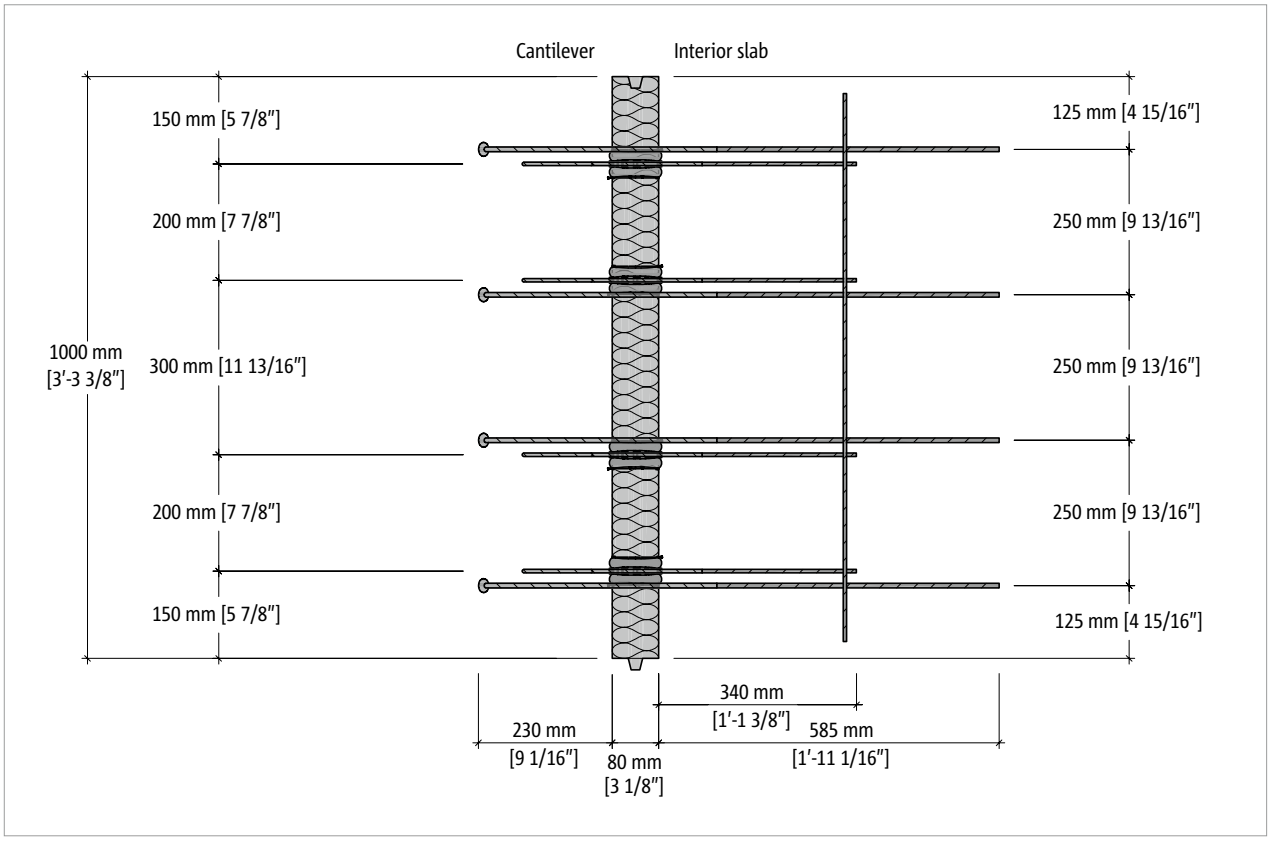


Fig. 8: Schöck Isokorb® T Type CO-...-LR230: Top view of the product

Product information

- Download further product plans and cross-sections at www.schoeck.com/en-us/cad-bim

Strength Capacity

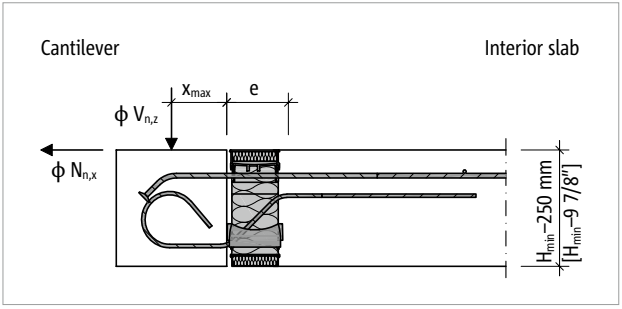


Fig. 9: Schöck Isokorb® T Type CO: Distance of the load application point x (load distance point)

Schöck Isokorb® T Type CO 1.0			M1-V1	
max. load distance with	[mm]	[in]	Concrete Strength ≥ 27.5 MPa (4,000 psi)	
			x_{max} [mm]	x_{max} [in]
Anchorage length LR	160	6 5/16"	90	3 9/16"
	180	7"	100	3 15/16"
	210	8 1/4"	115	4 1/2"
	230	9"	125	4 15/16"

Schöck Isokorb® T Type CO 1.0			M1-V1	
Distance e for	[mm]	[in]	Concrete Strength ≥ 27.5 MPa (4,000 psi)	
			e [mm]	e [in]
Height	180	7"	86	3 3/8"
	190	7 1/2"	96	3 3/4"
	200	7 7/8"	106	4 3/16"
	210	8 1/4"	116	4 9/16
	220	8 5/8"	126	4 15/16
	230	9"	136	5 3/8"
	240	9 1/2"	146	5 3/4"
	250	9 7/8"	156	6 1/8"

Notes on design

- x: Maximum distance of the load application point
- e: Horizontal distance to the section at which the internal forces are calculated.

Strength Capacity

Schöck Isokorb® T Type CO 1.0			M1-V1	
Design Values with	[mm]	[in]	Concrete Strength ≥ 27.5 MPa (4,000 psi)	
			ϕM_n [kNm/m]	ϕM_n [kip-ft/ft]
Isokorb® height	180	7″	7.2	1.6
	190	7 1/2″	7.7	1.7
	200	7 7/8″	8.0	1.8
	210	8 1/4″	8.4	1.9
	220	8 5/8″	8.7	2.0
	230	9″	9.1	2.0
	240	9 1/2″	9.4	2.1
	250	9 7/8″	9.8	2.2
			ϕV_n [kN/m]	ϕV_n [kips/ft]
	180–250	7″–9 7/8″	34.7	2.37
			ϕN_n [kN/m]	ϕN_n [kips/ft]
	180–250	7″–9 7/8″	≤ ±1/10 $V_{Ed,z}$	≤ ±1/10 $V_{Ed,z}$

Notes on design

- The allowable normal force $\phi N_{n,x}$ is dependent on the actual effective shear force $V_{a,z}$
- The formula $M_{a,y} = V_{a,z} \times (x + e) \leq \phi M_{n,y}$ is used to determine the bending moment.

On Site Reinforcement

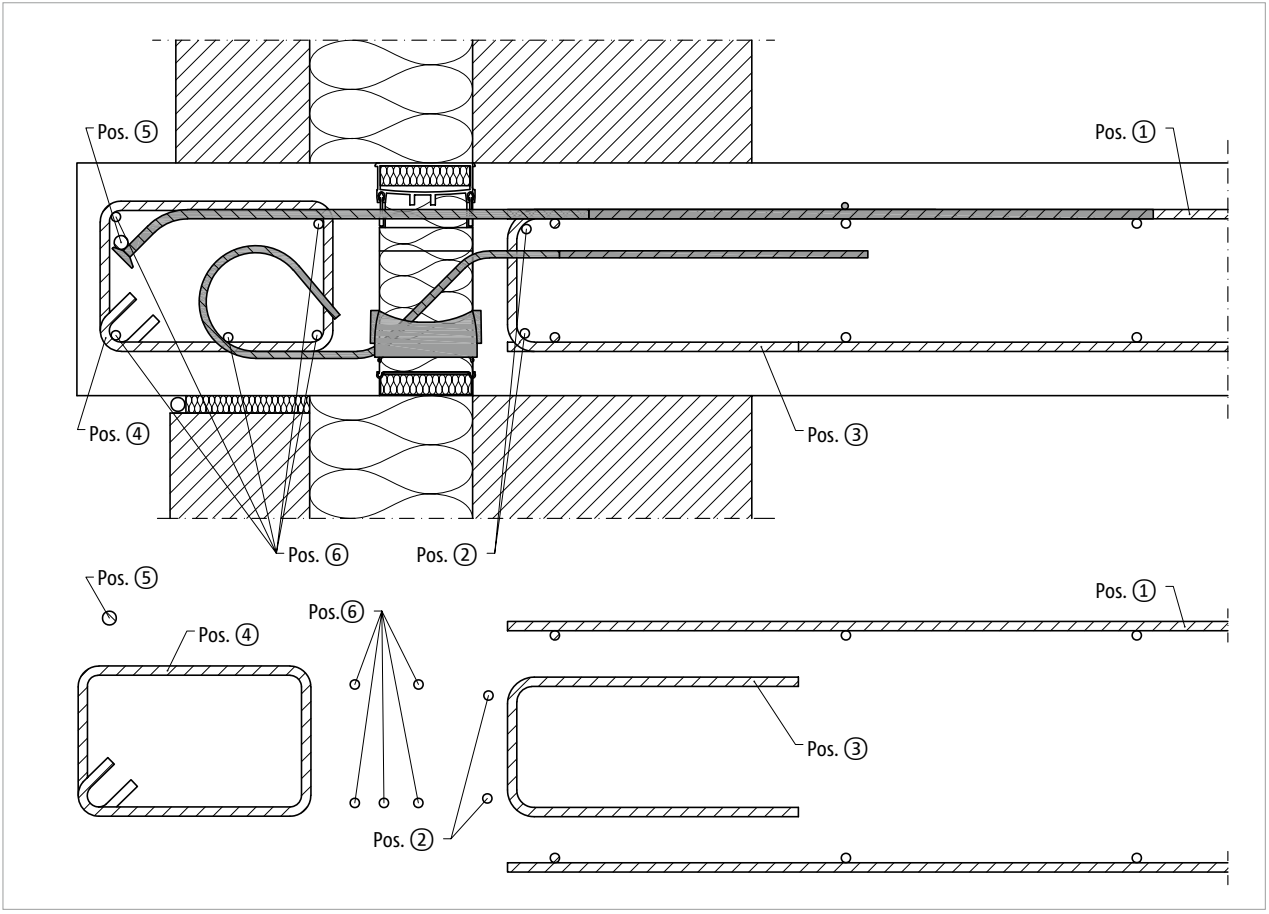


Fig. 10: Schöck Isokorb® Type CO: Cross section of recommended cast-in-place reinforcement

On Site Reinforcement

The table below suggests cast-in-place connective reinforcement for 100% section strength considering a minimum concrete strength of 27.5 MPa [4,000 psi]. The existing slab reinforcement can be taken into account for the recommended reinforcement of connections with Schöck Isokorb®. The required reinforcement cross section area for Pos. 1 depends on the bar diameter of the reinforcement bar or mesh.

T Type CO 1.0		M1-V1
On-site reinforcement	Location	Concrete Strength ≥ 27.5 MPa (4,000 psi)
Overlapping reinforcement		
Pos. 1	Roof Slab Side	4 × #3 @ 250 mm
Pos. 1	Roof Slab Side	[4 × #3 @ 9″]
Lap length		
l_0 [mm]	Roof Slab Side	530
l_0 [in]	Roof Slab Side	[20 7/8″]
Longitudinal Bars Parallel to Insulation		
Pos. 2	Roof Slab Side	2 × #3
Connecting Edge Bars		
Pos. 3	Roof Slab Side	4 × #3 @ 250 mm
Pos. 3	Roof Slab Side	[4 × #3 @ 9″]
Bracket		
Pos. 4	cantilever side	8 × #3 @ 125 mm
		[8 × #3 @ 5″]
Longitudinal Bars Parallel to Insulation		
Pos. 5	cantilever side	1 × #4
Longitudinal Bars Parallel to Insulation		
Pos. 6	cantilever side	5 × #3 or according to static requirements

Information about on-site reinforcement

- Pos. 1 must run as close as possible to the thermal insulation at both sides of Schöck Isokorb®, taking the required concrete cover into consideration.
- All free edges must be stiffened using structural U-bars as per Engineer of Record (EOR) specifications.
- The centerline distance of any pressure element from any free concrete edge, including expansion joints, must be at least 50 mm [2″].
- The centerline distance of any tension or shear bar from any free concrete edge, including expansion joints, must be at least 50 mm [2″].

Expansion Joint Spacing

Expansion joints (recommended spacing)

Expansion joints are recommended to protect balcony slabs from temperature cracking when they are continuous for more than a critical length. The expansion joint spacing shown below corresponds to a temperature difference of ΔT = 70 °C [126 °F].

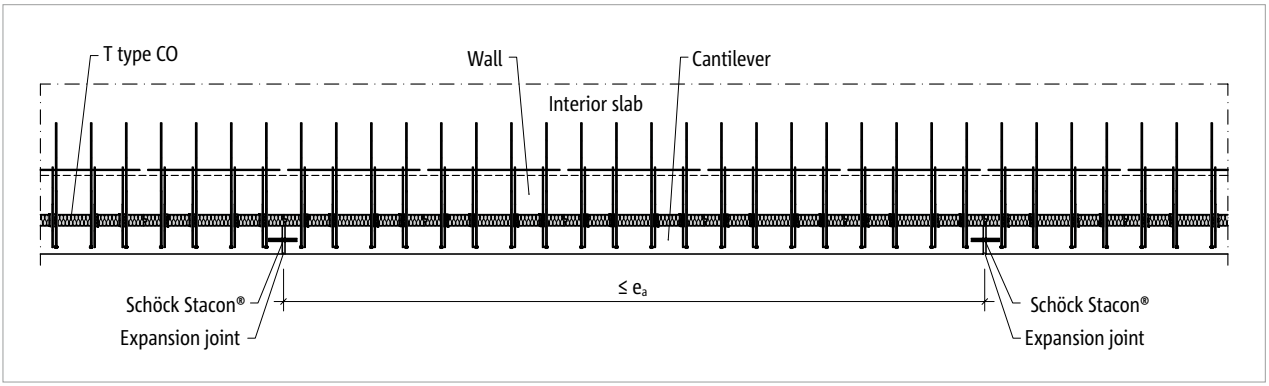


Fig. 11: Schöck Isokorb® Type CO: Maximum expansion joint spacing

Schöck Isokorb® T Type CO 1.0		M1-V1
Maximum distance for		e_a [m]
Insulation Thickness [mm]	80	13.5

Schöck Isokorb® T Type CO 1.0		M1-V1
Maximum distance for		e_a [ft in]
Insulation Thickness [mm]	3 1/8″	44′-3 1/2″

☑ Check List

- ☐ Are the maximum allowable expansion joint spacings taken into account?
- ☐ Have the requirements for on-site reinforcement of connections been defined in each case?