



**Punching reinforcement.**  
**Perfect solution for flat slabs.**

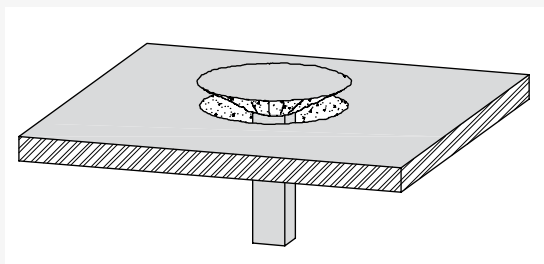


# Flat slabs. Cost-effective solution.



## Punching of flat slabs

The shear force capacity of flat slabs at the column connection is very limited. High loads can occur to a fatal punching failure. This can be avoided by Schöck Bole®.



**Perfect anchorage**  
Due to forged head on both ends of the stud.



**Reference flag**  
The flag at the first stud shows the exact description of the element.

To overcome the danger of punching failure in flat slabs and foundations, the Schöck Bole® system offers a very cost effective solution. The system is highly engineered, reliable and easy to install.

**None load-bearing weld**

The studs are only welded on spacer bars in order to ensure the distances.



**Software**

The user friendly design software enables a fast and simple dimensioning of the Schöck Bole®.

- design according to British Standard
- export of CAD drawings with dxf-format
- consideration of openings



**Simple installation**

The subsequent installation through the upper reinforcement layer is possible without problem



Schöck Bole® Type U



European technical assessed with CE-mark based on ETA-13/0076.

# Schöck Bole®.

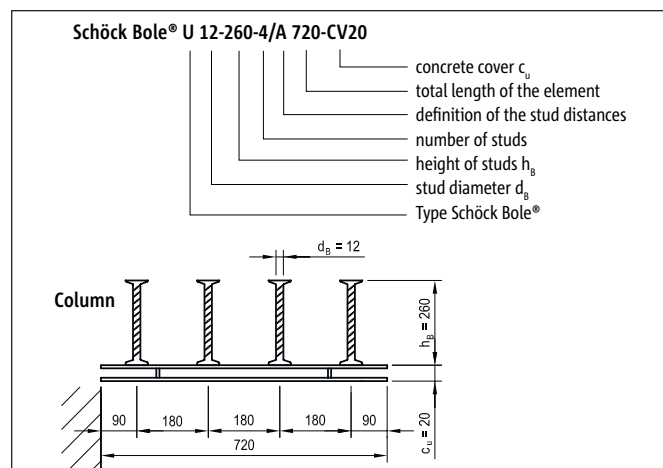
## Basic specifications.

Stud height**	Stud diameter $\varnothing$ mm*					
	10	12	14	16	20	25
130	X	X	–	–	–	–
140	X	X	–	–	–	–
150	X	X	–	–	–	–
160	X	X	X	X	–	–
170	X	X	X	X	–	–
180	X	X	X	X	–	–
190	X	X	X	X	X	X
200	X	X	X	X	X	X
210	X	X	X	X	X	X
220	X	X	X	X	X	X
230	X	X	X	X	X	X
240	X	X	X	X	X	X
250	X	X	X	X	X	X
260	–	X	X	X	X	X
270	–	–	–	X	X	X
280	–	–	–	X	X	X
290	–	–	–	X	X	X
300	–	–	–	X	X	X
310	–	–	–	X	X	X
320	–	–	–	X	X	X
330	–	–	–	X	X	X
340	–	–	–	X	X	X
350	–	–	–	X	X	X
360	–	–	–	X	X	X
370	–	–	–	–	X	X
380	–	–	–	–	X	X
390	–	–	–	–	X	X
400	–	–	–	–	X	X

\* yield strength  $\geq 500$  N/mm<sup>2</sup>, tensile strength  $\geq 550$  N/mm<sup>2</sup> (B500B)

\*\* further heights of studs available on request

Stud diameter	Head diameter	Stud cross section	Tensile yield strength	Stud height
$d_B$	$d_K$	$A_B$	$(A \cdot f_{yd})$	$h_B$
[mm]	[mm]	[mm <sup>2</sup> ]	[kN]	[mm]
10	30	79	34,4	$h_B = h - c_o - c_u$
12	36	113	49,2	
14	42	154	67,0	
16	48	201	87,4	h: slab thickness
20	60	314	136,6	$c_o$ : concrete cover $c_o$
25	75	491	213,6	$c_u$ : concrete cover $c_u$



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