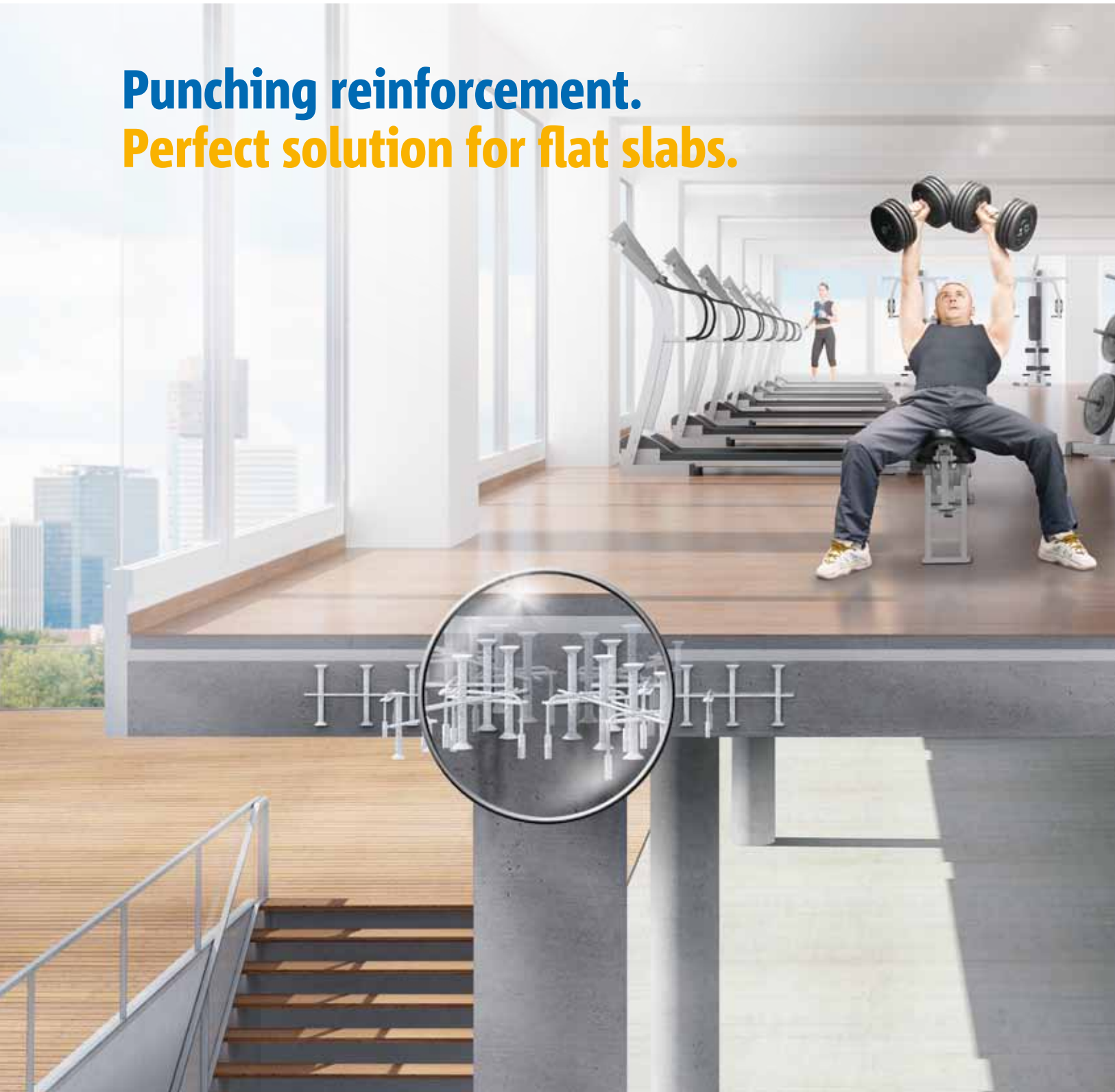


**Punching reinforcement.**  
**Perfect solution for flat slabs.**

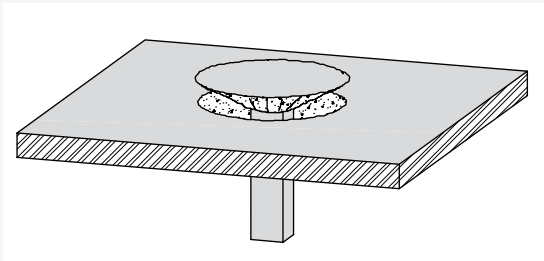


# Flat slabs. Cost-effective solution.



### 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.



**Information flag**  
At the first flag with exact description of the element.

To overcome the well-known danger of punching failure in flat slabs and foundations, the Schöck Bole system offers a very flexible solution. The combination of high planning reliability and user friendly installation enables the system to play a critical role in the reliable and economical stud rail concreting system.

**None load-bearing weld**

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



**Perfect anchoring**

Due to forged double head with 3-times the diameter from the bars.



**Tested and approved by different Institutes**

- e.g.
- University Cottbus
  - University Stuttgart
  - wide variety of tests in our own laboratory



**Simple installation**

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



Bole Standard, Bole U

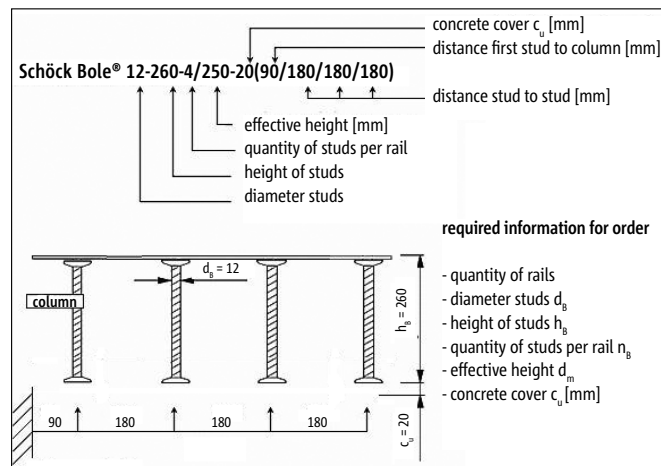
# Schöck Bole.

## 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	x
270	x	x	x	x	x	x
280	x	x	x	x	x	x
290	x	x	x	x	x	x
300	x	x	x	x	x	x
310	—	—	x	x	x	x
320	—	—	x	x	x	x
330	—	—	x	x	x	x
340	—	—	x	x	x	x
350	—	—	x	x	x	x
360	—	—	x	x	x	x
370	—	—	x	x	x	x
380	—	—	x	x	x	x
390	—	—	x	x	x	x
400	—	—	x	x	x	x

\* yield strength 500 MPa, tensile strength 550 MPa  
 \*\* other stud heights are available on request

Stud diameter	Head diameter	Stud cross section	Bearing capacity	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	34.1	$h_B = h - c_o - c_u$
12	36	113	49.2	
14	42	154	67.0	
16	48	201	87.5	h: slab thickness
20	60	314	136.7	$c_o$ : concrete cover
25	75	491	213.7	$c_u$ : concrete cover



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