

PHILIPPGROUP

PHILIPP Screw anchor



Transport and mounting systems for prefabricated building

■ Technical department

Our staff will be pleased to support your planning phase with suggestions for the installation and use of our transport and mounting systems for precast concrete construction.

■ Special designs

Customized to your particular needs.

■ Practical tests on site

We ensure that our concepts are tailored precisely to your requirements.

■ Inspection reports

For documentation purposes and your safety.

■ On-site service

Our engineers will be pleased to instruct your technicians and production personnel at your plant, to advise on the installation of precast concrete parts and to assist you in the optimisation of your production processes.

■ High safety level when using our products

Close cooperation with federal materials testing institutes (MTIs), and official approvals for the use of our products and solutions whenever necessary.

■ Software solutions

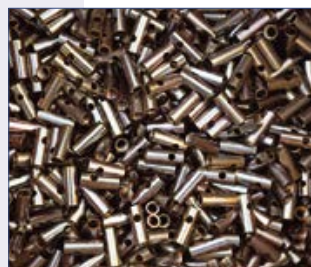
The latest design software, animated videos and CAD libraries can always be found under www.philipp-gruppe.de.

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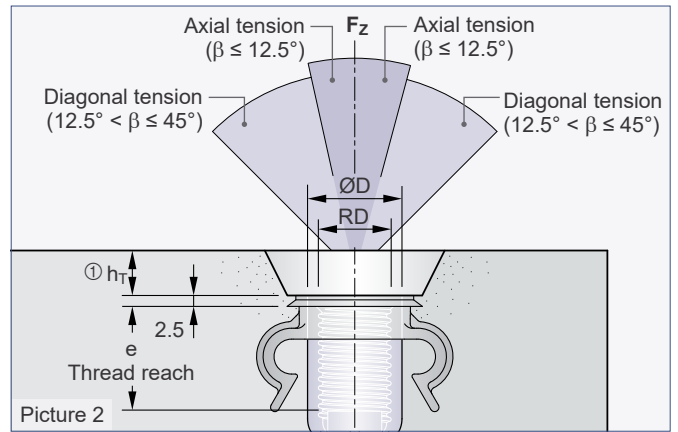
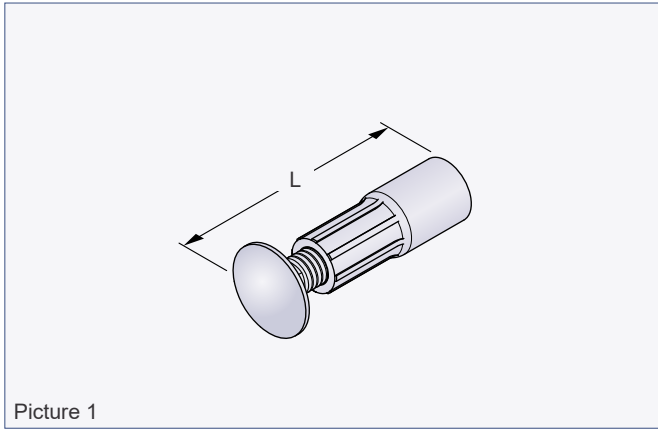


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PHILIPP Screw anchor



In general, the PHILIPP Screw anchor is used in slab-like and comparable concrete elements. The Screw anchor is part of the PHILIPP Transport anchor system and complies with the “Safety rules for transport anchors and systems for precast concrete units” (German Regulation DGUV 101-001). The use of Screw anchors requires the compliance with this Installation Instruction as well as the General Installation Instruction.

Both, the instructions for the belonging PHILIPP lifting devices and data sheets of the necessary PHILIPP accessories must be followed also. The anchor may only be used in combination with the mentioned PHILIPP lifting devices.

Screw anchors are designed for the transport of precast concrete units only. Multiple use within the transport chain (from production to installation of the unit) means no repeated usage. The Threaded transport anchor is not specified for a repeated usage (e.g. ballasts fro cranes) or a permanent fixation.



The EC Declaration of Conformity (DoC) of the Screw anchor is available on request or can be downloaded from our website www.philipp-group.de.



Table 1: Dimensions

Ref. no. ② galvanised	Type	Dimensions				
		RD	ØD [mm]	L [mm]	e [mm]	
67SA12	RD 12	12	15.0	60	22	
67SA14	RD 14	14	18.0	70	25	
67SA16	RD 16	16	21.0	80	27	
67SA18	RD 18	18	24.0	90	34	
67SA20	RD 20	20	27.0	100	35	
67SA24	RD 24	24	31.0	115	43	
67SA30	RD 30	30	39.5	150	56	

① Mind the embedding depth h_T of the corresponding recess former (picture 2).

② Also available in version stainless steel (Ref. no. 75SA__VA).



For transport anchors of size RD 36 - 52 for use in slab-like or comparable precast elements please refer to the Installation Instruction Compact anchor - short.



General notes

Materials

Screw anchors consist of an electro galvanized flat-head bolt with crimped-on insert. The threaded inserts are made of special high precision steel tubes and are galvanized according to common standards. This galvanization protects the anchor temporarily, from the storage at the producer site to the final installation in the concrete element.

Corrosion

In order to avoid contamination or damage to the concrete surface of the precast concrete element due to corrosion of the transport anchor (stream of rust or similar), the insert can be delivered in stainless steel alternatively. Here the cut surface of the reinforcement bar is protected by a special sealing against corrosion.

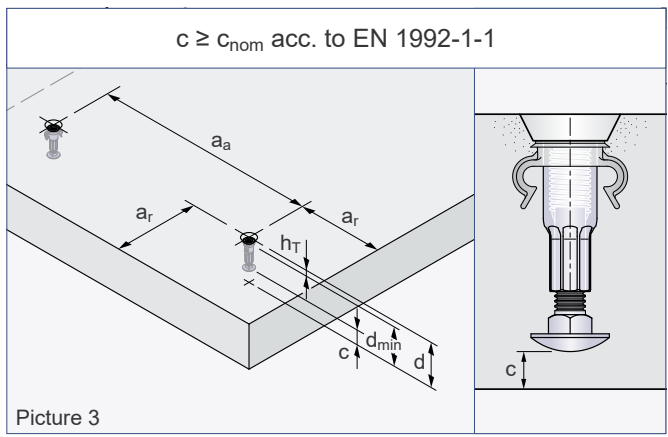
Concrete strength

At the time of the first lift the concrete must have a minimum strength f_{cc} acc. to table 2. Given concrete strengths f_{cc} are cube compression strengths at the time of the first lifting.

Element thicknesses, centre and edge distances

The installation and position of threaded transport anchors in precast concrete elements require minimum element dimensions and centre/edge distances for a safe load transfer. Table 2 shows the minimum thickness d of a unit which covers the load directions axial and diagonal tension.

! If the Screw anchor is installed recessed (e.g. by using a recess former), the minimum thickness d_{min} has to be increased by h_T (picture 3).

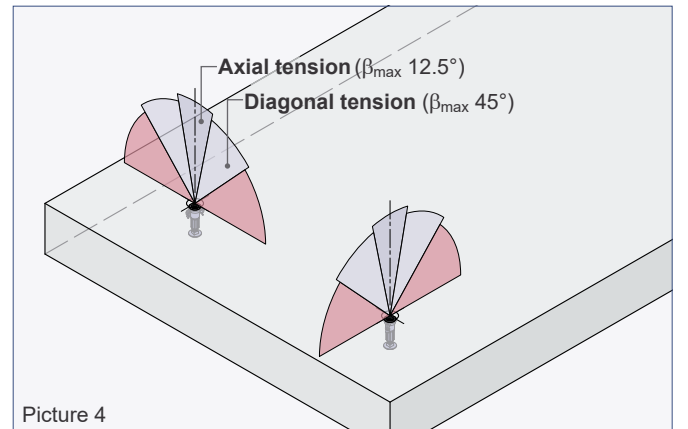


Picture 3

Load directions

The Screw anchor can only be used for axial and diagonal tension exclusively.

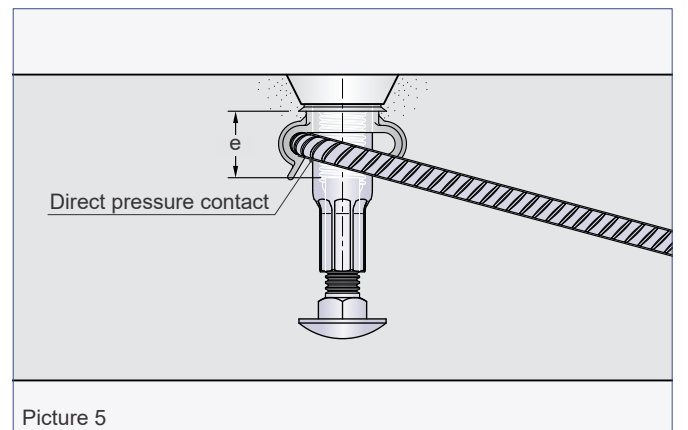
! Lateral tension is not allowed within the whole transport chain. This also applies to a diagonal tension with angle β more than 45° !



Picture 4

Reinforcement instructions

Additional reinforcement for diagonal tension has to be installed with pressure contact to the anchor insert. The position of the direct pressure contact must be within the thread reach e of the insert (see picture 5). By using the Marking ring with clip (74KR__CLIP) this position is guaranteed.



Picture 5

Permissible load bearing capacities and boundary conditions

Axial tension

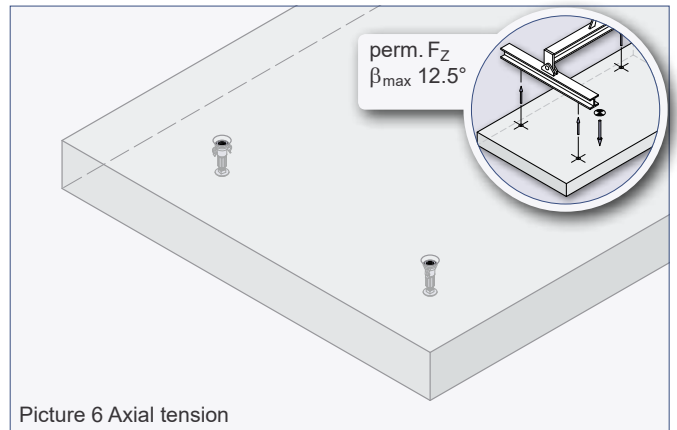
No minimum reinforcement is required for the use of the Screw anchors.

Diagonal tension

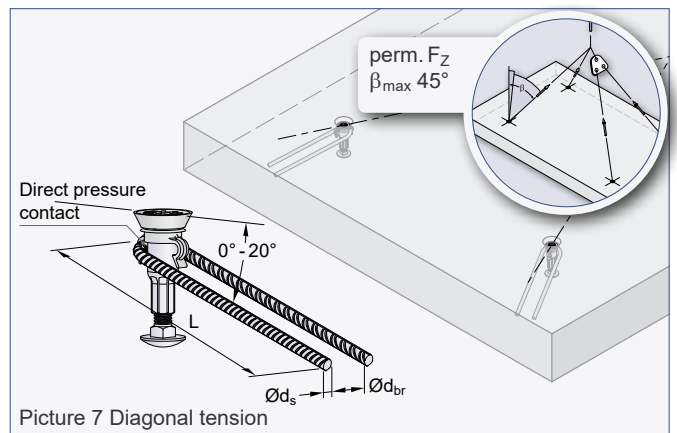
If the Screw anchor is used under diagonal tension $\beta > 12.5^\circ$ an additional reinforcement according to table 2 is required.

Here the reinforcement for diagonal tension is placed contrarily to the tensile direction (picture 7) and must have direct pressure contact to the anchor insert in the peak of its bending.

The installation of the rebars for diagonal tension can be done in an angle of 0° to 20° to the concrete surface. If an installation angle of 0° is given the transport anchor has to be installed in a deeper position (e.g. by using a recess former) in order to reach the minimum required concrete covering.



Picture 6 Axial tension



Picture 7 Diagonal tension

Table 2: Axial and diagonal tension at $f_{cc} \geq 15 \text{ N/mm}^2$

Load class	Min. element thicknesses min. centre distances min. edge distances			Axial tension $\beta_{\max} 12.5^\circ$		Diagonal tension							
	d_{\min} [mm]	a_a [mm]	a_r [mm]	allow. F_z [kN]	Mesh rein- forcement	allow. F_z [kN]	$\beta_{\max} 30^\circ$ Add. reinforcement for diagonal tension (B500B)			allow. F_z [kN]	$\beta_{\max} 45^\circ$ Add. reinforcement for diagonal tension (B500B)		
							$\varnothing d_s$ [mm]	L [mm]	$\varnothing d_{br}$ [mm]		$\varnothing d_s$ [mm]	L [mm]	$\varnothing d_{br}$ [mm]
12	80	360	180	5.0	Not necessary	5.0	6	150	24	5.0	6	150	24
14	90	420	210	8.0		8.0	6	200	24	8.0	6	200	24
16 ①	100	480	240	12.0		12.0 ①	6	250	24	12.0	8	200	32
18 ①	110	540	270	16.0		16.0 ①	8	200	32	16.0	8	250	32
20 ①	120	600	300	20.0		20.0 ①	8	250	32	20.0	8	300	32
24 ②	135	690	345	25.0		25.0 ②	8	300	32	25.0	10	300	40
30 ②	170	900	450	40.0		40.0 ②	10	350	40	40.0	12	400	48

- To determine the correct type please refer also to our General Installation Instruction.

- The weight of 1.0 t corresponds to 10.0 kN.

- ① In case of diagonal tension $\beta \leq 30^\circ$ the reinforcement for diagonal tension is not necessary if
 - there is a single mesh reinforcement Q188A.
 - the Screw anchor is recessed installed by a recess former ($h_T \geq 10 \text{ mm}$).
- ② In case of diagonal tension $\beta \leq 30^\circ$ the reinforcement for diagonal tension is not necessary if:
 - there is a double mesh reinforcement Q188A.
 - the Screw anchor is recessed installed by a recess former ($h_T \geq 10 \text{ mm}$).

Notes:

A large grid of graph paper for taking notes, consisting of 20 columns and 40 rows of small squares.

Our customers trust us to deliver. We do everything in our power to reward their faith and we start each day intending to do better than the last. We provide strength and stability in an ever-changing world.

Welcome to the PHILIPP Group

Sustainable
solutions

PHILIPPGROUP



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