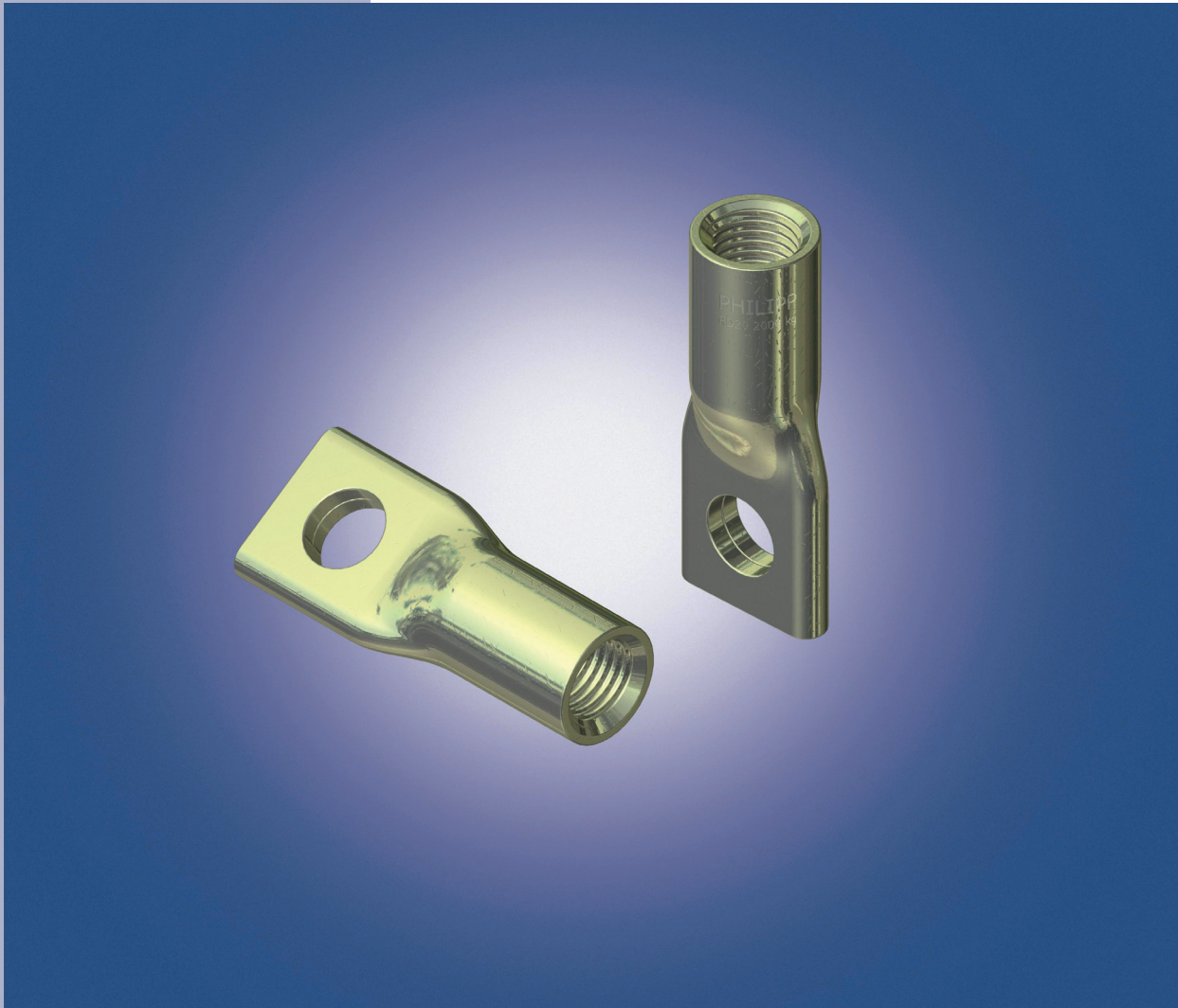




PHILIPP Lifting Insert with Crimped End Installation Instruction

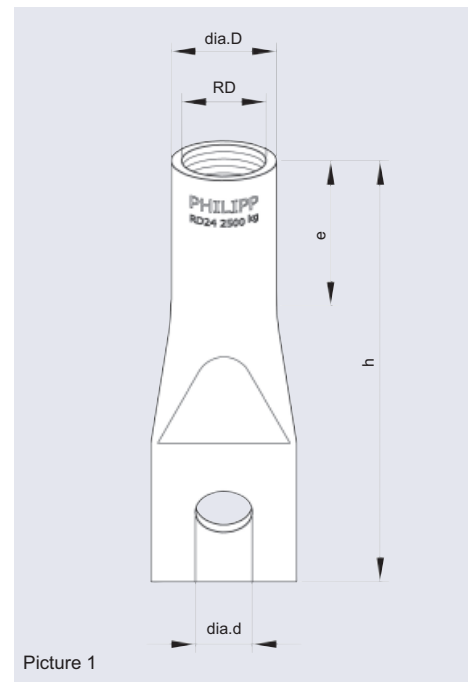


INSTALLATION INSTRUCTION OF PHILIPP LIFTING INSERT WITH CRIMPED END

The **PHILIPP Lifting Insert** 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, BGR 106).

On use of **PHILIPP Lifting Insert** attention must be paid to this installation instructions, the using instructions of **PHILIPP Lifting Loop with Threaded End**, **PHILIPP Wirbelstar** and **PHILIPP Lifty** as well as the general part. The anchor may only be used in combination with the mentioned **PHILIPP Lifting Devices**.

PHILIPP Lifting Insert are used for transport of precast concrete units. Multiple uses within the transport chain (from production to installation of the unit) are no repeated uses. Repeated use is only allowed if it complies with the German Approval (DIBt, Berlin No. Z-30.3-6 stainless steel).



Picture 1

Table 1: Load Bearing Capacities and Dimensions

Art.-No. Galvanized	Art.-No. Stainless Steel	Type RD	Load Bearing Capacity [kN]		Dimensions [mm]				Weight [kg/100 pcs.]	PU [pcs.]
			allow. F_Z 0°- 45°	allow. F_Q Lateral Tension	dia.D	h	e	dia.d		
71Ö12	77Ö12VA	12	5.0	2.5	15.0	60	22	8	3.0	500
71Ö14	77Ö14VA	14	8.0	4.0	18.0	70	25	11	6.0	200
71Ö16	77Ö16VA	16	12.0	6.0	21.0	77	27	13	10.0	200
71Ö18	77Ö18VA	18	16.0	8.0	24.0	85	34	13	14.0	100
71Ö20	77Ö20VA	20	20.0	10.0	27.0	92	35	16	20.0	100
71Ö24	77Ö24VA	24	25.0	12.5	31.0	100	43	18	25.0	80

For ascertainment of the right load bearing capacity please follow our general installation instruction and technical advice. The weight of 1.0ton results in 10kN.


On lateral tension **PHILIPP Lifting Inserts** have just the half load bearing capacity compared to axial loading. However, this is no limitation because during tilt-up just the half of the unit weight has to be lifted (see also General Installation Instruction).

1. Material

The **PHILIPP Lifting Insert** has an internal thread and on the flat-crimped end a cross hole. The **PHILIPP Lifting Insert** is made of galvanized precision steel according to DIN50961 in special quality. Alternatively the insert be delivered in stainless steel whereas the cut surface is protected against corrosion with a special seal. A stirrup is stuck through the hole to transfer the loads into the unit (Picture 2).

2. Reinforcement and Back Hanging Stirrup

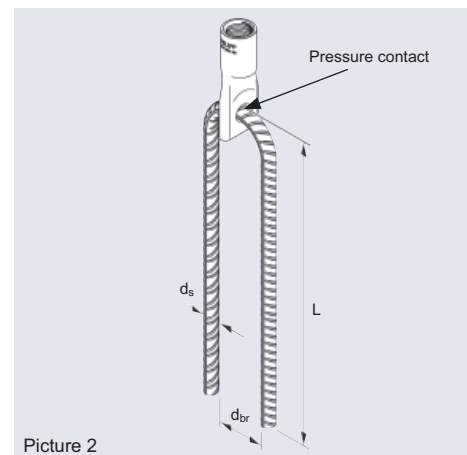
On use of **PHILIPP Lifting Insert** precast units must be reinforced with a minimum surface reinforcement (Table 2).

 Existing static-structural reinforcement may be taken into account on requested minimum reinforcement according to Table 2.

This minimum reinforcement can be replaced by comparable single reinforcement bars. The concrete must have a minimum strength of **15 N/mm²** at first time of lifting. The user is personally responsible for further transmission of load into the unit.

Table 2: Minimum Surface Reinforcement and Back Hanging Stirrups

Type	Mesh Reinforcement (square) [mm ² /m]	Back Hanging Stirrup			Cut Length [mm]
		d _s [mm]	d _{br} [mm]	L [mm]	
12	131	6	24	240	490
14	131	8	32	280	570
16	131	10	40	330	670
18	188	10	40	420	850
20	188	12	48	440	890
24	188	14	56	480	970

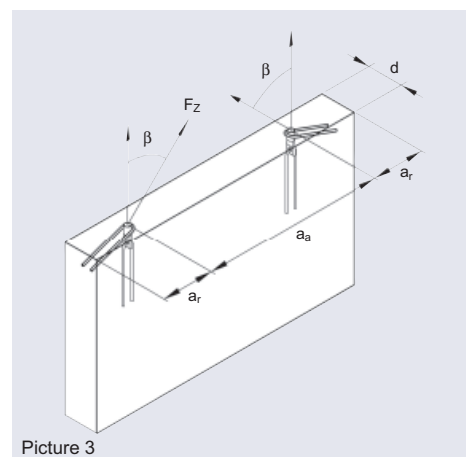


3. Center Distance, Edge Distance, Unit Thicknesses

To ensure a safe load transfer the installation and positioning of the **PHILIPP Lifting Insert** requires minimum dimensions and minimum center distances. The unit thickness **d** (Table 3) covers all load directions (axial, diagonal and lateral loading).

Table 3: Minimum Center Distance (a_a), Edge Distance (a_r), Minimum Thickness of Unit (d)

Type	a _a [mm]	a _r [mm]	d [mm]
12	300	150	60
14	400	200	60
16	400	200	80
18	500	250	100
20	550	275	100
24	600	300	120



4. Additional Reinforcement on Diagonal Tension

The use of **PHILIPP Lifting Insert** under diagonal tension $\beta \geq 12.5^\circ$ requires additional reinforcement according to table 4. The diagonal reinforcement is placed contrary to the tensile direction (Picture 3) and has in the summit of the bending pressure contact with the threaded insert of the transport anchor. Table 4 gives the user the possibility to use appropriate steel diameter if the inclination is smaller than 30° . Decisive for the choice of the stirrups is the existing diagonal inclination in the transport chain till the mounting of the precast unit.

INSTALLATION INSTRUCTION OF PHILIPP LIFTING INSERT WITH CRIMPED END

Table 4: Additional Reinforcement on Diagonal Tension
(necessary, if $\beta \geq 12.5^\circ$)

Typ	at $12,5^\circ \leq \beta \leq 45^\circ$			at $12,5^\circ \leq \beta \leq 30^\circ$		
	dia.d _S [mm]	L [mm]	d _{br} [mm]	dia.d _S [mm]	L [mm]	d _{br} [mm]
12	6	150	24	6	150	24
14	6	200	24	6	200	24
16	8	200	32	6	250	24
18	8	250	32	8	200	32
20	8	300	32	8	250	32
24	10	300	40	8	300	32

5. Additional Reinforcement for Lateral Loading

If the unit is loaded by a lateral load where the inclination is $\gamma \geq 15^\circ$, an additional reinforcement is required (Table 5). The reinforcement for lateral loading is installed in the front side of the wall contrary to the load direction. Pitching the wall can cause diagonal and lateral loading at the same time (Picture 5a and 5b). In this case only the reinforcement for lateral loading is required (anchorage reinforcement tail or double reinforcement tail). The diagonal loading is then already covered.

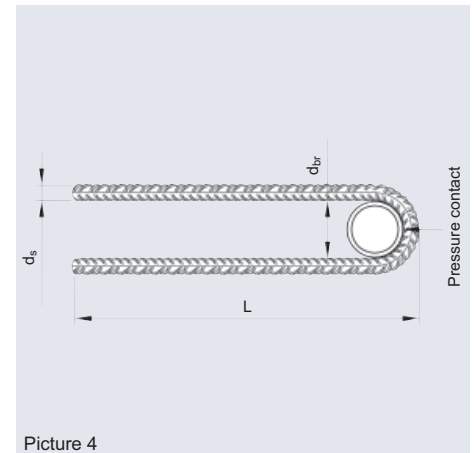
Turning or tilting up the unit during mounting requires lateral reinforcement (anchorage reinforcement tail according to Picture 6b). The double reinforcement tail (6a) covers all the other loads. At lateral loading the mesh reinforcement (Table 2) must be applied as a mesh cap. Additionally to the mesh cap longitudinal reinforcement must be installed according to Table 5.

Table 5 gives the user the possibility to use an anchorage reinforcement tail (Picture 6b) or a double reinforcement tail (Picture 6a) for lateral loading. Both stirrups must have pressure contact with the tread of the transport anchor. Lateral loading with **PHILIPP Lifting Inserts** are only allowed for unit thicknesses **d** according to Table 3.

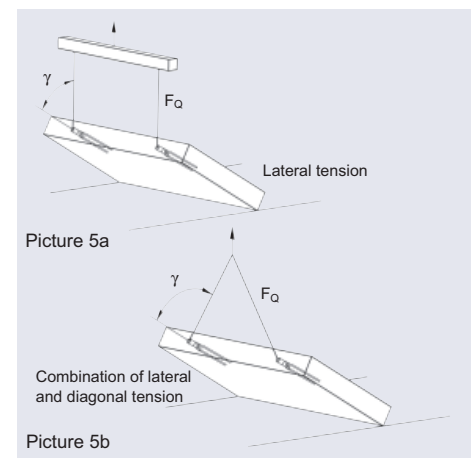
Table 5: Additional Reinforcement at Lateral Tension
(necessary, if $\gamma \geq 15^\circ$)

Type	dia.d _{S1}	L	H	d _{br}	dia.d _{S2}	H ₁ *	L ₁	Longitudinal Reinforcement	
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
12	6	270	35	24	**	-	-	dia. 10	850
14	6	350	42	24	**	-	-	dia. 10	850
16	8	420	49	32	8	44	600	dia. 10	850
18	8	460	55	32	8	55	750	dia. 12	850
20	10	490	64	40	10	64	800	dia. 12	850
24	12	520	75	48	12	75	800	dia. 12	850

* for this unit sizes the minimum unit thickness is too small for a double reinforcement tail

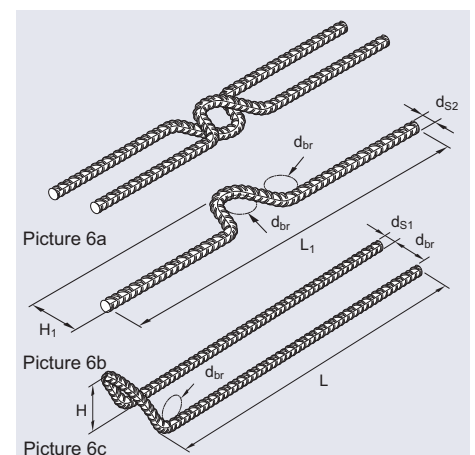


Picture 4



Picture 5a

Picture 5b



Picture 6a

Picture 6b

Picture 6c