DIN EN ISO 9001
Reg.-Nr. 73 100 1561

PHILIPP GROUP

PHILIPP Spherical Head Transport Anchor

Installation Instruction

QUALITY MADE IN GERMANY

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07/07 - EN

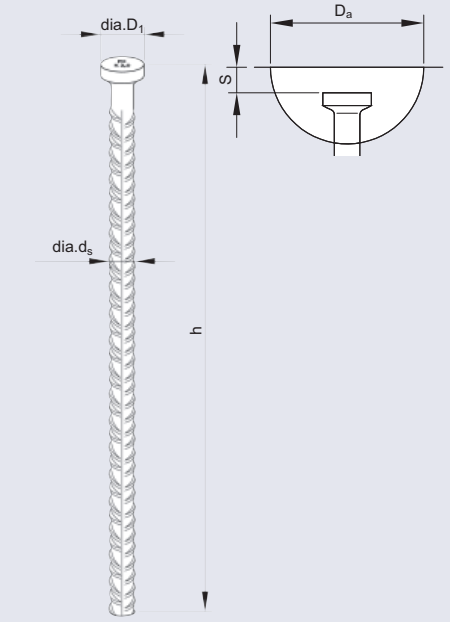
INSTALLATION INSTRUCTIONS OF PHILIPP SPHERICAL HEAD TRANSPORT ANCHOR

The **PHILIPP Spherical Head Transport 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, BGR 106).

On use of **PHILIPP Spherical Head Transport Anchor** attention must be paid to this installing instruction as well as the general part. The instruction for use of the lifting device (**PHILIPP Spherical Head Lifting Clutch**) may also be considered. The anchor may only be used in combination with the original **PHILIPP Spherical Head Lifting Clutch**.

PHILIPP Spherical Head Transport Anchors are designed for transport of precast concrete units. Multiple uses within the transport chain (from production to installation of the unit) are no repeated uses.

To differentiate between the sizes, **PHILIPP Spherical Head Transport Anchors** have a marking on their anchor head, which shows the load group. Picture 1 and Table 1 include details about dimensions and load bearing capacities of **PHILIPP Spherical Head Transport Anchors**.



Picture 1

Table 1: Load Bearing Capacities and Dimensions

Art.-No.	Load Group	Load Bearing Capacity F_Z [kN]	Dimensions [mm] h	dia.d_s	dia.D_1	s	D_a	Weight [kg/100 pcs.]	PU [pcs.]
81-013- 270ST	1.3	13	270	10	19	10	60	21.0	1
81-025- 400ST	2.5	25	400	14	26	11	74	51.0	1
81-025- 520ST	2.5	25	520	20	26	11	74	66.0	1
81-040- 510ST	4.0	40	510	20	36	15	94	108.0	1
81-050- 580ST	5.0	50	580	20	36	15	94	151.0	1
81-050- 900ST	5.0	50	900	25	36	15	94	230.0	1
81-075- 750ST	7.5	75	750	25	47	15	118	265.0	1
81-075-1150ST	7.5	75	1150	25	47	15	118	419.0	1
81-100- 870ST	10.0	100	870	28	47	15	118	442.0	1
81-100-1300ST	10.0	100	1300	28	47	15	118	650.0	1
81-150-1080ST	15.0	150	1080	36	70	15	160	940.0	1
81-150-1550ST	15.0	150	1550	36	70	15	160	1280.0	1

To determine the right type please take notice of our general installation instruction.
The weight of 1.0ton results in 10kN.

1. Material

PHILIPP Spherical Head Transport Anchors consists of a straight rebar (BSt500S) according to DIN 488 with forged head.

2. Reinforcement

For installation of **PHILIPP Spherical Head Transport Anchors** concrete units need to have a minimum surface reinforcement (Table 2).

An already existing static-structural reinforcement may be taken into account on requested minimum reinforcement.

This minimum reinforcement can be replaced by comparable stirrups combined with longitudinal reinforcement. At first time of lifting the concrete strength must be **15 N/mm²**. The user is personally responsible for further transmission of load into the unit.

Table 2: Minimum Reinforcement

Load Group	Mesh Reinforcement (square) [mm²/m]
1.3	131[1)]
2.5	188
4.0	188
5.0	188
7.5	188
10.0	188
15.0	188

[1)] If **mere axial loading** is considered, the given reinforcement can be replaced by a centric layer reinforcement mesh (Q188A).

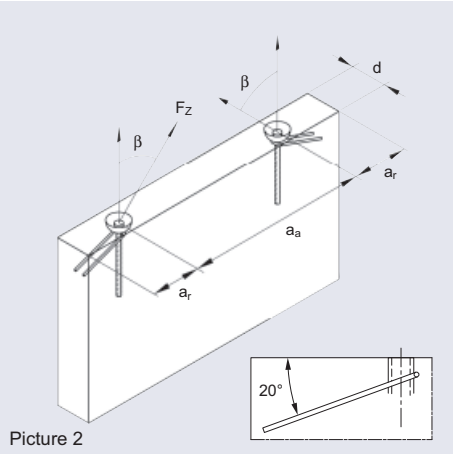
This procedure is only permitted if all loadings (within the transport chain) are axial.

3. Center distances, Edge Distances and Unit Thicknesses

To ensure a safe load transfer the installation and positioning of **PHILIPP Spherical Head Transport Anchors** requires minimum dimensions and minimum center distances. The unit thickness **d** covers the load directions axial and diagonal loading (β ≥ 0°-45°). **Lateral loading is inadmissible.**

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

Load Group	a_a [mm]	a_r [mm]	d [mm]
1.3	500	250	100
2.5	600	300	120
4.0	650	325	140
5.0	800	400	200
7.5	1000	500	240
10.0	1200	600	275
15.0	2000	1200	285



Picture 2

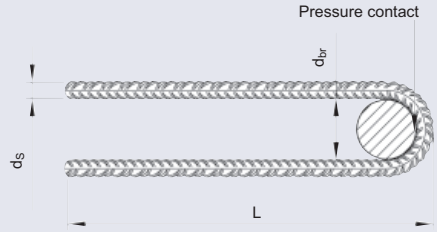
4. Additional reinforcement for Diagonal Loading

Diagonal loading (β ≥ 12.5°) of **PHILIPP Spherical Head Transport Anchors** requires additional reinforcement according to Table 4. The reinforcement for diagonal loading is installed contrary to the tensile force direction (Picture 2) and has in the bending pressure contact with the shaft of the anchor (Picture 3). The existing diagonal reinforcement is decisive for the choice of stirrups within the transport chain till the installation of the unit.

Table 4: Additional Reinforcement for Diagonal Tension

(necessary, if $\beta \geq 12{,}5°$)

Load Group	at $12.5° \leq \beta \leq 45°$		
	dia.d_s [mm]	L [mm]	d_{br} [mm]
1.3	8	250	32
2.5	10	300	40
4.0	12	400	48
5.0	14	550	56
7.5	14	655	56
10.0	16	800	64
15.0	20	950	140



Picture 3

5. Corrosion

If precast concrete units with installed **PHILIPP Spherical Head Transport Anchor** are left outside for a longer time (e.g. the units are stored outside and wetness or rain can get into the recess), the steel of **PHILIPP Spherical Head Transport Anchor** can be destroyed by chemical processes. Thus the anchors can fail under loading. Furthermore rust can occur on the surface when stocking outside.