

# Polypropylene lifting hoop



## Installation and Application Instruction

# Our products from the division BUILDING SOLUTIONS

## SERVICES

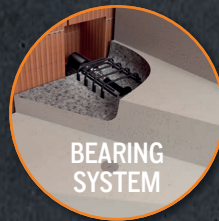
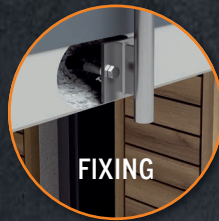
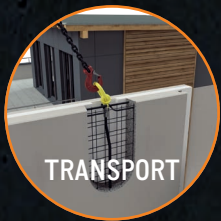
- » On-site tests -> we ensure that your requirements are properly covered by our planning.
- » Test reports -> for your safety and documentation.
- » Trainings -> the knowledge of your employees from planning and production is enhanced by our experts on site, online or via webinar.
- » Planning support -> latest design software, planning documents, CAD data and much more can be downloaded any time from [www.philipp-group.de](http://www.philipp-group.de).

## HIGH DEMANDS ON PRODUCT SAFETY AND PRACTICALITY

- » Close cooperation with notified bodies and - if necessary - approval of our solutions.

## TECHNICAL DEPARTMENT

- » Our expert-team will support you at any time during your planning phase with detailed advice.



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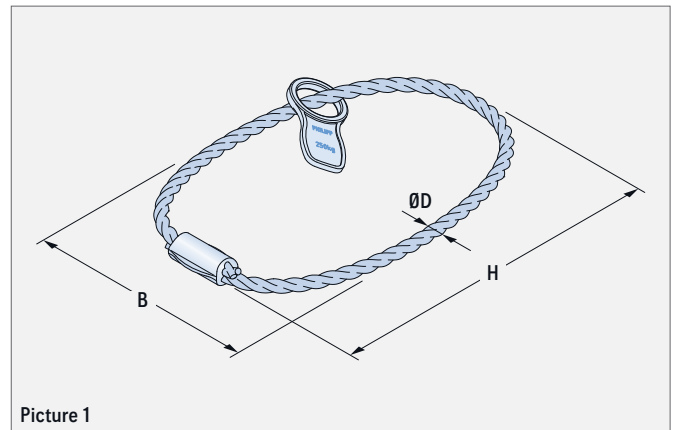
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# PHILIPP Polypropylene lifting hoop

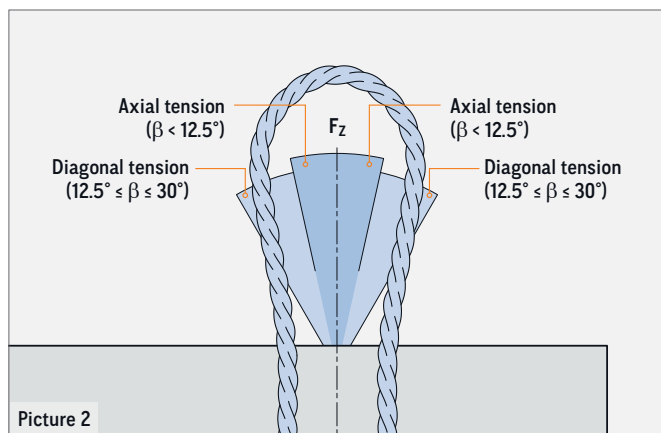
## THE PHILIPP POLYPROPYLENE LIFTING HOOP

The Polypropylene lifting hoop is part of the PHILIPP transport anchor systems and its use requires the compliance with this Installation and Application Instruction as well as the General Installation and Application Instruction.

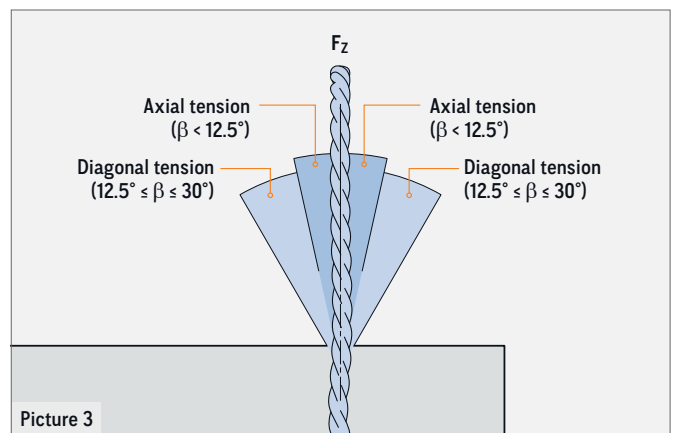
Polypropylene lifting hoops are designed for the transport of pre-cast concrete units only. Multiple use within the transport chain (from production to installation of the unit) means no repeated usage. A repeated use (e.g. ballasts for cranes) is not allowed.



Picture 1



Picture 2



Picture 3

TABLE 1: TYPES AND DIMENSIONS

Ref. no.	Type	Bearing capacity (kN)	H ① (mm)	B ① (mm)	ØD ② (mm)
43P06	AS 0.150	1.50	220	100	6.0
43P08	AS 0.250	2.50	220	100	8.0
43P10	AS 0.360	3.60	260	120	10.0
43P12	AS 0.500	5.00	290	140	12.0
43P14	AS 0.875	8.75	330	160	14.0
43P16	AS 1.200	12.00	370	180	16.0

① Dimensions H and B are standard values and can vary.

② Rope diameter ØD is a standard value and can vary depending on the rope construction.

### PERMISSIBLE LOAD DIRECTIONS

Polypropylene lifting hoops can only be used for axial and diagonal tension up to  $30^\circ$ .



### NO LATERAL TENSION

Lateral tension is not allowed within the whole transport chain. This also applies to a diagonal tension with an angle  $\beta$  more than  $30^\circ$ !

## GENERAL INFORMATION

### MATERIALS

Polypropylene lifting hoops are made of a polypropylene rope that is formed into a loop using a ferrule at both ends.

### MARKING

In order to identify the types of the Polypropylene lifting hoops visually they are marked with a coloured tag. This tag must also be visible at the segment sticking out after concreting.

The tag of the Polypropylene lifting hoop includes the following data:

- » Manufacturer (PHILIPP)
- » Max. load bearing capacity (e.g. 1200 kg)



Picture 4

### CORROSION

For concrete or mortar with an increased chlorine equivalent the use of a Polypropylene lifting hoop with an aluminium ferrule is not recommended. For this application a Polypropylene lifting hoop with a steel ferrule is more suitable and can be delivered by PHILIPP on request.

An increased chlorine equivalent exists if the values given in the German standards DIN EN 206 and DIN 1045-2 (only in Germany) are exceeded.

### NOTE FOR INSTALLATION

The aluminium ferrule used with Polypropylene lifting hoops must not be placed near-surface of the concrete element. The concrete cover for the ferrule has to be determined using following equation.

$$c_{\text{ferrule}} \geq 1-2 \cdot c_{\text{min}}$$

(DIN EN 1992-1-1 para. 4 a. tab. 4.4N)

### STORAGE OF THE POLYPROPYLENE LIFTING HOOPS

Polypropylene lifting hoops shall be stored in a shelf with clean, dry and aerated conditions, away from high thermal influences, without contact to chemicals, flue gas, corroding surfaces, direct sun light or other ultraviolet radiation.

### CONCRETE

The concrete strength  $f_{cc}$  given in table 2 is a cube strength at the time of the first lifting.

### EC DECLARATION OF CONFORMITY (DOC)

The EC Declaration of Conformity (DoC) of the Polypropylene lifting hoops can be downloaded from our website [www.philipp-group.de](http://www.philipp-group.de) or is available on request.



# PHILIPP Polypropylene lifting hoop

## DISTANCES / REINFORCEMENT

### CENTRE AND EDGE DISTANCES, ELEMENT THICKNESSES

The installation and position of Polypropylene lifting hoops in pre-cast concrete elements require minimum dimensions and centre/edge distances for a safe load transfer.

Given unit thicknesses  $d$  in table 2 cover axial and diagonal load-

ing and are valid for a parallel as well as perpendicular installation of the Polypropylene lifting hoops. With each installation case the dimension  $f$  must be considered (see picture 5 and 6). that the value  $f$  complies with picture 5 resp. 6.

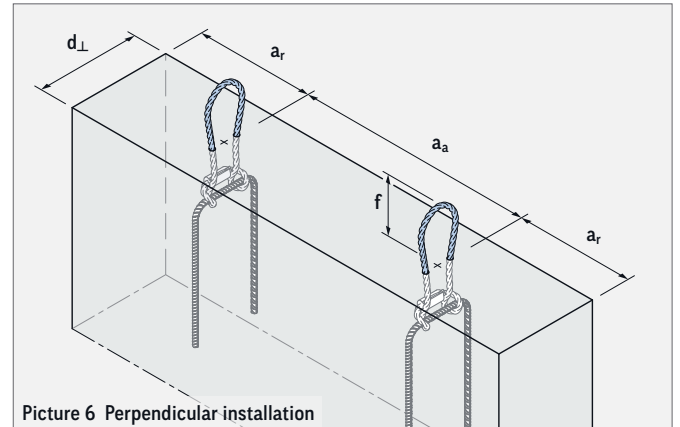
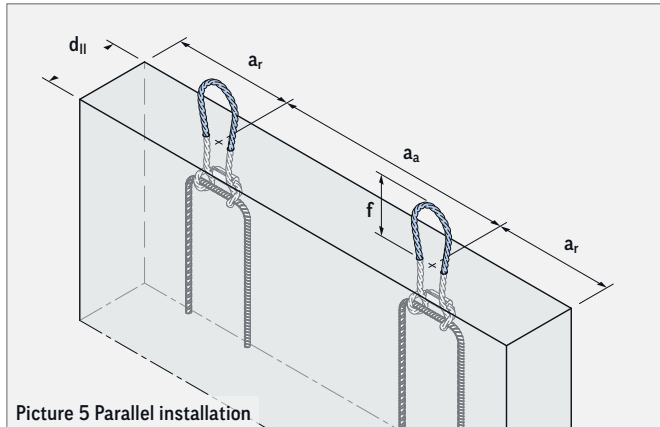


TABLE 2: PERMISSIBLE LOAD BEARING CAPACITIES

Type	Element thicknesses		Distances		Mounting dimension $f$ (mm)	perm. $F_z$ $0^\circ - 30^\circ$ if $f_{cc} 15 \text{ N/mm}^2$ (kN)
	$d_{  }$ (mm)	$d_{\perp}$ (mm)	$a_a$ (mm)	$a_r$ (mm)		
150	100	200	440	220	65	1.50
250	100	200	440	220	65	2.50
360	100	200	440	250	80	3.60
500	120	240	640	300	90	5.00
875	120	240	640	350	100	8.75
1200	120	240	640	350	110	12.00

To determine the correct type please refer also to our General Installation and Application Instruction. The weight of 1.0 t corresponds to 10.0 kN.

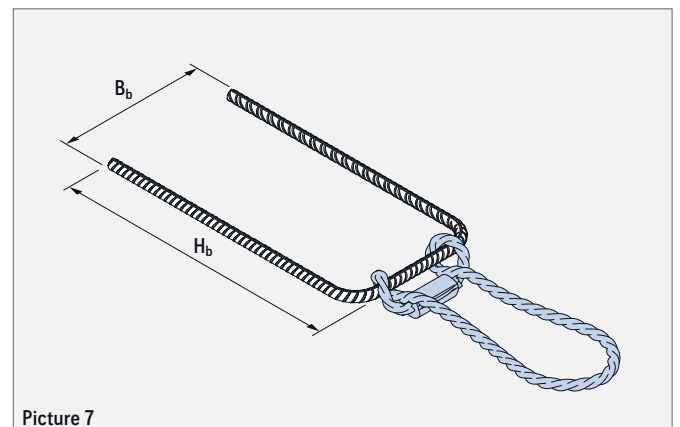
### REINFORCEMENT

The stirrups specified in table 3 ensure the local load application via the Polypropylene lifting hoop. Reinforcement required by a static calculation is not replaced by these additional stirrups. The user is personally responsible for further transmission of load into the concrete unit.

At the first time of lifting the concrete must have a minimum strength  $f_{cc}$  of  $15 \text{ N/mm}^2$ .

TABLE 3: REQUIRED STIRRUPS

Type	Required stirrup	$H_b$ (mm)	$B_b$ (mm)
150	1 × Ø6	300	100
250			
360			
500			
875			
1200	1 × Ø8	400	

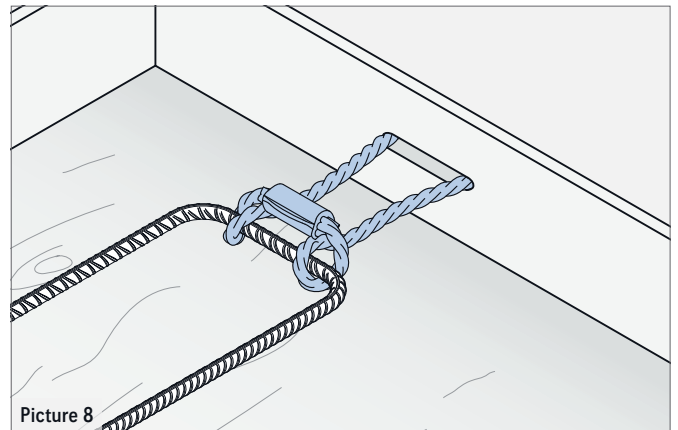


## INSTALLATION / SAFETY

### INSTALLATION

Prior concreting the precast element the Polypropylene lifting hoops are installed in the formwork. The installation of Polypropylene lifting hoops through the formed surface of a precast element requires a subsequent and careful sealing of the formwork. This is necessary to avoid defects in the anchorage area of the Polypropylene lifting hoop.

In order to guarantee the position of the Polypropylene lifting hoop during concreting and compacting it must be fixed to the reinforcement. If necessary, additional rebars have to be added here.

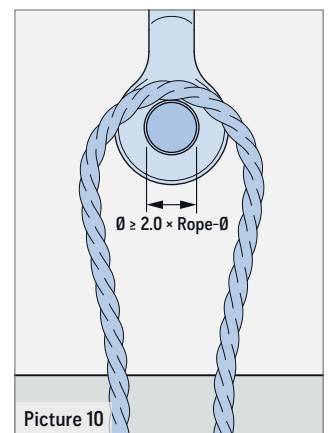
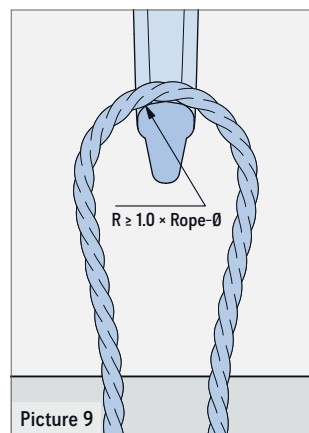


### SAFETY NOTICES

The transition radii of used hooks must be the same or larger than the actual rope diameter of the Polypropylene lifting hoop (picture 9). By using too small, too large or sharp-edged hooks the lifetime of the Polypropylene lifting hoop will be reduced.

During use of Polypropylene lifting hoops the following must be considered:

- » The use of damaged Polypropylene lifting hoops with broken strands, contusions, kinks or embrittlement (e.g. caused by solar radiation) is not allowed.
- » Contact of Polypropylene lifting hoops with acids and alkalis must be avoided.
- » Lever arms caused by rotating, tilting or swinging which result in local blow-out failures in the concrete or broken ropes are inadmissible!
- » The Polypropylene lifting hoops can only be used with a diagonal tension  $\beta$  of max.  $30^\circ$ . A lateral tension with Polypropylene lifting hoops is not allowed!



#### NOTE!

Using a shackle the pin must be at least two times of the rope diameter of the Polypropylene lifting hoop.

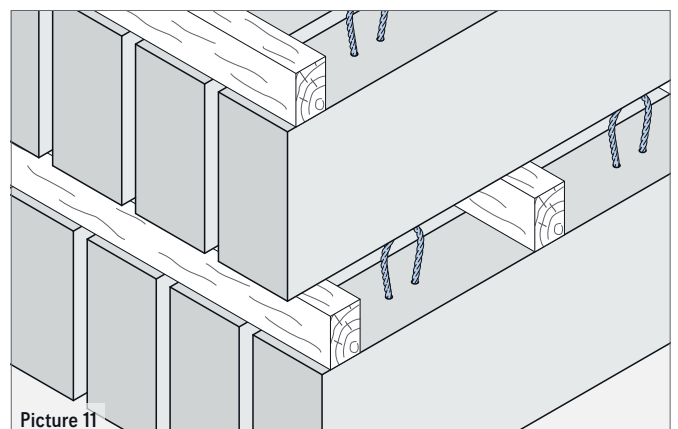


#### WELDINGS

Welding or other strong heat influences (sparks) which can damage the Polypropylene lifting hoops are not allowed.

### STORAGE OF THE PRECAST UNITS

During storage of the concrete units please make sure that the Polypropylene lifting hoops are not bent in any way. This can be guaranteed by using a spacer (e.g. a squared timber) between the concrete elements. The storage of concrete elements outside with direct sun light to the polypropylene hoops causes an embrittlement of the rope and thus to the reduction of the load bearing capacity.



#### NOTE!

In case of a visible change to the polypropylene hoops (bleaching caused by ultraviolet radiation) the transport with these hoops is not allowed anymore.

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