

PHILIPPGROUP

PHILIPP Lifty



VB3-T-017-en - 06/22 - PDF

Application Instruction

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

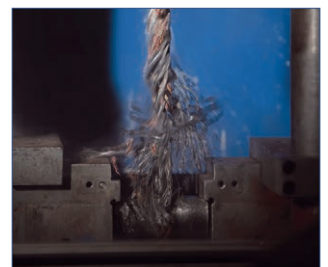
The latest design software, animated videos and CAD libraries can always be found under www.philipp-gruppe.de.

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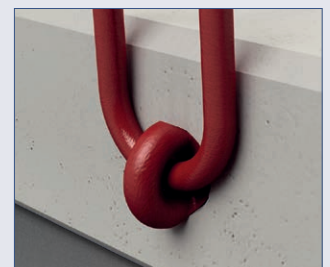
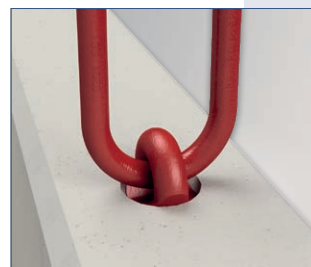
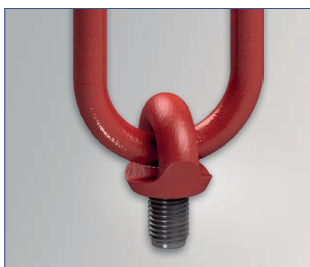
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PHILIPP Lifty

The Lifty is part of the PHILIPP Transport anchor system and complies with the VDI/BV-BS-Guideline "Lifting inserts and lifting systems for precast concrete elements" (VDI/BV-BS 6205). The use of the Lifty requires the compliance with this Application Instruction, the Installation and Application Instruction of the particular Threaded transport anchor as well as the General Installation and Application Instruction. The Lifty is suitable for axial, diagonal and lateral tension.

Table 1: Permissible load bearing capacities and dimensions

Ref. no. ①	Type	perm. F (system RD) 0°- 90° [kN]	Dimensions							Weight [kg/pc.]
			RD	h [mm]	b [mm]	e [mm]	h ₁ [mm]	Ød [mm]		
62LI12	RD 12	5.0	12	150	50	18	38	13	0.47	
62LI14	RD 14	8.0	14	150	50	20	38	13	0.47	
62LI16	RD 16	12.0	16	150	50	23	38	13	0.48	
62LI18	RD 18	16.0	18	162	50	26	53	16	1.10	
62LI20	RD 20	20.0	20	162	50	29	53	16	1.20	
62LI24	RD 24	25.0	24	162	50	34	53	16	1.30	
62LI30	RD 30	40.0	30	177	50	43	72	22	3.40	
62LI36	RD 36	63.0	36	177	50	51	72	22	3.60	
62LI42	RD 42	80.0	42	218	65	60	92	26	6.80	
62LI52	RD 52	125.0	52	218	65	73	92	26	7.40	

① Also available with M thread (ref. no. 62LI__M)
- The weight of 1.0 t corresponds to 10.0 kN.

Material

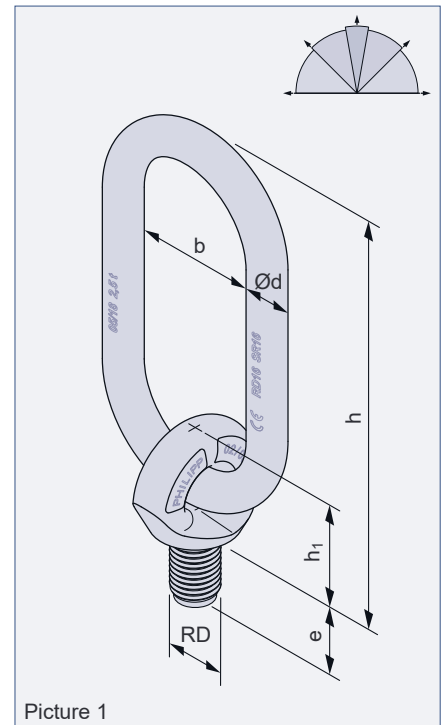
The Lifty consists of a forged ring bolt with a welded chain link. Both parts are powder-coated acc. to colour code (see table).

Marking

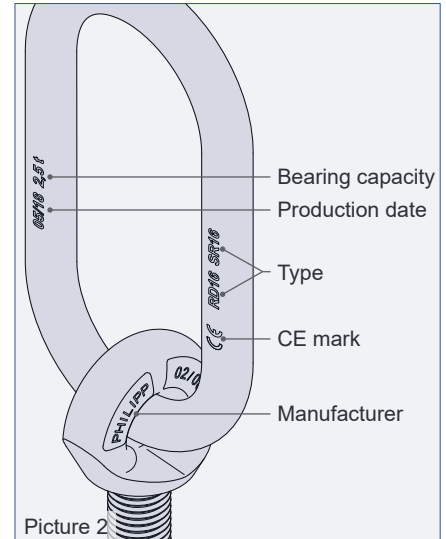
Liftys are marked as follows:

- Manufacturer (PHILIPP)
- CE mark ②
- Type (system / load class)
- Maximum bearing capacity (e.g. 2.5 t)
- Production date (month / year)
- Colour coding (powder-coated)

② The EC Declaration of Conformity (DoC) of the Lifty is available on request or can be downloaded from our website www.philipp-group.de.



Picture 1



Picture 2

Application

Application

The Lifty is a lifting device of the Threaded transport anchor system and is supplied with a round thread (with metric pitch) or metric thread. It must be screwed in the Threaded transport anchor tightly until the bottom part of the ring bolt has continuous pressure contact in the recess created before in the concrete unit. Therefore an optimal load transfer into the cast-in anchor is given, as the ring bolt is supported by the concrete in case of loading (picture 3). During rigging the welded chain link must point to the tensile direction at all time. In order to align the Lifty into the correct position it is allowed to screw it back for a half turn at the most.

The Lifty can only be used with transport anchors installed recessed by one of the following recess formers:

KHN system:

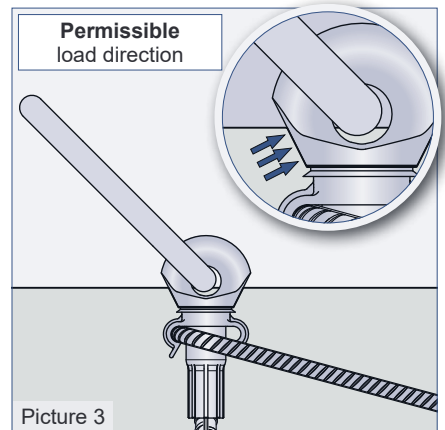
- Plastic: 72KHN12 - 72KHN52
- Steel: 72KHN12STK - 72KHN52STK
- Magnetic: 72MAXKHN12 - 72MAXKHN52

Nailing plate for diagonal tension system:

- Plastic: 72KHN16-SZ15 - 72KHN52-SZ15
- Steel: 72KHN16-SZ15ST - 72KHN52-SZ15ST



The application instruction for the KHN system or the Installation and Application Instruction for the Nailing plate for diagonal tension system must be observed!



Picture 3



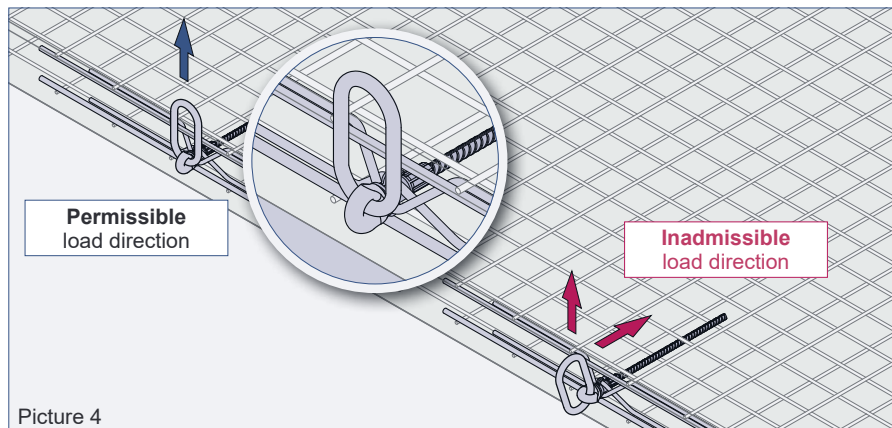
A use of inadmissible recess formers can lead to a reduction of the bearing capacity and to a failure of the Lifty or the transport anchor.



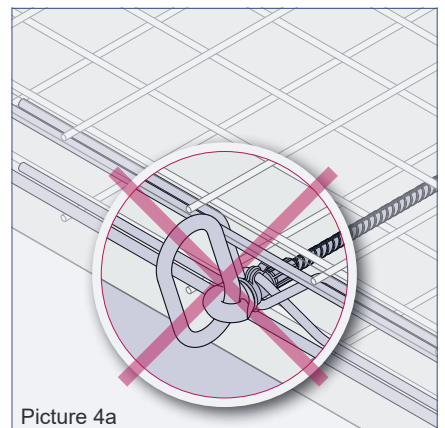
Loading the Lifty is only admissible in the tension direction of the ring bolt axis according to picture 4.



Loading the Lifty right-angled to the ring bolt axis - as shown below - is inadmissible.



Picture 4



Picture 4a



Using only one Lifty in order to lift concrete elements attention must be paid that the Lifty is protected against unscrewing (e.g. by using a tension wire rope at the concrete element).

Safety / inspection

Safety notice

As each other lifting equipment and lifting device the Lifty is subject to an annual inspection according to the German DGUV regulation 109-017, para. 8.2. This inspection has to be done by an expert and lies within the responsibility of the owner. Depending on the working conditions inspections might be necessary in a shorter interval than once a year. This might be caused by frequent use, increased wear, corrosion or heat treatment.

In general, the current accident prevention regulations must be observed. The correct hook size and form should be considered in order to extend the durability.

If the Lifty is loaded with extreme loads (e.g. by an event causing damage) which may have influenced the bearing capacity it must be examined extraordinarily by an expert. The criteria are given in section "Replacement criteria and inspection".

Replacement criteria and inspection

The replacement state of the Lifty follows the German regulation DGUV 109-017, para. 8.4.


Prior inspection the Lifty must be cleaned. During inspection the following points have to be considered. If one of the following points is fulfilled the Lifty has reached its replacement state and must not be used any more.


- Breakage of chain link
- Deformed or bent chain link
- Pressure marks on chain link caused by rigging hardware
- Cracks or the capacity reducing corrosion pits
- Damaged thread
- Twisted threaded bolt
- Welding or other strong heat influences
- Marking not readable anymore
- Exceeding or dropping below the permissible test dimensions


The chain link has to be checked for any elongation or diameter reduction (picture 6). The replacement state is reached when the chain link has an elongation of 5 % or the diameter of the link has a taper of 10 % (wear measurements, table 2).

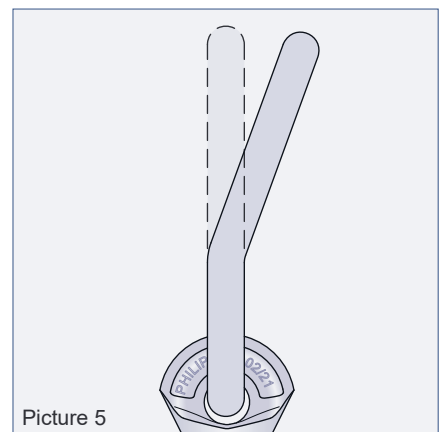
Table 2: Test dimensions of the chain link								
Load class	T [mm]		T _{max} [mm]		Ød [mm]		d _{min} [mm]	
12 / 14 / 16	115		121		13		11,7	
18 / 20 / 24	115		121		16		14,4	
30	115		121		22		19,8	
36	115 ①	140	121 ①	147	22		19,8	
42	139 ①	160	146 ①	168	26 ①	28	23,4 ①	25,2
52	139 ①	180	146 ①	189	26 ①	35	23,4 ①	31,5

① Version of the Lifty up to manufacture 12/20 (chain link, picture 2)

 In order to avoid damaging the Lifty caused by lever action the chain link should not be loaded via a sharp concrete edge (picture 4).

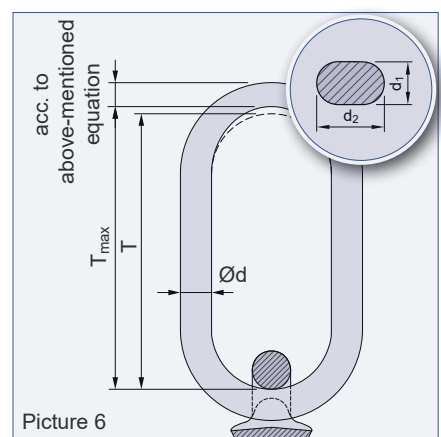
 Welding or other strong heating influences on the Lifty are inadmissible.

 The continued use of damaged lifting devices or equipment already met the discard criteria is not permitted!



Picture 5

$$\frac{d_1 + d_2}{2} > d_{min}$$



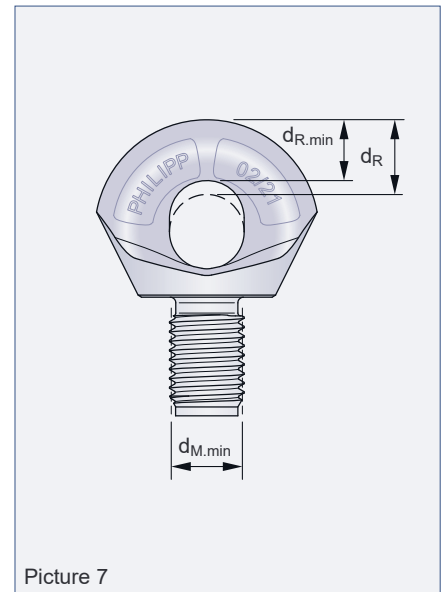
Picture 6

Inspection

During the inspection of the ring bolt, the wear of the bolt diameter shall be checked. The replacement state for this part is reached when the forged ring bolt has a taper of 10 % (picture 7 and table 3). The outer diameter of the thread must also be checked acc. to picture 7 and table 3.

Table 3: Test dimensions of the ring bolt

Load class	$d_{M,min}$ [mm]	d_R [mm]	$d_{R,min}$ [mm]
12	11.50	16	14.4
14	13.50	16	14.4
16	15.45	16	14.4
18	17.40	22	19.8
20	19.40	22	19.8
24	23.40	22	19.8
30	29.40	32	28.8
36	35.40	32	28.8
42	41.20	39	35.1
52	51.20	39	35.1



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. We provide it support.

Welcome to the PHILIPP Group

Sustainable
solutions

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