

PHILIPPGROUP

PHILIPP Wirbelstar



VB3-T-015-en - 01/16

Application Instruction

PHILPP Wirbelstar

The Wirbelstar is part of the PHILIPP Transport anchor system and complies with the VDI/BV-BS Guideline "Lifting inserts and lifting insert systems for precast concrete elements" (VDI/BV-BS 6205).

The use of the Wirbelstar requires the compliance with this Application Instruction, the installation instructions for threaded anchor systems as well as the General Installation Instruction. The Wirbelstar is suitable for axial, diagonal and lateral tension.

Table 1: Permissible load bearing capacities and dimensions

Ref.-No. RD thread ①	Type	perm. F		Dimensions					Weight [kg/pc.]
		0°- 30° [kN]	0°- 90° [kN]	ØD [mm]	b [mm]	h [mm]	e [mm]	h ₁ [mm]	
62WS12	RD 12	5.0	5.0	47	35	125	16	52	0.50
62WS14	RD 14	8.0	8.0	52	35	126	18	53	0.55
62WS16	RD 16	12.0	12.0	56	35	151	21	53	0.66
62WS18	RD 18	16.0	16.0	59	60	152	23	77	1.38
62WS20	RD 20	20.0	20.0	70	60	158	26	76	1.54
62WS24	RD 24	25.0	25.0	74	75	186	31	81	2.10
62WS30	RD 30	40.0	40.0	90	90	219	39	96	3.73
62WS36	RD 36	63.0	63.0	101	100	255	47	124	6.29
62WS42	RD 42	80.0	80.0	110	100	256	55	125	7.12
62WS52	RD 52	125.0	125.0	130	140	344	68	157	15.30
62WS56	RD 56	150.0	125.0	150	140	350	72	162	17.30
62WS60	RD 60	200.0	125.0	150	140	350	78	162	17.43

① Load classes 12 up to 52 also available with M thread (Ref.-No. 62WS__M)
 - The weight of 1.0 t corresponds to 10.0 kN.

Material

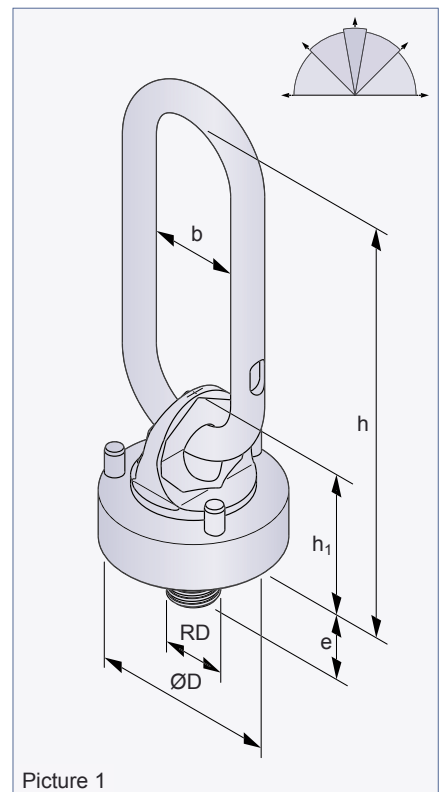
The Wirbelstar consists of a forged ring bolt with a chain link and a rotatable hinged bottom part.

Marking

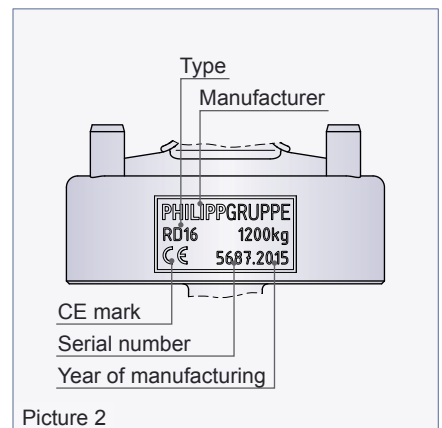
Wirbelstars are marked as follows:

- Manufacturer
- Type (system / load class)
- CE mark ②
- Serial number
- Year of manufacturing

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



Picture 1



Picture 2

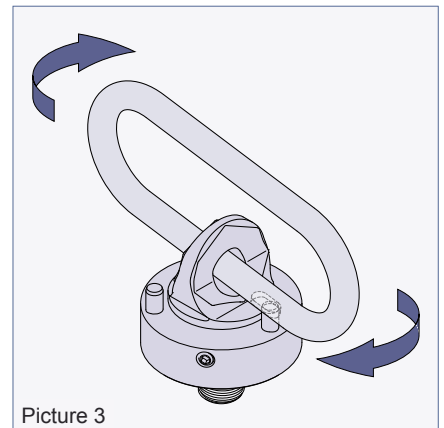
Application / Safety

Application

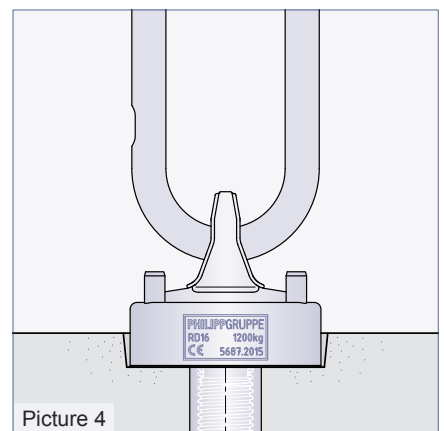
The Wirbelstar is a lifting device of the threaded transport anchor system and is supplied with a round thread (with metric pitch) or metric thread. The Wirbelstar must be screwed in until the bottom part of the Wirbelstar has continuous contact with the concrete surface. This is very important because during lifting the Wirbelstar is supported by this concrete area and a spalling is largely prevented (Picture 4).

The chain link is also used to tighten or loose the Wirbelstar. For this the chain link must be pulled through the ring bolt that its recess fits in 90° to one of the three pins located at the circumference of the Wirbelstar (Picture 3). This creates an efficient lever arm which enables a convenient tightening and removing (without any tool).

The Wirbelstar can only be used with full-surface contact to the concrete surface or with the appropriate recess formers 72SAT12K to 72SAT60K, 72SATM12K to 72SATM52K and 72KHN36WS to 72KHN52WS.



Picture 3



Picture 4



Because of its ball-bearing the hanger moves, even after achievement of the nominal load bearing, itself into the right force direction without removing of the bottom part of the Wirbelstar. Therefore the Wirbelstar is a perfect solution for tilt-up of horizontal manufactured panels.

Safety notice

As each other lifting equipment and lifting device the Wirbelstar is subject to an annual inspection according DGUV regulation 100-500 chapter 2.8. par. 3.15.4. This inspection has to be done by an expert and lies within the responsibility of the owner. Depending on the working conditions the inspections might be necessary in a shorter interval instead of only once a year. This might be caused by frequent use, increased wear, corrosion or heat treatment. The Wirbelstar is designed in a special way that no maintenance is necessary. Because of its ball-bearing a penetration of dirt can be excluded largely. In general, attention must be paid to the current accident prevention regulations. The correct hook size and form should be considered in order to extend the durability.



Using only one Wirbelstar in order to lift concrete elements attention must be paid that the Wirbelstar is protected against unscrewing.



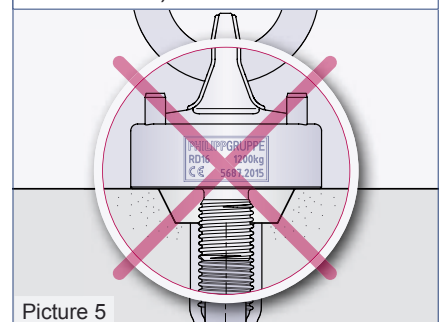
Welding or other strong heat influences on the Wirbelstar are not allowed.

If it is determined during application or inspection, that the chain link and the bottom part twist heavily against each other, the Wirbelstar must be repaired by PHILIPP. If the Wirbelstar 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 listed in section „Replacement criteria and inspection” are the basis for the following check.



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

Use of Wirbelstar in recessed position with normal nailing plate (72KHN12 to 72KHN52) is inadmissible.



Picture 5

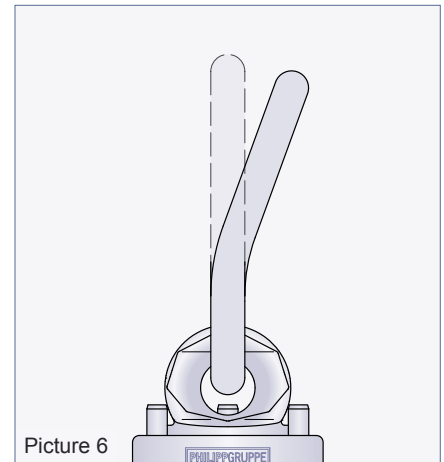
Inspection

Replacement criteria and inspection

The replacement state of the Wirbelstar is determined according to the German regulation DGUV 100-500, chapter 2.8 par. 3.15.4.

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

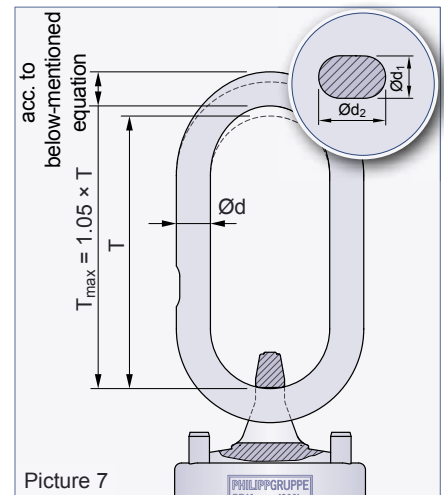
- Breakage of chain link
- Deformation of chain link (Picture 6)
- Pressure marks on chain link caused by rigging hardware
- Cracks or corrosion scarves reducing capacity
- Deformation of the threaded bolt
- Deformation of the thread
- Welding or other strong heat influences
- Marking not readable anymore
- Exceeding of upper or lower wear measurements (Table 2 and 3)



Picture 6

Table 2: Wear measurements of the chain link

Load class	Pitch T [mm]	T _{max} = 1.05 × T [mm]	Ød [mm]	0.9 × Ød [mm]
12	85	89	10	9.0
14	85	89	10	9.0
16	110	116	10	9.0
18	95	100	16	14.4
20	102	107	16	14.4
24	125	131	18	16.2
30	148	155	22	19.8
36	160	168	26	23.4
42	160	168	26	23.4
52	220	231	36	32.4
56	220	231	36	32.4
60	220	231	36	32.4



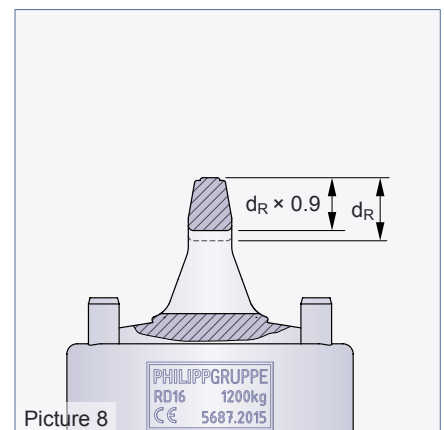
Picture 7

Furthermore the radius of the chain link must be observed during inspection. The replacement state for this part is reached if the chain link has a diminution of 10 % (Picture 8 and Table 3).

$$\frac{\text{Ød}_1 + \text{Ød}_2}{2} > 0.9 \times \text{Ød}$$

Table 3: Wear measurements of the ring bolt

Load class	d _R [mm]	d _R × 0.9 [mm]
12	10.0	9.0
14	10.0	9.0
16	10.0	9.0
18	17.0	15.3
20	17.0	15.3
24	17.0	15.3
30	22.0	19.8
36	28.0	25.2
42	28.0	25.2
52	30.0	27.0
56	30.0	27.0
60	30.0	27.0



Picture 8