

Load Eye



Attachment point for personal protective equipment aBG Z-14.9-778



PFEIFER

Fixing Systems
Lift Installation

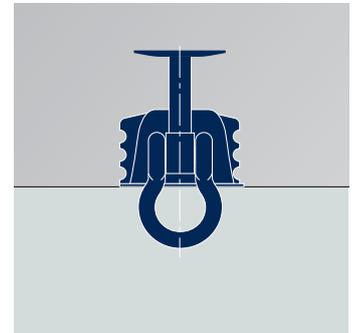
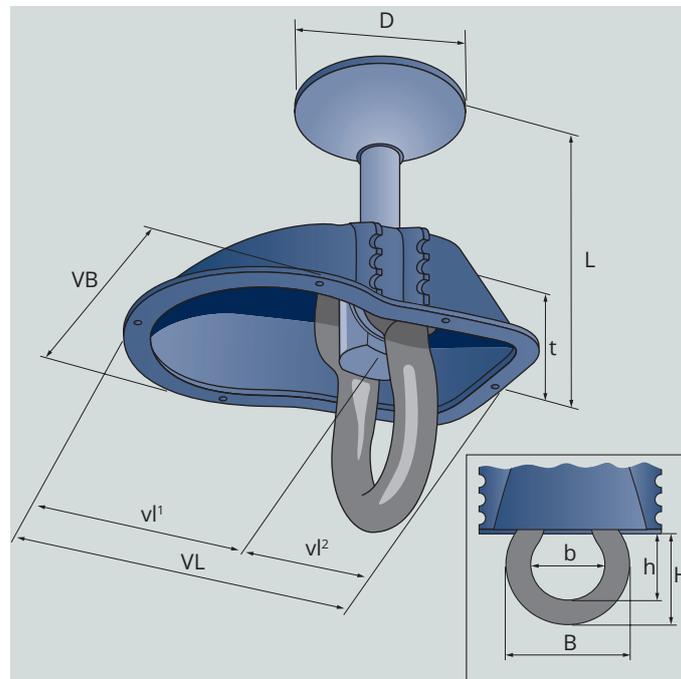
Load eyes are attachment points for the temporary attachment of loads during assembly or maintenance work or for personal protective equipment in lift shafts. They are intended for top-sided installation in steel reinforced concrete ceilings.

Advantages

- Low slab thickness necessary
- different application with a product as an attachment point for material loads or personal protection

Materials:

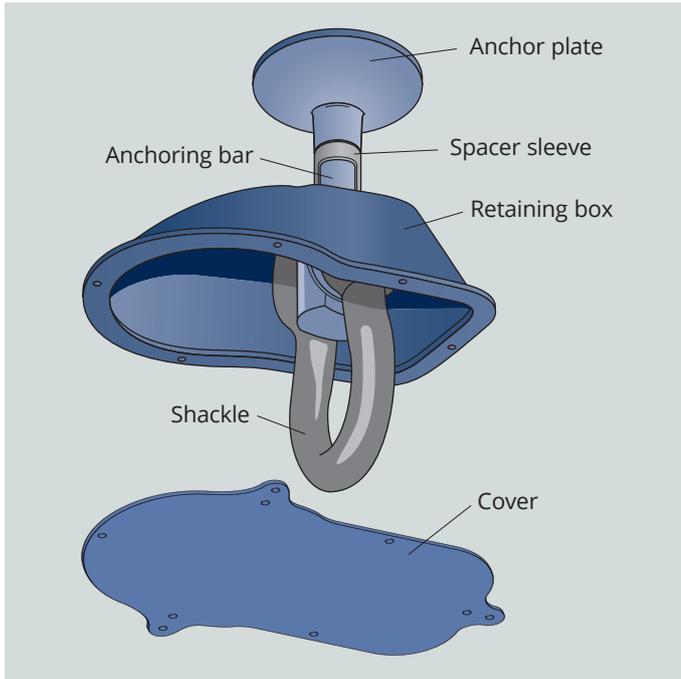
Special quality steel
Retaining box – plastic



Ref. no.	Type	Colour – retaining box	Dimensions [mm]											weight [kg/piece]
			D	L	VL	vl ¹	vl ²	VB	t	h	H	B	d	
505695	20	blue	90	130	195	125	70	132	60	65	78	86	60	2,1
505697	40	red	90	200	195	125	70	132	60	55	75	90	50	2,3

System description and marking

System description

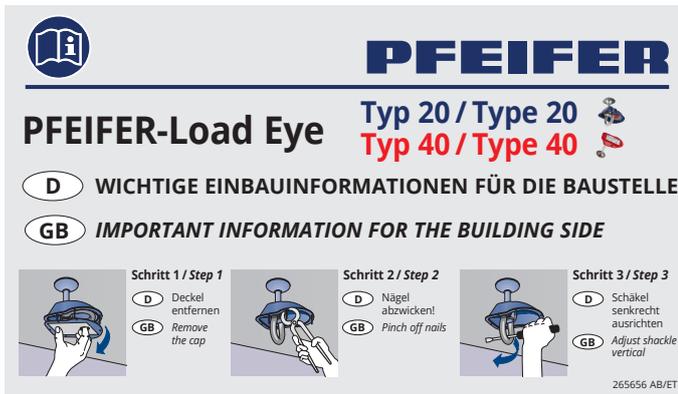


The load eye is designed for installation into flat reinforced concrete slabs of a minimum quality of C25/30. The following options are available:

1. Attachment points for the temporary attachment of material loads during assembly and maintenance work.
- OR
2. Attachment point for the temporary attachment of working platforms with people working on them
- OR
3. Attachment point for personal protective equipment.

Marking

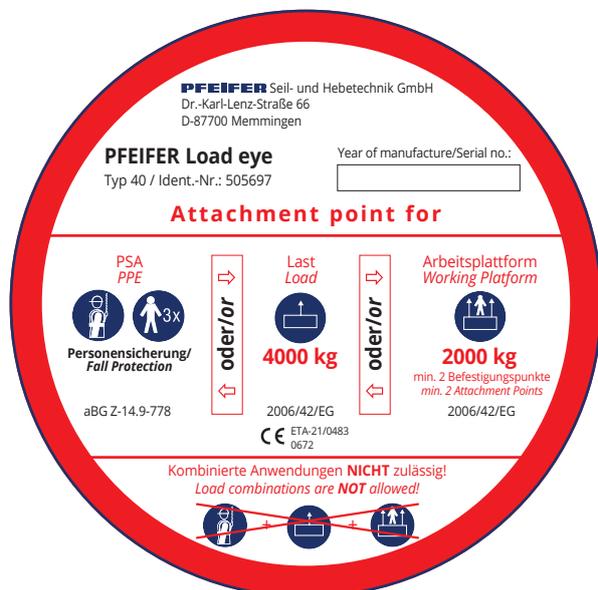
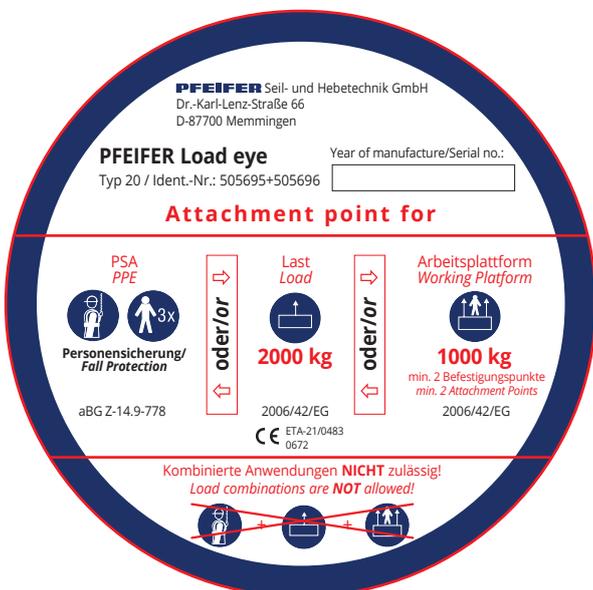
Outside on the lid of the retaining box



Colour of the retaining box:

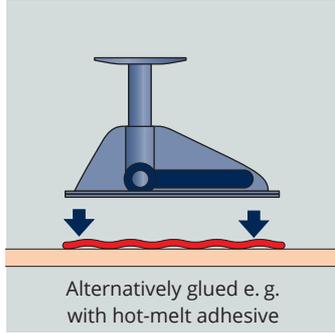
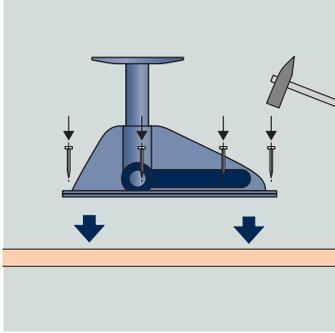
Load Eye	Colour
Type 20	blue
Type 40	red

Inside retaining box



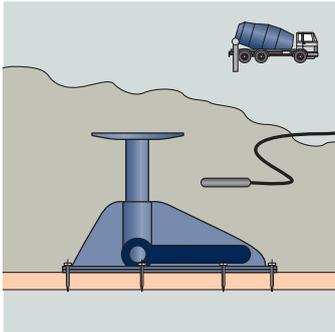
Installation

Installation of the load eye



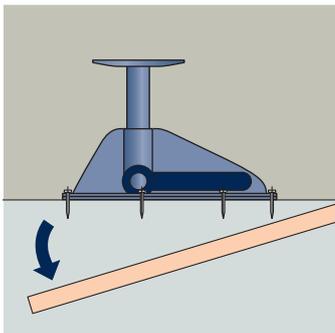
Fastening to the formwork:

1. Fastening variant 1:
nailing the retaining box to the formwork (Nail holes \varnothing 3 mm in the rim of the retaining box)
2. Fastening variant 2:
glue the retaining box including the cover to the formwork (cover is snapped firmly in place in the retaining box)



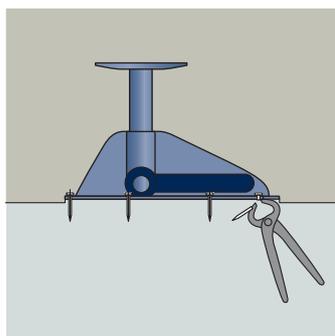
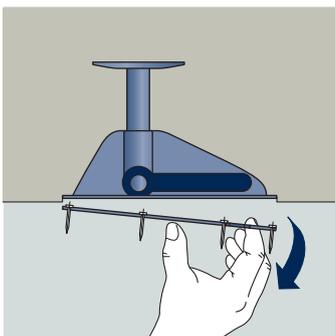
Pour and compact the concrete

1. Pour the concrete carefully and pay attention to the built-in components!
2. Carefully compact the concrete, avoiding direct contact between vibrator and retaining box and anchoring bar and anchor plate
→ Do not forcibly move or damage the retaining box of the load eye!



Demoulding

1. Carefully remove the formwork including the plastic cover
→ Avoid causing damage!
2. If the correct nail holes were used, the cover remains on the formwork and the load eye is exposed.
Steps 3 + 4 can be omitted.

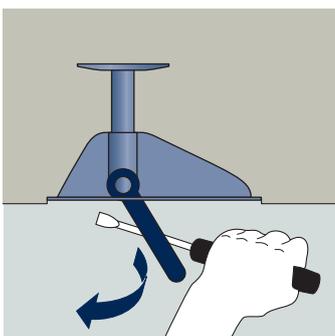


3. If necessary, remove the cover by pulling it through the hole
→ Beware of protruding fixing nails – risk of injury!
4. Nip off the nails flush with the surface using pincers.



Note:

If the nail holes in the cover are only used for nailing, the cover and the nails will be removed automatically when demoulding.



Establishing the operating state

1. Swing out the shackle by hand or using a suitable aid

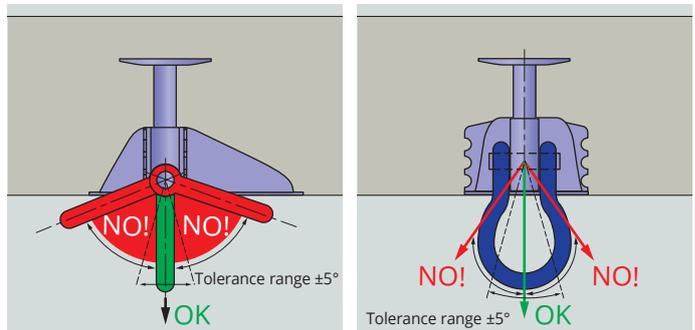
Use and dimensioning

Use

The PFEIFER load eye is a pre-installed attachment point for the temporary attachment of static or quasi-static loads during assembly and maintenance work OR for personal protective equipment. It is designed for installation into flat reinforced concrete slabs of a minimum quality of C25/30. The load eye is designed to accept central tensile loads, taking into account a tolerance of $\pm 5^\circ$ in each direction.

There are three different applications (options) for using the PFEIFER load eye:

1. Attachment point for the suspension of material loads (e. g. assembly ropes, tools, lift cars, etc.) In this case, the load eye is regarded as a load lifting attachment according to Directive 2006/42/EC of May 2006 (Machinery Directive). According to section 4.1.2.5, the load-carrying components must guarantee a working coefficient of 4. The characteristic resistances specified in the European Technical Assessment ETA 21/40483 must therefore be divided by the working coefficient of 4 for this application case.
2. Attachment point for the temporary attachment of working platforms with people working on them. In this case, the two directives 2014/33/EU of February 2014 (Lifts and safety components for lifts) and 2006/42/EC of May 2006 (Machinery Directive) must be complied with. according to the Machinery Directive section 6.1.1, the working coefficient described in 1.) must be doubled from 4 to 8. Furthermore, it is required that at least two independent fastening points are provided for this application. Each attachment point must be able to bear the full load, taking into account the working coefficient of 8.
3. Attachment point for personal protective equipment. This application case is regulated in the general design approval aBG Z-14.9-778 issued by the German Institute of Building Technology. The load eye was qualified for use as a load attachment for personal protective equipment in the context of dynamic fall tests on the basis of EN 795:2012. The tests simulated three people falling.



Caution:

Before the attachment point is used for the first time, the operating company must ensure that it enters service only after it has been examined by an expert technician and any faults discovered have been rectified.

Dimensioning

The selection of the load eye and the dimensioning of the reinforced concrete ceiling in which the load eyes will be installed must be done by a qualified engineer. The minimum concrete quality of C25/30 must be complied with for the use of the load eyes. Basis for the dimensioning is the European Technical Assessment ETA 21/40483 or the general design approval aBG Z-14.9-778. To ensure that the force to be anchored is applied locally to the concrete with sufficient safety, certain minimum axis and edge distances must be maintained. In addition, minimum requirements for part thicknesses are specified for corrosion protection.

The minimum dimensions are given in Table 1 and, in each case, refer to the longitudinal axes of the anchors. A concrete coverage c_{nom} of 20 mm for the anchor plate and surface reinforcement was assumed when defining the minimum component thickness.

Depending on the particular operational and environmental conditions, it may be necessary in certain cases to adjust the concrete coverage and hence the component thickness in accordance with BS EN 1992-1-1, Section 4.

To absorb the material loads, the minimum reinforcement according to Table 1 must be installed in the lower layer.

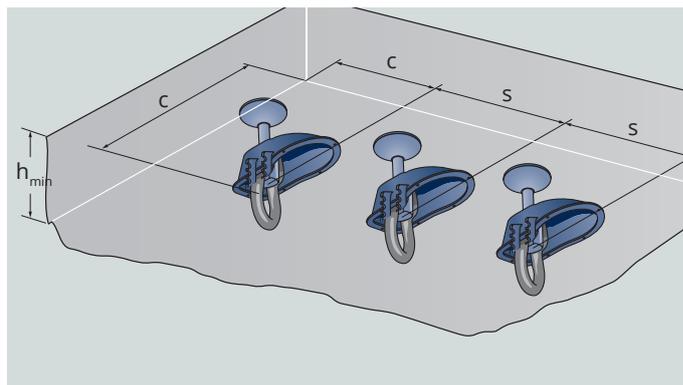
Table 1 – Minimum dimensions

Type	Edge distance c_{min} [mm]	Minimum distance s_{min} [mm]	Minimum component thickness h_{min} [mm]	Min. reinforcement cross-section A_s [mm ²]
20	250	500	150 (130*)	115
40	350	700	220 (200*)	215

*) If the anchor plate is coated with a suitable corrosion protection system, this reduced coverage thickness can be used. The required proofs are to be furnished by the user.

Table 2

			Option 1.) Attachment point for material loads	Option 2.) Attachment point for working platforms with persons	Option 3.) Attachment point for personal Protective equipment
Dimensioning value of the carrying capacity	Type 20	Colour: blue	2000kg	1000kg	3 persons
	Type 40	Colour: red	4000kg	2000kg	3 persons
Working coefficient applied			$\gamma = 4,0$	$\gamma = 8,0$	$\gamma = 1,5$
Special feature			-	Min. 2 attachment points each designed for full load	-
Application according to			Directive 2006/42/EC	Directive 2006/42/EC Directive 2014/33/EU	aBG Z-14.9-778



Caution:

The anchorings must be designed in line with engineering practice. Verifiable calculations and design drawings must be prepared, which take into account the loads to be anchored



Warning:

The attachment point may only be used for one of the three optional applications at a time (option 1. or 2. or 3.) according to Table 2. It is not permitted to attach loads and personnel at the same time!

Inspection

Assembly documentation form (example)

Project	_____		
Street:	_____	Building:	_____
Zip code/town:	_____	Storey:	_____
Client	_____		
Street:	_____	Contact person:	_____
Zip code/town:	_____	Phone/Mail:	_____
fitting company	_____		
Street:	_____	Monteur:	_____
Zip code/town	_____	Phone/Mail:	_____
Installation parameters	_____		
Structural element:	_____	Installation plan:	_____
load eye type:	_____	Concrete quality:	_____
Part thickness:	_____	Reinforcement:	_____
Edge distance:	_____		
Date of completion:	_____		
<p>We hereby confirm that the PFEIFER load eye as the attachment point for personal safety equipment has been fitted correctly with respect to all details and with due consideration of all regulations of Z-14.9-778 of the Deutsche Institut für Bautechnik.</p>			
_____	_____		
Place, date	signature, company stamp		
<p>(A copy of this certificate will be issued to the client and the responsible construction firm for submission to the relevant building authorities if required.)</p>			

PFEIFER

International

Sales:

+49 (0) 83 31-937-231

Technical Support:

+49 (0) 83 31-937-345

export-bt@pfeifer.de

www.pfeifer.info/concrete-inserts