

> VLBS-P <

Load ring weldable for pipes



Safety instruction

This safety instruction has to be kept on file for the whole lifetime of the product and forwarded with the product.
Translation of the original instruction



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Load ring weldable for pipes/tubes VLBS-P (captive with spring)

EG-Konformitätserklärung

entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen

Hersteller: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
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Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der EC-Maschinenrichtlinie 2006/42/EG sowie den unten aufgeführten harmonisierten und nationalen Normen sowie technischen Spezifikationen entspricht.
 Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Lastbock VLBS-P

Folgende harmonisierten Normen wurden angewandt:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

<u>DGUV-R 109-017 : 2020-12</u>	_____
_____	_____
_____	_____
_____	_____

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 01.06.2022 Hermann Kolb, Bereichsleitung MA

Name, Funktion und Unterschrift Verantwortlicher

EC-Declaration of conformity

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
 Friedensinsel
 73432 Aalen
 Germany

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications.
 In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: Load ring VLBS-P

The following harmonized norms were applied:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>DGUV-R 109-017 : 2020-12</u>	_____
_____	_____
_____	_____
_____	_____

Authorized person for the configuration of the declaration documents:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, 01.06.2022 Hermann Kolb, Head of division MA

Name, function and signature of the responsible person

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This operating manual provides information on the correct and safe use of the RUD lifting points VLBS-P.

Before using the VLBS-P, read the operating instructions completely and thoroughly. Ensure that you have understood all the contents. Please consult your RUD specialist dealer or RUD application engineer if you require further information.

Non-observation of the instructions can lead to injuries or damage and will invalidate the guarantee.

If doubtful or misunderstanding the German version of this document is crucial.

1 Safety instructions



ATTENTION

Wrong assembled or damaged lifting points as well as inappropriate use can lead to injuries of persons and property damage when loads falls.

Inspect all lifting points before each use carefully!

- Withdraw all body parts (fingers, hands, arms etc.) from the danger zone during the lifting process (risk of squeezing).
- The RUD lifting points VLBS-P must only be used by competent and designated persons which have been trained and taking into account the DGUV 109-017, and outside Germany by respecting the country specific regulations.
- Do not exceed the working load limit (WLL) indicated on the lifting point.
- No technical alterations must be implemented on the VLBS-P.
- No persons are allowed in the danger zone.
- Staying below suspended loads is prohibited.
- Jerky lifting (strong impacts) should be prevented.

- Always ensure a stable position of the load when lifting. Swinging must be prevented.
- Damaged or worn VLBS-P must not be used.

2 Intended use

- The RUD VLBS-P lifting point must only be used for the assembly at loads or lifting means.
- The VLBS-P is for the attaching of loads.
- The VLBS-P must only be weld on curved interfaces resp. round shaped parts (f.e. tubes) with an outside diameter of \varnothing 82 mm up to \varnothing 220 mm, or an outside radius of R41 up to R110.
- The VLBS-P must only be positioned and welded in axial direction (f.e. pipe axle - see *Pic. 1*). The pivot axle of the VLBS-P is therefore always parallel to the axle of the curved surface.
- The RUD lifting points can also be used as lashing points for the attachment of lashing means.
- RUD lifting points must only be used for the intended described usage.

3 Assembly and user instruction



HINT

The manufacturer RUD guarantees the overall conformity of the VLBS only after complete and correct implementation of the assembly and welding specifications!

3.1 General information

- Capability of temperature usage:
RUD lifting points VLBS-P are suitable for the temperature range from -40°C up to 400°C . When used in temperatures higher than 200°C , the WLL of the lifting point must be reduced as follows:

-40°C up to 200°C	no reduction
200°C up to 300°C	minus 10 %
300°C up to 400°C	minus 25 %

Temperatures higher than 400°C are prohibited!



HINT

*VLBS-P lifting points can be stress-relieved one-time together with the load (f.e. as part of a welding construction), when unloaded, one-time stress relieved.
(Temperature $<600^{\circ}\text{C}$ / 1100°F - max. 1 hour)
Ability verification of the used welding material must be determined with the corresponding supplier of electrodes resp. welding filler manufacturer.*

- RUD lifting points VLBS-P must not be used in combination with aggressive chemicals (acids, alkaline solutions and vapours).
- The places where the lifting points are fixed should be marked with colour
- VLBS-P will be supplied with pink-powder coated surface.

- The VLBS-P has a protect on the inside positioned spring, which holds the load ring in the desired position.
- The parts of the VLBS-P are connected captive and will be supplied assembled as a complete unit.

3.2 Hints for the assembly

Basically essential:

- The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The weld-on material must be suitable for welding and the contact areas must be free from impurities, oil, colour, etc. The material of the forged welding block is: S355J2+N (1.0577), DIN EN 10025-2
- The lifting points must be positioned on the load in such a way that movement is avoided during lifting:
 - **For single leg lifts:** the load ring should be positioned vertically above the centre of gravity of the load.
 - **For two leg lifts:** the lifting points must be equidistant to/or above the centre of gravity of the load.
 - **For three and four leg lifts:** the lifting points should be arranged symmetrically around the centre of gravity in the same plane, if possible.
- Load Symmetry:
Determine the working load limit of each individual RUD lifting point for symmetrical loading according to the following physical formula:

$$W_{LL} = \frac{G}{n \times \cos \beta}$$

W_{LL} = working load limit / single strand (kg)
 G = Weight of load (kg)
 n = Number of load bearing strands
 β = Inclination angle of single strand

Number of load bearing strands:

	Symmetrical
two leg	2
three / four leg	3

Table 1: Load bearing strands (see table 3)



HINT

At unsymmetrical loads, even if several lifting points are used, the WLL of a single lifting point must be at least equal to the load weight or ask the manufacturer.

- Finally check correct assembly (see chapter 4 *Inspection / repair / disposal*).

3.3 Hints for the welding

The welding should only be carried out according to ISO 9606-1 or AWS Standards by an authorized welder.

Verifications of suitability of the used weld-on material must be checked with the supplier of the welding electrodes.



HINTS

- Please note the corresponding user hint in regard of the welding filler materials (see Table 4).
- All weld seams must be carried out with the same temperature.
- Never weld at the pink powder coated load ring.

- 1 Attach the welding block to the installation site.
- 2 Check function of the suspension ring (must be able to pivot 180°). If necessary please correct.
- 3 Weld root layer, interlayer and finally top layer.



HINT

- Clean carefully the layers before welding of inter- and top layers.
- Remove visible missing sections.

Details about weld seam type and size can be taken out of Pic. 1 and from the Table 2 / Table 4.

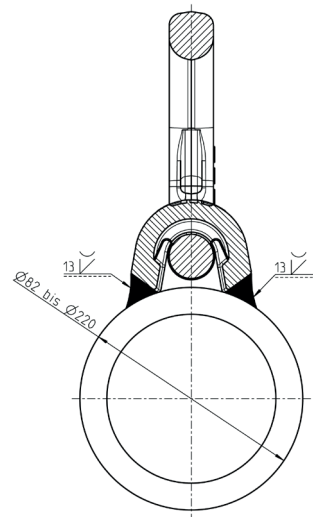


HINT

Weld in string beads.

Type	Size	Length	Volume
VLBS-P 4 t	HV13 concave	2 x 46 mm	approx. 5.7 cm ³

Table 2: Weld seam (weld-on block)



Pic. 1: HV-seam-concave

- 4 Please check by a competent person after welding the ongoing usage of the weld-on lifting point (see chapter 4 *Inspection / repair / disposal*).

3.4 Hints for the usage

- Take a look on a regular basis before each use (f.e. by the rigging person) on the whole lifting point (tight fit, strong corrosion, cracks at load bearing components, deformations). See section 4 *Inspection / repair / disposal*.

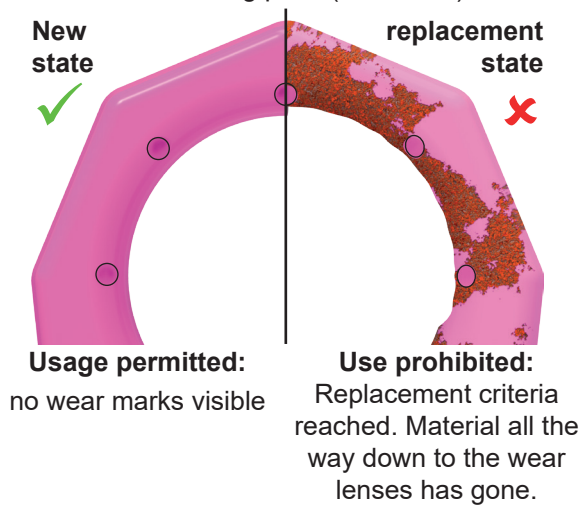


ATTENTION

Wrong assembled or damaged lifting points as well as inappropriate use can lead to injuries of persons and property damage when loads falls.

Inspect all lifting points before each use carefully!

- RUD components are designed according to DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles.
 - Keep in mind that several load cycles can occur with a lifting procedure
 - Keep in mind that, due to the high dynamic stress with high numbers of load cycles, that there is a danger that the product will be damaged.
 - The BG/DGUV recommends: For higher dynamic loading with a high number of load cycles (continuous operation), the working load stress must be reduced according to the driving mechanism group 1Bm (M3 in accordance with DIN EN 818-7). Use a lifting point with a higher working load limit.
- Please check carefully the wear indicator markings of the weld-on lifting point (see Pic. 2):



Pic. 2: Wear indicators

- Pay attention that the lifting mean in the VLBS-P is free movable. When lifting means (f.e. chain slings) are attached and unhinged, no violent pressure or shearing joint must occur.
- Avoid damage of lifting means caused by sharp edges.
- If the lifting points are used **exclusively** for lashing the value of the working load limit can be doubled. $LC \text{ (Lashing capacity)} = 2 \times WLL$



HINT

If the VLBS-P is/was used as a lashing point, with a force higher than the WLL, it must not be used as a lifting point afterwards.

If the VLBS-P is/was used as a lashing point, up to the WLL only, it can still be used afterwards as a lifting point.

- Leave hazardous area when possible.
- Monitor always attached loads.

4 Inspection / repair / disposal

4.1 Hints for periodical inspections

The operator must determine and specify the nature and scope of the required tests as well as the periods of repeating tests by means of a risk assessment (see sections 4.2 and 4.3).

The continuing suitability of the anchor point must be checked at least 1x year by an expert.

Depending on the usage conditions, f.e. frequent usage, increased wear or corrosion, it might be necessary to check in shorter periods than one year. The inspection has also to be carried out after accidents and special incidents.

The operator must specify the test cycles.

Use only original RUD replacement parts and enter the repairs carried out in the chain index card (of the complete lifting means) and use the AYE-D.NET system.

4.2 Test criteria for the regular visual inspection by the user

- Completeness of lifting point
- Comprehensive, legible load-bearing information as well as the manufacturer's identification mark
- Deformation at load bearing parts like base body and load ring
- Mechanical damage like strong notches, especially at areas with tensile stress

4.3 Additional test criteria for the competent person / repair worker

- Damages and cross section reductions caused by wear > 10%
- Strong corrosion (pitting corrosion)
- further checks may be required, depending on the result of the risk assessment (e.g. testing for cracks in load-bearing parts/weld seam).

4.4 Disposal

Dispose worn out components / attachments or packaging according to the local waste removal requirements.

Lifting methode										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Angle of incl. β	0°	90°	0°	90°	0-45°	>45-60°	Un-symm.	0-45°	>45-60°	Un-symm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
Type	For max. total load >G< in metric tons									
VLBS-P 4 t	4	4	8	8	5.6	4	4	8.4	6	4
Type	For max. total load >G< in lbs									
VLBS-P 4 t	8800	8800	17600	17600	12320	8800	8800	18500	13200	8800
At a lift with one strand and two parallel strands where the inclination angles are at the max. $\pm 7^\circ$, the lifting methode can be assumed as a vertical lift.					When lifting with two, three or four leg lifting means, inclination angles of less than 15° shall be avoided, if possible (Risk of instability).					

Table 3: WLL overview Subject to technical modifications

Europe, USA, Asia, Australia, Africa	
Baustähle, niedrig legierte Stähle EN 10025 Mild steels, low alloyed steel	
MIG / MAG (135) Gas shielded wire welding (135)	DIN EN ISO 14341: G4Si1 (G3Si1) Z.B. PEGO G4Si1
E-Hand Gleichstrom (111, =) Stick Electrode direct current	DIN EN ISO 2560-A: E 42 6 B 3 2 H10 DIN EN ISO 2560-A: E 38 2 B 1 2 H10 z.B. PEGO B Spezial* / PEGO BR Spezial*
E-Hand (Wechselstrom 111, ~) Stick Electrode alternating current	DIN EN ISO 2560-A: E 38 2 RB 1 2 DIN EN ISO 2560-A: E 42 0 RC 1 1 z.B. PEGO RC 3 / PEGO RR B 7 Alternativ: DIN EN ISO 3581: E 23 12 2 L R 3 2 z.B. PEGO 309 MoL
WIG (141) TIG Tungsten arc welding	DIN EN ISO 636-A: W 3 Si 1 (W2 Si 1) DIN EN ISO 636-A: W 2 Ni 2 z.B. PEGO WSG 2 / PEGO WSG2Ni2



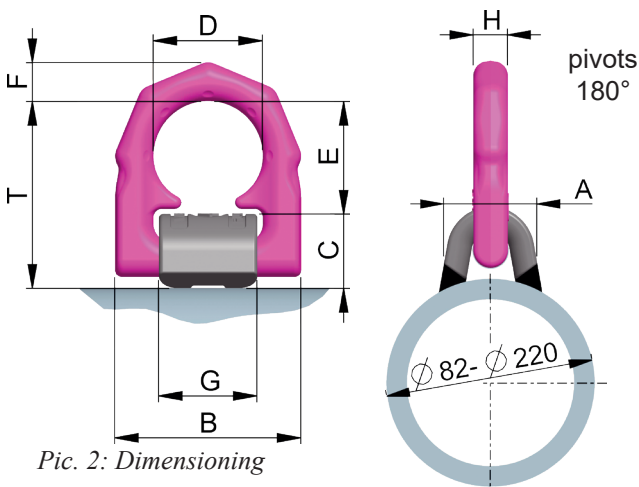
HINT

Pay attention to the processing instructions of the weld filler materials and to the drying requirements*.

Table 4: Welding procedure and Welding filler metals * Stick dry weld

Type	WLL	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	T [mm]	weight [kg/pc.]	VLBS-P complete	D-ring	weld-on block	spring
VLBS-P 4 t	4 t	45	87	35	51	52	18	46	16.5	87	0.8 kg	7995472*	7906584	7995476	7102232
VLBS-P 4 t	8800 lbs	1 ²⁵ / ₃₂ "	3 ⁷ / ₁₆ "	1 ³ / ₈ "	2"	2 ¹ / ₁₆ "	2 ³ / ₃₂ "	1 ¹³ / ₁₆ "	2 ¹ / ₃₂ "	3 ⁷ / ₁₆ "	1.75 lbs	7995472*	7906584	7995476	7102232

Table 5: Dimensioning * Packing unit: 10 pieces Technical alterations are subject to change



Pic. 2: Dimensioning



Pic. 3: Top view weld-on block