

# > VLBS-U-LT <

(for low temperatures)



## Safety instructions

This safety instruction/declaration of Conformity must be kept for the entire time usage time and forwarded with the product.  
- Translation of the Original instructions -



Load ring - for welding  
for low temperatures  
**VLBS-U-LT**



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**EG-Konformitätserklärung**

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

Hersteller: **RUD Ketten**  
**Rieger & Dietz GmbH u. Co. KG**  
Friedensinsel  
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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 EG-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-LT

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>BGR 500, KAP2.8 : 2008-04</u>	_____
_____	_____
_____	_____
_____	_____

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

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB)  
Name, Funktion und Unterschrift Verantwortlicher *Arne Kriegsmann*

**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

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-LT

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>BGR 500, KAP2.8 : 2008-04</u>	_____
_____	_____
_____	_____
_____	_____

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

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB)  
Name, function and signature of the responsible person *Arne Kriegsmann*

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*This user manual contains information about the correct and safe use of VLBS-U-LT.*

*Read the user manual carefully and in full before using the RUD lifting point VLBS-U-LT. Ensure that you have understood all the contents. If you need further information, ask your RUD retailer or RUD application engineer.*

*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-U-LT 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-U-LT.
- 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-U-LT must not be used.

## 2 Intended use

- The RUD VLBS-U-LT lifting point must only be used for the assembly at loads or lifting means.
- The VLBS-U-LT is for the attaching of loads.
- 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

### 3.1 General information

- Capability of temperature usage:  
RUD lifting points VLBS-U-LT are suitable for the temperature range from -45°C up to 400°C. When used in temperatures higher than 200°C, the WLL of the lifting point must be reduced as follows:

-45°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

*The VLBS-U-LT can be recognized by the additional marking (-45°C) at the weld-on block.*



### HINT

*VLBS-U-LT 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°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.*

*Impact energy  $\geq$  27 Joule at -45°C*

- RUD lifting points VLBS-U-LT 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
- The VLBS-U-LT has a protect on the inside positioned spring, which holds the load ring in the desired position.
- The parts of the VLBS-U-LT 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 (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 and unsymmetrical 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  
 $\beta$  = Inclination angle of single strand

Number of load bearing strands:

	Symmetrical	Unsymmetrical
two leg	2	1
three / four leg	3	1

Table 1: Load bearing strands (see table 3)

- Finally check correct assembly (see section 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.
- Do not weld at the heat treated load ring.
- The distance lugs assist in achieving the correct root weld (approx. 3 mm = 0.1 inch). They may not be removed.



Pic. 1: distance lugs

- Start tacking at the center of the weld-on block.
- Check function of the suspension ring (must be able to pivot 180°). If necessary please correct.
- 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.

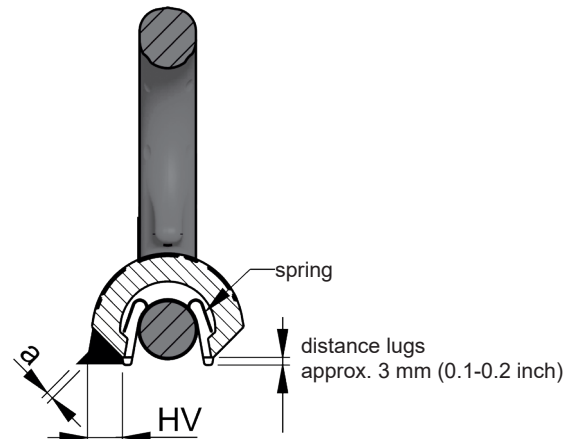


#### HINT

Weld in string beads.

Type	size	length	volume
VLBS-U-LT 2.5 t	HV 7 + a 3	2 x 40 mm	approx. 2.6 cm <sup>3</sup>
VLBS-U-LT 4 t	HV 8 + a 3	2 x 46 mm	approx. 3.2 cm <sup>3</sup>
VLBS-U-LT 6.7 t	HV 12 + a 4	2 x 60 mm	approx. 8.7 cm <sup>3</sup>
VLBS-U-LT 10 t	HV 16 + a 4	2 x 60 mm	approx. 15.5 cm <sup>3</sup>

Table 2: Weld seam (weld-on block)



Pic. 2: Welding seam definition



#### HINT

By the position of the weld-seam (HV continuous fillet weld seam) the following requirements will be observed: DIN 18800 steel constructions requires: at outdoor buildings, especially when endanger of particular corrosion may occur, all weld seams shall be carried out as circumferential continuous fillet weld seams. The continuous fillet weld seam at the VLBS-U-LT weld-on block fulfills the requirements and guarantees a connection through the whole cross section of the material.

- Please check by a competent person after welding the ongoing usage of the weld-on lifting point (see section 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*.

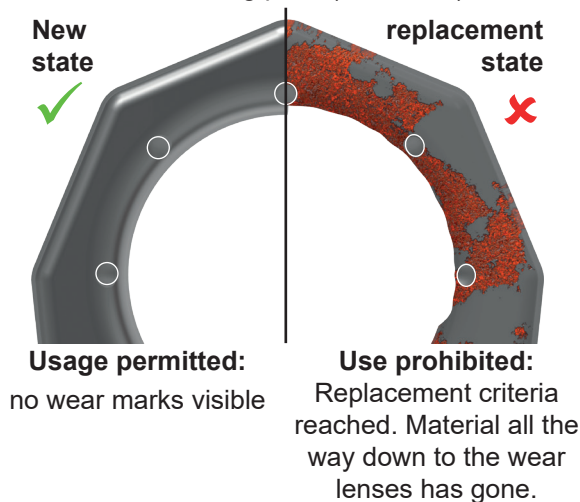


#### ATTENTION

*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. 3*):



*Pic. 3: Wear indicators*

- Pay attention that the lifting mean in the VLBS-U-LT 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 (Lashing capacity) = 2 x WLL



#### HINT

*If the VLBS-U-LT 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-U-LT 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.

Document your carried out repair/maintenance (p.ex. in the AYE-D.NET system).

Use only original RUD replacement parts.

### 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 method										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Angle of incl. <math>\beta</math>	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	<b>max. weight of load</b>									
VLBS-U-LT 2.5 t	2.5 t 5500 lbs	2.5 t 5500 lbs	5 t 11000 lbs	5 t 11000 lbs	3.5 t 7700 lbs	2.5 t 5500 lbs	2.5 t 5500 lbs	5.25 t 11550 lbs	3.75 t 8250 lbs	2.5 t 5500 lbs
VLBS-U-LT 4 t	4 t 8800 lbs	4 t 8800 lbs	8 t 17600 lbs	8 t 17600 lbs	5.6 t 12320 lbs	4 t 8800 lbs	4 t 8800 lbs	8.4 t 18500 lbs	6 t 13200 lbs	4 t 8800 lbs
VLBS-U-LT 6.7 t	6.7 t 14750 lbs	6.7 t 14750 lbs	13.4 t 29500 lbs	13.4 t 29500 lbs	9.5 t 20650 lbs	6.7 t 14750 lbs	6.7 t 14750 lbs	14 t 30980 lbs	10 t 22100 lbs	6.7 t 14750 lbs
VLBS-U-LT 10 t	10 t 22000 lbs	10 t 22000 lbs	20 t 44000 lbs	20 t 44000 lbs	14.0 t 30800 lbs	10 t 22000 lbs	10 t 22000 lbs	21 t 46200 lbs	15 t 33000 lbs	10 t 22000 lbs

Table 3: WLL overview

Subject to technical alterations

	<b>Europe, USA, Asia, Australia, Africa</b>
	Baustähle, niedrig legierte Stähle EN 10025 Mild steels, low alloyed steel
<b>MIG / MAG (135)</b> <b>Gas shielded wire welding (135)</b>	DIN EN ISO 14341: G4Si1 (G3Si1) Z.B. PEGO G4Si1
<b>E-Hand Gleichstrom (111, =)</b> <b>Stick Electrode direct current</b>	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*
<b>E-Hand (Wechselstrom 111, ~)</b> <b>Stick Electrode alternating current</b>	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
<b>WIG (141)</b> <b>TIG Tungsten arc welding</b>	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

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

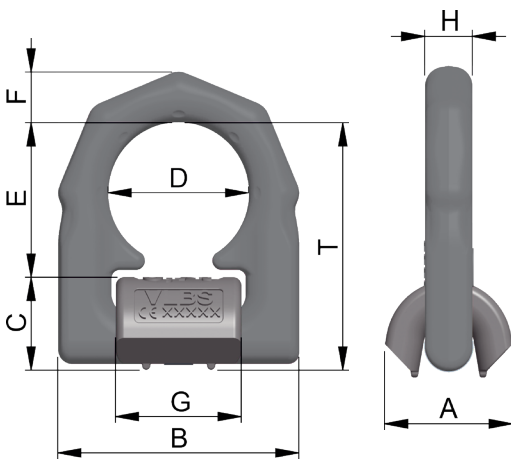


**HINT**

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

Type	Tragf. WLL	Gewicht weight [Stk.]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	T [mm]	Verpackungseinheit /packing unit [Stück/piece]	VLBS-U-LT Bestell-Nr. komplett Ref.-No. complete
VLBS-U-LT 2,5 t*	2,5 t	0,5 kg	36	77	27	45	48	16	40	14	75	--	--
VLBS-U-LT 2,5 t	2,5 t	0,53 kg	38	77	28	45	47	16	40	16	75	20	7903522
VLBS-U-LT 4 t	4 t	0,8 kg	42	87	31	51	52	18	46	16	83	10	7903400
VLBS-U-LT 6,7 t	6,7 t	1,9 kg	61	115	44	67	73	24	60	22	117	4	7903684
VLBS-U-LT 10 t	10 t	2,9 kg	75	129	55	67	71	26,5	60	26,5	126	4	7903135
VLBS-U-LT 2,5 t*	5500 lbs	1,03 lbs	1 13/32"	3 1/32"	1 3/4"	1 1/16"	1 7/8"	5/8"	1 19/32"	9/16"	3"	--	--
VLBS-U-LT 2,5 t	5500 lbs	1,03 lbs	1 13/32"	3 1/32"	1 3/4"	1 1/16"	1 7/8"	5/8"	1 19/32"	9/16"	3"	20	7903522
VLBS-U-LT 4 t	8800 lbs	1,75 lbs	1 21/32"	3 7/16"	2"	1 7/32"	2 1/16"	23/32"	1 13/16"	21/32"	3 1/4"	10	7903400
VLBS-U-LT 6,7 t	14750 lbs	4,2 lbs	2 13/32"	4 1/2"	2 5/8"	1 3/4"	2 7/8"	61/64"	2 3/8"	7/8"	4 5/8"	4	7903684
VLBS-U-LT 10 t	2200 lbs	6,4 lbs	2 15/16"	5"	2 5/8"	2 1/8"	2 13/16"	1 1/16"	2 3/8"	1 3/64"	5"	4	7903135

Table 5: Dimensioning • = Model in round design (up to April 2017) - Discounted part / Technical alterations are subject to change



Pic. 4: Dimensioning

pivots  
180°



Pic. 5: Top view weld-on block