VLBS

Load ring - for welding

EN

Safety instructions

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 INSTRUCTIONS

DGUV Test
HM 240067
Sicherheit geprüft
tested safety
dguv.de/pruefzeichen

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RUD-Art.-Nr.: 8503014-EN / V04 / 04.025

Load ring **VLBS** - for welding

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
73432 Aalen

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 / VLBS-U

Folgende harmonisierten Normen wurden angewandt:

DIN EN 1677-1 : 2009-03	DIN EN ISO 12100 : 2011-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

DGUV-R 109-017 : 2020-12

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

Aalen, den 16.05.2021 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

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 / VLBS-U

The following harmonized norms were applied:

DIN EN 1677-1 : 2009-03	DIN EN ISO 12100 : 2011-03

The following national norms and technical specifications were applied:

DGUV-R 109-017 : 2020-12

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

Aalen, den 16.05.2021 Hermann Kolb, Bereichsleitung MA

Name, function and signature of the responsible person

CE UKCA

INHALT

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Carefully read the operating instructions before using the RUD lifting point VLBS. Ensure that you have understood all the contents.

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

1 Safety instructions

WARNING

Wrong assembled or damaged lifting points as well as impropriate 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).
- RUD lifting points VLBS may only be used by authorised and instructed persons in compliance with the DGUV Regulations 109-017, and in compliance with any valid national regulations if used outside Germany.
- Do not exceed the working load limit (WLL) indicated on the lifting point.
- No technical modifications must be made to the VLBS.
- 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 must not be used.

2 Intended use

RUD lifting points VLBS must only be used for the assembly of the load or at load accepting means.

The VLBS can also be used as lashing points for the fixture of lashing means.

Loading from all sides is allowed.

The VLBS must only be used in the here described usage purpose.

3 Assembly- and 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

- Effects of temperature:
  RUD lifting points VLBS are suitable for the temperature range from -40°C up to 400°C. For the use within the following temperature range, the WLL must be reduced by the following factors:

  -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 above 400°C are not permitted!

HINT

The lifting points VLBS can be stress-relieved one-time in an unloaded condition, together with the load (e.g. welded construction): Temperature < 600°C / 1100°F (max. 1 hour).

The evidence of the suitability of the used weld metal must be mentioned by the respective filler material manufacturer.

- RUD-Lifting points must not be used under chemical influences such as acids, alkaline solutions and vapours e.g. in pickling baths or hot dip galvanising plants.
- The places where the lifting points are fixed should be marked with colour.
- VLBS will be delivered with a pink powder coated load ring.

3.2 Hints for the assembly

Basically essential:

- The location for the lifting point must be chosen in such a way that the introduced forces will be absorbed by the base material without safety affecting deformations, if necessary a minimium thickness of the sheet metall must be specified. The contact areas must be free from inpurities, oil, colour, ect.

  Material of the forged welding block:
  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 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.

- Load Symmetry:
  Determine the working load limit of each individual RUD lifting point for symmetrical loading according to the following physical formula:

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

W_{LL} = working load limit (kg)
G = load weight (kg)
n = number of load bearing legs
ß = angle of inclination of the chain to the vertical

The calculation of load bearing legs is as follows:

	Symetrical
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 the proper assembly (see chapter *4 Inspection / Repair / Disposal*).

3.3 Hints for the welding

The welding should only be carried out according to DIN EN 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).*
- *Weld all seams at the same temperature.*
- *Never weld at the* pink powder coated 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

1 Start tacking at the center of the weld-on block.

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.*

Choose type of weld seam and size according to *Table 2 and Pic. 4.*

HINT

Weld in string beads.

Type	size	length	volume
VLBS 1.5 t	HV 5 + a 3	2 x 33 mm	approx. 1.2 cm³
VLBS 2.5 t	HV 7 + a 3	2 x 40 mm	approx. 2.6 cm³
VLBS 4 t	HV 8 + a 3	2 x 46 mm	approx. 3.2 cm³
VLBS 6.7 t	HV 12 + a 4	2 x 60 mm	approx. 8.7 cm³
VLBS 10 t	HV 16 + a 4	2 x 60 mm	approx. 15.5 cm³
VLBS 16 t	HV 25 + a 6	2 x 90 mm	approx. 56 cm³

Table 2: Weld seam (weld-on block)

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

HINT

By the position of the weld-seam (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 occure, all weld seams shall be carried out as circumferential continous fillet weld seams.

The countinous fillet weld seam at the VLBS weld-on block fulfills the requirements and guarantees a connection through the whole cross section of the material.

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*).

WARNUNG

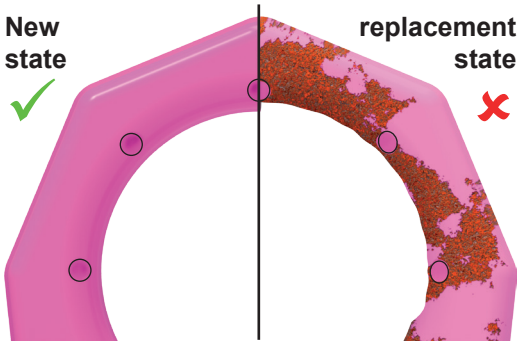
Wrong assembled or damaged lifting points as well as impropriate use can lead to injuries of persons and property damage when loads falls.

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 *Table 3*):



Usage permitted:
no wear marks visible

Use prohibited:
Replacement criteria reached. Material all the way down to the wear lenses has gone.

Pic. 2: Wear indicators

- Please note that the lifting mean must be free moveable within the weld-on lifting point VLBS. When lifting means (sling chains) are hinged or unhinged, no pinching, shearing or joint spots must occure during the handling.
- Avoid damage of lifting means resulting from 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 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 is/was used as a lashing point, up to the WLL only, it can still be used afterwards as a lifting point.

- If possible, leave the immediate danger zone.
- Always supervise your suspended 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 section *4.2 and 4.3*).

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

Depending on the application conditions, e.g. when used frequently or if there is a higher level of wear or corrosion, it may be necessary to carry out inspections at intervals of less than a year. This inspection is also absolutely necessary after damage and special incidents.

The inspection cycles must be specified by the operator.

Only RUD original spare parts must be used and all repairing operations and service work must be documented in the chain card file (of the complete lifting mean) or use the AYE-D.NET.

4.2 Test criteria for the regular visual inspection by the user

- The lifting point should be complete
- Comprehensive, legible load-bearing information as well as the manufacturer‘s identification mark
- Deformations on load-bearing parts such as basic body and load ring
- Mechanical damage, such as notches, particularly in high stress areas.

4.3 Additional test criteria for the competent person / repair worker

- Cross-section alterations caused by wear > 10 %
- Strong corrosion (pittings)
- Additional inspections may be necessary depending on the result of the risk assessment (e.g. incipient cracks at load bearing parts, weld seam).

4.4 Disposal

Dispose of the discarded components / accessories or packaging in line with local regulations.

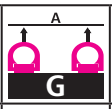
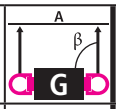
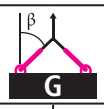
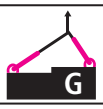
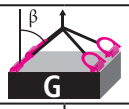
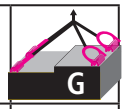
Method of lift										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Angle of inclination <ß	0°	90°	0 °	90°	0-45°	>45-60°	Un-symm.	0-45°	>45-60°	Un-symm.
Faktor	1	1	2	2	1.4	1	1	2.1	1.5	1
Type	For the max. total load weight >G<									
VLBS 1.5 t	**1.5 t** 3300 lbs	**1.5 t** 3300 lbs	**3 t** 6600 lbs	**3 t** 6600 lbs	**2.12 t** 4620 lbs	**1.5 t** 3300 lbs	**1.5 t** 3300 lbs	**3.15 t** 6930 lbs	**2.24 t** 4950 lbs	**1.5 t** 3300 lbs
VLBS 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 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 6.7 t	**6.7 t** 14750 lbs	**6.7 t** 14750 lbs	**13.4 t** 29500 lbs	**13.4 t** 29500 lbs	**9.4 t** 20650 lbs	**6.7 t** 14750 lbs	**6.7 t** 14750 lbs	**14.1 t** 30980 lbs	**10 t** 22100 lbs	**6.7 t** 14750 lbs
VLBS 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	**21.2 t** 46200 lbs	**15 t** 33000 lbs	**10 t** 22000 lbs
VLBS 16 t	**16 t** 35200 lbs	**16 t** 35200 lbs	**32 t** 70400 lbs	**32 t** 70400 lbs	**22.4 t** 49300 lbs	**16 t** 35200 lbs	**16 t** 35200 lbs	**33.6 t** 73920 lbs	**24 t** 52800 lbs	**16 t** 35200 lbs
	At a lift with one strand and two parallel strands where the inclination angles are at the max. ± 7°, 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 Mild steels, low alloyed steel EN 10025
MIG / MAG (135) **Gas shilded wire welding (135)**	DIN EN ISO 14341: G4Si1 (G3Si1) Z.B. PEGO G4Si1
E-Hand Gleichstrom (111, =) **Stick Electrode direct current** **Poste à souder à courant conting**	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** **Poste à souder à courant alternatif**	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** **Soudures au tungstène**	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 + Welding filler metals ** Stick dry weld*

HINT

Please note the corresponding user hint in regard of the welding filler materials and the drying requirements.*

Type	WLL [t]	weight [kg/pc.]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	T [mm]	Ref.No.				
												VLBS complete	without spring	D-ring	welding block	spring
VLBS 1.5 t	1.5	0.35	33	66	25	38	40	14	33	14	65	7993035*	7993115 *	7906582	7993021	7102228
VLBS 2.5 t•	2.5	0.5	36	77	27	45	48	16	40	14	75	--	--	--	--	--
VLBS 2.5 t	*2.5*	*0.53*	*38*	*77*	*28*	*45*	*47*	*16*	*40*	*16*	*75*	*7994830**	*7995346**	*7906583*	*7907596*	*7102232*
VLBS 4 t	4	0.8	42	87	31	51	52	18	46	16	83	7993036**	7993116**	7906584	7993022	7102232
VLBS 6.7 t	6.7	1.9	61	115	44	67	73	24	60	22	117	7993037***	7993117***	7906585	7993023	7102236
VLBS 10 t	10	2.9	75	129	55	67	71	26.5	60	26	126	7993040***	7993118***	7906586	7993024	7102133
VLBS 16 t•	16	6.8	95	190	69	100	105	40	90	27	174	--	--	--	--	--
VLBS 16 t	*16*	*7.1*	*96*	*192*	*70*	*100*	*106*	*40*	*90*	*26*	*176*	*7906640****	*7993041****	*7906587*	*7906638*	*7906639*

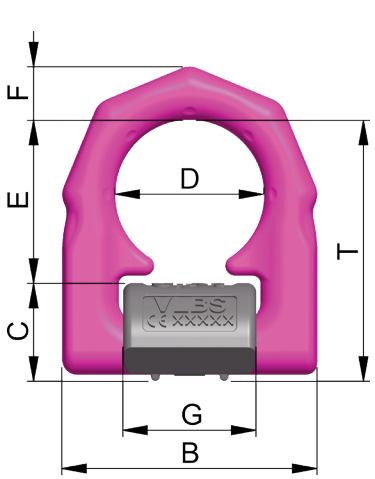
Table 5: • Model in round design (up to April 2017) - Discounted part Subject to technical alterations

* = package unit 20 pieces ** = package unit 10 pieces *** = package unit 4 pieces **** = package unit 2 pieces

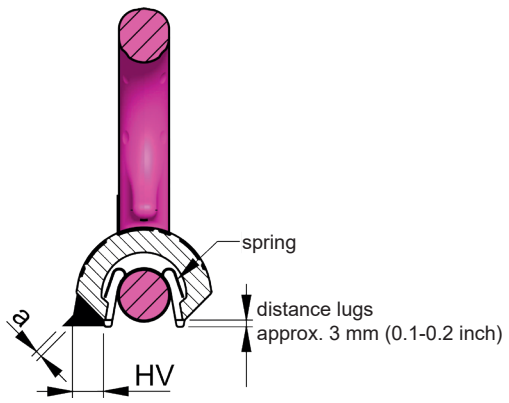
Type	WLL [lbs]	weight [lbs/pc.]	A	B	C	D	E	F	G	H	T	Ref.No.	
												VLBS complete	without spring
VLBS 1.5 t	3300	0.77	1 5/16“	2 19/32“	1 1/2“	1“	1 9/16“	9/16“	1 5/16“	17/32“	2 9/16“	7993035 *	7993115 *
VLBS 2.5 t•	5500	1.03	1 13/32“	3 1/32“	1 3/4“	1 1/16“	1 7/8“	5/8“	1 19/32“	9/16“	3“	--	--
VLBS 2.5 t	5500	1.03	1 13/32“	3 1/32“	1 3/4“	1 1/16“	1 7/8“	5/8“	1 19/32“	9/16“	3“	7994830 *	7995346 *
VLBS 4 t	8800	1.75	1 21/32“	3 7/16“	2“	1 7/32“	2 1/16“	23/32“	1 13/16“	21/32“	3 1/4“	7993036**	7993116**
VLBS 6.7 t	14750	4.2	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“	7993037***	7993117***
VLBS 10 t	2200	6.4	2 15/16“	5“	2 5/8“	2 1/8“	2 13/16“	1 1/16“	2 3/8“	1 3/64“	5“	7993040***	7993118***
VLBS 16 t•	35200	15	3 3/4“	7 1/2“	3 15/16“	2 23/32“	4 1/8“	1 9/16“	3 9/16“	1 1/16“	6 7/8“	--	--
VLBS 16 t	35200	15.7	3 25/32“	7 9/16“	3 15/16“	2 3/4“	4 3/16“	1 9/16“	3 9/16“	1“	6 15/16“	7906640	7993041

Table 6: • = Model in round design (up to April 2017) - Discounted part Subject to technical alteration

* = package unit 20 pieces ** = package unit 10 pieces *** = package unit 4 pieces **** = package unit 2 pieces



Pic. 3: Dimensioning



Pic. 4: Welding seam definition