

# Load ring weldable suits 90°-corners > VRBK-FIX <



## Safety instructions

This safety instruction/declaration has to be kept on file for the whole lifetime of the product.

Translation of the original safety instruction



**RUD Ketten**  
Rieger & Dietz GmbH u. Co. KG  
73428 Aalen  
Tel. +49 7361 504-1370  
Fax +49 7361 504-1171  
sling@rud.com  
www.rud.com

RUD-Art.-Nr.: 7902520-EN / 01.020

Load ring for 90°-corners  
(weldable)  
VRBK-FIX

**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:** Ringbock  
VRBS-fix / VRBK-fix / VRBS / VRBG / VRBK / VRBSS

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) *Arne Kriegsmann*  
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  
VRBS-fix / VRBK-fix / VRBS / VRBG / VRBK / VRBSS

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) *Arne Kriegsmann*  
Name, function and signature of the responsible person



Before initial usage of the RUD-VRBK-FIX, please read carefully the safety instructions. Make sure that you have understood all subjected matters.  
Non-observance can lead to serious personal injuries and material damage and eliminates warranty.

## 1 Safety instructions



### ATTENTION

Wrong positioned or damaged weld-on lifting points as well as improper use can lead to injuries of persons and damage at property, when load falls down. Please check all lifting points carefully before every usage.

RUD-lifting points VRBK-FIX must only be used by instructed and competent persons considering BGR 500 / DGUV 100-500, and outside Germany noticing the country specific statutory regulations.

## 2 Intended use of the VRBK-FIX

RUD-Lifting points VRBS-FIX must only be used for the assembly at the load or at lifting means.

They are designed and intended to attach lifting means.

RUD Lifting points can also be used as lashing points to attach lashing means.

RUD-lifting points must only be used in the hereby specified case of operation.

## 3 Assembly- and instruction manual

### 3.1 General information

- Capability of temperature usage:

As of 07/2019: RUD-Lifting points VRBK-FIX are suitable for the temperature range from -40°C up to 400°C.

Up to 07/2019: RUD-Lifting points VRBK-FIX are suitable for the temperature range from -20°C up to 400°C.

For the use within the following temperature range, the working load limit (WLL) must be reduced by the following factors:

-40°C / -20°C up to 200°C:	no reduction
200°C up to 300°C	minus 10 %
300°C up to 400°C	minus 25 %

#### Temperatures exceeding 400°C are prohibited

In the unloaded state, VRBK-FIX anchor points together with the load can be stress relieved by heat treating (e.g. welded construction) once. Temperature: < 600°C (one hour maximum). After stress-relieving heat treatment (< 600°C), however, the spring force is no longer usable.

- RUD-lifting points VRBK-FIX must not be used with aggressive chemicals such as acids, alkaline solutions and their vapours.

- Please mark mounting position of lifting point with a coloured contrast paint for better visibility.
- VRBK-FIX will be delivered with a pink powder coated lifting ring.
- VRBS-FIX includes a protected positioned clamping spring, inside the weld-on block. The spring holds the weld-on blocks together with the ring and creates at the same time a radial clamping function.
- VRBK-FIX will be delivered as a complete assembled unit.

### 3.2 Hints for the assembly

Basically essential:

- The material construction to which the lashing 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 dirt, oil, colour, ect. The material of the forged welding block is: S355J2+N (1.0577+N (St52-3))
- The position of the lifting points must be carried out in such a way that unintended movement like turning or flipping will be avoided.
  - **For single leg lifts**, the lifting point 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 symmetrical around the centre of gravity, in the same plane if possible.

- Load symmetry:

Determine the necessary WLL of each lifting point for a symmetrical load by using the following physical calculation formula:

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

$W_{LL}$  = necessary WLL of lifting point / 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:

	Symmetric	Unsymmetric
two leg	2	1
three / four leg	3	1

Chart 1: Load bearing strands (compare to chart 2)

- Check finally the correct assembly (see chapter 4, Inspection criteria).

### 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 and certified welder.

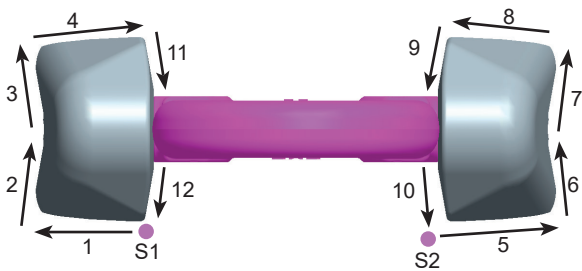
Verification of the used weld-on material must be checked with the supplier of the welding electrodes.



### HINTS

- Never weld at the quenched and tempered ring!
- Weld all seams at the same temperature.

1. Check before initial appending of the VRBK-FIX, the position of the weld-on blocks to each other, that means the base area must be at the same level.
2. Append weld-on blocks.
3. Check function of the ring.  
The ring must be able to pivot 270°. If necessary please correct.
4. Once appending and checking of the function have been carried please finish the root run. The outside positioned weld layers must be carried out first. The described welding sequences must be observed compulsive.
5. Begin at starting point S1 and weld subsequently the sections 1-4 (Picture 1).
6. Then weld the opposite side identically (starting point S2 and chapter 5-8).
7. Afterwards close the rot pass at the inside areas (chapter 9-10 and 11-12).



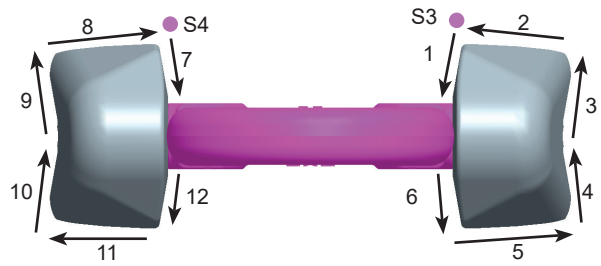
Pic. 1: Welding sequence of the root run (S=Starting point)

8. Finally please let the parts cool down.
- 9 Remove any welding mistakes and dirt at the root weld before applying the cover weld seams.
10. Subsequently please weld the closure welds. Start at the inside. The described welding sequences must be observed compulsive. Chose type and dimension of weld seam from picture 3 and chart 4.
11. Begin at starting point S3 and weld subsequently the chapters 1-6 (picture 2)
12. Please weld then the opposite side identically. (starting point S4 and chapter 7-12)



### HINT

Please adhere the requested weld seam thickness in any cases. Any change can result in a malfunction of the ring latch.



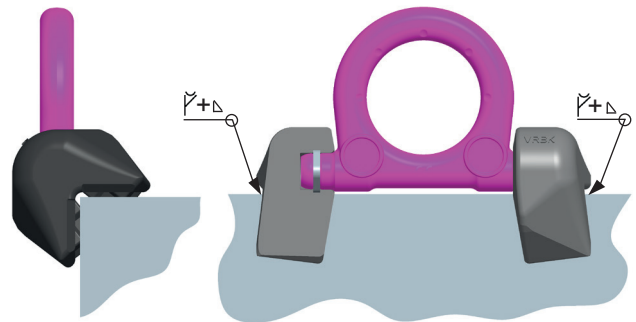
Pic. 2: Sequence of closure welding (S=Starting point)

13. Please check by a competent person after welding the ongoing usage of the weld-on lifting point (see chapter 4, Inspection criteria).



### HINT

By the position of the weld-seam (HY-weld circumferential) the following requirements will be observed: DIN 18800 steel constructions requires: at outdoor buildings or when strong corrosion must be expected weld seams must be carried out as continuous fillet weld seams.



Pic. 3: weld seam

### 3.4 User instruction

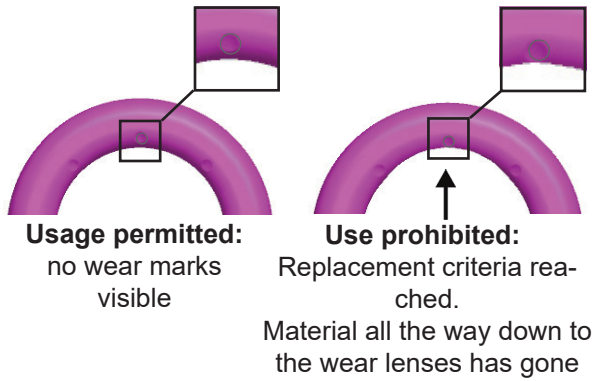
- Check frequently and before each initial operation the whole lashing point in regard of linger ability as a lifting mean, regarding corrosion, wear, deformation etc. (see chapter 4, Inspection criteria).



### ATTENTION

Wrong positioned or damaged weld-on lifting points as well as improper use can lead to injuries of persons and damage at property, when load falls down. Please check all lifting points carefully before every usage.

- Please check carefully the wear indicator markings of the weld-on lashing point (see pic. 4 and pic. 5):



Pic. 4 and 5: Wear indicators

- Please note that the lashing mean must be free moveable in the VRBK-FIX. When lifting means (f.e. lifting chain) are hinged or unhinged, no pinching, shearing or joint spots must occur during the handling.
- Avoid damage of lashing means resulting from sharp edges.
- If RUD-VRBK-FIX lifting points are used solely for lashing, the value of the working load limit can be doubled.  $LC = \text{permissible lashing force} = 2 \times \text{working load limit (WLL)}$ .

### 3.5 Hints for regular inspection

In time periods complying to the need or usage, a technical expert must control at least once per year the appropriateness of the lifting point. This inspection must also be done after each event of damage or special incident.

## 4 Inspection criteria

Observe and control the following points before each initial operation, in regular time intervals, after the assembly and after special incidents:

- Completeness of the lifting point
- Complete, readable WLL statements as well as manufacturer sign.
- Deformation at load bearing components like base body and ring.
- Mechanical damage, like strong notches, especially in areas where tensile stress occurs.
- Reduction of cross-section due to wear >10 %
- Evidence of corrosion (pittings)
- Evidence of cracks
- Cracks or other damages at weld seam

Method of lift										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Angle of inclination	0°	90°	0°	90°	0-45°	45-60°	Unsym.	0-45°	45-60°	Unsym.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
Type	For the max. total load weight >G< in metric tons									
VRBK-FIX 4 t	4	4	8	8	5.6	4	4	8.4	6	4
VRBK-FIX 6.7 t	6.7	6.7	13.4	13.4	9.4	6.7	6.7	14	10	6.7
VRBK-FIX 10 t	10	10	20	20	14	10	10	21	15	10
VRBK-FIX 16 t	16	16	32	32	22.4	16	16	33.6	24	16
VRBK-FIX 31.5 t	31.5	31.5	63	63	45	31.5	31.5	66.2	47.5	31.5
VRBK 50 t	50	50	100	100	70	50	50	105	75	50

Table 2: WLL overview

	Europe, USA, Asia, Australia, Africa
	Baustähle, niedrig legierte Stähle EN 10025 Mild steels, low alloyed steel Acier de construction d'usage général, aciers alliés peu élevés.
<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> <b>Poste à souder à courant contig</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> <b>Poste à souder à courant alternatif</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> <b>Soudures au tungstène</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



#### HINT

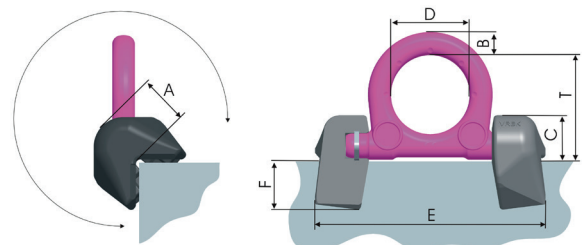
Please note the corresponding user hint in regard of the welding filler materials and the drying requirements\*.

Table 3: Welding procedure + Welding filler metals

Type	Size	Length	Volume
VRBK-FIX 4 t	HY 4 + a3	approx. 124 mm	approx. 3.1 cm <sup>3</sup>
VRBK-FIX 6.7 t	HY 5 + a3	approx. 144 mm	approx. 4.9 cm <sup>3</sup>
VRBK-FIX 10 t	HY 8 + a3	approx. 184 mm	approx. 13.4 cm <sup>3</sup>
VRBK-FIX 16 t	HY 10	approx. 231 mm	approx. 23.1 cm <sup>3</sup>
VRBK-FIX 31.5 t	HY 17	approx. 255 mm	approx. 73.7 cm <sup>3</sup>
VRBK 50 t	HY 25	approx. 373 mm	approx. 233.1 cm <sup>3</sup>

Table 4: Weld seam (weld-on block)

Pivots 270°



Pic. 4: Dimensioning

Type	WLL [t]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	T [mm]	weight [kg/pc]	Ref.-No
VRBK-FIX 4 t	4	32	14	28	48	140	29	65	1.0	7902149
VRBK-FIX 6.7 t	6.7	40	20	35	60	180	33	84	2.1	7902150
VRBK-FIX 10 t	10	52	22	46	65	212	46	94	4.4	7902256
VRBK-FIX 16 t	16	66	30	57	90	284	64	126	9.75	7909845
VRBK-FIX 31.5 t	31.5	89	42	78	130	394	70	177	24.84	7906225
VRBK 50 t	50	133	70	118	230	626	96	303	76.35	7904653

Table 5: Dimensioning

Subject to technical alterations