

# Lifting ring weldable > VRBS-FIX <



## Safety instructions

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

Translation of the Original instructions



Lifting ring weldable in pink  
VRBS-FIX



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RUD-Art.-Nr.: 7901035-EN / 12.019

<b>EG-Konformitätserklärung</b>									
entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen									
Hersteller:	<b>RUD Ketten</b> Rieger & Dietz GmbH u. Co. KG Friedensinsel 73432 Aalen								
<p>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.</p>									
<b>Produktbezeichnung:</b>	<u>Ringbock</u> <u>VRBS-fix / VRBK-fix / VRBS / VRBG / VRBK / VRBSS</u>								
<p>Folgende harmonisierten Normen wurden angewandt:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><u>DIN EN 1677-1 : 2009-03</u></td> <td style="width: 50%;"><u>DIN EN ISO 12100 : 2011-03</u></td> </tr> <tr><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> </table>		<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>	_____	_____	_____	_____	_____	_____
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<p>Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person: Michael Betzler, RUD Ketten, 73432 Aalen</p>									
Aalen, den 26.09.2016	Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB) Name, Funktion und Unterschrift Verantwortlicher								

<b>EC-Declaration of conformity</b>									
According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments									
Manufacturer:	<b>RUD Ketten</b> Rieger & Dietz GmbH u. Co. KG Friedensinsel 73432 Aalen								
<p>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.</p>									
<b>Product name:</b>	<u>Load ring</u> <u>VRBS-fix / VRBK-fix / VRBS / VRBG / VRBK / VRBSS</u>								
<p>The following harmonized norms were applied:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><u>DIN EN 1677-1 : 2009-03</u></td> <td style="width: 50%;"><u>DIN EN ISO 12100 : 2011-03</u></td> </tr> <tr><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> </table>		<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>	_____	_____	_____	_____	_____	_____
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<p>Authorized person for the configuration of the declaration documents: Michael Betzler, RUD Ketten, 73432 Aalen</p>									
Aalen, den 26.09.2016	Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB) Name, function and signature of the responsible person								



Before initial usage of the RUD-VRBS-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 assembled or damaged lifting points as well as improper use can lead to injuries of persons and damage of objects when load drops. Please inspect all lifting points before each use.

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

## 2 Intended use of the VRBS-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 for the hereby described usage and operation purpose.

## 3 Assembly- and instruction manual

### 3.1 General information

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

Up to 07/2019: RUD-Lifting points VRBS-FIX are suitable for the temperature range from -20°C up to 400°C. When used at higher temperature the working load limit (WLL) of the lifting point must be reduced as follows:

-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, VRBS-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 VRBS-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.
- VRBS-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.
- VRBS-FIX will be delivered as a complete assembled 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 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, test 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.*
- *The pre-heating temperature for the welding of the VRBS-FIX 31.5 t, 50 t and 100 t must be between 150°C and 170°C.*

1. Check before initial appending of the VRBS-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 180°. If necessary please correct.
4. Remove any welding mistakes and dirt at the root weld before applying the cover weld seams.
5. Weld blocks on.  
Choose type of weld seam and size according to picture 3 and chart 4.
6. 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.*

### 3.4 User instructions

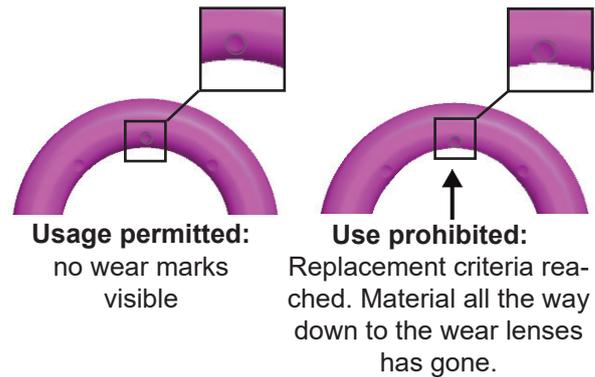
- Check frequently and before each initial operation the whole lifting point in regard of linger ability as a lifting mean, regarding corrosion, wear, deformation etc. (see chapter 4, *Inspection criteria*).



#### 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 lifting point (see picture 1):



Picture 1: Wear indicators

- Please note that the lifting mean must be free moveable within the weld-on lifting point VRBS-FIX. When lifting means (sling chains) are hinged or unhinged, no pinching, shearing or joint spots must occur during the handling.
- Avoid damage of lifting means resulting from sharp edges.
- If RUD-VRBS-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 a year the appropriateness of the anchor 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 as-sembly 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 (pitting)
- 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°	Unsymmetrisch	0-45°	45-60°	Unsymmetrisch
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									
VRBS-FIX 4 t	4	4	8	8	5.6	4	4	8.4	6	4
VRBS-FIX 6.7 t	6.7	6.7	13.4	13.4	9.4	6.7	6.7	14	10	6.7
VRBS-FIX 10 t	10	10	20	20	14	10	10	21	15	10
VRBS-FIX 16 t	16	16	32	32	22.4	16	16	33.6	24	16
VRBS-FIX 31.5 t	31.5	31.5	63	63	45	31.5	31.5	66.2	47.5	31.5
VRBS-FIX 50 t	50	50	100	100	70	50	50	105	75	50
VRBS-FIX 100 t	100	100	200	200	140	100	100	210	150	100

Chart 2: WLL overview

Europe, USA, Asia, Australia, Africa	
Mild steels, low alloyed steel	
<b>MIG / MAG (135)</b> Gas shielded wire welding (135)	DIN EN ISO 14341: G4Si1 (G3Si1) z.B. PEGO G4Si1
<b>E-Hand Gleichstrom (111, =)</b> 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*
<b>E-Hand (Wechselstrom 111, ~)</b> 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
<b>WIG (141)</b> 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**

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

The pre-heating temperature for the welding of the VRBS-FIX 31.5 t, 50 t and 100 t must be between 150°C and 170°C.

Chart 3: Welding procedure + Welding filler metals

Type	Size	Length	Volume
VRBS-FIX 4 t	HY 3	2 x 154 mm	approx. 1,4 cm³
VRBS-FIX 6.7 t	HY 5	2 x 214 mm	approx. 5,35 cm³
VRBS-FIX 10 t	HY 6	2 x 252 mm	approx. 9 cm³
VRBS-FIX 16 t	HY 9	2 x 341 mm	approx. 27 cm³
VRBS-FIX 31.5 t	HY12	2 x 418 mm	approx. 60 cm³
VRBS-FIX 50 t	HY 19	2 x 663 mm	approx. 239 cm³
VRBS-FIX 100 t	HY 28	2 x 875 mm	approx. 687 cm³

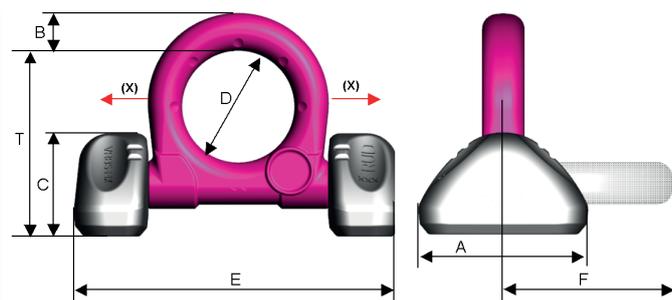


Chart 4: Weld seam (weld-on block)

Picture 2: Dimensioning

Type	WLL [t]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	T [mm]	weight [kg/pc.]	ref-no.
VRBS-FIX 4 t	4	60	14	39	48	132	69	74	0.93	7999019
VRBS-FIX 6.7 t	6.7	88	20	50	60	167	91	97	2.2	7999020
VRBS-FIX 10 t	10	100	22	60	65	191	100	108	3.7	7999021
VRBS-FIX 16 t	16	130	30	72	90	267	134	140	8.0	7999301
VRBS-FIX 31.5 t	31.5	160	42	99	130	366	195	202	18.4	7999302
VRBS-FIX 50 t	50	246	70	148	230	596	335	330	64.86	7906272
VRBS-FIX 100 t	100	320	97	195	250	763	392	390	126.85	7906273

Chart 5: Dimensioning

Subject to technical alterations



HY weld-seam circumferential

Picture 3: HY-weld seam