

Hoist ring, weldable > VWBS < in pink



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 504-1460
sling@rud.com
www.rud.com

RUD Article No.: 7903878-DE / 05.020



Hoist ring, weldable
VWBS 40 (50) t

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: Anschweißpunkt VWBS

Folgende harmonisierten Normen wurden angewandt:

| | |
|-----------------------------------|--------------------------------|
| <u>DIN EN 1677-1 : 2009-03</u> | <u>DIN EN 1677-4 : 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: Welding point VWBS

The following harmonized norms were applied:

| | |
|-----------------------------------|--------------------------------|
| <u>DIN EN 1677-1 : 2009-03</u> | <u>DIN EN 1677-4 : 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*



Read the operating instructions thoroughly before using the RUD hoist rings. Always ensure that you have understood everything. Failure to comply with the instructions can result in physical injury or material damage and means that the warranty no longer applies.

1 Safety instructions



CAUTION

If lifting points are incorrectly assembled, damaged as well as incorrectly used, then this can result in physical injury and material damage in the event of a fall. Always control all lifting points carefully prior to each use.

- Remove all body parts (fingers, hands, arms, etc.) out of the hazard area (danger of crushing or squeezing) during the lifting process.
- The RUD VWBS hoist ring must only be used by authorised and trained people in adherence with DGUV Regulation 100-500 (BGR Regulation 500), Chapter 2.8 and according to the country-specific provisions and regulations outside Germany.
- Permanent rotational movement under load is not permissible. RUD hoist ring weldable can be loaded in the 90° direction with the nominal, stated WLL.
- The ball bearing must not be disassembled.
- The suspension ring must not be strained with bending forces.
- Do not exceed the working load limit (WLL) indicated on the lifting point.
- The VWBS must be rotatable by 360° when welded-on.
- No technical alterations must be implemented on the VWBS.
- No people may stay in the danger zone.
- Jerky lifting (strong impacts) should be prevented.
- Always ensure a stable position of the load when lifting. Swinging must be prevented.
- Damaged or worn VWBS must never be utilised.

2 Intended use

RUD VWBS hoist rings are supposed to be used only for attaching a load or lifting means.

They are intended to be attached to lifting means and they can be turned under load but not with the full WLL, especially in the 90° side load direction. Permanent rotation under load is not permitted.

If the lifting points are solely used for lashing operations, the WLL can be doubled.

LC = Lashing Capacity = 2x Carrying capacity (WLL)



HINT

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

The RUD hoist rings may only be used only for the purposes described here.

3 Instruction for assembly and use

3.1 General information

- Temperature capability:
Usage at high temperatures is not recommended due to the grease inside the ball bearing. If high temperatures occur though, the WLL should 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 above 400°C are not permissible!
- RUD VWBS hoist rings weldable must not get in contact with aggressive chemicals, acids or their vapours.
- The installation position of the lifting point should be clearly marked with a contrasting colour to be more visible.

3.2 Assembly notes

The following applies in general:

- The attachment point should be selected carefully to ensure that the transferred forces can be absorbed by the base material without any deformation. The welding material must be suitable for welding and free of impurities, oil, paint etc.
- Position the lifting points in such a way that inadmissible stresses such as twisting or turning of the load are avoided.
 - For one leg lifting operations position the lifting point vertically above the center of gravity.
 - For two leg lifting operations position the lifting points on both sides of the load and above the center of gravity.
 - For multiple strand lifts position the lifting points equably at the same level around the center of gravity.
- Symmetry of loading:
Determine the required load-bearing capacity of the individual lifting point for symmetrical or asymmetrical loading according to the physical relationship calculated with the following formula:

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

W_{LL} = required Load-bearing capacity of the lifting point/single strand (kg)
 G = Load weight (kg)
 n = Number of load-bearing strands
 β = Angle of inclination of the individual strand

The number of load-bearing strands is:

| | symmetrical | asymmetrical |
|------------------|-------------|--------------|
| two leg | 2 | 1 |
| three / four leg | 3 | 1 |

Table 1: Load bearing strands

- RUD VWBS hoist rings must not be proof loaded with 2.5 x WLL. If there is a requirement for having them tested once, please ask RUD in advance for advice.

3.3 Notes regarding welding

The welding must be executed by a tested welder according to ISO 9606-1.

The basic material of the weld-on-part is made from 1.6541 (23MnNiCrMo52). The surface of the VWBS weld-on-part is phosphated.



HINT

The weld-on part of the VWBS is at the area of the weld seam plated with an unalloyed mild steel.



CAUTION

To conserve the plating of the unalloyed mild steel, any material removal (grinding, milling etc.) at the weld seam area is prohibited.



CAUTION

A repeated welding of a disconnected VWBS is prohibited.

- Tack-weld the lifting point at the installation position. The tack-welding must be carried out in the pre-heating temperature.



HINT

The preheat temperature when welding the VWBS must be between 180°C and 200°C.

Approx. 230°

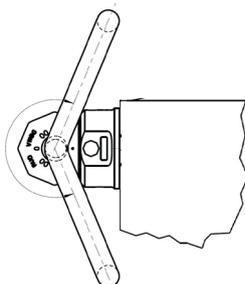


Fig. 1: Pivoting area

- Before the closure weld is carried out, make sure that the bottom and all interlayers are cleaned carefully. Remove all visible flaw spots of the root and at the interlayers.
- The weld must be carried out circumferential around the weld-on block of the lifting point.



NOTE

RUD recommend to carry the weld seam of the VWBS out in tub position.



NOTE

Weld the entire weld seams in a heat.



NOTE

Never weld on connector elements (oval link, eye hooks, etc.).

- Finally when the welding is finished, a competent person should examine the lifting point regarding the persisting appropriateness of the lifting point (see section 4 *Inspection / repair*).
- Due to the welding the amount of lubrication inside the bearing of the VWBS can be reduced. If necessary, lubricate the VWBS bearing (see Section 5 *Notes regarding repairing*).

3.4 Notes for the usage

- Observe regularly and before every use the complete lifting mean in regard of persisting appropriateness, for severe corrosion, wear, deformation etc. (refer to Section 4 *Inspection / repair*).



CAUTION

If sling systems are incorrectly mounted, damaged as well as incorrectly used, then this can result in physical injury and material damage in the event of a fall. Always control all lifting means carefully prior to each use.



Fig. 2: Forbidden contact and/or support on edges

- 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.
- VWBS are suitable for turning and rotating of loads. All kind of different suspension ring positions may occur. The WLL at the lifting point shows the worst case scenario (see figure 5 – Image X). If the suspension ring is adjusted manually into the aligned position (see image Y), the higher WLL stated in table 4, can be used.



CAUTION

During the usage please observe particularly that the loading method will not be changed.

If the VWBS is solely used for a vertical lift (in the axial direction of the thread, see figure 5 – Image Z), the corresponding WLL values can be taken from chart 2 (inclination angle 0°).

- The suspension ring of a manually aligned VWBS can pivot 230° (Fig. 1).



CAUTION

The suspension ring resp. the attached lifting mean must be able to move freely and must neither be loaded at the bottom of the lifting point nor at the edge of the load (Fig. 2).

- The lifting mean must be freely moveable within the suspension ring of the VWBS. When attaching or dismantling the lifting mean (f.e. chain sling), the handling must be able to be carried out without squeezing, shearing, trapping or joint connection issues. Make sure that no damaging, caused by loading at sharp edges occurs. Before starting the lifting action aligne the hooks without kinking into the loading direction.
- Leave hazardous area as far as possible.
- Always supervise suspended loads.
- Avoid shock loading and jerky lifting.
- Observe the operating instructions for RUD lifting chains for the complete lifting means.

3.5 Notes regarding regular inspection

After the welding and at regular periods, a competent person must observe, whether the lifting mean is still appropriate in regard of the ongoing usage, at least once per year (see section 4 *Inspection / repair*).

Depending on the conditions of use e.g. frequent use, increased wear occurrence or corrosion, it may be necessary to execute inspections at shorter intervals than once per year. This also applies to claims for damages and special incidents.

4 Inspection / repair

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.

4.2 Test criteria for the regular visual inspection by the user

- Completeness of the lifting point
- Completeness of manufacturer's and WLL markings plus their readability
- Deformations at load bearing parts such as the bottom part or the suspension ring as well as the attached hook.
- Mechanical deformations like deep notches especially in areas where tensile stress occurs.
- Proper tightening of lateral set screw.
- Cracks or other defects at the weld seam
- Easy, jerk free turning between top and bottom part of the VWBS must be ensured.
- The max. gap of $s = 4\text{mm}$ between must not be exceeded resp. the inspection groove in the shaft must not become visible.

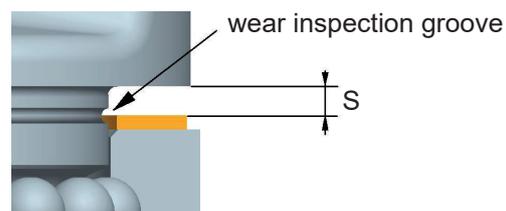


Fig. 3: Distance between top and bottom part and wear inspection groove

4.3 Additional test criteria for the competent person / repair worker

- Reduction of cross-section caused by wear by more than 10 %.
- Intense corrosion (pitting).
- further checks may be required, depending on the result of the risk assessment (e.g. testing for cracks in load-bearing parts).

5 Notes regarding repairing

Repairing must only be carried out at RUD head-quarters or by RUD authorized partners who have recuperate the necessary knowledge and capabilities.

For maintenance and re-lubrication of the VWBS, please use grease f.e. AVALITH 2EP or comparable lubricants. For this use a grease press with a nozzle for cup head lubrication nipples.

| | Welded seam | | |
|---------------|-----------------------|--------|-----------------------------|
| | Size | Length | Volume |
| VWBS 40(50) t | at least (HY)20+(a)19 | 534 mm | approx. 352 cm ³ |

Table 2: Welded seam

Welded seam-Arrangement:

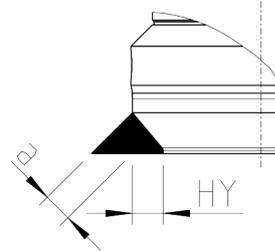


Fig. 4: Welded seam arrangement



NOTE

Implement the “a” measurements as multi-layer.

Observe both the respective processing instructions of the welding additive materials as well as the drying regulations*.

The preheat temperature when welding the VWBS must be between 180°C and 200°C.

Welding process + additive materials:

| | Europe (DE, UK, FR, ...) Construction-grade steel, low-alloyed steels structural steel, low alloyed steel | | USA, Canada ISO 14343-A: G18.8.Mn |
|---|--|--|---|
| MAG/MIG (135) | ISO 14341: G4 Si 1 e.g. Castolin 45250 | GAS SHIELDED WIRE WELDING | ISO 14341: G4 Si 1 AWS A 5.18: ER 70 S-6 e.g. Eutectic MIG-Tec A88 |
| E-Hand (111) DC = E-Hand (DC) Direct Current | EN ISO 2560-A-E 42 6 B 3 2; EN ISO 2560-A-E 38 2 B 12 H10 e.g. Castolin 6666 */ Castolin 6666N | Stick Electrode Direct Current | AWS A 5.5: E 8018-G * AWS A 5.1: E 7016 * e.g. Eutectic Castolin 6666 / 6666N / 35066 |
| E-Hand (111) AC ~ Alternating Current (AC) | ISO 14343-A: G18.8.Mn EN 14700: E-Fe 10 EN 14700: E-Fe 11 e.g. Castolin 640 / Castolin 33033 | Stick Electrode Alternating Current | A4 EN 1600: E23 12 2 LR 12 AWS A 5.4: E 309 Mo L-16 e.g. Castolin 33700 CP |
| TIG (141) | ISO 636: W3 Si 1 e.g. Castolin 45255W | TIG Tungsten Arc Welding | ISO 636: W3 Si 1 AWS A 5.18: ER 70 S-G e.g. Eutectic TIG-Tec-Tic A 88 |

Table 3 Adhere to drying regulations!

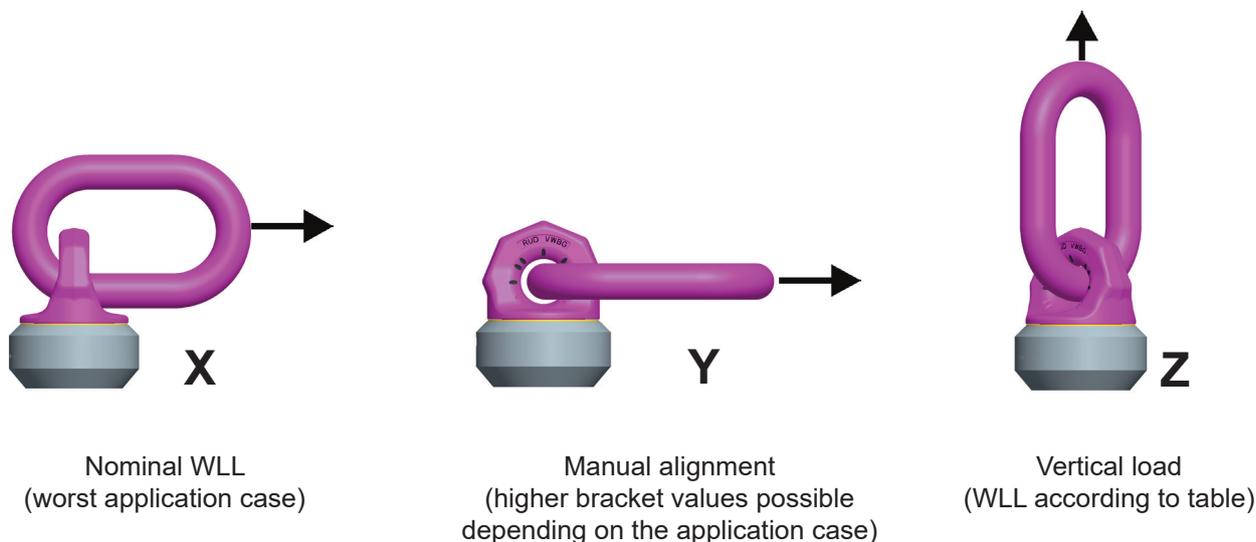
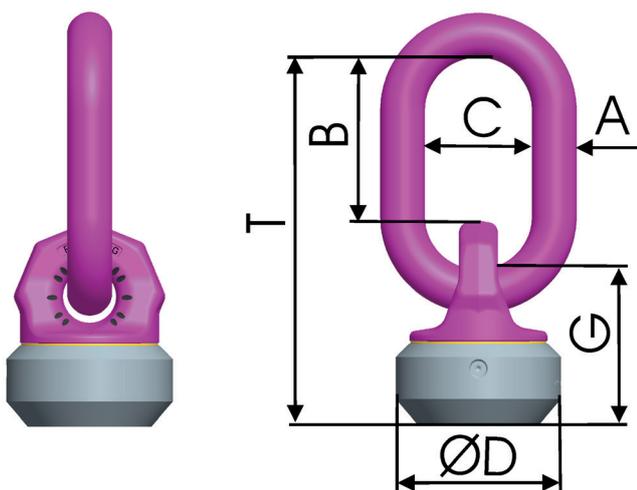


Fig. 5: Loading directions

WLL overview

| Lifting method | | | | | | | | | | |
|-------------------|---|-----|---------|----------|---------|---------|------------|----------|---------|------------|
| Number of strands | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 3 / 4 | 3 / 4 | 3 / 4 |
| Inclination angle | 0 ° | 0 ° | 90 ° | 90 ° | 0-45 ° | 45-60 ° | Assymetric | 0-45 ° | 45-60 ° | Assymetric |
| Factor | | | 1 | 2 | 1.4 | 1 | 1 | 2.1 | 1.5 | 1 |
| Type | Screwed tightly and set for tension direction for maximum total load weight >G< in tons | | | | | | | | | |
| VWBS 40(50) | 50 | 100 | 40 (50) | 80 (100) | 56 (70) | 40 (50) | 40 (50) | 84 (105) | 60 (75) | 40 (50) |

Table 4: WLL



* Note: * WLL values stated for three- and four leg lifts only apply if load is evenly distributed between more than two strands. Otherwise two strand values must be utilised (refer to BGR 500 / DGUV regulations 100-500, Section 2.8, Paragraph 3.5.3).



CAUTION

During operation make sure that the type of loading does not get changed.

Fig. 6: Dimensioning the VWBS

| Designation | WLL [t] | A [mm] | B [mm] | C [mm] | D [mm] | G [mm] | T [mm] | Weight [kg/unit] | Ref.No. |
|-------------|---------|--------|--------|--------|--------|--------|--------|------------------|---------|
| VWBS 40(50) | 40 (50) | 46 | 170 | 110 | 170 | 161 | 380 | 27.9 | 7903650 |

Table 5: Dimensioning

The right to make technical changes is reserved.