

Excavator hook - for welding

> **VCGH-S** <

## 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 safety instruction



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RUD-Art.-Nr.: 8502510 -V03 / 08.023

Excavator hook - for welding  
**VCGH-S**



### 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: Anbauhaken  
VABH-B / VABH-W / VCGH-G / VCGH-S

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    DIN 15428 : 1978-08

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

Aalen, den 15.04.2021

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: Bolt on / Weld on hook  
VABH-B / VABH-W / VCGH-G / VCGH-S

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    DIN 15428 : 1978-08

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

Aalen, den 15.04.2021

Hermann Kolb, Bereichsleitung MA   
 Name, function and signature of the responsible person



Before initial usage of the RUD VCGH-S, 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.

- Remove all body parts (fingers, hands, arms, etc.) out of the hazard area (danger of crushing or squeezing) during the lifting process.
- RUD Lifting points VCGH-S must only be used by instructed and competent persons considering DGUV 109-017, and outside Germany noticing the country specific statutory regulations.
- Do not exceed the working load limit (WLL) indicated on the lifting point.
- No technical alterations must be implemented on the VCGH-S.
- 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 VCGH-S must never be utilised.

## 2 Intended use

RUD Lifting points VCGH-S 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:  
RUD Lifting points VCGH-S 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:

-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!**

- RUD Lifting points VCGH-S 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.

### 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 (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:

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

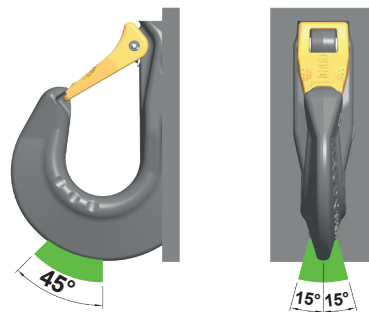
$W_{LL}$  = necessary WLL of lifting point / single strand (kg)  
 $G$  = weight of load (kg)  
 $n$  = number of load bearing strands  
 $\beta$  = inclination angle of single strand

Number of load bearing strands:

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

Table 1: Load bearing strands (compare to Table 2)

- Arrangement of the Excavator hooks: The installation should be in the direction of pull.



Pic. 1: Possible use area

- Check finally the correct 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 and certified welder.

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



#### HINT

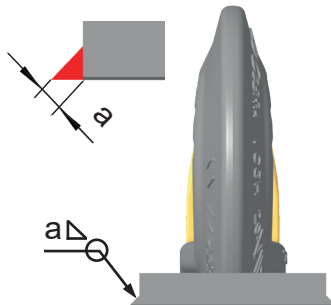
- *Weld all seams at the same temperature*

- 1 Fasten provisionally, resp. start welding in the middle of the plate.
- 2 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.
- 3 Weld fillet weld continuous at the base plate of the lifting point.
- 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 (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. 2: Weld seam

### 3.4 User instruction

- 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 / Repair / Disposal*).



#### 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.*

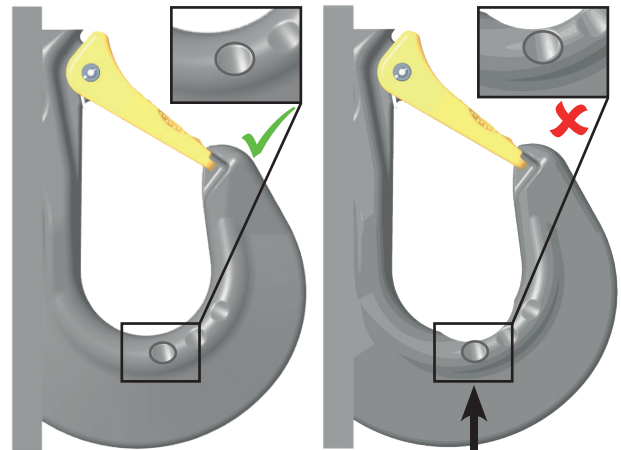
- RUD components are designed according to DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles.

- 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):



**Usage permitted:**

no wear marks visible

**Use prohibited:**

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

Pic. 3: Wear indicators

- Please note that the lifting mean must be free moveable in the VCGH-S. 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 lifting means resulting from sharp edges.
- If RUD VCGH-S lifting points are used solely for lashing, the value of the working load limit can be doubled.  $LC = \text{permissible lashing force} = 2 \times \text{working load limit (WLL)}$ .



#### HINT

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

## 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 inspection cycles must be specified by the operator.

### 4.2 Test criteria for the regular visual inspection by the user

- Completeness of the lifting point
- Complete, readable WLL statements as well as manufacturer sign.
- Deformation at load bearing components like base body
- Mechanical damage, like strong notches, especially in areas where tensile stress occurs.
- Damage maximum until the forged-in patented wear lenses are reached (Pic. 3).

### 4.3 Additional test criteria for the competent person / repair worker

- Reduction of cross-section due to wear >10 % (see Wear indicators)
- Increase in jaw width due to overload > 10 % (see marking points for checking dimension of jaw width).
- Evidence of corrosion (pittings)
- Any other damage at weld seam
- Further checks may be required, depending on the result of the risk assessment (e.g. testing for cracks in load-bearing parts / at weld seam).

### 4.4 Disposal

Dispose worn out components / attachments or packaging according to the local waste removal requirements.

Method of lift								
Number of legs	1	2	2	2	2	3 & 4	3 & 4	3 & 4
Angle of inclination <math>\beta</math>	90°	90°	0-45°	45-60°	un-symm.	0-45°	45-60°	un-symm.
Factor	1	2	1.4	1	1	2.1	1.5	1
Type	WLL in metric tons / WLL in lbs							
VCGH-S 6 *	1.5 t 3300 lbs	3 t 6600 lbs	2.1 t 4620 lbs	1.5 t 3300 lbs	1.5 t 3300 lbs	3.15 t 6930 lbs	2.25 t 4950 lbs	1.5 t 3300 lbs
VCGH-S 8 *	2.5 t 5500 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
VCGH-S 10 *	4 t 8800 lbs	8 t 17600 lbs	5.6 t 12300 lbs	4 t 8800 lbs	4 t 8800 lbs	8.4 t 18500 lbs	6 t 13200 lbs	4 t 8800 lbs
VCGH-S 13 *	6.5 t 14300 lbs	13 t 28600 lbs	9.1 t 20000 lbs	6.5 t 14300 lbs	6.5 t 14300 lbs	13.65 t 30000 lbs	9.75 t 21450 lbs	6.5 t 14300 lbs
VCGH-S 16	10 t 22000 lbs	20 t 44000 lbs	14 t 30800 lbs	10 t 22000 lbs	10 t 22000 lbs	21 t 46200 lbs	15 t 33000 lbs	10 t 22000 lbs
VCGH-S 20	16 t 35200 lbs	32 t 70400 lbs	22.4 t 49300 lbs	16 t 35200 lbs	16 t 35200 lbs	33.6 t 74000 lbs	24 t 52800 lbs	16 t 35200 lbs
VCGH-S 22	20 t 44000 lbs	40 t 88000 lbs	28 t 61600 lbs	20 t 44000 lbs	20 t 44000 lbs	42 t 92400 lbs	30 t 66000 lbs	20 t 44000 lbs

Table 2: WLL overview

\* are replaced by type VABH-W

	Europe, USA, Asia, Australia, Africa
	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 3: Welding procedure + Welding filler metals



**HINT**

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

Type	WLL [t]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	I [mm]	T [mm]	weight [kg/pc.]	Safety set	Ref.no.
VCGH-S 6 *	1.5	10	68	97	100	60	25	37		0.6	7100299	*
VCGH-S 8 *	2.5	10	84	126	135	70	30	41		1.4	7100300	*
VCGH-S 10 *	4	12	106	148	155	80	35	50		1.9	7100301	*
VCGH-S 13 *	6.5	15	120	170	185	90	40	60		3.3	7100302	*
VCGH-S 16	10	15	141	200	220	100	48	70	49	5.0	7100303	7984047
VCGH-S 20	16	20	187	272	288	120	63	87	69	8.4	7101604	7984310
VCGH-S 22	20	20	196	276	292	120	63	92	74	15.4	7101604	7984312

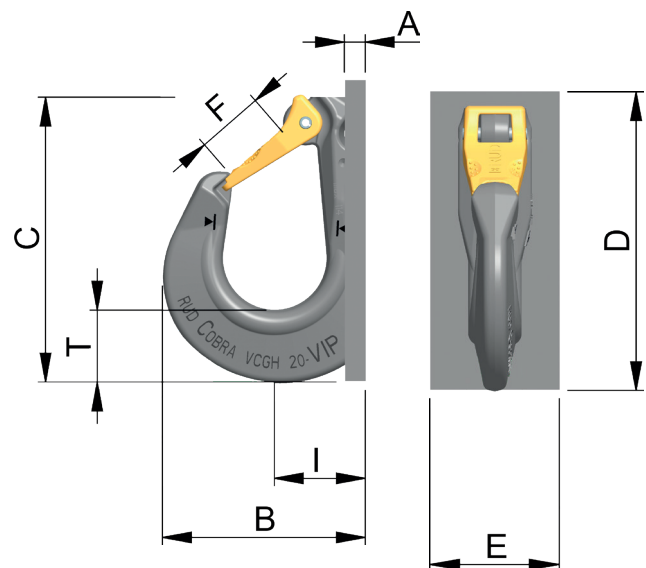
Table 4: Dimensioning

\* are replaced by type VABH-W

Subject to technical alterations

Type	size fillet weld	length	volume
VCGH-S 6*	a = 5	247 mm	ca. 8.3 cm <sup>3</sup>
VCGH-S 8*	a = 5	352 mm	ca. 10.6 cm <sup>3</sup>
VCGH-S 10*	a = 6	410 mm	ca. 17.5 cm <sup>3</sup>
VCGH-S 13*	a = 8	490 mm	ca. 36.7 cm <sup>3</sup>
VCGH-S 16	a = 8	580 mm	ca. 42.5 cm <sup>3</sup>
VCGH-S 20	a = 8	750 mm	ca. 52 cm <sup>3</sup>
VCGH-S 22	a = 8	770 mm	ca. 56 cm <sup>3</sup>

Table 5: Weld seam



Pic. 4: Dimensioning / allowed load directions