

# Excavator hook **VABH-B** for bolting

## Safety instructions

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



Excavator hook  
**VABH-B**  
for bolting



**RUD Ketten**  
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RUD-Art.-Nr.: 8502224-EN / 12.009



**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 weiteren EG-Richtlinien 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:


EN 12100-1	EN 12100-2
EN 14121-1	EN 1677-1
_____	_____
_____	_____

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

BGR 500, KAP2.8	DIN 15428
_____	_____
_____	_____

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:  
Daniel Klose, RUD Ketten, 73432 Aalen

Aalen, den 14.12.2009 Dr. Ing. Rolf Sinz (Prokurist/QMB)  
Name, Funktion und Unterschrift Verantwortlicher



**EG-Declaration of the manufacturer**

According to the EG-Machinery Directive 2006/42/EG, annex II B and aand amendments

Manufacturer: **RUD Ketten**  
**Rieger & Dietz GmbH u. Co. KG**  
Friedensinsel  
73432 Aalen

We hereby declare that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EG-Machinery Directive 2006/42/EG as well as to the below mentioned EG-Directive in the design as it is sold by us because of its design and construction. 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:

EN 12100-1	EN 12100-2
EN 14121-1	EN 1677-1
_____	_____
_____	_____

The following national norms and technical specifications were applied:

BGR 500, KAP2.8	DIN 15428
_____	_____
_____	_____

Authorized person for the configuration of the declaration documents:  
Daniel Klose, RUD Ketten, 73432 Aalen

Aalen, 14.12.2009 Dr. Ing. Rolf Sinz (Prokurist/QMB)  
Name, function and signature of the responsible person

## User Instructions

- Reference should be made to German Standards accord. BGR 500 or other country specific statutory regulations and inspections are to be carried out by competent persons only.
- Before installing and every use, visually inspect RUD lifting points, paying particular attention to any evidence of corrosion, wear and weld cracks and deformations. Please ensure compatibility of bolt thread and tapped hole.
- The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The German testing authority BG, recommends the following minimum for bolt lengths:
  - 1 x M in steel (minimum quality S235JR [1.0037])
  - 1,25 x M in cast iron (for example GG 25)
  - 2 x M in aluminium alloys
  - 2,5 x M in aluminium-magnesium alloys
 (M = diameter of RUD lifting point bolt, for ex. M 20)

When lifting light metals, nonferrous heavy metals and gray cast iron the thread has to be chosen in such a way that the working load limit of the thread corresponds to the requirements of the respective base material.

RUD excavator hooks are delivered with 100 % crack tested bolts. **When using your own bolts, the bolts have to be 100 % crack tested.** The min quality of the hexagon bolt had to be 10.9 accord. EN 24014 (DIN 931) with the nominal diameter.

- The lifting points must be positioned on the load in such a way that movement is avoided during lifting.
  - 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 symmetrically around the centre of gravity in the same plane, if possible.

### 5. Load Symmetry:

The working load limit of individual RUD lifting points are calculated using the following formula and are based on symmetrical loading:

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

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

The calculation of load bearing legs is as follows:

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

(see table 1)

- A plane bolting surface must be guaranteed. The holes must be drilled with a sufficient depth in order to guarantee compatibility with the supporting surface. *The bolts should be tightened with torque according to table 2.*
- The installation should be in the direction of pull (see picture 1: Possible use area).
- To prevent unintended dismounting through shock loading, rotation or vibration, thread locking fluid such as Loctite (depending on the application, please pay attention to the manufacturer's instruction) could be used to secure the bolt, or use form-closed devices.
- All fittings connected to the VABH-B should be free moving. When connecting and disconnecting the lifting means (sling chain) pinches and impacts should be avoided. Damage of the lifting means caused by sharp edges should be avoided as well.
- Effects of temperature:  
 Due to the DIN/EN bolts that are used with the VABH-B the working load limit should be reduced accordingly:
  - 100° to 200°C                      minus 15 %    212°F to 392°F
  - 200° to 250°C                      minus 20 %    392°F to 482°F
  - 250° to 350°C                      minus 25 %    482°F to 662°F
 Temperatures above 350°C (662°F) are not permitted.
- 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. If this cannot be avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.
- The places where the lifting points are fixed should be marked with colour.
- If the lifting points are used exclusively for lashing, the value of the working load limit can be doubled:  $LC = 2 \times WLL$
- After fitting, an annual inspection or sooner if conditions dictate should be undertaken by a competent person examining the continued suitability. Also after damage and special occurrences.

Method of Lift										
Number of legs <sup>1</sup>	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4	
Angle of inclination <math>\beta</math>	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	<b>WLL &gt;G&lt;, bolted and adjusted to the direction of pull</b>									
VABH-B 1,5 t	1,5 t 3300 lbs	1,5 t 3300 lbs	3,0 t 6600 lbs	3,0 t 6600 lbs	2,1 t 4620 lbs	1,5 t 6600 lbs	1,5 t 6600 lbs	3,15 t 6900 lbs	2,25 t 4950 lbs	1,5 t 6600 lbs
VABH-B 2,5 t	2,5 t 5500 lbs	2,5 t 5500 lbs	5,0 t 11000 lbs	5,0 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
VABH-B 4 t	4,0 t 8800 lbs	4,0 t 8800 lbs	8,0 t 17600 lbs	8,0 t 17600 lbs	5,6 t 12320 lbs	4,0 t 8800 lbs	4,0 t 8800 lbs	8,4 t 18500 lbs	6,0 t 13200 lbs	4,0 t 8800 lbs
VABH-B 6,5 t	6,5 t 14300 lbs	6,5 t 14300 lbs	13,0 t 28600 lbs	13,0 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

Table 1

**Inspection criteria concerning paragraphs 2 and 14:**

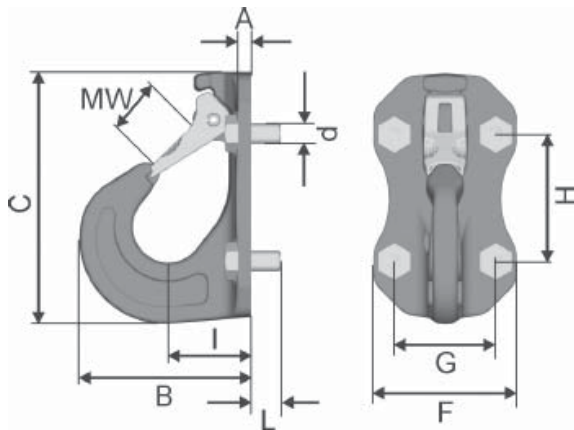
- Ensure correct bolt and nut size, quality and length.
- Ensure compatibility of bolt thread and tapped hole - control of the torque
- The lifting point should be complete.
- The excavator hook has to be mount on plane bolting surfaces with the full back side.
- The working load limit and manufacturers stamp should be clearly visible.
- Deformation of the component parts such as body and bolt.
- Mechanical damage, such as notches, particularly in high stress areas.
- Wear should be no more than 10 % (see gange marks for measuring)
- opening of the mouth is deformed more than 10 %
- Evidence of corrosion.
- Evidence of cracks.

*A non-adherence to this advice may result damages of persons and materials!*

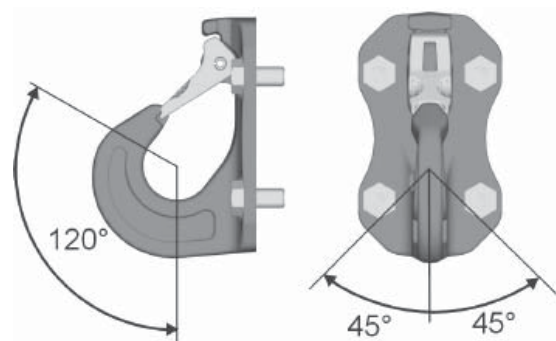
Type	torque Nm *	thread d	SW mm
VABH-B 1,5 t	55	M10	16
VABH-B 2,5 t	100	M12	18
VABH-B 4 t	240	M16	24
VABH-B 6,5 t	450	M20	30

Table 2

\* Bolts have to be tightend by using the outside hexagon with a wrench.



**possible use area:  
(picture 1)**



Type	WLL	weight	A	B	C	F	G	H	I	L	MW	d	ref-no.	package unit
VABH-B 1,5 t	1,5 t	0,8	7,5	78	117	70	48	60	38	15	25	M10	8502194	4 St.
VABH-B 2,5 t	2,5 t	1,8	8,5	101	148	85	60	75	49	18	30	M12	8502143	4 St.
VABH-B 4 t	4,0 t	3,2	11	122	171	104	70	90	59	25	35	M16	8502221	2 St.
VABH-B 6,5 t	6,5 t	5,9	13	156	208	120	85	110	70	30	40	M20	8502238	1 St.
VABH-B 1,5 t	3300 lbs	1,8 lbs	5/16"	3 1/16"	4 5/8"	2 3/4"	1 7/8"	2 3/8"	1 1/2"	19/32"	1"	M10	8502194	4 St.
VABH-B 2,5 t	5500 lbs	3,9 lbs	11/32"	4"	5 13/16"	3 11/32"	2 3/8"	2 15/16"	1 15/16"	23/32"	1 3/16"	M12	8502143	4 St.
VABH-B 4 t	8800 lbs	7 lbs	7/16"	4 13/16"	6 3/4"	4 3/32"	2 3/4"	3 35/64"	2 5/16"	1"	1 3/8"	M16	8502221	2 St.
VABH-B 6,5 t	14300 lbs	13 lbs	33/64"	6 1/8"	8 3/16"	4 3/4"	3 11/32"	4 11/32"	2 3/4"	1 3/16"	1 9/16"	M20	8502238	1 St.

Table 3