



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.

Translation of the Original instructions



Excavator hook
VABH-B
for bolting



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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:

<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>	<u>DIN 15428 : 1978-08</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: Bolt on / Weld on hook
VABH-B / VABH-W / VCGH-G / VCGH-S

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>	<u>DIN 15428 : 1978-08</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

User Instructions

- Reference should be made to German Standards accord. BGR 500 / DGUV 100-500 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 ICE-Bolts. Original ICE-Bolts are available from RUD as spare parts (Standard and Variolength, see table 3). **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.



HINT

A combination of bolts made of different strength classes is not allowed to be used for a fixation of the excavator hooks.

- 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/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.
- 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
 β = 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	1

(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:

-40° to 100°C	no reduction	-40°F to 212°F
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	1	1	2	2	2	2	2	2	3 / 4	3 / 4	3 / 4									
Angle of inclination β	0°	90°	0°	90°	0-45°	>45-60°	Un-symm.	Un-symm.	0-45°	>45-60°	Un-symm.									
Faktor	1	1	2	2	1.4	1	1	1	2.1	1.5	1									
Type	WLL in metric tones-lbs																			
VABH-B 1.5 t	1.5 t 3300 lbs	1.5 t 3300 lbs	3 t 6600 lbs	3 t 6600 lbs	2.12 t 4620 lbs	1.5 t 3300 lbs	1.5 t 3300 lbs	1.5 t 3300 lbs	3.15 t 6900 lbs	2.24 t 4950 lbs	1.5 t 3300 lbs									
VABH-B 2.5 t	2.5 t 5500 lbs	2.5 t 5500 lbs	5 t 11000 lbs	5 t 11000 lbs	3.5 t 7700 lbs	2.5 t 5500 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 t 8800 lbs	4 t 8800 lbs	8 t 17600 lbs	8 t 17600 lbs	5.6 t 12320 lbs	4 t 8800 lbs	4 t 8800 lbs	4 t 8800 lbs	8.4 t 18500 lbs	6 t 13200 lbs	4 t 8800 lbs									
VABH-B 6.7 t	6.7 t 15000 lbs	6.7 t 15000 lbs	13.4 t 30000 lbs	13.4 t 30000 lbs	9.4 t 21000 lbs	6.7 t 15000 lbs	6.7 t 15000 lbs	6.7 t 15000 lbs	14.1 t 31500 lbs	10 t 22500 lbs	6.7 t 15000 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.

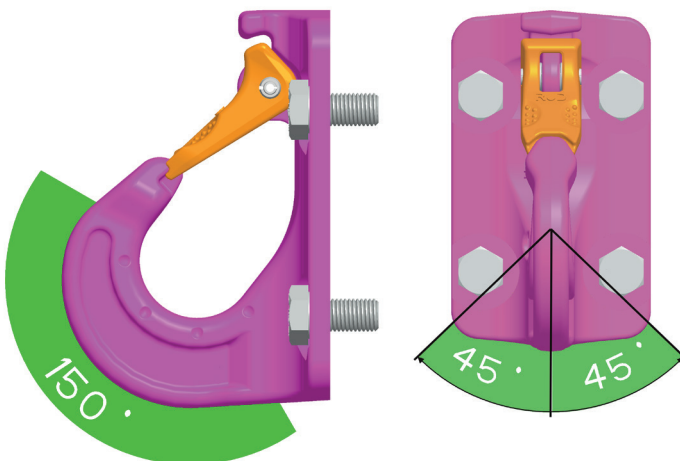
A non-adherence to this advice may result damages of persons and materials!

Type	torque [Nm] *	thread d	wrench size SW
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 6.7 t	450	M20	30

Table 2

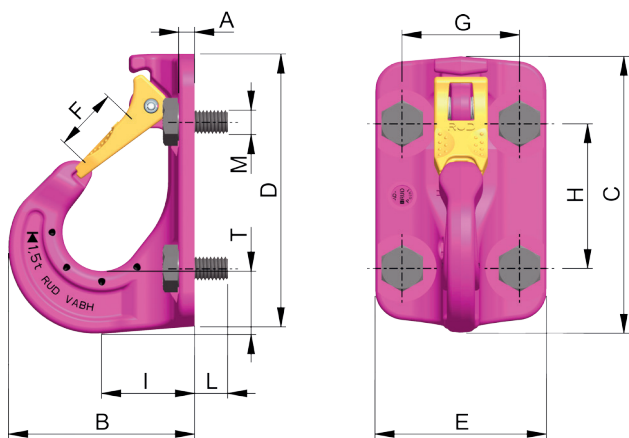
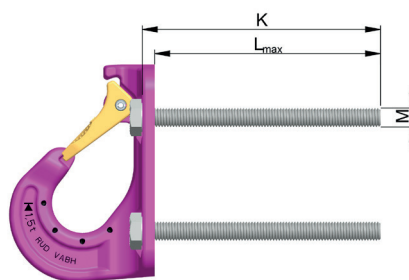
* Bolts have to be tightend by using the outside hexagon with a wrench.

possible use area:
(picture 1)



Type	K [mm]	L _{max} [mm]	M	used bolt	Ref.-No. ICE-bolt
VABH-B 1.5 t	125	118.5	4 x M10	M10 x 125	7905920
VABH-B 2.5 t	145	137.5	4 x M12	M12 x 145	7905921
VABH-B 4 t	185	174	4 x M16	M16 x 185	7908216
VABH-B 6.7 t	230	217	4 x M20	M20 x 230	7908217

Table 3



Type	WLL [t]	weight [kg/pc.]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	L [mm]	M	T [mm]	torque [Nm]	ref-no.
VABH-B 1,5 t	1,5	0,78	6,5	76	115	111	70	26	48	60	38	13,5	4xM10	26	55	7991205
VABH-B 2,5 t	2,5	1,73	7,5	98	148	143	85	31,5	60	75	49	18	4xM12	33	100	7991206
VABH-B 4 t	4,0	3,0	11	119	168	164	104	35	70	90	59	25	4xM16	40	240	7991207
VABH-B 6,7 t	6,7	5,58	13	147	205	200	120	40	85	110	70	28	4xM20	51	450	8502238

Table 4

Subject to technical modifications

Type	WLL [lbs]	weight [lbs/pc.]	A	B	C	D	E	F	G	H	I	L	M	T	torque [Nm]	ref-no.
VABH-B 1,5 t	3300	1,8 lbs	5/16"	3"	4 1/2"	4 13/32"	2 3/4"	1"	1 7/8"	2 3/8"	1 1/2"	17/32"	4xM10	1"	55	7991205
VABH-B 2,5 t	5500	3,9 lbs	11/32"	3 27/32"	5 13/16"	5 5/8"	3 11/32"	1 3/16"	2 3/8"	2 15/16"	1 15/16"	23/32"	4xM12	1 5/16"	100	7991206
VABH-B 4 t	8800	7 lbs	7/16"	4 11/16"	6 5/8"	6 15/32"	4 3/32"	1 3/8"	2 3/4"	3 17/32"	2 15/16"	63/64"	4xM16	1 9/16"	240	7991207
VABH-B 6,7 t	15000	13 lbs	1/2"	5 25/32"	8 1/16"	7 7/8"	4 3/4"	1 9/16"	3 11/32"	4 11/32"	2 3/4"	1 1/8"	4xM20	2"	450	8502238

Table 5

Subject to technical modifications