EN

Load Ring for bolting
VRBG/RBG

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

Load Ring for bolting
VRBG/RBG

RUD Ketten
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RUD-Art.-Nr.: 8503159-EN /04.016

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: Load ring VRBG

The following harmonized norms were applied:

EN 12100 : 2011-03	EN 1677-1 : 2009-03

The following national norms and technical specifications were applied:

BGR 500, KAP2.8 : 2008-04

Authorized person for the configuration of the declaration documents:
Reinhard Smetz, RUD Ketten, 73432 Aalen

Aalen, den 27.06.2014 Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
Name, function and signature of the responsible person

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: Ringbock VRBG

Folgende harmonisierten Normen wurden angewandt:

EN 12100 : 2011-03	EN 1677-1 : 2009-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

BGR 500, KAP2.8 : 2008-04

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
Reinhard Smetz, RUD Ketten, 73432 Aalen

Aalen, den 27.06.2014 Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
Name, Funktion und Unterschrift Verantwortlicher

User Instructions

1. Reference should be made to German Standards accord. BGR/DGUV 100-500 or other country specific statutory regulations and inspections are to be carried out by competent persons only.

2. Before installation and every use, visually inspect RUD lifting points, paying particular attention to any evidence of corrosion, wear, weld cracks and deformations. Please ensure compatibility of bolt thread and tapped hole.

3. 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 authoritiy BG, recommends the following minimum for the bolt lengths:

1 x M in steel (min. quality S235JR [1.0037])
1.25 x M in cast iron (e.g. GG25)
2 x M in aluminium
2,5 x M in aluminium-magnesium alloys
(M = thread Ø, e.g. M20)

When lifting light metals, nonferrous metals and cast iron the thread has to be chosen in such a way that the WLL of the thread corresponds to the requirements of the corresponding base material.

RUD-VRBG/RBG are delivered with 100 % crack tested bolts. Variable bolt length available when using DIN EN ISO 4014 (DIN 931) e.g DIN EN ISO 4762 (DIN 912) bolts. When using your own bolts they have to be 100 % crack tested. You have to use at least a hexagon bolt according to ISO 4014 (DIN 931) with quality 10.9 (for RBG 3) or a hex head bolt accord. ISO 4762 (DIN 912) with quality 12.9 (for VRBG 10 and VRBG 16) with the correct nom. diameter.

4. The lifting points must be positioned to the load in such a way that movements are avoided during lifting.
a) For single leg lifts, the lifting point should be vertically above the centre of gravity of the load.
b) For two leg lifts, the lifting points must be equidistant to/or above the centre of gravity of the load.
c) For three and four leg lifts, the lifting points should be arranged symmetrical around the centre of gravity in the same plane if possible.

5. Load symmetry:
The required WLL of the individual RUD lifting point are calculated using the following formula and are based on symmetrical loading:

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

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

The calculation of the load bearing legs is a s follows:

	symmetrical	unsymmetrical
Two leg	2	1
Three/four leg	3	1

(also refer to table 2 and 3)

6. A plane bolting surface must be guaranteed. The holes must be drilled in the recommended tolerance field and with a sufficient depth in order to guarantee compatibility with the supporting surface.

Drilling sequence for the RBG 3:
a) Mark the blind hole (Dim F) then drill and countersink the dimensions H, G, K.
b) After stick in and adjustment the welding blocks the hole for the tapped hole can be drilled.
c) The core hole and thread can be machined. For through holes dill only the dimension ”H“.

7. The VRBG/RBG-Ring must be able to pivot 180° after assembly. For single use just tighten with spanner. For long term application the VRBG/RBG should be tightened with torque accord. chart 1 (+/- 10 %) inclusive using the locking washer.

8. To prevent unintended dismounting through shock loading, rotation or vibrations thread locking devices are recommended. Therefore different locking systems are possible. Liquid locking fluid such as Loctite (respect manufacturer specifications) or form closed versions such as hex castel nut, counter nut, etc.

9. All fittings connected to the VRBG/RBG 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.

10. Effects of temperature:
Due to the DIN/EN bolts that are used with the VRBG/RBG the working load limit should be reduced accordingly:

-20° to 100°C	no reduction	(-4°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.

11. 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 avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.

12. The position where the lifting points should be attached should be clearly marked with colour.

13. If the lifting points are used **exclusively** for lashing, the value of the working load limit can be doubled. LC = 2 x WLL

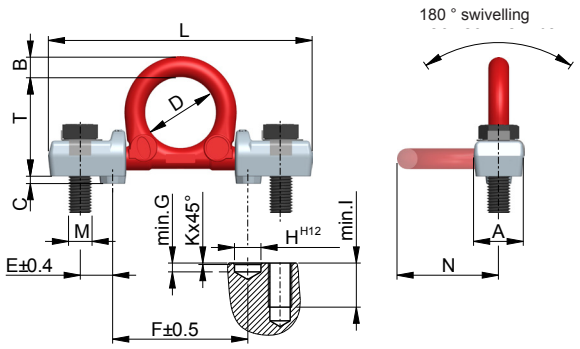
14. After fitting, an annual inspection or sooner if conditions dictate should be undertaken by a competent person examining the continued suitability. Also after damage and special occurrences.

Inspection criteria concerning paragraphs 2 and 14:

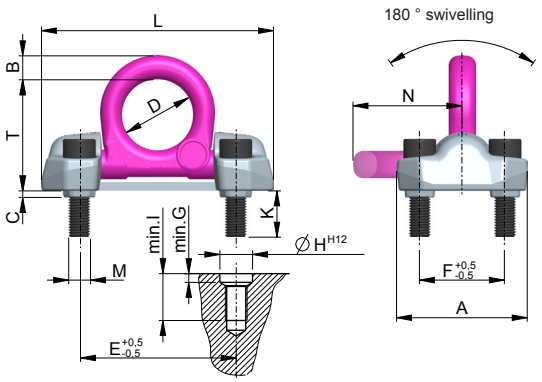
- Ensure correct bolt size, quality and length
- Ensure compatibility of bolt thread and tapped hole
- The Lifting point should be complete
- Deformations of the components parts such as body fittings and thread
- Mechanical damages such as notches, especially in high stress areas.
- Wear should be not more than 10 % of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Damage to the bolt and/or thread.

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

RBG 3



VRBG 10
VRBG 16



Type	WLL t	weight kg	A	B	C	D	E	F	G	H	I	K	L	M	N	T	screw	Torque	reference
RBG 3	3	1.07	34	16	5	48	22	92	6	18	30	1	178	16	71	67	ISO 4014 (DIN 931) M16x50-10.9	120 Nm	0051817
VRBG 10	10	6.7	125	22	6	65	143	78	8	30	50	43	213	20	100	102	ISO 4762 (DIN 912) M20x70-12.9	300 Nm	7994537
VRBG 16	16	11.3	170	30	8	90	198	104	10	46	70	63	270	30	134	131	ISO 4762 (DIN 912) M30x90-12.9	600 Nm	7993255

Table 1

Subject to technical alterations

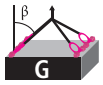
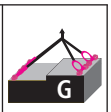
Method of lift											
Number of legs		1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angle of inclination <ß		0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Factor		1	1	2	2	1.4	1	1	2.1	1.5	1
type		**WLL in metric tonnes**									
	RBG 3 t	3 t	3 t	6 t	6 t	4.2 t	3 t	3 t	6.3 t	4.5 t	3 t
	VRBG 10 t	10 t	10 t	20 t	20 t	14.0 t	10 t	10 t	21.0 t	15 t	10 t
	VRBG 16 t	16 t	16 t	32 t	32 t	22.4 t	16 t	16 t	33.6 t	24 t	16 t

Table 2

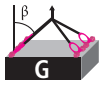
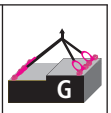
Method of lift											
Number of legs		1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angle of inclination <ß		0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Factor		1	1	2	2	1.4	1	1	2.1	1.5	1
type		**WLL in lbs**									
	RBG 3 t	6600 lbs	6600 lbs	13200 lbs	13200 lbs	9240 lbs	6600 lbs	6600 lbs	13860 lbs	9900 lbs	6600 lbs
	VRBG 10 t	22000 lbs	22000 lbs	44000 lbs	44000 lbs	30800 lbs	22000 lbs	22000 lbs	46200 lbs	33000 lbs	22000 lbs
	VRBG 16 t	35200 lbs	35200 lbs	70400 lbs	70400 lbs	49300 lbs	35200 lbs	35200 lbs	74000 lbs	52800 lbs	35200 lbs

Table 3