Load Ring - for bolting
> LBG-RS <

EN

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

Lifting points boltable

Stainless steel version
made of 1.4571

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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: Lastbock LBG-RS

Folgende harmonisierten Normen wurden angewandt:
EN 12100

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:
BGR 500, KAP2.8

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

Aalen, den 03.01.2013 Dr. Ing. Rolf Sinz, (Prokurist/QMB)
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: Load ring LBG-RS

The following harmonized norms were applied:
EN 12100

The following national norms and technical specifications were applied:
BGR 500, KAP2.8

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

Aalen, 03.01.2013 Dr. Ing. Rolf Sinz, (Prokurist/QMB)
Name, function and signature of the responsible person

Before initial usage of the LBG-RS 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 assembled or damaged lifting points as well as improper use can lead to injuries of persons and damage of objects when load drops.
Please inspect all lifting points before each use.

The RUD LBG-RS load rings are not suitable for turning operations under load.

RUD LBG-RS lifting points must only be used by instructed and competent persons considering BGR 500 and outside Germany noticing the country specific statutory regulations.

2 Intended use of LBG-RS

The lifting point LBG-RS can be used for general lifting purposes.
The lifting point must only be loaded up to the max. WLL statement (see chart 1).

Attention: the stainless load ring LBG-RS are not suitable for use in chloride media (e.g. indoor swimming pools)!

RUD LBG-RS must only be used in the hereby described operation purpose.

3 Material properties

Suspension ring, bottom part and bushing are made of 1.4571. Bolt accord. DIN ISO 3506 A4-80.

Material is resistant against granular (intercrytaline) corrosion (in permanent use up to 400°C), due to Titanium stabilization

Due to the Molybdenum content an enlarged chemical resistance is given as well as a higher resistance against crevice corrosion (pittings). 1.4571 is widely used in the chemical industry, oil and textile industry.

4 Assembly- and instruction manual

4.1 General information

- Capability of temperature usage:
  WLL of the LBG-RS must be reduced at different temperatures by the following factors.
  - -60°C up to 100°C: no reduction
  - 100°C up to 200°C: -15 % (212°F up to 392°F)
  - 200°C up to 250°C: -20 % (392°F up to 482°F)
  - 250°C up to 400°C: -25 % (482°F up to 752°F)
  - **Temperatures exceeding 400°C (752°F) are prohibited!**
- RUD lifting points are delivered with a 100 % crack tested bolt.

4.2 Hints for the assembly

1. 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 the bolt lengths:
   1 x M (thread diameter) in steel (min. quality 235JR [1.0037])
   1,25 x M (thread diameter) in cast iron (e.g. GG 25)
   2 x M (thread diameter) in aluminium
   2,5 x M (thread diameter) in light alloys of low strength
   (M = thread size/diameter, e.g. M20)
2. When lifting light metals, nonferrous metals and gray cast iron the thread has to be chosen in such a way that the WLL of the thread corresponds to the requirements of the base material.
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.
4. Load symmetry:
   Determine the necessary WLL of each lifting point for a symmetrical or an unsymmetrical load by using the following physical calculation formula:

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

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

Number of load bearing strands:

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

(see table 1)

5. A Plane bolting surface (ØDB) with a rectangular machined thread hole must be guaranteed. The holes must be drilled with a sufficient depth in order to guarantee compatibility with the supporting surface.
6. The LBG-RS must be free movable by 360° when tightened.For a **single transportation** hand tightening (to the bearing surface) by using a spanner is sufficient.
   If the LBG-RS will be **permanently** installed at the load, tensioning must be carried out with a torque (+/- 10 %) according to table 2.
7. Please mark mounting position of lifting point with a coloured contrast paint for better visibility.
8. Check finally the correct assembly (see chapter 5, Inspection criteria).

4.3 User instructions

- Check frequently and before each initial operation the whole lifting mean in regard of linger ability as a lifting mean, regarding corrosion, wear, deformation etc. (see chapter 5, Inspection criteria).

ATTENTION
Wrong assembled or damaged lifting means as well as improper use can lead to injuries of per-sons and damage of objects when load falls.
Please inspect all lifting points before each use.

- In case of turning movements (continuous operation) the recommended torques have to be checked regularly. LBG-RS lifting points are not suitable for turning under load. We recommend for lift-turning operations RUD-PowerPoint, VWBG-V resp. VWBG).
- Adjust to the direction of pull, before attaching to the lifting means. The load ring should be free movable and must not touch edges.
- All fittings connected to the LBS-RS should be free moving. When connecting and disconnecting the lifting means (sling chain) pinches and impacts should be avoided.

- Avoid damage of lifting means resulting from sharp edges.
- Watch always your hinged loads.
- Avoid impulsive and tiltful loading.

ATTENTION
Impulsive loading or vibration can lead to unintentional loosening.

Securing possibilities: Please meet torque value, liquid thread securing products f.e. Loctite (according to the usage, observe manufacturer´s declaration.) or form closed bolt securing such as a crown nut with split pin, lock nut etc. can be used.

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

4.4 Hints for regular inspection

Lingering appropriateness of lifting means should be tested by a competent person, depending on the operational demands or at least once a year (see chapter 5 Inspection criteria).

Depending on the operational demands, resulting from a numerous use, f.e. increased wear or corrosion, could make an earlier inspection necessary which means in a shorter interval than one year.

5 Inspection criteria

Observe and control the following points before each initial operation, in regular time intervals, after the assembly and after special incidents.

- 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 working load limit and manufacturers stamp should be clearly visible
- Deformation of the component parts such as body, load ring and bolt
- Mechanical damage, such as notches, particularly in high stress areas
- Wear should be no more than 10 % of cross sectional diameter
- Evidence of corrosion
- Evidence of cracks
- Damage to the bolt, nut and/or thread
- The body of the LBG-RS must be free to rotate

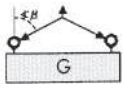
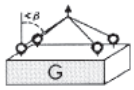
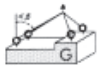
Method of lift										
Number of legs	1	1	2	2	2	2	2	3 und 4	3 und 4	3 und 4
Angle of inclination <ß	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Factor	1	1	2	2	1,4	1	1	2,1	1,5	1
Type	**For the max. total load weight >G< in metric tons**, tightened and adjusted to force direction									
LBG (3) M16 RS 1 t	1,0 t	1,0 t	2,0 t	2,0 t	1,4 t	1,0 t	1,0 t	2,1 t	1,5 t	1,0 t
LBG (3) M20 RS 2 t	2,0 t	2,0 t	4,0 t	4,0 t	2,8 t	2,0 t	2,0 t	4,2 t	3,0 t	2,0 t
Typ	**For the max. total load weight >G< in lbs**, tightened and adjusted to force direction									
LBG (3) M16 RS 1 t	2200 lbs	2200 lbs	4400 lbs	4400 lbs	3080 lbs	2200 lbs	2200 lbs	4620 lbs	3300 lbs	2200 lbs
LBG (3) M20 RS 2 t	4400 lbs	4400 lbs	8800 lbs	8800 lbs	6160 lbs	4400 lbs	4400 lbs	9250 lbs	6600 lbs	4400 lbs

Table 1: WLL overview

	WLL (t)	weight (kg)	A	B max.	C	D	E	F	G	H	J	K	L	M	SW	R	T	DB	torque	reference standard
LBG (3) M16 RS 1 t	1	1	50	85	50	45	43	16,5	38	25	95	45	63	16	24	46	88	40	100 Nm	62086
LBG (3) M20 RS 2 t	2	1,1	50	85	50	46	42	16,5	38	27	95	45	65	20	30	46	88	40	200 Nm	62813

Table 2: Dimensioning

Subject to technical alternations