

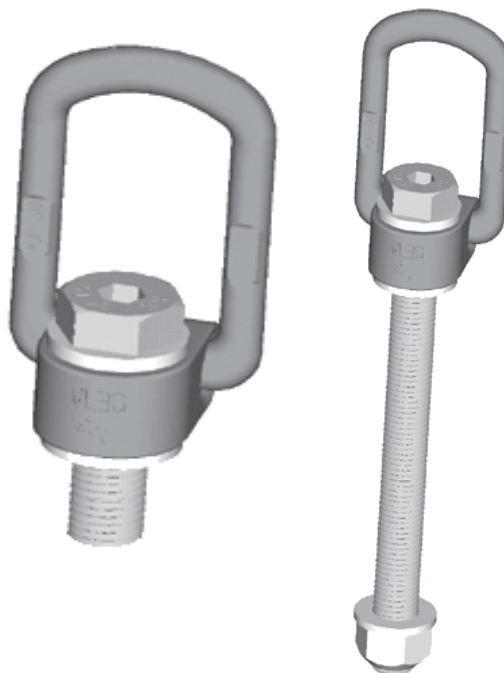


# Load Ring VLBG - for bolting -

## 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



Load ring VLBG  
- for bolting -



EMI OFB  
075131



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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 weiteren EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Lastbock VLBG

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

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: Load ring VLBG

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

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 lifting points are delivered with a 100 % crack tested bolt (length up to  $l_{max}$  please see chart 2). **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. For replacement the bolt can be easily hammered out (M8 - M30). The type VLBG 7t M36 is only delivered with a special bolt, therefore it is not possible to use a EN/DIN-bolt.

RUD supplies the Vario length complete with a washer and crack-detected nut corresponding to DIN 980.

- 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.

### 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 and 3)

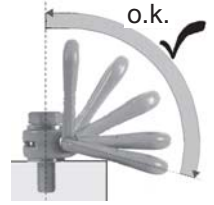
6. A Plane bolting surface ( $\varnothing$ DB) must be guaranteed. The holes must be drilled with a sufficient depth in order to guarantee compatibility with the supporting surface.

7. The VLBG has to be adjustable through 360° when fitted. *For single use just tighten with spanner. For long term application the VLBG should be tightened with torque according to table 2 (+/- 10 %).*

In case of turning movements (continuous operation) the recommended torques have to be checked regularly (For turning movements we recommend to use the RUD lifting point PowerPoint, WBG-V or WBG).

Adjust to the direction of pull, before attaching to the lifting means. The load ring should be free moving and should not be touching edges.

- All fittings connected to the VLBG 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.



9. 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.

### 10. Effects of temperature:

Due to the DIN/EN bolts that are used with the VLBG 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.

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

12. The places where the lifting points are fixed should be marked with colour.

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

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 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 VLBG must be free to rotate.

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 $\alpha$	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	
<b>WLL in metric tons, bolted and adjusted to the direction of pull</b>											
Type	Thread	0,3 t	0,3 t	0,6 t	0,6 t	0,42 t	0,3 t	0,3 t	0,63 t	0,45 t	0,3 t
VLBG 0,3 t	M 8	0,3 t	0,3 t	0,6 t	0,6 t	0,42 t	0,3 t	0,3 t	0,63 t	0,45 t	0,3 t
VLBG 0,63 t	M 10	0,63 t	0,63 t	1,26 t	1,26 t	0,88 t	0,63 t	0,63 t	1,32 t	0,95 t	0,63 t
VLBG 1 t	M 12 / 1/2"	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
VLBG 1,2 t	M 14	1,2 t	1,2 t	2,4 t	2,4 t	1,68 t	1,2 t	1,2 t	2,52 t	1,8 t	1,2 t
VLBG 1,5 t	M 16 / 5/8"	1,5 t	1,5 t	3,0 t	3,0 t	2,1 t	1,5 t	1,5 t	3,15 t	2,25 t	1,5 t
VLBG 2 t	M 18	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
VLBG 2,5 t	M 20 / 3/4" / 7/8"	2,5 t	2,5 t	5,0 t	5,0 t	3,5 t	2,5 t	2,5 t	5,25 t	3,75 t	2,5 t
VLBG 4 t	M 24 / M 27 / 1"	4,0 t	4,0 t	8,0 t	8,0 t	5,6 t	4,0 t	4,0 t	8,4 t	6,0 t	4,0 t
VLBG 5 t	M 30 / 1 1/4"	5,0 t	5,0 t	10,0 t	10,0 t	7,0 t	5,0 t	5,0 t	10,5 t	7,5 t	5,0 t
VLBG 7 t	M 36	7,0 t	7,0 t	14,0 t	14,0 t	9,8 t	7,0 t	7,0 t	14,7 t	10,5 t	7,0 t
VLBG 8 t	M 36	8,0 t	8,0 t	16,0 t	16,0 t	11,2 t	8,0 t	8,0 t	16,8 t	12,0 t	8,0 t
VLBG 10 t	M 42	10,0 t	10,0 t	20,0 t	20,0 t	14,0 t	10,0 t	10,0 t	21,0 t	15,0 t	10,0 t
VLBG 15 t	M 42	15,0 t	15,0 t	30,0 t	30,0 t	21,0 t	15,0 t	15,0 t	31,5 t	22,5 t	15,0 t
VLBG 20 t	M 48	20,0 t	20,0 t	40,0 t	40,0 t	28,0 t	20,0 t	20,0 t	42,0 t	30,0 t	20,0 t

Table 1

Type	WLL (t)	weight (kg)	A	B max.	C	D	E	F	G	H	H Stand. max.	J	K	L	L Stand. max.	M	N	SW	R	T	DB	torque	reference Standard	Vario	
VLBG 0,3t M8	0,3	0,3	30	54	34	35	40	10	29	11	76	75	45	40	105	8	5	13	32	75	24	30 Nm	8500791*	8600280	
VLBG 0,63t M10	0,63	0,32	30	54	34	36	39	10	29	16	96	75	45	45	125	10	6	17	32	75	24	60 Nm	8500793*	8600281	
VLBG 1t M12	1	0,33	32	54	34	37	38	10	29	21	116	75	45	50	145	12	8	19	32	75	26	100 Nm	8500795*	8600282	
VLBG 1,2t M14	1,2	0,55	33	56	36	46	39	13,5	36		34	86	47		70	16	10	24	38	85	30	120 Nm	-	8600399	
VLBG 1,5t M16	1,5	0,55	33	56	36	46	39	13,5	36	24	149	86	47	60	185	16	10	24	38	85	30	150 Nm	8500806*	8600283	
VLBG 2,0t M18	2	1,3	50	82	54	55	55	16,5	43		47	113	64		90	18	12	30	48	110	45	200 Nm	-	8600384	
VLBG 2,5t M20	2,5	1,3	50	82	54	55	55	16,5	43	32	187	113	64	75	230	20	12	30	48	110	45	250 Nm	8500802*	8600285	
VLBG 4t M24	4	1,5	50	82	54	58	67	18	43	37	222	130	78	80	265	24	14	36	48	125	45	400 Nm	8500804*	8600286	
VLBG 4t M27	4	3,1	60	103	65	78	69	22,5	61	39	-	151	80	100	-	27	-	41	67	147	60	400 Nm	7983658	-	
VLBG 5t M30	5	3,3	60	103	65	80	67	22,5	61	49	279	151	80	110	340	30	17	46	67	147	60	500 Nm	8500813**	8600288	
VLBG 7t M36	7	3,4	60	103	65	72	74	22,5	55	52	-	151	80	107	-	36	-	55	67	146	60	700 Nm	8500817**	-	
VLBG 8t M36	8	6,2	77	122	82	100	97	26,5	77	63	223	205	110	140	300	36	22	55	87	197	70	800 Nm	7983553	8600289	
VLBG 10t M42	10	6,7	77	122	82	103	94	26,5	77	73	273	205	110	150	350	42	24	65	87	197	70	1000 Nm	7983554	8600290	
VLBG 15t M42	15	11,2	95	156	100	113	109	36	87	63	263	230	130	150	350	42	24	65	100	222	85	1500 Nm	7982966	8600291	
VLBG 20t M48	20	11,6	95	156	100	117	105	36	87	73	303	230	130	160	390	48	27	75	100	222	95	2000 Nm	7982967	8600292	
LBG (3) M16 RS 1t	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 2t	2	1,1	50	85	50	46	42	16,5	38	27	-	95	45	65	-	20	-	30	46	88	40	200 Nm	62813		
Attention: the stainless load ring is not suitable for use in chloride media (e.g. indoor swimming-pools)																									
VLBG-Z 1t 1/2"-13UNC	1	0,33	32	54	34	38	37	10	29	22	-	75	45	50	-	1/2"	-	3/4"	32	75	26	100 Nm	8502349	-	
VLBG-Z 1,5t 5/8"-11UNC	1,5	0,55	33	56	36	46	38	13,5	36	24	-	87	47	60	-	5/8"	-	15/16"	38	85	30	150 Nm	8502350	-	
VLBG-Z 2,5t 3/4"-10UNC	2,5	1,3	50	82	54	56	54	16,5	43	28	-	113	64	71	-	3/4"	-	1 1/8"	48	110	45	250 Nm	8502351	-	
VLBG-Z 2,5t 7/8"-9UNC	2,5	1,3	50	82	54	58	52	16,5	43	27	-	113	64	70	-	7/8"	-	1 5/16"	48	110	45	300 Nm	8502352	-	
VLBG-Z 4t 1"-8UNC	4	1,5	50	82	54	61	64	18	43	41	-	130	78	84	-	1"	-	1 1/2"	48	125	45	400 Nm	8502353	-	
VLBG-Z 5t 1 1/4"-7UNC	5	3,3	60	103	65	80	64	22,5	91	41	-	151	80	102	-	1 1/4"	-	1 7/8"	67	147	60	500 Nm	8503187	-	

Table 2

\* = package unit 10 pieces

\*\* = package unit 4 pieces





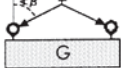



Method of lift											
Number of legs	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4	
Angle of inclination $\leq \beta$	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor	1	1	2	2	1,4	1	1	2,1	1,5	1	
		<b>WLL in lbs, bolted and adjusted to the direction of pull</b>									
Type	Thread										
VLBG 0,3 t	M 8	660 lbs	660 lbs	1320 lbs	1320 lbs	925 lbs	660 lbs	660 lbs	1400 lbs	990 lbs	660 lbs
VLBG 0,63 t	M 10	1400 lbs	1400 lbs	2800 lbs	2800 lbs	1940 lbs	1400 lbs	1400 lbs	2910 lbs	2080 lbs	1400 lbs
VLBG 1 t	M 12 / 1/2"	2200 lbs	2200 lbs	4400 lbs	4400 lbs	3080 lbs	2200 lbs	2200 lbs	4620 lbs	3300 lbs	2200 lbs
VLBG 1,2 t	M14	2640 lbs	2640 lbs	5280 lbs	5280 lbs	3700 lbs	2640 lbs	2640 lbs	5545 lbs	3960 lbs	2640 lbs
VLBG 1,5 t	M 16 / 5/8"	3300 lbs	3300 lbs	6600 lbs	6600 lbs	4620 lbs	3300 lbs	3300 lbs	6930 lbs	4950 lbs	3300 lbs
VLBG 2 t	M 18	4400 lbs	4400 lbs	8800 lbs	8800 lbs	6160 lbs	4400 lbs	4400 lbs	9250 lbs	6600 lbs	4400 lbs
VLBG 2,5 t	M 20 / 3/4" / 7/8"	5500 lbs	5500 lbs	11000 lbs	11000 lbs	7700 lbs	5500 lbs	5500 lbs	11550 lbs	8250 lbs	5500 lbs
VLBG 4 t	M 24 / M 27 / 1"	8800 lbs	8800 lbs	17600 lbs	17600 lbs	12320 lbs	8800 lbs	8800 lbs	18480 lbs	13200 lbs	8800 lbs
VLBG 5 t	M 30 / 1 1/4"	11000 lbs	11000 lbs	22000 lbs	22000 lbs	15400 lbs	11000 lbs	11000 lbs	23100 lbs	16500 lbs	11000 lbs
VLBG 7 t	M 36	15400 lbs	15400 lbs	30800 lbs	30800 lbs	21500 lbs	15400 lbs	15400 lbs	32350 lbs	23100 lbs	15400 lbs
VLBG 8 t	M 36	17600 lbs	17600 lbs	35200 lbs	35200 lbs	24640 lbs	17600 lbs	17600 lbs	36960 lbs	26400 lbs	17600 lbs
VLBG 10 t	M 42	22000 lbs	22000 lbs	44000 lbs	44000 lbs	30800 lbs	22000 lbs	22000 lbs	46200 lbs	33000 lbs	22000 lbs
VLBG 15 t	M 42	33000 lbs	33000 lbs	66000 lbs	66000 lbs	46200 lbs	33000 lbs	33000 lbs	69300 lbs	49500 lbs	33000 lbs
VLBG 20 t	M 48	44000 lbs	44000 lbs	88000 lbs	88000 lbs	61600 lbs	44000 lbs	44000 lbs	92400 lbs	66000 lbs	44000 lbs

Tabelle 3