

RUD- Eyebolt

Safety instructions

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



RUD-Eyebolt
- high tensile -
RS



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
 D-73428 Aalen / Germany
 Tel. +49 (0)7361/504-1371 /
 1314/1527
 Fax +49 (0)7361/504-1460
 www.rud.com
 info@rud.com

RUD-Art.-Nr.: 8500816-EN / 07.006

EG-Herstellererklärung

im Sinne der EG-Maschinenrichtlinie 98/37/EG,
Anhang II B und ihre Änderungen

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen gemäß BGR 500, Kapitel 2.8 „Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb“, und den entsprechenden landesspezifische Vorschriften, nicht vorgenommen werden.

Hinweis: Die Inbetriebnahme der Maschine, an die die gelieferten Bauteile angebaut werden, ist solange untersagt, bis festgestellt wurde, daß sie den Bestimmungen der Maschinenrichtlinie 98/37/EG der Europäischen Gemeinschaft entspricht. Angewendete harmonisierte Normen DIN EN ISO 12100 T1 und T2 in Anlehnung an EN 1677. Dies gilt nur für Mitgliedstaaten der EU und EFTA.

Bezeichnung der Ausrüstung:

Anschlagpunkt

Type: Ringschraube - RS

Herstellerzeichen:

EC-Declaration of the manufacturer

according to the Machinery Directive 98/37/EC,
annex II B and amendments

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation 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. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per BGR 500.

Hint: The commissioning of the machine in which the delivered components of this consignment will be installed is only permitted if it can be stated that the machine corresponds to the machine directive 98/37/EC of the European Community. Applied standards: DIN EN ISO 12100 T1 and T2 in particular EN 1677. This is only valid for countries which are member of the EC and of the EFTA.

Designation of the equipment:

Lifting point

Type: Eyebolt - RS

Manufacturer's sign:

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, inspect visually 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
 - 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.

- 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.

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
 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	2

(see table 1 and 3)

When using the eyebolt perpendicular only, the WLL from table 1 can be used.

- Drill and tap the work piece so that the eyebolt is installed perpendicular to the surface of the work piece. The work piece surface must be flat, providing complete contact for the eyebolt.

7. Rotation during the transportation must be avoided.

- All fittings connected to the eyebolt 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.
- 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. For lifting points which remains on the construction we basically recommend to secure with liquid locking device or tighten with torque.

10. Effects of temperature:

If the RUD-Eyebolts are to be used in temperatures ranging from 200°C upwards, the WLL has to be reduced accordingly:

-40° up to 200°C	no reduction
200° up to 300°C	minus 10% (392°F up to 572°F)
300° up to 400°C	minus 25% (572°F up to 752°F)

Temperatures above 400°C (752°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. After fitting, an annual inspection or sooner if conditions dictate should be under taken by a competent person examining the continued suitability. Also after damage and special occurrences.

Inspection criteria concerning paragraphs 2 and 13:

- Ensure compatibility of bolt thread and tapped hole
- The plane area of the eye bolt can completely flat down to the work piece.
- 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.

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

Method of lift	Diagram		Number of legs	Angle of inclination β		WLL in metric tonnes, boltet	
	symmetrical	asymmetrical		0°	90°	metric type	imperial thread
single leg			1	0°	90°	RS-M 6	1/4"
two leg			2	0°	90°	RS-M 8	5/16"
three / four leg			3 and 4	0-45°	45-60°	RS-M 10	3/8"
three / four leg			3 and 4	0-45°	45-60°	RS-M 12	1/2"
three / four leg			3 and 4	0-45°	45-60°	RS-M 16	5/8"
three / four leg			3 and 4	0-45°	45-60°	RS-M 20	7/8"
three / four leg			3 and 4	0-45°	45-60°	RS-M 24	1"
three / four leg			3 and 4	0-45°	45-60°	RS-M 30	1 1/4"
three / four leg			3 and 4	0-45°	45-60°	RS-M 36	1 1/2"
three / four leg			3 and 4	0-45°	45-60°	RS-M 42	1 3/4"
three / four leg			3 and 4	0-45°	45-60°	RS-M 48	2"

We recommend to use the >VRS-STARPOINT< or >PowerPoint< which can be adjusted to the direction of pull !

Table 1

Type	WLL	weight	A	B	C	D	E	F	T	reference no.	
ISO metric thread	RS-M 6	0,1 t	0,1 kg	12	11	10	25	25	6	35	61401
	RS-M 8	0,2 t	0,1 kg	12	11	10	25	25	8	35	61402
	RS-M 10	0,25 t	0,1 kg	15	11	10	25	25	10	35	56397
	RS-M 12	0,4 t	0,2 kg	18	13	12	30	30	12	41	56398
	RS-M 14	0,75 t	0,3 kg	21	15	14	35	35	14	48	56403
	RS-M 16	1,0 t	0,3 kg	24	15	14	35	35	16	48	56404
	RS-M 18	1,2 t	0,4 kg	30	17	16	40	40	18	55	53850
	RS-M 20	1,5 t	0,45 kg	30	17	16	40	40	20	55	56407
	RS-M 22	1,5 t	0,65 kg	36	21	20	50	50	22	70	53346
	RS-M 24	2,0 t	0,7 kg	36	21	20	50	50	24	70	56408
	RS-M 27	2,0 t	1,5 kg	45	26	24	60	60	27	85	53347
	RS-M 30	3,0 t	1,6 kg	45	26	24	60	60	30	85	56409
	RS-M 33	3,0 t	5,9 kg	50	43	38	90	100	33	130	57770
	RS-M 36	4,0 t	6,0 kg	54	43	38	90	100	36	130	56954
	RS-M 39	5,0 t	6,1 kg	59	43	38	90	100	39	130	57771
	RS-M 42	6,0 t	6,2 kg	63	43	38	90	100	42	130	56955
	RS-M 45	7,0 t	6,3 kg	67	43	38	90	100	45	130	58044
RS-M 48	8,0 t	6,4 kg	67	43	38	90	100	48	130	56956	
Metric fine thread	RS-M 10x1,25	0,25 t	0,1 kg	15	11	10	25	25	10x1,25	35	56877
	RS-M 12x1,5	0,4 t	0,2 kg	18	13	12	30	30	12x1,5	41	59830
	RS-M 14x1,5	0,75 t	0,3 kg	21	15	14	35	35	14x1,5	48	53844
	RS-M 16x1,5	1,0 t	0,3 kg	24	15	14	35	35	16x1,5	48	59832
	RS-M 18x1,5	1,2 t	0,4 kg	30	17	16	40	40	18x1,6	55	50986
	RS-M 20x2	1,5 t	0,45 kg	30	17	16	40	40	20x2	55	59833
	RS-M 24x2	2,0 t	0,7 kg	36	21	20	50	50	24x2	70	59834
	RS-M 30x2	3,0 t	1,6 kg	45	26	24	60	60	30x2	85	59835
	RS-M 36x3	4,0 t	6,0 kg	54	43	38	90	100	36x3	130	53853
	RS-M 42x3	6,0 t	6,2 kg	63	43	38	90	100	42x3	130	53872
Imperial thread UNC	RS- 1/4"-20UNC	0,1 t	0,1 kg	12	11	10	25	25	1/4"	35	56887
	RS- 5/16"-18UNC	0,2 t	0,1 kg	12	11	10	25	25	5/16"	35	56885
	RS- 3/8"-16UNC	0,25 t	0,1 kg	15	11	10	25	25	13/8"	35	51808
	RS- 1/2"-13UNC	0,4 t	0,2 kg	18	13	12	30	30	1/2"	41	56871
	RS- 9/16"-12UNC	0,75 t	0,3 kg	22	15	14	35	35	9/16"	48	57120
	RS- 5/8"-11UNC	1,0 t	0,3 kg	24	15	14	35	35	5/8"	48	57198
	RS- 3/4"-10UNC	1,2 t	0,45 kg	30	17	16	40	40	3/4"	55	57205
	RS- 7/8"-9UNC	1,5 t	0,7 kg	34	21	20	50	50	7/8"	70	57212
	RS- 1"-8UNC	2,0 t	0,7 kg	36	21	20	50	50	1 "	70	57213
	RS- 1 1/8"-7UNC	2,5 t	1,6 kg	45	26	24	60	60	1 1/8"	85	57471
	RS- 1 1/4"-7UNC	3,0 t	1,6 kg	46	26	24	60	60	1 1/4"	85	57685
	RS- 1 1/2"-6UNC	4,0 t	6,2 kg	58	43	38	90	100	1 1/2"	130	58615
	RS- 1 3/4"-5UNC	6,0 t	6,3 kg	67	43	38	90	100	1 3/4"	130	58616
RS- 2"-4,5UNC	8,0 t	6,4 kg	67	43	38	90	100	2 "	130	58658	
Whitworth thread	RS- 1/4"	0,1 t	0,1 kg	12	11	10	25	25	1/4"	35	51806
	RS- 5/16"	0,2 t	0,1 kg	12	11	10	25	25	5/16"	35	51807
	RS- 3/8"	0,25 t	0,1 kg	15	11	10	25	25	13/8"	35	56880
	RS- 1/2"	0,4 t	0,2 kg	18	13	12	30	30	1/2"	41	51810
	RS- 5/8"	1,0 t	0,3 kg	24	15	14	35	35	5/8"	48	51811
	RS- 3/4"	1,2 t	0,45 kg	30	17	16	40	40	3/4"	55	51813
	RS- 1"	2,0 t	0,7 kg	36	21	20	50	50	1"	70	51774

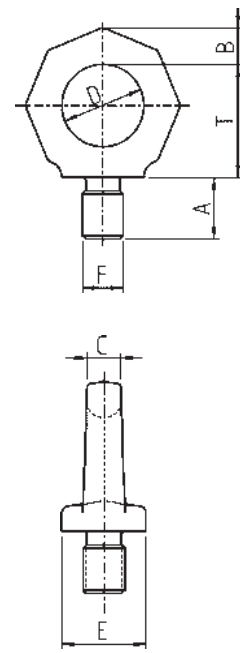


Table 2

	Type	WLL	weight	A	B	C	D	E	F	T	reference no.
Iso metric thread	RS-M 6	220 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	M6	1 11/32"	61401
	RS-M 8	440 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	M8	1 11/32"	61402
	RS-M 10	550 lbs	0,22 lbs	19/32"	7/16"	25/64"	1"	1"	M10	1 11/32"	56397
	RS-M 12	880 lbs	0,44 lbs	23/32"	1/2"	15/32"	1 3/16"	1 3/16"	M12	1 5/8"	56398
	RS-M 14	1650 lbs	0,66 lbs	13/16"	19/32"	9/16"	1 3/8"	1 3/8"	M14	1 7/8"	56403
	RS-M 16	2200 lbs	0,66 lbs	15/16"	19/32"	9/16"	1 3/8"	1 3/8"	M16	1 7/8"	56404
	RS-M 18	2640 lbs	0,88 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	M18	2 5/32"	53850
	RS-M 20	3300 lbs	1,0 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	M20	2 5/32"	56407
	RS-M 22	3300 lbs	1,4 lbs	1 13/32"	13/16"	25/32"	1 31/32"	1 31/32"	M22	2 3/4"	53346
	RS-M 24	4400 lbs	1,5 lbs	1 13/32"	13/16"	25/32"	1 31/32"	1 31/32"	M24	2 3/4"	56408
	RS-M 27	4400 lbs	3,3 lbs	1 3/4"	1"	15/16"	2 3/8"	2 3/8"	M27	3 11/32"	53347
	RS-M 30	6600 lbs	3,5 lbs	1 3/4"	1"	15/16"	2 3/8"	2 3/8"	M30	3 11/32"	56409
	RS-M 33	6600 lbs	5,9 kg	1 31/32"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M33	5 1/8"	57770
	RS-M 36	8800 lbs	13,0 lbs	2 5/32"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M36	5 1/8"	56954
	RS-M 39	11000 lbs	13,4 lbs	2 5/16"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M39	5 1/8"	57771
	RS-M 42	13200 lbs	13,6 lbs	2 1/2"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M42	5 1/8"	56955
RS-M 45	15400 lbs	13,9 lbs	2 5/8"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M45	5 1/8"	58044	
RS-M 48	17600 lbs	14,1 lbs	2 5/8"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M48	5 1/8"	56956	
Metric fine thread	RS-M 10x1,25	550 lbs	0,22 lbs	19/32"	7/16"	25/64"	1"	1"	M10x1,25	1 11/32"	56877
	RS-M 12x1,5	880 lbs	0,44 lbs	23/32"	1/2"	15/32"	1 3/16"	1 3/16"	M12x1,5	1 5/8"	59830
	RS-M 14x1,5	1650 lbs	0,66 lbs	13/16"	19/32"	9/16"	1 3/8"	1 3/8"	M14x1,5	1 7/8"	53844
	RS-M 16x1,5	2200 lbs	0,66 lbs	15/16"	19/32"	9/16"	1 3/8"	1 3/8"	M16x1,5	1 7/8"	59832
	RS-M 18x1,5	2640 lbs	0,88 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	M18x1,6	2 5/32"	50986
	RS-M 20x2	3300 lbs	1,0 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	M20x2	2 5/32"	59833
	RS-M 24x2	4400 lbs	1,5 lbs	1 13/32"	13/16"	25/32"	1 31/32"	1 31/32"	M24x2	2 3/4"	59834
	RS-M 30x2	6600 lbs	3,5 lbs	1 3/4"	1"	15/16"	2 3/8"	2 3/8"	M30x2	3 11/32"	59835
	RS-M 36x3	8800 lbs	13,0 lbs	2 5/32"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M36x3	5 1/8"	53853
	RS-M 42x3	13200 lbs	13,6 lbs	2 1/2"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M42x3	5 1/8"	53872
Imperial thread UNC	RS- 1/4"-20UNC	220 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	1/4"	1 11/32"	56887
	RS- 5/16"-18UNC	440 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	5/16"	1 11/32"	56885
	RS- 3/8"-16UNC	550 lbs	0,22 lbs	19/32"	7/16"	25/64"	1"	1"	3/8"	1 11/32"	51808
	RS- 1/2"-13UNC	880 lbs	0,44 lbs	23/32"	1/2"	15/32"	1 3/16"	1 3/16"	1/2"	1 5/8"	56871
	RS- 9/16"-12UNC	1650 lbs	0,66 lbs	13/16"	19/32"	9/16"	1 3/8"	1 3/8"	9/16"	1 7/8"	57120
	RS- 5/8"-11UNC	2200 lbs	0,66 lbs	15/16"	19/32"	9/16"	1 3/8"	1 3/8"	5/8"	1 7/8"	57198
	RS- 3/4"-10UNC	2640 lbs	0,88 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	3/4"	2 5/32"	57205
	RS- 7/8"-9UNC	3300 lbs	1,4 lbs	1 11/32"	13/16"	25/32"	1 31/32"	1 31/32"	7/8"	2 3/4"	57212
	RS- 1"-8UNC	4400 lbs	1,5 lbs	1 13/32"	13/16"	25/32"	1 31/32"	1 31/32"	1"	2 3/4"	57213
	RS- 1 1/8"-7UNC	5500 lbs	3,2 lbs	1 3/4"	1"	15/16"	2 3/8"	2 3/8"	1 1/8"	3 11/32"	57471
	RS- 1 1/4"-7UNC	6600 lbs	3,5 lbs	1 3/4"	1"	15/16"	2 3/8"	2 3/8"	1 1/4"	3 11/32"	57685
	RS- 1 1/2"-6UNC	8800 lbs	13,0 lbs	2 9/32"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	1 1/2"	5 1/8"	58615
	RS- 1 3/4"-5UNC	13200 lbs	13,6 lbs	2 5/8"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	1 3/4"	5 1/8"	58616
RS- 2"-4,5UNC	17600 lbs	14,1 lbs	2 5/8"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	2"	5 1/8"	58658	
Whitworth thread	RS- 1/4"	220 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	1/4"	1 11/32"	51806
	RS- 5/16"	440 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	5/16"	1 11/32"	51807
	RS- 3/8"	550 lbs	0,22 lbs	19/32"	7/16"	25/64"	1"	1"	3/8"	1 11/32"	56880
	RS- 1/2"	880 lbs	0,44 lbs	23/32"	1/2"	15/32"	1 3/16"	1 3/16"	1/2"	1 5/8"	51810
	RS- 5/8"	2200 lbs	0,66 lbs	15/16"	19/32"	9/16"	1 3/8"	1 3/8"	5/8"	1 7/8"	51811
	RS- 3/4"	2640 lbs	0,88 lbs	1 3/16"	43/64"	5/8"	1 9/16"	1 9/16"	3/4"	2 5/32"	51813
	RS- 1"	4400 lbs	1,5 lbs	1 13/32"	13/16"	25/32"	1 31/32"	1 31/32"	1"	2 3/4"	51774

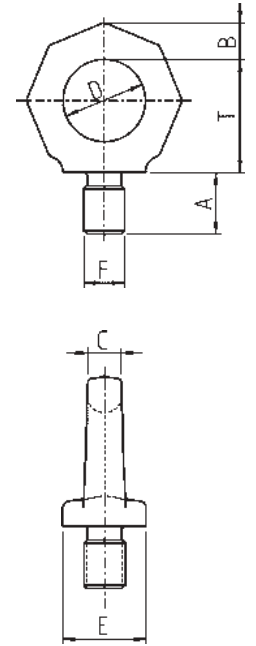


Table 3

RUD- Eyenut

Safety instructions

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



RUD-Eyenut RM

Standard application for bolts with min. quality class 8.8



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
 D-73428 Aalen / Germany
 Tel. +49 (0)7361/504-1371 /
 1314 / 1527
 Fax +49 (0)7361/504-1460
 www.rud.com
 info@rud.com

RUD-Art.-Nr.: 8502509-EN / 07.006

EG-Herstellererklärung

im Sinne der EG-Maschinenrichtlinie 98/37/EG,
Anhang II B und ihre Änderungen

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der betreffenden EG-Richtlinie(n) entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgeführten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen gemäß BGR 500, Kapitel 2.8 „Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb“, und den entsprechenden landesspezifische Vorschriften, nicht vorgenommen werden.

Hinweis: Die Inbetriebnahme der Maschine, an die die gelieferten Bauteile angebaut werden, ist solange untersagt, bis festgestellt wurde, daß sie den Bestimmungen der Maschinenrichtlinie 98/37/EG der Europäischen Gemeinschaft entspricht. Bei Ringmuttern angewendete harmonisierte Normen DIN EN ISO 12100 T1 und T2 in Anlehnung an EN 1677. Dies gilt nur für Mitgliedstaaten der EU und EFTA.

Bezeichnung der Ausrüstung:

Anschlagpunkt

Type: Ringmutter - RM

Herstellerzeichen:

EC-Declaration of the manufacturer

according to the Machinery Directive 98/37/EC,
annex II B and amendments

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation 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. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per BGR 500.

Hint: The commissioning of the machine in which the delivered components of this consignment will be installed is only permitted if it can be stated that the machine corresponds to the machine directive 98/37/EC of the European Community. Applied standards: DIN EN ISO 12100 T1 and T2 in particular EN 1677. This is only valid for countries which are member of the EC and of the EFTA.

Designation of the equipment:

Lifting point

Type: Eyenut - RM

Manufacturer's sign:

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, inspect visually 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.
- RUD eyenuts are only be used with bolts or threaded studs with a min. quality class 8.8. **Non certified bolts or threaded studs are not allowed.**
- 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.

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
 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	2

(see table 1 and 3)

6. A plane bolting surface must be guaranteed. The internal thread has to be 100% engaged on the bolt thread. The treaded stud must guarantee that the plane area of the eyenut can completely flat down to the work piece.

When using the eyenut perpendicular only, the WLL from table no. 1 can be used.

7. Rotation during the transportation must be avoided.

8. All fittings connected to the eyenut 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:

If the RUD-Eyenuts are to be used in temperatures ranging from 200°C upwards, the WLL has to be reduced accordingly:

-40° up to 200°C	no reduction
200° up to 300°C	minus 10% (392°F up to 572°F)
300° up to 400°C	minus 25% (572°F up to 752°F)

Temperatures above 400°C (752°F) are not permitted. Please pay attention to the max. temperature areas for the bolts and threaded studs.

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

Inspection criteria concerning paragraphs 2 and 13:

- Ensure tightness
- Ensure correct bolt (treaded stud) size, quality and length
- The plane area of the eyenut must properly flat down on the work piece.
- 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 threaded stud
- 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.

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

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 β	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
RUD-Eyenut -WLL in metric tonnes, bolted										
Metric type										
RM-M6	0,4 t	0,1 t	0,8 t							
RM-M8	0,8 t	0,2 t	1,6 t							
RM-M10	1 t	0,25 t	2 t							
RM-M12	1,6 t	0,4 t	3,2 t							
RM-M16	3,2 t	0,8 t	6,4 t							
RM-M20	6 t	1,5 t	12 t							
RM-M24	8 t	2 t	16 t							
RM-M30	12 t	3 t	24 t							
RM-M36	16 t	4 t	32 t							
RM-M42	24 t	6 t	48 t							
RM-M48	32 t	8 t	64 t							

For these kind of lifting purposes we recommend lifting points which can be adjusted to direction of pull !

Table 1

Type	WLL	weight	A	B	C	D	E	F	T	Ref.-No.	
ISO metric thread	RM-M 6	0,1 t	0,1 kg	12	11	10	25	25	6	34	55254
	RM-M 8	0,2 t	0,1 kg	12	11	10	25	25	8	34	55255
	RM-M 10	0,25 t	0,1 kg	12	11	10	25	25	10	34	55258
	RM-M 12	0,4 t	0,2 kg	14	13	12	30	30	12	41	55271
	RM-M 14	0,75 t	0,3 kg	16	15	14	35	35	14	48	55281
	RM-M 16	0,8 t	0,3 kg	16	15	14	35	35	16	48	55460
	RM-M 18	1,2 t	0,4 kg	18	17	16	40	40	18	55	55342
	RM-M 20	1,5 t	0,35 kg	18	17	16	40	40	20	55	55343
	RM-M 22	1,5 t	0,65 kg	22	21	20	50	50	22	70	55387
	RM-M 24	2,0 t	0,6 kg	22	21	20	50	50	24	70	55394
	RM-M 27	2,0 t	1,4 kg	28	26	24	60	60	27	85	55399
	RM-M 30	3,0 t	1,3 kg	28	26	24	60	60	30	85	55438
	RM-M 36	4,0 t	5,5 kg	40	43	38	90	100	36	130	53093
	RM-M 42	6,0 t	5,4 kg	40	43	38	90	100	42	130	53095
RM-M 48	8,0 t	5,3 kg	40	43	38	90	100	48	130	53098	
Imperial thread UNC	RM- 3/8"-16UNC	0,2 t	0,1 kg	12	11	10	25	25	3/8"	34	7101103
	RM- 1/2"-13UNC	0,35 t	0,2 kg	14	13	12	30	30	1/2"	41	7101104
	RM- 5/8"-11UNC	0,75 t	0,3 kg	16	15	14	35	35	5/8"	48	7101105
	RM- 3/4"-10UNC	1,2 t	0,45 kg	18	17	16	40	40	3/4"	55	7101106
	RM- 7/8"-9UNC	1,5 t	0,7 kg	22	21	20	50	50	7/8"	70	7101107
	RM- 1"-8UNC	2,0 t	1,5 kg	28	26	24	60	60	1"	85	7101108
	RM- 1 1/4"-7UNC	3,0 t	1,4 kg	28	26	24	60	60	1 1/4"	85	7982594

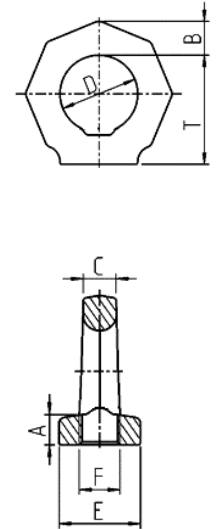


Table 2

Type	WLL	weight	A	B	C	D	E	F	T	Ref.-No.	
ISO metric thread	RM-M 6	220 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	M6	1 11/32"	55254
	RM-M 8	440 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	M8	1 11/32"	55255
	RM-M 10	550 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	M10	1 11/32"	55258
	RM-M 12	880 lbs	0,44 lbs	9/16"	1/2"	15/32"	1 3/16"	1 3/16"	M12	1 5/8"	55271
	RM-M 14	1650 lbs	0,66 lbs	5/8"	19/32"	9/16"	1 3/8"	1 3/8"	M14	1 7/8"	55281
	RM-M 16	1760 lbs	0,66 lbs	5/8"	19/32"	9/16"	1 3/8"	1 3/8"	M16	1 7/8"	55460
	RM-M 18	2640 lbs	0,88 lbs	23/32"	43/64"	5/8"	1 9/16"	1 9/16"	M18	2 5/32"	55342
	RM-M 20	3300 lbs	0,77 lbs	23/32"	43/64"	5/8"	1 9/16"	1 9/16"	M20	2 5/32"	55343
	RM-M 22	3300 lbs	1,4 lbs	7/8"	13/16"	25/32"	1 31/32"	1 31/32"	M22	2 3/4"	55387
	RM-M 24	4400 lbs	1,35 lbs	7/8"	13/16"	25/32"	1 31/32"	1 31/32"	M24	2 3/4"	55394
	RM-M 27	4400 lbs	3,0 lbs	1 1/8"	1"	15/16"	2 3/8"	2 3/8"	M27	3 11/32"	55399
	RM-M 30	6600 lbs	2,8 lbs	1 1/8"	1"	15/16"	2 3/8"	2 3/8"	M30	3 11/32"	55438
	RM-M 36	8800 lbs	12 lbs	1 9/16"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M36	5 1/8"	53093
	RM-M 42	13200 lbs	11,9 lbs	1 9/16"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M42	5 1/8"	53095
RM-M 48	17600 lbs	11,7 lbs	1 9/16"	1 11/16"	1 1/2"	3 1/2"	3 15/16"	M48	5 1/8"	53098	
Imperial thread UNC	RM- 3/8"-16UNC	440 lbs	0,22 lbs	15/32"	7/16"	25/64"	1"	1"	3/8"	1 11/32"	7101103
	RM- 1/2"-13UNC	770 lbs	0,44 lbs	9/16"	1/2"	15/32"	1 3/16"	1 3/16"	1/2"	1 5/8"	7101104
	RM- 5/8"-11UNC	1650 lbs	0,66 lbs	5/8"	19/32"	9/16"	1 3/8"	1 3/8"	5/8"	1 7/8"	7101105
	RM- 3/4"-10UNC	2640 lbs	1,0 lbs	23/32"	43/64"	5/8"	1 9/16"	1 9/16"	3/4"	2 5/32"	7101106
	RM- 7/8"-9UNC	3300 lbs	1,5 lbs	7/8"	13/16"	25/32"	1 31/32"	1 31/32"	7/8"	2 3/4"	7101107
	RM- 1"-8UNC	4400 lbs	3,3 lbs	1 1/8"	1"	15/16"	2 3/8"	2 3/8"	1"	3 11/32"	7101108
	RM- 1 1/4"-7UNC	6600 lbs	3,1 lbs	1 1/8"	1"	15/16"	2 3/8"	2 3/8"	1 1/4"	3 11/32"	7982594

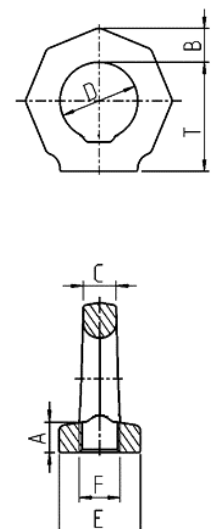


Table 3

> STARPOINT <

Safety instructions

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



Another generation of eyebolt



MO
045119



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
D-73428 Aalen
Tel. 07361/504-1351/1370/1262
Fax 07361/504-1460
www.rud.com
info@rud.com

RUD-Art.-Nr.: 8500483-EN / 07.006

EG-Herstellererklärung

im Sinne der EG-Maschinenrichtlinie 98/37/EG,
Anhang II B und ihre Änderungen

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen laut BGR 500, Kapitel 2.8 „Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb“, und den entsprechenden landesspezifische Vorschriften, nicht vorgenommen werden.

Hinweis: Die Inbetriebnahme der Maschine, an die die gelieferten Bauteile angebaut werden, ist solange untersagt, bis festgestellt wurde, daß sie den Bestimmungen der Maschinenrichtlinie 98/37/EG der Europäischen Gemeinschaft entspricht. Bei STARPOINT angewendete harmonisierte Normen DIN EN ISO 12100 T1 und T2 sowie in Anlehnung an EN 1677. Dies gilt nur für Mitgliedstaaten der EU und EFTA.

Bezeichnung der Ausrüstung:

Anschlagpunkt

Type: Ringschraube STARPOINT - VRS

Herstellerzeichen:

EC-Declaration of the manufacturer

according to the Machinery Directive 98/37/EC,
annex II B and amendments

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation 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. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per BGR 500.

Hint: The commissioning of the machine in which the delivered components of this consignment will be installed is only permitted if it can be stated that the machine corresponds to the machine directive 98/37/EC of the European Community. Applied standards: DIN EN ISO 12100 T1 and T2 in particular EN 1677. This is only valid for countries which are member of the EC and of the EFTA.

Designation of the equipment:

Lifting point

Type: eyebolt STARPOINT - VRS

Manufacturer's sign:

User Instructions

1. 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.

2. Before installation and every use, inspect visually 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. For steel S235JR (1.0037) or Cast iron GG 25 (0.6025 - without blowhole) the bolt length should be $1,5 \times M (=L)$.

When lifting light metals, nonferrous metals and gray cast iron or other materials 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. The German testing authority BG, recommends the following minimum for the bolt lengths:

2 x M in aluminium
2,5 x M in aluminium-magnesium alloys

(M = thread Ø, e.g. M 20)

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:

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

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	2

(see table 1)

6. Planar bolting surface (E) must be guaranteed. Countersink of thread hole = nominal thread diameter. The holes must be drilled with sufficient depth in order to guarantee compatibility with the supporting surface.

7. For fitting without tools and for inspection of the compatibility of bolt thread and tapped hole the STARPOINT can be delivered with a tempered key (type: VRS-F). Engage key into hexagon socket screw - fitting and removal is possible by hand - then disengage key. In case of fitting with key tighten by hand. Do not use an elongation piece.

For a long term application the VRS should be tightened with torque according table 1 (+/- 10%).

8. Shock loading or vibrations can cause unintentional dismantling. To protect against this: liquid thread locker such as Loctite (depending on the application, please pay attention to the manufacturer's instruction).

Attention: Ring Body has to be free to rotate.

9. The STARPOINT has to be adjustable through 360° when fitted and with key disengaged. Adjust to direction of pull before attaching of the lifting means.

Attention: STARPOINT's are not suited for turning under load!



10. All fittings connected to the STARPOINT 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.

For lifting points which remains on the construction we basically recommend to secure with liquid locking device and tighten with torque.

11. Effects of temperature:

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

12. 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.

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

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 compatibility of bolt thread and tapped hole.
- 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 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 and/or thread.
- The body of the STARPOINT must be free to rotate.

Type metric	Type Inch	Torque
VRS-M8		10 Nm
VRS-M10	VRS-3/8"-16UNC	10 Nm
VRS-M12	VRS-1/2"-13UNC	25 Nm
VRS-M16	VRS-5/8"-11UNC	60 Nm
VRS-M20	VRS-3/4"-10UNC	115 Nm
	VRS-7/8"-9UNC	125 Nm
VRS-M24	VRS-1"-8UNC	190 Nm
VRS-M30	VRS-1 1/4"-7UNC	330 Nm
VRS-M36	VRS-1 1/2"-6UNC	590 Nm
VRS-M42	VRS-1 3/4"-5UNC	925 Nm
VRS-M48	VRS-2"-4,5UNC	1400 Nm

Table 1

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 α	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor		1		2	1,4	1	1	2,1	1,5	1	
STARPOINT -WLL in metric tons, bolted and adjusted to the direction of pull											
Type metric	Type Inch										
VRS-M8		1 t	0,4 t	2 t	0,8 t	0,56 t	0,4 t	0,4 t	0,84 t	0,6 t	0,4 t
VRS-M10	VRS-3/8"-16UNC	1 t	0,4 t	2 t	0,8 t	0,56 t	0,4 t	0,4 t	0,84 t	0,6 t	0,4 t
VRS-M12	VRS-1/2"-13UNC	2 t	0,75 t	4 t	1,5 t	1,0 t	0,75 t	0,75 t	1,6 t	1,12 t	0,75 t
VRS-M16	VRS-5/8"-11UNC	4 t	1,5 t	8 t	3 t	2,1 t	1,5 t	1,5 t	3,15 t	2,25 t	1,5 t
VRS-M20	VRS-3/4"-10UNC	6 t	2,3 t	12 t	4,6 t	3,22 t	2,3 t	2,3 t	4,83 t	3,45 t	2,3 t
	VRS-7/8"-9UNC	6 t	2,3 t	12 t	4,6 t	3,22 t	2,3 t	2,3 t	4,83 t	3,45 t	2,3 t
VRS-M24	VRS-1"-8UNC	8 t	3,2 t	16 t	6,4 t	4,48 t	3,2 t	3,2 t	6,7 t	4,8 t	3,2 t
VRS-M30	VRS-1 1/4"-7UNC	12 t	4,5 t	24 t	9 t	6,3 t	4,5 t	4,5 t	9,4 t	6,7 t	4,5 t
VRS-M36	VRS-1 1/2"-6UNC	16 t	7 t	32 t	14 t	9,8 t	7 t	7 t	14,7 t	10,5 t	7 t
VRS-M42	VRS-1 3/4"-5UNC	24 t	9 t	48 t	18 t	12,6 t	9 t	9 t	18,9 t	13,5 t	9 t
VRS-M48	VRS-2"-4,5UNC	32 t	12 t	64 t	24 t	16,8 t	12 t	12 t	25,2 t	18,0 t	12 t
STARPOINT -WLL in lbs, bolted and adjusted to the direction of pull											
Type metric	Type Inch										
VRS-M8/M10	VRS-3/8"-16UNC	2200 lbs	880 lbs	4400 lbs	1760 lbs	1235 lbs	880 lbs	880 lbs	1850 lbs	1320 lbs	880 lbs
VRS-M12	VRS-1/2"-13UNC	4400 lbs	1650 lbs	8800 lbs	3300 lbs	2200 lbs	1650 lbs	1650 lbs	3460 lbs	2470 lbs	1650 lbs
VRS-M16	VRS-5/8"-11UNC	8820 lbs	3300 lbs	17640 lbs	6610 lbs	4630 lbs	3300 lbs	3300 lbs	6940 lbs	4960 lbs	3300 lbs
VRS-M20	VRS-3/4"-10UNC	13250 lbs	5070 lbs	26500 lbs	10140 lbs	7100 lbs	5070 lbs	5070 lbs	10650 lbs	7600 lbs	5070 lbs
	VRS-7/8"-9UNC	13250 lbs	5070 lbs	26500 lbs	10140 lbs	7100 lbs	5070 lbs	5070 lbs	10650 lbs	7600 lbs	5070 lbs
VRS-M24	VRS-1"-8UNC	17630 lbs	7050 lbs	35260 lbs	14100 lbs	9880 lbs	7050 lbs	7050 lbs	14800 lbs	10580 lbs	7050 lbs
VRS-M30	VRS-1 1/4"-7UNC	26450 lbs	9920 lbs	52900 lbs	19840 lbs	13880 lbs	9920 lbs	9920 lbs	20800 lbs	14880 lbs	9920 lbs
VRS-M36	VRS-1 1/2"-6UNC	35270 lbs	15430 lbs	70540 lbs	30860 lbs	21600 lbs	15430 lbs	15430 lbs	32400 lbs	23150 lbs	15430 lbs
VRS-M42	VRS-1 3/4"-5UNC	52900 lbs	19480 lbs	105800 lbs	39680 lbs	27700 lbs	19480 lbs	19480 lbs	41600 lbs	29760 lbs	19480 lbs
VRS-M48	VRS-2"-4,5UNC	70550 lbs	26450 lbs	141100 lbs	52910 lbs	37000 lbs	26450 lbs	26450 lbs	55500 lbs	39680 lbs	26450 lbs

Table 2

Type	WLL	weight	A	B	C	D	E	G	K	L	M	N	S	reference			
														VRS	VRS-F	Key	
VRS-M 8	0,4 t	0,1 kg	34	11	8,5	25	25	28	47	12	8	6	15	7100554	8500911	7983986	
VRS-M 10	0,4 t	0,1 kg	34	11	8,5	25	25	28	47	15	10	6	15	7982219*	7982213*	7983986	
VRS-M 12	0,75 t	0,2 kg	42	13	10	30	30	34	56	18	12	8	18	7982220*	7982214*	7983987	
VRS-M 16	1,5 t	0,3 kg	49	15	14	35	35	40	65	24	16	10	22	7982221**	7982215**	7983988	
VRS-M 20	2,3 t	0,5 kg	57	17	16	40	40	50	75	30	20	12	27,5	7982222**	7982216**	7983989	
VRS-M 24	3,2 t	0,9 kg	69	21	19	48	48	60	90	36	24	14	33	7982223**	7982217**	7983990	
VRS-M 30	4,5 t	1,7 kg	86	26	24	60	60	75	112	45	30	17	41,5	7982224***	7982218***	7983991	
VRS-M 36	7 t	2,9 kg	103	32	29	72	75	90	135	54	36	22	49,5	7100562	7104030	7983992	
VRS-M 42	9 t	4,6 kg	120	38	34	82	85	105	158	63	42	24	58	7100563	7104031	7983993	
VRS-M 48	12 t	7,0 kg	137	43	38	94	100	120	180	72	48	27	66	7100564	7104032	7983994	
VRS-3/8"-16UNC	880 lbs	0,22 lbs	1 5/16"	7/16"	5/16"	1"	1"	1 1/8"	1 7/8"	3/4"	3/8"	1/4"	9/16"	7103959	7984214*	7983995	
VRS-1/2"-13UNC	1650 lbs	0,44 lbs	1 5/8"	1/2"	3/8"	1 3/16"	1 3/16"	1 5/16"	2 3/16"	3/4"	1/2"	5/16"	11/16"	7103960	7984215*	7983996	
VRS-5/8"-11UNC	3300 lbs	0,66 lbs	1 15/16"	9/16"	9/16"	1 3/8"	1 3/8"	1 9/16"	2 9/16"	15/16"	5/8"	3/8"	7/8"	7103961	7984216**	7983997	
VRS-3/4"-10UNC	5070 lbs	1,1 lbs	2 1/4"	11/16"	11/16"	1 9/16"	1 9/16"	2"	2 15/16"	1 1/8"	3/4"	1/2"	1 1/16"	7103962	7984217**	7983998	
VRS-7/8"-9UNC	5070 lbs	1,1 lbs	2 1/4"	11/16"	11/16"	1 9/16"	1 9/16"	2"	2 15/16"	1 5/16"	14/16"	1/2"	1 1/16"	7103963	7984218**	7983998	
VRS-1"-8UNC	7050 lbs	2,0 lbs	2 3/4"	13/16"	13/16"	1 7/8"	1 7/8"	2 3/8"	3 9/16"	1 1/2"	1"	9/16"	1 5/16"	7103964	7984219**	7983999	
VRS-1 1/4"-7UNC	9920 lbs	3,7 lbs	3 3/8"	1"	1"	2 3/8"	2 3/8"	2 15/16"	4 7/16"	1 7/8"	1 1/4"	5/8"	1 5/8"	7103965	7984220***	7984000	
VRS-1 1/2"-6UNC	15430 lbs	6,4 lbs	4 1/16"	1 1/4"	1 1/4"	2 13/16"	2 15/16"	3 9/16"	5 5/16"	2 1/8"	1 1/2"	7/16"	1 15/16"	7103966	7104487	7984001	
VRS-1 3/4"-5UNC	19480 lbs	10,2 lbs	4 3/4"	1 1/2"	1 1/2"	3 1/4"	3 3/8"	4 1/8"	6 1/4"	2 1/2"	1 3/4"	1"	2 1/2"	7103967	7104488	7984002	
VRS-2"-4,5UNC	26450 lbs	15,4 lbs	5 3/8"	1 1/16"	1 11/16"	3 11/16"	3 15/16"	4 3/4"	7 1/16"	2 13/16"	2"	1 2/16"	5 5/8"	7103968	7104489	7984003	

Table 3

* = package unit 20 pieces

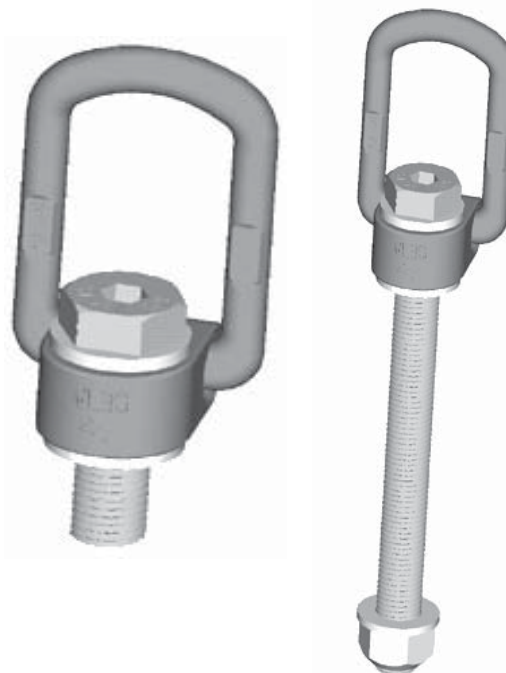
** = package unit 10 pieces

*** = package unit 4 pieces

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.



Load ring VLBG
- for bolting -



EMI OFB
025109



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
D-73428 Aalen / Germany
Tel. +49 (0)7361/504-1371 /
1314 / 1527
Fax +49 (0)7361/504-1460
www.rud.com
info@rud.com

RUD-Art.-Nr.: 8500972-EN / 07.006

EG-Herstellererklärung

im Sinne der EG-Maschinenrichtlinie 98/37/EG,
Anhang II B und ihre Änderungen

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen laut BGR 500, Kapitel 2.8 „Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb“, und den entsprechenden landesspezifische Vorschriften, nicht vorgenommen werden.

Hinweis: Die Inbetriebnahme der Maschine, an die die gelieferten Bauteile angebaut werden, ist solange untersagt, bis festgestellt wurde, daß sie den Bestimmungen der Maschinenrichtlinie 98/37/EG der Europäischen Gemeinschaft entspricht. Beim Lastbock angewendete harmonisierte Normen DIN EN ISO 12100 T1 und T2 sowie in Anlehnung an EN 1677. Dies gilt nur für Mitgliedstaaten der EU und EFTA.

Bezeichnung der Ausrüstung:

Anschlagpunkt

Type: **Lastbock-Gewinde - VLBG**

Herstellerzeichen:

EC-Declaration of the manufacturer

according to the Machinery Directive 98/37/EC,
annex II B and amendments

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation 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. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per BGR 500.

Hint: The commissioning of the machine in which the delivered components of this consignment will be installed is only permitted if it can be stated that the machine corresponds to the machine directive 98/37/EC of the European Community. Applied standards: DIN EN ISO 12100 T1 and T2 in particular EN 1677. This is only valid for countries which are member of the EC and of the EFTA.

Designation of the equipment:

Lifting point

Type: **Load ring - VLBG -for bolting-**

Manufacturer's sign:

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
 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	2

(see table 1 and 3)

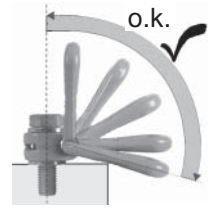
- A Plane bolting surface (\emptyset DB) must be guaranteed. The holes must be drilled with a sufficient depth in order to guarantee compatibility with the supporting surface.

- 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.



- 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.

- 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.

- 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 13:

- 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 α	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		
WLL in metric tons, bolted and adjusted to the direction of pull												
Type	Thread											
VLBG 0,3t	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 0,63t	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 1t	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 1,5t	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 2,5t	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 4t	M 24 / 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 4t	M 27	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 5t	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 7t	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 8t	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 10t	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 15t	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 20t	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

																						reference		
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	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 1,5t 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 2,5t 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	
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	
		WLL in lbs, bolted and adjusted to the direction of pull									
Type	Thread										
VLBG 0,3t	M 8	660 lbs	660 lbs	1320 lbs	1320 lbs	925 lbs	660 lbs	660 lbs	1400 lbs	990 lbs	660 lbs
VLBG 0,63t	M 10	1400 lbs	1400 lbs	2800 lbs	2800 lbs	1940 lbs	1400 lbs	1400 lbs	2910 lbs	2080 lbs	1400 lbs
VLBG 1t	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 1,5t	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 2,5t	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 4t	M 24 / 1"	8800 lbs	8800 lbs	17600 lbs	17600 lbs	12320 lbs	8800 lbs	8800 lbs	18480 lbs	13200 lbs	8800 lbs
VLBG 4t	M 27	8800 lbs	8800 lbs	17600 lbs	17600 lbs	12320 lbs	8800 lbs	8800 lbs	18480 lbs	13200 lbs	8800 lbs
VLBG 5t	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 7t	M 36	15400 lbs	15400 lbs	30800 lbs	30800 lbs	21500 lbs	15400 lbs	15400 lbs	32350 lbs	23100 lbs	15400 lbs
VLBG 8t	M 36	17600 lbs	17600 lbs	35200 lbs	35200 lbs	24640 lbs	17600 lbs	17600 lbs	36960 lbs	26400 lbs	17600 lbs
VLBG 10t	M 42	22000 lbs	22000 lbs	44000 lbs	44000 lbs	30800 lbs	22000 lbs	22000 lbs	46200 lbs	33000 lbs	22000 lbs
VLBG 15t	M 42	33000 lbs	33000 lbs	66000 lbs	66000 lbs	46200 lbs	33000 lbs	33000 lbs	69300 lbs	49500 lbs	33000 lbs
VLBG 20t	M 48	44000 lbs	44000 lbs	88000 lbs	88000 lbs	61600 lbs	44000 lbs	44000 lbs	92400 lbs	66000 lbs	44000 lbs

Tabelle 3

Wirbelbock-Gewinde WBG-V / WBG



Safety instructions

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



Lifting points bolted
WBG-V / WBG



MO
045121



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
D-73428 Aalen
Tel. 07361/504-1351/1370/1262
Fax 07361/504-1460
www.rud.com
info@rud.com

RUD-Art.-Nr.: 8500808-EN / 07.006



EG-Herstellererklärung

im Sinne der EG-Maschinenrichtlinie 98/37/EG,
Anhang II B und ihre Änderungen

Hiermit erklären wir (unterstützt durch die Zertifizierung nach ISO 9001), daß die nachfolgend bezeichnete Ausrüstung aufgrund ihrer Konzipierung und Bauart, sowie der von uns in Verkehr gebrachten Ausführung, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung der Ausrüstung verliert diese Erklärung ihre Gültigkeit. Weiterhin verliert diese Erklärung ihre Gültigkeit, wenn die Ausrüstung nicht entsprechend den in der Betriebsanleitung aufgezeigten bestimmungsmäßigen Fällen eingesetzt wird und die regelmäßig durchzuführenden Überprüfungen laut BGR 500, Kapitel 2.8 „Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb“, und den entsprechenden landesspezifische Vorschriften, nicht vorgenommen werden.

Hinweis: Die Inbetriebnahme der Maschine, an die die gelieferten Bauteile angebaut werden, ist solange untersagt, bis festgestellt wurde, daß sie den Bestimmungen der Maschinenrichtlinie 98/37/EG der Europäischen Gemeinschaft entspricht. Bei Wirbelbock angewendete harmonisierte Normen DIN EN 292 T1 und T2 sowie in Anlehnung an EN 1677. Dies gilt nur für Mitgliedstaaten der EU und EFTA.

Bezeichnung der Ausrüstung:

Anschlagpunkt

Type: **Wirbelbock-Gewinde**

WBG-V / WBG

Herstellerzeichen:

EC-Declaration of the manufacturer

according to the Machinery Directive 98/37/EC,
annex II B and amendments

We hereby declare (supported by certification as per ISO 9001) that the equipment, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC regulation 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. Furthermore, this declaration will become invalid if the equipment is not used according to the prescriptions mentioned in the manual and if the necessary examinations are not carried out regularly as per BGR 500.

Hint: The commissioning of the machine in which the delivered components of this consignment will be installed is only permitted if it can be stated that the machine corresponds to the machine directive 98/37/EC of the European Community. Applied standards: DIN EN 292 T1 and T2 in particular EN 1677. This is only valid for countries which are member of the EC and the EFTA.

Designation of the equipment:

Lifting point

Type: load ring

WBG-V / WBG

Manufacturer's sign:

User Instruction

- 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 installation and every use, inspect visually 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.
- 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 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. M 20)

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 corresponding base material.

- The lifting points must be positioned to the load in such a way that movements are 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 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:

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

WLL = working load limit
 G = load weight (kg)
 N = number of the load bearing legs
 β = angle of inclination of the chain strand 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)

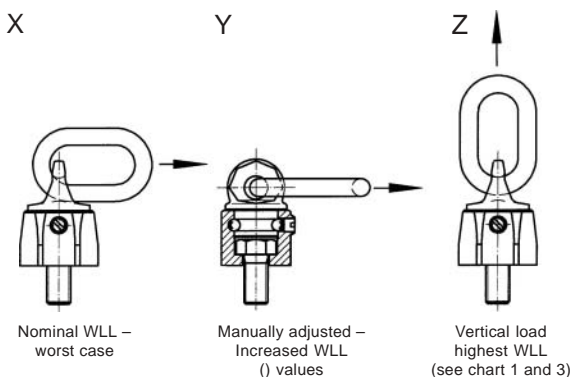
- Drill and tap the workpiece so that the WBG is installed perpendicular to the surface of the work piece. The workpiece surface must be flat, providing complete contact for the WBG ball bearing house.

Countersink the tapped hole (Nom. dia of thread + 4 mm).

- Due to the ball bearing it is sufficient to tighten by hand with a spanner. Without using a bar. For a long term application the WBG-V/WBG should be tightened with torque according table 2 or 4 (+/- 10%).

- The WBG-V/WBG is designed to rotate and turn the load, therefore the lifting point can engage any position. That's why the WLL is embossed for the worst case situation which can happen (Picture X)

The ring can be manually adjusted to direction of pull (Picture Y). Than the values in the brackets can be used.



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

- All fittings connected to the WBG-V / WBG should be free moving. Also the lifting ring must be free moveable and should not be used over sharp corners.

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.

- With shock loadings, twisting or vibrations, especially with through bore-hole and nuts, an unintentional dismounting may occur. Possibilities of securing: liquid means such as Loctite (respect manufacturer's recommendations) or form closed bolt securing such as crown nut, counter nut etc.

11. Effects of temperature:

Due to the greasing we recommend to use the WBG-V/WBG not in overheated areas. If this cannot be avoided please take the reduced WLL into consideration.

-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 galvanizing 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.

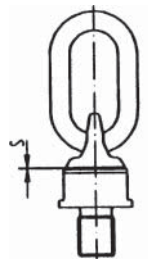
- The WBG-V can supplied with variable thread sizes (see Fvario table 2) and metric variations with washers and crack-detected nuts. The assembly or modification of the bolt should only be done by RUD or authorized persons.

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

Inspection criteria concerning paragraphs 2 and 15:

- Ensure correct bolt and nut size, quality and length.
- Ensure compatibility of bolt thread and tapped hole.
- 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, bolt or threaded 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.
- On the WBG-V/WBG the ring must always rotate smoothly.
- The WBG-V/WBG should only be used within its WLL. See RUD chart.
- The max. gap between the upper and lower parts of the WBG-V/WBG should not be exceeded:

WBG-V 0,3 up to 0,45:	max. 1,2 mm
WBG-V 0,6 up to 2,0:	max. 1,5 mm
WBG-V 3,5 up to 5,0:	max. 3,0 mm
WBG 6 up to 35:	max. 4,0 mm



Attention: The WBG-V/WBG is not suitable for prolonged turning application !

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 α	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor		1		2	1,4	1	1	2,1	1,5	1	
WLL in metric tonnes, bolted and adjusted to the direction of pull											
Type	Thread										
WBG-V 0,3	M 8 / 5/16"-18UNC	0,6	0,3 (0,4)	1,2	0,6 (0,8)	0,42 (0,56)	0,3 (0,4)	0,3 (0,4)	0,63 (0,84)	0,45 (0,6)	0,3 (0,4)
WBG-V 0,45	M 10 / 3/8"-16UNC	0,9	0,45 (0,6)	1,8	0,9 (1,2)	0,63 (0,84)	0,45 (0,6)	0,45 (0,6)	0,95 (1,26)	0,68 (0,9)	0,45 (0,6)
WBG-V 0,6	M 12 / 1/2"-13UNC	1,2	0,6 (0,75)	2,4	1,2 (1,5)	0,84 (1,05)	0,6 (0,75)	0,6 (0,75)	1,26 (1,58)	0,9 (1,12)	0,6 (0,75)
WBG-V 1,0	M 14	2,0	1,0 (1,25)	4,0	2,0 (2,5)	1,4 (1,75)	1,0 (1,25)	1,0 (1,25)	2,1 (2,62)	1,5 (1,87)	1,0 (1,25)
WBG-V 1,3	M 16 / 5/8"-11UNC	2,6	1,3 (1,5)	5,2	2,6 (3)	1,82 (2,1)	1,3 (1,5)	1,3 (1,5)	2,73 (3,15)	1,95 (2,25)	1,3 (1,5)
WBG-V 1,8	M 18	3,6	1,8 (2)	7,2	3,6 (4)	2,5 (2,8)	1,8 (2)	1,8 (2)	3,78 (4,2)	2,7 (3)	1,8 (2)
WBG-V 2,0	M 20 / 3/4"-10UNC	4	2 (2,5)	8	4 (5)	2,8 (3,5)	2 (2,5)	2 (2,5)	4,2 (5,25)	3 (3,75)	2 (2,5)
WBG-V 3,5	M 24 / 1"-8UNC	7	3,5 (4)	14	7 (8)	4,9 (5,6)	3,5 (4)	3,5 (4)	7,35 (8,4)	5,25 (6)	3,5 (4)
WBG-V 5,0	M 30 / 1 1/4"-7UNC	10	5 (6)	20	10 (12)	7 (8,4)	5 (6)	5 (6)	10,5 (12,6)	7,5 (9)	5 (6)
WBG 6	M 33 / 1 3/8"	12,5	6 (7,5)	25	12 (15)	8,4 (10,5)	6 (7,5)	6 (7,5)	12,6 (15,75)	9 (11,25)	6 (7,5)
WBG 8	M 36 / M 39 / 1 1/2"	12,5	8 (10)	25	16 (20)	11,2 (14)	8 (10)	8 (10)	16,8 (21)	12 (15)	8 (10)
WBG 10	M 42 - M 52 / 2"	16	10 (12,5)	32	20 (25)	14 (17,5)	10 (12,5)	10 (12,5)	21 (26,2)	15 (18,8)	10 (12,5)
WBG 15	M 56 - M 68 / 2 1/2"	25	15 (18)	50	30 (36)	21 (25,2)	15 (18)	15 (18)	31,5 (38)	22,5 (27)	15 (18)
WBG 25	M 72 - M 76 / 2 3/4"	35	25 (30)	70	50 (60)	35 (42)	25 (30)	25 (30)	52,5 (63)	37,5 (45)	25 (30)
WBG 30	M 80 - M 85 / 3"	35	30 (35)	70	60 (70)	42 (49)	30 (35)	30 (35)	63 (73,5)	45 (52,5)	30 (35)
WBG 35	M 90-M 150 / 3 1/2"-5"	35	35 (40)	70	70 (80)	49 (56)	35 (40)	35 (40)	73,5 (84)	52,5 (60)	35 (40)

Table 1

Type	WLL t	weight kg												torque	reference	
			A	B	C	Ø D	E	F	Fvario	G	M	N	SW		F	Fvario
WBG-V 0,3 - M 8	0,3 (0,4)	0,25	8	33	29	36	76	13	8 - 102	36	8	18	28	10 Nm	7103720	8600330
WBG-V 0,45 - M 10	0,45 (0,6)	0,3	8	33	29	36	78	17	10 - 122	38	10	19	30	10 Nm	7103715	8600331
WBG-V 0,6 - M 12	0,6 (0,75)	0,5	10	51	35	42	105	21	12 - 140	45	12	19	36	10 Nm	7100180	8600332
WBG-V 1,0 - M 14	1,0 (1,25)	0,6	13	47	38	48	112	30	14 - 65	54	14	28	41	25 Nm		8600337
WBG-V 1,3 - M 16	1,3 (1,5)	0,6	13	47	38	48	112	30	16 - 180	54	16	28	41	30 Nm	7100430	8600333
WBG-V 1,8 - M 18	1,8 (2,0)	1,1	13	56	35	64	135	33	18 - 83	65	18	30	55	50 Nm		8600338
WBG-V 2,0 - M 20	2,0 (2,5)	1,1	13	56	35	64	135	33	20 - 223	65	20	30	55	70 Nm	7100800	8600334
WBG-V 3,5 - M 24	3,5 (4,0)	2,7	18	68	40	81	172	40	24 - 255	87	24	25	70	150 Nm	7100640	8600335
WBG-V 5,0 - M 30	5,0 (6,0)	5,5	22	93	50	99	220	50	30 - 330	105	30	32	85	225 Nm	7100650	8600336
WBG 6 - special	6 (7,5)		22	87	50	90	210		50 - 300	99	33		80	350 Nm		8600150
WBG 8 - M 36	8 (10)	5,6	22	87	50	90	210	54	-	99	36		80	410 Nm	51872	
WBG 8 - special	8 (10)		22	87	50	90	210		50 - 300	99	36-39		80	410 Nm		8600151
WBG 10 - M 42	10 (12,5)	6,1	26	112	65	98	240	63	-	100	42		85	550 Nm	51874	
WBG 10 - M 48	10 (12,5)	6,2	26	112	65	98	240	68	-	100	48		85	550 Nm	51930	
WBG 10 - special	10 (12,5)		26	112	65	98	240		60 - 300	100	42-52		85	550 Nm		8600152
WBG 15 - M 56	15 (18)	10,5	32	120	70	120	280	84	-	130	56		95	800 Nm	51941	
WBG 15 - M 64	15 (18)	11,5	32	120	70	120	280	95	-	130	64		95	800 Nm	7100406	
WBG 15 - special	15 (18)		32	120	70	120	280		80 - 300	130	56-68		95	800 Nm		8600153
WBG 25 - M 72	25 (30)	27,0	40	125	80	160	332	108	-	163	72		130	1200 Nm	7990332	
WBG 25 - special	25 (30)		40	125	80	160	332		100-300	163	72-76		130	1200 Nm		8600155
WBG 30 - M 80	30 (35)	28,7	40	125	80	170	332	120	-	163	80		130	1500 Nm	7990333	
WBG 30 - special	30 (35)		40	125	80	170	332		100-300	163	80-85		130	1500 Nm		8600156
WBG 35 - M 90	35 (40)	29,2	40	125	80	170	332	135	-	163	90		130	2000 Nm	7985363	
WBG 35 - special	35 (40)		40	125	80	170	332		100 - 300	163	90-150		130	2000 Nm		8600154

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 α, β	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor		1		2	1,4	1	1	2,1	1,5	1	
		WLL in lbs, bolted and adjusted to the direction of pull									
Type	Thread	1320	660 (880)	2640	1320 (1760)	925 (1230)	660 (880)	660 (880)	1385 (1850)	990 (1320)	660 (880)
WBG-V 0,3	M 8 / $\frac{5}{16}$ "-18UNC	1980	990 (1320)	3960	1980 (2640)	1385 (1850)	990 (1320)	990 (1320)	2090 (2770)	1495 (1980)	990 (1320)
WBG-V 0,45	M 10 / $\frac{3}{8}$ "-16UNC	2640	1320 (1650)	5280	2640 (3300)	1850 (2310)	1320 (1650)	1320 (1650)	2770 (3475)	1980 (2465)	1320 (1650)
WBG-V 0,6	M 12 / $\frac{1}{2}$ "-13UNC	4400	2200 (2750)	8800	4400 (5500)	3080 (3850)	2200 (2750)	2200 (2750)	4650 (5750)	3300 (4125)	2200 (2750)
WBG-V 1,0	M 14	5720	2860 (3300)	11440	5720 (6600)	4000 (4620)	2860 (3300)	2860 (3300)	6000 (6930)	4290 (4950)	2860 (3300)
WBG-V 1,3	M 16 / $\frac{5}{8}$ "-11UNC	7900	3960 (4400)	15840	7900 (8800)	5500 (6160)	3960 (4400)	3960 (4400)	8320 (9240)	5940 (6600)	3960 (4400)
WBG-V 1,8	M 18	8800	4400 (5500)	17600	8800 (11000)	6160 (7700)	4400 (5500)	4400 (5500)	9240 (11550)	6600 (8250)	4400 (5500)
WBG-V 2,0	M 20 / $\frac{3}{4}$ "-10UNC	15400	7700 (8800)	30800	15400 (17600)	10780 (12320)	7700 (8800)	7700 (8800)	16170 (18480)	11550 (13200)	7700 (8800)
WBG-V 3,5	M 24 / 1"-8UNC	22000	11000 (13200)	44000	22000 (26400)	15400 (18480)	11000 (13200)	11000 (13200)	23100 (27720)	16500 (19800)	11000 (13200)
WBG-V 5,0	M 30 / 1 $\frac{1}{4}$ "-7UNC	27500	13200 (16500)	55000	29000 (33000)	18500 (23100)	13200 (16500)	13200 (16500)	27700 (34650)	19800 (24750)	13200 (16500)
WBG 6	M33 / 1 $\frac{3}{8}$ "	27500	13200 (16500)	55000	29000 (33000)	18500 (23100)	13200 (16500)	13200 (16500)	27700 (34650)	19800 (24750)	13200 (16500)
WBG 8	M 36 / M 39 / 1 $\frac{1}{2}$ "	27500	17600 (22000)	55000	35200 (44000)	24640 (30800)	17600 (22000)	17600 (22000)	36960 (46200)	26400 (33000)	17600 (22000)
WBG 10	M 42 - M 52 / 2"	35200	22000 (27500)	70400	44000 (55000)	30800 (38500)	22000 (27500)	22000 (27500)	46200 (57640)	33000 (41360)	22000 (27500)
WBG 15	M 56 - M 68 / 2 $\frac{1}{2}$ "	55000	33000 (39600)	110000	66000 (79200)	46200 (55440)	33000 (39600)	33000 (39600)	69300 (83600)	49500 (59400)	33000 (39600)
WBG 25	M 72 - M 80 / 2 $\frac{3}{4}$ "	77000	55000 (66000)	154000	110000 (132000)	77000 (92400)	55000 (66000)	55000 (66000)	115500 (138600)	82500 (99000)	55000 (66000)
WBG 30	M 80 - M 85 / 3"	77000	66000 (77000)	154000	132000 (154000)	92400 (108000)	66000 (77000)	66000 (77000)	138600 (160000)	99000 (115000)	66000 (77000)
WBG 35	M 90-M 150 / 3 $\frac{1}{2}$ "-5"	77000	77000 (88000)	154000	154000 (176000)	108000 (123000)	77000 (88000)	77000 (88000)	160000 (185000)	115000 (132000)	77000 (88000)

Table 3

WBG-V		WBG													
Type	WLL t	weight kg	A	B	C	Ø D	E	F	Fvario	G	M	SW	torque	reference	
														F	Fvario
WBG-V 0,3-5/16"-18UNC	0,3 (0,4)	0,25	8	33	29	36	76	13	-	36	5/16"	28	10 Nm	7991090	-
WBG-V 0,45-3/8"-16UNC	0,45 (0,6)	0,3	8	33	29	36	78	17	-	38	3/8"	30	10 Nm	7991091	-
WBG-V 0,6-1/2"-13UNC	0,6 (0,75)	0,5	10	51	35	42	105	21	-	45	1/2"	36	10 Nm	7991092	-
WBG-V 1,3-5/8"-11UNC	1,3 (1,5)	0,6	13	44	38	48	112	30	-	54	5/8"	41	30 Nm	7991093	-
WBG-V 2,0-3/4"-10UNC	2,0 (2,5)	1,1	13	56	35	64	135	33	-	65	3/4"	55	70 Nm	7991094	-
WBG-V 3,5-1"-8UNC	3,5 (4,0)	2,7	18	68	40	81	172	40	-	87	1"	70	150 Nm	7991095	-
WBG-V 5,0-1 1/4"-7UNC	5,0 (6,0)	5,5	22	93	50	99	220	50	-	105	1 1/4"	85	225 Nm	7991096	-
WBG 6 - special	6 (7,5)	22	87	50	90	210			50 - 300	99	1 3/8"	80	350 Nm		8600150
WBG 8 - special	8 (10)	22	87	50	90	210			50 - 300	99	1 1/2"	80	410 Nm		8600151
WBG 10 - special	10 (12,5)	26	112	65	98	240			60 - 300	100	1 3/4" - 2"	85	550 Nm		8600152
WBG 15 - special	15 (18)	32	120	70	120	280			80 - 300	130	2 1/4" - 2 1/2"	95	800 Nm		8600153
WBG 25 - special	25 (30)	40	125	80	160	332			100-300	163	2 3/4"	130	1200 Nm		8600155
WBG 30 - special	30 (35)	40	125	80	170	332			100-300	163	3"	130	1500 Nm		8600156
WBG 35 - special	35 (40)	40	125	80	170	332			100 - 300	163	3 1/2" - 5"	130	2000 Nm		8600154

Table 4