

RUD-Eyebolt

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



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RUD-Art.-Nr.: 8500816-EN / 10.015

RUD-Eyebolt - high tensile - **RS**



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: Eye bolt
RS

The following harmonized norms were applied:
DIN EN 1677-1 : 2009-03 DIN EN ISO 12100 : 2011-03

The following national norms and technical specifications were applied:
BGR 500, KAP2.8 : 2008-04 _____

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

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

EG-Konformitätserklärung

entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen

Hersteller: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
Friedensinsel
73432 Aalen

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Maschinenrichtlinie 2006/42/EG sowie den unten aufgeführten harmonisierten und nationalen Normen sowie technischen Spezifikationen entspricht. Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Ringschraube
RS

Folgende harmonisierten Normen wurden angewandt:
DIN EN 1677-1 : 2009-03 DIN EN ISO 12100 : 2011-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:
BGR 500, KAP2.8 : 2008-04 _____

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

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

User instructions

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

2. 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.

3. The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The German testing 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.

4. The lifting points must be positioned on the load in such a way that movement is 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 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	1

(see table 1 and 3)

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

6. 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.

8. 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.

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. 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, bolset			
	1	2	1	2	0°	90°	0-45°	45-60°		
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.
metric type	imperial thread		WLL in metric tonnes, bolset							
RS-M 6	1/4"		0,4 t	0,1 t	0,8 t					
RS-M 8	5/16"		0,8 t	0,2 t	1,6 t					
RS-M10	3/8"		1 t	0,25 t	2 t					
RS-M 12	1/2"		1,6 t	0,4 t	3,2 t					
RS-M 16	5/8"		4 t	1 t	8 t					
RS-M 20	7/8"		6 t	1,5 t	12 t					
RS-M 24	1"		8 t	2 t	16 t					
RS-M 30	1 1/4"		12 t	3 t	24 t					
RS-M 36	1 1/2"		16 t	4 t	32 t					
RS-M 42	1 3/4"		24 t	6 t	48 t					
RS-M 48	2"		32 t	8 t	64 t					

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

Table 1

Type	WLL	weight	A	B	C	D	E	M	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	56879
	RS- 7/16"-14 UNC	0,4 t	0,2 kg	18	13	12	30	30	7/16"	41	56870
	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	51808
	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

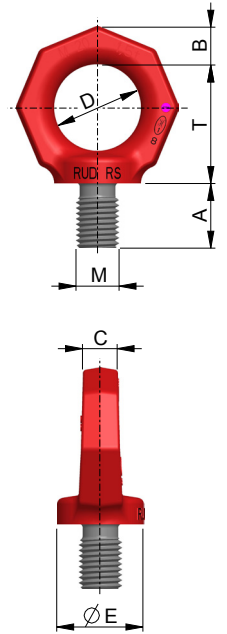


Table 2

	Type	WLL	weight	A	B	C	D	E	M	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"	56879
	RS- 7/16"-16UNC	880 lbs	0,44 lbs	23/32"	1/2"	15/32"	1 3/16"	1 3/16"	7/16"	1 5/8"	56870
	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"	51808
	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

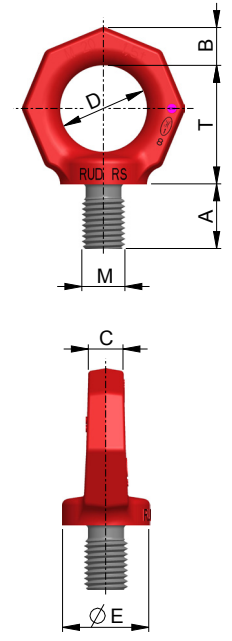


Table 3