

RUD- Eyenut

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



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
 D-73428 Aalen/Germany
 Tel. +49 7361 504-1170
 Fax +49 7361 504-1460
 www.rud.com
 sling@rud.com

RUD-Art.-Nr.: 8502509-EN / 09.015

RUD-Eyenut **RM** Standard application for bolts with min. quality class 8.8



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 nut
RM

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: Ringmutter
RM

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, 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. RUD eyenuts are only be used with bolts or threaded studs with a min. quality class 8.8 and who are 100 % crack detected.

Non certified bolts or threaded studs are not allowed.

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)

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 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	2	2	2	2	2	3/4	
angle of inclination β	0°	90°	0°	90°	0°-45° 45°-60°	unsymm.	0°-45° 45°-60°	unsymm.
factor	1	2	2	1	1	1,5	1	
metric type	RUD- Eyenut - WLL in metric tonnes, bolted							
RM- M6	0,4t	0,1t	0,8t					
RM- M8	0,8t	0,2t	1,6t					
RM- M10	1t	0,25t	2t					
RM- M12	1,6t	0,4t	3,2t					
RM- M14	3t	0,75t	6t					
RM- M16	3,2t	0,8t	6,4t					
RM- M20 + M22	6t	1,5t	12t					
RM- M24 + M27	8t	2t	16t					
RM- M30 + M33	12t	3t	24t					
RM- M36	16t	4t	32t					
RM- M39	20t	5t	40t					
RM- M42	24t	6t	48t					
RM- M48	32t	8t	64t					

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

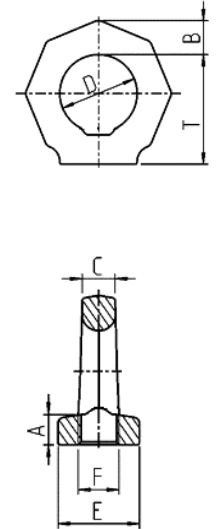


Table 2

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

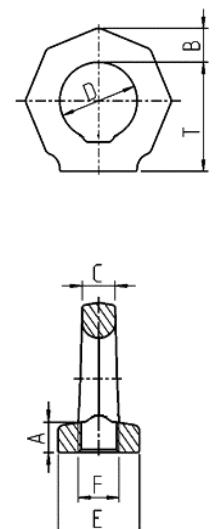


Table 3