BOLT ON LIFTING POINT - RS EYE BOLT

Complies with the machinery directives 2006/42/EC

NB: Please ensure that the safety instructions have been fully read and understood before initial use of the RS bolt-on lifting point. Failure to do so may result in serious injuries and/or material damage and eliminates manufacturers warranty.

User Instructions - Part 1

Safety instructions

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

ATTENTION: Please inspect all lifting points prior to use. Damage, incorrect assembly or improper use may result in serious injuries and/or material damage.

EC-Declaration of the manufacturer

According to the Machinery Directive 2006/42/EC, annex II B and amendments.

We hereby declare that the design and construction of the equipment detailed within this document, adheres to the appropriate level of health and safety of the corresponding EC regulation.

Any un-authorised modification and/or any incorrect use of the equipment not adhered to within these user instructions waivers this declaration invalid.

The equipment must be regularly tested and inspected as per BGR 500. Failure to carry out the recommended maintenance and testing waivers this declaration invalid.

Designation of the equipment:

Type: **RS bolt-on lifting point**

Manufacturer's mark:

Drawings (iges, dxf and step), product information and other support material can be downloaded from www.rud.com.au.

RUD

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:
EN 12100 EN 1677-1

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

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

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

BOLT ON LIFTING POINT - RS EYE BOLT

User Instructions - Part 2

1. Reference should be made to relevant standards and other statutory regulations. Inspections should be carried out by competent persons only.

2. Before installation and at every use, visually inspect RUD lifting points, with 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. RUD, with reference to the German testing authority BG, recommends the following minimum for bolt lengths:

- 1.5 x M in steel (minimum quality S235JR [1.0037]) ≈ AS3678 GR250.
- 1.5 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, e.g. 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: The calculation of load bearing legs is as follows:

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

W_{LL}	=	required of lifting point/individual leg (kg)
G	=	load weight (kg)
n	=	number of load bearing legs
ß	=	angle of inclination of the individual leg

NOTE: For WLL Calculations

- ß angle is taken from the vertical plane.
- Included angle is the angle between the sling legs.

6. Safety: When lifting points are used in a multi leg assembly, care should be taken to calculate the WLL (Working Load Limit) due to the deration caused by forces acting in multiple directions. The reduction in WLL (Working Load Limit) for multi leg assemblies should be checked with relevant Standards e.g. AS 3775-2004 - Chain Slings-Gr t (8)

7. A plane bolting surface must be guaranteed to ensure correct mating of the lift component.

8. 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.

9. Rotation of the eyebolt/s under load must be avoided.

10. All fittings connected to the eyebolt should be free moving. When connecting and disconnecting the lifting means (wire ropes, chain slings, round slings) pinches and impacts should be avoided. Damage to lifting components caused by sharp corners should also be avoided.

Adjust to the direction of pull before attaching to the lifting means.

11. To prevent unintended dismounting through shock loading, rotation or vibration, thread locking fluid such as Loctite (depending on the application, please refer to the manufacturer's instruction) should be used to secure the eyebolt.

12. 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:

-10° up to 200°C no reduction (14°F up to 392°F)

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.

13. 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.

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

Inspection criteria concerning paragraphs 2 and 14:

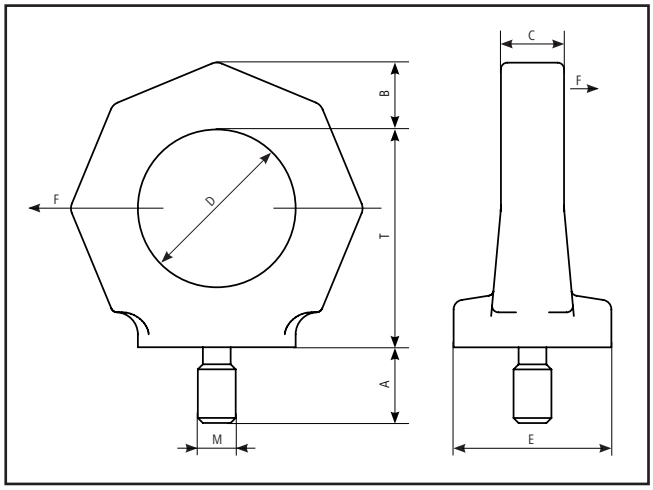
- Ensure compatibility of eyebolt thread and tapped hole
- Ensure tightness
- Ensure correct bolt (threaded stud) size, quality and length
- The plane area of the eyebolt must properly flat down on the work piece.
- The lifting point should be complete.
- The working load limit and manufacturers stamp 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 and/or thread.

Any non-adherence to this advice may result in damages of persons and/or materials!

BOLT ON LIFTING POINT - RS EYE BOLT

User Instructions - Part 3

WORKING LOAD LIMITS (G - in tonnes)		
Type	Single Leg G VERTICAL LIFT	Single Leg G 90°
RS - M6	0.4 t	0.1 t
RS - M8	0.8 t	0.2 t
RS - M10	1 t	0.25 t
RS - M12	1.6 t	0.4 t
RS - M16	4 t	1 t
RS - M20	6 t	1.5 t
RS - M24	8 t	2 t
RS - M30	12 t	3 t
RS - M36	16 t	4 t
RS - M42	24 t	6 t
RS - M48	32 t	8 t



NB: Recommended for use in applications where eye bolt needs adjustment to direction of pull.

Table1

Type	WLL (t)	A	B	C	D	E	F	T	Weight (kg)	Ref. No.
RS – M 6	0.1	12	11	10	25	25	6	35	0.1	61401
RS – M 8	0.2	12	11	10	25	25	8	35	0.1	61402
RS – M 10	0.25	15	11	10	25	25	10	35	0.1	56397
RS – M 12	0.4	18	13	12	30	30	12	41	0.2	56398
RS – M 14	0.75	21	15	14	35	35	14	48	0.25	56403
RS – M 16	1	24	15	14	35	35	16	48	0.3	56404
RS – M 20	1.5	30	17	16	40	40	20	55	0.45	56407
RS – M 24	2	36	21	20	50	50	24	70	0.7	56408
RS – M 30	3	45	26	24	60	60	30	85	1.6	56409
RS – M 36	4	54	43	38	90	100	36	130	6.0	56954
RS – M 42	6	53	43	38	90	100	42	130	6.2	56955
RS – M 48	8	68	43	38	90	100	48	130	6.4	56956

Table 2

Type	WLL (t)	A	B	C	D	E	F	T	Weight (kg)	Ref.-No.
RS-1/4”-20UNC	0.1	12	11	10	25	25	1/4”	35	0.1	61401
RS-5/16”-18UNC	0.2	12	11	10	25	25	5/16”	35	0.1	61402
RS-3/8”-16UNC	0.25	15	11	10	25	25	13/18”	35	0.1	56397
RS-1/2”-13UNC	0.4	18	13	12	30	30	1/2”	41	0.2	56398
RS-9/16”-12UNC	0.75	21	15	14	35	35	9/16”	48	0.25	56403
RS-5/8”-11UNC	1	24	15	14	35	35	5/8”	48	0.3	56404
RS-3/4”-10UNC	1.2	30	17	16	40	40	3/4”	55	0.45	57205
RS-7/8”-9UNC	1.5	30	17	16	40	40	7/8”	55	0.45	56407
RS-1”-8UNC	2	36	21	20	50	50	1”	70	0.7	56408
RS-1 1/8”-7UNC	2.5	45	26	24	60	60	1 1/18”	85	1.6	57471
RS-1 1/4”-7UNC	3	45	26	24	60	60	1 1/4”	85	1.6	56409
RS-1 1/2”-6UNC	4	54	43	38	90	100	1 1/2”	130	6.0	56954
RS-1 3/4”-5UNC	6	53	43	38	90	100	1 3/4”	130	6.2	56955
RS-2”-4.5UNC	8	68	43	38	90	100	2”	130	6.4	56956

Table 3

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