

Complies with the machinery directives 2006/42/EC

4 better lifting



NB: Please ensure that the safety instructions have been fully read and understood before initial use of the VRM 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-authorized modification and/or any incorrect use of the equipment not adhered to within these user instructions waives this declaration invalid.

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

Designation of the equipment:

Type: **VRM 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.

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: STARPOINT Eye nut
VRM

The following harmonized norms were applied:

<u>EN 12100</u>	<u>EN 1677-1</u>
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>BGR 500, KAP2.8</u>	
_____	_____
_____	_____

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

Aalen, 03.01.2013

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

User Instructions - Part 2

- Reference should be made to relevant standards and other statutory regulations. Inspections should be carried out by competent persons only.
- Before installing and every use, visually inspect RUD lifting points, with particular attention to any evidence of corrosion, wear and weld cracks and deformations. Please ensure compatibility of bolt thread and VRM nut.
- STARPOINT eyenuts should only be used with bolts or threaded studs with a min. quality class 10.9. **Non certified bolts or threaded studs are not allowed.** The material construction to which the lifting point will be attached, should be of adequate strength to withstand forces during lifting without deformation.
- 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 if possible.
- Load Symmetry: The working load limit of individual RUD lifting points are calculated using the following formula and are based on symmetrical loading:

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

WLL = required of lifting point/individual leg (kg)
 G = load weight (kg)
 n = number of load bearing legs
 β = angle of inclination of the individual leg

NOTE: For WLL Calculations

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



The calculation of load bearing legs is as follows:

	symmetrical	asymmetrical
two leg	2	1
three / four leg	3	1

(see table 1)

- Safety: When lifting points are used in a multileg 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 multileg assemblies should be checked with relevant Standards e.g. AS3775.2 : 2014 Chain Slings for lifing purposes - Grade T (80) and V (100).
The lifting points should be mounted in such a way that they may easily be accessed for inspection and assembly/disassembly of the sling.
- A plane flat bolting surface must be guaranteed to ensure correct mating of the lift component.
- The internal thread has to be 100% engaged on the bolt thread.
- For installation we recommend to use a matching double ended ring spanner according to Table 1 (note: do not over tighten the hexagon nut insert). The hexagon of the nut insert is not suitable for high torques because of its dimension. Use when available, the head of screws or hex nuts for tightening.

The required tightening torque depends on the application. For a single load handling a hand tightening with double ended ring spanner is sufficient. If the STARPOINT eye nut is only loaded in axial direction of the thread with a threaded bolt grade 10.9, the corresponding load values can be used in Table 1.

10. 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.



11. 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 suitable for rotation under load!

12. 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.

13. Effects of temperature: Starpoint nuts can be used in a temperature range of -40°C to max 100°C (-40°F up to 210°F).

14. 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.

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

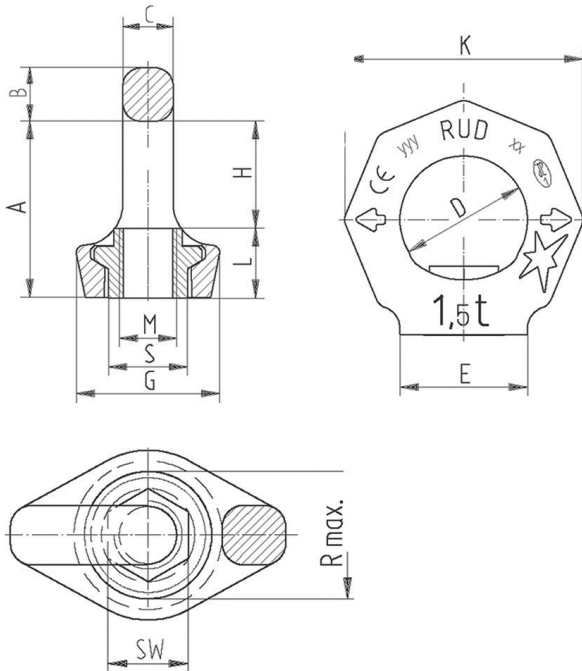
16. After fitting, an annual inspection or sooner if conditions dictate should be under taken by a competent person examining the continued suitability. Also inspect after damage and special occurrences.

Inspection criteria concerning paragraphs 2 and 16:

- 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.

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

User Instructions - Part 3



PRODUCT DESCRIPTION	WORKING LOAD LIMITS (G - in tonnes)				
	Single Leg	Single Leg	2, 3 or 4 Legs		
			 60° 90° 120° Maximum Included Angle (Degrees)		
VRM M6	0.5	0.1	0.17	0.14	0.1
VRM M8	1.0	0.3	0.52	0.42	0.30
VRM M10	1.0	0.4	0.69	0.56	0.40
VRM M12	2.0	0.75	1.3	1.4	0.75
VRM M16	4.0	1.5	2.6	2.1	1.5
VRM M20	6.0	2.3	4.0	3.2	2.3
VRM M24	8.0	3.2	5.5	4.5	3.2
VRM M30	12.0	4.5	7.8	6.3	4.5

Table 1

Type	WLL (t)	Weight (kg)	A	B	C	D	E	G	H	K	L	M	R _{max}	S	SW	Ref No
VRM-M6	0.1	0.06	28	9	7	20	23	28	16	37	11	M6	16	13	9	7900786
VRM-M8	0.3	0.1	34	11	8.5	25	25	28	20	47	14	M8	20	16	12	7992989
VRM-M10	0.4	0.1	34	11	8.5	25	25	28	20	47	14	M10	20	16	12	7990311
VRM-M12	0.75	0.2	42	13	10	30	30	34	25	56	17	M12	24	20	14	7990312
VRM-M16	1.5	0.3	51	15	14	35	35.5	40	30	65	21	M16	30	22	19	7990314
VRM-M20	2.3	0.5	57	17	16	40	40	50	34	75	23	M20	37	29	24	7990315
VRM-M24	3.2	0.9	69	21	19	48	50	60	40	90	29	M24	45	35	30	7990316
VRM-M30	4.5	1.5	86	26	24	60	60	75	52	112	34	M30	56	44	36	7993008

Table 2

