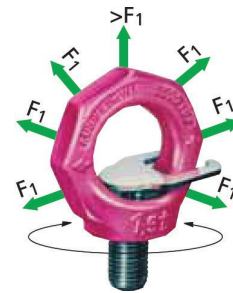


BOLT ON LIFTING POINT - VRS (-F) EYE BOLT



Complies with the machinery directives 2006/42/EC

**4better
lifting**



CE



NB: Please ensure that the safety instructions have been fully read and understood before initial use of the VRS 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: **VRS (-F) 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 bolt
VRS

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/GMB)
Name, function and signature of the responsible person

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 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 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.

- 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:

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

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.



6. 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. AS 3775-2004 - Chain Slings-Gr t (8)

The lifting points should be mounted in such a way that they may easily be accessed for inspection and assembly/disassembly of the sling.

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

8. 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). Simply engage the Hexagon socket bolt with the star profile key and tighten by hand. Disengage the key before attaching the lifting mean.

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

Type metric	Type Inch	Torque	Socket wrench
VRS-M8	-	10 Nm	7997749
VRS-M10	VRS-3/8"-16UNC	15 Nm	7997749
VRS-M12	VRS-1/2"-13UNC	25 Nm	7997750
VRS-M16	VRS-5/8"-11UNC	60 Nm	7997751
VRS-M20	VRS-3/4"-10UNC	115 Nm	7997752
-	VRS-7/8"-9UNC	125 Nm	-
VRS-M24	VRS-1"-8UNC	190 Nm	7997753
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	-
VRS-M56	-	1400 Nm	-
VRS-M64	-	1400 Nm	-

9. 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.

10. 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!



11. 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.

12. Effects of temperature:

Due to the DIN/EN bolts that are used with the STARPOINT the working load limit should be reduced accordingly:

-10° to 100°C	no reduction	14°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.

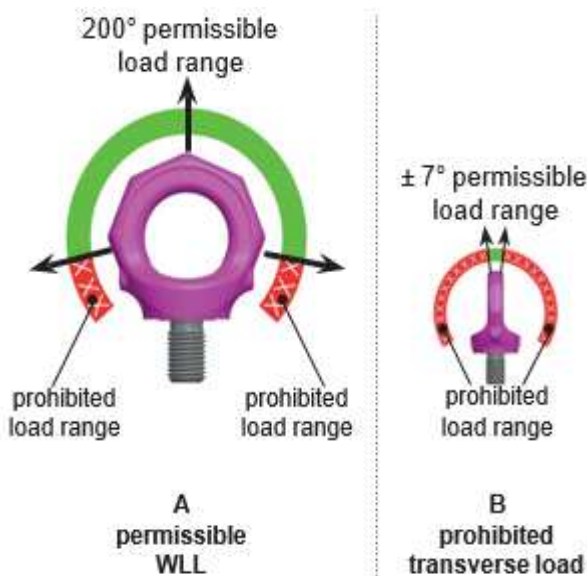
13. RUD lifting points must not be used under chemical influences such as acids, alkaline solutions and vapours e.g. in pickling baths or hot dip galvanising plants. If this cannot be avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.

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

15. 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.

General information on use:

- RUD components are designed according to DIN EN 818 and DIN EN 1677 for a dynamic WLL of 20,000 load cycles.
- Several load cycles can occur within a lifting procedure.
- Please note that due to the high dynamic stress associated with a high number of stress cycles, there is a danger that the product will be damaged.
- The BG/DGUV recommends: For higher dynamic loading with a high number of load cycles (permanent operation), the working load stress must be reduced according to the driving mechanism 1Bm (M3 according to DIN EN 818-7). Use a lifting point with a higher working load limit.
- When attaching and removing the lifting means (lifting chain) crushing, shearing, catching or impact spots must be prevented.
- Avoid at all times loading the VRS via a sharp edge.
- Before suspending the lifting means, set the VRS in direction of force (Refer Pic 1).



Pic. 1:

A: Admissible load direction at load ring plane

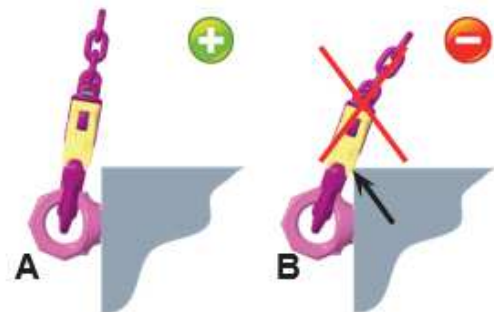
B: Prohibited transversal load to the load ring plane

- Please note that the lifting means must be able to move freely in the VRS lifting point.



Pic. 2: Only use appropriate lifting means for hinging in the VRS

- The lifting means must not be exposed to bending load!



Pic. 3:

A: Admissible load area

B: Prohibited positioning or placing on edges

- Always bolt the lifting point in fully.



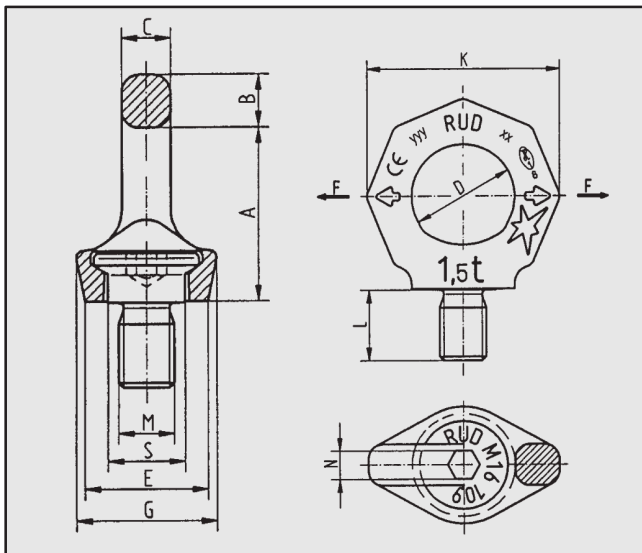
Pic. 4: The lifting point must be fully bolted in.

User Instructions - Part 3

Inspection criteria concerning paragraphs 2 and 15:

- 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!






WORKING LOAD LIMITS (G - in tonnes)					
PRODUCT DESCRIPTION	Single Leg	Single Leg	2 , 3 or 4 Legs		
					
	60° 90° 120° Maximum Included Angle (Degrees)				
VRS-F M6	0.5	0.10	0.17	0.14	0.10
VRS-F M8	1.0	0.30	0.69	0.56	0.40
VRS-F M10	1.0	0.40	0.69	0.56	0.40
VRS-F M12	2.0	0.75	1.4	1.0	0.80
VRS-F M16	4.0	1.5	2.6	2.1	1.5
VRS-F M20	6.0	2.3	4.0	3.2	2.3
VRS-F M24	8.0	3.2	5.5	4.5	3.2
VRS-F M30	12.0	4.5	7.8	6.3	4.5
VRS-F M36	16.0	7.0	12.1	9.8	7.0
VRS-F M42	24.0	9.0	15.6	12.6	9.0
VRS-F M48	32.0	12.0	20.8	16.8	12.0
VRS-F M56	50.0	16.0	27.7	22.6	16.0
VRS-F M64	60.0	20.0	34.6	28.2	20.0

Table: 1

Type	WLL (t)	Weight (kg)	A	B	C	D	E	G	K	L	M	N	S	Ref.-No. VRS	Ref.-No. VRS-F
VRS-M6	0.1	0.06	27	9	7	20	23	28	37	9	6	6	13	7900909	7900906
VRS-M8	0.3	0.1	34	11	8.5	25	25	28	47	12	8	6	16	7100554	8500911
VRS-M10	0.4	0.1	34	11	8.5	25	25	28	47	15	10	6	15	7982219*	7104029
VRS-M12	0.75	0.2	42	13	10	30	30	34	56	18	12	8	18	7982220*	7101313
VRS-M16	1.5	0.3	49	15	14	35	35	40	65	24	16	10	22	7982221**	7101314
VRS-M20	2.3	0.5	57	17	16	40	40	50	75	30	20	12	27.5	7982222**	7101315
VRS-M24	3.2	0.9	69	21	19	48	48	60	90	36	24	14	33	7982223**	7101316
VRS-M30	4.5	1.7	86	26	24	60	60	75	112	45	30	17	41.5	7982224***	7101317
VRS-M36	7	2.9	103	32	29	72	75	90	135	54	36	22	49.5	7984198	7984201
VRS-M42	9	4.6	120	38	34	82	85	105	158	63	42	24	58	7984199	7984202
VRS-M48	12	7.0	137	43	38	94	100	120	180	72	48	27	66	7984200	7984203
VRS-M56	16	12.9	161	50	44	110	112	145	209	84	56	32	81	7907508	7910836
VRS-M64	20	17.8	176	55	48	120	122	157	228	96	64	36	64	7907509	7910837

Table 2

* = packing unit consisting of 20 pieces · ** = packing unit consisting of 10 pieces · *** = packing unit consisting of 4 pieces

User Instructions - Part 3

Type	WLL (t)	Weight (kg)	A	B	C	D	E	G	K	L	M	N	S	Ref.-No. VRS	Ref.-No. VRS-F
VRS-3/8"-16UNC	0.4	0.1	34	11	8.5	25	25	28	47	15	3/8"	1/4"	15	7103959	7104480
VRS-1/2"-13UNC	0.75	0.2	42	13	10	30	30	34	56	18	1/2"	5/16"	18	7103960	7104481
VRS-5/8"-11UNC	1.5	0.3	49	15	14	35	35	40	65	24	5/8"	3/8"	22	7103961	7104482
VRS-3/4"-10UNC	2.3	0.5	57	17	16	40	40	50	75	30	3/4"	1/2"	27.5	7103962	7104483
VRS-7/8"-9UNC	2.3	0.6	57	17	16	40	40	50	75	32	7/8"	1/2"	27.5	7103963	7104484
VRS-1"-8UNC	3.2	0.9	69	21	19	48	48	60	90	36	1"	9/16"	33	7103964	7104485
VRS-1 1/4"-7UNC	4.5	1.7	86	26	24	60	60	75	112	45	1 1/4"	5/8"	41.5	7103965	7104486
VRS-1 1/2"-6UNC	7	2.9	103	32	29	72	75	90	135	54	1 1/2"	7/8"	49.5	7103966	7984221
VRS-1 3/4"-5UNC	9	4.6	120	38	34	82	85	105	158	63	1 3/4"	1"	58	7103967	7104488
VRS-2"-4.5UNC	12	7.0	137	43	38	94	100	120	180	72	2"	1 1/8"	66	7103968	7984223

Table 3

* = packing unit consisting of 20 pieces · ** = packing unit consisting of 10 pieces ·

*** = packing unit consisting of 4 pieces