

STARPOINT VRS

Special version

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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STARPOINT VRS

Special version
 with pipe inch thread
 according to DIN EN ISO 228-1



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: StarPoint Ringschraube
 VRS

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:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB)
 Name, Funktion und Unterschrift Verantwortlicher *Arne Kriegsmann*



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:
 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:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 26.09.2016 Dr.-Ing. Arne Kriegsmann, (Prokurist/QMB)
 Name, function and signature of the responsible person *Arne Kriegsmann*

User Instructions

1. Application only by designated and trained people, by observing the DGUV 100-500 (BGR 500) requirements and outside of Germany according to the country specific statutory regulations.
2. Please inspect regularly and before each usage the lifting points in regard of tightening, strong corrosion, wear, deformation etc.

3. Determine the location for the lifting point in regard of design with adequate base material strength so that introduced forces will be absorbed without causing deformations. This is especially the case when using the lifting point in conjunction with weld-in sockets.

Minimum quality of the bolted material: steel with a tensile strength of $R_m > 340 \text{ N/mm}^2$, f.e. S235JR (1.0037); or cast iron GG 25 (0.6025 - without blowholes): $1.5 \times M (=L)$.

For material with lower tensile strength please use lifting points with longer thread engagement. The German BG (Employer's insurance association), recommends the following minimum thread engagements:

- 2 x M in aluminium alloys
- 2.5 x M in light alloys with low strength

When lifting light metals, nonferrous metals and gray cast iron or other materials the thread assignment has to be chosen in such a way that the WLL of the thread, correspond to the requirements of the base material.

4. The lifting points must be positioned at the load in such a way that prohibited assignments like turning or flipping of the load are avoided.

- a.) Position the lifting point for a single leg lift 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 symmetrical around the centre of gravity, coplanar, if possible. .

5. Symmetry of loading:

Determine the required WLL of the individual RUD lifting point for symmetrical resp. unsymmetrical loading according to the following physical formula context:

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

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:

	Symmetric	Unsymmetric
two leg	2	1
three / four leg	3	1

(see table 1)

6. A plane bolt-on surface ($\varnothing E$) with a perpendicular thread hole must be guaranteed. Countersink diameter: $1 \times M_G$
Tapped holes must be machined deep enough so that the bearing surface of the lifting point will be supported.

7. For mounting without a tool, especially for a one-time lift, the STARPOINT can be supplied resp. retrofitted with a key (see table 3). Simply engage into the hexagon socket bolt the star profile key - use your fingers to respectively tighten or untighten the arrangement. Disengage key before you attach the lifting mean - STARPOINT must be rotatable! Do not use an extension for the tightening in combination with the profile key.

Hint: For the usage of a torque wrench a joggled hexagon tool is available on request (see table 3).

For a permanent installation, please tighten the VRS with a torque moment (+/- 10 %) according to table 2.

8. Shock loading or vibrations can cause unintentional dismantling. Securing options: Torque moment + liquid thread locker such as Loctite or WEICONLOCK (depending on the application, please pay attention to the manufacturer's instruction).

Attention: Ring must be free rotatable.

In general secure all lifting points which are permanently installed, f.e. by using glue.



9. The STARPOINT must be adjustable by 360° when fitted and with disengaged key. Adjust to direction of pull before lifting mean is attached.

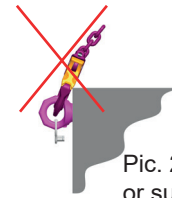
Attention: STARPOINTS are not suited to be turned under load!

10. The lifting mean must be free moveable in the STARPOINT and must not bear the load edge.

The WLL mentioned in the user instruction are relating to the cross and axial loading. **In addition to that, the loading of the lifting point with nominal load can also be done in the direction of the tapped hole of the work piece (pic. 1 and 2).**



Pic. 1: Allowed loading area



Pic. 2: Forbidden bearing- or support point at edges

11. When connecting and disconnecting lifting means (sling chains, wire rope slings and webbings) no pinches, shearings and impacts must occur.

Damage of the lifting means caused by sharp edges must be avoided.

12. Temperature usage capability:

Due to installed DIN/EN bolts in the STARPOINTS, the working load limit must be reduced accordingly to the strength class of the bolts as follows:

-40° up to 100°C	no reduction	
100° up to 200°C	minus 15 %	212°F up to 392°F
200° up to 250°C	minus 20 %	392°F up to 482°F
250° up to 350°C	minus 25 %	482°F up 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 will be installed should be clearly marked with a contrast colour.

15. If lifting points are used solely for lashing, the value of the working load limit can be doubled: Lashing capacity $LC = 2 \times WLL$.

16. After installation, an annual inspection or if necessary even sooner must be carried out by a competent person to guarantee the lingering ability. This is becomes also effective after a damage or a special occurrence.

Inspection criteria concerning paragraphs 2 and 16:

- Observe correct torque moment.
- The lifting point must be complete.
- The working load limit and manufacturer's stamp should be clearly visible.
- Deformation of the component parts such as body and bolt.
- Mechanical damage, such as notches, cracks particularly in high stress areas.
- Wear should be no more than 10 % of cross sectional diameter.
- Strong of corrosion.
- Function and damage of the pipe inch thread
- Easy and jerk free turning of the ring must be guaranteed.



A non-adherence to this advice may result damage of persons and materials!

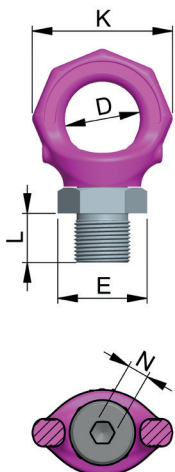
Method of lift											
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4	
Angle of inclination β	0-7°	90°	0-7°	90°	0-45°	>45-60°	Un-symm.	0-45°	>45-60°	Un-symm.	
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1	
Type: VRS-F / VRS	WLL in metric tons, bolted and adjusted to the direction of pull										
-	G 1/4"	2	0.75	4	1.5	1	0.75	0.75	1.57	1.12	0.75
-	G 3/8"	1	0.3	2	0.6	0.42	0.3	0.3	0.63	0.45	0.3
-	G 1/2"	2	0.75	4	1.5	1	0.75	0.75	1.57	1.12	0.75
-	G 3/4"	4	1.5	8	3	2.1	1.5	1.5	3.15	2.25	1.5
-	G 1"										
-	G 1 1/4"										
-	G 1 1/2"	32	12	64	24	16.8	12	12	25.2	18	12
-	G 2" (1.5 t)	4	1.5	8	3	2.1	1.5	1.5	3.15	2.25	1.5
-	G 2" (2.3 t)	6	2.3	12	4.6	3.22	2.3	2.3	4.83	3.45	2.3
-	G 3"	4	1.5	8	3	2.1	1.5	1.5	3.15	2.25	1.5
Type: VRS-F / VRS	WLL in lbs, bolted and adjusted to the direction of pull										
-	G 1/4"	4400	1650	8800	3300	2330	1650	1650	3500	2470	1650
-	G 3/8"	2200	660	4400	1320	930	660	660	1400	990	660
-	G 1/2"	4400	1650	8800	3300	2330	1650	1650	3500	2470	1650
-	G 3/4"	8820	3300	17640	6600	4660	3300	3300	7000	4950	3300
-	G 1"										
-	G 1 1/4"										
-	G 1 1/2"	70540	26450	141100	52910	37000	26450	26450	55500	39680	26450
-	G 2" (1.5 t)	8820	3300	17640	6600	4660	3300	3300	7000	4950	3300
-	G 2" (2.3 t)	13230	5070	26460	10140	7170	5070	5070	10750	7600	5070
-	G 3"	8820	3300	17640	6600	4660	3300	3300	7000	4950	3300
At a lift with one strand and two parallel strands where the inclination angles are at the max. $\pm 7^\circ$, the lifting methode can be assumed as a vertical lift.					When lifting with two, three or four leg lifting means, inclination angles of less than 15° shall be avoided, if possible (Risk of instability).						

Table 1: WLL

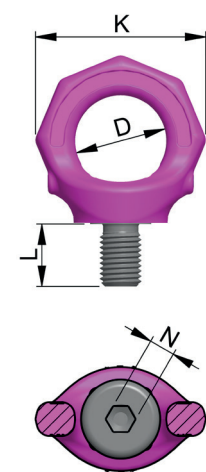
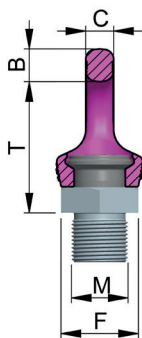
VRS-F with STAR KEY / VRS without STAR KEY - pipe inch thread ISO 228-1																
Type: VRS-F / VRS	WLL [t]	weight VRS-F / VRS [kg/pc.]	T [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	K [mm]	L [mm]	M [mm]	N [mm]	torque [Nm]	Ref.-No.	
															VRS-F with key	VRS without key
G 1/4" *	0.75	0.2	42	13	10	30	30	-	34	56	18	G 1/4"	8	25	-	7999269
G 3/8"	0.3	0.2	45	11	9	25	35	30	-	47	24	G 3/8"	6	25	-	7911864
G 1/2"	0.75	0.3	52	13	10	30	35	30	-	56	20	G 1/2"	8	25	-	7998682
G 3/4"	1.5	0.53	61	15	13	35	42	36	-	65	23	G 3/4"	10	60	-	7998880
G 1"	1.5	0.5	61	15	13	35	47	41	-	65	32	G 1"	10	60	-	7999163
G 1 1/4"	1.5	1	64	15	13	35	58	50	-	65	40	G 1 1/4"	10	60	-	7903732
G 1 1/2" **	12	7.5	138	42	38	96	101	-	128	179	72	G 1 1/2"	27	1400	7901254	-
G 2" (1.5 t)	1.5	1.5	64	15	13	35	81	70	-	65	45	G 2"	10	100	-	7999164
G 2" (2.3 t)	2.3	1.9	73	17	16	40	81	70	-	76	45	G 2"	12	115	-	7900433
G 3"	1.5	3.3	64	15	13	35	115	100	-	65	45	G 3"	10	100	-	7905324

Table 2: Dimensioning * = identically constructed as VRS metric thread (see Pic. 2)

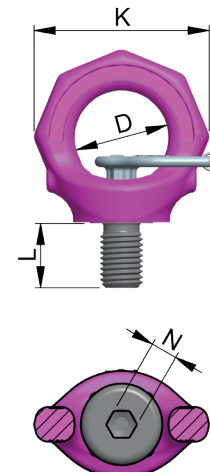
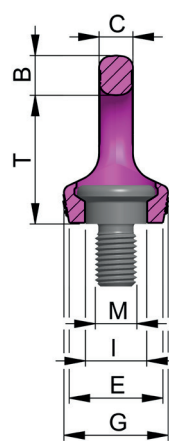
Subject to technical modifications



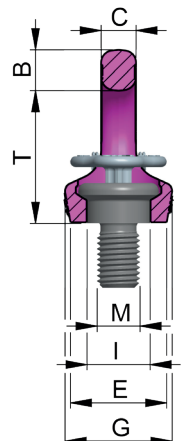
Pic. 1: VRS pipe inch thread



Pic. 2: VRS



Pic. 3: VRS with key



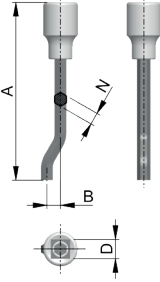
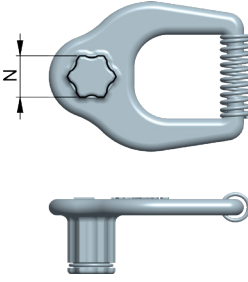
	Type	weight [kg/pc.]	A [mm]	B [mm]	D [mm]	N [mm]	suitable for VRS- thread (M)	Ref.-No.
VRS socket wrench								
	socket wrench SW6	0.09	118	7.5	1/2"	6	G3/8"	7997749
	socket wrench SW8	0.11	118	9	1/2"	8	G1/4"; G1/2"	7997750
	socket wrench SW10	0.15	138	12	1/2"	10	G3/4"; G1"; G1 1/4"; G2" (1.5 t); G3"	7997751
	socket wrench SW12	0.2	137	14	1/2"	12	G2" (2.3 t)	7997752
	socket wrench SW27	2	304	33	1"	27	G1 1/2"	7902081
VRS STAR KEY - metric								
	STAR KEY SW6	0.02	--	--	--	6	G3/8"	7983986
	STAR KEY SW8	0.02	--	--	--	8	G1/4"; G1/2";	7905453
	STAR KEY SW10	0.03	--	--	--	10	G3/4"; G1"; G1 1/4"; G2" (1.5 t); G3"	7903254
	STAR KEY SW12	0.04	--	--	--	12	G2" (2.3 t)	7904282
	STAR KEY SW27	0.4	--	--	--	27	G1 1/2"	7904287

Table 3: Key overview