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EN

> STARPOINT <

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

DGUV Test
OA 1451015
Sicherheit geprüft
tested safety

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RUD-Art.-Nr.: 8500483-EN / 12.016

Starpoint VRS (-F)

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

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

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User Instructions

ENGLISH

1. Application only by designated and trained people, by observing the BGR 500/DGUV 100-500 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. The engagement depth for steel with a tensile strength of Rm > 340 N/mm², f.e. S235JR (1.0037) or cast iron GG25 (0.6025-without blowholes): 1.5 x 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
(M = thread Ø, e.g. M 20)

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, corresponds 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:

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

W_{LL} = working load limit
G = load weight (kg)
n = number of load bearing legs
ß = 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 5)

6. A plane bolt-on surface (ØE) with a perpendicular thread hole must be guaranteed.

The thread must be carried out acc. to DIN 76 (countersink max. 1.05xd). 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 (type: VRS-F) see also chart 2. 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 4).

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

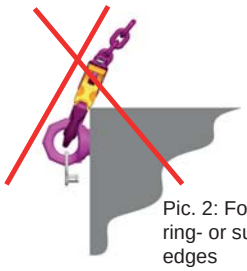
8. Shock loading or vibrations can cause unintentional dismantling. Securing options: Torque moment + liquid thread locker such as Loctite or WEICONLOCK (depending on the application, please pay attention to the manufacturer's instruction). **Attention:** Ring must be free rotatable.

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 occure.

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° to 100°C	no reduction	-40°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 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 x 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, particularly in high stress areas.
- Wear should be no more than 10 % of cross sectional diameter.
- Strong of corrosion.
- Cracks at load bearing areas
- Damage at the bolt and/or 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!

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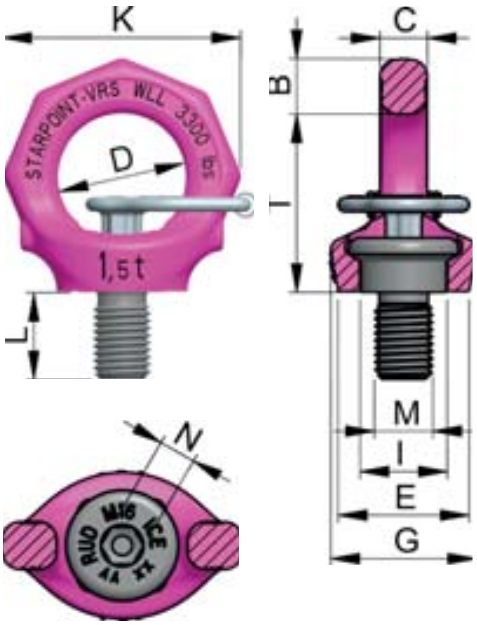
Type	WLL [t]	weight VRS-F [kg/pc.]	weight VRS [kg/pc.]	T [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	I [mm]	K [mm]	L [mm]	M	N [mm]	torque [Nm]
UNC with (VRS-F) and without STAR KEY (VRS)															
VRS-F 5/16"-18UNC	0.3	0.13	-	35	11	9	25	25	30	16.3	47	12	5/16"-18UNC	1/4"	10
VRS-1/4"-20UNC	0.1	-	0.24	28	9	7	20	23	28	13	37	9	1/4"-20 UNC	1/4"	5
VRS-F 3/8"-16UNC	0.4	0.12	-	35	11	9	25	25	30	16.3	47	19	3/8"-16UNC	1/4"	10
VRS-3/8"-16UNC	0.4	-	0.09	35	11	9	25	25	30	16.3	47	15	3/8"-16UNC	1/4"	15
VRS-F-/VRS-7/16"-14UNC	0.4	0.12	0.1	35	11	9	25	25	30	16.3	47	19	7/16"-14UNC	1/4"	10
VRS-F-/VRS-1/2"-13UNC	0.75	0.22	0.2	42	13	10	30	30	34	19.8	56	19	1/2"-13UNC	5/16"	25
VRS-F-/VRS-5/8"-11UNC	1.5	0.33	0.3	49	15	13	35	36	40	23.5	65	24	5/8"-11UNC	3/8"	60
VRS-F-/VRS-3/4"-10UNC	1.5	0.45	0.35	49	15	13	35	36	40	23.5	65	24	3/4"-10UNC	1/2"	115
VRS-F-/VRS-7/8"-9UNC	2.3	0.64	0.6	58	17	16	40	41	50	29.5	76	33	7/8"-9UNC	1/2"	115
VRS-F-/VRS-1"-8UNC	3.2	0.98	0.9	70	20	19	49	51	60	35	92	38	1"-8UNC	9/16"	190
VRS-F-/VRS-1 1/8"-8UN	3.2	0.98	0.9	70	20	19	49	51	60	35	92	36	1 1/8"-8UN	9/16"	250
VRS-F-/VRS-1 1/8"-7UNC	3.2	0.98	0.9	70	20	19	49	51	60	35	92	36	1 1/8"-7UNC	9/16"	250
VRS-F-/VRS-1 1/4"-7UNC	4.7	1.82	1.7	87	26	24	60	66	75	44	114	48	1 1/4"-7UNC	3/4"	330
VRS-F-/VRS-1 1/2"-6UNC	7	3.6	2.9	103	32	29	72	76	97	53	165	54	1 1/2"-6UNC	7/8"	590
VRS-F-/VRS-1 3/4"-5UNC	9	4.95	4.6	121	37	33	84	86	111	62	158	63	1 3/4"-5UNC	1"	925
VRS-F-2"-4.5UNC	12	7.6	7	138	42	42	94	100	128	70	180	72	2"-4.5UNC	1 1/8"	1400

table 4

subject to technical modifications

VRS-F



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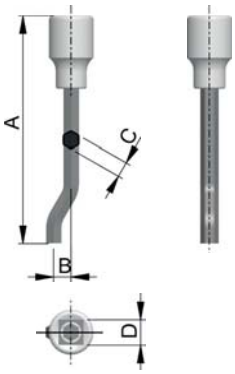
Type	weight [kg/pc.]	A [mm]	B [mm]	C [mm]	D [mm]	M
VRS STAR KEY – UNC inch thread						
STAR KEY	0.02					5/16“-18UNC + 3/8“-16UNC + 7/16“-14UNC
STAR KEY	0.02					1/2“-13UNC
STAR KEY	0.03					5/8“-11UNC
STAR KEY	0.04					3/4“-10UNC + 7/8“-9UNC
STAR KEY	0.08					1“-8UNC + 1 1/8“-8UN + 1 1/8“-7UNC
STAR KEY	0.12					1 1/4“-7UNC
STAR KEY	0.15					1 1/2“-6UNC
STAR KEY	0.3					1 3/4“-5UNC
STAR KEY	0.4					2“-4.5UNC
VRS socket wrench						
socket wrech	0.09	118	7.5	6	1/2“	M6 + M8 + M10
socket wrech	0.11	118	9	8	1/2“	M12 + M14
socket wrech	0.15	138	12	10	1/2“	M16 + M18
socket wrech	0.2	137	14	12	1/2“	M20 + M22
socket wrech	0.24	140	16.5	14	1/2“	M24 + M27
socket wrech	0.47	152	22	17	1/2“	M30 + M33
socket wrech	1.0	192	26	22	1“	M36
socket wrech	1.2	276	29	24	1“	M42
socket wrech	2.0	304	33	27	1“	M48

table 5 *Attention: When tightening the VRS M6, do not exceed the torque value of 12 Nm subject to technical modifications

VRS STAR KEY – metric

VRS STAR KEY – NC inch thread

VRS socket wrench



Translation of the original instruction manual.
In case of doubts or misunderstandings, the German version of the document is decisive.

Special lengths and surface coatings possible on request.

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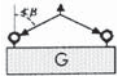
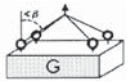
Method of lift											
Number of legs		**1**	**1**	**2**	**2**	**2**	**2**	**2**	**3 & 4**	**3 & 4**	**3 & 4**
Angle of inclination <ß		**0°**	**90°**	**0°**	**90°**	**0-45°**	**45-60°**	**unsymm.**	**0-45°**	**45-60°**	**unsymm.**
factor			**1**		**2**	**1.4**	**1**	**1**	**2.1**	**1.5**	**1**
Type		**STARPOINT - WLL in metric tons.** bolted and adjusted to the direction of pull									
	VRS-1/4“-20UNC	0.5 t	**0.1 t**	1 t	0.2 t	0.14 t	0.1 t	0.1 t	0.21 t	0.15 t	0.1 t
	VRS-5/16“-18UNC	1 t	**0.3 t**	2 t	0.6 t	0.42 t	0.3 t	0.3 t	0.63 t	0.45 t	0.3 t
	VRS-3/8“-16UNC	1 t	**0.4 t**	2 t	0.8 t	0.56 t	0.4 t	0.4 t	0.84 t	0.6 t	0.4 t
	VRS-7/16“-14UNC	1 t	**0.4 t**	2 t	0.8 t	0.56 t	0.4 t	0.4 t	0.84 t	0.6 t	0.4 t
	VRS-1/2“-13UNC	2 t	**0.75 t**	4 t	1.5 t	1.0 t	0.75 t	0.75 t	1.6 t	1.12 t	0.75 t
		2 t	**0.75 t**	4 t	1.5 t	1.0 t	0.75 t	0.75 t	1.6 t	1.12 t	0.75 t
		2 t	**0.75 t**	4 t	1.5 t	1.0 t	0.75 t	0.75 t	1.6 t	1.12 t	0.75 t
	VRS-5/8“-11UNC	4 t	**1.5 t**	8 t	3 t	2.1 t	1.5 t	1.5 t	3.15 t	2.25 t	1.5 t
		4 t	**1.5 t**	8 t	3 t	2.1 t	1.5 t	1.5 t	3.15 t	2.25 t	1.5 t
		4 t	**1.5 t**	8 t	3 t	2.1 t	1.5 t	1.5 t	3.15 t	2.25 t	1.5 t
	VRS-3/4“-10UNC	6 t	**2.3 t**	12 t	4.6 t	3.22 t	2.3 t	2.3 t	4.83 t	3.45 t	2.3 t
		6 t	**2.3 t**	12 t	4.6 t	3.22 t	2.3 t	2.3 t	4.83 t	3.45 t	2.3 t
	VRS-7/8“-9UNC	6 t	**2.3 t**	12 t	4.6 t	3.22 t	2.3 t	2.3 t	4.83 t	3.45 t	2.3 t
	VRS-1“-8UNC	8 t	**3.2 t**	16 t	6.4 t	4.48 t	3.2 t	3.2 t	6.7 t	4.8 t	3.2 t
		8 t	**3.2 t**	16 t	6.4 t	4.48 t	3.2 t	3.2 t	6.7 t	4.8 t	3.2 t
	VRS-1 1/8“-7UNC	8 t	**3.2 t**	16 t	6.4 t	4.48 t	3.2 t	3.2 t	6.7 t	4.8 t	3.2 t
	VRS-1 1/8“-8UN	8 t	**3.2 t**	16 t	6.4 t	4.48 t	3.2 t	3.2 t	6.7 t	4.8 t	3.2 t
	VRS-1 1/4“-7UNC	12 t	**4.5 t**	24 t	9 t	6.3 t	4.5 t	4.5 t	9.4 t	6.7 t	4.5 t
		12 t	**4.5 t**	24 t	9 t	6.3 t	4.5 t	4.5 t	9.4 t	6.7 t	4.5 t
		12 t	**4.5 t**	24 t	9 t	6.3 t	4.5 t	4.5 t	9.4 t	6.7 t	4.5 t
	VRS-1 1/2“-6UNC	16 t	**7 t**	32 t	14 t	9.8 t	7 t	7 t	14.7 t	10.5 t	7 t
	VRS-1 3/4“-5UNC	24 t	**9 t**	48 t	18 t	12.6 t	9 t	9 t	18.9 t	13.5 t	9 t
	VRS-2“-4,5UNC	32 t	**12 t**	64 t	24 t	16.8 t	12 t	12 t	25.2 t	18.0 t	12 t
Type		**STARPOINT - WLL in lbs.** bolted and adjusted to the direction of pull									
	VRS-1/4“-20UNC	1100 lbs	**220 lbs**	2200 lbs	440 lbs	308 lbs	220 lbs	220 lbs	462 lbs	330 lbs	220 lbs
	VRS-5/16“-18UNC	2200 lbs	**660 lbs**	4400 lbs	1320 lbs	925 lbs	660 lbs	660 lbs	1380 lbs	990 lbs	660 lbs
	VRS-3/8“-16UNC	2200 lbs	**880 lbs**	4400 lbs	1760 lbs	1235 lbs	880 lbs	880 lbs	1850 lbs	1320 lbs	880 lbs
	VRS-7/16“-14UNC	2200 lbs	**880 lbs**	4400 lbs	1760 lbs	1235 lbs	880 lbs	880 lbs	1850 lbs	1320 lbs	880 lbs
	VRS-1/2“-13UNC	4400 lbs	**1650 lbs**	8800 lbs	3300 lbs	2200 lbs	1650 lbs	1650 lbs	3460 lbs	2470 lbs	1650 lbs
		4400 lbs	**1650 lbs**	8800 lbs	3300 lbs	2200 lbs	1650 lbs	1650 lbs	3460 lbs	2470 lbs	1650 lbs
		4400 lbs	**1650 lbs**	8800 lbs	3300 lbs	2200 lbs	1650 lbs	1650 lbs	3460 lbs	2470 lbs	1650 lbs
	VRS-5/8“-11UNC	8820 lbs	**3300 lbs**	17640 lbs	6610 lbs	4630 lbs	3300 lbs	3300 lbs	6940 lbs	4960 lbs	3300 lbs
		8820 lbs	**3300 lbs**	17640 lbs	6610 lbs	4630 lbs	3300 lbs	3300 lbs	6940 lbs	4960 lbs	3300 lbs
		8820 lbs	**3300 lbs**	17640 lbs	6610 lbs	4630 lbs	3300 lbs	3300 lbs	6940 lbs	4960 lbs	3300 lbs
	VRS-3/4“-10UNC	13250 lbs	**5070 lbs**	26500 lbs	10140 lbs	7100 lbs	5070 lbs	5070 lbs	10650 lbs	7600 lbs	5070 lbs
		13250 lbs	**5070 lbs**	26500 lbs	10140 lbs	7100 lbs	5070 lbs	5070 lbs	10650 lbs	7600 lbs	5070 lbs
	VRS-7/8“-9UNC	13250 lbs	**5070 lbs**	26500 lbs	10140 lbs	7100 lbs	5070 lbs	5070 lbs	10650 lbs	7600 lbs	5070 lbs
	VRS-1“-8UNC	17630 lbs	**7050 lbs**	35260 lbs	14100 lbs	9880 lbs	7050 lbs	7050 lbs	14800 lbs	10580 lbs	7050 lbs
		17630 lbs	**7050 lbs**	35260 lbs	14100 lbs	9880 lbs	7050 lbs	7050 lbs	14800 lbs	10580 lbs	7050 lbs
	VRS-1 1/8“-7UNC	17630 lbs	**7050 lbs**	35260 lbs	14100 lbs	9880 lbs	7050 lbs	7050 lbs	14800 lbs	10580 lbs	7050 lbs
	VRS-1 1/8“-8UN	17630 lbs	**7050 lbs**	35260 lbs	14100 lbs	9880 lbs	7050 lbs	7050 lbs	14800 lbs	10580 lbs	7050 lbs
	VRS-1 1/4“-7UNC	26450 lbs	**9920 lbs**	52900 lbs	19840 lbs	13880 lbs	9920 lbs	9920 lbs	20800 lbs	14880 lbs	9920 lbs
		26450 lbs	**9920 lbs**	52900 lbs	19840 lbs	13880 lbs	9920 lbs	9920 lbs	20800 lbs	14880 lbs	9920 lbs
		26450 lbs	**9920 lbs**	52900 lbs	19840 lbs	13880 lbs	9920 lbs	9920 lbs	2080 lbs	14880 lbs	9920 lbs
	VRS-1 1/2“-6UNC	35270 lbs	**15430 lbs**	70540 lbs	30860 lbs	21600 lbs	15430 lbs	15430 lbs	32400 lbs	23150 lbs	15430 lbs
	VRS-1 3/4“-5UNC	52900 lbs	**19480 lbs**	105800 lbs	39680 lbs	27700 lbs	19840 lbs	19840 lbs	41600 lbs	29760 lbs	19840 lbs
	VRS-2“-4,5UNC	70550 lbs	**26450 lbs**	141100 lbs	52910 lbs	37000 lbs	26450 lbs	26450 lbs	55500 lbs	39680 lbs	26450 lbs

table 6

subject to technical modifications

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