WELD ON LIFTING POINT - VRBS-FIX EYE PLATE

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 VRBS weld-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 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 menioned 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.

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: **VRBS-FIX weld-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: Load ring
VRBS-fix / VRBK-fix / VRBS / VRBG / VRBK / VRBSS

The following harmonized norms were applied:

EN 12100 : 2011-03	EN 1677-1 : 2009-03

The following national norms and technical specifications were applied:

BGR 500, KAP2.8 : 2008-04

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

Aalen, den 27.06.2014 — Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
Name, function and signature of the responsible person

WELD ON LIFTING POINT - VRBS-FIX EYE PLATE

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 at every use, visually inspect RUD lifting points, with particular attention to any evidence of weld cracks, corrosion, wear, deformations, etc.

3. The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The contact areas must be free from impurities, oil, colour, etc. Preheat the structure according to AS 1554 if required.

The material of the forged welding block is S355J2+N, St52-3, B.S. 4360.50 D or AISI 1019 (≈AS3678 GR350).

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 limits of individual RUD lifting points are calculated using the following formula and are based on symmetrical loading:

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

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 derating 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 3775.2.

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. All fittings connected to the VRBS-FIX should be free moving. When connecting and disconnecting the lifting means (sling chain) pinches and impacts should be avoided. Damage of the lifting means caused by sharp edges should also be avoided.

8. The complete design can be stress relieved once in the unloaded condition.

9. The lifting point is suitable for use within temperature range -20°C up to 400°C. For use within the following temperature ranges the WLL must be reduced by the following factors:

200°C up to 300°C by -10% / 300°C up to 400°C by -25%.

Temperatures exceeding 400°C are prohibited!

10. 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.

11. If the lifting points are used **exclusively** for lashing the value of the working load limit can be doubled. LC = 2 x WLL

12. After welding, an annual inspection or sooner if conditions dictate should be carried out by a competent person examining the continued suitability. Also, inspect after damage and special occurrences.

Inspection criteria regarding paragraphs 2 and 12:

- 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 load ring.
- Mechanical damage, such as notches, particulary in high stress areas.
- Wear should be no more than 10% of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Cracks or other damages to the welding.

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

Please check the wear indicator markings of the weld-on lifting point (see below).

Usage permitted:
No wear marks visible

Use prohibited:
Replacement criteria reached. Material all the way down to the wear lenses has gone.

Pic 1: Wear indicators

NOTE:

- ***Never weld at the quenched and tempered ring!***
- ***Weld all seams at the same temperature.***
- ***The pre-heating temperature for the welding of the VRBS-FIX must be:***

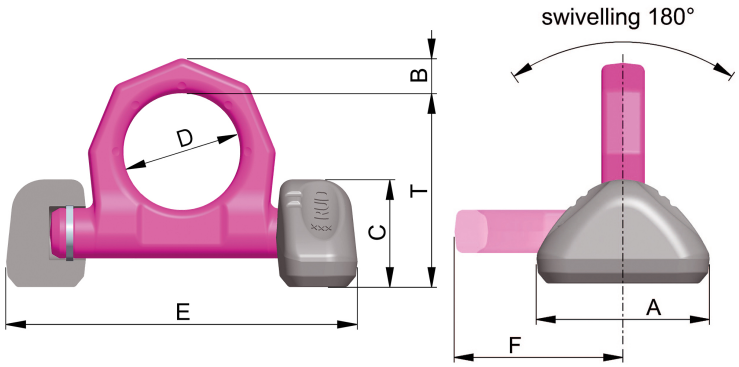
4 t	***(Min 20°C)***
6.7 t	***(Min 20°C)***
10 t	***50°C - 60°C***
16 t	***75°C - 85°C***
31.5 t	***150°C - 170°C***
50 t	***150°C - 170°C***
100 t	***150°C - 170°C.***

WELD ON LIFTING POINT - VRBS-FIX EYE PLATE

User Instructions - Part 3

Type	Single Leg	2 , 3 or 4 Legs		
		60°	90°	120°
		Maximum Included Angle		
VRBS-FIX 4	4.0	6.9	5.6	4.0
VRBS-FIX 6.7	6.7	11.6	9.4	6.7
VRBS-FIX 10	10.0	17.3	14.1	10.0
VRBS-FIX 16	16.0	27.7	22.6	16.0
VRBS -FIX 31.5	31.5	54.5	44.4	31.5
VRBS-FIX 50	50.0	86.5	70.5	50.0
VRBS -FIX 100	100	173	141	100

Table 1: Working Load Limit (G - in tonnes)



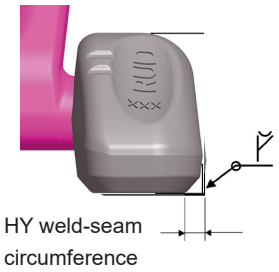
Picture 2: Dimensions

Type	WLL (t)	A	B	C	D	E	F	T	Weight (kg)	Reference Number
VRBS-FIX 4	4	60	14	39	48	132	69	74	0.93	7999019
VRBS-FIX 6.7	6.7	88	20	50	60	167	91	97	2.2	7999020
VRBS-FIX 10	10	100	22	60	65	191	100	108	3.7	7999021
VRBS-FIX 16	16	130	30	72	90	267	134	140	8.0	7999301
VRBS-FIX 31.5	31.5	160	42	99	130	366	195	202	18.4	7999302
VRBS-FIX 50	50	246	70	148	230	596	335	330	64.86	7906272
VRBS-FIX 100	100	320	97	195	250	763	392	390	126.85	7906273

Table 2: Dimensioning

Type	Size	Length (mm)	Volume (approx.)
VRBS-FIX 4 t	HY 3	2 x 154	1.4 cm³
VRBS-FIX 6.7 t	HY 5	2 x 214	5.35 cm³
VRBS-FIX 10 t	HY 6	2 x 252	9 cm³
VRBS-FIX 16 t	HY 9	2 x 341	27 cm³
VRBS-FIX 31.5 t	HY 12	2 x 418	60 cm³
VRBS-FIX 50 t	HY 19	2 x 663	239 cm³
VRBS-FIX 100 t	HY 28	2 x 875	687 cm³

Table 3: Weld Seam (weld-on block)



Picture 3: HY-weld seam

WELD ON LIFTING POINT - VRBS-FIX EYE PLATE

User Instructions - Part 4

MILD STEEL / LOW ALLOYED STEEL	
MIG GAS SHIELDED WIRE WELDING	AWS A5.18 eg: WIA - Austmig ES6 or Hobart XL 525) or equivalent. (Flux Cored for material >24mm).
MMA MANUAL ELECTRIC WELDING	AWS A5.5 : E8018-G. AWS A5.1 : E7018. eg: WIA - Austarc 18TC or Weldwell PH77 or equivalent.

NB. Please refer to the consumables manufacturer for user instructions and further information.

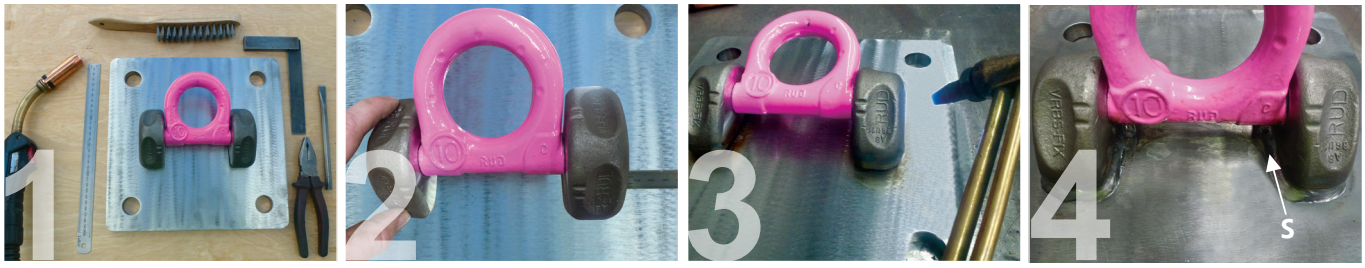
Table 4: Welding Process

WELD DETAILS		POWER SUPPLY		FLUX GAS		WELDING CONSUMABLE		ELEC.	WELDING PARAMETERS*		
RUN	TYPE/POSITION	TYPE	POL	TYPE	QTY	TYPE/NAME	SIZE	ESO	AMP	VOLT	TRAV
ALL	SINGLE BEVEL PARTIAL PEN. BUTT. FLAT OR HOR. (1G/2G)	D.C.	+VE	AS.SG - AC/18 SUPAGAS SUPASHIELD 18	16 - 18 L/Min	ES6-GC/M-503AH AWS.ER70S-6 "CIGWELD" AUTOCRAFT LWI-6	1.2 mm	12 - 14 mm	230 - 250	26 - 28	LEADING ARC

Table 5: Typical GMAW Settings (welding VRBS to AS3678 GR350)

Welding Sequence

The welding should only be carried out by an authorised welder, according to AS1554 or EN287 or relevant AWS Standards.



1 Prepare surface and ensure all contact areas are clean. Check preparation and welding consumables for conformance.

2 Position both blocks and check the clearance. The distance lugs assist in achieving the correct gap for the root run. Lugs must not be removed! Welding of the block: Tac weld blocks into position with minimum clearance to the load ring. Check for full rotation of the load ring before moving onto point 3.

3 Preheat as per notes in Part 2.

4 Start welding the root run and subsequent runs at point 'S' (see picture (right)). Carefully clean the root run before carrying out subsequent runs.

5 Apply fillet weld (refer table 3). The welding process must not be interrupted for such a time that the welding blocks lose the welding temperature.

Attention: Do not weld at the pink powder coated, heat treated load ring.

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