

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 ABA 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 can 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: **ABA 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.

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: Lifting point rigid
ABA

The following harmonized norms were applied:

<u>EN 12100-1</u>	<u>EN 12100-2</u>
<u>EN 14121-1</u>	<u>EN 1677-1</u>
_____	_____
_____	_____

The following national norms and technical specifications were applied:

BGR 500, KAP2.8

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

Aalen, 15.11.2010

Dr. Ing. Rolf Sinz (Prokurist/DMB)

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 only be carried out by competent persons.

2. Before installing and at every use, visually inspect RUD lifting points paying 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 1.6541 (23MnNiCrMo52).

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/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:

$W_{LL} = \frac{G}{n \times \cos \beta}$	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
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NOTE: For WLL Calculations

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



Please position the weld-on lifting points ABA in the direction of pull (compare to picture 1, permitted loading direction).



Picture 1: Loading from any side is permitted

6. Safety: When lifting points are used in a multileg assembly, care should be taken to calculate the Working Load Limit (WLL) due to the deration caused by forces acting in multiple directions. The reduction in WLL 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. Effects of temperature: the WLL should be reduced accordingly:

-40° to 200°C - no reduction

200° to 300°C - minus 10%

300° up to 400°C - minus 25%

Temperatures above 400°C (752°F) are not permitted.

8. All fittings connected to the ABA 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.

9. 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.

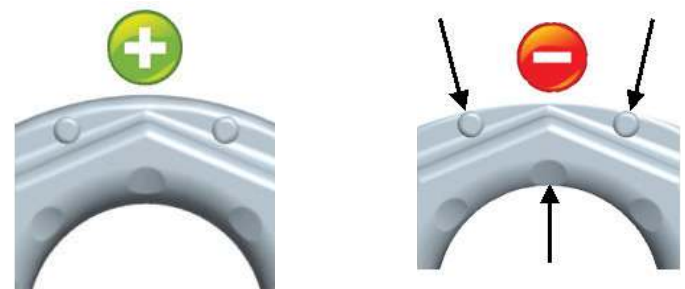
10. If the lifting points are used **exclusively** for lashing the value of the working load limit can be doubled. LC = 2 x WLL

11. After welding, an annual inspection or sooner if conditions dictate should be undertaken 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, particularly in high stress areas.
- Wear should be no more than 10% of cross sectional diameter (see picture 2, wear indicator marks).
- Evidence of corrosion.
- Evidence of cracks.
- Cracks or other damages to the welding.

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



Use permitted:
Wear indicators visible.

Use prohibited:
Material has worn to the wear indicators.

Picture 2: Wear indicators

ATTENTION: Incorrect assembly, improper use or use of damaged ABA weld-on lifting points may lead to injuries of persons and/or damage of objects.

Please inspect all lifting points carefully before every use.

User Instructions - Part 3

WORKING LOAD LIMITS (G - in tonnes)					
Type	Single Leg		2, 3 or 4 Legs		
	F ¹	F ²	60°	90°	120°
ABA 1.6 t	4.0	1.6	2.8	2.2	1.6
ABA 3.2 t	9.0	3.2	5.5	4.5	3.2
ABA 5 t	12.0	5.0	8.6	7.0	5.0
ABA 10 t	20.0	10.0	17.3	14.1	10.0
ABA 20 t	20.0*	20.0	34.6	28.2	20.0
ABA 31.5 t	31.5*	31.5	54.5	44.4	31.5

Table 1

* For higher WLL on the ABA 20 t and 31.5 t in the planar direction please contact RUD for further information.

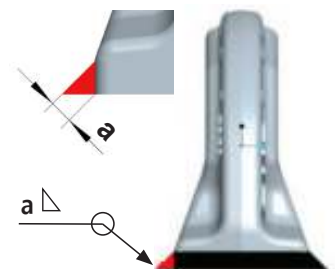
WELD SEAM (per welding block)				
	Fillet Weld Throat Size	Leg Length (mm)	Weld Length (mm)	Volume (cm ³)
ABA 1.6 t	a = 4	6	251	4.016
ABA 3.2 t	a = 6	9	344	12.38
ABA 5 t	a = 7	10	431	21.1
ABA 10 t	a = 8	12	576	36.86
ABA 20 t	a = 12	17	697	100.3
ABA 31.5 t	a = 15	22	824	185.4

Table 2

WELDING CONSUMABLES	
MILD STEEL / LOW ALLOYED STEEL	
MIG GAS SHIELDED WIRE WELDING	AWS A5.18 ER70S-6 eg: WIA - Austmig ES6 or equivalent. (Flux Cored for material >24mm).
MMA MANUAL ELECTRIC WELDING	AWS A5.5 : E8018-G. AWS A5.1 : E7018 / E7016. eg: WIA - Austarc 18TC or Weldwell PH77 or equivalent.
NB. Please refer to the consumables manufacturer for user instructions and further information.	

Table 3

NOTE: When welding the ABA to mild steel (≈AS3678 GR350), welding is in accordance with AS1554.1.



Picture 3: Welding-seam position

TYPICAL GMAW SETTINGS (welding ABA to AS3678 GR350)											
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
1 - 3 (+)	MULTI-RUN FILLET. FLAT & H.V. (1F + 2F)	D.C.	+VE	AS.SG - AC/18 SUPAGAS SUPASHIELD 18	16 - 18 l/Min	ES6-GC/M-503AH AWS.ER70S-6 "LINCOLN" ULTRAMAG-56	1.2 mm	12 - 14 mm	225 - 275	25 - 29	420 - 560 (mm / MIN)

Table 4



ATTENTION:

Due to the (forged) shape of the ABA (sizes 1.6 t - 31.5 t), there will be a weld-seam changeover in the marked area (see pic. 4 & 5). This has no impact on the strength of the construction part!



ATTENTION:

Weld all seams at the same temperature. ABA 20 t & ABA 31.5 t must be preheated to between 150°C - 170°C.

PLEASE NOTE: The ABA is to be welded and inspected after welding by a competent person.



Picture 4: Weld-seam



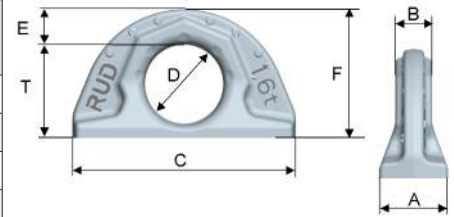
Picture 5: Area of the weld-seam changeover

User Instructions - Part 4

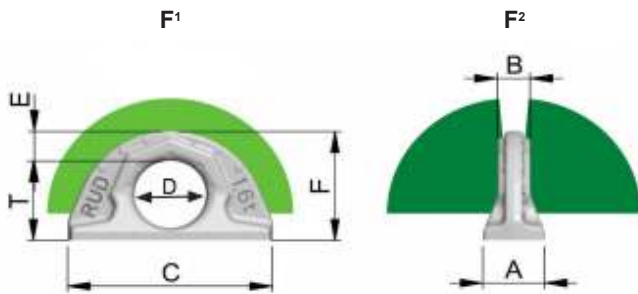
Type	WLL (t)		A	B	C	D	E	F	T	Weight (kg/pc)	Ref. No.
	F ¹	F ²									
ABA 1.6 t	4.0	1.6	30	16	100	35	16	57	41.5	0.44	7900352
ABA 3.2 t	9.0	3.2	41	23	137	50	21	80	59	1.1	7900353
ABA 5 t	12.0	5.0	51	27	172	60	27.5	99	71.5	2.3	7900354
ABA 10 t	20.0	10.0	70	38	228	80	35	130	95	5.3	7900355
ABA 20 t	20.0*	20.0	90	52	272	115	40	175	135	10.7	7902174
ABA 31.5 t	31.5*	31.5	108	64	320	130	50	204	154	18.3	7902175

* For higher WLL on the ABA 20 t and 31.5 t in the planar direction please contact RUD for further information.

Table 5



Picture 6



Picture 7: Permitted loading directions