

Weld-On Lifting Point - loadable from any side > ABA <



Safety instructions

This safety instruction/declaration has to be kept on file for the whole lifetime of the product.
Translation of the original safety instruction



ABA



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RUD-Art.-Nr.: 7900958-EN / 06.020

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: Anschlagpunkt starr
ABA

Folgende harmonisierten Normen wurden angewandt:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

<u>BGR 500, KAP2.8 : 2008-04</u>	_____
_____	_____
_____	_____
_____	_____

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: Lifting point rigid
ABA

The following harmonized norms were applied:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>BGR 500, KAP2.8 : 2008-04</u>	_____
_____	_____
_____	_____
_____	_____

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*



Before initial usage of the RUD weld-on lifting point ABA, please read carefully the safety instructions. Make sure that you have understood all subjected matters. Non-observance can lead to serious personal injuries and material damage and eliminates warranty.

1 Safety instructions



ATTENTION

Wrong assembled or damaged weld-on lifting points ABA as well as improper use can lead to injuries of persons and damage of objects when load drops. Please inspect all lifting points before each use.

RUD weld-on lifting points ABA must only be used by instructed and competent persons considering BGR 500 (DGUV-rules 100-500) and outside Germany noticing the country specific statutory regulations.

2 Intended use of the ABA

RUD weld-on lifting points ABA must only be used for the assembly at the load or at lifting means.

They are intended to be hinged into lifting means.

RUD weld-on lifting points ABA can also be used as lashing points to attach lashing means.

Loading from any side is permitted.

RUD weld-on lifting points ABA must only be used in the hereby described operation purpose.

3 Assembly- and instruction manual

3.1 General information

- Capability of temperature usage:
When used at higher temperatures the working load limit (WLL) of the lifting point must be reduced as follows:

-40°C up to 200°C --> no reduction

200°C up to 300°C --> minus 10 %

300°C up to 400°C --> minus 25 %

Temperatures exceeding 400°C are prohibited!

The lifting points ABA can be stress-relieved one-time in an unloaded condition, together with the load (e.g. welded construction):

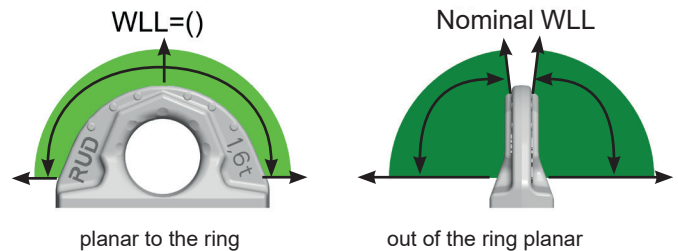
Temperature < 600°C / 1100°F (one hour maximum)

- RUD weld-on lifting points ABA must not be used with aggressive chemicals such as acids, alkaline solutions and their vapours.
- Please mark mounting position of lifting point with a coloured contrast paint for better visibility.

3.2 Hints for the assembly

Basically essential:

- The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The weld-on material must be suitable for welding and the contact areas must be free from impurities, oil, colour, ect. The material of the forged welding block is 1.6541 (23MnNiCrMo52)
- The position of the lifting points must be carried out in such a way that unintended movement like turning or flipping will be avoided:
 - 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/or above the centre of gravity of the load.
 - For three and four leg lifts** - the lifting points should be arranged symmetrical around the centre of gravity, in the same plane if possible.
- Position weld-on lifting points into the load force direction (compare picture 1, permissible WLL at different loading directions).



Picture 1: Permitted loading directions

- Symmetry of loading:
Determine the necessary WLL of each lifting point for a symmetrical or an unsymmetrical load by using the following physical calculation formula:

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

W_{LL} = necessary WLL (kg) of lifting point / single strand
 G = weight of load (kg)
 n = number of load bearing strands
 β = inclination angle of single strand

Number of load bearing strands:

	symmetric	unsymmetric
two leg	2	1
three / four leg	3	1

Table 1: Load bearing strands (compare to table 2)

- Check finally the correct assembly (see chapter 4, Inspection criteria).

3.3 Hints for the welding

The welding should only be carried out according to ISO 9606-1 or AWS Standards by an authorized welder.

1. Fasten provisionally, resp. start welding in the middle of the plate.
2. Before the closure weld is carried out, make sure that the bottom and all interlayers are cleaned carefully. Remove all visible flaw spots of the root and at the interlayers.
3. Weld fillet weld continuous at the base plate of the lifting point.



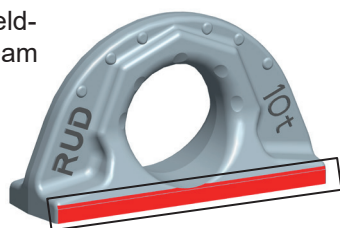
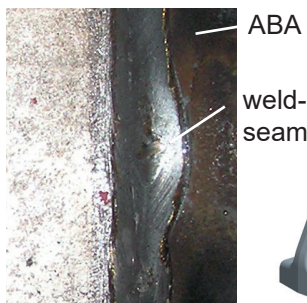
HINT

Weld all seams in the same temperature.



HINT

Due to the (forged) shape of the ABA (sizes 0.8 t - 31.5 t), there will be a weld-seam changeover in the marked area (see pic. 2 and 3). This has no impact on the strength of the construction part!



Pic. 2: weld-seam

Pic. 3: area of the weld-seam changeover

4. Please check by a competent person after welding the ongoing usage of the weld-on lifting point (see chapter 4, Inspection criteria)



HINT

By the position of the weld-seam (continuous fillet weld seam) the following requirements will be observed: DIN 18800 steel constructions requires: at outdoor buildings or when strong corrosion must be expected weld seams must be carried out as continuous fillet weld seams.

3.4 User instructions

- Check frequently and before each initial operation the whole weld-on lifting point ABA in regard of liveness as a lifting mean, regarding corrosion, wear, deformation etc. (see chapter 4, Inspection criteria).



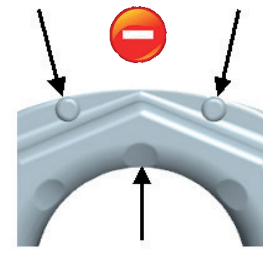
ATTENTION

Wrong positioned or damaged weld-on lifting points as well as improper use can lead to injuries of persons and damage at property, when load falls down. Please check all lifting points carefully before every usage.

- Please check carefully the wear indicator markings of the weld-on lifting point (see picture 4):



Usage permitted:
no wear marks visible



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

Pic. 4: Wear indicators

- Please note that the lifting mean must be free moveable within the weld-on lifting point ABA. When lifting means (sling chains) are hinged or unhinged, no pinching, shearing or joint spots must occur during the handling.
- Avoid damage of lifting means resulting from sharp edges.
- If the weld-on lifting point ABA are used exclusively for lashing, the value of the working load limit can be doubled: $LC = 2 \times WLL$

3.5 Hints for regular inspection

In time periods complying to the need or usage, a technical expert must control at least once a year the appropriateness of the anchor point. This inspection must also be done after each event of damage or special incident.

4 Inspection criteria

Observe and control the following points before each initial operation, in regular time intervals, after the assembly and after special incidents:

- Completeness of the lifting point
- Complete, readable WLL statements as well as manufacturer sign
- Deformation at load bearing components like base body
- Mechanical damage, like strong notches, especially in areas where tensile stress occurs
- Reduction of cross-section due to wear >10 % (see picture 2, wear indicator markings)
- Evidence of corrosion (Pitting)
- Evidence of cracks.
- Cracks or other damages at weld seam

Method of lift										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Angle of inclination	0°	90°	0°	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	For the max. total load weight >G< in metric tons									
ABA 0.8 t	0.8 (2)	0.8 (2)	1.6 (4)	1.6 (4)	1.12 (2.8)	0.8 (2)	0.8 (2)	1.6 (4.25)	1.18 (3)	0.8 (2)
ABA 1.6 t	1.6 (4)	1.6 (4)	3.2 (8)	3.2 (8)	2.2 (5.6)	1.6 (4)	1.6 (4)	3.4 (8.4)	2.4 (6)	1.6 (4)
ABA 3.2 t	3.2 (9)	3.2 (9)	6.4 (18)	6.4 (18)	4.5 (12.6)	3.2 (9)	3.2 (9)	6.7 (18.9)	4.8 (13.5)	3.2 (9)
ABA 5 t	5 (12)	5 (12)	10 (24)	10 (24)	7 (16.8)	5 (12)	5 (12)	10.5 (25.2)	7.5 (18)	5 (12)
ABA 10 t	10 (20)	10 (20)	20 (40)	20 (40)	14 (28)	10 (20)	10 (20)	21.2 (42)	15 (30)	10 (20)
ABA 20 t	20	20	40	40	28	20	20	42	30	20
ABA 31.5 t	31.5	31.5	63	63	45	31.5	31.5	67	47.5	31.5

Table 2: WLL overview () = WLL X planar to the ring WLL Y = Nominal Working Load

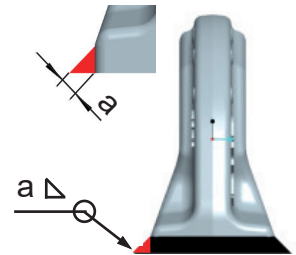
Europe, USA, Asia, Australia, Africa	
Mild steels, low alloyed steel EN 10025-2	
MIG / MAG (135) Gas shielded wire welding	DIN EN ISO 14341: G4Si1 (G3Si1) e.g. PEGO G4Si1
E-Hand Gleichstrom (111, =) Stick Electrode direct current	DIN EN ISO 2560-A: E 42 6 B 3 2 H10 DIN EN ISO 2560-A: E 38 2 B 1 2 H10 e.g. PEGO B Spezial*/PEGO BR Spezial*
E-Hand Wechselstrom (111, ~) Stick Electrode alternating current	DIN EN ISO 2560-A: E 38 2 RB 1 2 DIN EN ISO 2560-A: E 42 0 RC 1 1 e.g. PEGO RC 3 / PEGO RR B 7 Alternative: DIN EN ISO 3581: E 23 12 2 L R 3 2 e.g. PEGO 309 MoL
WIG (141) (TIG (141)) Tungsten arc welding	DIN EN ISO 636-A: W 3 Si 1 (W2 Si 1) DIN EN ISO 636-A: W 2 Ni 2 e.g. PEGO WSG 2 / PEGO WSG2Ni2



HINT

Please note the corresponding user hint in regard of the welding filler materials and the drying requirements*.

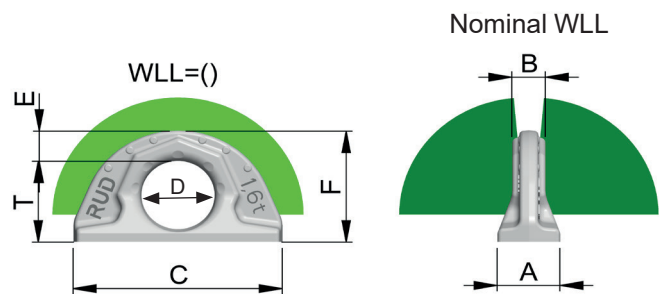
For welding the ABA 20 t & ABA 31.5 t the **preheat temperature** has to be between 150° and 170° C.



Picture 5: Welding seam position

Type	size fillet weld	length	volume
ABA 0.8 t	a = 3	177 mm	1.593 cm³
ABA 1.6 t	a = 4	251 mm	4.016 cm³
ABA 3.2 t	a = 6	344 mm	12.38 cm³
ABA 5 t	a = 7	431 mm	21.1 cm³
ABA 10 t	a = 8	576 mm	36.86 cm³
ABA 20 t	a = 12	697 mm	100.3 cm³
ABA 31.5 t	a = 15	824 mm	185.4 cm³

Table 4: Weld seam



Picture 6: Dimensioning

Type	WLL [t]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	T [mm]	weight [kg/pc]	ref-no.
ABA 0.8 t	0.8	22	12	70	32	12	50	38	0.20	7907698
ABA 1.6 t	1.6	30	16	100	35	16	57	41.5	0.45	7900352
ABA 3.2 t	3.2	41	23	137	50	21	80	59	1.1	7900353
ABA 5 t	5	51	27	172	60	27.5	99	71.5	2.3	7900354
ABA 10 t	10	70	38	228	80	35	130	95	5.3	7900355
ABA 20 t	20	90	52	272	115	40	175	135	10.7	7902174
ABA 31.5 t	31.5	108	64	320	130	50	204	154	18.3	7902175

Table 5: Dimensioning

Subject to technical alterations