

Original Instructions

Attachment Point type APAS

Grade 100

Read thoroughly before assembling and using

This instruction should be made available at any time for the user and should be kept over the entire period of use



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Intended Use

Attachment points type APAS can be used both for Lifting and Lashing operations.

Lifting operation should only be carried out by Competent Personnel as laid down in National Regulations.

When used as lashing points the Letter of Conformity as detailed below is irrelevant as lashing points and chains are not included in the EEC machinery directive.

After use for lashing the attachment point should not be used for lifting purposes.

In no case should the working load limit/lashing capacity listed below be exceeded.

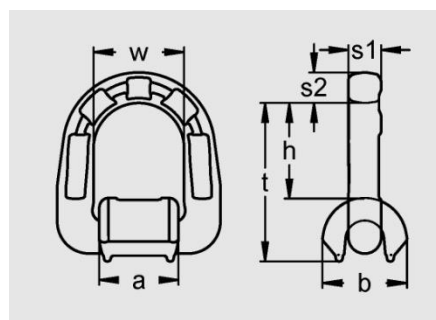
Attachment points type APAS can be used in a temperature range from -20°C (-4°F) up to 380°C (716°F).

Do not expose to chemical influences (like acids or bases).

Incorrect use of the attachment point can result in failure, causing loss of load and/or danger to personnel.

Nominal Sizes and Dimensions

Attachment points type APAS are available with the following working load limits (WLL) and dimensions and are available with or without spring.



nom. size = WLL t	lashing capacity LC daN	a mm	b mm	s1 mm	s2 mm	h mm	t mm	w mm	weight per piece kg	article- number version without spring	article- number version with spring
1,4	2.800	35	37	15	13,5	41,5	69,5	39,5	0,4	463 951 014	463 950 014
2,5	5.000	40	40	16	14	47	77,5	45	0,6	463 951 025	463 950 025
4	8.000	45	48	19	17,5	52	86	50	0,9	463 951 040	463 950 040
6,7	13.400	53	60	25,5	22	61,5	103	60	1,8	463 951 067	463 950 067
10	20.000	63	74	29,5	26	72	126	70	3,0	463 951 100	463 950 100
16	32.000	90	92	38	34	102	168,5	100	6,7	463 951 160	463 950 160
20	40.000	100	104	44,5	40	112	189	110	10,0	463 951 200	463 950 200

The spring reduces potential noise emission.

Assembling instructions

Point of Application

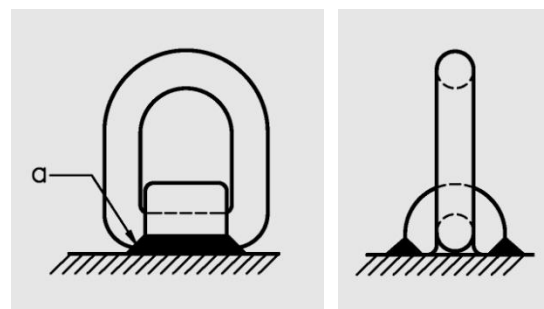
The assembling should only be carried out by authorized and qualified persons. In the selection of the points of application the following items should be taken into account:

- » Handling without any danger to be guaranteed by easy access.
- » Danger areas (e.g. crushing, bruising, shearing, trapping or impact points) should not be created.
- » Hindrance of lifting process by sticking or by direction change (especially over sharp edges) has to be avoided.
- » Number and positioning of the attachment points should be chosen in a way that excess strain and unforeseeable changes of the position of the load will be avoided.
- » Ensure that on the position where the attachment point should be placed a weld is permitted. When indicated the manufacturer of the machine/device should be contacted.
- » The weld must be suitable for the application of load. It should take up to 2.5 times of the working load limit without permanent deformation and 4 times the working load limit without breaking.
- » Attachment points should be easily visible. This can be supported by the additional of a contrast coating.

Welding instructions

- » The welding should be carried out by a qualified welder acc. to EN ISO 9606-1 or equal.
- » The welding should not be carried out until establishing that the machine where the attachment point shall be assembled conforms to the provisions of the EC Machinery Directive.
- » The surfaces must be clean (no oil, paint, varnish etc.).
- » Below temperatures of 0°C (32°F) the surface of the weld has to be warmed slightly.
- » The material of the welding saddle is S355J2+N, cast and sand blasted. The material of the eye is high grade steel acc. to DIN 17115 quenched and tempered. It should not be heated over 380° C (716°F).
- » The regulations acc. to EN ISO 15607 are in force for welding.
- » Welding filler

MAG-welding:	e. g. EN ISO 14341-A-42-2 M/C G3Si1
manual arc welding	e. g. EN ISO 2560-A-E42-2-...-B-1-2
- » The weld metal (a) must be put in the whole cross-section (see on draft).



pic. 1

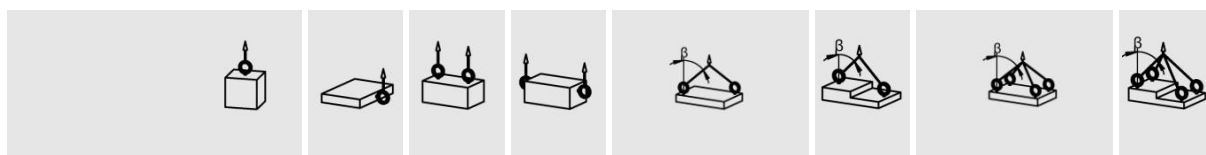
pic. 2

- » The quality of the welding joints should refer minimum to EN 25817 level C.

Use

While using the attachment points type APAS with construction equipment one has to pay attention to the following:

- » The given loads in the following table reference to a use without particularly hazardous conditions. Particularly hazardous conditions are for example lifting of persons or lifting in the offshore sector.



number of legs	1	1	2	2	2	2	2	3or4	3or4	3or4
inclination angle β	0°	90°	0°	90°	0°- 45°	45°- 60°	asym-metric	0°- 45°	45°- 60°	asym-metric
stress factor	1	1	2	2	1,4	1	1	2,1	1,5	1
Working load limit [t]										
APAS 1,4	1,4	1,4	2,8	2,8	1,95	1,4	1,4	2,9	2,1	1,4
APAS 2,5	2,5	2,5	5	5	3,5	2,5	2,5	5,25	3,75	2,5
APAS 4	4	4	8	8	5,6	4	4	8,4	6	4
APAS 6,7	6,7	6,7	13,4	13,4	9,38	6,7	6,7	14	10	6,7
APAS 10	10	10	20	20	14	10	10	21	15	10
APAS 16	16	16	32	32	22,4	16	16	33,6	24	16
APAS 20	20	20	40	40	28	20	20	42	30	20

- » The inclination angle β must not exceed 60° at multi-leg slings.
- » The minimum breaking load is 4 times of the working load limit (WLL).
- » The attachment point type APAS is loadable in all directions.
- » When the attachment points are used in 2-, 3- or 4-leg slings, the inclination angle and the symmetry resp. asymmetry of the legs and the therewith resulting increased tensile forces have to be considered during the calculation of the total working load limit.
- » The attachment points are designed for approx. 20,000 load cycles under changing use.
- » In case of high dynamic loads with high load coefficient and large number of load cycles a risk of fatigue of the material exists. Therefore, one should reduce the stress e. g. acc. to the group of gearing 1B_m (M3 acc. to EN 818-7).
- » During use at extreme temperatures observe the values indicated below:

Working load limit in % at a temperature of.....

- 20°C up to 200°C -4°F up to 392°F	over 200°C up to 300°C over 392°F up to 572°F	over 300°C up to 380°C over 572°F up to 716°F	over 380°C over 716°F
100 %	90 %	75 %	not permitted

Attachment points must not be used at temperatures exceeding the values in the table. Even in unused status the eye must not be heated over 380°C (716°F).

- » Attachment points type APAS must not be used in alkaline or acids and in severe or corrosive environments. Please find further information in the instruction BGR 150 "Sicherheitsregeln für Rundstahlketten als Anschlagmittel in Feuerverzinkereien".
- » Attachment points should not be galvanized since there is a danger of hydrogen brittleness.
- » During the galvanizing process, hydrogen diffusion will greatly reduce the mechanical properties and cause breakage without prior deformation marks. This constitutes a definite risk to the user.
- » The regulations of EN 818-6 as well as all further regulations in the country of use (in Germany for example the BGI 556 "Sicherheitslehrbrief für Anschläger") have to be noted.

Testing

- » The first placing into operation of the attachment point has to be approved by a competent person. When applicable the instructions of the (construction-)machine has to be amended by the here given information about testing and use.
- » On placing into operation a record card should be set up. All inspections, tests and repairs should be recorded in written form on this card.
- » Before each use attachment points should be checked routinely (e. g. by the slinger). If there are evident failures (e.g. cracks in the weld seam, deformations, heavy corrosion, wear (>10% of the original profile) the attachment points have to be put out of operation.
- » Additionally, attachment points must be inspected minimum once a year by a competent person.
- » After 3 years at the latest a non-destructive test, such as proof load or crack control (MPI), should be performed (acc. to BGR 500 chapter. 2.8).

EC-Declaration of Conformity acc. to the EC-Machinery Directive 2006/42/EC add. II A

We hereby declare that the lifting accessory/equipment indicated below meets the basic health and safety requirements of the aforementioned EC directive in respect of its concept and design. This declaration is invalid if the lifting accessory/equipment is altered or used in application for which it is not intended without prior consultation with us. The regulations for prevention of accidents BGV A1 and BGR 500 chapter 2.8 have to be considered.

The relevant technical documentation for this machinery is prepared as described in Annex VII, part B, a copy of which is available on request of the national authorities.

Person authorized to compile the technical file:
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Additional applied standards and technical specifications:
EN ISO 12100; EN 1677-1; EN 1677-4; PAS 1061; DGUV-GS OA 15-04 and 15-05

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