

Operating and welding instructions for UAs (immovable weld-on points)

(Status 02.07.2021)

General principles of use:

The falling of loads caused by the failure and/or incorrect use of slings or their component parts poses an indirect risk to the life or health of persons in the danger zone of lifting operations. These operating instructions contain those aspects relating to the safe use combined with proven handling of the immovable weld-on point (UA). Before using the UAs, the persons in charge must be instructed by technical experts. UAs must not be used in acids or exposed to acid vapours. It should be noted that certain production processes release acids or vapours.

Mounting instructions:

The position of the UAs on the load are to be carried out in such a way that a flat bearing surface is suitable for absorbing the expected force transmission.

The UAs are to be attached to the load in such a way:

that they can be reached easily and without obstruction for attaching and detaching the sling.

that no danger points (crushing points, shearing points, catching or impact points) arise which endanger or hinder the sling or the transport.

that inadmissible stresses, e.g. such as twisting or overturning of the load, are avoided and that contact with sharp edges can be excluded.

The number and arrangement must be chosen in such a way that the load cannot change its position unexpectedly during transport.

Positioning of the UAs must be such that for the single-strand sling the arrangement is vertically above the load's centre of gravity, for double-strand sling the arrangement is on both sides and above the load's centre of gravity, and for three- or four-strand slings the arrangement is uniformly slung in one plane around the load's centre of gravity.

Anschrift

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59519 Möhnesee

Eintragung

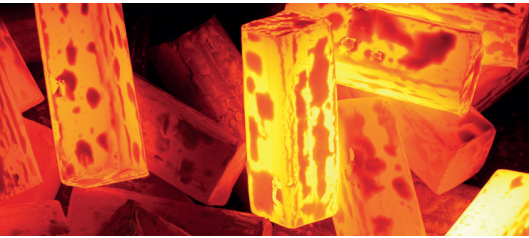
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Attach the UAs in the direction of pull
 Determine the required load-bearing capacity of the individual UAs for symmetrical and asymmetrical loads according to the corresponding formula

FORMULA WLL = load capacity (G) / (number of strands * cos angle)

or compare the results with the table of maximum load weight

Maximum load weight "G" with different stop types for UAs

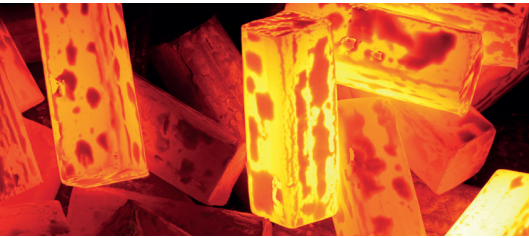
Stop type									
Number of strands	1	1	2	2	2 symmetrical		3; 4 symmetrical		2; 3; 4
Angle	0°	90°	0°	90°	0°-45°	45°-60°	0°-45°	45°-60°	asymm.
Load capacity in T	0.8	0.8	1.6	1.6	1.12	0.8	1.6	1.18	0.8
Load capacity in T	1.6	1.6	3.2	3.2	2.2	1.6	3.4	2.4	1.6
Load capacity in T	3.2	3.2	6.4	6.4	4.5	3.2	6.7	4.8	3.2
Load capacity in T	5	5	10	10	7	5	10.5	7.5	5
Load capacity in T	10	10	20	20	14	10	21.2	15	10
Load capacity in T	20	20	40	40	28	20	42	30	20
Load capacity in T	31.5	31.5	63	63	45	31.5	67	47.5	31.5

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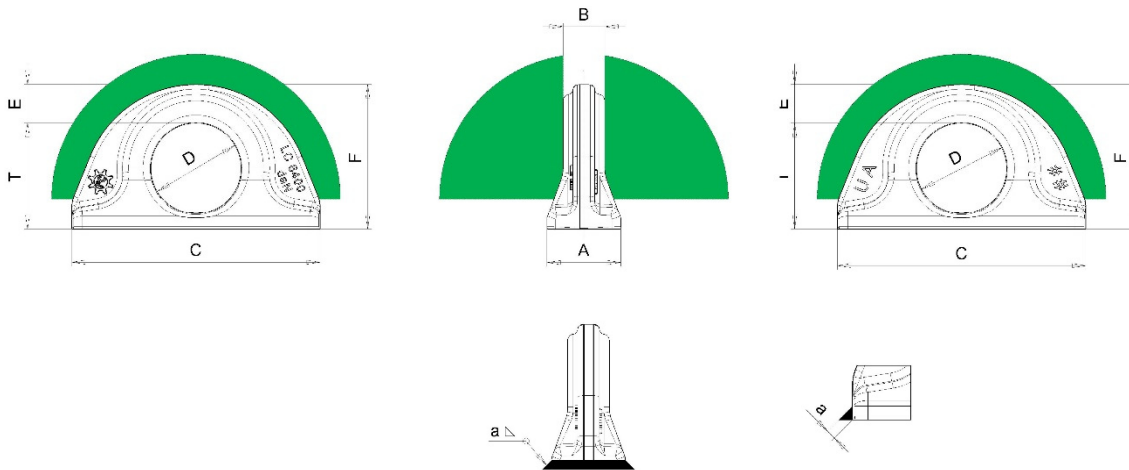
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Measurement table of the UAs



Item WLL / LC	A	B	C	D	E	F	T	Weight in kg
UA WLL 0.8T UA LC1.600daN								
UA WLL 1.6T UA LC3.200daN	30	9	100.5	35	16	57.5	41.5	0.5
UA WLL 3.2T UA LC6.400daN	41	12	137.6	50	21	80.3	59.3	1.2
UA WLL 5T UA LC10.000daN								
UA WLL 10T UA LC20.000daN								
UA WLL 20T UA LC40.000daN								
UA WLL 31.5T UA LC63.000daN								

Dimensions A -T in mm + corresponding forging tolerance!
The green areas indicate the possible uses of the UA in the direction of pull.

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Welding seam details

Item	Size fillet weld	Length	Volume in cm ³
UA WLL 0.8T UA LC1.600daN	a=3		
UA WLL 1.6T UA LC3.200daN	a=4	270mm	2.16
UA WLL 3.2T UA LC6.400daN	a=6	360mm	6.48
UA WLL 5T UA LC10.000daN	a=7		
UA WLL 10T UA LC20.000daN	a=8		
UA WLL 20T UA LC40.000daN	a=12		
UA WLL 31.5T UA LC63.000daN	a=15		

Welding:

- Welding may only be carried out by certified manual welders according to DIN EN ISO 9606-1.
- The material of the component is 1.6510
- At the beginning of welding in combination with Castolin CastoMag 45267, the component 0.8T to 3.2T must be preheated to at least 50 degrees up to a maximum of 100 degrees Celsius. UAs from 5T to 31.5T must be preheated to at least 150 degrees up to a maximum of 200 degrees Celsius. (The degree indicated applies to the temperature at the base). If possible, carry out welding at room temperature of 20 degrees. After the welding process, the components must be protected from draughts.
- It is recommended to tack the UA panel first. The seam is made starting from the centre of the plate. The fillet weld must be welded continuously to the base plate of the UA.
- The weld metal is to be inserted into the full cross-section. (see dimension: height of the base plate)
- Seam transitions are to be executed notch-free.
- Before applying the cover seam, slag or impurities are to be removed.

After cleaning the weld, a visual inspection of the weld must be carried out for cracks, notches and inclusions. In case of doubt, a surface crack test must be carried out.

Castolin CastoMag 45267 is a recommendation, but can be replaced by an equivalent filler metal.

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Welding processes + additives for Europe, the USA, Canada for structural steels, NiMnCrMo alloyed steels:

MAG / MIG	EN ISO 16834-A e.g. Castolin CastoMag 45267	Suitable for use of operating temperatures from -40 to 350 degrees
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LOAD CAPACITY FOR TEMPERATURE APPLICATIONS:

The specified load-bearing capacities of the UAs apply at operating temperatures from minus 40 to plus 200 degrees Celsius without deduction. From 200 to 300 degrees, the load capacity is reduced by 10%, at temperatures from 300 to 400 degrees the load capacity is reduced by 25%, above 400° use is not permitted.

Inspection and maintenance:

The UAs must be inspected by an expert after assembly and at least once a year. Before use, e.g. by the sling, the UAs must be inspected for cracks, deformations, severe corrosion. List of possible inspection criteria:

- Completeness of the UA
- Observe the load capacity specification
- Immediate ban on use in case of cracks on the component or the weld seam
- Immediate ban on use if the component is damaged. The current test regulations apply
- Immediate ban on use in case of severe corrosion
- Immediate ban on use in case of a cross-sectional change of $> = 10\%$ (see dimension table of the parts).

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