

## Operating instructions for ring with screw-on sling Status July 2021

### General principles of use:

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 who are in the danger zone of lifting operations. These operating instructions contain those aspects relating to the safe use combined with proven handling of the lifting points. Before using the lifting points, the persons in charge must be instructed by technical experts. Lifting points 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 lifting points on the load must be such that a flat supporting surface is suitable for absorbing the expected force application.

The lifting points must 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) are created which endanger or hinder the sling or the transport.

that inadmissible stress, e.g. due to off-centre load application and thus uneven load distribution, are avoided, taking into account the centre of gravity (EN 818-6).

that the sling is not deflected by other construction parts and that damage, e.g. caused by sharp edges, is excluded.

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

The lifting point must not be turned under load or used to turn the load.

Load bars must be adjusted in the direction of pull and move freely and must not rest on edges or on the sling.

### Important details for assembly

- The minimum quality of the hexagon head screws to be used is 10.9 and these must be crack-tested.
- It is prohibited to use non-metric threads.
- If the screws are secured with nuts, it is necessary that these are also at least quality class 10 and crack-tested.
- The screws used must be tightened with a spanner until they are flush with the support surface.
- The respective thread size can be taken from the table.
- For through holes, the diameter must correspond to the thread dimension of the screw +1 mm.
- For blind holes, the thread depth must be at least 1.1 times the screw-in length.
- As minimum screw length, we recommend 1.5 to 2.5 times the thread size, depending on the material of the load (e.g. M20 (aluminium)->> 20 mm x 2 = 40 mm).

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### Maximum load weight "G" with different types of lifting types with screw-on sling

Lifting 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	1.12	1.12	2.24	2.24	1.5	1.12	2.36	1.6	1.12
Load capacity in T	2	2	4	4	2.8	2	4	3	2
Load capacity in T	3.15	3.15	6.3	6.3	4.25	3.15	6.3	4.75	3.15
Load capacity in T	5.3	5.3	10.6	10.6	7.1	5.3	11.2	8	5.3
Load capacity in T	8	8	16	16	11.2	8	16	12	8
Load capacity in T	15	15	30	30	21.2	15	31.5	22.4	15

Please note: When lashing, the figures shown on the component in daN apply in each case.

### Load-bearing capacity or changes in temperature applications

The specified load-bearing capacities of the lifting points apply to operating temperatures from minus 20 to plus 100 degrees.

In case of application and use in other (higher or lower) temperature ranges, appropriate tests must be carried out beforehand. The load-bearing capacity must therefore be recalculated.

### Inspection and maintenance

Lifting points must be inspected by an expert after installation and at least once a year. Before use, e.g. by the slinger, lifting points must be visually inspected for cracks, deformations, severe corrosion.

#### Inspection and maintenance:

Lifting points must be inspected by a technical expert after installation and at least twice a year. Before use, e.g. by the slinger, lifting points must be inspected for cracks, deformations or severe corrosion. A list of possible inspection criteria:

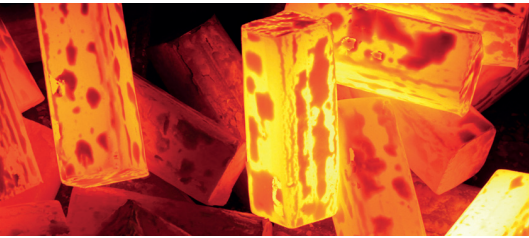
- Completeness of the lifting point
- Observe the load capacity specification
- Immediate ban on use in case of tears
- Immediate ban on use in case of severe corrosion
- Immediate ban on use in case of damage to the bracket link or the bracket. The current test regulations apply.

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**Screws - minimum quality 10.9 - 100% crack-tested - for ring with screw-on sling**

Load capacity in kg Lashing capacity in daN	Screw mm
1.120kg / 2.240daN	M14
3.150kg / 6300daN	M20
5.300kg / 10.600daN	M24
8.000kg / 16.000daN	M28

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