



User information

Chain slings grade 6-8-10-12

The following information does not claim to be exhaustive. Further information on the use of slings and load suspension equipment should be taken from the relevant employers' insurance association regulations and state regulations.

Intended use:
for anchoring and lifting loads only

The original documents are those in German.

Versions in other languages have been translated from the German original.

1.) Improper use

of chain slings poses a risk to people and property. People in close proximity to the load are at particular risk. Beware of suspended loads.



Only use different chain grades and chains from different manufacturers following consultation with the respective manufacturer.

Assembly must only be conducted by only suitably qualified persons!

Chains, chain components and lanyards **must** have manufacturer markings.

Use is solely permitted by trained and instructed persons and under consideration of the following standards and guidelines: DIN 685-5, DIN EN 818-1/2/4/6, DIN EN 1677-1/2/3/4, DIN EN ISO 12100, DGUV rule 100-500 section 2.8, DGUV rule 109-004(ZH1/323), DGUV regulation 52, DGUV information 209-013 13(ZH1/103a), PAS 1061, Industrial Health and Safety Ordinance (BetrSichV).

2.) Before every use:

- a.) Conduct a careful visual inspection of the chain slings to check for damage and a safe usage condition.
- b.) Read the user information and comply with this during use.

3.) The product must not be used in the event of:

- a.) Mechanical damage due to crushing, indentations, crack formation or breakage.
- b.) Deformation caused by bending, twisting, or impressions.
- c.) Extension of the entire chain or a chain link interior by 5% or more.
- d.) Reduction of the nominal thickness at any point by more than 10%.
- e.) Damage to securing devices and cross-section reductions of 5% or more in the case of eyelets, bolts and brackets on shackles and hooks.
- f.) Bluish discolouration of the grade 8 chain due to heat (welding).
- g.) Expansion of the hook by more than 10%.
- h.) Faulty hook locking mechanism.

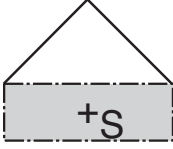
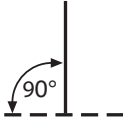
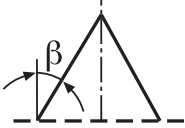
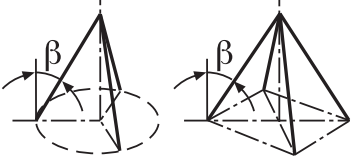


4.) Determine the load weight and centre of gravity:

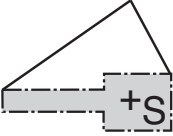
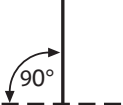
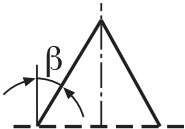
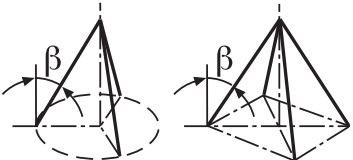
- a.) The working load limit (WLL) of the chain sling must not be exceeded (**see the table on page 5**).
- b.) The angle of inclination of each leg must not exceed 60° (**Fig. 1**).
- c.) Hang unused chain legs in the suspension head.

Fig. 1

Symmetrical load

	1 leg	2 legs		3 and 4 legs	
					
Angle of inclin. β	0°	0°-45°	45°-60°	0°-45°	45°-60°
Load factor	1	1.4	1.0	2.1	1.5

Non-symmetrical load

	1 leg	2 leg		3 and 4 leg	
					
Angle of inclin. β	0°	0°-45°	45°-60°	0°-45°	45°-60°
Load factor	1	1	1	1.5	1

- 5.) **Anchorage points:** only use suitable anchorage points of a sufficient size.
- 6.) **Shortening:** shortening is only permitted using shortening hooks or claws. **Comply with DIN 5692.** When using shortening hooks or claws, always ensure there is a consistent line of force.
Improper use can lead to falling loads.
- 7.) **Identification tags:** chain slings without identification tags or with illegible identification tags must not be used.

8.) Safety instructions:

- a.) Untwist twisted chains before lifting.
- b.) Do not knot chains or move them over sharp edges (**Fig. 2**).
(Chain radius less than the chain's nominal thickness). Protect the chain using an edge guard or buffers (**Fig. 3**).
- c.) Attached loads must not be welded **without** an isolating connection!
- d.) Suspension rings must be freely movable on the crane hook (**Fig. 4**).
- e.) Strain must not be placed on the narrow ends of hooks.
- f.) The load must only be hoisted from the base of the hook and in the direction of the load.
- g.) Chain components must not be subjected to bending stresses.
- h.) Basket hitch slinging is only permitted if the chains are unable to slip (**Fig. 5**).
- i.) Do not grasp under the strapping.

Fig. 2

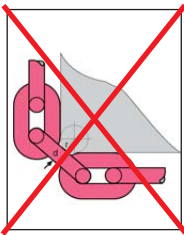


Fig. 3

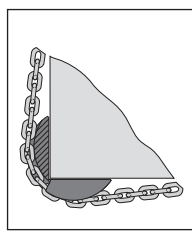


Fig. 4

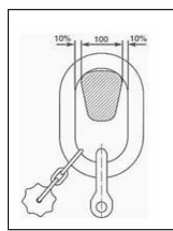
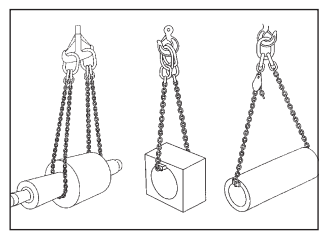


Fig. 5



9.) Deviations from normal operating conditions

require reductions to the working load limit, for example, in the case of

- a.) Non-symmetrical (uneven) loads (reduced load lifting factors).
- b.) Using a choker hitch (20% reduction in the working load limit), **Fig. 6**.
- c.) Use as a collar chain (**Fig. 7**).

(Extract from DIN EN 818-6)

As a general rule, the chain radius should be $>2x$ the chain diameter.

When hoisting a load with a chain directly on the support arms, the use of a support arm diameter of $>3x$ the chain pitch is recommended.

If using a support arm diameter that is smaller than that recommended above, the working load limit must be reduced by 50%.

Fig. 6 Lifting factor = 0.8

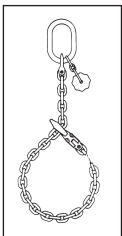
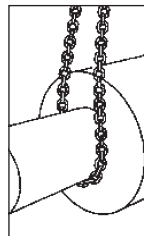


Fig. 7



d.) Use outside the following temperatures:

WLL	100%	75%	50%
Grade 6*	-40°C to +250°C	Over 250°C to 350°C	Over 350°C to 450°C
WLL	100%	90%	60%
Grade 8	-40°C to +200°C	Over 200°C to 300°C	Over 300°C to 400°C
WLL	100%	90%	60%
Grade 10	-40°C to +200°C	Over 200°C to 300°C	Over 300°C to 380°C
Grade 12 ICE	-60°C to +200°C	Over 200°C to 250°C	Over 250°C to 300°C

*Grade 6 = stainless steel

- e.) On usage with more than 20,000 load changes and high dynamic stresses, increase by at least one chain nominal thickness (consultation with Carl Stahl).
- f.) If chain slings are used for lifting magnets (battery or electrical magnets), one nominal size larger must be used for safety reasons.

See the user information on lifting magnets.

10.) Ban on the use of chain slings

The use of chain slings with grades 8, 10 and 12 is prohibited in acids, lyes, pickling plants, galvanising plants and other similar (corrosive) plants due to non-visible pitting corrosion in the joints as well as embrittlement or the formation of cracks (hydrogen embrittlement).

For uses in such areas, use grade 6 chain slings made from stainless steel.

Please note the lower nominal working load limits for grade 6 chain slings. These can also be used in explosion-proof environments.

11.) Chain record card (supplied with the delivery)



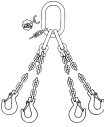

The chain record card shows the product specific information of the chain sling. The information includes the initial registration, inspection dates and repair and maintenance activities. In the case of repairs, the reason for the measure must be specified. The entries in the chain record card provide information about the user's ongoing monitoring measures during the use of the chain slings.

This is much needed by the user as evidence for the industrial inspectorate/employers' insurance association to demonstrate compliance with occupational health and safety/accident prevention measures (EU Machinery Directive).

12.) Chain sling inspections and repair

- Only to be conducted by qualified persons
- After one year at most
- Chains must be inspected at least every 3 years to ensure they are free from cracks
- Implementation at or by Carl Stahl

In the case of the continual use of chain slings, the inspection intervals must be shortened in accordance with the workplace safety ordinance!

WLL in t								
Execution		1 leg	2 leg		3 and 4 leg		mounted	
Inclination angle		0°	0 - 45°	45 - 60°	0 - 45°	45 - 60°	0 - 45°	45 - 60°
Load factor		1	1.4	1	2.1	1.5	1.1	0.8
Grade	Chain ø							
GK - 8	6	1.12	1.60	1.12	2.36	1.68	1.30	0.90
GK - 8	8	2.00	2.80	2.00	4.25	3.00	2.20	1.60
GK - 8	10	3.15	4.25	3.15	6.70	4.75	3.60	2.60
GK - 8	13	5.30	7.50	5.30	11.20	8.00	5.70	4.00
GK - 8	16	8.00	11.20	8.00	17.00	11.80	9.00	6.40
GK - 10	4	0.63	0.88	0.63	1.32	0.95	0.69	0.50
GK - 10	6	1.50	2.10	1.50	3.15	2.25	1.65	1.20
GK - 10	8	2.50	3.50	2.50	5.25	3.75	2.75	2.00
GK - 10	10	4.00	5.60	4.00	8.40	6.00	4.40	3.20
GK - 10	13	6.70	9.50	6.70	14.00	10.00	7.50	5.30
GK - 10	16	10.00	14.00	10.00	21.00	15.00	11.00	8.00
ICE - 12	4	0.80	1.12	0.80	1.70	1.18	0.88	0.64
ICE - 12	6	1.80	2.50	1.80	3.75	2.70	2.00	1.44
ICE - 12	8	3.00	4.25	3.00	6.30	4.50	3.30	2.40
ICE - 12	10	5.00	7.10	5.00	10.60	7.50	5.50	4.00
ICE - 12	13	8.00	11.20	8.00	17.00	11.80	8.80	6.40
ICE - 12	16	12.50	17.00	12.50	26.50	19.00	14.00	10.00
rust-proof steel								
Execution		1 leg	2 leg		3 and 4 leg		mounted	
Inclination angle		0°	0 - 45°	0°	0 - 45°	45 - 60°	0 - 45°	45 - 60°
Load factor		1	1.4	1	2.1	1.5	1.1	0.8
Grade	Chain ø							
GK - 6	4	0.35	0.50	0.35	0.75	0.55	0.50	0.4
GK - 6	6	0.90	1.25	0.90	1.90	1.35	1.25	1
GK - 6	8	1.50	2.10	1.50	3.15	2.25	2.10	1.65
GK - 6	10	2.40	3.35	2.40	5.00	3.60	3.35	2.7
GK - 6	13	3.85	5.40	3.85	8.00	5.70	5.40	4.3



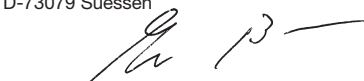
Declaration of Conformity

According to EC machine directive 2006/42/EC, Appendix IIA

We hereby declare that the machine indicated below, in its design and construction and in the version that we market, conforms to the fundamental safety and health requirements of EC directive 2006/42/EC and the harmonized and national standards and the technical specifications below.

Any modification to the machine that the manufacturer have not authorized voids this declaration.

It also becomes invalid if the machine/equipment is used contrary to the safe use instructions and if the regular inspections according to BetrSichV and DGUV Regel 100-500 are not carried out.

Description	Chain Slings
Manufacturer	Carl Stahl GmbH Tobelstr. 2 D-73079 Suessen
Applied harmonized Standards	DIN EN ISO 12100 DIN EN 1677-1/2/3/4 DIN EN 818-1/2/3/4
Applied national Standards and technical Specifications	DGUV Regel 100-500, DIN 15429, DIN 5688-3, DIN 5692, DIN 685, PAS 1061 BetrSichV
For the compilation of the declaration of conformity authorized person	Michael Baumann Carl Stahl GmbH D-73079 Suessen 
Suessen, 18.09.2014	<hr/> <p>Michael Baumann - CE-Agent Name, Function and Sign of Agent</p>

Carl Stahl GmbH

Tobelstr. 2

D-73079 Suessen

www.carlstahl-lifting.com

