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# Chain slings



# User instructions

Please read our general user instructions for load carrying equipment and slings

Lifting with chain slings may only be carried out by a professionally trained rigger. Correct use ensures that chain slings provide the highest degree of safety, prevent damage to people and property and ensure maximum service life.

## Changes and modifications

The shape and design of chain slings must not be changed or modified in any way by bending, welding, grinding, disassembly, or removal of safety components such as locks, safety pins and latches. Surface coating treatments such as hot-dip galvanising or electro-galvanising must not be applied. The use of alkaline solutions for stripping may be harmful and should only be carried out after consulting with our technical staff.

## Limitation of use



### Temperature

Load capacity may be adversely affected at high temperatures depending on the chain quality class. See page 17.

This only applies until the chain has cooled down to room temperature.

Equipment should not be used in temperatures above or below permissible values.



### Impact load

Specified loading capacities assume impact free loading. Full load capacity can be used when minor impacts occur, such as those caused by lifting, lowering or moving the load on a crane. For medium impact such as load chain slipping when picking up a load, the capacity must be reduced by 30% (factor 0.7). Strong impacts such as a falling load must be avoided.



### Edge load

Load capacities specified are designed for loads on the chain when it is pulled in a straight line. Allowing the chain to come into contact with or fed over an edge or obstruction risks bending, damage, or breakage. The minimum radius of an edge (R) over which the chain is fed must be twice (x2) the chain's diameter to lift safely at full capacity.

In such cases the load capacity must be reduced as follows:

R = larger than x1 or x2 chain diameter ( $2 \times D > R > 1 \times D$ )

→ load reduction of 30% (factor 0.7)

R = or smaller than chain diameter D

→ load reduction of 50% (factor 0.5)



### Vibration

Chain slings and accessories are designed in line with regulations for 20,000 cycles. In the case of highly dynamic loads there is the risk that the chain or a component could be damaged. This can be overcome by reducing the workload by using larger nominal thickness or size.



### Dangerous conditions

Specified loading capacities assume that the equipment is operating in a safe manner and environment. However lifting personnel or dangerous loads such as liquid metals, toxic substances, radioactive materials and such require assessing and approval by an expert, and the load capacity may be lowered accordingly, or special precautions put in place.

Chain slings for personnel working platforms must comply with EN 14502-1.



### Chemicals

Chain slings exposed to acids, corrosive materials or their gases must be taken out of operation and sent to us for assessment.

## User information

- Only undamaged chain slings with legible load capacity tags may be used. Users are advised to check for any damage or defects before every use.
- Chain slings with broken, clearly damaged or deformed links or accessories, or which have been subject to overload or any other potentially damaging use, must be immediately taken out of use until fully inspected and any repairs required have been completed.
- Make sure when selecting chain slings that they can safely handle the specified load without undue movement.

# Chain slings

## ▶ User instructions

- Chains must not be twisted or knotted.

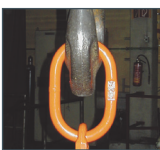
- Loads must always be placed on the hook base, not on its tip. For multi-strand chain slings the hook tip must point outwards after hooking and be free to move.



- Never hang chain links from the hook tip.



- The lifting ring must have sufficient space in the crane hook to move freely.



- The load must not be placed directly onto the chain sling.

- Strands of the chain sling that are not in use should be re-suspended in the lifting ring to reduce the risk of being caught accidentally while lifting.

- If the chain slings are used in a noose or are slung several times the windings must be close to each other but not cross.



- Do not force chains that are jammed or blocked.

- When using shortening sections that are integrated in a chain strand or connecting links such as fixed hook type XKW or parallel hook type PW, PSW or KPW, it is essential to ensure that only the associated chain strand is hooked into the shortening component. If not all strands are shortened, this can lead to dangerous overloading as shown below:



**CORRECT USE**

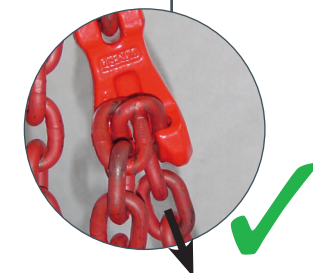
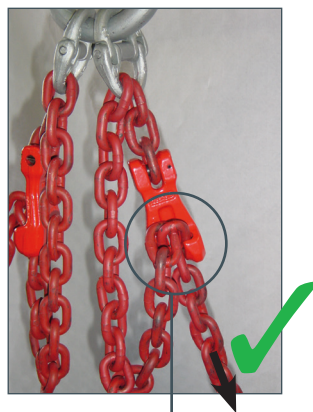


**INCORRECT USE**

*Incorrect use of a chain strand; the strand was suspended in the free shortening component of the non-shortened strand. The overlying connecting element must take the load of both strands which means it is overloaded.*

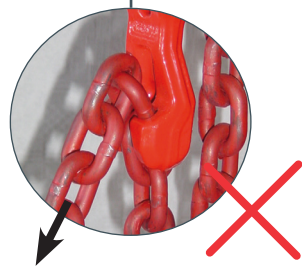
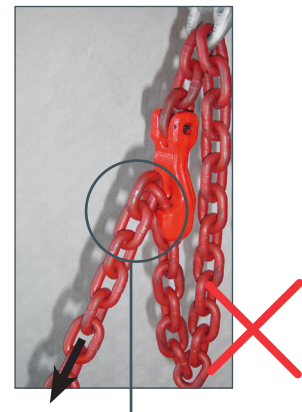
For all chain shortening claws of type HVSCH or similar still in use, make sure that the chain is correctly hooked in. Incorrect suspension as illustrated below (right hand side image) will cause the HVSCH or the chain to break with the risk of accidentally dropping the load.

Claws of this type have not been offered by the company since 2003 and are no longer provided for the **winner** chain programme.



**CORRECT USE**

*The loaded strand comes from the RIGHT LOWER side of the hook. The suspended chain link is held in the claw by the loaded strand and no chain link is subject to bending.*



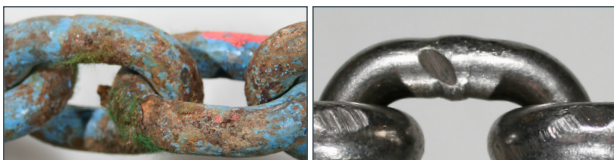
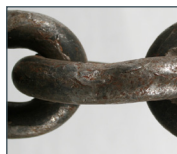
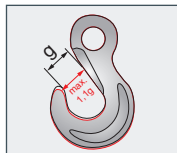
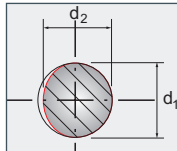
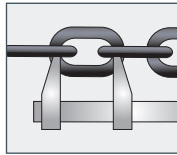
**INCORRECT USE**

*The loaded strand comes from the INCORRECT UPPER side of the hook. The suspended chain link is bent over the edge and broken off or pulled out of the claw.*

## Rejection criteria

A chain sling should no longer be used if:

- There is a chain link or accessory on the chain that has stretched by more than 5%.
- A chain section is jammed.
- The actual member thickness at any point falls below the nominal thickness by more than 10% (the average value of two measurements at right angles to each other, see d1 and d2).
- The hook mouth has been enlarged by more than 10%.
- The label is missing or can no longer be read.
- Chain links are bent or twisted
- Discolouration has occurred from heat or there are signs of subsequent welds or weld spatter ( which are not easy to remove and leave traces of discolouration)
- Cuts, nicks, grooves, cracks or excessive corrosion (such as clearly visible rust) or similar faults.



Reuse is then only permitted after repair has taken place.

Ongoing records are to be kept of the inspections carried out.

## Maintenance, testing and repair

- Regular inspections must be carried out at least once a year or according to section 8(13) AMVO, or more frequently in heavy use applications, by a professional examiner. Chain slings that are often fully loaded or exposed to heat or chemicals must be examined at least every six months.
- After an exceptional event such a load falling, collision, heat exposure or other risks that could have safety implications, slings must be inspected according to AMVO section 9. (1) to check the condition of the equipment.
- Records must be kept concerning inspections and repair work carried out. During inspections the condition of components concerning damage, wear, corrosion or other potential defects must be assessed as a priority. According to ÖNORM M 9605 -1 in every secondary inspection a load test must be carried out with 1.5 times the load capacity. The load test can be replaced by a crack test procedure (magnifying or dye penetrating procedures.)
- The sling must be cleaned before testing. The cleaning process must not cause any chemical damage (no acids) or unapproved heating through burning off, removing too much, from example from sandblasting. By providing us with clean chains we can save inspection costs. All inspections are to be arranged by the operator.
- Repairs and overhauls should only be carried out by trained personnel using original replacement parts.
- Should a chain show any defect it can be sent to us for assessment and repair; or be tested and repaired by our mobile lifting technology unit on your premises.

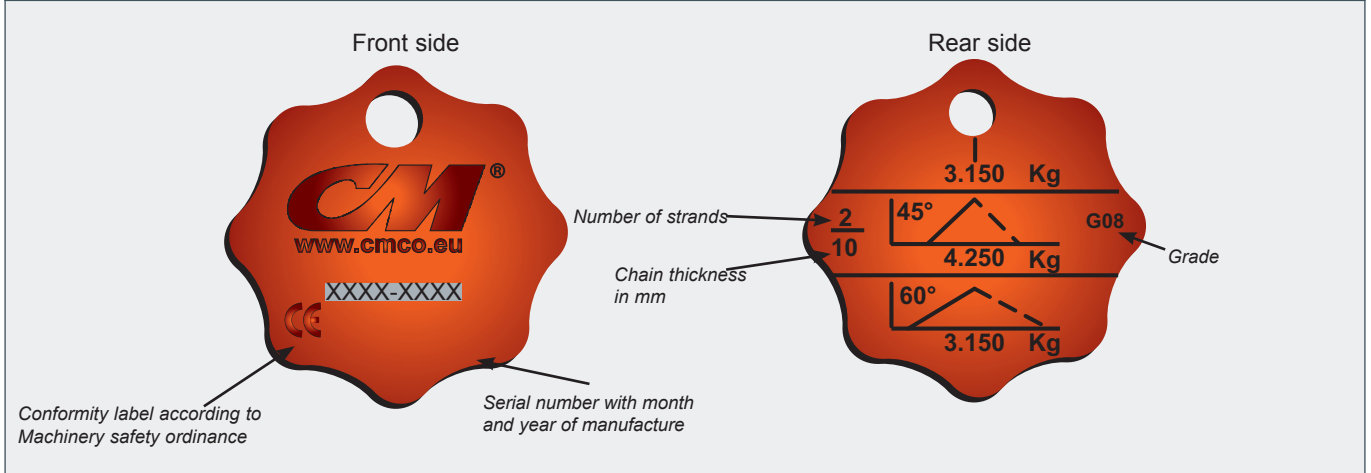
# Chain slings

## ► User instructions

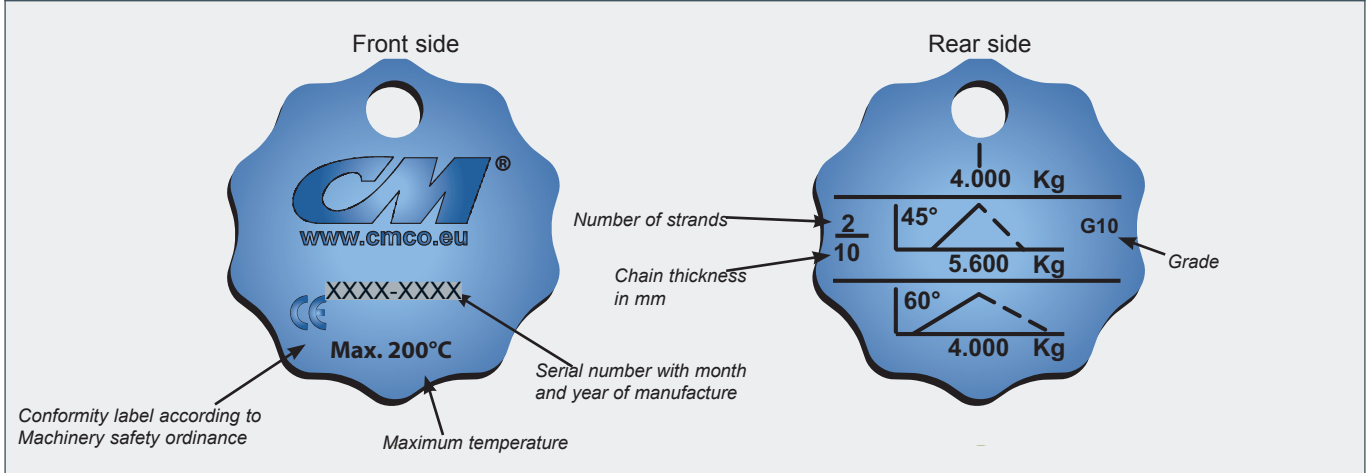
### Labelling (load tag)

We deliver our chain slings with a load capacity tag with sequential test number, a conformity and factory certification and the necessary user instructions – for every single unit!

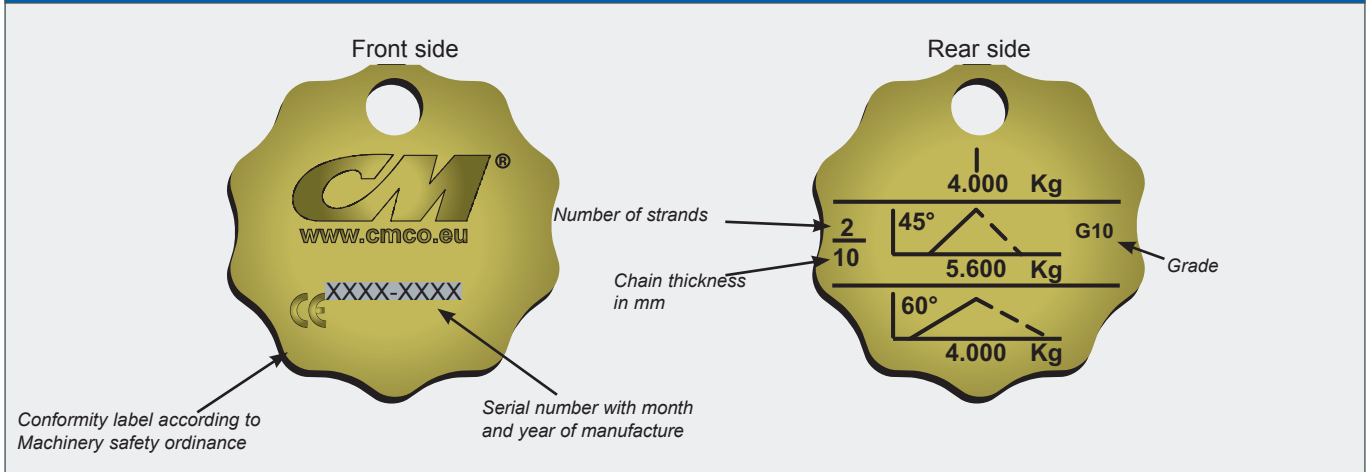
#### Grade 8



#### Grade 10 - 200 °C



#### Grade 10 - 400 °C



## Characteristics

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### Grade 8

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- **Chain quality:**  
Chain slings are delivered according to EN 848 Part 1, 2 and 4
- **Working load:** 200 N/mm<sup>2</sup>
- **Test load:** 500 N/mm<sup>2</sup>  
that corresponds to 2.5 times the load capacity
- **Failure stress:** 800 N/mm<sup>2</sup>  
that corresponds to 4 times the load capacity
- **Elongation at break:** descaled
- **Deflection:** 0.8 x d
- **Usage temperature:** -40 °C - 400 °C  
(note corresponding reduction of the load capacity at high temperatures)
- **Grade stamping:**  
Chain: is stamped every 300 mm in compliance with standard with the manufacturer's mark and the grade stamp.

### Grade 10 200 °C

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- **Chain quality:**  
corresponds to EN 818-2 with higher load capacity (but permissible operating temperature of max. 200°) and Machinery Directive 2006/42/EC
- **Working load:** 250 N/mm<sup>2</sup>
- **Test load:** 625 N/mm<sup>2</sup>  
that corresponds to 2.5 times the load capacity
- **Failure stress:** 1,000 N/mm<sup>2</sup>  
that corresponds to 4 times the load capacity
- **Breaking elongation:** min. 20%
- **Deflection according to EN 818-2or PAS 1061:**  
*0.8 x nominal diameter*
- **Usage temperature:** -20 °C - 200 °C  
(note corresponding reduction of the load capacity at high temperatures)
- **Grade stamping:**  
Chain: is stamped every 300 mm in compliance with standard with the manufacturer's mark and the grade stamp.

### Grade 10 380 °C

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- **Chain quality:**  
corresponds to EN 818-2 with higher load capacity or PAS 1061 up to 16 mm and Machinery Directive 2006/42/EC
- **Working load:** 250 N/mm<sup>2</sup>
- **Test load:** 625 N/mm<sup>2</sup>  
that corresponds to 2.5 times the load capacity
- **Breaking tension** 1,000 N/mm<sup>2</sup>  
that corresponds to 4 times the load capacity
- **Breaking elongation:** min. 20%
- **Deflection according to EN 818-2or PAS 1061:**  
*0.8 x nominal diameter*
- **Usage temperature:** -40 °C - 380 °C  
(note corresponding reduction of the load capacity at high temperatures)
- **Grade stamp:**  
chain: 8W at clearance of approx. 300 mm up to size 16 (above that 900 mm) and W on each link back  
Components: 10
- **Manufacturer name or symbol:**  
PW and/or pewag and/or H16
- **Compatibility:**  
Winner chains and components should only be assembled by trained personnel using grade 8 components which comply with EN 818 and EN 1766 standards. They may be combined with competitors' G10 chains and components only provided they are also compatible with EN 818 and EN 1766 products.  
For replacement parts such as bolts, safety pins and covers, use only pewag products. Note that the load capacity of the total system is based on the weakest part.

# Chain slings

## ► User instructions

### Load capacity table



The load capacities specified in tonnes are maximum values of the different lifting types according to the unit method. In the event of load complications such as asymmetry, temperature, edges or impact loads, see page 17

Safety factor	1 strand		2 strands				3 and 4 strands		Chain slings	Loop chains	
<b>4</b>											
Inclination angle	0°	0°	up to 45°	46° - 60°	up to 45°	46° - 60°	up to 45°	46° - 60°	up to 45°	up to 45°	up to 45°
Load factor	1	0.8	1.4	1	1.12	0.8	2.1	1.5	1.6	1.4	2.1
Code	D	Load capacity (t)									

#### Chain sling grade 10

CM10C-05	5	1.00	0.80	1.40	1.00	1.12	0.80	2.00	1.50	1.60	1.40	2.00
CM10C-06	6	1.40	1.12	2.00	1.40	1.60	1.12	3.00	2.12	2.24	2.00	3.00
CM10C-07	7	1.90	1.50	2.65	1.90	2.12	1.50	4.00	2.80	3.00	2.65	4.00
CM10C-08	8	2.50	2.00	3.55	2.50	2.80	2.00	5.30	3.75	4.00	3.55	5.30
CM10C-10	10	4.00	3.15	5.60	4.00	4.25	3.15	8.00	6.00	6.30	5.60	8.00
CM10C-13	13	6.70	5.30	9.50	6.70	7.50	5.30	14.00	10.00	10.60	9.50	14.00
CM10C-16	16	10.00	8.00	14.00	10.00	11.20	8.00	21.20	15.00	16.00	14.00	21.20
CM10C-20	19	14.00	11.20	20.00	14.00	16.00	11.20	30.00	21.20	22.40	20.00	30.00
CM10C-22	22	19.00	15.00	26.50	19.00	21.20	15.00	40.00	28.00	30.00	26.50	40.00
CM10C-26	26	26.50	21.20	37.50	26.50	30.00	21.20	56.00	40.00	42.50	37.50	56.00
CM10C-32	32	40.00	31.50	56.00	40.00	45.00	31.50	85.00	60.00	63.00	56.00	85.00

#### Chain slings grade 8

CM08C-06	6	1.12	0.90	1.60	1.12	1.25	0.90	2.36	1.70	1.80	1.60	2.36
CM08C-07	7	1.50	1.20	2.12	1.50	1.70	1.20	3.15	2.24	2.50	2.12	3.15
CM08C-08	8	2.00	1.60	2.80	2.00	2.24	1.60	4.25	3.00	3.15	2.80	4.25
CM08C-10	10	3.15	2.50	4.25	3.15	3.55	2.50	6.70	4.75	5.00	4.25	6.70
CM08C-13	13	5.30	4.25	7.50	5.30	5.90	4.25	11.20	8.00	8.50	7.50	11.20
CM08C-16	16	8.00	6.30	11.20	8.00	9.00	6.30	17.00	11.80	12.50	11.20	17.00
CM08C-20	19	11.20	8.95	16.00	11.20	12.50	8.95	23.60	17.00	18.00	16.00	23.60
CM08C-22	22	15.00	12.00	21.20	15.00	17.00	12.00	31.50	22.40	23.60	21.20	31.50
CM08C-26	26	21.20	16.95	30.00	21.20	23.70	16.95	45.00	31.50	30.50	30.00	45.00
CM08C-32	32	31.50	25.20	45.00	31.50	35.20	25.20	67.00	47.50	50.00	45.00	67.00

## Reduction factors



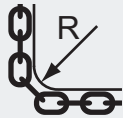
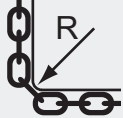
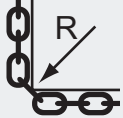
If the chains are subject to load obstacles (e.g. temperature too high, asymmetry, edge loading, impacts ...), the maximum loading capacities in the loading table are to be reduced. The load factors below are to be used for this. Please also note the details in the user information.

Temperature load	Load factor		
Usage temperature	Grade 8	Grade 10 200 °C	Grade 10 380 °C
-40 °C to -20 °C	without deduction	not permitted	without deduction
-20 °C to +200 °C	without deduction	without deduction	without deduction
+200 °C to +300 °C	0.90	not permitted	0.90
+300 °C to +380 °C	0.75	not permitted	0.75
+380 °C to +400 °C	0.75	not permitted	not permitted
over +400 °C	not permitted	not permitted	not permitted

<b>Asymmetrical load distribution</b>	The load capacity is to be reduced by at least 1 chain strand. In case of doubt, assume only 1 strand is being loaded, e.g.: classify 3 or 4-leg slings as 2-leg slings.		
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<b>Edge load</b>			
	R = larger than 2x chain diameter	R = larger than chain diameter	R = chain diameter or smaller
<b>Load factor</b>	1	0.7	0.5

<b>Impact load</b>	slight impacts	medium impacts	strong impacts
<b>Load factor</b>	1	0.7	not permitted

## Designation

# CS08-400-2-08-300-ML-CSH-CGH

