

## **Cranes, Hoists & Slings – Appendix B: Alloy Steel Chain Slings**

**Sling Identification:** Alloy steel chain slings\* shall have permanently affixed durable identification stating size, grade, rated capacity, and reach.

\*Note: OR OSHA prohibits the use of proof coil slings or high test carbon steel chain slings for lifting.

### **Attachments:**

- Hooks, rings, oblong links, pear shaped links, welded or mechanical coupling links or other attachments shall have a rated capacity at least equal to that of the alloy steel chain with which they are used or the sling shall not be used in excess of the rated capacity of the weakest component.
- Makeshift links or fasteners formed from bolts or rods, or other such attachments, shall not be used.

### **Inspections:**

- In addition to the inspection requirements in Section IV. D. of this Plan, a routine thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis, to be determined on the basis of (A) frequency of sling use; (B) severity of service conditions; (C) nature of lifts being made; and (D) experience gained on the service life of slings used in similar circumstances. Such inspections shall be at intervals no greater than once every 12 months.
- The employer shall make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected, and shall make such record available for examination.
- The thorough inspection of alloy steel chain slings shall be performed by a competent person designated by the employer, and shall include a thorough inspection for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling shall be immediately removed from service.

**Proof testing:** The employer shall ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, shall be proof tested by the sling manufacturer or equivalent entity, in accordance with paragraph 5.2 of the American Society of Testing and Materials Specification A391-65, which is incorporated by reference as specified in 1910.6 (ANSI G61.1-1968). The employer shall retain a certificate of the proof test and shall make it available for examination.

**Safe Operating Temperatures:** Employers must permanently remove an alloy steel-chain sling from service if it is heated above 1,000 °F. When exposed to service temperatures in excess of 600 °F, employers must reduce the maximum working-load

limits permitted by the chain manufacturer in accordance with the chain or sling manufacturer's recommendations.

**Repairing and Reconditioning Alloy Steel Chain Slings:**

- Worn or damaged alloy steel chain slings or attachments shall not be used until repaired. When welding or heat testing is performed, slings shall not be used unless repaired, reconditioned and proof tested by the sling manufacturer or an equivalent entity.
- Mechanical coupling links or low carbon steel repair links shall not be used to repair broken lengths of chain.

**Effect of Wear:** If the chain size at any point of the link is less than that stated below, the employer must remove the chain from service:

<b>Maximum Allowable Chain Size at any Point of Link</b>	
<u>Chain Size (inches)</u>	<u>Minimum allowable chain size (inches)</u>
1/4	13/64
3/8	19/64
1/2	25/64
5/8	31/64
3/4	19/32
7/8	45/64
1	13/16
1 1/8	29/32
1 1/4	1
1 3/8	1 3/32
1 1/2	1 3/16
1 3/4	1 13/62

**Deformed Attachments:**

- Alloy steel chain slings with cracked or deformed master links, coupling links or other components shall be removed from service.
- Slings shall be removed from service if hooks are cracked, have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.