The general strength and working load limits of alloy steel chain are not altered appreciably by low atmospheric temperatures

Chain slings should preferably be purchased complete from the manufacturer and, whenever repairs are required, should be sent back to him

Hooks and attachments

As a general rule, hooks, rings, oblong links, pear-shaped links, coupling links, and other attachments should be made of the same, or equivalent, heat-treatable alloy steel as the chain itself In most cases, attachments will be installed on the chain by the chain manufacturer, who will then heat-treat and proof-test the assembly

If emergency conditions make it necessary for the user to replace an attachment, he should select the grade and size with extreme care High-strength, heat-treatable alloy connecting links of the same analysis type as that used by the chain manufacturer should be employed

Unalloyed carbon-steel hooks, repair links, rings, pear-shaped links, and other attachments should not be used Homemade or makeshift bolts, rods, shackles, hooks without safety catches, or other attachments should never be used

Standard items produced from alloy steel include sling hooks, grab hooks, foundry hooks, grab links, rings, oblong links, pear-shaped links, and repair links All such attachments used with the recommended chain size provide a safety factor equal to or greater than that of alloy chain itself Dimensional specifications for these attachments will vary somewhat with the individual manufacturer

Many injuries have resulted when employees have caught their fingers between the hook attachment and the load To prevent such injuries, handles can be attached to the assembly hook or end attachment To increase operating efficiency, handles are also frequently used on large hooks, master links, and other attachments

Handles should be welded to the attachment prior to heat treatment Welding heat-treated attachments is not recommended unless the *entire* attachment is heat-treated again *after* welding The weldments should be inspected critically for possible zones of high-stress concentration, caused by welding, that would lower the strength of the entire attachment

TABLE 26–K

MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

Chain size (in)	*Maximum allowable wear (in)*
1/4	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	11/64
1	3/16
1 1/8	7/32
1 1/4	1/4
1 3/8	9/32
1 1/2	5/16
1 3/4	11/32

Inspection

Most of the causes of chain failures can be detected before failure occurs if the proper inspection procedure is followed

A good inspection plan provides for two inspections, one daily by the personnel using the chain, and the other biannually or oftener by a trained man from the mechanical department The former should be able to detect those links and hooks which have become visibly unsafe because of overloading, faulty rigging, or other unsafe practices The latter should be an experienced person who has the authority to remove damaged assemblies from service for reconditioning or replacement

A link-by-link inspection should be made to detect the following

1 Bent links

2 Cracks in weld areas, in shoulders, or in any other section of link

3 Tranverse nicks and gouges

4 Corrosion pits

5 Elongation caused by stretching can only