

General Information

Definitions

RATED LOAD VALUE – The maximum recommended load that should be exerted on the item. The following terms are also used for the term Rated Load: “WLL,” “Working Load Limit,” and the “Resultant Safe Working Load.” All rated load values, unless noted otherwise, are for in-line pull with respect to the centerline of the item.

WORKING LOAD LIMIT – The “Working Load Limit” is the maximum load in pounds which should ever be applied to chain, when the chain is new or “in as new” condition, and when the load is uniformly applied in direct tension to a straight length of chain.

PROOF LOAD – The average load to which an item may be subjected before visual deformation occurs or a load that is applied in the performance of a proof test.

PROOF TEST – The “Proof Test” is a term designating the tensile test applied to new chain for the sole purpose of detecting injurious defects in the material or manufacture. It is the load in pounds which the chain has withstood under a test in which the load has been applied in direct tension to a straight length of chain.

MINIMUM ULTIMATE LOAD – The “Minimum Ultimate Load” is the minimum load at which new chain will break when tested by applying direct tension to a straight length of chain at a uniform rate of speed in a testing machine.

SHOCK LOAD – A resulting load from the rapid change of movement, such as impacting or jerking, of a static load. A Shock Load is generally significantly greater than the static load.

SAFETY FACTOR – An industry term denoting theoretical reserve capability. Usually computed by dividing the catalog stated ultimate load by the catalog stated working load limit and generally expressed as a ratio, for example 5 to 1.

ATTACHMENTS – Any attachments, such as hooks or links, should have a rated “Working Load Limit” at least equal to the chain with which it is used.

CAUTION – Only alloy chain should be used for overhead lifting applications.

It must be recognized that certain factors in the usage of chain and attachments can be abusive and lessen the load that the chain or attachments can withstand. Some examples are twisting of the chain, disfigurement, deterioration by straining, usage, weathering and corrosion, rapid application of load or jerking applying excessive loads, and sharp corners cutting action.

Due to the crushing effect Grab Hooks have upon chain, the design factor for all assemblies must be reduced by 20% with Grab Hook applications.

All ratings given in tons refer to short tons of 2,000 lbs.

Chain Inspection

INSPECTION AND REMOVAL FROM SERVICE PER ANSI B30.9

FREQUENT INSPECTION

Normal Service - Monthly

Severe Service - Daily to Monthly

Check chain and attachments for wear, nicks, cracks, breaks, gouges, stretch, bend, weld splatter, discoloration from excessive temperature, and throat openings of hooks.

1. Chain links and attachments should hinge freely to adjacent links.
2. Latches on hooks, if present, should hinge freely and seat properly without evidence of permanent distortion.

PERIODIC INSPECTION – INSPECTION RECORDS REQUIRED

Normal Service - Yearly

Severe Service - Monthly

This inspection shall include everything in a frequent inspection plus each link and end attachment shall be examined individually, taking care to expose inner link surfaces of the chain and chain attachments.

1. Worn links should not exceed values given in table 1 or recommended by the manufacturer.
2. Sharp transverse nicks and gouges should be rounded out by grinding and the depth of the grinding should not exceed values in Table 1.
3. Hooks should be inspected in accordance with ASME B30.10.
4. If present, latches on hooks should seat properly, rotate freely, and show no permanent distortion.
5. Chains use OSHA and ASME regulations and safety information.

Table 1

MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK	
Normal Chain or Coupling Link Cross Section (in.)	Maximum Allowable Wear Diameter (in.)
9/32	.037
3/8	.052
1/2	.069
5/8	.084
3/4	.105
7/8	.116
1	.137
1-1/4	.169

REFER TO ANSI B30.9 FOR FULL DETAILS

Note: Exposure to temperatures in excess of 400° (F) or 200° (c) reduce the Working Load Limit.

