

# SAFETY GUIDELINES

## General Safety Guidelines

Peerless Industrial Group, as a manufacturer of chain, can only control the specifications of our chain products in accordance with industry and governmental standards for chain manufacturing. It would be impossible for any warning to contain all of the possible misapplication associated with the use of Peerless Industrial Group products. Our warnings are intended to identify only those risks which are most common. The responsibility and understanding of the proper safe use and application of the products in our catalog, ultimately rest with the end user. We are not responsible for the end user's assembly in which our products may be used. Failure of the product can occur due to misapplication, abuse, intentional alteration or improper maintenance. Product failure can result in property damage, personal injury or death.

### Working Load Limit (WLL)

The "Working Load Limit" (rated capacity) is the maximum load that shall be applied in direct tension to an undamaged straight length of chain, strap or fittings.

### Proof Test

The "Proof Test" (manufacturing test force) is a term designating the minimum tensile force which has been applied to a product under constantly increasing force in direct tension during the manufacturing process. These loads are manufacturing integrity tests and shall not be used as criteria for service or design purposes.

### Minimum Breaking Force

The "Minimum Breaking Force" is the minimum force at which the product during manufacture has been found by testing to break when a constantly increasing force is applied in direct tension. Breaking force values are not guarantees that all chain or strap segments will endure these loads. This test is a manufacturer's attribute acceptance test and shall not be used as a criteria for service or design purposes.

The Working Load Limits and the associated safety factor of each Peerless product may be affected by wear, misuse, overloading, corrosion, deformation, intentional alteration and other use conditions. Regular inspection must be conducted to determine whether use can be continued at the assigned Working Load Limit, a reduced Working Load Limit or whether the product must be withdrawn from service. The terms "Working Load Limit", "Proof Test" and "Minimum Breaking Force" contain no implication of what load the product will withstand if the product is used in such conditions of abuse and misuse. Peerless Industrial Group accepts no liability for any such abuse or misuse.

The Working Load Limit of a sling or assembly must not exceed the lowest Working Load Limit of the components in the sling or assembly. Use only Peerless Industrial Group approved parts as replacements when servicing or repairing original Peerless Industrial Group slings or assemblies.

All Working Load Limits (WLL) shown in this catalog apply only to new or "in as new" condition products. USE ONLY GRADE 80 OR GRADE 100 ALLOY OR GRADE 50 STAINLESS STEEL CHAIN AND ATTACHMENTS FOR OVERHEAD LIFTING. Please see page 6 for more information regarding alloy chain Working Load Limits in relation to the angle of lift.

When using hooks in a shortening (grab) or choker application, the Working Load Limit (WLL) of the sling must be reduced by 20%. The Grade 100 shortening Grab Hooks found on pages 20-21 of this catalog require no reduction in WLL.

PEERLESS INDUSTRIAL GROUP PRODUCTS ARE INTENDED TO BE USED AT OR BELOW THE WORKING LOAD LIMITS (WLL) SPECIFIED IN CONSTANTLY INCREASING FORCE APPLICATIONS UNDER DIRECT TENSION OR IN A STRAIGHT LINE PULL.

SHOCK LOADING IS PROHIBITED AND SIDE LOADING MUST BE AVOIDED, AS IT EXERTS ADDITIONAL DYNAMIC FORCES OR LOADING WHICH THE PRODUCT IS NOT DESIGNED TO ACCOMMODATE.

THE CONDITIONS INVOLVING USE IN CERTAIN ENVIRONMENTAL SITUATIONS SUCH AS UNUSUAL (HIGH OR LOW) TEMPERATURE, CHEMICAL, ETC..., CAN CAUSE CHANGES IN CHAIN PERFORMANCE.

All chains and attachments in this catalog are capable of creating sparks unless otherwise noted.

Welding Peerless Industrial Group load support parts or products can be hazardous. Knowledge of materials, heat treatment and welding procedures are necessary for proper welding.

CONSULT PEERLESS INDUSTRIAL GROUP FOR ADDITIONAL INFORMATION OR QUESTIONS REGARDING THE USE AND APPLICATION OF THE PRODUCTS COVERED IN THIS CATALOG.

# Temperature & Chain Guidelines

“Hot Dip Galvanizing exposes chain to elevated temperatures which results in reduced working load limits for heat treated chains. Grade 70 chain working load limit is reduced by 10%, grade 80 chain is reduced by 20% and grade 100 chain is reduced by 30%. All users must be notified of this reduction in working load limits”

## Use of Grade 80 Chain Under Heat Conditions

### Effect of Elevated Temperature on the Working Load Limit of Grade 80 Alloy Chain.

Chains should not be used outside of the -40° F to 400° F (-40° C to 204° C) temperature range without consulting the chain manufacturer. The specific working load limit reductions for Grade 80 chains used at and after exposure to elevated temperatures have been established and are shown below.

Grade 80 Heat Conditions		
Maximum Temperature of Chain	Reduction of Working Load Limit While At Temperature	Reduction of Working Load Limit After Exposure to Temperature
Below 400°	None	None
400°	10%	None
500°	15%	None
600°	20%	5%
700°	30%	10%
800°	40%	15%
900°	50%	20%
1000°	60%	25%
Over 1000°	* (see below)	* (see below)

\* OSHA 1910.184 requires all slings exposed to temperatures over 1000° F to be removed from service.

## Use of Grade 100 Chain Under Heat Conditions

### Effect of Elevated Temperature on the Working Load Limit of Grade 100 Alloy Chain.

Chains should not be used outside of the -40° F to 400° F (-40° C to 204° C) temperature range without consulting the chain manufacturer. The specific working load limit reductions for Grade 100 chains used at and after exposure to elevated temperatures have been established and are shown below.

Grade 100 Heat Conditions		
Maximum Temperature of Chain	Reduction of Working Load Limit While At Temperature	Reduction of Working Load Limit After Exposure to Temperature
Below 400°	None	None
400°	15%	None
500°	25%	5%
600°	30%	15%
700°	40%	20%
800°	50%	25%
900°	60%	30%
1000°	70%	35%
Over 1000°	* (see below)	* (see below)

\* OSHA 1910.184 requires all slings exposed to temperatures over 1000° F to be removed from service.



Fig. 1



Fig. 2

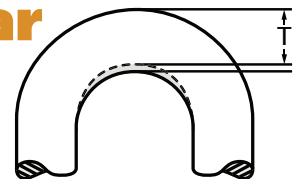
## General Hook & Latch Guidelines

### Important Safety Information - Read & Follow

- Always inspect hook & latch before using.
- Never use a latch that is distorted or bent.
- Always make sure spring will force the latch against the tip of the hook.
- Always make sure hook supports the load. Do not point load hooks—load should bear on the bowl of hook. The latch must never support the load. (See Figure 1 & 2).
- Latches are intended to retain loose sling or devices under slack conditions.
- Latches are not intended to be an anti-fouling device.

## Table of Wear

If chain is worn to less than the minimum allowable thickness (T), remove the chain from service.



Wear Specifications					
Chain Size		Material Diameter		Min Allowable Thickness (T)	
Inches	mm	Grade 80	Grade 100	Grade 80	Grade 100
9/32	7mm	0.274	0.279	0.239	0.239
3/8	10mm	0.392	0.404	0.342	0.342
1/2	13mm	0.510	0.529	0.443	0.443
5/8	16mm	0.630	0.625	0.546	0.546
3/4	20mm	0.781	0.821	0.687	0.687
7/8	22mm	0.906	--	0.750	--
1	26mm	1.032	--	0.887	--
1-1/4	32mm	1.250	--	1.091	--

## Chain & Sling Guidelines

### Check #1 Inspections

Visually examine the sling before each use. Look for stretched, gouged, bent or worn links and components, including hooks, with open throats, cracks or distortion, if damaged, remove from service.



BENT

GOUGED

STRECHED

WORN

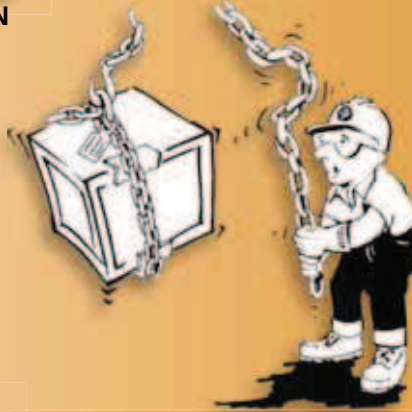
### Check #5 Sharp Edges

Protect chain with padding when lifting sharp edged loads.



### Check #2 Balance

Know the load — determine the weight, center of gravity, angle and lift and select the proper size of sling.



### Check #6 Abrupt Movement

Lift and lower loads smoothly. Do not jerk. Shock loading is prohibited!

### Check #3 Overload

Never overload the sling — check the working load limit on the identification tag. Always consider the effect of Angle of Lift — the tension on each leg of the sling is increased as the angle of lift, from horizontal, decreases. Use the chart in this catalog or in the Peerless Chain Sling User's Manual for this purpose.



### Check #7 High Temperatures

Do not expose alloy chain or sling to temperatures of 400° F (204° C) or higher. Do not drag slings on the floor.



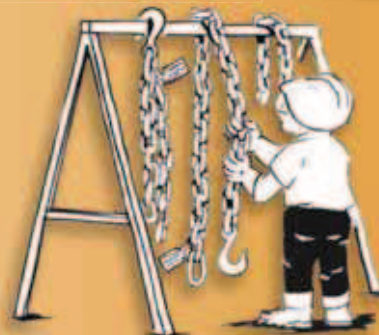
### Check #4 Knots, Twists & Kinks

Make sure chain is not twisted, knotted or kinked before lifting load. Slings should not be shortened with knots, bolts or other make-shift devices.



### Check #8 Chain Care

Store slings properly on an A-Frame and protect chainslings from corrosion during storage. Do not drag slings on the floor.





# Web Slings

**DANGER:** Overhead lifting presents a very real danger of serious personal injury or loss of life if lifting equipment is not used properly. OSHA and ASME have adopted the following requirements for safe operation of all lifting slings. Please read and understand all of these instructions prior to using any lifting sling or sling assembly. Slings should only be used by qualified persons who are responsible for the sling & rigging selection, inspection and use. Use of these products demonstrates an understanding of these warnings and the risks involved.

**SAFE USE:** Inspect all sling components prior to each use. Never use slings that are damaged or defective. Damaged or defective slings must be removed from service immediately. The following conditions constitute a damaged sling: acid or caustic burns, melting of any part of the web surface, broken or worn stitching, distortion of eyes or fittings, or web snags, cuts, tears, and punctures. Only slings with legible identification tags shall be used. Keep all tags and labels away from the load, hook and point of choke, to avoid rendering the tag non-readable and the sling therefore unusable. If in doubt about the safety of a sling, DO NOT use it without having it proof tested.

Slings must never be shortened with knots, sewing or other makeshift devices nor should they ever be extended from their original length with non-original hardware, fittings or other devices. Never twist or kink the legs of a sling. The web sling legs (branches) shall contain or support the load from the sides above the center of gravity when using a sling in a basket configuration. Web slings shall not be bunched between the ears of a clevis, shackle or in a hook.

Never load in excess of the rated capacity for the application. Consideration must be given to the load angle (see Sling Angle Chart on page 50) which affects the rated capacity of the sling. Shock loading shall be avoided. The load applied to a hook shall be centered in the base or bowl of the hook to avoid hook tip overloading.

# All Cargo Control Products

**WARNING:** Observe all tie down requirements of the Commercial Vehicle Safety Alliance (CVSA.), Federal Department of Transportation (DOT), CCMTA (Canadian Council of Motor Transport Administrators) or other local regulations governing cargo restraint and tie down. Use only products that are rated and tagged with working load limits (WLL) for cargo tie down applications.

**SAFE USE:** Inspect all tie down components prior to each use. Never use items that are damaged, worn or defective. Remove them from service immediately and replace with new. Do not attempt to repair. The following conditions constitute a damaged tie down strap: acid or caustic burns, melting of any part of the web surface, broken or worn stitching, distortion of eyes or fittings, or web snags, cuts, tears, and punctures. Only tie down straps with legible identification tags should be used. Keep all tags and labels away from the load, vehicle body and winch to avoid tag damage rendering the tag non-readable and the strap assembly therefore unusable. The following conditions constitute a damaged tie down chain assembly: damaged or distorted links, distortion of eyes or hooks, nicks or gouges in the chain or hooks. If in doubt about the safety of a tie down component or assembly do not use it. Loadbinders should not be used if any of the previous conditions exist or if the handles are bent or distorted.

Select only web slings with suitable characteristics for the load type, hitch and the environment of their use. Web slings should always be hitched in a manner that provides for control of the load. Web slings used in a basket hitch must have the load balanced to prevent slippage. Web slings used in a choker hitch must be of sufficient length to assure that the choking action is on the webbing and never on the fittings, eyes or sling identification tag.

Never drag web slings on the floor. Protect webbing at all times from corners, edges, protrusions, or abrasive surfaces. Never pull slings out from under a load when the load is resting on the sling. Place blocks under the load prior to setting down the load to allow removal of the web sling. Do not drop web slings with metal end fittings.

Personnel must keep all body parts from between the sling and the load, and from between the sling and the crane/hoist hook. Persons shall never ride the web sling or the load during lifting or while suspended. Persons shall stand clear of all loads while lifting or while suspended. During lifting, with or without the load, personnel must be alert for possible snagging of the load or the web sling.

When not in use, web slings should be stored in a cool, dry and dark place to avoid loss of strength through exposure to ultraviolet (UV) light or weather. Never store web slings in areas that are chemically active. Chemicals can destroy the integrity of web slings in varying degrees that are not always readily apparent upon visual inspection. Never store or use web slings in temperatures above 194° F (90° C) or below minus 40° F (-40° C).

Never attempt to repair a damaged web sling. Replace it immediately. Only Type I and Type II web sling hardware may be reused and then only by a qualified sling manufacturer after inspection.

## WINCHES

**INSTALLATION:** Mount & position the winch so that the latch/pawl drops into the gear sprocket teeth by its own weight. Portable and slider winches must be positioned not to interfere with any other trailer components.

**MAINTENANCE:** The winch assembly should be protected from corrosion by application of a rust inhibiting paint. Avoid paint build up in the latch/pawl area that may inhibit the free movement of its parts. A light oil should be used to keep these parts moving freely to insure safe operation.

**PROPER USE:** The loose end of the web assembly should be inserted through the web slot in the winch mandrel and the excess web pulled through. After tensioning, there must be 2-3 full wraps of webbing around the mandrel. Less wraps may result in web slippage. More wraps will cause additional strain to be exerted on the winch assembly and reduce the load capacity of the winch. Cable/wire rope must be used only on winches designed for their use. To use, twist an eye on the end of the cable with at least 2 feet of loose tail. Place the eye over the cable pin on the winch mandrel and tighten the winch, wrapping the cable over the loose tail a minimum of 4 times to secure the cable from slippage.

# SAFETY GUIDELINES

## All Cargo Control Products cont.

**CAUTION:** Inspect all strap and winch assembly components prior to each use for damage or deterioration. Remove damaged product from service immediately and replace. Do not attempt to repair. Use extreme caution when tensioning the winch assembly to assure the latch/pawl is fully engaged in the gear sprocket teeth before releasing the pressure on the winch bar. Always keep hands and fingers away from the winch pawl. Always make sure that the load is adequately secured prior to movement of the vehicle using a sufficient quantity of appropriate strength tie downs. Never exceed the Working Load Limit of either the tie down or the hardware/winch. Remember, all assemblies are only as strong as their weakest point, including the point of attachment. All component parts must meet or exceed CVSA guidelines, Federal DOT Regulation, CCMTA regulations as well as local regulations. Tie downs must be checked periodically during transit and re-tensioned as needed to maintain a secure load. Never modify a winch to perform any use other than that for which it was specifically designed. Misuse or modification of any type will result in voiding any or all of the warranty and liability by the manufacturer/seller.

### WINCH BARS

**PROPER USE:** Use extreme caution when tensioning the winch/assembly to assure the latch/pawl is fully engaged in the gear sprocket teeth before releasing the pressure on the winch bar. Always keep hands and fingers away from the winch pawl & keep face, head and body out of path of winch bar.

Inspect all binding components, (winch, strap assembly, chain assembly, loadbinder) prior to each use. Never use damaged or worn equipment. Remove from service and replace with new. Do not attempt to repair. Winch bars are used entirely at the users own risk and the use of a winch bar demonstrates an understanding of the risks and a willingness to accept the consequences of possible property damage, serious personal injury and/or loss of life. When using winch bars with winches: the tapered point of the bar must be inserted completely through both holes in the winch cap. Failure to insert bar correctly could cause the bar to slip and result in serious personal injury and/or loss of life. During tightening and before releasing the tie down assembly, check the winch pawl to insure it has properly engaged the gear sprocket. Always grip the winch bar at the knurled section of the bar for increased safety.

When using winch bar with binders: only use combination winch bars designed with a binder cradle to assist in tightening a loadbinder. Insure that the loadbinder handle is fully inserted into the winch bar cradle and locked in place. Keep head and body out of the path of the loadbinder handle in case of slippage or kickback. Failure to do so may result in serious personal injury and/or loss of life.

### TOW STRAPS & CHAINS

**DANGER:** PLEASE READ AND UNDERSTAND ALL OF THESE INSTRUCTIONS PRIOR TO USING ANY Tow Chain or Tow Strap. Towing or recovery of a vehicle presents a very real danger of property damage, serious personal injury and/or loss of life. Never attach fittings that have a strength rating (WLL) less than the assembly to which they are being attached. Insure that the chain or strap is attached to a secure part on both vehicles capable of withstanding the forces involved in towing or recovery. Woven fabric straps store energy that when released could cause a whipping action

and endanger operators and bystanders. Keep all persons away from the vehicles and strap or chain during towing or recovery. USE OF THESE PRODUCTS DEMONSTRATES AN UNDERSTANDING OF THESE WARNINGS AND THE RISKS INVOLVED.

**PROPER USE:** Tow chains and tow straps are designed for general purpose towing and recovery only. They are not intended to be used for highway towing or for extended periods of time. In these cases, a tow bar is required for safe operation. Tow chains/straps should never be used in a manner where failure of either the chain/strap, attachments or vehicle anchor points could result in personal injury. Keep all persons a safe distance away from all vehicles during a tow or recovery operation.

The Working Load Limit shown in this catalog or on the package or assembly should never be exceeded. This is the maximum safe load that the assembly should ever be exposed to when in a like new condition. Apply tension in a gradual and uniform manner to avoid shock loading the assembly which could cause failure. Be sure that the assembly is not twisted, kinked, or knotted. Never subject the chain or strap to sharp edges as these can damage the chain or even cut the strap. If unavoidable, use caution and pad the area with rubber or similar material (a cut section of tire can be used for this purpose). Inspect all assemblies and attachments prior to use for any visible signs of damage.

The following will reduce the Working Load Limit of the assembly: a.) Tip loading of hooks, twisting, kinks, knots or improper attachments; b.) Deterioration of the assembly or attachments caused by wear, usage, UV degradation, chemicals, acids, corrosion, cuts, abrasions, high heat exposure, misuse or abuse; c.) Impact caused by jerking or snatching. After use, inspect assembly and attachments for any visible signs of damage prior to storage. Clean and store in a cool and dry place, out of direct sunlight, where damage to the assembly or attachments is not likely to occur.

### CARGO BARS & LOADLOCKS

**WARNING:** Failure to understand these instructions and warnings could cause serious personal injury or property damage. Use of these products demonstrates an understanding of these warnings/instructions and the risks involved. Do not use bars to support ANY vertical loads. SmartBars™ and loadlocks are NOT designed to be used as a shoring beam. Using these bars as a step is not advised and could result in serious personal injury. Cargo bars and loadlocks are not designed to secure cargo inside a trailer, only to assist in the stability of a load. SmartBars™ and loadlocks are designed to push out approximately one inch against flexible van trailer walls and can be damaged if used against immovable objects such as door frames. To avoid damaging the bars and trailer, never use more than one hand to close the lever. On the SmartBar™ push handle release button when fully retracted to extend. A stop keeps the bar from sliding open when fully retracted and must be released before operating the lever or the bar can be damaged. To disengage lock, push on handle release tabs.

# Trailer Safety Chain Guidelines

**Trailer Safety Chains** as defined in SAE standard J684 of June, 2004 for trailer couplings, hitches and safety chains - AUTOMOTIVE TYPE:

**7.1 Definitions and Purpose** - "Safety Chain" is defined as an assembly which provides a secondary means of connection between the rear of the towing vehicle and the front of the trailer (or towed vehicle); it includes link chain and all attaching means. The purpose of Safety Chain is to retain connection between the towing vehicle and trailer in the event of separation of the trailer coupling from the ball of the vehicle or from the hitch, long enough to bring the vehicles to a stop. It should not be construed that safety chains can ensure that vehicle control or connection will be maintained in the event of vehicle incidents such as loss of control, rollover, jackknife, collision, etc.

**For the purpose of this section:**

- A. The "hitch" assembly (including ball and ball support platform) is considered part of the towing vehicle.
- B. The "safety chain" is considered part of the trailer.
- C. "Attaching means" are defined as the hooks, bolts, anchorages, or other devices used to fasten or connect link chain, or its equivalent, to the trailer tongue and to the rear of the towing vehicle including hitch assembly devices provided for such connection.

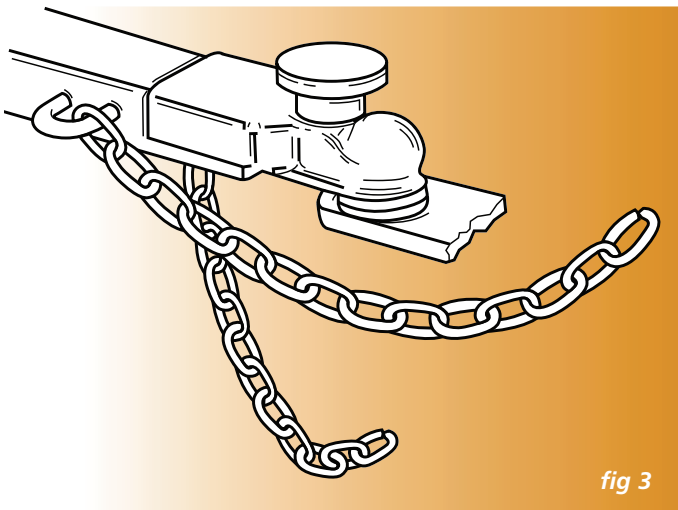


fig 3

**7.2 Strength Requirements** - Each individual safety chain, and all attaching means, shall meet the minimum breaking force tensile load as indicated in Table 4, and where applicable such load shall be applied in a direction parallel to the trailer's or towing vehicle's longitudinal axis. Any operation performed on the safety chain subsequent to its manufacture shall not reduce its strength below the requirements of Table 4.

Strength Requirements for Safety Chain & Attaching Means*	
Safety Chain or Trailer Classification	Breaking Force - Minimum
Class 1	2000 lbs. (8.9 kN)
Class 2	3500 lbs. (15.6 kN)
Class 3	5000 lbs. (22.2 kN)

Class 4 - The strength rating of each length of safety chain or its equivalent and its attachments shall be equal to or exceed in minimum breaking force the GVWR of the trailer.  
 \* When conducting a tensile strength test of a length of chain or equivalent and its attaching means, when the minimum load specified in Table 4 is applied, such load shall be maintained for a minimum of 1 minute.

Table 4

## 7.5 Installation

**7.5.1** Two safety chains shall be permanently fastened (i.e., bolted, anchored) to the trailer tongue, one on each side. The safety chains shall be connected from the trailer tongue to the hitch assembly or to other towing vehicle members meeting the strength requirements of 7.2.

**7.5.2** Safety chain shall be connected to the towing vehicle and trailer so the slack of each length of chain is approximately the same when the vehicles are aligned on a common front to rear centerline. There shall be no more slack than necessary to permit proper turning of the vehicles. The safety chain shall be crossed under the trailer tongue and connected to the hitch assembly or to other towing vehicle members.

**NOTE:** Crossing the chains under the tongue typically reduces the probability of stressing or breaking the chains when turning. See Figure 3.

**7.5.3** Safety chains shall not be attached to the towing vehicle by use of the fasteners that secure the ball to its supporting hitch member, nor shall they be connected directly to any part of the ball.

## How to Chose a Safety Chain to Correctly Handle the Load

Class Designation >>>	CLASS I	CLASS II	CLASS III	CLASS IV
Maximum Load Capacity:	Up to 2,000 lbs. gross trailer wt.	Up to 3,500 lbs. gross trailer wt.	Up to 5,000 lbs. gross trailer wt.	Up to 10,000 lbs. gross trailer wt.
	Up to 200 lbs. gross tongue wt.	Up to 300 lbs. gross tongue wt.	Up to 500 lbs. gross tongue wt.	Up to 1,000 lbs. gross tongue wt.