## Green Pin<sup>®</sup> Tycan<sup>®</sup> Synthetic Chain Sling User Guide



# **WARNING** To Users of **Green Pin®** TYCAN® Synthetic Chain Slings.

**WARNING** Warning Icons are used to alert users to potentially hazardous conditions and situations, which if not avoided may result in SEVERE INJURY or DEATH.

"Must" denotes a mandatory requirement and is synonymous with the use of the term "shall".

<u>In this guide, all items</u> used for load handling activities, including but not limited to: slings, fittings, rigging hardware, Components, i.e., Connecting Links, Connecting Hooks, Shortening Hooks, Masterlinks, Subassemblies and/or sling protection may also be referred to as rigging\*.

**WARNING** This guide contains important safety information about the use of GP Tycan® Chain. However, it DOES NOT provide you with all the information you need to know in order to be considered trained and knowledgeable in load handling activities. The proper use of GP Tycan® Chain is only one part of the many necessary ingredients for proper and safe use for successful load handling activities.

You must be properly trained, and it is your responsibility to consider all risk factors prior to all load handling activities. Improper use and/or lack of proper training may result in SEVERE INJURY or DEATH from Rigging\* failure, the unplanned release of tension, deadly recoil and/or impact force and/or loss of load control.

Thank you for taking the time to read and understand the information detailed in the GP Tycan® Chain Sling User Guide that accompanies Lift-It® GP Tycan® Chain Slings. Rigging\* can fail if damaged, misused, or overloaded, resulting in SEVERE INJURY or DEATH. Users must be knowledgeable and trained about the selection, use, and inspection of GP Tycan® Chain. This GP Tycan® Chain Sling User Guide provides some, but not all, of the information a user needs in order to use GP Tycan® Chain Slings properly and safely. However, failure to read and follow ALL of the information in this GP Tycan® Chain Sling User Guide may result in SEVERE INJURY or DEATH.

The proper use of GP Tycan® Chain Slings is only one of the many necessary ingredients of a complete and successful load handling plan. You must be properly trained, and it is your responsibility to consider all risk factors prior to all load handling activities. Improper use and/or lack of proper training may result in SEVERE INJURY or DEATH due to Rigging\* failure, the unplanned release of tension, deadly recoil and/or impact force and/or loss of load control during load handling activities.

All GP Tycan® products are sold with the express understanding that users are thoroughly familiar with safe and proper product usage. A manufacturer does not (and cannot) have complete knowledge or insight into the specific details and potential hazards associated with your particular load handling activity. The user is responsible for proper use as detailed in all applicable standards, regulations and warnings. The improper use of Rigging\* by untrained persons is extremely hazardous and may result in SEVERE INJURY or DEATH. It is also important that GP Tycan® Chain Sling users be thoroughly familiar with the manufacturer's recommendations and safety information that accompanies products.

Read and understand all product and warning information provided in the GP Tycan® Chain Sling User Guide, available by scanning the QR Code on many of the Lift-It® tags and labels or available at www.lift-it.com and always follow OSHA, ASME, federal, state, provincial, industry, corporate, association, job site specific, insurance, best practice and/or manufacturer warnings and guidelines.

The American Society of Mechanical Engineers in the ASME B30.9 Sling Safety Standard, Section 9-X.1 clearly states the requirement for training. "Sling users shall be trained in the selection, inspection, cautions to personnel, effects of the environment and rigging practices, covered by this chapter."

#### Lift-It® GP Tycan® Chain Sling users must follow the same guidelines for training.

Occupational Users who use GP Tycan® Chain Slings as part of their work must have sufficient training and knowledge of all applicable standards and regulations, as well as employer and/or contractor policies. If you are unsure whether you are properly trained and knowledgeable or if you are unsure of what the standards and regulations require of you, ask your employer for information and/or training.

If you are a Consumer using Lift-It GP Tycan Chain Slings, you must also be properly trained and informed in the safe and proper use of GP Tycan Chain Slings. Gravity always works and falling objects injure, kill, and destroy without regard to location. Uncontrolled loads can wreak havoc in a consumer's garage just as easily as they can in the workplace. An important part of becoming properly informed is to read and fully understand the information in all warning/instruction labels, tags, safety bulletins and user manuals that accompany Lift-It GP Tycan Chain slings. To increase your level of comprehension, training, and competence, consider completing an accredited course offered by an industry recognized rigging training organization, trade/technical school, union, or industry association. Online courses, instructional videos and publications may also provide valuable information for your specific load handling activity.

DO NOT use GP Tycan® Lashing Chain until you are ABSOLUTELY sure of what you are doing.

Please contact us if you have any questions at 800.377.5438 or email us at info@lift-it.com and NEVER TAKE CHANCES! The following guidelines cannot possibly cover all the unique variables present in every possible load handling scenario and are certainly NOT all that you need to consider for successful load handling activities. Only the user can possibly have complete knowledge or insight into the specific details and potential hazards associated with a particular load handling activity.

Use the following as guidelines, but remember, you are responsible for your decisions, actions and their consequences.



## STAY OUT OF THE DANGER ZONE

**AWARNING** Even if you consider all of the factors/issues involved in load handling activities, things can still go wrong. Therefore, all personnel must be alert to potential risks associated with the use of slings, rigging hardware and sling protection.

MAKE SURE ALL PERSONNEL ARE CLEAR OF LOADS AND ALERT TO RISKS, ESPECIALLY IN THE "DANGER ZONE". The "Danger Zone" is any area where the load could fall onto or swing into, or anywhere an unplanned release of tension could strike personnel with deadly recoil and/or impact force.

**WARNING** Slings, rigging hardware and/or sling protection failure may result in SEVERE INJURY or DEATH. Gravity ALWAYS works and when rigging \* failure occurs, personnel on, under, near or next to load handling activities are in grave danger from falling objects. OSHA refers to this area as the "fall zone". Personnel must never be on, under, next to or near suspended loads. Personnel must stand clear of lifted loads and never stand or pass under a suspended load.

**WARNING** Personnel must not stand in-line with or next to rigging\* under tension. An unplanned release of tension could strike personnel with deadly recoil and/or impact force.

Sling users must know and understand the potential danger from the unplanned release of tension and deadly recoil and/or impact force that may result in SEVERE INJURY or DEATH.

The "Danger Zone" is sometimes referred to as "working in the bite", "working in the line of fire" or "working in the strike zone".

**WARNING** Never use slings and/or rigging\* for pulling against stuck, snagged or restrained objects
IF LOADING CANNOT BE DETERMINED.

Make Sure All Personnel are Clear of Loads and Alert to Risks, Especially in the "Danger Zone".



Overloaded and/or damaged slings, rigging hardware and/or sling protection may fail, and the unplanned release of tension may: Strike personnel with deadly recoil and/or impact force. Become deadly projectiles resulting in SEVERE INJURY or DEATH.

Load measuring devices and/or methods must be used to ensure that OVERLOADING DOES NOT OCCUR.

Personnel must be alert to the potential for the sling and/or load to become snagged or hung up during load handling activities. When these conditions occur, the rigging\* may be overloaded.

#### **▲** WARNING

Overloaded rigging\* may fail, and the unplanned release of tension and deadly recoil and/or impact force may result in SEVERE INJURY or DEATH.

Once load handling activities begin, sling users must never place any part of the body between the sling and the load and/or between slings, shackles, hooks and/or other connection points.

Personnel shall never ride the sling, or load.

GP Tycan® Chain shall never be used to support suspended personnel platforms.

GP Tycan<sup>®</sup> Chain must never be used for any fall prevention application. Only approved fall prevention products which are specifically rated and labeled for fall prevention shall be used for fall arrest and/or fall prevention.

# Green Pin® TYCAN® CHAIN SLING - PROPER USE

- Never connect GP Tycan® Chain Links DIRECTLY to the bowl of any hook. See Figure 1.
- GP Tycan® Chain Components are specifically designed for DIRECT ATTACHMENT to GP Tycan® Chain Links. See Figure 2.
- The specific connection diameter and width at the connection point of GP Tycan® Components assists in preventing damage to Chain Link Bearing Points, i.e., folding, spreading and/or unraveling.
- If other fittings are attached they MUST meet the specifications in Table 1 Mandatory Fitting Criteria for minimum connection diameter, and connection point width (minimum and maximum) to prevent folding, spreading and/or unraveling in Chain Link Bearing Points.
- Never connect more than one Chain Link into a GP Tycan® Connecting Link or other fitting.
- An unloaded Chain Link must never be placed between a loaded Chain Link and Shortening Hook. See Figures 3 & 4.
- Ensure that Rigging\* is selected and properly used based upon the load, the load handling plan, and complies with the guidelines set forth in the GP Tycan® Chain Sling User Guide, as well as all recommended standards and regulatory requirements.
- Never use or allow the use of GP Tycan® Chain with less than 5 Chain Links. See Figure 5.
  - ALL GP Tycan® Chain Sling legs, (including shorter legs used to adjust other legs) must have a minimum of FIVE Chain Links. See Figure 6.
- During use all GP Tycan® Components and other compliant fittings must never have a surface roughness exceeding 5 microns.

WARNING The use of damaged GP Tycan® Chain, Components or other fittings may result in SEVERE INJURY or DEATH.

The DIRECT ATTACHMENT of CHAIN LINKS to hooks, shackles or other connection points that do not conform to the Mandatory Fitting Criteria in Table 1 may result in SEVERE INJURY or DEATH.

• A maximum twist of 1/2 turn per yard is acceptable. Additional twisting adversely affects GP Tycan® Chain Work Load Limit.

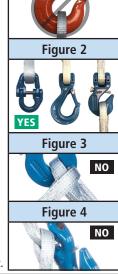


Figure 1

NO

Figure 5	Figure 6		
NO	YES		
A STATE OF THE STA			
3 links	<b>←</b> 5 links <b>→</b>		

Table 1 - MANDATORY FITTING CRITERIA						
Stock			Connection Width			
Number	(Lbs.)	Pin Diameter	Minimum	Maximum		
TLHC-1115	3,439	.515"	.609"	.708"		
TLHC-1120	5,290	.625"	.812"	.944"		
TLHC-1525	6,613	.625"	1.023"	1.220"		
TLHC-1330	8,994	.781"	1.220"	1.456"		



## Green Pin® TYCAN® CHAIN SLING - PROPER USE

**▲** WARNING

GP Tycan® Chain Sling users and inspectors MUST be properly trained.

Assembly, use and/or inspection by untrained persons may result in SEVERE INJURY or DEATH.

# **NEVER use GP Tycan® Lashing Chain for pulling, lifting and/or load handling!**

- Never exceed the designated WLL.
- Always refer to the GP Tycan® Chain Sling tag for WLL.
- Always consider the Angle of Loading and its effect on WLL.
- Do not use GP Tycan® Chain Slings at an Angle of Loading less than (<) 30° unless approved by a Qualified Person\* or Properly Informed and Trained Consumer.
- NEVER shock load or allow rigging\* to be shock loaded.
- Shock loading radically affects the strength of GP Tycan® Chain, Components, rigging hardware and/or sling protection.
- Always consider the "Weak Link" principle: The maximum WLL for all rigging\* is limited by the weakest component.

  • GP Tycan® Chain Slings must be rigged properly for load control.
- NO slipping and sliding Positive sling to load engagement!
- NEVER allow slings and/or sling protection to slip or slide over and/or across load edges, load surfaces, suspension points and/or connection points.
- Slipping and sliding may damage slings and/or sling protection, Storage temperatures: even when the sling protection is properly placed.
- Slings and/or sling protection that slip and/or slide may become damaged resulting in SEVERE INJURY or DEATH.

- GP Tycan® Chain Slings must be inspected before each use and if damage is detected, removed from service for evaluation by
- a Qualified Person\*\*. See pages 6, 7 & 8.

  Damaged GP Tycan® Chain Slings must not be used for any purpose and removed from service immediately for evaluation by a Qualified
- Person\*\* to determine continued use.

  Sharp particles such as but not limited to metal shavings can severely damage GP Tycan® Chain. DO NOT allow contact with sharp and/or damaging particles.
  If sharp particles or foreign materials are present, gently remove
- them before use and/or storage, and ensure damage has not occurred.
- Foreign material, i.e. sand, dirt, pebbles, etc. must be avoided and/or removed if embedded between rope strands/fibers, and ensure damage has not occurred.
- During use, consider all GP Tycan® Chain Slings, components, rigging
- hardware and sling protection conductive, energized or "hot".

  When not in use, GP Tycan® Chain Slings must be stored in an area that is cool, dry, dark and free of mechanical and environmental damage.
- < = Less Than > = Greater Than

Short term: (<1 week) Not to exceed 158°F (70°C) Long term: (>1 week) Not to exceed 86°F (30°C)

## Green Pin® TYCAN® CHAIN: PROPER USE - SLING PROTECTION

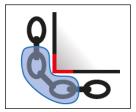
- GP Tycan® Chain must always be protected from cutting and abrasion by materials of sufficient strength, thickness and construction.
- Sling protection should not be makeshift (i.e., cardboard, work gloves, rags, carpet, fire hose or other items that were not designed to be used as sling protection). Protection must be determined by a Qualified Person\*\* and/or Properly Informed and Trained Consumer.
- Proper sling protection MUST be used whenever contact with the load could cause damage to GP Tycan® Chain.
- Shearing and cutting may occur when GP Tycan® Chain makes contact with edges that are not adequately rounded to a suitable radius.
- GP Tycan® Chain MUST always be protected from damage and appropriate sling protection MUST always be used when the contact edge radius is less than (<) 7/32".
- To properly use the minimum edge radius recommendation, the following edge criteria must be present at all times:

Edge Size: The edge radius must be greater than (>) 7/32".

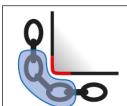
Edge Shape: The edge must be smoothly rounded.

Edge Type: Edges that are machined, chamfered or flattened at an angle may damage GP Tycan® Chain, unless the edges meet the Edge Size, Shape and Type criteria.

The values for minimum edge radius recommendations apply to all hitches.



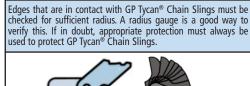
No radius or in doubt, Protection required.

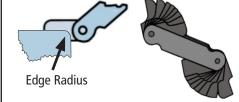


Edge radius < 7/32" Protection required.

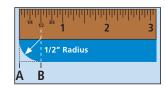


Edge radius > 7/32" Protection recommended.





- To measure the radius of an edge, place the leading edge of the ruler or tape measure along the leading edge of the radius (Point A).
- Measure the distance between the leading edge of the radius (Point A) to the point where the radius ends (Point B).



**WARNING** To avoid SEVERE INJURY or DEATH from equipment failure:

- Users MUST BE TRAINED on proper use/selection.
- NEVER damage, misuse or overload observe and NEVER EXCEED the Work Load Limit (WLL).
- Properly maintain and inspect before each use.



# **BASKET HITCH WORK LOAD LIMIT CONSIDERATIONS\*\*\***

When GP Tycan® Chain Slings are used in a basket hitch that is not 90° (perpendicular to the load), the basket WLL must be reduced. A Qualified Person\*\* and/or Properly Informed and Trained Consumer must use Table 2 to determine the reduced basket WLL. If the Angle of Loading is between the designated Angles of Loading in Table 2, you must round down (NEVER up) to the closest Angle of Loading (90°, 60°, 45° or 30°).

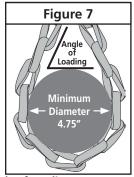


Table 2 - Basket Work Load Limit Reductions***									
Angle of		Bask	cet WLL fo	r a Single (	GP Tycan® (	Chain Sling	J***		
Loading	TLHC-1115		TLHC-1120		TLHC	TLHC-1525		-1330	
(Degrees) Lbs.	Lbs.	Metric Tons	Lbs.	Metric Tons	Lbs.	Metric Tons	Lbs.	Metric Tons	
90°	6,878	3.10	10,580	4.78	13,226	5.98	17,988	8.14	
60°	5,956	2.68	9,162	4.14	11,453	5.18	15,577	7.05	
45°	4,862	2.19	7,480	3.38	9,350	4.23	12,717	5.75	
30°	3,439	1.55	5,290	2.39	6,613	2.99	8,994	4.07	

<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

**Angle of Loading** 

All slings, rigging hardware and sling protection used in load handling activities are dramatically affected by the Angle of Loading. The Angle of Loading is the angle between the sling leg and the plane perpendicular to the direction of the applied force.

(See Angle of Loading diagram below). As an example, when a sling is used in a basket hitch, the tension on each "leg" of the sling increases as the Angle of Loading deviates from 90°. This principle applies whether one sling is used at an angle or if slings are used in basket hitches or when multiple slings and/or multi-leg bridle configurations are used.

Always consider the Angle of Loading, which affects rated capacity and calculate changes in the rated capacity of slings, rigging hardware and/or sling protection when used in non-perpendicular vertical, basket or bridle hitches.

When the Angle of Loading between the sling leg and the plane perpendicular to the direction of the applied force is not exactly 90°, tension increases. The increased tension must be calculated and rigging\* capacities must be evaluated for adequacy.

Multiply the load weight (per leg) by the appropriate Tension Multiplier in Table 3 to determine the increased tension on the sling "leg(s)".

Table 3 provides information about calculating increased tension for Angles of Loading that are not 90°. Calculations apply if: the load is symmetrical (uniform shape or composition and the Center of Gravity 🕞 is located exactly in the middle of the load), sling legs are equidistant from the Center of Gravity and are attached at the same level as illustrated below in the Tension Calculation diagram. If conditions are different, such as, but not limited to: asymmetrical loads, attachment points at uneven levels, etc., tension and load control must be determined by a Qualified Person\*\* and/or Properly Informed and Trained Consumer to prevent overloading the rigging\* and/or loss of load control. Larger

capacity rigging\* may be required to compensate for the effects of increased tension for an Angle of Loading that is not 90°. In all instances it is important that no single "leg" be loaded beyond it's single-"leg" rating and/or that any rigging\* component, including the sling protection is NEVER overloaded.

Slings shall not be used at an Angle of Loading less than 30° unless approved by the sling manufacturer, Qualified Person\*\* and/or Properly Informed and Trained Consumer. GP Tycan® Chain Slings must never be basketed or choked around objects that are less than 4.75" diameter.

## INCREASED TENSION FOR ANGLES OF LOADING ≠ 90°

TENSION CALCULATION	TAB	LE 3	ANGLE OF LOADING
Multiply the load weight (per leg) by the tension multiplier to determine the increased tension on the sling leg(s).	Angle of Loading	Tension Multiplier	The acute angle between the sling leg and the plane perpendicular to the direction of the applied force, referred to as the horizontal angle when lifting.  [ASME B30.9 Section 9-0.2 Definitions]
	90°	1.000	Plane perpendicular Direction of
	85°	1.004	to applied force Vapplied force
	80°	1.015	Angle of
Angle	75°	1.035	Loading
of Loading	70°	1.064	
	65°	1.104	
971	60°	1.155	
	55°	1.221	
	50°	1.305	
	45°	1.414	
	40°	1.555	Direction of
	35°	1.742	applied force
	30°	2.000	Angle of Loading

**WARNING** 

DO NOT use slings, rigging hardware and/or sling protection until you are absolutely sure of what you are doing. Remember, failure to follow proper use, care and inspection criteria and/or lack of skill, knowledge and/or training may result in SEVERE INJURY or DEATH. Slings, rigging hardware and/or sling protection may fail if damaged, abused, misused, overloaded or improperly maintained and may result in SEVERE INJURY or DEATH.



# Green Pin® TYCAN® CHAIN SLING WORK LOAD LIMIT CONSIDERATIONS\*\*\*

All slings, rigging hardware and sling protection used in load handling activities are dramatically affected by the Angle of Loading. The Angle of Loading is the angle between the sling leg and the plane perpendicular to the direction of the applied force. See page 4. This principle applies whether one sling is used at an angle or if slings are used in basket hitches or when multiple slings and/or multi-leg bridle configurations are used. Always consider the Angle of Loading, which affects rated capacity and calculate changes in the rated capacity of slings, rigging hardware and/or sling protection when used in non-perpendicular vertical, basket or bridle hitches.

When GP Tycan® Chain Slings are used at an Angle of Loading that is not 90° (perpendicular to the direction of applied force), the WLL must be reduced. A Qualified Person\*\* and/or Properly Informed and Trained Consumer must use Table 3 (page 4) to determine the reduced WLL. If the Angle of Loading is between the designated Angles of Loading in Table 4, you must always round down (NEVER up) to the closest appropriate Angle of Loading.

Table 4 - GP Tycan® Chain Sling Work Load Limits***									
Configuration		Vertical	Choker	Basket	Doub	Double Leg		Quad Leg	
		0		0					
		Į į				_		_	
Angle of	Loading	ng 90° >120° 90° 60° 45° 60°					45°		
Chain Size			V	Vork Load Lim	its (WLL)***				
TLHC-1115	Lbs.	3,439	2,751	6,878	5,956	4,863	8,934	7,294	
ILHC-1115	Metric Tons	1.55	1.24	3.10	2.68	2.19	4.03	3.29	
TLHC-1120	Lbs.	5,290	4,232	10,580	9,162	7,480	13,743	11,220	
TLHC-1120	Metric Tons	2.39	1.91	4.78	4.14	3.38	6.21	5.07	
TLHC-1525	Lbs.	6,613	5,290	13,226	11,454	9,351	17,180	14,026	
1LHC-1323	Metric Tons	2.99	2.39	5.98	5.18	4.23	7.77	6.34	
TLHC-1330	Lbs.	8,994	7,195	17,988	15,578	12,718	23,366	19,076	
TEHC-1330	Metric Tons	4.07	3.25	8.14	7.05	5.75	10.57	8.63	

<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

# **CHOKER ANGLE WORK LOAD LIMIT CONSIDERATIONS\*\*\***

When GP Tycan® Chain Slings are used in a choker hitch that results in an Angle of Choke less than 120°, the Chain Sling Choker WLL decreases. A Qualified Person\*\* and/or Properly Informed and Trained Consumer must determine the actual choker WLL by multiplying the sling's Choker WLL by the appropriate Angle of Choke Reduction Factor listed in Table 5.

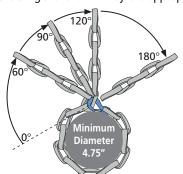
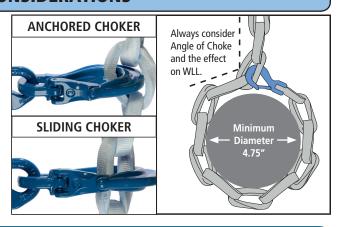


Table 5 - Angle of Choke Reduction Factors									
Anglo		W	LL for Sir	ngle Leg	GP Tycan <sup>o</sup>	® Chain S	lings***		
Angle of Choke	Reduction	TLHC	-1115 TLHC-1		-1120	0 TLHC-1525		TLHC-1330	
(Degrees) Factor		Lbs.	Metric Tons	Lbs.	Metric Tons	Lbs.	Metric Tons	Lbs.	Metric Tons
120° – 180°	100%	2,751	1.24	4,232	1.91	5,290	2.39	7,195	3.25
90° – 119°	81%	2,228	1.00	3,427	1.54	4,284	1.93	5,827	2.63
60° – 89°	68%	1,870	.84	2,877	1.29	3,597	1.62	4,892	2.21
0° – 59°	50%	1,375	.62	2,116	.95	2,645	1.19	3,597	1.63
60° – 89°	68%	1,870 1,375	.84	2,877 2,116	1.29	3,597 2,645	1.62	4,892	2.21

<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

### **CHOKER HITCH CONSIDERATIONS**

- The only exceptions to GP Tycan® Chain Links making direct hook contact, other than detailed on page 11 are:
  - Anchored Choker (GP Tycan® Connecting Hook is attached to THE SIDE of a Chain Link)
  - Sliding Choker (GP Tycan® Connecting Hook is placed around the COMPLETE Chain Link).
- The choker rating for Anchored and Sliding hitches is identical to the regular choke hitch WLL.
- Always consider the Angle of Choke and its effect on WLL.
   See Table 5 (page 5).





## Green Pin® TYCAN® CHAIN SLING - PROPER USE: ENVIRONMENTAL CONSIDERATIONS

- GP Tycan® Chain Slings shall not be used in contact with objects or at temperatures above 158°F (70°C) or below -40°F (-40°C).
- If GP Tycan® Chain has been exposed to temperatures above 230°F (110°C) it must be destroyed and not used for any purpose. Remember, any doubt, DON'T!

#### Be aware of ALL heat sources:

Reflected heat Ambient heat Frictional heat Open flames Hot surfaces Hot objects Welding Heat treating

- Chemically active environments can affect GP Tycan® Chain strength from little to total degradation.
- Avoid contact with oxidizing chemicals!
- Suitability evaluation is based on:

#### Time - Temperature - Concentration - Condition

- Consult a Qualified Person\*\* and/or the manufacturer before use and conduct controlled exposure and testing for suitability.
- If GP Tycan® Chain has been exposed to damaging chemicals, DESTROY and do not use for any application.

# Green Pin® TYCAN® CHAIN SLING INSPECTION

The strength and performance of all Rigging\* is affected by wear and damage. It is critically important that sling users employ a three-stage, inspection procedure: Initial, Frequent and Periodic, performed by a Qualified Person\*\* and/or Properly Informed and Trained Consumer.

- All inspections shall be performed by a Qualified Person\*\*.
- Any deficiency shall be examined, and a determination made by a Qualified Person\*\* as to whether it constitutes a hazard.
- There are three types of inspections: Initial, Frequent and Periodic. **Initial Inspection**
- All three stages MUST be used for an effective sling inspection system to work.
- For detailed inspection information contact Lift-It® sales or visit www.lift-it.com

Prior to use all new, altered, modified or repaired slings, rigging hardware and/or sling protection must be inspected by a Qualified Person\*\* and/or Properly Informed and Trained Consumer to ensure compliance with the manufacturer's specifications, and the recommended standards and guidelines issued by consensus, industry, association and/or regulatory authorities. Written records are not required for the Initial Inspection of GP Tycan® Chain Slings. The initial inspection must also verify that damage did not occur during transit and that defects in materials and/or workmanship are not present. The identification (sling) tag information must also be examined to ensure it matches the manufacturer's published specifications.

Frequent Inspection (PRE-USE)

OSHA and ASME spection (PRE-USE)
OSHA and ASME specify minimum requirements for frequent inspections. ASME B30.9 states, "Each shift, before the sling is used, a visual inspection for damage shall be performed. Slings used in severe or special service should be inspected before each use." The Web Sling and Tie Down Association and many manufacturers, including Lift-It® specify that slings, rigging hardware and/or sling protection must be inspected before each use. Users will be held accountable to the highest applicable standard of care and must follow the manufacturer's recommendations. Slings, rigging hardware and/or sling protection found with damage shall be immediately removed from service and shall not be used for any purpose. Items removed from service, must not be returned to service until approved by a Qualified Person\*\* and/or Properly Informed and Trained Consumer. Any hazardous condition detected during inspection shall require further investigation, and/or corrective action by a Qualified Person\*\* and/or Properly Informed and Trained Consumer. Temporary repairs are not permitted. Written inspection records are not required for the Frequent Inspection or PRE-USE Inspection.

**Periodic Inspection** 

Periodic inspections shall be performed by a Qualified Person\*\* and/or Properly Informed and Trained Consumer who have been specifically trained. Periodic inspections are more meticulous than frequent inspections as the entire GP Tycan® Chain Sling length, Components and fittings are thoroughly examined. A complete inspection of the sling shall be performed. Each Chain Link, Component and fitting shall be inspected individually, taking care to expose and examine all surfaces, including the Chain Link Interface and Chain Link Bearing Points. It is recommended that periodic inspections be performed by a Qualified Person \*\* and/or Properly Informed and Trained Consumer other than the person performing the frequent inspections. An independent, fresh set of eyes is advantageous in this and in many other situations.

OSHA and ASME have specific definitions for service conditions which dictate the frequency of periodic inspections. The periodic inspection frequency for

slings used in normal service must never exceed one year. This frequency is subject to change based upon the rate of use, severity of the service conditions and the nature of the load handling activity. Periodic inspectors also evaluate and compare the service life of slings, rigging hardware and/or sling protection used in similar conditions to determine, and if necessary, shorten the frequency for periodic inspections of slings used in normal service conditions.

Normal Service: Annual periodic inspections must be performed.

Severe Service: Monthly or quarterly periodic inspections must be performed.

Special Service: As recommended by a Qualified Person\*\* and/or Properly Informed and Trained Consumer.

Periodic inspections are not required for slings that are in storage or idle. If slings have been idle or in storage for more than one year since the last periodic inspection, before use the sling must be thoroughly inspected on a periodic inspection basis by a Qualified Person\*\* and/or Properly Informed and Trained Consumer. OSHA and ASME do not require that inspection records be maintained for individual slings. What is required is that a written record of the most recent periodic inspection shall be maintained. In other words, evidence that the inspection event occurred must be documented, not the condition of individual slings. Periodic inspections should provide some means of identifying items that have been inspected. Paint, tape, or other potentially damaging identification methods must never be used on rigging\*. Contact the Lift-It® sales professionals for details of post-periodic inspection identification options that not only provide a visual verification of the periodic inspection but are non-damaging and cost effective.

**Inspection Procedures** 

NEVER handle or inspect rigging\* with bare hands. Damaged rigging\* and/or embedded materials may result in injury. A hazard assessment must be performed prior to all tactile inspections to ensure that injury will not occur. For synthetic slings, the inspector employs factile (touch) inspection by feeling the entire length of the sling to an tactule inspection by feeling the entire length of the shings, the inspection by feeling the entire length of the shings have as some damage may be more felt than seen. For initial and periodic inspections, the entire sling should be laid out flat on a smooth, clean surface in a well-lit location; these same conditions may not always be a reality for frequent inspections. All inspections must be thorough and when damage is detected, damaged items must be immediately removed from service for further evaluation by a Qualified Person\*\* and/or Properly Informed and Trained Consumer. Temporary repairs of slings, rigging hardware and/or sling protection are not permitted. If damaged slings cannot be repaired, tested, and certified by the manufacturer or their agent, they must be destroyed and made unusable for any purpose. If rigging\* is not safe for use at the Job site, it must never be used for any purpose at home, on the farm or ranch, as recovery straps or used as tie backs to secure overhaul balls during mobile crane travel. All inspections must identify damage and areas of concern marked or tagged for further evaluation by a Qualified Person\*\* and/or Properly Informed and Trained Consumer.

## Green Pin® TYCAN® CHAIN SLING: REMOVAL FROM SERVICE CRITERIA

GP Tycan® Chain Slings shall be inspected before each use, and be removed from service if conditions such as the following are present and shall not be returned to service until evaluated and approved by a Qualified Person\*\* and/or Properly Informed and Trained Consumer.

• Missing or illegible (Sling Tag) identification.

• Knots in any part of the sling.

- Acid or caustic burns.
- Melting or charring of any part of the sling.

- Any type of damage in Chain Link Bearing Points.
  Holes, tears, cuts or snags. See pages 7 & 8 Removal Criteria.
  Broken or worn stitching that allows the Chain Link Layers to fold, spread
- Excessive abrasive wear. See pages 7 & 8 Removal Criteria.
- Discoloration and brittle or stiff areas on any part of the sling, which may indicate chemical or ultraviolet / sunlight damage.
- Fittings that are pitted, corroded, cracked, bent, twisted, gouged or broken. For hooks, removal criteria as stated in ASME B30.10
  For rigging hardware, removal criteria as stated in ASME B30.26

- Other conditions, including visible damage, that cause doubt as to the continued use of the sling.

# Green Pin® Tycan® Chain Inspection



## Green Pin® TYCAN® CHAIN LINK ANATOMY

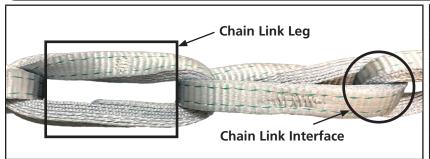
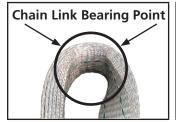
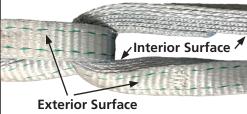
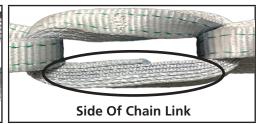


Table 6 - GP Tycan® Chain Link Information								
Stock Number	Width (Fractional)	Width (Decimal)	Thickness (Fractional)	Thickness (Decimal)	Number of Layers			
TLHC-1115	19/32"	.594"	7/16"	.438"	6			
TLHC-1120	25/32"	.781"	7/16"	.438"	6			
TLHC-1525	1"	1.000"	19/32"	.594"	8			
TLHC-1330	1-3/16"	1.188"	1/2"	.500"	7			







# Green Pin® TYCAN® CHAIN SLING REMOVAL FROM SERVICE CRITERIA

# Surface Damage: Tears - Cuts - Abrasion

Table 7

If damage is 100% of the way through in one or more places AND is > 80% of the Chain Link width†. Remove immediately and destroy.

		<u> </u>
Stock Number	Chain Link Width	Maximum Damage Length (80% of the Chain Link Width)
TLHC-1115	.594"	.475″
TLHC-1120	.781"	.625"
TLHC-1525	1.000"	.800"
TLHC-1330	1.188"	.950"



Table 8

If damage is 50% of the way through in one or more places AND is > 160% of the Chain Link width.

# Remove immediately and destroy.

Stock Number	Chain Link Width	Maximum Damage Length (160% of the Chain Link Width)
TLHC-1115	.594"	.95″
TLHC-1120	.781″	1.25″
TLHC-1525	1.000"	1.60"
TLHC-1330	1.188"	1.90"
ERSEL	1 3 m	



In one or more places and the length of the cuts (individually or accumulated) is greater than (>) Maximum Damage Length. †

#### Calculating Damage Length Scenario: TLHC-1525 – 1" Wide is cut 100% through: **Example** Width = 1"Damage > 80% – Remove immediately and destroy. **Example A:** Cut 1 (.28'') + Cut 2 (.47'') = .75'' = **75**% **Pass Example** Width = 1''**Example B:** Cut 3 (.36") + Cut 4 (.52") = .88" = **88% Fail!** The number of cuts does not determine GP Tycan® Chain Link PASS/FAIL, the depth AND total length of the cut(s) does.

A hole through 1 layer is to be classified as a cut. If a hole is through 2 or more Chain Link Layers - Remove immediately and destroy.

<sup>†</sup> It may be difficult to determine a percentage of loss, or the exact depth and/or length of damage to GP Tycan® Chain Links. Damage such as abrasion and/or the absorption of fluids and/or foreign materials may boost or exaggerate the Chain Link being examined and/or make it difficult to accurately measure damage, resulting in a false assessment. Always consider the cost of failure and then determine if the use of any item with an "acceptable" level of wear and/or damage is worth the risk, given the potentially catastrophic and/or deadly consequences. No visual inspection can accurately determine the residual strength of slings, rigging hardware and/or sling protection.



# Green Pin® Tycan® Chain Inspection

## Green Pin® TYCAN® CHAIN SLING: REMOVAL FROM SERVICE CRITERIA

# Side Damage: Tears - Cuts - Abrasion

#### REMOVE IMMEDIATELY and DESTROY IF ANY OF THE FOLLOWING CONDITIONS ARE DETECTED!

- 1) Damage on the side of the Chain Link that is across ALL layers AND the damage is more than .04" deep.
- 2) Damage on the side of the Chain Link that is across TWO or MORE layers AND the damage is more than .16" deep.
- 3) Damage on the side of the Chain Link that is across 75% or MORE layers AND the damage is more than .08" deep. See Chart A
- 4) Damage on the side of the Chain Link that is across 50% or MORE layers AND the damage is more than .16" deep. See Chart B

Chart A $\left\{ \begin{array}{l} \text{ACROSS 75\% or More Layers} \\ .08'' \text{ DEEP Edge Damage} \end{array} \right.$						
Stock Number	Maximum Number Damaged Layers 75%					
TLHC-1115	6	4				
TLHC-1120	6	4				
TLHC-1525	8	6				
TLHC-1330	7	5				

Chart B $\left\{ \begin{array}{l} ACROSS~50\%~or~More~Layers \\ .16"~DEEP~Edge~Damage \end{array} \right.$							
Stock Number	Total Layers	Maximum Number Damaged Layers 50%					
TLHC-1115	6	3					
TLHC-1120	6	3					
TLHC-1525	8	4					
TLHC-1330	7	3					

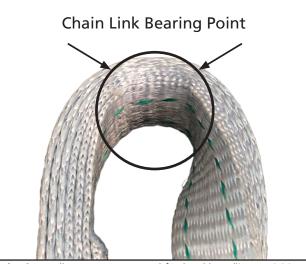






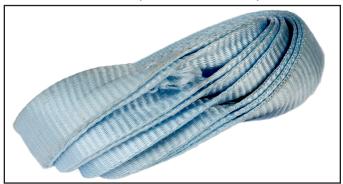
## Green Pin® TYCAN® CHAIN LINK BEARING POINT INSPECTION

- Zero tolerance for damage is allowed in the Chain Link Bearing Points.
- No folding, unraveling or spreading out of the Chain Link Layers is allowed in Chain Link Bearing Points.
- Thoroughly inspect all Chain Links, Components and fittings for damage.
- Each Chain Link, Component and fitting shall be thoroughly inspected individually, taking care to expose and examine all surfaces, including the Chain Link Bearing Points.



## STITCHING INSPECTION

If stitching is torn/abraded to the extent that the Chain Link Layers can unravel, GP Tycan® Chain must be removed from service immediately and shall be destroyed.



\***Rigging**: All components used for load handling activities, including but not limited to: slings, fittings, rigging hardware, Components, i.e., Connecting Links, Connecting Hooks, Shortening Hooks, Masterlinks, Subassemblies and/or sling protection.

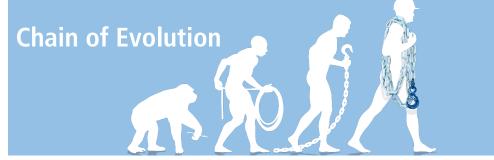
\*\*Qualified Person: A person, who by possession of a recognized degree or certificate of professional standing in an applicable field, or who, by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

**WARNING** 

The information in this guide is current through September 10, 2020. It is the user's responsibility to independently verify the accuracy of the information in this guide and all cited information, standards and regulations if this guide is used or referenced after September 10, 2020.







GP Tycan® Chain is made from DSM Dyneema® DM20 Fiber, the preferred synthetic fiber for demanding industrial applications which makes GP Tycan® Chain significantly lighter than an equivalent strength alloy steel chain. Users now have the option of a synthetic chain that offers many of the benefits of traditional alloy steel chain, but at a fraction of the weight.

# **Dyneema**<sup>®</sup>

DSM Dyneema® DM20 Fiber

Weight - Weight: 8X stronger than steel

Rugged: 4X more abrasion resistant than nylon & polyester.

Green: Non-Corrosive & Eco-Friendly

Chain Links float in water

Multi-layered redundancy

Temperature Exposure Range:

-40°F (-40°C) to 158°F (70°C)

Avoid oxidizing environments!





Versatile – Quick & easy adjustment
Turnbuckles & "add a shackle" – No more!
Ideal for rigging asymmetrical loads.
Efficient: More done – less time – less people
Light – Less Injury – Improved Safety
Soft – Reduces damage to loads & people.
Inspection – Less time than steel chain.
Low elongation at Work Load Limit.



## **DNV-GL Type Approval for GP Tycan® Chain**

GP Tycan® Chain users have the safety and security that comes with the DNV-GL Type Approval.

Rigorous development, testing, auditing and verification were necessary to obtain this very prestigious achievement. DNV-GL Type Approval ensures GP Tycan® Chain users high quality and compliance with international safety standards.

DNV-GL – Det Norske Veritas – The Norwegian Truth!



GP Tycan<sup>®</sup> Chain was also awarded: 2016 LEEA Innovation of the Year



2019 OTC New Technology Winner



#### An Undisputable Value Proposition: GP Tycan® Chain Makes Dollars & "Sense" by Saving Time, Energy & Money.

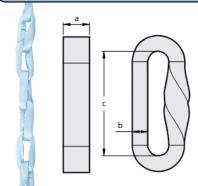
- Don't be short sighted or fooled by the initial, low price of Alloy Steel Chain and other "Heavy Metal" rigging.
- The total costs of low price, heavier slings quickly "outweigh" the incredible savings realized through the efficiency of GP Tycan® Chain.
- Tremendous sums of money are saved by NOT paying for damage claims, medical treatment and rehabilitation, and sky rocketing insurance premiums.
- Even if load damage and the costs of accidents and injuries were not potentially substantial expenses, one cannot refute the amazing savings realized every time GP Tycan® Chain is used.
- Repetitive, two person operations done with metal chain or wire rope rigging requiring several minutes are now done by a single person in a fraction of the time. Lightweight adjustability eliminates the need for turnbuckles and other time consuming adjustment techniques.

GP Tycan® Chain puts you on the right end of the Chain of Evolution, the "UPRIGHT" END!



# Green Pin® Tycan® Chain Components

# Green Pin® TYCAN® CHAIN LINKS



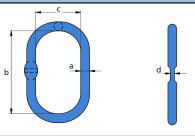
Work Load Limits***		Dime	nsions - (Inc	Per (Appro				
Stock Number	Lbs.	Metric Tons	Link Width a	Link Thickness b	Inside Length c	Links	Weight (Lbs.)	Layers
TLHC-1115	3,439	1.55	19/32	7/16	4	10	.70	6
TLHC-1120	5,290	2.39	25/32	7/16	4	10	1.04	6
TLHC-1525	6,613	2.99	1	19/32	4	10	1.28	8
TLHC-1330	8,994	4.07	1-3/16	1/2	4-29/32	8	1.65	7

<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

# Green Pin® TYCAN® MASTERLINKS



- Designed for use with GP Tycan<sup>®</sup> Chain.
- Durable blue painted finish.
- Grade 10 Alloy steel



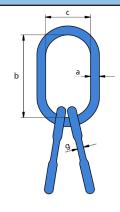
	Work Load	d Limits***	For Use With					
Stock Number	Lbs.	Metric Tons	Single and Double Leg GP Tycan® Chain Link Stock Number	Diameter a	Inside Length b	Inside Width c	Flat Thickness d	Weight (Lbs.)
UMS-18	9,520	4.32	TLHC-1115	23/32	5-5/16	2-15/16	11/32	1.76
UMS-22	14,460	6.56	TLHC-1120 / TLHC-1525	7/8	6-11/16	3-17/32	7/16	3.24
UMS-25	19,750	8.96	TLHC-1330	31/32	7-15/32	4-1/8	1/2	4.78

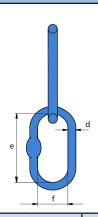
<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

# Green Pin® TYCAN® MASTERLINKS WITH SUBASSEMBLIES



- Designed for use with GP Tycan<sup>®</sup> Chain.
- Durable blue painted finish.
- Grade 10 Alloy steel





	Work Load Limits***			Dimensions - (Inches)								
			For Use With Triple and Quad Leg		Top Link							
Stock Number	Lbs.	Metric Tons	GP Tycan® Chain Link Stock Number	Dia. a	Inside Length b	Inside Width c	Dia. d	Inside Length e	Inside Width f	Flat Thickness g	Weight (Lbs.)	
UMTS-22	11,460	5.20	TLHC-1115	7/8	6-11/16	3-17/32	23/32	4-23/32	2-3/4	11/32	6.42	
UMTS-28	19,400	8.80	TLHC-1120 / TLHC-1525	1-3/32	8-9/32	4-17/32	25/32	4-23/32	2-3/4	7/16	10.50	
UMTS-36	30,860	14.00	TLHC-1330	1-13/32	10-5/8	5-29/32	31/32	5-5/16	2-15/16	1/2	22.05	

10

<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

# Green Pin® Tycan® Chain Components



# Green Pin® TYCAN® CONNECTING LINKS

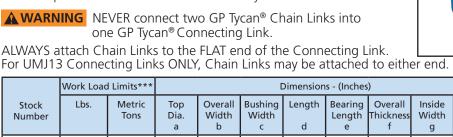


GP Tycan<sup>®</sup> Connecting Links are specifically designed to attach GP Tycan<sup>®</sup> Chain Links to masterlinks, pear links, rings, etc.

- Specifically designed for use with GP Tycan® Chain.
- Blue painted finish Grade 10 - Alloy steel

**WARNING** NEVER connect two GP Tycan® Chain Links into

ALWAYS attach Chain Links to the FLAT end of the Connecting Link.



_		Work Load	d Limits***	Dimensions - (Inches)									
	Stock Number	Lbs.	Metric Tons	Top Dia. a	Overall Width b	Bushing Width c	Length d	Bearing Length e	Overall Thickness f	Inside Width g			
	GPUMJT15	3,439	1.55	11/32	2-1/4	9/16	25/32	2-5/32	5/8	3/4			
	GPUMJT20	5,290	2.39	15/32	2-19/32	23/32	29/32	2-17/32	23/32	29/32			
	UMJ13	6,613	2.99	5/8	3-9/32	13/16	1-1/4	3-11/32	15/16	1-3/32			
	GPUMJT30	8,994	4.07	5/8	3-9/32	13/16	1-1/4	3-11/32	15/16	1-1/8			
	***Load hand	lina Work Lo	oad Limit ba	sed on a 5	:1 Desian I	Factor whe	n new.						

# Green Pin® TYCAN® SHORTENING HOOKS



GP Tycan® Shortening Hooks are specifically designed to connect directly back to GP Tycan® Chain Links for leg length adjustment.

- Specifically designed for use with GP Tycan® Chain.
- Locking pin
- Blue painted finish
- Grade 10 Alloy steel



Overall

Length

4-5/16

5-7/16

6-31/32

Dia.

1/2

5/8

25/32

25/32

Bottom

Dia.

1/2

5/8

5/8

25/32

Weight

(Lbs.)

.48

.82

1.49

1.72

Weight

(Lbs.)

1.22

2.27

4.40

4.23

b	11 1		Work Load	Limits***	Dimensions - (Inches)							
	i	Stock Number	Lbs.	Metric Tons	Bearing Length a	Connection Width b	Clevis Width c	Throat Opening d	Bowl Width e	Bowl Thickness f	Overall Width g	
/ / _	a h	GPUCRCT15	3,439	1.55	3-7/16	21/32	1-3/4	19/32	1/2	29/32	2-9/16	
		GPUCRCT20	5,290	2.39	4-11/32	7/8	2-1/4	25/32	5/8	1-5/32	3-11/32	
	f	GPUCRCT25	6,613	2.99	4-1/32	15/16	2-11/16	1	5/8	1-1/2	3-29/32	
	• •	GPUCRCT30	8,994	4.07	5-1/2	1-1/4	2-29/32	1-3/16	25/32	1-1/2	4-1/32	
		***I oad handl	ing Work Lo	ad Limit had	od on a 5:	1 Docian Fact	or whon n	0147				

Load handling Work Load Limit based on a 5:1 Design Factor when new.

# Green Pin® TYCAN® CONNECTING HOOKS



GP Tycan® Connecting Hooks are specifically designed to attach GP Tycan® Chain Slings to shackles, other fittings and/or load connection points.

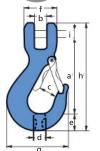
GP Tycan® Connecting Hooks may also be used in a choker configuration. See page 5.

- Specifically designed for use with GP Tycan® Chain.
- Robust latch (available separately for replacement).
- Blue painted finish Grade 10 - Alloy steel



**A WARNING** Never connect GP Tycan<sup>®</sup> Chain Links DIRECTLY to the bowl of ANY hook!





	Work Load	Limits***	Dimensions - (Inches)									
Stock Number	Lbs.	Metric Tons	Bearing Length a	Connection Width b	Throat Opening c	Bowl Width d	Bowl Thickness e	Clevis Width f	Overall Width g	Overall Length h	Pin Dia. i	Weight (Lbs.)
GPUCSCT15	3,439	1.55	4-3/8	21/32	1-3/16	25/32	15/16	1-3/4	3-7/16	6-7/32	1/2	1.58
GPUCSCT20	5,290	2.39	5-3/32	7/8	1-5/16	15/16	1-5/32	2-1/4	4-3/16	7-5/16	5/8	2.89
GPUCSCT25	6,613	2.99	4-15/16	15/16	1-7/16	1-1/8	1-11/32	2-11/16	4-7/8	8-5/8	13/16	4.74
GPUCSCT30	8,994	4.07	6-9/32	1-1/4	1-15/32	1-1/4	1-17/32	2-29/32	5-1/4	9-1/4	25/32	5.65

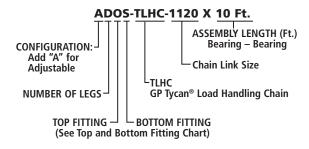
<sup>\*\*\*</sup>Load handling Work Load Limit based on a 5:1 Design Factor when new.

# Green Pin® Tycan® Chain Sling Configurations

## **HOW TO ORDER**

#### **ALWAYS SPECIFY:**

1. Complete Stock Number



- 2. NUMBER OF LEGS: Single, Double, Triple or Quad
- 3. CHAIN LINK SIZE: 1115, 1120, 1525 or 1330

#### 4. SLING LENGTH:

SLING LENGTH: All GP Tycan® Chain Sling lengths are REACH (Bearing – Bearing). The specified sling length is not possible due to fixed link lengths. The REACH will always exceed the specified sling length (reach) by one Chain Link unless otherwise specified when ordering.

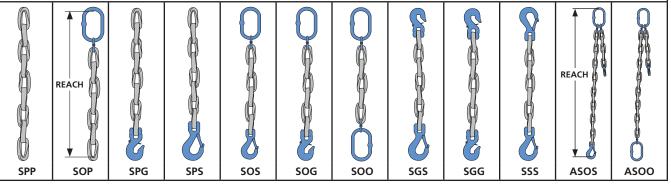
#### 5. SLING PROTECTION:

Description, location and quantity of sleeves. See page 3, Proper Use - Sling Protection.

TOP AND BOTTOM FITTING CHART									
CODE O	CODE P	CODE G	CODE S						

## Green Pin® TYCAN® CHAIN SLINGS - SINGLE LEG

- Single leg GP Tycan® Chain Slings are available in multiple configurations. GP Tycan® Chain Slings with bottom hooks may be used in choker, vertical and basket hitches. See pages 1 through 8 and page 11 for important proper use and safety information.
- All GP Tycan® Chain Slings must always have a minimum of FIVE Chain Links between fittings. See page 2, Figure 6.



GP Tycan® Chain Slings with a Plain End (code P) must ONLY be attached to fittings that meet GP Tycan® Chain Mandatory Fitting Criteria. See page 2, Table 1.

## Green Pin® TYCAN® CHAIN SLINGS - MULTIPLE LEG

Double, Triple and Quad leg GP Tycan® Chain Slings are available in Fixed and Adjustable configurations and are automatically supplied with Connecting Hooks. Other GP Tycan® fittings are available upon request.

See pages 1 through 8 and page 11 for important proper use and safety information.

All GP Tycan® Chain Slings must always have a minimum of FIVE Chain Links between fittings. See page 2, Figure 6. ADJUSTER Legs are always a minimum of FIVE Chain Links. Longer ADJUSTER legs must be specified when ordering.

