

SAFETY AWARENESS

Brief Topic Safety Refresher Training For Associates

2024

Tie Down Chains – Working Load Limit

Whether you transport machinery, use tow chains, or are in the logging industry, it's important to know the working load limits of chain you are using. Chains have a working load limit- or WLL- of approximately one third of their break strengths (the amount of force the chains can withstand before they break).

Working Load Limit

A chain's working load limit (WLL) is used as a safety measure to identify the chains which are sufficiently strong for overhead lifting. The process of lifting a load could be lethal especially if the incorrect equipment is used.

- A chain's WLL is the maximum tension that can be placed on an undamaged or new chain. The WLL's rated capacity is shown in pounds.
- The WLL is computed by dividing the chain's minimum breaking strength by its assigned safety factor rating.
- The chain's WLL is determined by its diameter and grade.
- Factors that affect a chain's WLL is constant wear, use, twists, alteration, corrosion, misuse.
- Chains must be inspected regularly to make sure it is safe to use.
- The WLL is different from the tensile or breaking strength. Chain manufacturers set the WLL to determine the maximum force that can be used on the product.
- The WLL is a quarter or a fifth of the chain's breaking strength. When a ratchet with a chain is used, the WLL is the lowest rating of the components utilized.

Working Load Limit in Pounds

Chain Size (inches)	Grade 30	Grade 43	Grade 70	Grade 80	Grade 100
1/4	1,300	2,600	3,150	3,500	4,300
5/16	1,900	3,900	4,700	4,500	5,700
3/8	2,650	5,400	6,600	7,100	8,800
7/16	3,700	7,200	8,750	-	-
1/2	4,500	9,200	11,300	12,000	15,000
5/8	6,900	13,000	15,800	18,100	22,600

Safety standards are constantly improving as chains are continually evolving. Having sufficient knowledge of chain grades' working load limits allows you to know which to use for your cargo. Make sure to select the chain that fulfills your specific requirements and needs.