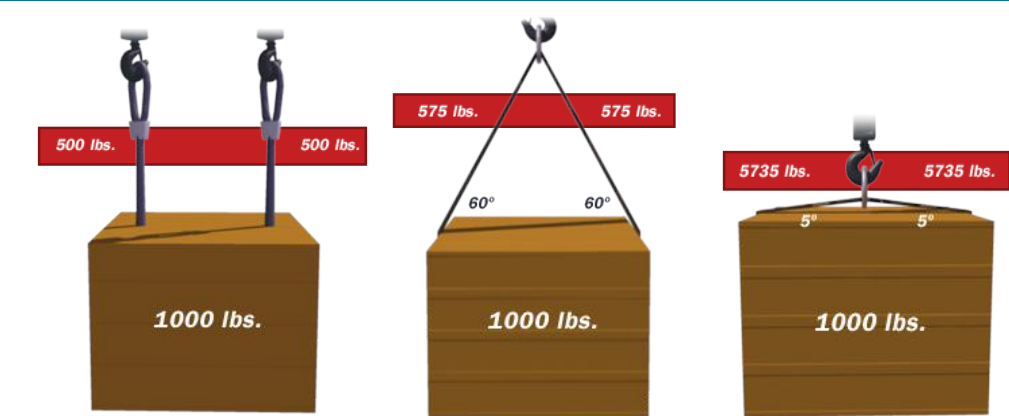


LOAD OF TROUBLE

KNOW YOUR WORKING LOAD LIMITS

Knowing the weight of the load is essential to safe crane operations. Load weight refers to the weight of the objects being lifted, as well as the weight of any load-attaching equipment, such as the load block, hooks, ropes, slings, shackles, and any other ancillary attachments. But actual load weight is only part of what requires consideration prior to proceeding with a pick. Consider the following factors and forces.

SLING ANGLES & HITCHES



Remember, the sling angles do affect working load limits. The smaller the angle, the less load a sling can carry. For example, if you had two appropriately placed slings vertical to the load, the total weight would be equally shared/divided between the two slings. But if you bring the two slings together on a hook, then the stress in each sling will increase depending on the angle. At a 60-degree angle, each sling would see 575 lbs of stress. At a 5-degree angle, the stress in each sling would skyrocket to 5,735 lbs.

LOAD CHARTS & DEVICES



Load charts are only as good as the operator, meaning they won't help if you can't read them. It's your responsibility to know how to use them. This should be a part of initial and on-going training.

Some cranes come equipped with multiple load charts. Make sure you use the correct load chart for the crane and set-up. To properly plan a pick, you need to first calculate and consider the weight of the load, and any attachments and rigging gear (hooks, slings, wire rope, etc.) being used to lift it.

Many cranes come equipped with load weight indicators, such as LMIs, to help you determine load weight and capacity, and even warn you when angles and weights might lead to tip over. You should know how to read these devices and test them before use.



CAPACITY TAGS ON RIGGING GEAR



Everything from wire rope to shackles, pins, and eyebolts should be load rated and approved by the crane manufacturer.

Eyebolts and shackles must have the safe working load limit printed on the body. Wire rope and slings (chain, synthetic, round, and fiber rope) also must also have legible capacity tags. These are usually sewn into the body or attached.

Never use any sling or rigging gear if you do not know its capacity or if the capacity tag is missing or illegible. And if they are damaged in any manner, discard them. In all cases, contact the manufacturer for replacements.



OTHER FACTORS

According to Newton's Law of Motion, an object in motion will stay in motion until it is introduced to equal or greater forces. During crane operations, there are several dynamic forces that can affect load weight and crane stability. Before picking and swinging an object, operators should appropriately plan for the loads introduced upon the cranes and the object it is lifting by the dynamic force of motion or external factors such as wind.

The force of wind or the dynamic forces introduced while swinging a load can cause side loading. Cranes are designed to pick up objects vertically. Picking to the side can cause a sudden increase in stress and lead to a tip over or damage to the crane.

Some cranes, like AT and lattice boom cranes, come with counterweight systems to increase stability. Always apply the correct amount of counterweights in the correct order and manner for the crane being used and the pick being performed.

