



Selecting The Right Chain Hoist – A Checklist

Selecting the correct chain hoist for your application can be a confusing task. We've compiled the list below to help answer your question, "How do I select a chain hoist", or "What kind of chain hoist do I need? "

Electric chain hoists are used for a variety of lifting reasons. The how to checklist below is going to help simplify which hoist will work best for you and your application. First, know that there are standard and non-standard Electric Chain Hoists. Non-standard hoists are for applications such as:

- Food Handling & Pharmaceutical
- Corrosive Environments
- Explosion Proof & Spark Resistant
- Precision Handling
- Outdoor Service
- Low Headroom

Capacity: First we'll need to know the weight of whatever it is you are picking up? Once we have this number we may round up to the nearest 1/4 ton, 1/2 ton, or ton. Depending on the manufacturer, the 1/4 ton and 1/2 ton increments will usually stop being offered after 3 tons of capacity. What does this mean for you? If your load is just over 3 tons in weight (6,000 lbs), you may have to upgrade to a 4 Ton chain hoist to ensure a safe pick and proper functioning of your new chain hoist. You will need to factor into the capacity such things as below-the-hook lifting devices, load supporting and positioning devices.

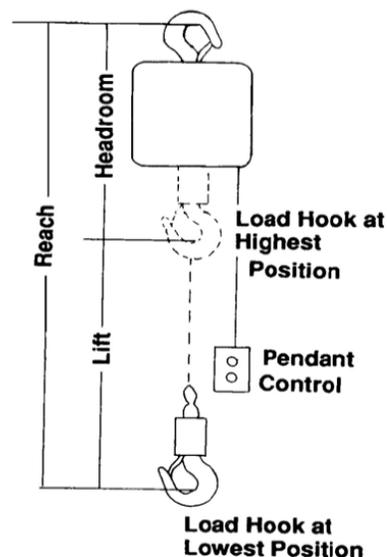
Duty Cycle: several considerations about Duty Cycle:

- Number of lifts per hour
- Total number of lifts per shift
- Maximum number of starts and stops per hour
- Number of shifts per day
- Average distance load is raised and lowered
- Average weight to be lifted
- Maximum weight to be lifted
- Frequency of lifts with maximum weight

Lift: Next we'll need to determine the amount of lift your application requires. To determine lift you will need to know two critical pieces of information. First, where will your chain hoist hang from; and secondly where will the load to be picked be located in relation to the chain hoist. Finding your lift number will be nothing more than subtracting the resting location of the item to be picked from the hanging location of the hoist. For example, if your item to be picked is located on the factory floor, and the beam the chain hoist sits on is at a height of 22 feet, then you will need at least 22 feet of chain lift with your new hoist. When in doubt, always add a couple feet of lift to be safe; chain is sold by the foot and it cannot be added to the existing chain. For example, if it turns out you will need 23 feet of lift, you will have order a completely new chain which can cost hundreds of dollars; if you had added 1 extra foot to your lift before ordering your chain hoist, the difference would probably be within \$20. It's a costly mistake that can easily be avoided.

Clearance: Clearance considerations also need to be known:

- Headroom
- Obstacles to be cleared during the load transfer





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- Design for vertical lift required including holding device height

Speed: Next we'll need to determine the speed in which you would like to lift your item. This can be a tough decision to make for someone who does not have a lot of experience with lifting, and may best be left to a professional to answer. Traditional speeds can range from just a couple (2 or 3) feet per minute to 16 and 32 feet per minute. Some new hoists, especially air hoists can lift around 100' per minute

The speed in which we lift items will be dependent upon a multitude of factors; the primary factor being safety. Some of the factors that must be known to safely pick a lifting speed are the following: What will be lifted? Is it fragile? Could it break/snap if it is jolted off the ground too quickly (such as a large piece of glass/stone)? What is the surrounding environment like? Is there adequate space around the pick to safely operate the hoist at the desired speed? Again, this question is usually best answered under the direction of a professional in the field.

Incoming Power Next we need to determine your power source. If you will be using single phase power, you will have to determine if the volt supply is 115 (what we find in our homes) or 230 (what our home dryers plug in to and often found in small machine and carpentry shops). Larger factories and industrial workplaces will usually be running on three phase power; three phase voltages range from 208, 230, 460, and 575. If you do not have this information, you should reach out to your power supply company; choosing the wrong voltage can instantly fry your new hoist, costing you thousands of dollars in replacement costs before you even get to use it.

Pendant Control Cable Length The pendant control cable length is also known as "push button drop" in the lifting industry. This is how far down from the chain hoist you would like the hand control to hang in the air. Standard push button drop is equal to 4 feet less than the lift. Using the example above, if you have 22 feet of lift, the standard hand pendant or push button drop will be 18 feet below the chain hoist, or 4 feet above the floor in this application. Always keep in mind what the lift length is.

There are times when the pendant drop will have to be a special length, and not the standard 4 feet less than lift. For example, some applications call for a chain hoist to lift an item from a hole in the floor that goes below floor level. In this situation you could have 35 feet of lift, but the factory floor may be only 22 feet below the where the hoist hangs. If we applied the standard rule, our pendant drop would be 31 feet below the chain hoist, but that means the operator standing at 22 feet below the chain hoist will have 9 feet of extra cable dragging on the floor, a serious safety hazard. In this instance, the pendant drop would deviate from the standard and we would specially order the drop to be 18 feet so the pendant hangs 4 feet above the factory floor, an ergonomic position for most people.

Type of Suspension



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Next we will discuss how the chain hoist will be suspended. There are two common options for suspending or hanging a chain hoist, Hook mount or Lug mount. With Hook mount, the chain hoist will come from the factory with a hook attached to the top of the body. This hook will rest inside an opening on the trolley, a rolling device that rests on the Beam (explained in greater detail below). There are two common types of hooks available, rigid and swivel. The rigid hook is just as it sounds, it does not swivel and therefore the chain hoist cannot rotate 360 degrees on the trolley as in the case with a “swivel” hook. The swivel hook is also just as it sounds, allowing for the chain hoist to spin clockwise or counter clockwise during operation. Swivel hooks are only used in rare applications.

Next is the Lug suspension option. A lug suspension is available on almost all chain hoists, and becomes particularly useful when there is limited *headroom* for mounting and operating the hoist. A lug suspension forgoes the hook we discussed above, and makes the hoist mountable to the trolley with just a couple of bolts/lugs.

Type of Trolley There are a few different options when choosing a trolley, but first let’s define what a trolley is. A trolley is a device that rests and rolls along the Beam your chain hoist will operate from. There are 3 common types of trolleys, we will discuss all three below.



Plain Trolley: Also known as a push/pull trolley, a plain trolley is the simplest form of trolley available. As discussed above, the hoist will hang from this trolley by either a hook or lug mount. A plain trolley will move the chain hoist along the Beam by human power via the hoist operator. The operator will grab either the hook or the item being lifted and pull or push the item to move it in the desired direction along the Beam.



Geared Trolley: A geared trolley is the next step up in ergonomics. With this option, the chain hoist operator will pull on a chain hanging from the trolley (much like a manual overhead door operator), and the trolley will use it’s gears to roll the trolley wheels along the Beam instead of human push/pull power as we discussed with the plain trolley. When ordering a geared trolley, one must specify the *hand chain drop* required. Standard hand chain drop is 4’ less than lift, similar to the *pendant station or push button drop* we discussed earlier.



Motorized Trolley: The motorized trolley option is the most ergonomic of all the options we’ve covered. This option is exactly what it sounds like, instead of a plain push/pull trolley, or manual geared trolley, this trolley will have a motor attached to the side of the trolley wheels. A motorized trolley can have it’s own control pendant that will hang down from the beam in close proximity to the chain hoist pendant. Typically ELS will wire the trolley into the chain hoist and bring the controls down to the same pendant control used by the chain hoist itself; keeping all controls on one push button station, and thereby creating a more efficient and ergonomic operator environment. A trolley speed must be specified when ordering a motorized trolley. Industry standards are 35 fpm and 75 fpm, but accommodations can be

made for fragile, or sensitive loads that require a little more finesse. Occasionally VFD controls are implemented for very smooth start/stops. To determine a safe trolley speed for your lifting application, contact an ELS Technical Sales person.