



Buying Your First Crane? Here's What You Need to Know



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In the image above, the biggest crane is a [15 Ton model](#) that is 24 feet tall with a 35-ft span. The next size crane is a 10T19-20 ([Tri-Adjustable, 10 Ton capacity](#) 19-ft max overall height with a 20-ft. I-beam span). The smallest is a Wallace [Mighty Mite](#) with a 500 lb. capacity, 8-ft tall (adjustable) and a 10-ft I-beam).

Buying Your First Crane – Here’s What You Need to Know

Thinking about buying a crane? Before selecting the crane that fits your needs you will need to answer some straight-forward questions.

Crane selection is a simple choice.

1. How heavy is the load you want to lift?
2. How wide does the crane have to be to span the load? A Wallace crane will typically not exceed a span of 35 feet.
3. How high do you have to lift?
 - a. Does the load have to be lifted over equipment on the shop floor?
 - b. Do you have any ceiling restrictions?
 - c. Does the crane move over the object, or does the object move to the crane?
Wallace cranes are often used with a forklift, the forklift moving the object under the crane. And in some cases, the crane will span a loading dock to pick loads from flatbed trucks.
4. Will the hoist and trolley be manual or electric? If the hoist is electric, what is the required voltage? Higher capacity hoists, greater than 2 tons, generally require 3-phase electricity.



Wallace offers hundreds of different cranes and works with major hoist vendors to provide a broad range of lift equipment, so you have a guaranteed fit. If “standard” does not work, we have an equally broad range of custom and semi-custom options with capacities from one-quarter to 15 Tons.

Our sales staff can guide you through the selection process.

What is Stacking and why is it important?

Stacking is everything underneath the I-beam which reduces your effective height. Included are the:

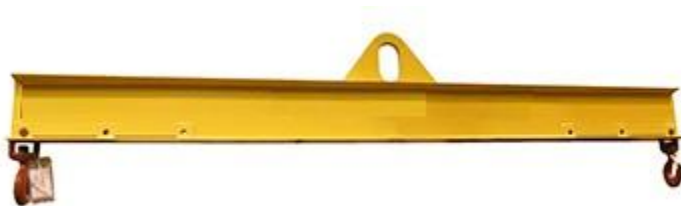
Trolley



Hoist

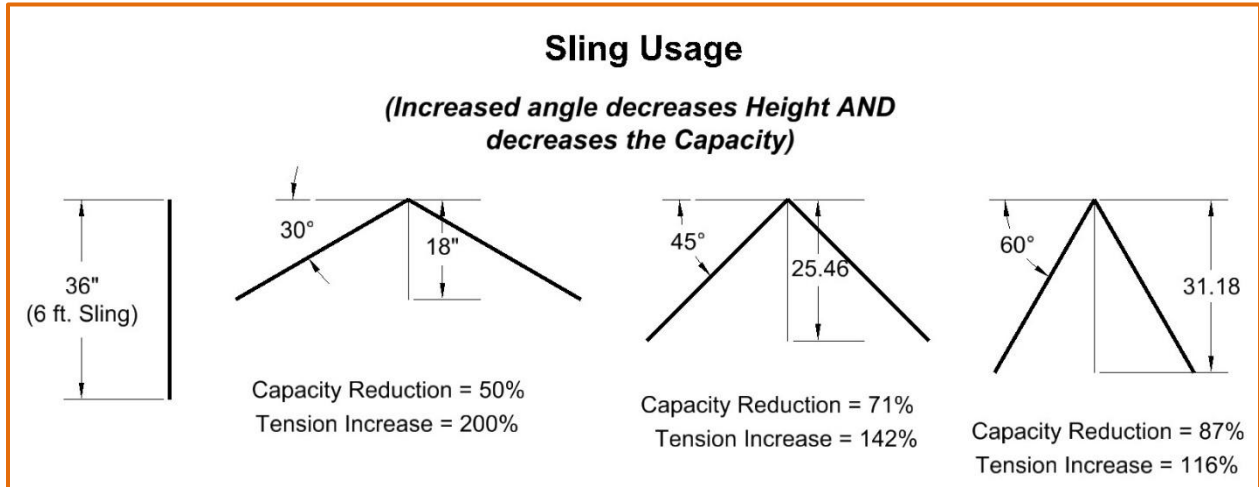


Spreader Beam



It is imperative that you understand that a hoist must be suspended with a hoist/trolley combination or at least a beam clamp. You should *never* attach a hoist to the I-beam with a sling.

That said, slings are frequently used to pick up both bulk materials and delicate or oddly shaped objects. While convenient, slings can add substantially to the “headroom” (see this section).



This image clearly shows that sling height is close to the headroom of most hoists, so you want to be sure your crane is tall enough to pick up what you intend.

Keep It Clean, Environmental Concerns Allayed

At full-rated capacity, Wallace cranes are designed to move easily across a smooth, flat, concrete floor. While the proprietary four-bar linkage ensures the casters are all on the floor, you should avoid moving the crane over obstructions and debris.

One of the ironies is that a crane for use in a clean room is frequently used in waste water treatment. In a clean room, the unpainted aluminum I-beam typically does not “shed” particulate matter. And the lubricants used in the hoist (and the hoist chains), trolley, and casters have minimal outgassing.

Because of the use of corrosives like chlorine compounds or the need to run the cranes outside, aluminum is often preferred for both light weight and weather resistance. Light weight is often a key consideration as our cranes are frequently shuffled between sites or within a single site where there are no continuous paths between various tanks or pump locations.

Working with the hoist vendors, Wallace can provide “food-grade” hoists and trolleys for either clean-room or harsh environments (chemical or outdoors). However, in many cases, standard grade equipment (available at far lower cost) is used instead of the costly stainless-steel equipment with stainless-steel chains. You can often get several years of life even in adverse conditions.



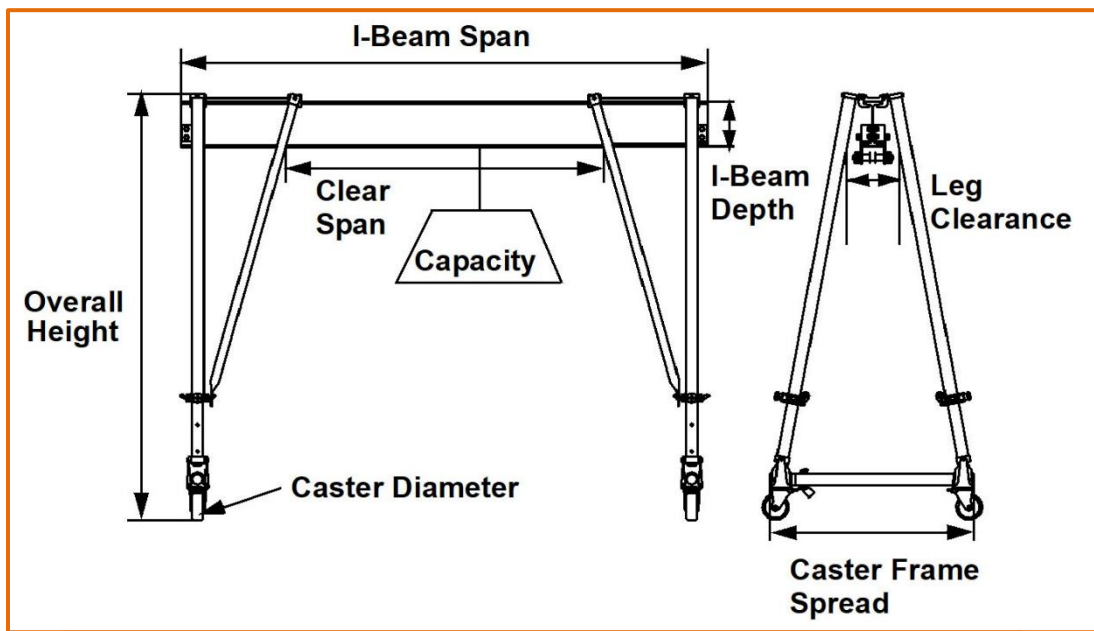
Other Planning Concerns

Before buying, you must also make sure the location is suitable for the crane. Wallace Cranes are designed to move on smooth flat, concrete surfaces. There are a few cautions to be noted about the concrete flooring. Because of the loading of the crane transmitted to the floor through

the casters (essentially a “line load”), the flooring beneath a crane should be 3,000 psi (pound-force per square inch) concrete at least 18” deep with one or more courses of rebar. The standard Wallace casters, in either phenolic or steel core with polyurethane tread, are fully capable of smoothly running the crane across the floor at full load.

An option is to have the crane track mounted. For these cranes, typically with an electric motor drive, the casters are replaced with V-groove steel, running on track (angle iron mounted on a plate). Wallace builds this track in-house with three different capacities, 1-5 tons, 8-10 tons, and 15 tons. The track sections are available in standard 5 and 10-ft lengths, with male and female sections for smooth running. The track is held in place with a Wallace Track Clip (a cast iron part) bolted to the high strength concrete floor. Wallace also makes track with end stops and a removable transition section for high traffic areas.

Terminology



- **Capacity** – How much weight is the crane designed to carry?
- **Caster Diameter** – Outside Diameter (OD) of the caster (ranges from 6” to 12” depending on load rating)



- **Caster Frame Spread** – The size of the “base” on the crane.
- **Clear Span** – Distance between brace legs (if present).
- **I-Beam Depth** – Height of the I-Beam, ranges between 4” and 24”, dependent on Span and Capacity.
- **I-Beam Span** – Overall Length of the I-beam. While most charts show 5-foot increments, I-beams can be cut to fit.
- **Leg Clearance** – Distance between the legs at the bottom of the I-beam. This tells you if a hoist can fit through the legs.
- **Overall Height** – Height of the crane from the floor to highest point.

While not a complete list, knowledge of these basic parameters will help you address the issues in getting a crane to fit your particular needs. While Wallace offers hundreds of standard cranes (fixed height and adjustable) and can modify many of the “standard” models, some parameters cannot be changed. For example, the span and the desired load lock in a given I-beam section.

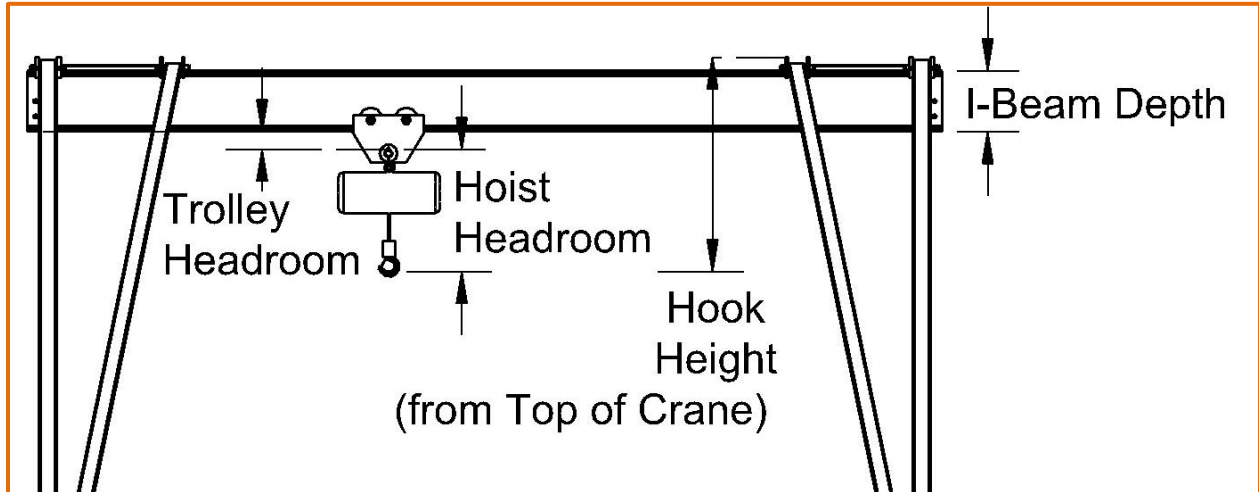
And while caster frames can be “adjusted” the amount of adjustment is limited by the requirement to keep the crane stable both statically and while rolling.

You may also note that the Tri-Adjustable, Hippolift, and Mighty Mite cranes all have brace legs. These legs keep the frame rigid while moving, providing additional stability in the line of travel parallel to the I-beam.



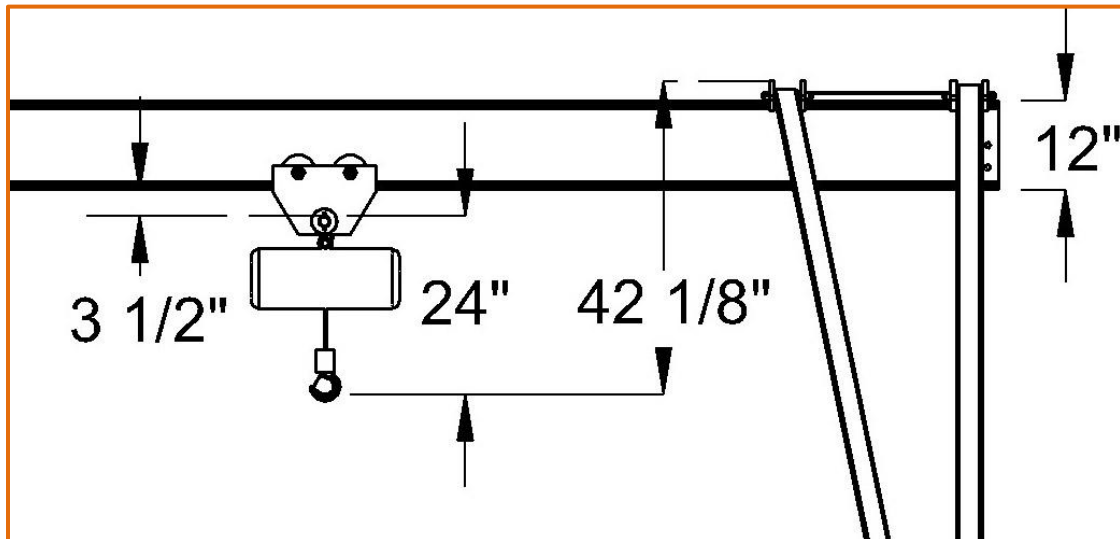


Headroom Basics



- **Hoist Headroom** – Hook to Hook Distances
- **Hook Height** – Distance from the top of the crane to the hook. Subtract this distance from the Overall Crane Height to see if a given crane will “fit.”
- **I-Beam Depth** – For a given capacity and span, this number cannot be changed.
- **Trolley Headroom** – Distance from the bottom of the I-beam to the top of the hook.

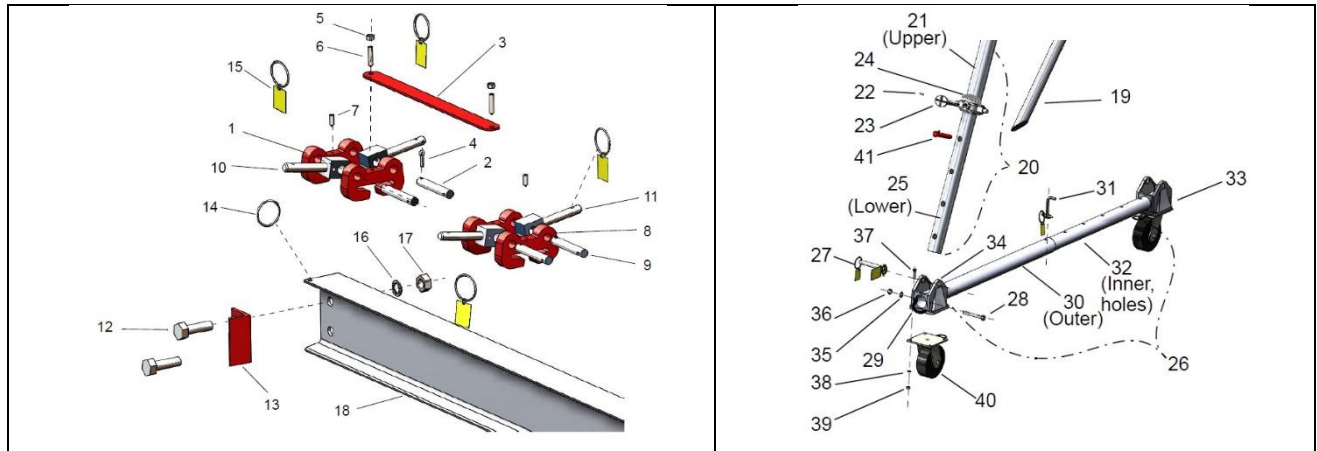
Example for a 3 Ton Crane, Typical Sizes



The sketch above shows a “typical” trolley and hoist mounted on a 12” I-beam. As stated before, when you start to consider all the heights for the crane brackets, trolley hook height, I-beam depth, hoist “hook-to-hook,” the amount of available space “below” the hook decreases rapidly. The Wallace sales staff can help you choose the correct crane and hoist/trolley combination to meet your lifting requirements.



Assembly



Wallace Cranes assemble easily with normal shop tools such as sockets, wrenches, screwdrivers (to attach safety tags and restraining pins), and hex wrenches. Most pin assemblies require at most a 16 oz. hammer so there is no need to force assembly. The TRICKIEST part of the assembly is the need to have the crane suspended so the legs can be attached to the I-beam. There are three recommended methods for assembling the crane:

- **Overhead crane** – Should be tall enough to accommodate the fully extended legs
- **Forklift** – For many, this is most convenient option.
- **Tripod** – Wallace sells tripods which can be used to assemble our Tri-Adjustable, Thrifty, and Hippolift cranes in remote locations without access to an overhead crane or forklift.

Wallace Cranes also disassemble easily to allow site-to-site or within site movement. To help with moving disassembled cranes, we offer [Kart Kits](#). These kits use the Caster-Frames with a support frame to hold the parts securely during transportation. Note there is no need to fully disassemble a crane to move it. A 5 Ton Kart Kit is shown below.





Product Matrix (R0)

- Aluminum vs. Steel – Steel less expensive, higher capacity, higher height, longer span.
- Aluminum advantage – much more portable, but at a cost.
- Fixed Height vs. Adjustable – Fixed height is frequently lower dollar cost but offers decreased flexibility.

Fixed Height advantage – Easier to customize for “special fit” situations.

Product Lines

Thrifty



- In Steel or Aluminum.
- Either Fixed Height or Adjustable Height.
- Capacities: ½ to 7 ½ tons.
- Spans to 30 feet. (Lower heights and shorter spans in Aluminum.)

Tri-Adjustable



- In Steel or aluminum.
- Capacities: 1 to 10 tons.
- Heights from 4 to 24 feet.
- Spans to 35 feet.
- Adjustable Height.
- Caster Frame.
- Span (includes Cantilever Capability).



Hippolift



- Fixed Height Steel.
- Capacities: 1 to 5 tons.
- Spans to 35 ft.
- Heights: Nominal 10, 13 or 16 ft.

Are you ready to buy that crane now? If you still have questions, we have experts on hand happy to assist you.