Crate Buyer's Guide

Smart. Packaging. Fast.

Reduce Costs and Damage, Gain Efficiencies,
and Enjoy Flexibility with a True Packaging Partner

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Larson Packaging Company designs and produces unique crating solutions – we design our crates to exceed your most demanding specifications using only quality materials to ensure a superior enclosure that safeguards your shipments without over packaging.

Why use this Guide?

This guide will make you aware of some of the important considerations when designing and ordering crates for shipping. Buyers sometimes provide specifications that are insufficient to design an appropriate skid or crate for the purpose intended, thus risking re-work, improper packing, damaged product or machinery, transit delays, production downtime, or an injured worker. And they sometimes order crates that are overly complicated or overbuilt, hence more expensive than required. We know that an educated and informed buyer is the best customer, and we have prepared this guide to help you learn how we can serve your needs best.

This is not comprehensive, because there are many details that we, as the crate designer, are responsible for specifying. This guide is designed to stimulate thinking and elicit from you the basic data that form the foundation of our design approach. We then focus on final details to design and build the crate or shipping base.

How to use this Guide:

Crates and heavy duty skids are designed for the size, weight, shape, fragility, sensitivity and destination of the item to be shipped. They may include floater bases and foam lining or supports for shock and vibration protection. Specialty hardware, blocking, and ramps may be included to facilitate reuse or loading.

Crates and shipping bases can be extraordinarily different. The design serves your purpose based on the characteristics you select.

Each crate requirement and specification affects design, construction and cost. Less sensitive product or machinery, smaller dimensions, less wood, lower grade wood, fewer cuts into or modifications of the wood, and less hardware, translate into less cost. When you make a decision about a characteristic or feature.

Note that “crates” can include wire bound boxes, bins, open crates, nailed wooden boxes, and cleated panel boxes.

Cleated panel boxes, comprise the bulk of commercially used crates and offer superior protection against weather hazard. They are also stronger and more rigid than open crates. Therefore, these types of crates are our focus in this guide.

There are dozens of glossary terms in the crating business, but you need to know only a few to specify the characteristics of your crate needs. These terms are included in the points below.

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1) Packaging Engineering/Crate Design

The majority of crates are the 601A design (see Figure 1). These are a light duty crate suitable for most purposes and can be strengthened with intermediate cleats (additional boards between the edge cleats) and/or thicker sheathing (the wood, usually plywood that makes up the four panels and the top.) When top loading is diffcult or front loading desirable, or if the item to be crated is heavy or bulky, a 601A D/E (Drop End) crate may be called for (See Figure 2). Once the item is on the base, the cap (the top, two sides and two ends) is placed over it and fastened to the skids, usually with lag screws. Depending on the type and weight of the item, the base may be plywood or lumber. A shock absorbing floater base (a platform raised up from the base of the crate by compressable material, usually polyurethane, polyethylene or polypropylene foam) may be added as required. Similarly, risers, rails, removable supports or blocking, and ramps to facilitate loading and unloading may be useful or required.

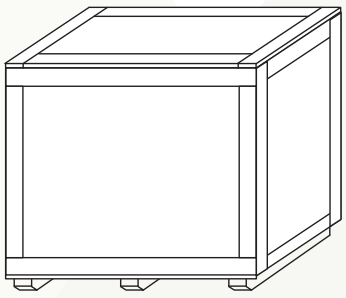

Fig. 1 601A Crate

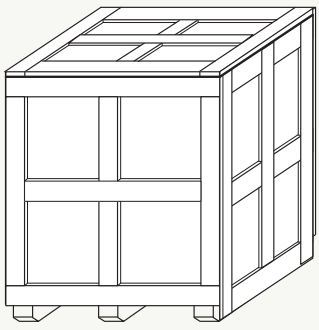

Fig. 2 Drop End Crate

If you have an existing drawing or specification, please provide that to us. Frequently, design, engineering, and manufacturing can interact to create revised specs that perform better and reduce cost. Also, if you know that MIL-SPEC design or packing is required, please indicate that.

2) Degree of Protection

Depending on what you are shipping, whether it is a box, a sensitive product, a machine, or miscellaneous items, you might need just a pallet or a skid. A pallet with no bottom deckboards is called a skid (see Figure 3). Skids also refer to the timbers under a crate or base that allow for forklift entry. Or you may require full protection from the elements and potential damage, which requires a crate. In some cases, a base with a corrugated sleeve or cap may be suffcient. Please specify whether you require a skid or a crate.

3) Description of Item

What are you shipping? Is it a product? A machine? Something else? What is it called? What does it look like? Is it uniform or odd-shaped? Does it have legs or wheels? Many things that need to be crated must be measured and examined by us in person, but please provide a brief description of the item(s).

4) Size

If you know the inside dimensions (ID) of the crate you'll need, please specify that. This is also known as the cavity size if the crate includes internal foam or blocking. Sometimes you may know the outside dimensions (OD) required. The length is specified first and is always the longer of the horizontal dimensions. Specify length, width and height. Note that if you specify OD, the height is measured from the ground. Otherwise, how big is the item or items? Please be sure to include the measurements of any protrusions, handles, attachments, etc. Also note if the item is odd-shaped, off-balance, etc. Please specify the dimensions of the item to be crated, or, if known, the inside crate dimensions.

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5) Weight

What is the weight of the item? The weight will largely determine what type of base is required (lumber or plywood), and if plywood, what thickness. The weight of the item will also determine the quantity and size of skids required and whether or not reinforcement is required to prevent twisting or flexing of the base. Please specify the weight of the item or the maximum weight the crate will contain.

6) Destination and Transportation

Different countries have various phytosanitary requirements, and the lumber (possibly heat treated) and documentation required to allow solid wood packaging material to enter a country must conform to precise requirements. The professionals at Larson Packaging Company are familiar with all the current requirements and will prepare the crates and the paperwork to guarantee no delays for those reasons. Please indicate if the destination will be domestic or international and if the latter, what country or countries the crates will enter.

Similarly, ocean-going crates frequently require additional protection from the elements and moisture such as a barrier or corrosion inhibiting film or bags, dessicant or vacuum cleaning. Air shipments should be made as light as possible. The mode of transportation affects crate design and how the contents are protected. Please specify all modes of transportation.

7) Number of Uses

How many times will this crate be used? A crate that is to be used multiple times is built stronger than a crate for one-time use. In addition, reusable crates must be sealed and opened multiple times. Some crates may require no tool to open them (tool-less).

8) Shock and Vibration Protection

Many products and types of equipment are sensitive to shock and vibration. Floater bases with appropriate types and quantity of foam can alleviate the effect of these forces. Crates can also be foam lined or products can be blocked or braced with foam to absorb lateral and vertical shock. Finally, indicator devices and special labeling are available to ensure that you know how your item was handled, telling you if a shock or tipping violation occurred. Please indicate if the item to be crated needs to be protected from vibration and/or shocks, and to what degree.

9) Loading and Unloading Ramps (special considerations)

How you load and unload your product(s) into the crate is an important part of the design. In simple terms, crates can be put together in a variety of ways to facilitate loading and unloading. On small crates, the top can be removable. On the other hand, if your product is heavy, you may opt to have the side loose. If the product needs to be fastened to the base for some reason, you may want to have the entire cap loose.

Finally, if your product is particularly large and heavy or difficult to load and fasten to the base, the cap and front can both be loose and slid over the product and closed once loaded (see closure device). This is particularly useful for drop-end crates and for packing equipment for transport. How will your product be loaded? By hand? Overhead by crane? Forklift? Can it rest on the base or does it need specialty blocking, rails, a well, or strapping/hold-downs to secure it? Are tools ok to use, or must it be tool-less. For many medical devices or server/storage racks, the crates are built in such a way that the product is shipped complete and rolled into the crate. In these cases, a ramp built into the crate can be very useful. For heavier products, the ramp may need structural supports, or steel runners or a tip to ensure durability. The ramp can be hinged on the base in which case the structural supports will be on the outside, or the ramp can be removable for a cleaner look and better truck cube utilization. In the case of a crate with an internal floater base for shock and vibration protection, it is important to not hinge the ramp on the floater base. Many manufacturers design their crates that way for convenience, but when the crate is closed, the hinge locks in that portion of the floater base, thus rendering a portion of the shock/vibration protection system ineffective.

10) Assembly

Crates can be furnished either set up (nailed together) or knocked down ("KD"). Please indicate your preference, and if set up, which panel(s) you would like left off: the cap (the five panels over the base), the top only, front only, or top and front. Please note that in the crate industry, the front and back panels are called "sides," and the left and right panels and called "ends." See Figure 1.

11) Closure Device

When one or more panels is left off, it is up to the customer to package and close the crate. The crate can be closed with nails, screws, lag bolts, or reusable fasteners not requiring tools such as Klimp fasteners (L-shaped clips that snap in place) or Link-Locks (cam operated devices that clamp together). These can be installed or provided to you. Exterior strapping can also be provided. Please select the closure device you prefer.

12) Packing Service

We offer a full line of packaging services to ensure that your item is protected and crated properly. This includes wrapping, vacuum-packing, desiccants, strapping, blocking, foam lining, enclosure, and sealing and labeling your crate ready for shipment. We can pack for you at your site or at our facility.

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13) Logistics and Shipping

If you would like packing in-house at our facility, please indicate whether you will deliver the items to be packed to us, or you would like us to pick them up. In the latter case, and depending on the item and the need for shock and vibration protection, please indicate if either an Air-Ride truck and/or lift gate is necessary. After the item and crates are packed, you may arrange for them to be picked up, we can deliver them locally, or we can arrange full logistics and insurance with third parties so they arrive at their destination safe and sound.

14) Appearance

Crates are designed to function adequately for the intended purpose. Thus, depending on the requirement, they can be fabricated from various grades of wood. In addition to structural performance, wood grades used can affect appearance which may or may not be important to you as our customer, or perhaps to your customer. “Industrial” appearance is least expensive. The increased cost of “Standard” appearance results from a higher grade of wood. “Show Quality” makes the best impression aesthetically and is appropriate for trade shows or public displays. Note that we generally comply with MIL-SPEC packaging design unless you want or specify a lower-cost solution. Please select the appearance of your crates.

15) Stencils/Markings

A variety of exterior crate markings or stencils can be useful. Common markings are the standard international symbols — “this end up” (Up Arrows), “fragile” (broken wine glass), “keep dry” (umbrella) — To and From Address, Part Numbers and Rev Levels, Weight and Dimensions. Please indicate what stencils or markings you would like, and the details.

16) Requirements and Performance

This guide provides an explanation of the basic requirements in order to design an appropriate crate for your item to be shipped. However, the uniqueness of most products and machinery to be crated, and the number of specialized details required to ensure a successful shipment, generally require a personal visit and analysis of the situation. We consider many factors and may suggest other items required to protect, load, block and brace, containerize, and prepare your product and/or equipment for shipment and safe arrival anywhere in the world. In many cases, our experience and engineering can help you design an effective crate for successfully shipping your product. Certainly successful shipping and performance can be observed and measured empirically. However, for certain applications, it may be important to test your packaging and certify it for UN requirements, international shipping, ISTA certification, etc. Or, you may want to go beyond the experiential and have a thorough understanding of the performance of your packaging, and whether or not it meets specific shock and resonant frequency dampening requirements for your product. In this case, we can help you independently and objectively test your packaging.

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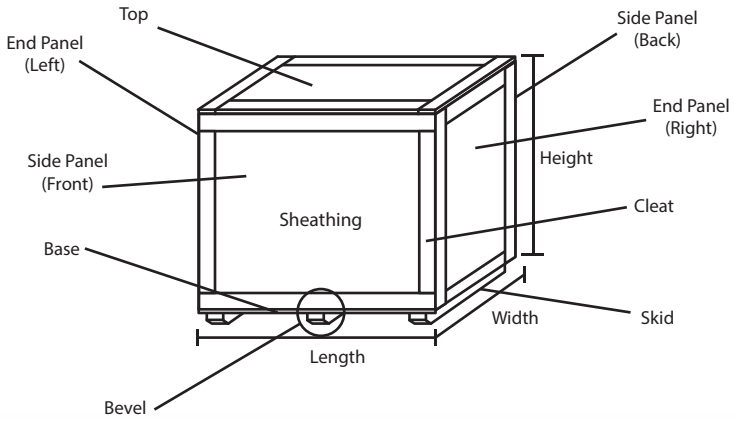
601A CRATE

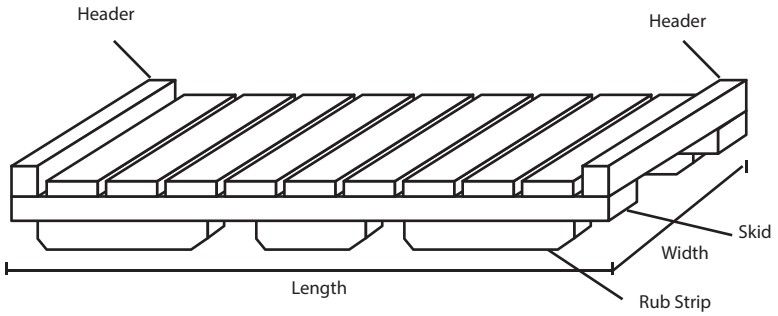
Fig. 1
LxWxH 601A Crate



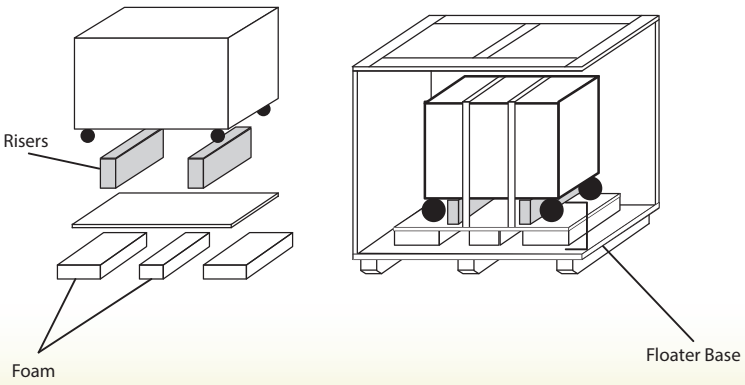
Note: Intermediate cleats (not shown) may be required depending on size and application

26195 HEAVY DUTY SKID

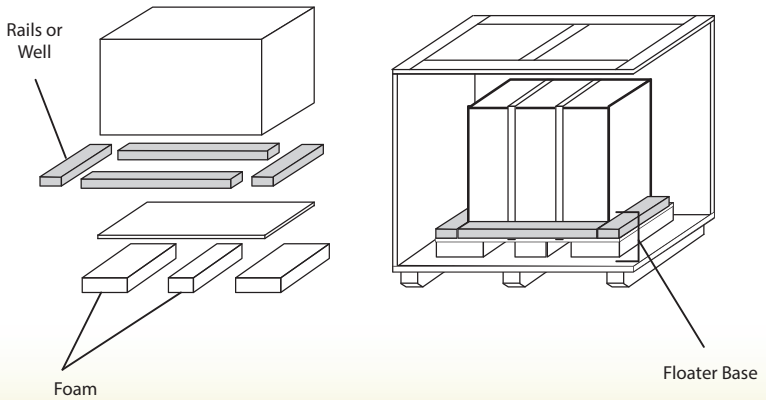
Fig. 3
LxW 26195 HD Skid



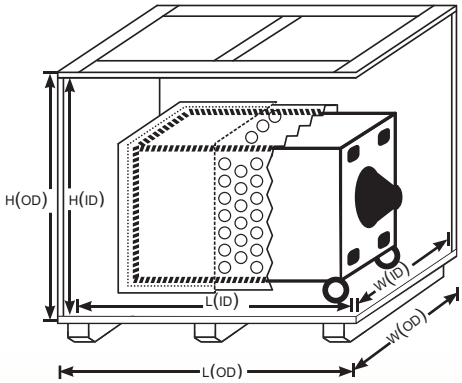
Floater Base with Risers



Floater Base with Rails

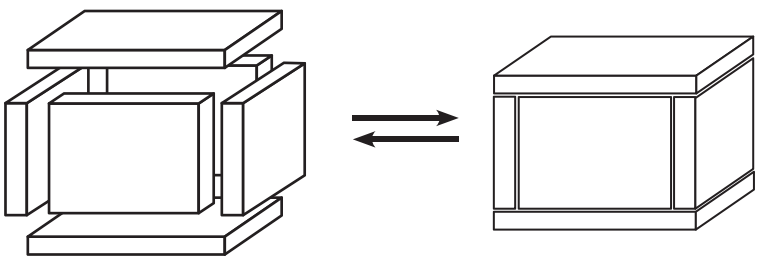


Dimensions



Assure you always include any protrusions in your product dimmensions.
Watch for bolt heads, antennas, casters, door handles, etc.

Full Cavity Foam Lining



Special Considerations for racks and medical devices

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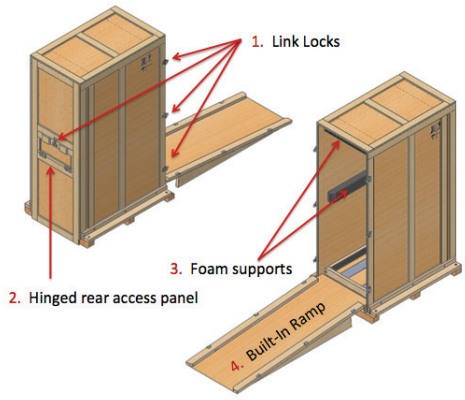
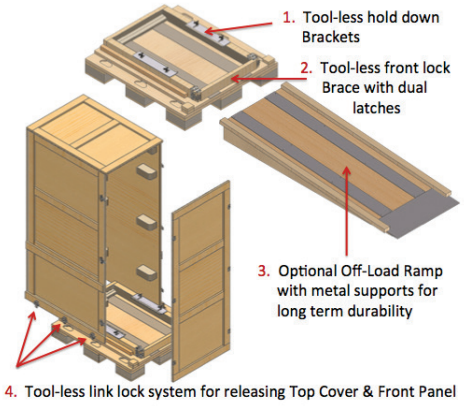
Crates for server and storage racks and medical devices are typically used to transport very expensive equipment and frequently used multiple times. They must be designed for performance, and the realities of the receiving departments in data centers, hospitals. and doctors office often indicate a need for tool-less designs and ease of unloading. All of these types of crates are custom-engineered and the options are many. Below we've listed a few of the most popular considerations and options that we've recently innovated.



(Tool-less) Rack Crate w/Built-In Ramp

Design Options

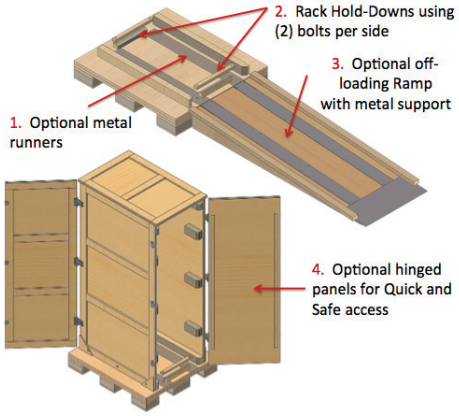
1. Heavy Duty Link Locks for secure tool-less access (Klimps can be used for savings but may require tools for removal)
2. Optional rear access panel to facilitate rack removal
3. Top and Side foam for added stability and protection
4. Heavy Duty ramp incorporated into the front panel for loading / unloading capabilities



(Tool-less) Rack Crate w/removable cover

Design Options

1. Metal hold-down brackets with tool-less knobs
2. Heavy-Duty front brace with dual link locks for added shipping security
3. Heavy-Duty ramp shipped separately for off-loading racks
4. (6) Link Locks for quick and easy removal of Top cover



Bolt Down Rack Crate w/Hinged Doors

Design Options

1. Metal Runners recommended for weights over 1,750 lbs.
2. (4) Hold-down bolts to attach rack to floater base (ratchet required)
3. Heavy Duty ramp shipped separately for off-loading racks
4. Hinged front and back panels with link locks for quick and safe access (Doors can also be attached with link locks or klimps for cost savings)

Get in Touch Today

Make your life easier and make your packaging dream a reality—partner with Larson Packaging Company to get Smart. Packaging. Fast.

Call Now for a risk-free Design Consultation:

408-946-4971 or visit us at www.larsonpkg.com

Larson Packaging Company
1000 Yosemite Drive, Milpitas, CA 95035