

# 10 Things To Know Before Buying A Data Center Lift System

Installing heavy IT equipment into a rack poses a significant risk of injury to valuable employees if done manually. You are making the right decision to use a data center lifting tool. Before you purchase a server lifter there are important considerations to take into account. Some characteristics that may be touted as benefits could have serious consequences if you don't know what to look for.

## 1. The Device Must Be Purpose Built For Data Centers

There are two aspects to consider regarding this issue. One pertains to suitability of the server lifting device to the data center environment and the other concern is with regard to the potential for code or policy violations.

A common error is to purchase a server lift device that is designed for general purpose or warehouse applications. Often they are not easily maneuverable in data center aisles, have inadequate braking systems and don't have a mechanism to extend into the rack for safe and easy installation.

If the lift device uses hydraulic fluids or oil in any of the mechanisms it may be a violation of the data center policy. These policies and codes are to protect people and equipment and should be strictly adhered to.

## 2. The Lift System Must Be Able to Fully Insert Equipment Into Racks

Most general purpose lift systems will lift equipment to the desired height, but cannot hold it in place in the rack while it is being fastened in position. Installing heavy equipment with a gap underneath then requires several technicians to hold the device while one fastens it in place, wasting time and assuming safety risk.

A lift system that can hold the equipment in place in the rack while it is being fastened is the only way to enable a single technician to safely install heavy equipment without the help of assistants.

## 3. Don't Risk Radio Frequency Interference

All IT equipment such as servers, switches, and power supplies are governed by regulations for radio frequency interference (RFI). RFI signals can be caused by a variety of electrical devices. The most common source comes from a powerful magnetic field that is generated when starting or stopping electric motors. A magnetic surge near communications equipment may interfere with data transmission and in some cases may even damage equipment.

To eliminate the possibility of RFI damage, a hand operated device is recommended. One with high ratio gearing should be adequate for the average employee to manage without difficulty.

## 4. The Lift Table Must Remain Solid And Level Under Your Maximum Load

The lift device must be rated to accept the weight of servers, switches, batteries and power supplies that you use today. It is better to select a unit that has greater capacity than you presently need in order to accommodate heavier equipment that may be implemented in the future. A lift device designed for general purpose applications or one not meeting your weight specification may result in unexpected problems when attempting to install data center equipment. Installing servers into a rack requires far more precision than placing loads onto warehouse shelves. If the platform sags under load it will make the installation difficult and may even result in dropped equipment. The load must be secure and level to facilitate easy application of the mounting hardware.

## 5. Equipment Orientation And Size Is A Factor

Some server lifters are designed with a rectangular footprint and a "mast" on which the lift table and load is suspended. These are typically powered, side-loading devices. Others have a square footprint on which a "tower

style frame” is mounted to support the lift table. There are several advantages to the tower design. This type has a smaller footprint to more easily accommodate tight aisles in the data center. They are safer to use since the tower frame is strapped to the rack during the lift. This reduces the risk of the lift tool and equipment toppling over during installation. The small footprint allows for 360 degree rotation in the aisle to accommodate racking on either side of the aisle. It also eliminates the need to preplan side loading orientation before entering the aisle.

## **6. The Lift Mechanism Must Provide Precise Adjustment And Good Lifting Speed**

To enable quick and easy installations the lift table must be accurately aligned to match the equipment mounting points on the rack. A mechanical winch allows the operator to quickly position the load with ease and precision. Electrical lifts tend to produce an overshoot or undershoot result similar to that of electric windows in a car making alignment tricky and time consuming. Manual units using a winch equipped with an “auto-brake” allow the user to simply let go of the handle when the desired rack height is reached. The lift time for a heavy load is typically less than 50 seconds.

## **7. The Lift Tool Must Reach The Desired Rack Height**

General purpose lifters may not have the capability or safety features to lift heavy IT equipment to the desired rack height safely. A data center lift tool should be able to install equipment at the bottom or top of your racks without concern for equipment falling or injury to workers.

## **8. Braking System And Safety Straps Are A Must**

Most lift tool designs incorporate some form of braking system to stabilize the lift tool during operation. Although a braking system is important we believe in added protection when it comes to safety – especially if you are lifting heavy loads. In addition to a braking system your lift tool should be supplied with straps to temporarily fasten the lift tool to the rack during lifts.

## **9. Avoid Battery Powered Or Hydraulic Devices**

One often overlooked aspect of a lift device is the mechanisms that generate the lift action. Some server lifters use battery powered electric motors. Over time or with excessive use batteries can leak due to failure. The corrosive acid from a battery can have serious consequences in a data center. Additionally any device that uses hydraulic fluids or oil should be avoided as they are prone to leakage when seals fail. Although these fluids may not be corrosive they are usually colorless and may cause slips and falls. Another drawback of battery powered systems is the need to charge them biweekly whether they are used or not.

## **10. Ensure Equipment Can Be Secured During Transport**

Be sure to consider what happens to communications equipment as it makes its trip from the warehouse to the data center. Vibrations and minor bumps along the way can cause the load to shift and possibly fall off. Specify a lift tool that features a locking tray when the lift is in the lowered position. Additionally there should also be a set of ratchet straps affixed to the unit to secure the load while in motion.

## **Summary**

Although it may be tempting to buy into the marketing hype of electrically powered server lifters, you can see there are more disadvantages than there are benefits to doing so especially when you consider the comparatively high price tag. Lifting a server into a rack is a basic job that requires only a basic tool to accomplish the task.