

BEST PRACTICES for MOVING
IT EQUIPMENT
IN THE DATA CENTER



14 Specifications for Choosing a Data Center Infrastructure Handling (DCIH) Device

Best practice data center operators take the same approach to moving IT equipment as with every other data center activity: They use the right tool. Specifically, a Data Center Infrastructure Handling (DCIH) device.

With the right tool, best practice data center operators mitigate the risk of equipment damage and employee injury, and realize benefits like boosted productivity, higher employee morale, and lower attrition.

To differentiate between the right tool (a true purpose-built DCIH device) and the wrong tool (a general-purpose materials handling device or warehouse lift), best practice data center operators consider 14 factors.

14 factors to differentiate between the wrong tool and the right tool:

1. **Design intent.** Is the device designed to be used in a data center? The needs of data center operators are very different than the needs of warehouse operators, so the right tool for moving IT equipment in the data center is one that was purpose-built for moving IT equipment in the data center – built to suit the following 13 factors.
2. **Load capacity.** Is the device's rated capacity able to handle the weight of the IT equipment you need to lift or may need to lift in the future? When you consistently lift equipment heavier than the lift is rated for, you wear down the machine – and increase total cost of ownership. Plus, you run the risk that the lift will fail, damaging the very expensive IT equipment you've just raised 6 feet into the air.
3. **Compliance.** Does the device comply with local regulations and is it certified as such? All data center devices must be certified to ensure that radio frequency disturbance levels stay below a certain threshold and that minimum safety standards are met. The certifications are based on compliance with local regulations such as FCC/IC (North America) and CE (European Union). Devices that are not in compliance can endanger data center employees and equipment.
4. **Operating controls.** Are the device controls easily accessible from a variety of operator positions? When you're installing rack-mounted IT equipment, you need line of sight with the rack in order to make the precise height adjustments necessary to align the equipment. Ambidextrous operating controls that are easily accessible from any position ensure that you have a clear line of sight, whatever the environment.

- 5. Platform stability.** How rigid and stable is the device under load? One of the common complaints among data center operators using warehouse lifts is that the lift platform sags. (When you add weight to the end of an object, the force on that object increases – that’s known as deflection. Because the arms on a warehouse lift were not designed to bear the full weight of a load, when a warehouse lift is used in the data center, the arms often sag due to deflection.)

A purpose-built DCIH device, in contrast, is designed to bear the loads common in a data center, where the weight of the load is equally distributed across the platform, and keeping the platform flat is essential – both for ease of installation and to mitigate the risk of equipment damage.

- 6. Equipment positioning.** In which orientation does the device position equipment? In the data center environment – where aisles are narrow and equipment may be populated on both sides – maneuvering a front-loading warehouse lift can be a significant challenge. In contrast, a purpose-built DCIH device is designed for maneuverability in the data center, and positions equipment from the side to allow for easy racking on either side of the aisle.
- 7. Equipment security.** Can the equipment be secured to the device platform? When you’re moving a million-dollar piece of IT equipment through the narrow aisles and around the tight turns of the data center then lifting it high into the air to load into a rack, securing that equipment goes a long way toward mitigating the risk of damage.
- 8. Micro adjustment scale.** Is the device capable of making incremental up/down movements? When a warehouse operator is placing a box or pallet on a shelf, being an inch too high is not a problem. When you’re trying to align a server with the screw holes at the back of the rack, precision is essential. A DCIH device is capable of incremental up/down movements delivers that precision.
- 9. Lifting speed.** How quickly can the device lower or raise a maximum load? At the same time that precision matters, when you’re lifting a server 9 feet into the air, you want the lift to move fast the first 8.75 feet. Time is money, after all. So the ideal DCIH device can be raised or lowered incrementally for precision and can move quickly up or down for efficiency.
- 10. Platform range.** What is the vertical range (lowest to highest position) of the device’s equipment platform? You might need to load a server at the top of a 9-foot tall rack. Or at the floor. A DCIH device should accommodate that full range.
- 11. Overhead safety.** Does the device have safety measures to prevent damage to the data center facility? When you’re loading a server at the top of the 9-foot tall rack, what happens if you misjudge and keep your finger on the “raise” button too long? Low ceilings, overhead cable trays, cold/hot aisle containment areas and seismic re-

enforcement structures are often part of the data center environment. If you punch through that infrastructure, what does it cost you? A DCIH device should have built-in, dynamic safety measures to automatically stop the lift if it touches anything overhead.

- 12. Braking system.** Does the device have a braking system that effectively prevents movement during lifting and install? When you're loading a 200-pound piece of IT equipment into a rack, aligning it precisely, then securing it in the rack, you'll be doing a fair amount of movement while the equipment is on the lift platform. Your DCIH device should stay put in the process.

Braking systems with only a single point of contact to the floor may prevent directional motion, but can still rotate about the single braking point. Mechanisms with multiple locking points depend on the operator engaging all of the locking points. A DCIH device should have a braking system with exactly two points of contact to the floor and a single point of activation for the operator.

- 13. Wheels.** Are the casters or wheels of the device adequate for traversing the data center floor without damaging it? The raised floor of a data center is typically made of grated tiles, which can be easily damaged by lift wheels that are thin, small, and/or made of metal. A DCIH device should have large diameter wheels made of non-scuffing material to navigate a raised floor smoothly and safely, no matter the load.
- 14. Containment.** Does the device have components that contain hazardous fluids or compounds that are restricted from use in your data center? Hydraulic lifts – like the kinds used in many warehouses – often contain liquids that could cause significant damage if leaked in the data center. A DCIH device should be built only with materials certified for use in the data center.

Wrong tool risks and right tool benefits

Those 14 factors enable best practice data center operators to differentiate between the right tool (DCIH) and the wrong tool (general purpose warehouse lift or materials handler). Why does it matter? It matters because with the right tool, best practice data center operators are able to mitigate significant risks and realize valuable benefits.

Consider the risks:

- 64% of surveyed data center operators knew of at least one incident when rack-mounted IT equipment was dropped and damaged
- 52% of surveyed data center operators knew of injuries sustained while moving rack-mounted IT equipment
- The average cost to an employer of a single back injury is more than \$50,000

And the benefits:

- On data center equipment moving jobs that take at least three employees 20-30 minutes, a DCIH device that enables just one employee to do the job in half the time delivers a 300% uptick in productivity
- “Improving the fit between the demands of work tasks and the capabilities of your workers can increase worker morale in addition to productivity”¹

**Get the details behind these stats.
Download the whitepaper:**

*How to Motivate for Change
A Management Primer
Best Practices for Data Center
Equipment Handling*

About ServerLIFT Corporation

ServerLIFT is revolutionizing the IT hardware industry worldwide with purpose-built, data center certified Data Center Infrastructure Handling (DCIH) solutions. ServerLIFT DCIH devices are built for precision, stability, and maneuverability in the data center. The most sophisticated data center operators in the world, including 40 of the Global 100, rely on ServerLIFT.

**To find out more or to speak to one of our Solutions Specialists,
visit Serverlift.com or call (602) 254-1557**

¹ Ergonomic Guidelines for Manual Material Handling