## Passive Cooling

Passive cooling solutions offered by DLC use airflow management strategies to isolate and move hot air away from your server banks and up through chimneys or plenums where it can be delivered directly to your HVAC unit. The result is a more economical and space-saving solution to your server needs. With hot air from servers managed effectively you can increase server density there-by reducing floor-space requirements for your server room.

Benefits:

- Innovative design allows for fast, easy installation by almost anybody.
- Increases airflow provides proper intake temperatures, increasing equipment life.
- Provides focused cooling at the rack
- Can cool higher heat loads typically up to 10-15kW (raised floor) per rack
- Minimizes cold and hot air mixing so the return temperature to the cooling unit is higher
- Saves energy and improves data center cooling efficiency

Shown here, the aluminum extrusion encases a clear Lexan cover, allowing light into the hot exhaust aisle and creating a plenum that forces hot air to rise. The entry-doors into the aisle are sealed with a brush in-fill and any open spots in the cabinet are closed with our quick-release blanking panels. Exhaust fans can be installed to move the hot air faster into air-return ducts. Server and passive cabinets can be joined together as shown.
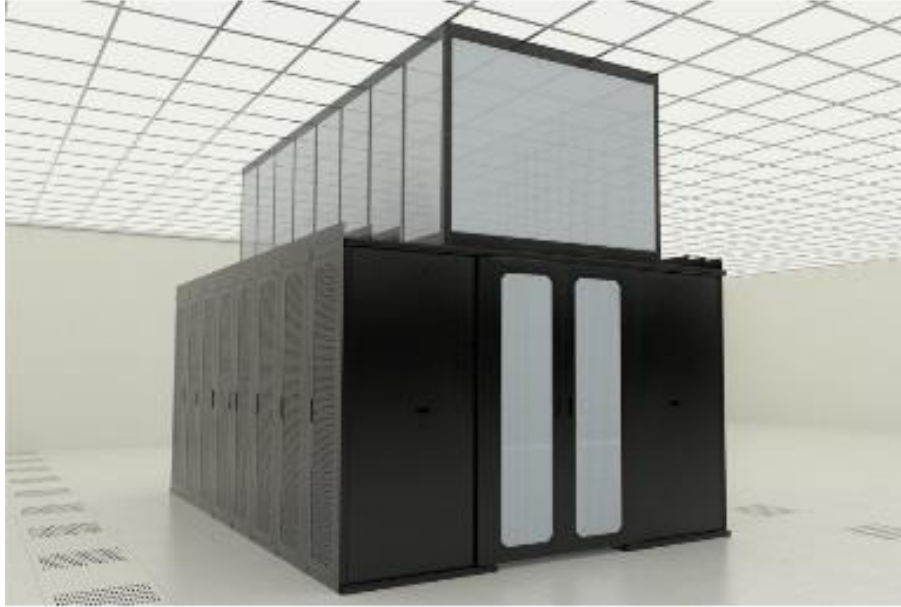
Here is the same configuration shown without the ceiling. The chimney is extended into the drop ceiling where the hot air is delivered directly to the HVAC unit without raising the room's ambient temperature.

This configuration has the following features:

- High-tech server rack
- Versatile IT rack
- High density patching frame
- Remote control of: Access / Surveillance / Environment/ Power
- High capacity cooling option
- Quick-fit accessories for existing data center

Benefits:

- DL Custom containment system closes off the top of the aisle to prevent mixing of the hot and cold airstreams in the IT environment.
- DL Custom containment system enable centralized hot air return system for room and external air handling systems minimize obstruction of lighting into the aisle and provide cable access from within the contained aisle.
- DL Custom containment system help protect your critical operations while enabling you to reduce operating costs, reduce CAPEX and increase capacity.
- One redundant cooling unit can serve several aisle containments.
- DL Custom containment system improves energy efficiency compared to traditional raised floor cooling with HAC.
- DL Custom containment minimizes cold and hot air mixing so the return temperature to the CRAC (computer room air conditioner) is higher.

DPX-Pre-Configured cabinet Completed with 1 800 BTU-AC unit

Features:

- Solid Rear Door with swing handle lock / 2 Side panels
- Side mount Air-Cond. 1800 BTUH-115V
- Removable top with cable entry and Brush infill's Grommet
- Set of four casters / Set of four Leveling feet
- Two pairs of mounting rails Square hole with ''U'' Markings - 19''RM
- All rails are adjustable (Front to Rear)
- Cage Nuts (Bag of 40 M6) and Screws (Bag of 40)
- Bonding Studs for grounding

Benefits:

- Cold air does not have far to travel.
- Allows the units to dissipate high heat loads quicker.
- Scalable approach to cooling your data center.
- Leading edge precision cooling solutions specifically designed to maintain temperature and humidity within extremely tight tolerances

DL Custom Adjustable Exhaust Chimney

DL Custom height adjustable chimney is designed for easy installation and is an effective solution for redirecting hot air away from your server rack. At the top of the rack the air is delivered to the HVAC system for recirculation. This type of system is highly compatible with most data centers because it can be installed on an already existing enclosure. They can be installed not only on an individual cabinet but also on a system which can span several cabinets.

Benefits:

- Hot air is completely eliminated from the space and the room remains cool, in turn lowering operational costs.
- Efficiently cools high density racks and enhances equipment performance and life
- Increased flexibility with installation and configuration.
- Saves energy and improves data center cooling efficiency
- Works in both a raised floor and slab environments

Flexible Chimney Air Duct:

When enclosures in a row do not align with ceiling tiles and the overhead duct system, the DL Custom High Capacity Flexible Duct Chimney Kit is an ideal solution! The kit comes with a ceiling panel to be installed in the drop ceiling. The energy efficiency offered can be further enhanced when the chimney is connected to a ducting system which returns hot air to the CRAC unit (creating a closed loop system)

Benefits:

- High capacity exhaust chimneys assist in the removal of hot air from the top of enclosures, virtually eliminating any recirculation
- Increased flexibility with installation and configuration.

Flexible Chimney Double Air Duct:

**Part # DL364933-19-R-CHM   Cabinet 36" D x 33"W x 90"H – 49RU (with Exhaust Chimney)**

Cabinet complete with:

2 pairs Adjustable tapped rails for 19"Rm
2 x 4 "W Vertical Cable Ladders
2 x Infill panels with cable pass through holes and brush grommet install Front between side frame and Rm Rails,
8 Fiber cable spools
2 x Side Panels with baffle seal
1 Vertical Ground Bar
1 Pack of (100 x 10-32 screws)
Welded grounding stud kit
Split Solid rear door with swing handle Lock
Exhaust Chimney with removable rear panel for 2 flexible exhaust ducts
2 x 10ft flexible exhaust duct
4 x power seal clamp
Exhaust Ceiling top panel
4 x 1U filler panels
4 x 2U filler panels
1 x 4U filler panel
4 x leveling feet
Ship fully assembled

Optional features that can be added:

Cable management finger and door
Exhaust Fans
Smart fan controller with remote sensor and Led Display

Cold Air Containment (DL Custom CAC)
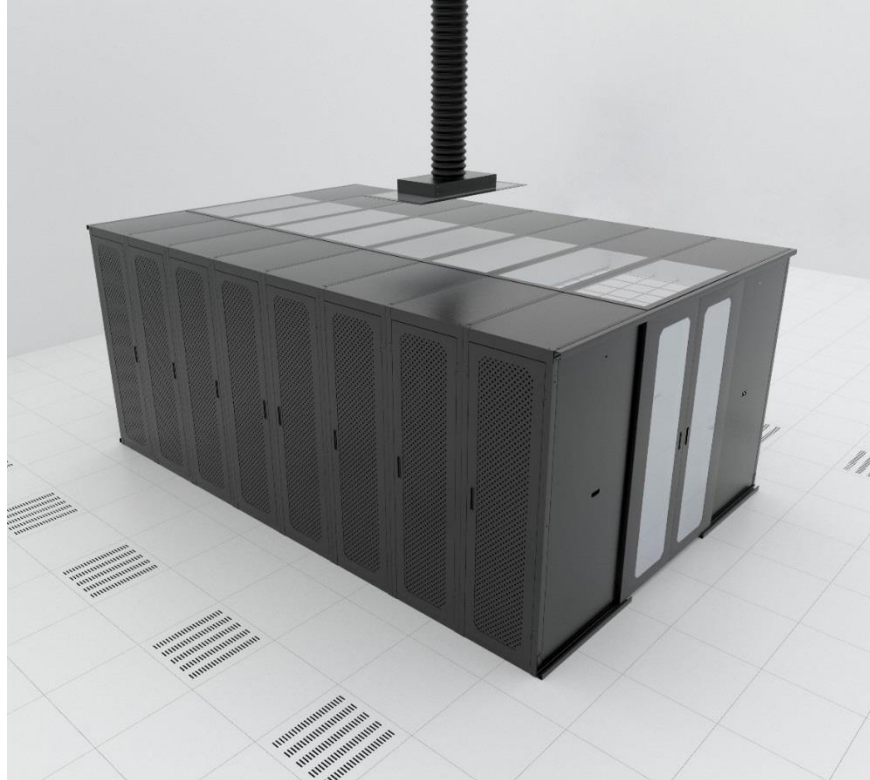
Features:

Cold Aisle Containment in data centers isolates the cold air as it is fed into the racks. By isolating and concentrating the cold air, cooling capacity and energy efficiency of the cooling unit are increased. This significantly reduces the likelihood of hot-spots and allows increased cooling temperatures

DL Custom's CAC offer several options for Cold Aisle Containment. Rigid containment is the most efficient option. Doors, walls, and ceiling panels are made with high-quality steel and ASTM certified poly-carbonate paneling. Our containment is made with tight tolerances to eliminate air leakage and to improve function and durability.

Our soft containment is a more economical option. Soft containment can also be combined with rigid containment to meet the specific needs and varying requirements of individual data centers. For example, if a rack is often pulled out and put back into place, a vinyl curtain is an ideal option, to fill the space.
All DL Custom containment can be ordered and designed custom for the data center.

Benefits:

- DL Custom's Cold Aisle Containment (CAC) primary advantage is that by focusing on the cold air, or the air that is fed to the servers, air temperature requirements are more easily met and efficiently.
- DL Custom's CAC in data centers will also minimize or even eliminate moisture management requirements
- In addition to energy savings and improved operational efficiency, DL Custom's CAC can also improve aesthetics and reduce noise outside and around the data center.

Smart Fan Controller

DL Custom new thermal control units that deliver precise air flow control. The thermal controller is designed for use with any AC fan or fan tray in networking and telecom applications. The low cost programmable thermal control unit reduces energy consumption by operating the fans only when needed. It can ramp fan speed up and down based on temperature in the cabinet. This unit features a remote sensor with a temperature range of -20°C to +60°C that is used as a trigger for fan activation /deactivation based on temperature settings.
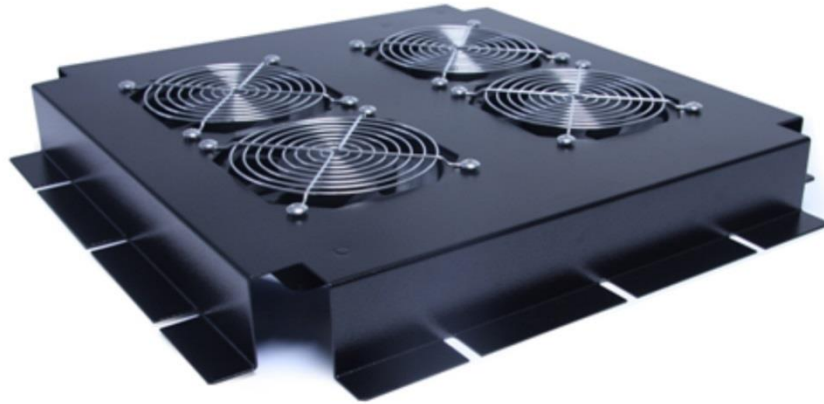
Benefits:

- Easy to install innovative design allows for fast, easy installation by almost anybody.
- Increases Airflow and provides proper intake temperatures, increasing equipment life
- Can be installed and complimented with DL Custom HAC system and DL Custom Adjustable exhaust chimney and flexible duct chimney.

DL Custom Aisle End Doors and Frames

Closing the end of the aisles with a functional door system can not only optimize the design and operation of your data center, but it can also improve the efficiency. Aisle end doors are great for hot aisle/cold aisle containment applications, adapt to fit to existing racks, and can be configured to fit any site needs.

Benefits

- Solid steel construction ensures integrity and safety
- Improved efficiency
- Easy to configure to existing setup
- Eliminates hot/cold air mixing
- Increased cooling capacity