

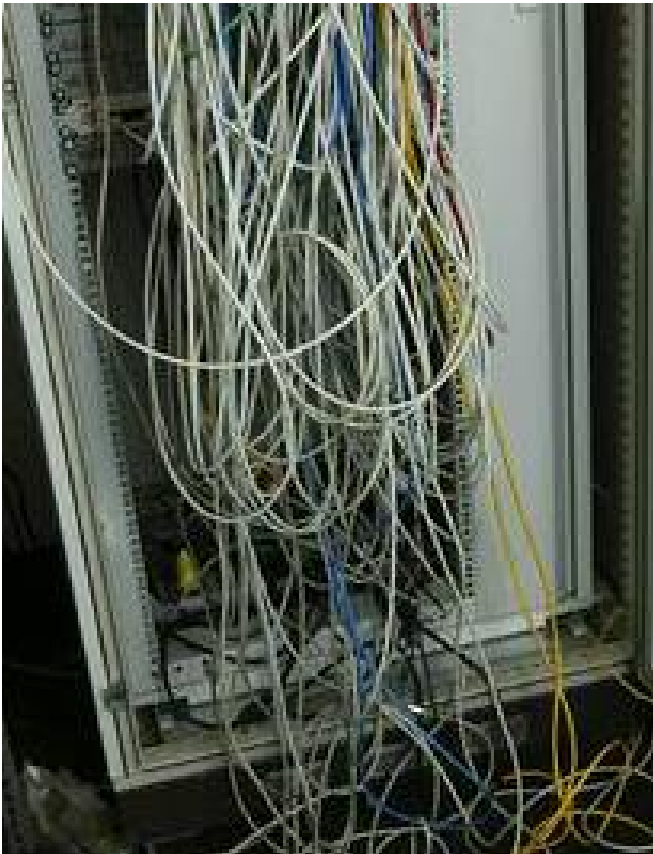
Integrated Cabinet Solutions  
for Business-Critical Continuity

## Liebert Foundation™ EX Expansion System

Adaptive Space For Heat, Cable And Equipment Support



## Managing A Volatile Rack Environment



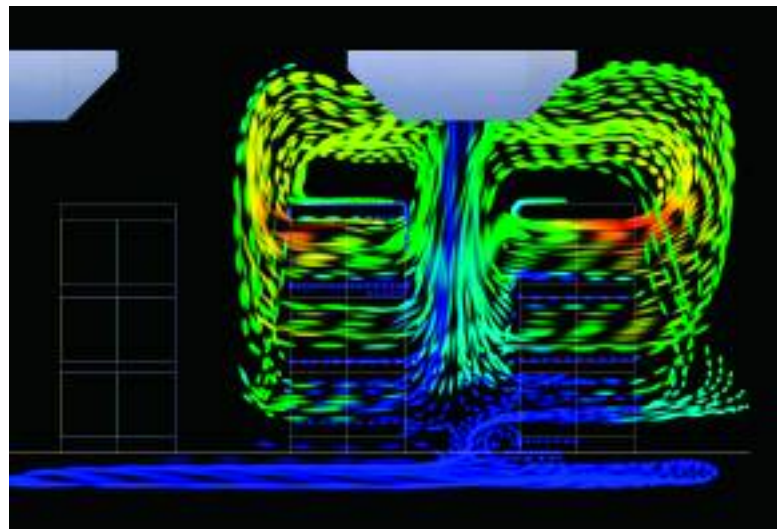
Unstructured cabling limits critical equipment deployment, access, and airflow.

**If you struggle to manage equipment and cabling inside your enclosures, you have problems. If you can't get conditioned air and power to that equipment, your systems will have problems.**

Today's rack-based IT systems are creating increased heat and power densities due to faster processors and a higher concentration of equipment within racks. New hardware extends rack depth requirements, creating the need to replace racks and redeploy equipment. On top of that, effective cable and airflow management within racks grows more challenging.

### **Your Enclosure Must Do More Than Just Store Equipment**

In the current IT world, network managers view rack enclosures as more than a way to mount equipment — they are essential to a flexible and reliable network infrastructure. The rack environment must seamlessly deliver power and cooling to equipment, ease equipment deployment, and support structured cable management.



Delivering conditioned air and rejecting heat present a challenge in today's rack environment.

# The Liebert Foundation EX System: Adaptive Space And Support For High Density Environments

Liebert continues its leadership in critical space thermal, power and equipment management by introducing the Liebert Foundation EX System. This flexible solution to rack-enclosure space and cable problems utilizes a patent-pending “Expansion Channel” platform to provide adaptive space for airflow, equipment and cabling support. The new Liebert Foundation EX System uniquely equips the Foundation rack-enclosure to quickly adapt to changing requirements, equipment and configurations.

**Adaptive space.** Individually adapt each enclosure to changing equipment, cabling and heat removal requirements with a reconfigurable depth platform and multiple support options

**Structured cabling environment.** Leverage integrated and add-on cable support to organize and route cabling inside and out.

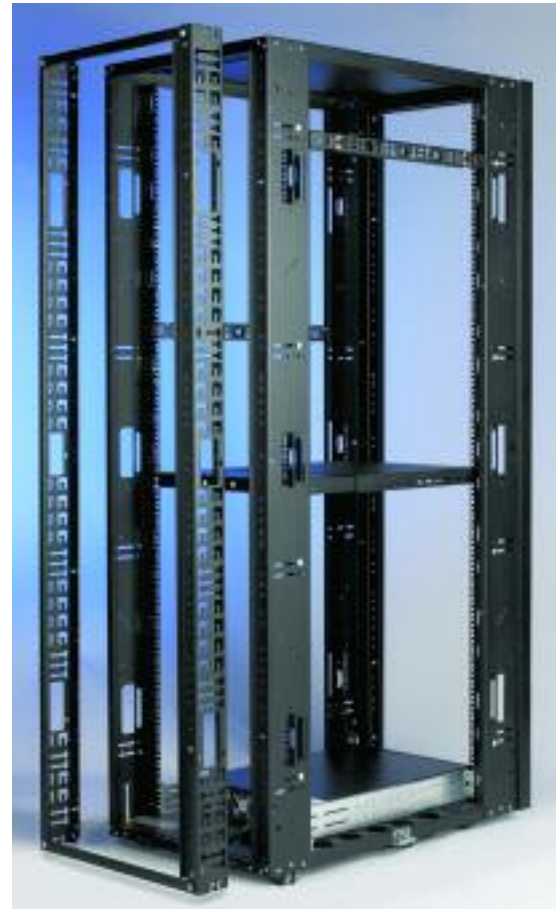
**Enhanced heat rejection.** Address high heat densities with optimized internal rack airflow and Liebert XD cooling systems

**High utilization cost effective design.** Reconfigure as requirements change, leverage additional zero-U space, and support all major rackmount equipment manufacturers.

**Improved equipment access.** Enhance internal device management with an array of mounting and cable support configurations.

**Reduced cost of ownership.** Modifiable design can defer the need to purchase new racks when equipment and support requirements change. In addition, easy interface design reduces time working inside the rack.

**Optimized performance of Liebert systems.** Integrate Liebert power, precision cooling and XD Systems as heat and power densities grow.



Foundation Frame with EX Expansion Channels.



Foundation EX System Enclosure.



Foundation EX System Accessories.

# Space Management

## Reconfigurable Rack-Enclosure Space



### Foundation EX Expansion Channels

Liebert Foundation EX Expansion Channels provide the platform to adapt to changing equipment, cabling and configurations. Offered in nominal depths of 2", 4" or 6" (1U, 2U or 3U horizontal space), they easily attach to the back and/or front of the enclosure

Available ex-factory or for retrofit, EX Expansion Channels can be used with current Liebert Foundation non-sealed HK/RK enclosure systems. Designed to fit the frame's facing, multiple depths can be set or reconfigured for 30" to more than 48" as required.



**"Hot-Swappable"** — Add, remove and reconfigure EX Expansion Channels as required without removing existing equipment.

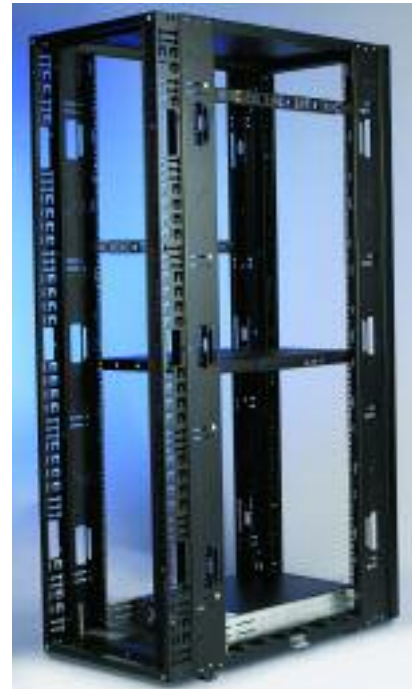
Application flexibility. Maximizes rack-enclosure usage while minimizing obsolescence.



Three sizes for changing rack depth and space requirements — provides add-on and high utility zero-U space.



Simple bolt-on installation of EX Expansion Channels.



EX Expansion Channels mount on the front and/or rear of the Foundation frame.



EX Expansion Channels provide more space to extend and attach mounting rails for deep equipment.

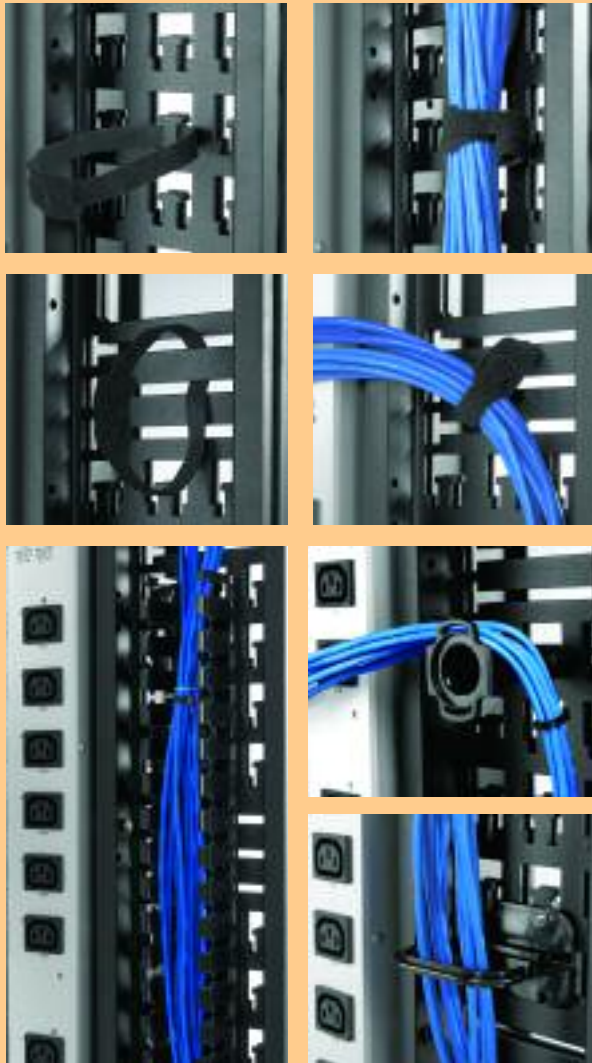


EX Side Covers secure space and assist with EX option installation.



# Cable Management

Versatile and Adaptive Support



EX Expansion Channels accommodate optional EX Cable Rings, Cable Spools, Cable Trays, and Velcro to speed installation and simplify management.

## Foundation EX Cabling Provisions

The Liebert Foundation EX System offers a wide range of cable support solutions through the EX Expansion Channels and stand-alone options including the EX Cable Management Channel (EX-CMC).

EX Expansion Channels integrate cable run space and intuitive provisions to tie down cabling. Expansion Channels also allow quick installation of EX Cable Management options to meet specific needs.

The multi-use EX-CMCs can be mounted virtually anywhere in or on the Foundation enclosure providing cable entry, rack-face routing, zero-U routing, or top cable troughs.

The Liebert Foundation EX facilitates the structured cabling required in high-density installations.

Flexible growth designs lower costs to manage expansion and upgrades within existing data centers.



EX-CMC's as top cable troughs speed and simplify rack-to-rack cabling.



EX Cable Management Channels (EX-CMC) 1U, 2U, 3U sizes.



EX-CMC as cable entrance to EX Expansion Channel and top cable trough.



EX-CMC for rack-face and front to rear zero-U cable routing.



EX Channels allow separation of power and control wiring.

# Equipment Management

Flexible, Simple And Unique Mounting Provisions



## Foundation EX Equipment Integration

Foundation EX Expansion Channels are designed to easily integrate a variety of supported equipment. Utilize a broad range of equipment mounting and positioning capabilities without the need to drill holes or use special mounting. Carriage bolt mounting is made simple with key-slot and T-slot installation.

Foundation enclosures with EX Expansion Channels allow supplemental rack-mounting and zero-U installation of equipment such as a Liebert MicroPOD™ maintenance bypass switch or Liebert MP Advanced Power Strips.

The flexible interior design also accommodates EX cable management devices such as optional EX Cable Spools and EX Cable Trays to speed wiring and simplify management within the rack.



Innovative cutouts allow easy integration and attachment of bolt-down devices with the use of optional Carriage Bolts.

Position MP Advanced Power Strips as required within the EX Expansion Channels.



Rackmount equipment can be located in multiple orientations within the EX Expansion Channels and save standard rack-mounting space.

Deep equipment mounting rails supported in EX Expansion Channel space with optional EX Rackmount Adapters.



# Heat/Air Management

Enhance And Optimize Critical Airflow

## Effective Air Delivery And Rejection

Rising temperatures from increased equipment densities—combined with restricted circulation within the rack—have created the need for more effective air delivery and heat rejection.

Liebert Foundation EX Expansion Channels provide the room to bundle cabling outside of critical airflow space, improving basic heat management capabilities. Active heat rejection options enhance performance range from basic fans to Liebert XD (Extreme Density) products including XDA air support and XDV or XDO supplemental cooling systems.



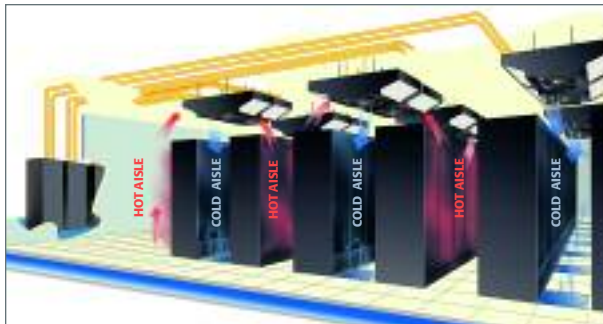
Strategically placed equipment, blocking panels and exhaust fans help to channel and remove heat from critical equipment bays.



Recessed cable mounting within EX Expansion Channels eliminates air circulation restrictions.



Liebert Foundation EX simplifies interface with XD Systems, including the Liebert XDA airflow enhancer or the Liebert XDV vertical top mounted cooling systems.



Ceiling-mounted Liebert XDO.



Racktop-mounted Liebert XDV.

Foundation EX Expansion System and Liebert XD Systems combine for effective high-density heat management.

# Liebert Foundation™ EX Expansion System Selections



## EX Expansion Channels & EX Side Covers

### EX Expansion Channels

Sets: Depth - Nominal/Actual/U Space  
2"/2.0"/1U; 4"/3.85"/2U; 6"/5.5"/3U  
Heights: 22U/44"; 42U/78"; 46U/86"

### EX Side Covers (optional)

Sets: 2"/2.0"/1U; 4"/3.85"/2U; 6"/5.5"/3U  
Heights: 22U/44"; 42U/78"; 46U/86"

## EX Cable Management Options

### EX CMC (Cable Management Channel)

Sets: 1U, 2U, 3U

### EX Cable Tray

Nominal Width: 1", 2", 4"/Height: 2"  
Length: 17" (includes cover)

### EX Cable Spools

Nominal Heights: 2", 3"

### Cable Rings

### Velcro Straps (not shown)

## EX Equipment Mounting Options

### EX Rackmount Adapters

Sets: 1U, 2U, 3U

### EX Carriage Bolts - set of 10 (not shown)

Note: All options include appropriate mounting hardware.

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