Heat Containment System (HCS)

Revision Number 1

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About this guide
This guide describes how to install and configure the Wright Line Data Center Heat Containment System (HCS).

Audience
Read this document if you are installing the Heat Containment System (HCS) for Wright Line data center enclosures or third party enclosures.

Document organization
This document is organized by task:
- **Introduction** – describes the HCS applications and inventory list.
- **Preparing to install the HCS** – lists the steps that must be completed prior to installation.
- **Installing the HCS** – describes how to install the HCS chimney base.
- **Installing the HCS Vantage adapter** – describes how to install the HCS adapter kit on Vantage enclosures.
- **Installing HCS third party adapters** – describes how to install the HCS adapter kit on third party enclosures.

Document conventions
This document uses the following conventions:
- Notes, important options, and referenced steps appear in **bold**.
- Links are **underlined**.
- Document names appear in *italics*.
- Acronyms are defined the first time they occur.

Related documentation
Heat Containment System Brochures available at [www.wrightline.com/datacenter.html](http://www.wrightline.com/datacenter.html)

Technical support
For Data Center Technical Support call 800-321-9954, e-mail dc.support@wrightline.com, or contact your Wright Line sales representative.

Precautions
When handling electronic devices, use approved grounding straps to prevent electrostatic discharge (ESD) that can damage the device.

The installation procedures in this document require a team of at least two people.
Introduction

The Wright Line Data Center Heat Containment System (HCS) efficiently isolates exhaust and intake airflows. Hot air is directed up and away from equipment to the computer room air conditioning (CRAC) system or overhead air plenum. Intake air is not contaminated with exhaust air.

The HCS is available in 24 inch (600mm) and 30 inch widths. The HCS installs seamlessly on Wright Line Paramount enclosures, and can be installed on Vantage and third party enclosures using the HCS Adapter Kit.

An HCS installation includes a chimney, chimney base, ceiling interface, top panel and cable pass-through. The HCS can be installed with an optional fan and fan cord kit. All HCS installations require new rear enclosure doors. An optional air seal kit is recommended.

Note: Vantage and third party enclosures require an adapter kit, which must be installed first, as described in Installing the HCS Vantage adapter and Installing HCS third party adapters.

The optional Continuous Runtime Fan and Adapter Kit provide always on airflow exhaust from the enclosure out through the HCS chimney base. This fan kit can be installed during the chimney base installation, or retrofitted after the standard HCS installation is complete.

Applications

This document applies to the following item numbers:

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS24001B</td>
<td>HCS Chimney Base 24” wide</td>
</tr>
<tr>
<td>HCS30001B</td>
<td>HCS Chimney Base 30” wide</td>
</tr>
</tbody>
</table>

These HCS solutions apply to Paramount, Vantage, and third party enclosures.

- Paramount enclosures require the Trough Cover Kit (HCSTCK) as described in Options.
- Vantage enclosures require the Adapter Kit (HCSVS##########S or HCSVS##########F) as described in Options on the next page.
Options

HCS Chimney Base can be installed with the following options:

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCSASK</td>
<td>HCS Universal Air Seal Kit</td>
</tr>
<tr>
<td>HCSTCK</td>
<td>HCS Trough Cover Kit (for Paramount Enclosures only)</td>
</tr>
<tr>
<td>HCS###061*</td>
<td>Continuous Runtime Fan and Adapter Kit</td>
</tr>
<tr>
<td></td>
<td>Where ## is the enclosure width in inches: 24 or 30.</td>
</tr>
<tr>
<td></td>
<td>*Requires HCS Fan Cord Kit, HCSFANCRD.</td>
</tr>
<tr>
<td>HCSFANCRD</td>
<td>HCS Fan Cord Kit, for use with AC Fan only</td>
</tr>
<tr>
<td>HCX###062</td>
<td>EC Fan and Adapter Kit</td>
</tr>
<tr>
<td></td>
<td>Where ## is the enclosure width in inches: 24 or 30.</td>
</tr>
<tr>
<td>HCSVS######S</td>
<td>HCS Vantage Enclosure Adapter, Split Door</td>
</tr>
<tr>
<td></td>
<td>Where ###### is the height in rack units such as 42 or 45; the width in inches such as 24 or 30, and the depth in inches such as 36 or 40. For example, HCS422436S specifies an adapter 42 for an enclosure that is 42 rack units high, 24 inches wide, and 36 inches deep.</td>
</tr>
<tr>
<td>HCSVS######F</td>
<td>HCS Vantage Enclosure Adapter, Full Door</td>
</tr>
<tr>
<td></td>
<td>Where ###### is the height in rack units such as 42 or 45; the width in inches such as 24 or 30, and the depth in inches such as 36 or 40. For example, HCS453040S specifies an adapter 42 for an enclosure that is 45 rack units high, 30 inches wide, and 40 inches deep.</td>
</tr>
</tbody>
</table>

Before you begin

Before you begin, make sure you have the following:

- Wright Line HCS Kit as listed in the Inventory section.
- Options as listed in the Optional Equipment section.
- New or existing data center enclosure.
- Common installation tools including a 3/8” socket and driver, and #2 Phillips screwdriver.
- Step ladder of at least 6 feet, or scaffolding.
Inventory

The Heat Containment System (HCS) includes a number of required, recommended, and optional components.

**HCS chimney base**

The HCS chimney base includes the following components:

- Qty. 1 Chimney Base 24 inch (600mm) or 30 inch
- Qty. 1 Airflow plate with latch
- Qty. 1 Upper access panel
- Qty. 1 Lower access panel
Qty. 1 Enclosure top panel with cable pass-through

Qty. 1 Full door

OR

Split door left and right

Qty. 1 Trough covers, left and right (Paramount enclosures only)
**HCS AC Fan, continuous runtime**

The HCS AC Fan includes the following component:

Qty. 1  Fan box

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**HCS AC Fan Adapter kit**

The HCS AC Fan Adapter kit includes the following components:

Qty. 2  Fan cords with strain relief bushing

Qty. 1  Strain relief plate
**HCS Vantage adapter kit**

The HCS Vantage enclosure adapter kit includes the following components:

- **Qty. 1** Top panel
- **Qty. 1** Top adapter
- **Qty. 2** Angle brackets
- **Qty. 1** Top door stop
- **Qty. 1** Door adapter
Preparing to install the HCS

Complete the following procedures before installing a Heat Containment System (HCS).

Prepare the enclosure

1. Disconnect any cabling that exits the enclosure through the top panel or rear cable trough.
2. Remove the top panel and top cable pass-through panels.
3. Remove the rear doors.
4. Remove any trim pieces that interfere with installation.

Unpack the HCS components

Unpack all components of the HCS near the enclosure where it will be installed. See the Inventory section for a list of components.
Installing the HCS

The HCS can be installed directly on a Paramount enclosure, or on a Vantage or third party enclosure using the available adapter kit. See Installing the HCS Adapter for the Vantage enclosure adapter kit installation procedures.

HCS installation procedures require a team of at least two people.

Install the HCS adapter if needed

The HCS adapter is required for Vantage S2 and third party enclosures. Install the adapter as described in the Installing the HCS Vantage adapter section.

Complete the following procedure to install the chimney base.

1. Make sure the existing top panel, top cable pass-through panels, and top rear trim are removed from the enclosure. Position the HCS top panel over the enclosure and align the mounting holes.

   **Note:** If this installation requires the HCS Adapter, complete the Installing the HCS Vantage adapter procedure before continuing.

2. Install the HCS top panel. From inside the enclosure, insert 13 thread-rolling screws and tighten. The 5 screws on each side insert through the
holes in the top panel into the enclosure. The 3 front screws insert through the holes in the top panel into the enclosure.

**Note:** If the cable pass-through panels are not attached to the top panel, assemble them before installing the top panel.

3. **For Paramount enclosures only, attach trough covers:** Position the left and right trough covers under the chimney base as shown. Insert two screws per side and tighten.
4. Check the fit of the chimney base by holding it up to the top rear of the enclosure. Make sure there are no gaps where the trough covers are installed. Note the alignment of the rear keyholes. Remove the chimney base.

5. Partially insert two hex screws per side into the threaded holes in the rear of the enclosure uprights.
6. Position the chimney base with the keyholes over the hex screws. Slide the chimney base down to seat the keyholes on the hex screws. Make sure the front bottom tab of the chimney base aligns with the front of the top panel of the enclosure.

7. From the rear of the enclosure, insert five #10-32 screws with nylon washers through the front mounting flange of the chimney base into the holes in the top panel and tighten.

Optional: To install the Continuous Runtime Fans, see the Installing the HCS Continuous Runtime Fans section before continuing.
8. Install the inner access panel to the top rear of the chimney base as shown, using two screws per side.

9. Attach the upper access panel to the chimney base. This is a tool-less operation. Tabs in the bottom of the panel slide into cutouts in the chimney base. A latch in the top of the panel snaps into a cutout in the top of the inner access panel. Angle the top of the panel in until it snaps into place.
10. Attach the lower access panel. This is a tool-less operation. Slide the top edge into the groove inside the chimney base. From inside the chimney base, compress the spring pins to allow the bottom of the panel to slide into the chimney base. Release the spring pins into the square cut-outs in the chimney base.

11. Reassemble the enclosure, including air seal kits as needed.

12. Reconnect all cabling.

**HCS chimney base installation is complete.**
Installing the HCS AC Fans and adapter kit

The HCS AC Fans are **optional**.

The HCS AC Fans provide continuous runtime, or *always on*, airflow exhaust from the enclosure out through the chimney base.

Complete the following procedure to install the HCS Continuous Runtime Fans.

1. If the HCS chimney base is already installed, remove the upper access panel (tool-less) and the inner panel (four screws).

2. Install the Fan Cord Adapter Kit.
   
   a. Attach the two cords to the strain relief plate by sliding the grommets into the slots in the plate.
b. Install the cord and plate assembly into the chimney base as shown. Make sure the section of the power cord below the plate pass through the slot inside the rear of the chimney base.

c. Insert three screws through the strain relief plate into the chimney base and tighten.
3. Install the inner access panel provided with the fan kit to the top rear of the chimney base as shown, using two screws per side.

4. Install the fans one at a time. Partially slide the fan into the base and attach the power cord. Push the fan into the base until it is seated.

Make sure each power cord is not pinched or otherwise constricted.
5. Connect the fan power cords to the appropriate power supply, capable of safely providing 208V per fan.

6. Attach access panels as described in the Installing the HCS section, starting with step 9 on page 13.

**HCS optional AC Fan installation is complete.**
Installing the HCS Vantage adapter

The HCS Vantage Adapter Kit enables the HCS chimney base to be attached to Vantage enclosures.

Complete the following procedure to install the HCS Vantage Adapter Kit.

1. Make sure the existing top panel, top cable pass-through panels, and top rear trim are removed from the enclosure.

2. Install the adapter top panel. Insert four screws through the top panel into the enclosure. Do not tighten until after installing the top adapter.

3. Install the top adapter. Insert screws and tighten. If trough covers are used, insert two screws through the top adapter into each trough cover and tighten.
4. Install angle brackets if needed to attach the top adapter to the enclosure. Insert three screws per angle bracket and tighten.

5. Adjust the top panel as needed to align with the top adapter. Tighten the top panel screws.

6. Install the top door stop. Insert two screws per side through the top holes in the door adapter into the top door stop and tighten.
7. **Optional:** For double doors, install the top and bottom door pin brackets. Insert two screws through each bracket into the door stop and tighten.
8. Before attaching the door adapter to the enclosure, mock up the adapter and note the location of the eight keyholes. Partially insert eight screws into the enclosure prior to installing the adapter.
9. Install the door adapter using the eight partially inserted screws. Push down to seat the keyholes on the screws.

10. Insert two screws, lock washers, and hex nuts per side through the top holes in the rear of the door adapter through the top adapter, do not tighten.
11. Make sure the adapter is aligned and sealed against the rear of the enclosure. Tighten all screws attaching the door adapter to the enclosure and top adapter.

12. Install the door hinges on the door adapter. Mock up the doors to ensure proper alignment.
   
   For double doors install two hinge plates per side.
   
   For single doors install two hinge plates on one side.
   
13. Use hinge pins to attach door hinges to the hinge plates.

HCS Vantage adapter installation is complete.
Installing HCS third party adapters

HCS Third Party Adapter Kits enables the HCS chimney base to be attached to various data center enclosures.

Third party adapters require different parts depending upon the enclosure model. See the following drawings for details:

- **HCSAR3107** – for APC model 3300 and 3107 enclosures.
- **HCSAR3150** – for APC model 3150 enclosures.
- **HCSAR3300** – for APC model 3300 and 3307 enclosures.
- **HCSCPIFG1H** – for CPI model FG1H enclosures.
- **HCSHP10642** – for Rittal, HP, and Compaq enclosures.

Complete the following procedure to install the HCS Third Party Adapter Kit.

1. Make sure any existing top rear trim is removed from the enclosure. The top panel and top cable pass-through panels must remain attached to the enclosure.

2. Fabricate the top panel to accommodate the top adapter. Mock up the top adapter and measure the original top panel before fabricating. Remove the top panel if necessary and reinstall before continuing.
3. Install the top adapter. Insert screws and tighten. If trough covers are used, insert two screws through the top adapter into each trough cover and tighten.

4. Install adapter top panel. Insert screws and tighten.

5. Adjust the top panel as needed to align with the top adapter. Tighten the top panel screws.

6. Install the door adapter. Insert two screws, lock washers, and hex nuts per side through the top holes in the door adapter, do not tighten.

7. Align the four screws with the slots in the top adapter. Slide the door adapter until it is aligned with the back of the enclosure.

8. Insert screws through the door adapter into the frame and tighten all door adapter screws.

9. Install the top door stop. Insert two screws and tighten. For double doors, install the top and bottom pin brackets.

10. Install the rear doors.

**HCS third party adapter installation is complete.**
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