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Hitachi Universal V2 Rack

Reference Guide

Hitachi Virtual Storage Platform G200, G400, G600, G800

Hitachi Virtual Storage Platform F400, F600, F800

Hitachi Virtual Storage Platform G1000

Hitachi Data Systems

MK-94HM8035-05
October 2016

Equipment warranty

The term of guarantee of normal operation of the storage system and free service is one year from date of purchase.

If a failure occurs multiple times, the storage system might shut off to avoid a serious accident.

Backup

Hitachi cannot guarantee against data loss due to failures. Therefore, back up your data to minimize chances for data loss.

Data backup is also critical when hardware components are added or replaced, because performing such hardware procedures restores parameter settings that can affect how data is managed on the storage systems.

Disposal

This symbol on the product or on its packaging means that your electrical and electronic equipment should be disposed at the end of life separately from your household wastes.

There are separate collection systems for recycling in the European Union. For more information, contact the local authority or the dealer where you purchased the product.

UEFI Development Kit 2010

This product includes UEFI Development Kit 2010 written by the UEFI Open Source Community. For more information, see the UEFI Development Kit website:

http://sourceforge.net/apps/mediawiki/tianocore/index.php?title=UDK2010

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Contents

Preface

This document provides descriptions and specifications for the Universal V2 Rack for the following Hitachi storage systems:

- Hitachi Virtual Storage Platform G200, G400, G600, G800
- Hitachi Virtual Storage Platform F400, F600, F800
- Hitachi Virtual Storage Platform G1000

Information for supported power distribution units, rail kits, and accessories is included.

For information about mounting Hitachi storage systems in third-party racks, see the Hitachi Virtual Storage Platform Site Preparation Guide (MK-94HM8034) and the appropriate Hitachi Virtual Storage Platform Hardware Reference Guide.

Intended audience

This document is provided for owners, administrators, and operators of the following storage systems:

- Hitachi Virtual Storage Platform G200, G400, G600, G800
- Hitachi Virtual Storage Platform F400, F600, F800
- Hitachi Virtual Storage Platform G1000

Safety guidelines

Read and follow all safety guidelines and procedures.

- All activities must be performed by trained and qualified engineers only. Adhere to the following general guidelines.
  - Hazard warnings on the rack and storage systems are provided to aid you in preventing or reducing the risk of death, personal injury, or product damage. Understand and follow these hazard warnings fully.
  - When lifting a heavy object, hold it close to yourself and keep your back erect to prevent back injury.
  - If an unusual noise, smell, or smoke occurs on the storage system while it is running, power off or remove the power cables immediately.
  - Do not use materials that are outside the specifications for the rack or storage systems.
  - Keep the maintenance area neat.
  - Always put away parts, materials, and tools when not in use.
- Prevent electric shock by adhereing to the following:
  - Before starting work, be sure that, unless otherwise specifically instructed, there is no potential electric hazard in the area such as insufficient grounding or a wet floor.
  - Before starting work, know where the emergency power-off switches are located and be sure you know how to operate them.
  - Unless otherwise specifically instructed, remove all power sources to the power distribution unit (PDU) before starting maintenance. Switching off the storage system power supplies is usually not sufficient.
  - Do not touch any uninsulated conductor or surface that remains charged for a limited time after the external power supply to the storage system is disconnected.
  - Do not replace parts during a thunderstorm.
- In case of electric shock:
  - Unless otherwise instructed, remove all power sources to the storage system. Switching off the storage system power supplies is not sufficient. When power is fed from a wall or floor outlet, unplug the power supply cord, or turn off the switch on the PDU or board.

    - If the power supply has a lockout device, lock the device after powering off the storage system and retain the key. Attach a notice on the panel or board prohibiting the use of the switch.
- In case of fire:
    - Shut off all the power to storage systems.
    - Turn off the emergency power switch or stop the power supply to storage systems.
    - If the fire continues to burn after the power is shut off, take suitable actions, including the use of a fire extinguisher, or call the fire department.

Release notes

Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document. Release notes are available on Hitachi Data Systems Support Connect: https://knowledge.hds.com/Documents.

Changes in this revision

- Add a new section about using dense intermix drive trays with third-party racks.
- Provided a figure of the high-density PDU.

Related documents

- *Hitachi Virtual Storage Platform G200 Hardware Reference Guide*, MK-94HM8020
- *Hitachi Virtual Storage Platform G400, G600 Hardware Reference Guide*, MK-94HM8022
- *Hitachi Virtual Storage Platform G800 Hardware Reference Guide*, MK-94HM8026
- Hitachi Virtual Storage Platform F400, F600 Hardware Reference Guide, MK-94HM8045
- Hitachi Virtual Storage Platform F800 Hardware Reference Guide, MK-94HM8046
- *Hitachi Virtual Storage Platform G1000 Hardware Guide*, MK-92RD8007

Accessing product documentation

Product user documentation is available on Hitachi Data Systems Support Connect: https://knowledge.hds.com/Documents. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

Hitachi Data Systems Support Connect is the destination for technical support of products and solutions sold by Hitachi Data Systems. To contact technical support, log on to Hitachi Data Systems Support Connect for contact information: https://support.hds.com/en_us/contact-us.html.

Hitachi Data Systems Community is a global online community for HDS customers, partners, independent software vendors, employees, and prospects. It is the destination to get answers, discover insights, and make connections. **Join the conversation today!** Go to community.hds.com, register, and complete your profile.

Comments

Please send us your comments on this document to doc.comments@hds.com. Include the document title and number, including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation.

Thank you!

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Universal V2 Rack

This chapter provides descriptions and specifications for the A3BF-600-1200-v2 rack. Information for supported power distribution units (PDUs), rail kits, and accessories is provided.

- ☐ About the Hitachi Universal V2 Rack
- ☐ Rack specifications
- ☐ Power distribution units (PDUs)
- ☐ Rail kits
- ☐ Rack accessories

About the Hitachi Universal V2 Rack

The Hitachi Universal V2 Rack can be used to mount VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000 controller trays and one or more drive trays The following figure shows views of the Hitachi rack.

Figure 1 Hitachi Universal V2 Rack

Rack specifications

Rack specifications for VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000 storage systems are provided in the following tables.

Note: Customer-supplied racks that have the same specifications as the Hitachi 600-1200-V2 rack can also be used to mount VSP G200, G400, G600,

G800; VSP F400, F600, F800; and VSP G1000 storage systems. Contact your Hitachi Data Systems representative for details.

Table 1 Basic A3BF-600-1200-V2 specifications

Product code	Description
A3BF-600-1200-V2	• Black locking back door • External Dimensions (with panels) ○ Width: 600 mm (23 62 in) - see note 3 below ○ Depth: 1200 mm (47.24 in) ○ Height: 2008 mm (79.05 in) ○ Mounting height for storage equipment: 42U (2008 mm) Rail kits, PDUs, and power cords must be ordered separately.

Table 2 Detailed A3BF-600-1200-V2 specifications

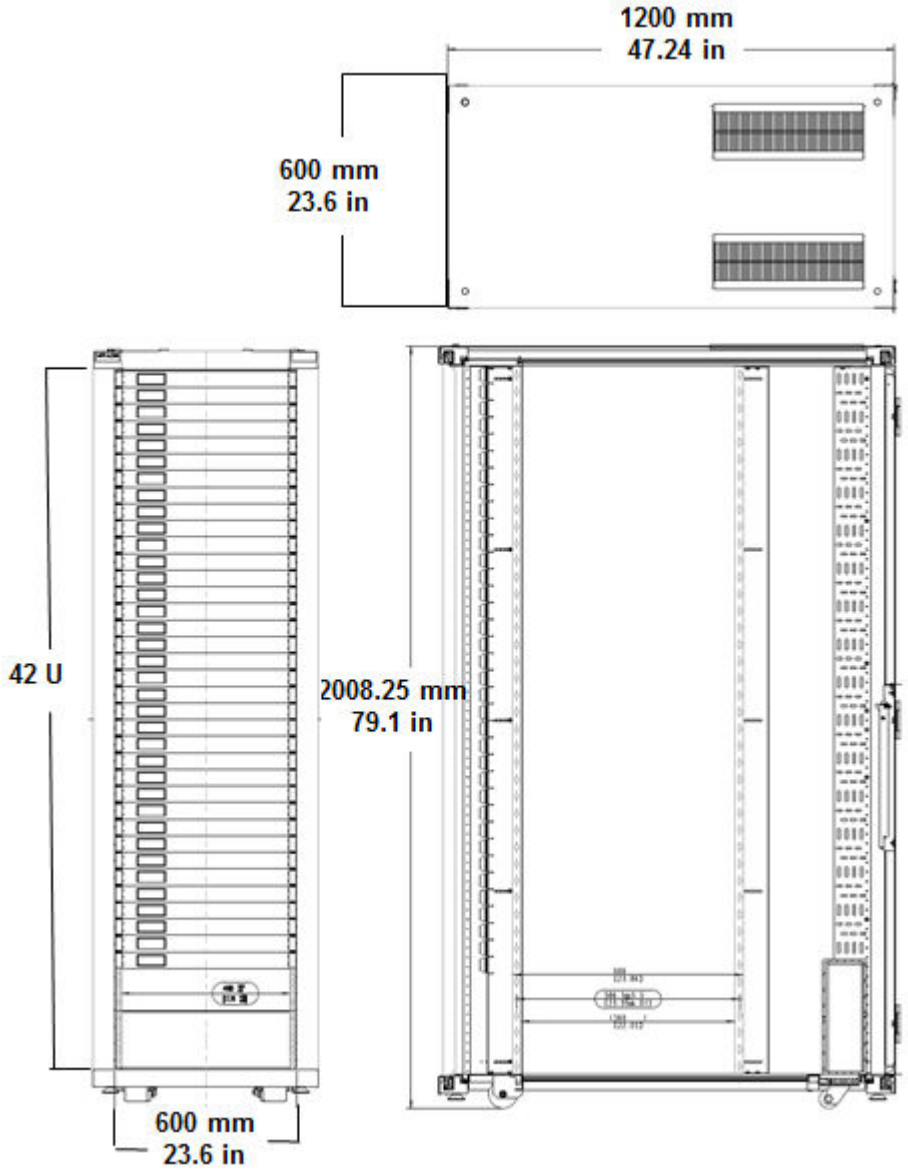
Item	Specification
P-code	A3BF-600-1200-V2
Dimensions (width x depth x height)	• 600 x 1200 x 2008 mm - see note 3 below • (23.62 in x 47.24 in x 79.05 in)
Weight	• 139 kg/306 lb 7.0811 oz (includes side panels) • 1050 kg/2314 lb 13.663 oz static weight capacity[1] • 500 kg/1102 lb 4.9824 oz dynamic weight capacity[2]
Frame	• Height: 42U (2008 mm) • Finished black (RAL 9011) with Hitachi logo and label • 1 set grounding cables (earthing cable) • 36 1U filler panels • 1 cover set, front (left, right, and bottom)
Base	• 4 adjustable base legs (leveling feet) • 2 wheels, front • 2 casters, back
Roof	2 brush cut-outs, left and right
Rear	• 1 door, 65% ventilated - 600 mm x 42U (width x height) • 3 hinges, right side • 1 swivel handle • 1 lock for swivel handle, EK-1333 (keys in zip bag) • 1 laptop shelf • 1 door stopper
Accessories (separate box)	• 1 anti-tilt cabinet stabilizer - 600 mm (width) • 1 universal wrench for leveling feet • 40 velcro straps • 100 T-wraps - 360 x 4.8 mm (black) • 100 cage nuts M5 • 100 screws M5 (black) • 8 screws M5 x 8 (spare parts) • 8 screws M6 x 12 (spare parts) • 1 nylon strap • 8 mounting brackets for PDUs (includes mounting material) • 2 plinths, front and rear - 600 mm (width)

Item	Specification
	• 1 baying kit (4 pieces, includes mounting material)

Notes:

1. Static weight capacity is the maximum weight the rack can support after it has been properly leveled and installed (fitted with stabilizers or secured to other equipment).
2. Dynamic weight capacity is the maximum weight the rack can support while being shipped or moved with equipment installed.
3. Installing the optional cover set extends the rack width to 603 mm (23.74 in).

The following shows the rack dimension with the optional cover set not installed.



Power distribution units (PDUs)

The Hitachi Universal V2 Rack is configured with power distribution units (PDUs), which power the components placed in the rack. Input power to the PDUs, which varies with location, is either single phase or three phase.

The following figures show Hitachi PDUs used in the Universal V2 Rack in the Americas and in APAC / EMEA. The types of plugs used in the PDUs are discussed in PDU plugs on page 17.

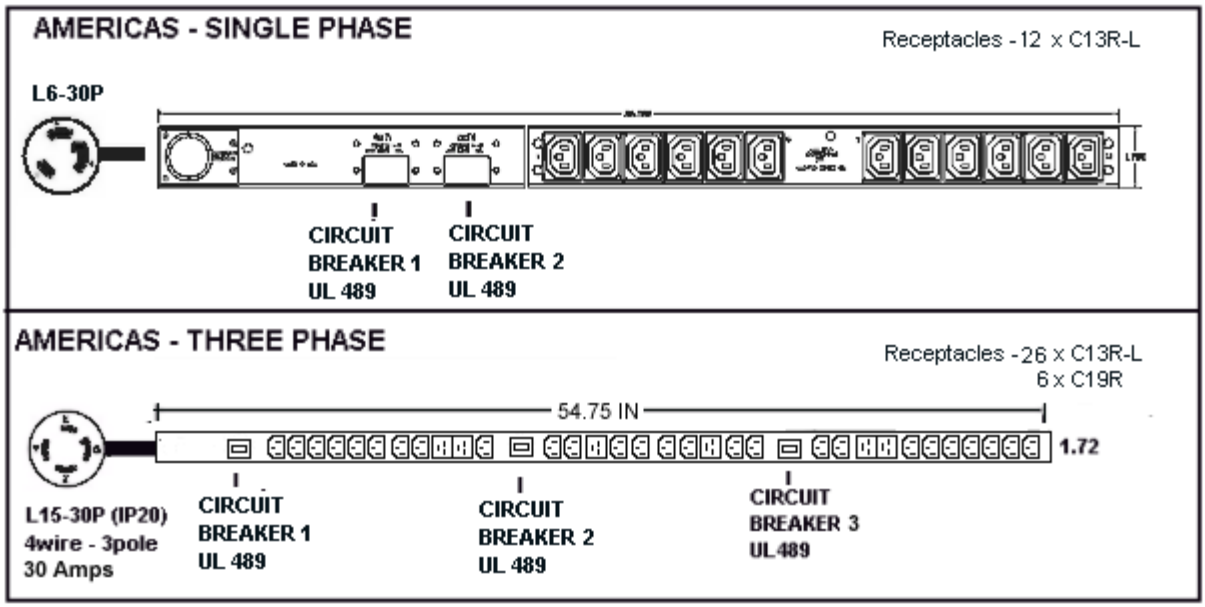


Figure 2 Americas PDUs for the Universal V2 Rack (single phase: PDU-121112F10, three phase: PDU-32C13800F10)

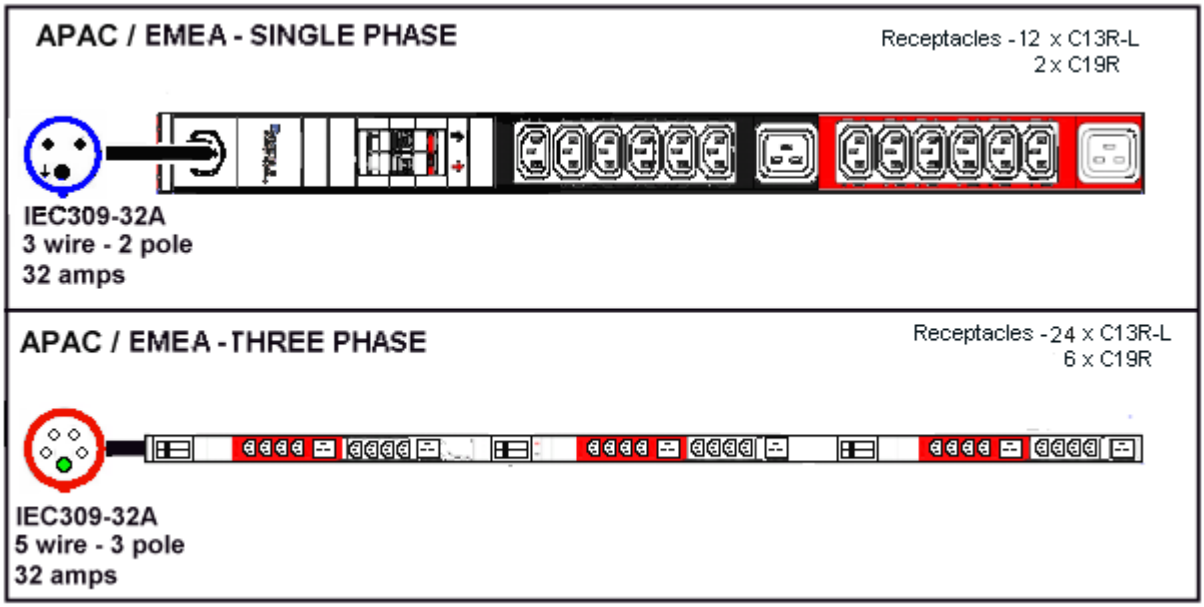


Figure 3 APAC / EMEA PDUs for the Universal V2 Rack (single phase: A3CR-123294-51, three phase: A3CK-243694-50)

The following figure shows the three-phase PDU for high-density configurations. The configurator selects this PDU automatically when high-power density configurations are chosen.

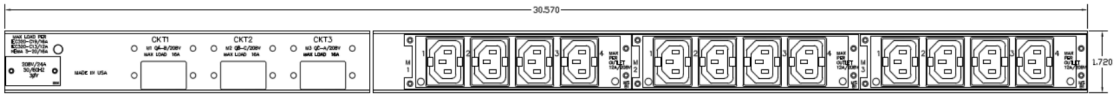


Figure 4 High-Density PDU for the Universal V2 Rack (PDU-121132F10)

Note: Physical compatibility between the Universal V2 Rack and third party PDUs is best effort only.

Make sure to review electrical specifications in your storage system installation guide. Do not exceed the maximum usable amperage per PDU to reduce risk of injury, fire, or damage to equipment. Consult the electrical authority for your facility's wiring and installation requirements. The following basic requirements also apply:

- Before installing third-party components in the rack, determine the current draw of each component and compare that with the allowable current load on each PDU to determine whether the component can be plugged into a PDU.
- Balance the current load between available PDUs.

PDU specifications

The following table shows PDU specifications for the Universal V2 Rack. All specifications apply for the VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000 storage systems.

Table 3 Basic PDU specifications

Item	Specification
Americas	
Single phase PDU-121112F10	• 30A, 208V • 12 IEC 320-C13 outlets • NEMA L6-30P connector • 10-foot power cable
Three phase (default) PDU-32C13800F10	• 30A, 208V • 26 IEC 320-C13 outlets • 6 IEC 320-C19 outlets • NEMA L15-30P connector • 10-foot power cable
Three phase (high-density configurations as prompted by the Configurator) PDU-121132F10	• 30A, 208V • 12 IEC 320-C13 outlets • NEMA L15-30P connector • 10-foot power cable
APAC and EMEA	
Single phase A3CR-123294-51	• 32A, 230V • 12 IEC 320-C13 outlets • 2 IEC 320-C19 outlets • IEC-309 blue 2P+E connector • 15-foot (4.5 m) power cable
Three phase A3CK-243694-50	• 32A, 400V • 24 IEC 320-C13 outlets • 6 IEC 320-C19 outlets • IEC-309 red 4P+E connector • 15-foot (4.5 m) power cable

PDU plugs

The following figure shows the PDU plug types that are used with the Universal V2 Rack.

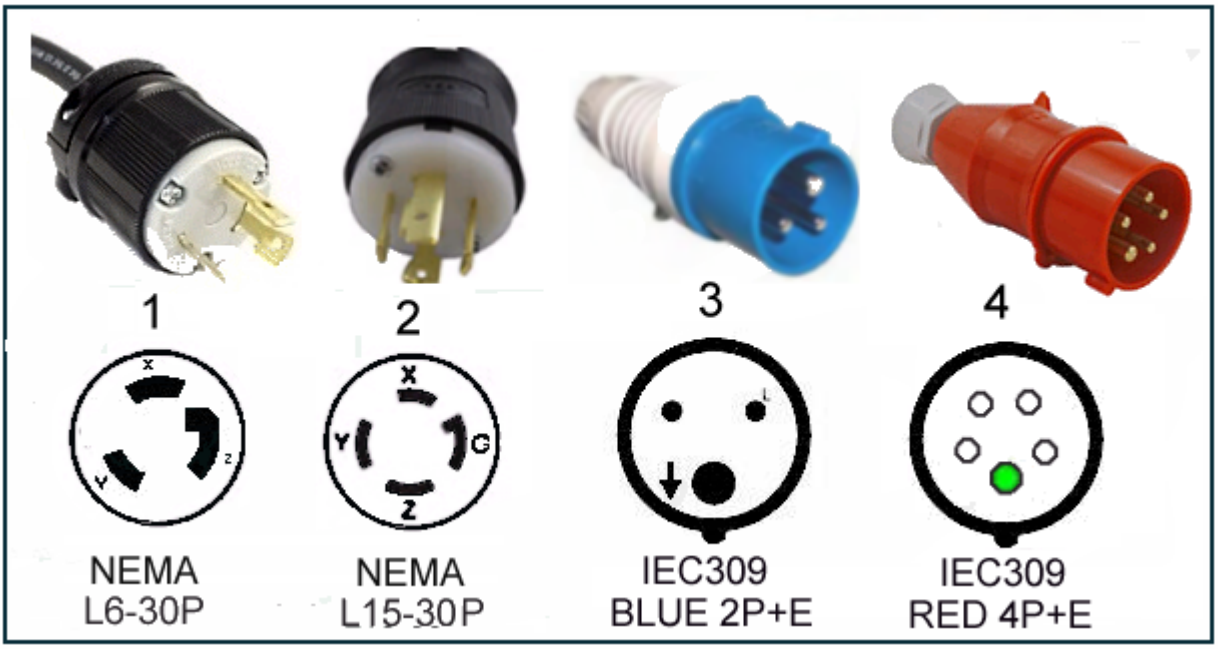


Figure 5 PDU plugs

- Plug #1 is for single phase use in the Americas, including the United States and Canada.
- Plug #2 is for three phase use in the Americas, including the United States and Canada.
- Plug #3 is for single phase use in Asia-Pacific and Europe-Middle East-Africa.
- Plug #4 is for three phase use in Asia-Pacific and Europe-Middle East-Africa.

Rail kits

The following tables show rail kit information, which differs for VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000.

Table 4 Rail kits required for VSP G200, G400, G600, G800 and VSP F400, F600, F800

Rail kit	Hitachi Universal V2 Rack	Third-party rack
Controller	UNI[1]	UNI[1]
Drive trays - DBS/DBL/DBF	CGR[2]	UNI[1]
Dense tray - DB60	Rail kits are included with dense tray.	
SVP Server	Rail kits are included with SVP Server.	
Notes: **1.** UNI: Universal rail kit A34V-600-850-UNI.		

Rail kit	Hitachi Universal V2 Rack	Third-party rack
2. CGR: Corner guide rail kit A3BF-HK-GL-740-1.		

Table 5 Rail kits required for VSP G1000

Rail kit	Hitachi Universal V2 Rack	Third-party rack
Controller	CBX[1]	CBX[1]
Drive trays--SBX/UBX/FBX	CGR[2]	UNI
Notes: **1.** CBX: VSP G1000 controller rail kit A34V-700-800-CBX. **2.** CGR: Corner guide rail kit A3BF-HK-GL-740-1.		

Rack accessories

The following table provides rack accessory information for VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000 storage systems.

Table 6 Rack accessories for Universal V2 Rack

Storage system	Front door	Rear door	Side panels
VSP G200, G400, G600, G800 and VSP F400, F600, F800	Optional, must be ordered separately (A3BF-DR).	Included with rack.	Not included with rack, must be ordered separately. A quantity of two must be ordered per rack (A3BF-Z-PAN-1200).
VSP G1000	Optional, must be ordered separately (A3BF-DR-R800).	Included with rack.	Not included with rack, must be ordered separately (left door - A3BF-Z-PAN-BR-L, right door - A3BF-Z-PAN-BR-R).

Dense intermix drive tray considerations

A maximum of nine dense intermix drive trays can be installed in the rack. However, up to eight dense intermix drive trays can be installed when a controller is installed in the rack.

In a Hitachi Universal V2 rack, intermix drive trays cannot be mounted above:

- Rack shelves U36 through U39 due to drive-servicing restrictions imposed by the rack door frame.
- Rack shelf U39; otherwise, the top crossbeam of the rack frame blocks the back row of HDDs/SSDs.

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Third-party racks

Third-party racks can be used for VSP G200, G400, G600, G800; VSP F400, F600, F800; and VSP G1000 storage systems. However, each platform has different requirements.

- Third-party racks for VSP G200, G400, G600, G800 and VSP F400, F600, F800
- Using dense intermix drive trays with third-party racks
- Third-party racks for VSP G1000

Third-party racks for VSP G200, G400, G600, G800 and VSP F400, F600, F800

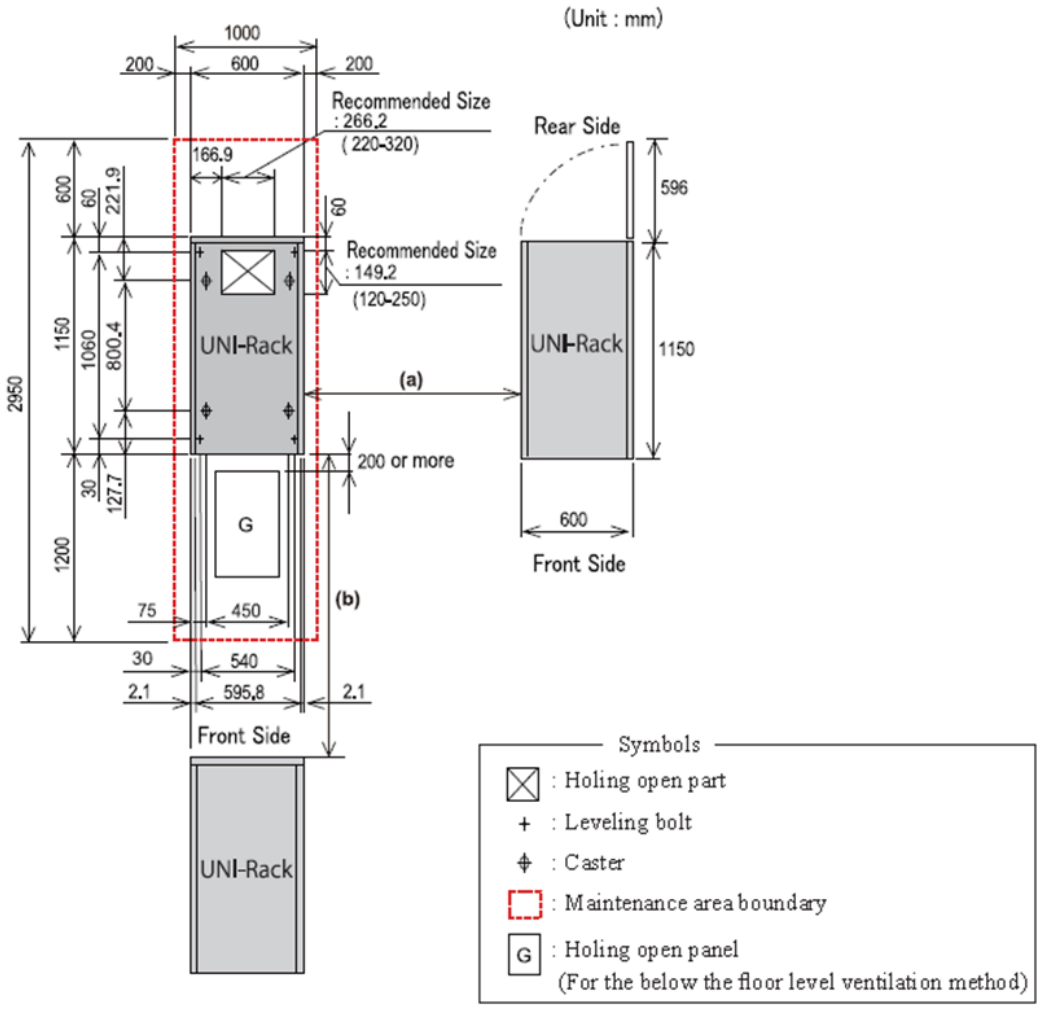
VSP G200, G400, G600, G800 and VSP F400, F600, F800 storage systems support third-party racks that meet Hitachi Data Systems specifications.

- VSP G200, G400, G600, G800 and VSP F400, F600, F800 storage systems support any 4-post, EIA310-D compliant rack, which must have adequate airflow and weight capacity.
- PDUs must be mounted with no serviceability issues. The PDU receptacles must face rearward (not toward each other). The area behind the storage system and between the vertical 19-inch mounting posts must be free of PDUs and cable loops.

Using dense intermix drive trays with third-party racks

When mounting DB60 dense intermix drive trays in third-party racks, observe the following guidelines and refer to the following figure.

- Use anti-tilt floor plates or ceiling-mounted fixing brackets to stabilize racks.
- Use a rack that is at least 1040 mm deep to accommodate the dense intermix drive tray and cable-management arms.
- Dense tray rail kits require square mounting holed racks.
- If a dense intermix drive tray is mounted above shelf RU32, you must use ladders to service the dense intermix drive tray safely.



Third-party racks for VSP G1000

Installation of VSP G1000 into a third party rack is by exception only and is only allowed with prior approval. Contact your Hitachi Data Systems account team or CS&S representative for more information.

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