

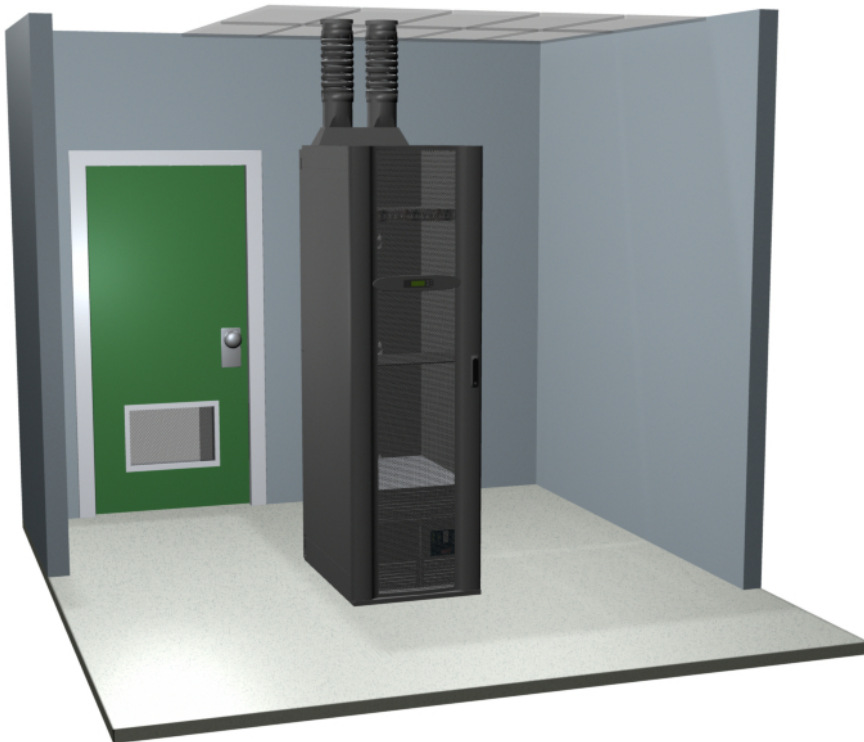
Rack Air Distribution

for power dense racks and low pressure areas

In the past, IT rooms typically operated at densities ranging from 2-3 kW per rack. However, with the increase of power density caused by today's technologies, IT rooms are being pushed beyond their design limit, resulting in the realization of previously concealed airflow problems.

IT equipment requires an appropriate amount of conditioned air be delivered to the equipment air intake, while also requiring that airflow (both in and out) not be restricted. These types of problems compromise the availability of the IT room, and can result in increased cost due to premature equipment failures.

Rack mounted air distribution products solve inadequate air distribution problems within a rack enclosure. These fan products work with the existing cooling system to either provide cool air to or remove heat from the rack enclosure. These hot spot problem solvers ensure uniform inlet temperatures to the IT equipment.



Rack Air Removal Unit shown in a wiring closet.

Key Considerations

- Ability to adapt to power densities that are increasing and unpredictable
- Elimination of hot spots within the room
- Optimize capital investment and available space
- Ensure stable inlet temperatures to IT equipment at all levels of the rack

APC Capabilities:

- Complete line of products that provide cool air distribution and heat removal from small rooms to large data centers
- Cool air provided directly to the rack and heat removal at the source or generation to eliminate mixing and ensure uniform inlet temperatures to the rack

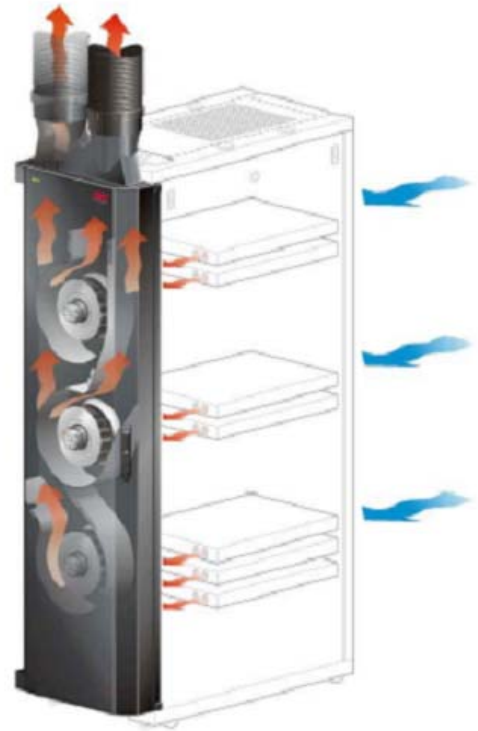
Applications:

- Enables the deployment of high density server equipment
- Prevents recirculation of equipment exhaust air, eliminating hot spots
- Works with traditional air distribution methods
- Raised floor obstructions - overcomes resistance created by excessive cabling
- Pulls hot air out of the rack away from the servers
- Enables mixing of equipment with differing airflow paths

Rack Air Removal Unit

Up to 16.5 kW of heat removal

High-density equipment creates an environment where traditional air distribution methods are often not effective. Densely packed enclosures can cause IT equipment to overheat, resulting in downtime. The Rack Air Removal Unit captures exhaust heat, returns the warm air to the plenum, allowing cool inlet air to move freely through the enclosure, this resulting in the elimination of hot spots. Through automatic fan speed control based upon temperature override, the fans will self-adjust for optimal performance. With a unit-mounted LCD display, users can view temperatures at the rack, monitor alarm conditions and adjust unit set points. The integrated network management card allows for remote monitoring and control. This space-saving solution mounts to the back of either the NetShelter SX or VX enclosure, requiring zero U space.



Cable impedance is overcome by high powered fan modules



- 1 Redundant, Variable Speed Fans – In the event of a fan failure, remaining fans will provide increased airflow
- 2 Network Manageable – View the user interface with a browser. Gives quick access from anywhere on the network
- 3 Ducted Exhaust (Optional) – Removes hot air from the data center to prevent recirculation and eliminate air mixing
- 4 Zero U Solution – Mounts to the rear of the rack, leaving valuable rack space for other equipment
- 5 Dual A-B Power Inputs – Draws power from the UPS for power protection with dual feeds for redundancy
- 6 Temperature Monitoring – Allows up to 3 remote sensors to monitor rack inlet temperature]

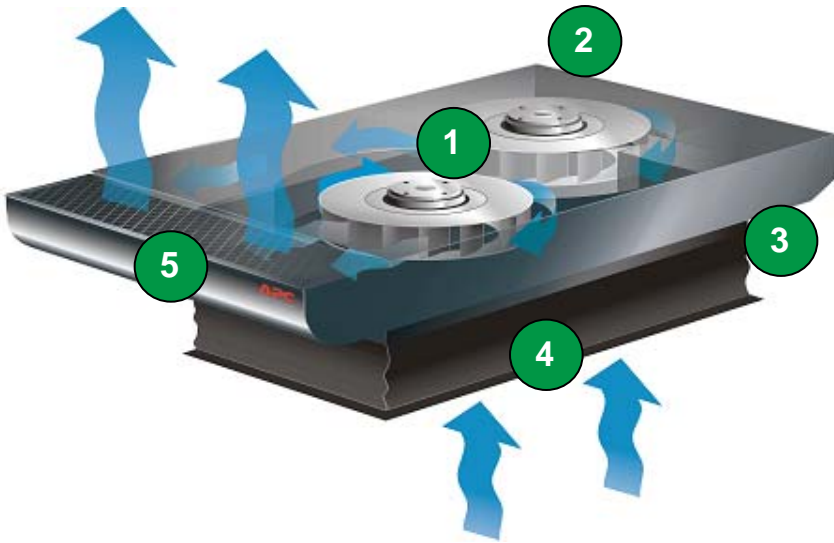
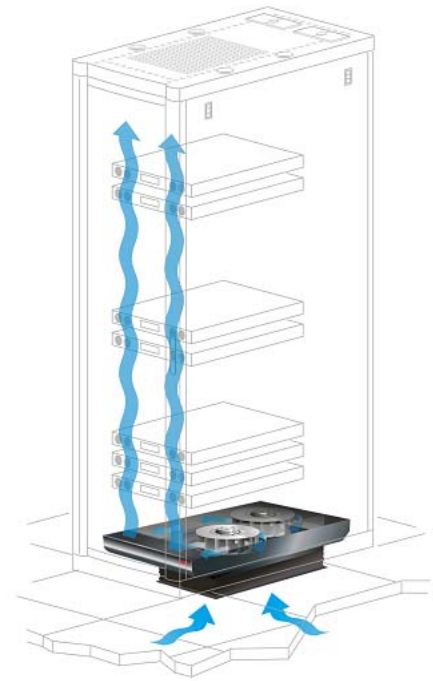
| SKU | Description | Air Flow (CFM (l/s)) | Input Power (Watts) |
|--------|---------------------------------------|----------------------|---------------------|
| ACF400 | 100-240V 50/60Hz for NetShelter 600mm | 1650 (778.7) | 1200 |
| ACF402 | 100-240V 50/60Hz for NetShelter 750mm | 1650 (778.7) | 1200 |
| ACF126 | 24 inch Ceiling Duct Kit (NAM) | NA | NA |
| ACF127 | 600mm Ceiling Duct Kit (EMEA) | NA | NA |

Rack Air Distribution Unit

Up to 3.5 kW of cool air distribution

Raised floor environments are limited in the amount of airflow they can deliver through a perforated tile. Unless a data center is designed perfectly, most raised floor environments can only supply enough air through the perforated tiles to cool up to 2.5kW. Obstructions under the raised floor due to cabling and piping can impede the amount of airflow delivered through the tiles.

The Rack Air Distribution Unit is a 2U fan unit that connects into the raised floor and pulls supply air directly into the enclosure. This prevents the conditioned air from mixing with warmer room air before reaching the equipment. This minimizes temperature differences between the top and bottom of the enclosure, while also preventing hot exhaust air recirculation to the inlet of the enclosure. The product is recommended for rack enclosures with loads greater than 1.5kW and can provide airflow for loads up to 3.5kW. It is also ideal for enclosures in raised floor environments where under floor air distribution is inadequate.



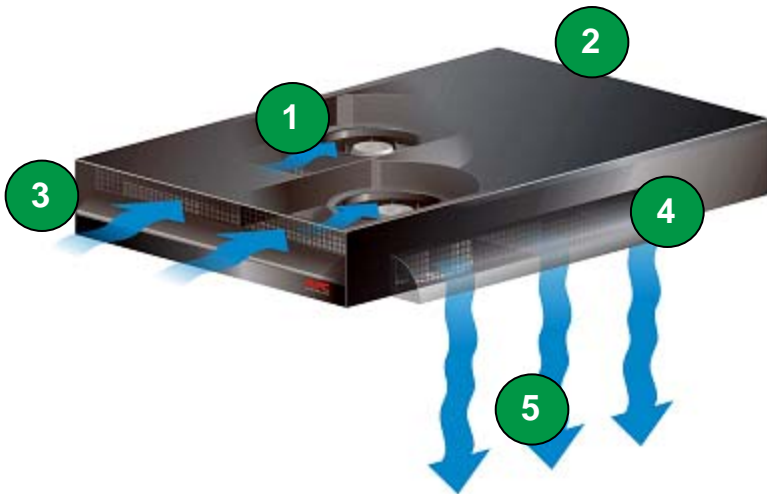
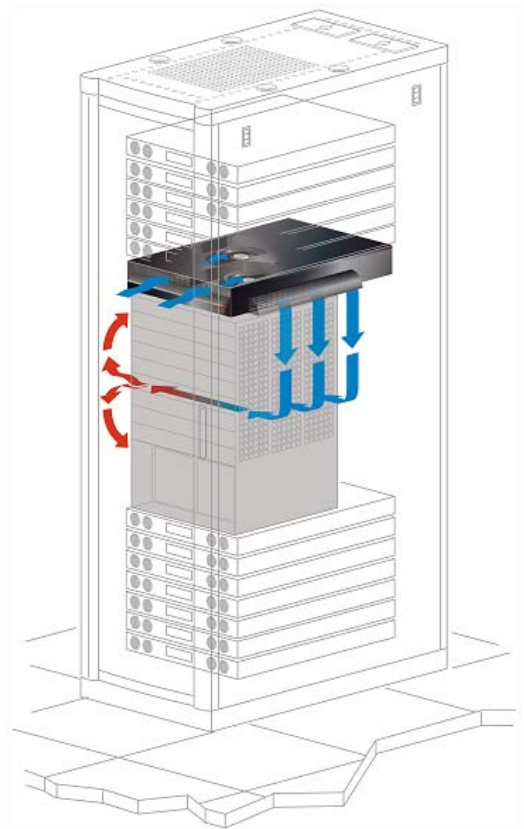
- 1 Dual Fans – Increases airflow from top to bottom of rack
- 2 Dual A-B Power Inputs – Draws power from the UPS for power protection with dual feeds for redundancy
- 3 Independent Fan Control Switch –Varies the amount of airflow to equipment
- 4 Raised Floor Duct – Allows air to be pulled into the rack directly from the raised floor
- 5 Air Filter (Supply) – Removes airborne particles from the rack

| SKU | Description | Air Flow (CFM (l/s)) | Input Power (Watts) |
|--------|------------------|----------------------|---------------------|
| ACF001 | 120V 60Hz | 503 (237.4) | 240 |
| ACF002 | 208/230V 50/60Hz | 420 (198.2) | 230 |
| ACF003 | 100V 50/60Hz | 503 (237.4) | 200 |

Rack Side Air Distribution Unit

Housing equipment with side to side airflow creates many challenges for IT and facility managers, particularly in regards to cooling. Because most enclosures are designed for a front to back airflow pattern, it is difficult to maintain ideal operating temperatures on side to side airflow equipment. The Rack Side Air Distribution Unit (SADU) is a 2U rack mountable air distribution product for networking equipment or servers with side to side airflow. The unit pulls in conditioned air from the front of the rack and distributes it to the side air intake of the networking equipment.

The SADU is recommended for one or more networking products that are stacked consecutively in a rack, and may be placed above and/or below the networking equipment. Airflow pattern is user configurable via an interchangeable air turning vane.



- 1 Dual Fans – Increases airflow from top to bottom of rack
- 2 Dual A-B Power Inputs – Draws power from the UPS for power protection with dual feeds for redundancy
- 3 Independent Fan Control Switch –Varies the amount of airflow to equipment
- 4 Turning Vane – Discharge air from right or left side, up or down depending on piece of equipment requiring airflow
- 5 Redirected Air – Side to side equipment receives cold aisle air instead of re-circulated hot exhaust air

| SKU | Description | Air Flow (CFM(l/s)) | Input Power (Watts) |
|-----------|------------------|---------------------|---------------------|
| ACF201BLK | 115V 60Hz | 260 (122.7) | 150 |
| ACF202BLK | 208/230V 50/60Hz | 240 (113.3)* | 150 |

* Based on 208V/60Hz, performance at 230V/50Hz = 230 CFM(108.5 l/s)