

Cabinet Airflow and Cabling Capacity

To ensure adequate airflow and to provide adequate space for power strips, telecommunications cabling, and safe access for work, the cabinet depth should be at least 150 mm (6 in) deeper than the deepest equipment to be housed if the cabinet is 700 mm (27.5 in) wide or larger.

If the cabinet is less than 700 mm (27.5 in) wide, 11.5 mm (0.45 in) depth should be added for every 10 mm (0.4 in) reduction from 700 mm (27.6 in) width.

Mesh doors are used for ventilation, the doors should be a minimum 63% open to airflow for allowing chilled air entrance or evacuating heated exhaust air from the cabinet.

It is recommended that the following formulae be used to calculate door airflow capacity: Airflow capacity (AFC) calculations:

$$AFCD = SD \times FEA$$

$$AC \times HRMU \times NRMU \text{ (14-4)}$$

Where:

AFCD is airflow capacity for cabinets with doors SD is total surface area of the door panel inside the outer extreme boundaries of airflow openings (mesh, perforations, slots, etc.), in mm² (in²) FEA is effective (open) area factor of the door mesh material (e.g., 0.65 [65%], 1 if mesh or screen is not used)

AC is useable cabinet aperture opening at the door plane, in mm (in) HRMU is height of one rack unit (44.5 mm [1.75 in])

NRMU is quantity of rack units in the cabinet.

Given:

- 19-in equipment cabinet
- Height: 42 RMU
- Mesh door with FEA = 0.65, 1,930 mm x 635 mm (76 in x 25 in)
- 1 RMU = 44.5 mm (1.75 in)
- Cabinet open aperture: 450.85 mm (17.75 in)

NOTE: Input data and criteria used in the examples above are provided as samples only. For actual parameters, please refer to the particular network cabinet or server cabinet design requirements.

Airflow capacity:

$$AFCD = (SD \times FEA) = (1,930 \text{ mm} \times 635 \text{ mm} \times 0.65) AC \times HRMU \times NRMU 450.85 \text{ mm} \times 44.5 \text{ mm} \times 42$$

$$AFCD = 1,225,550 \text{ mm}^2 \times 0.65 842,639 \text{ mm}^2 = 0.9454$$

Cabinet width	Deeper than the deepest equipment house in the cabinet	Additional depth for narrow cabinets
600 mm (<u>24</u> in)	150 mm (6 in)	115mm (4.5 in)
700 <u>mm</u> (27.5 in)	150mm (6 in)	N/A
750 mm(29.5in)	150mm (6 in)	N/A
800 <u>mm</u> (31.5 in)	150 <u>mm</u> (6 in)	N/A

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