CITEC

NR Series



CITEC Row Cooling unit also known as in-row cooling units, is a standalone precision air conditioners that offer several benefits in data centers and other IT environments where high-density cooling is required.

These units come with compatibility and flexibility for both air cooled system and chilled water system, matches the common rack sizes available in the market.

There are many benefits that make row cooling units an ideal choice for high-density IT environments, providing effective and efficient cooling solutions while optimizing space utilization and ensuring the reliability of critical IT operations.

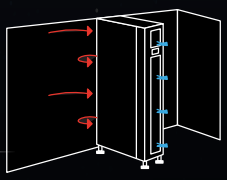
Inverter Compressor

EC FAN

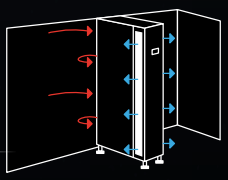
EEV Electronic Expansion Valve

V.AIR Variable Airflow

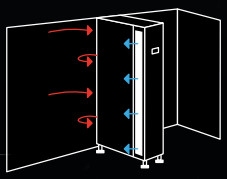
Front Discharge



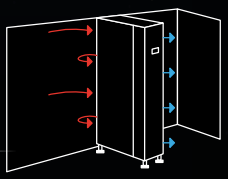
Left & Right Discharge



Left Discharge



Right Discharge



BENEFITS

01 Targeted Cooling

Row cooling units are positioned directly in the rows of IT equipment, providing targeted and localized cooling. This in-row cooling approach ensures that the cooling air reaches the heat-generating IT equipment more efficiently, minimizing bypass airflow and reducing the chances of hot spots. The precise cooling delivery enhances the overall temperature control and thermal management in high-density environments.

02 Increased Cooling Efficiency

By delivering cooling air near the IT equipment, row cooling units minimize the distance over which the cooled air needs to travel. This reduced airflow path improves cooling efficiency and reduces the chances of thermal losses. The proximity of the cooling units to the heat sources ensures a more direct and efficient transfer of heat, resulting in optimized cooling performance.

03 Higher Cooling Density

Row cooling systems are designed to handle high cooling densities and effectively manage the heat generated by densely packed IT equipment. These units provide higher cooling capacities in a compact form factor, enabling efficient cooling in environments with a high concentration of heat-generating equipment such as server racks or blade servers. The ability to support high cooling densities allows for better utilization of data center space.

04 Scalability and Modular Design

Row cooling units often feature a modular design, allowing for easy scalability as cooling requirements change or as the IT load increases. Additional units can be added to the row as needed, providing a flexible and adaptable cooling solution. The modular approach simplifies installation and allows for phased expansions, minimizing upfront costs and accommodating future growth.

05 Redundancy and Resilience

Row cooling systems can be configured with redundancy options to ensure continuity of cooling in critical environments. Redundant units and components, such as dual fans, provide built-in backup and failover capabilities. This redundancy ensures that cooling is maintained even in the event of equipment failure or maintenance activities, reducing the risk of downtime and minimizing the impact on IT operations.

06 Improved Energy Efficiency

Row cooling units can contribute to improved energy efficiency in data centers. Their targeted cooling approach reduces the need for overcooling the entire room, allowing for precise temperature control at the rack level. By cooling only the necessary areas, energy consumption is minimized, resulting in lower operating costs and reduced environmental impact.

07 Hot Aisle/Cold Aisle Containment Compatibility

Row cooling systems are often compatible with hot aisle/cold aisle containment configurations. This setup further enhances cooling efficiency by segregating the hot exhaust air from the IT equipment and ensuring it is directed back to the cooling units. The containment approach helps prevent the mixing of hot and cold air, optimizing airflow management and improving overall cooling effectiveness.

08 Easy Maintenance and Serviceability

Row cooling units are designed for ease of maintenance and serviceability. The units are typically accessible from the front and rear, making routine maintenance tasks straightforward, quickly address issues, reducing downtime and ensuring efficient operation of the cooling system.

FEATURES

Equipped with **CITEC Genius-U Controller** which compatible with various BMS monitoring and in-built protocol.

Supply Air Temperature sensor if fitted for supply air control configuration and unit operation.

New DC Inverter Compressor technology with variable capacity modulation between 30% to 100% precisely match the required cooling demand and avoiding energy wastage.

Electronic Expansion Valve (EEV) use in Direct Expansion system unit for precise control over refrigerant flow to improve energy efficiency and system performance.



User friendly 7" Colour Touch Screen with attractive user interfaces showing components operation status, temperature, and humidity trend graph.

Variable Speed EC Fan for airflow modulation based on thermal load requirements thus provide significant energy savings, reducing electricity costs and contributing to environmental sustainability.

Using **R410A refrigerant possesses** excellent thermodynamic properties, better performance, and faster temperature regulation in critical environments.

Chilled Water system comes with 2-way modulating valve vary and regulate the water flow to control the cooling process and maintain desired temperatures.

Standard DX Unit with

- Oil Separator
- Crankcase Heater
- Liquid Solenoid Valve
- Fan Speed Controller for Condenser

Options Available

- Side Air Discharge Plenum
- Humidifier
- Reheater
- Unit Depth of 1200mm
- Water Leak Detection Kit
- Dual Power Supply

START WITH A RACK → CONTAIN IT EQUIPMENTS → CENTRALIZED MONITORING → CONTINUOUS COOLING

CITEC HD Racks

Server/Network Racks enhance the security of IT equipment with instant and simple installation

CITEC Hot/Cold Aisle Containment

Fast deployment with flexible installation provide better energy efficiency, security and centralized control

Operation Monitoring

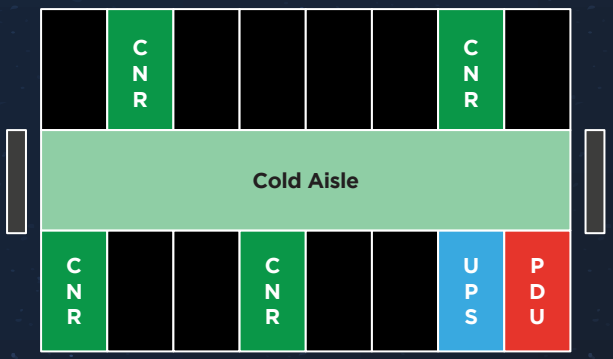
Data collected from additional temperature sensors provide better cooling control and performance

CITEC Row Cooling

To keep IT equipment running at optimum temperatures, row cooling unit is added for high heat densities environment

DUAL ROW CONTAINMENT SYSTEM

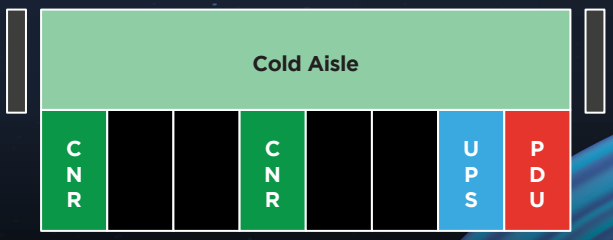




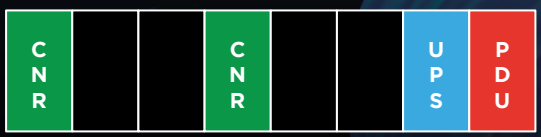
SINGLE ROW CONTAINMENT SYSTEM



Option 1



Option 2



TECHNICAL SPECIFICATION

UNIT MODEL		NRX							NRC		
		313	320	325	630	640	650	660	325	650	660
Gross Total Capacity	kW	12.99	20.46	24.57	29.88	39.96	51.68	60.38	25.00	49.64	60.00
Gross Sensible Capacity	kW	12.99	20.46	24.57	29.88	39.96	51.68	60.38	25.00	49.64	60.00
Sensible Heat Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GENERAL DATA											
Nominal Air Flow	m^3/s	0.80	1.20	1.20	1.80	2.22	2.70	3.20	1.25	2.70	3.40
No. of Fans		3	3	3	3	3	3	3	3	3	3
No. of Compressor		1	1	1	1	1	1	1	N/A	N/A	N/A
Sound Level	dBA	80	80	80	83	83	85	85	80	85	85
CONDENSER											
Nominal Air Cooled Model		HCC 184	HCC 244	HCC 304	HCC 354	HCC 504	HCC 654	HCC 734	N/A	N/A	N/A
CHILLED WATER COIL											
Nominal Water Flow Rate	l/s	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.19	2.36	2.95
Water Pressure Drop	kPa	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.1	74.9	82.9
PTC HEATER & HUMIDIFIER (OPTION)											
Nominal Heater Capacity	kW	4	4	4	6	6	6	6	4	6	6
Nominal Humidifier Capacity	kg/hr	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
UNIT DIMENSION & WEIGHT											
Width	mm	300	300	300	600	600	600	600	300	600	600
Depth	mm	1100	1100	1100	1100	1100	1200	1200	1100	1100	1100
Height	mm	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Gross Weight	kg	225	230	235	320	325	350	355	220	330	340
Min. Service Allowance	mm	600	600	600	725	725	725	725	600	725	725

Notes

1. For Direct Expansion unit, cooling capacity is based on 35°C, 23.8%RH return air condition, R410A refrigerant, 400V/3Ph+N/50Hz power supply, 20Pa ESP.
2. Nominal air cooled condenser sizing is suggestion only based on 35°C ambient temperature and nominal operating condition at sea level. Other sizes may be selected to suit requirement as necessary.
3. For Chilled Water unit, cooling capacity is based on 35°C, 23.8%RH return air condition, 10/15°C water temperature, 400V/3Ph+N/50Hz power supply, 20Pa ESP.
4. Sound level is measured at 1.5m in freefield conditions.
5. Service allowance is for front and rear of unit.

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