

SiteX EC™ Containment Cooling Series System Specification

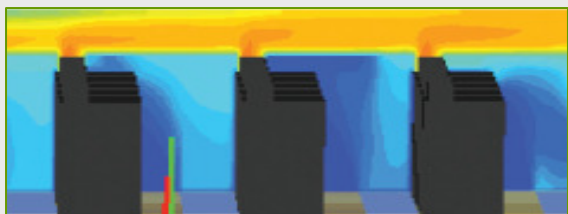
Automated cooling technology for effective and efficient high-density computing

Husky Energy, National Geo-Space Intelligence Agency, Army Corp of Engineers, General Dynamics, Oracle, Dell and CGI Canada are a few companies that have selected Opengate EC systems to automate data center cooling and maximize energy efficiency –

One simplified system automates rack, row and room cooling



CFD Model Illustrates a Normalized Thermal Environment



Plans to build new or retrofit existing space requires planners and stakeholders to keep facility costs at a minimum while providing an efficient and green facility. The cooling solution must be highly flexible as well as scalable to help promote faster break even status. Because customers occupying data center space will have varying requirements, the Opengate system allows quick deployment, automation for cooling operation and maximum efficiency as these effect cash flow for the IT operation.

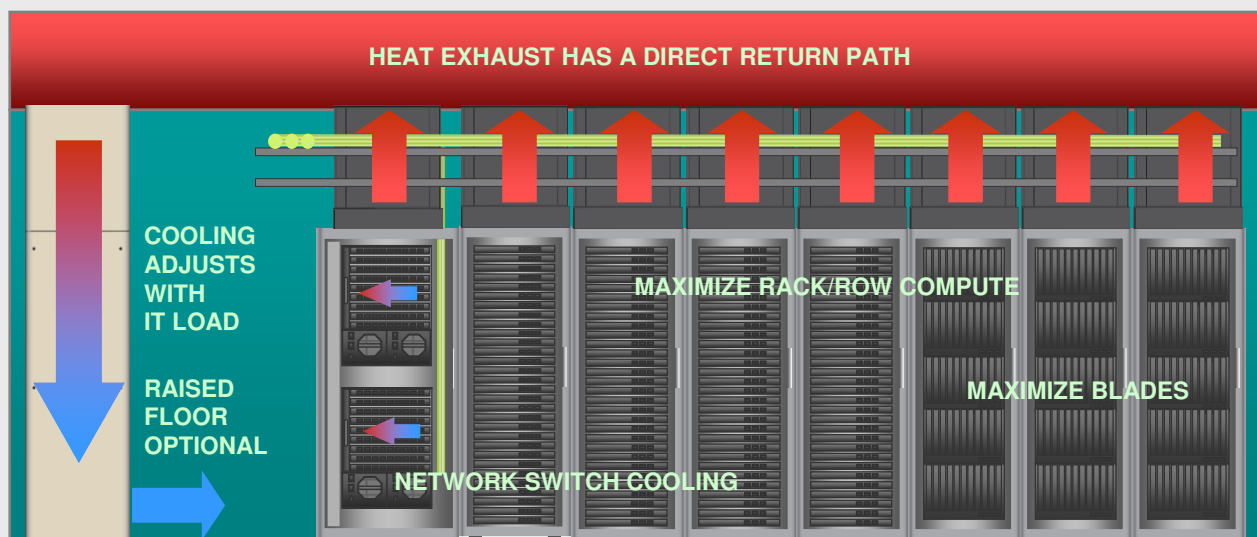
- Normalized IT thermal environment
- Automated & fully utilized cooling infrastructure
- Deploy high density racks anywhere
- Scale to 30kW without disrupting IT operation

MAXIMIZE EFFICIENCY AND IT FLEXIBILITY - OPENGATE'S COOLING DISTRIBUTION SYSTEMS ALLOW HIGH-DENSITY RACK DEPLOYMENT WHILE PROVIDING A PERFECTLY CONTROLLED IT ENVIRONMENT

An Opengate EC Data Center

Many data centers are not adequately equipped to handle the additional cooling requirements for high-density equipment. An Opengate EC Data Center maximizes data center efficiency while effectively controlling your thermal environment. Opengate EC dynamically follows the IT cooling load, providing real-time cooling consumption detail while maintaining exact control of your cooling supply based on the actual IT cooling demand.

Graphic illustrates automation and flexibility for high-density computing



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Taking Intelligent Paths™ ...

Opengate
data systems

Simplified implementation - scalable modular systems

Modular & Intelligent hot-swap devices

- Automatic scaling to IT cooling demand
- Efficiency plus status reports and alarms based on predetermined thresholds

Host



Chassis/Duct



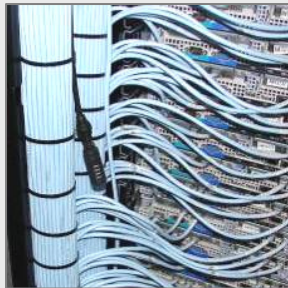
Hot Swap - Automatic Identification



Fan Cartridge

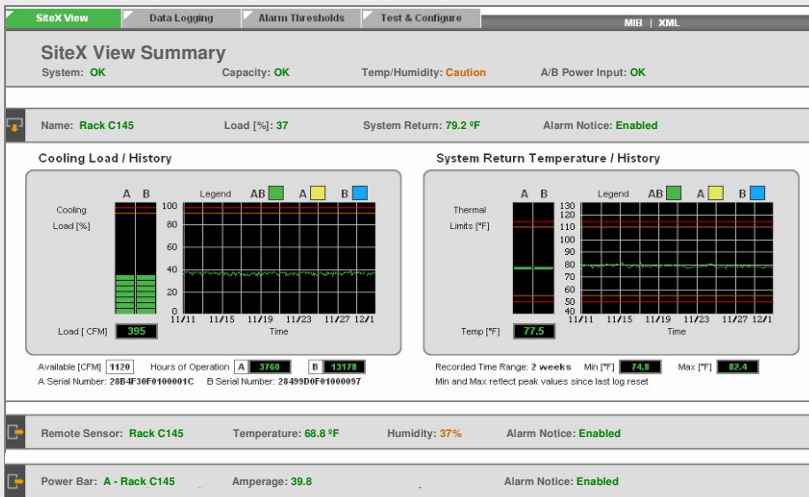


Inside rear door – view of host connections & pressure sensor



Opengate EC Web Enabled & SNMP Software

- Real-time cooling capacity monitoring and historical trending
- Real-time rack power capacity monitoring and historical trending with EP Rack Power integration
- Integral return temperature plus remote temperature humidity sensor capability - SNMP traps and email alerts with escalation



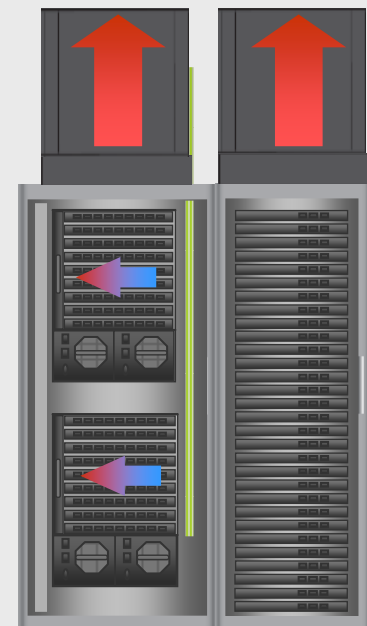
With higher density equipment now being deployed, the volume of air being pulled through the IT equipment rack is exceeding the volume of cool air being distributed at the face of the rack.

Opengate EC Systems normalize the data center so that all air delivered to the space is available for the IT equipment. All IT exhaust heat is contained, measured and returned to the facility's cooling units. Quickly deploy SiteX EC systems, attach to any rack enclosure, scale to 30 kW without disruption and communicate with existing management software for real-time cooling capacity assessment and management.

Opengate eliminates the need for supplemental cooling, allows fewer cooling units and keeps water or Glycol loops at the perimeter of the facility.

Versatility for all IT equipment types

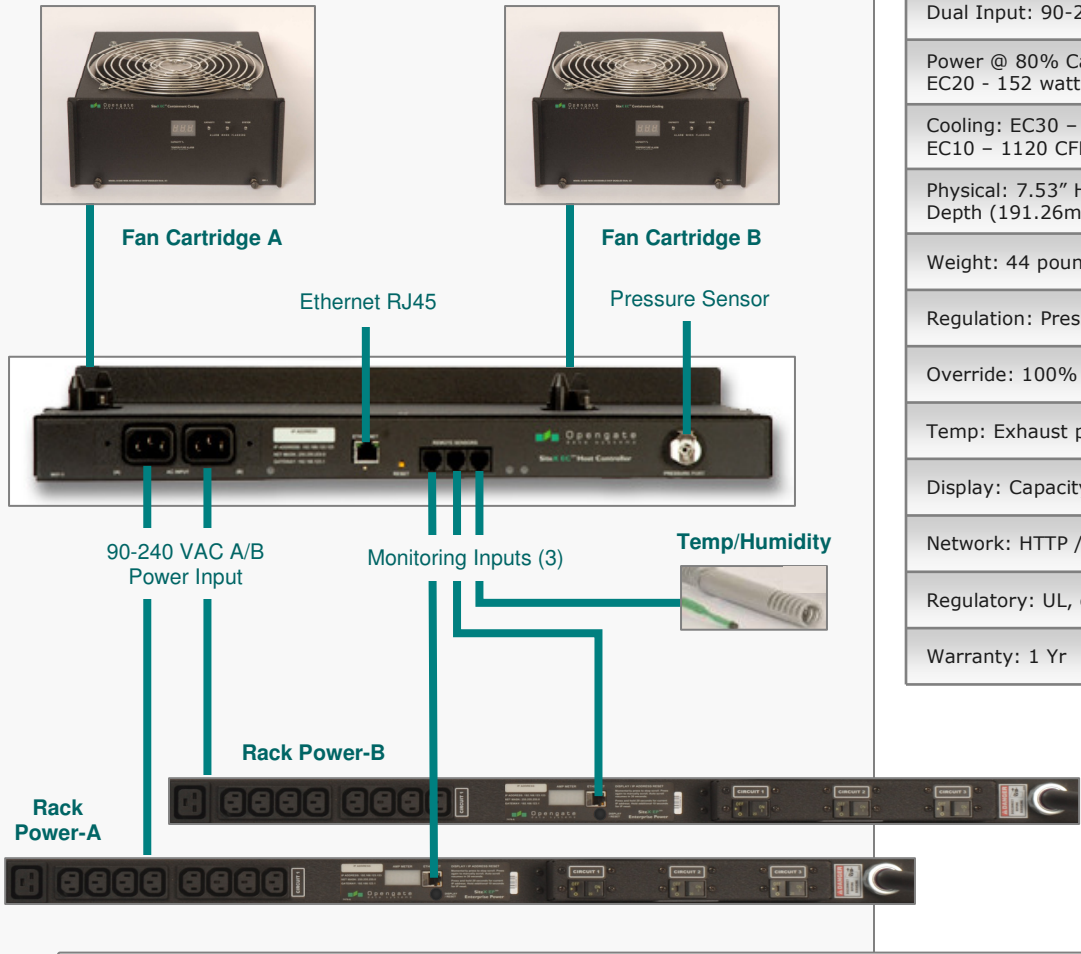
Cool ultra-efficient servers which are designed closer to their thermal limits, blades and even multiple large network switches placed in a 30" wide rack. EC Systems automatically scale to the IT load type and can be configured to provide a blanket of cool air along the side of network switches, heat is exhausted out through the EC system.



EC System Specifications & Details

EC System details are provided below. For more information on system performance or site requirements, contact an authorized Opengate Integrator or Unity Cooling Partner.

System Connections



System Specification Table

Dual Input: 90-240 VAC, 50/60 Hz, IEC C14
Power @ 80% Capacity: EC30 – 290 watts, EC20 – 152 watts, EC10 – 78 watts
Cooling: EC30 – 2750 CFM, EC20 – 2035 CFM, EC10 – 1120 CFM
Physical: 7.53" Height x 23.45" Width x 18.64" Depth (191.26mm H x 595 mm W x 473 mm D)
Weight: 44 pounds (20 kg)
Regulation: Pressure based closed-loop PID
Override: 100% fan speed fault response
Temp: Exhaust plus 3 remote temp + humidity
Display: Capacity / Temperature / System
Network: HTTP / HTTPS / SNMP / DHCP
Regulatory: UL, cUL 60950, FCC Class A Part 15
Warranty: 1 Yr

EC Host Attachment to Chassis



EC Power Use

EC20 Capacity [% of total]	EC20 Flow Rate [CFM]	EC20 Power [watts]
40	814	43
60	1220	77
80	1627	152
100	2034	263

Pressure Sensor



77 watts fan power for 1220 CFM flow rate can cool a 10-12 kW IT rack

EC20 Fan Cartridge



EC System – installation and expansion

Opengate EC is one scalable system 0-30 kW per rack load

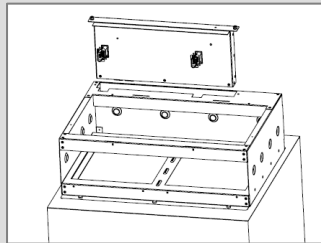
independent of precision cooling or AHU vendor, rack vendor or management software platform. EC Systems are compatible with and have been installed with the following; Dell, EMC, HP, Oracle Exadata, Cisco, IBM, Sun, APC racks, Eaton Foreseer, Data Aire, Stulz, Liebert, DCR, Electr rack, NER, Wrightline, Chatsworth,. Contact an authorized Opengate Integrator or Unity Cooling Partner to get up to date information on system compatibility.

Quick row deployment / growth

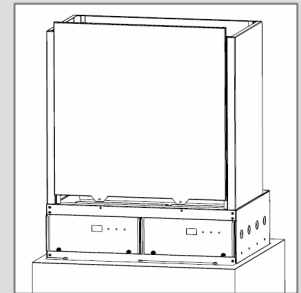
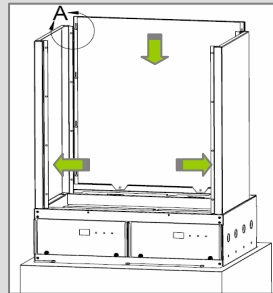
Install in minutes and quickly trim ceiling around entire row. Add racks to rows, extending as needed. Multiple rack heights and sizes only effect EC position and duct length.

Quick installation for 24 inch/600mm & 30 inch /750mm wide rack standards

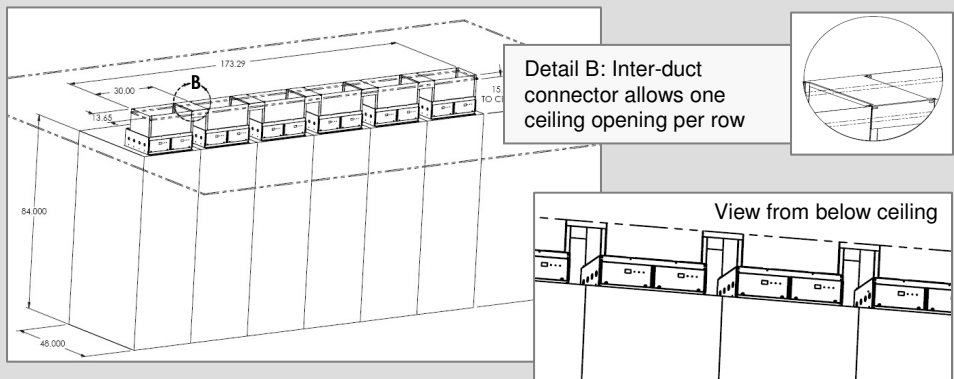
Attach chassis to rack top, drop in EC Host



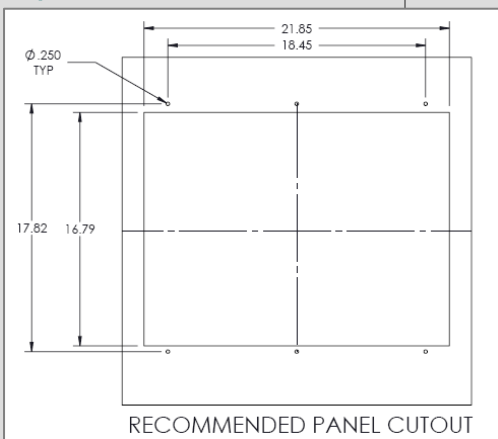
Slide in EC Fan Cartridges, attach exhaust duct,



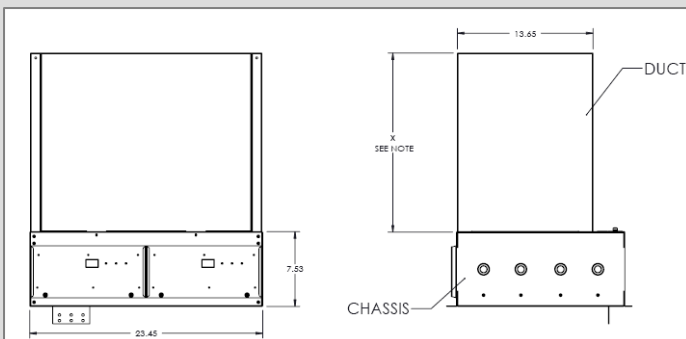
Quickly deploy rows and add racks without disrupting IT operations



Top Panel Cut-out



Front and Side Views



System Components

SiteX EC Containment Cooling	Automated cooling technology for effective and efficient high-density computing
EC5 SYSTEM	0-5kW System
EC10 SYSTEM	0-10kW System
EC20 SYSTEM	0-20kW System
EC30 SYSTEM	0-30kW System
EC-AHU001	AHU Unity Cooling Control System
EC-AHU002	AHU Unity Cooling Control w/ BMS
EC1002-XX	EC System Duct, specify length up to 120"
EC1002-DC1	EC System Inter-Duct Connector 24/600
EC1002-DC2	EC System Inter-Duct Connector 30/750
PCA001	Power Cord Adapter 5 FT C13 to C14
EMS15	Remote Temp/Humidity Sensor, 12 Ft Cord

EC Systems include Chassis Assembly, EC Host, EC Fan Cartridge and EC Pressure Sensor. System ducting, remote temperature sensors and input power cords are site specific and specified/ordered separately. For rack enclosures and flexible round or custom ducting options, contact an Opengate Integration Partner.