

COMPUTER ROOMS
AIR CONDITIONING

AQUILON™ NATURAL REFRIGERANT

*Efficiency, quality and reliability
built-in all our ecofriendly products*



CARNOT



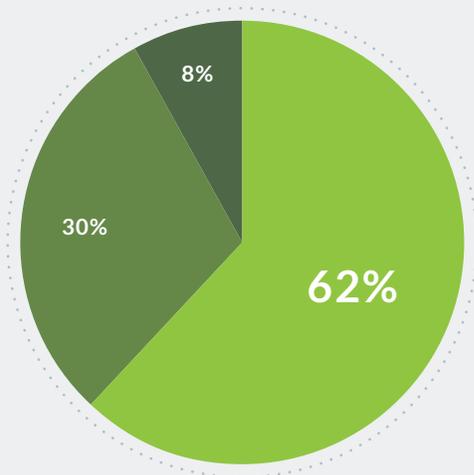
« BELL IS FACING A VERY PARTICULAR CHALLENGE REGARDING THE GROWING DEMAND FOR DATA STORAGE WHILE ATTEMPTING TO REDUCE OUR ENERGY CONSUMPTION. »

BENOIT SICOTTE

Senior Manager - Corporate Responsibility, Bell Canada

CO₂ solution by Carnot: a smart, ecofriendly and profitable choice

ENERGY CONSUMPTION PROFILE
OF AN AVERAGE COMPUTER ROOM



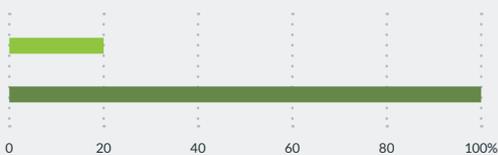
IT DEVICES SUCH AS SERVERS

AIR CONDITIONING

OTHER

Source: METI Green IT Promotion Council 2018

AVERAGE ENERGY CONSUMPTION
USING RAIN CYCLE™



CARNOT PATENTED RAIN CYCLE™ FREE COOLING

STANDARD INSTALLATION

Made by the most experienced company in CO₂ transcritical solutions in North America, the CO₂ cooling system by Carnot is the smart choice.

PROVEN EFFICIENCY FOR MAJOR SAVINGS

Superior quality, performance and energy stability;

Flawless redesign to replace existing R-22 solutions;

Financial savings of up to 80% year after year due to the reduction of energy costs, maintenance and service costs and the elimination of refrigerant fees.

ECOFRIENDLY CO₂

100% natural non-toxic, which eliminates the need for several pieces of equipment and safety programs;

Almost total elimination of greenhouse gases GHG;

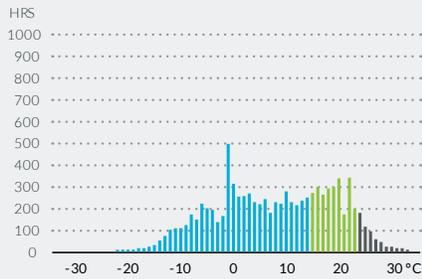
Non-flammable;

No phase out issues.

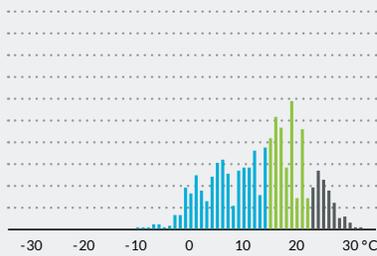
AQUILON™ - 15
15 TR (52 kW)
MODEL

NOMINAL COOLING CAPACITY AT 35 °C (kW)		ROOM (OR RETURN) TEMPERATURE		OUTDOOR TEMPERATURE										
Refrig.	Sensible	°C	% RH	[°C]	-10	-5	0	5	10	15	20	25	30	35
66.4	66.4	29.4	33	kW	1.6	1.9	2.4	2.8	3.2	3.4	10.1	11.4	15.4	19.7
				pPUE	1.03	1.04	1.05	1.05	1.06	1.06	1.19	1.22	1.29	1.37
63.5	63.5	28	36	kW	1.8	2.2	2.6	3.0	3.3	3.6	9.9	11.7	15.6	19.9
				pPUE	1.04	1.04	1.05	1.06	1.06	1.07	1.19	1.23	1.31	1.39
60.7	60.7	26	39	kW	2.0	2.4	2.8	3.1	3.4	9.1	9.6	12.0	15.8	20.0
				pPUE	1.04	1.05	1.06	1.06	1.07	1.19	1.20	1.25	1.33	1.41
52	44	24	45	kW	2.1	2.6	3.0	3.2	8.1	8.5	9.4	12.1	15.8	20.3
				pPUE	1.05	1.07	1.08	1.08	1.21	1.22	1.24	1.31	1.41	1.52

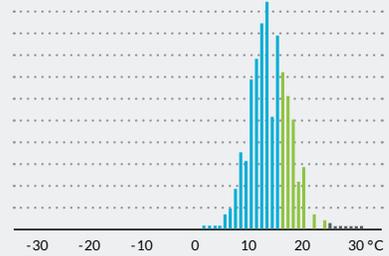
CO₂ ADVANTAGES: RAIN CYCLE FREE-COOLING™



MONTRÉAL

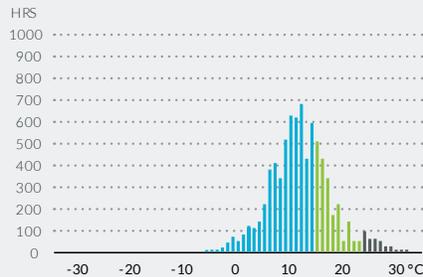


NEW YORK

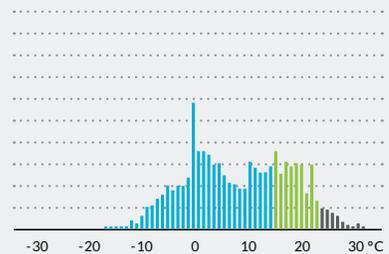


SAN FRANCISCO

FREE COOLING OPERATION
SUBCRITICAL OPERATION
TRANSCRITICAL OPERATION



SEATTLE



TORONTO

kW Total Power Consumption for 80% load
pPUE Power Utilisation Effectiveness

Notes Data for Aquilon - 15 15 TR (52 kW), model shown above, based on fluid temperature of 75 °F (24°C) and outdoor temperature of 95 °F (35°C). Data for models Aquilon - 45 45 TR (158 kW), Aquilon - 30 30 TR (104 kW) and Aquilon - 24 24 TR (84 kW) also available upon request.



POWERFUL TECHNOLOGY, QUITE SIMPLY

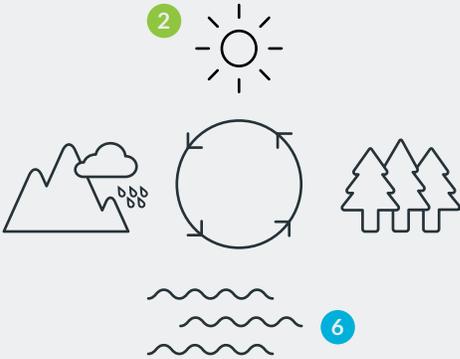
- Modular solution designed by a qualified engineering team;
- Process optimization for increased efficiency;
- Simplified quick-plug installation;
- On-site assistance for equipment start-up;
- Complete training for technical staff;
- Fully automated system.

A SMART SUSTAINABLE BUSINESS DECISION

- Harmless refrigerant reduces or eliminates risk of facing environmental or health and safety restrictions in the future;
- Equipment outlasts conventional installations;
- Substantial financial savings are generated throughout equipment life;
- Significant reduction in greenhouse gases (GHG);
- Solution is eligible for current LEED programs.

Canadian patent CA 2815783 US patent 13/894.034

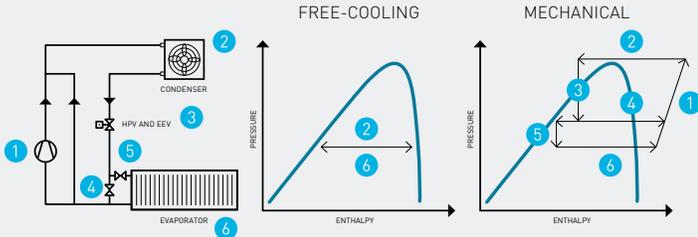
NATURAL RAIN CYCLE



2 : CONDENSATION

6 : EVAPORATION

PATENTED RAIN CYCLE FREE COOLING IN PH DIAGRAM





Crac unit capacity

Capacity

15 TR

24 TR

30 TR

45 TR



EXCELLENT SERVICE, QUICK RESPONSE AND VERY COMPETENT STAFF.

OPTIMIZED TECHNOLOGY, SUPERIOR RELIABILITY AND SAFETY

Designed in compliance with the highest quality standards in the industry;

Strict quality control in a controlled environment;

Highly reliable processes tried and tested in the most extreme conditions;

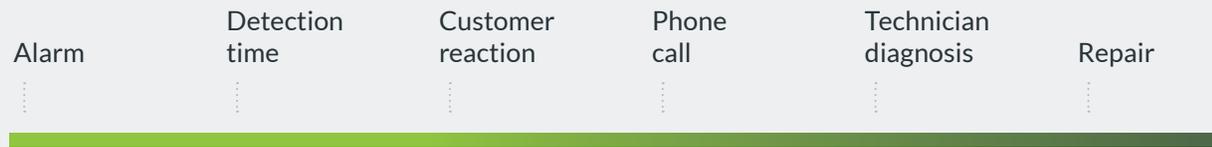
POWERFUL TECHNOLOGY, QUITE SIMPLY

Remote controlled equipment and alarm system;

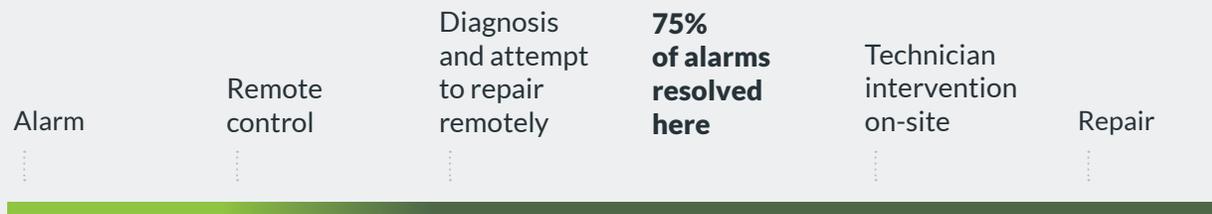
Real-time monitoring and performance reports by a highly qualified team;

24/7 technical support, quick and efficient interventions.

35% FASTER INTERVENTION



STANDARD INTERVENTION



CO₂ technology by Carnot: customize your system

○ HEAT RECOVERY / RCINTELLIGENT

Reuse the energy created by your process using a custom heat recovery strategy for major financial savings year after year.

○ GAS COOLER / CONDENSER

Different options available for optimal performance and durability.

○ STAINLESS STEEL

Stainless steel covering and piping.

○ ENERGY METER WITH DISPLAY

Real-time display of your refrigeration consumption.

○ REMOTE CONTROL

To closely monitor your process using your smartphone or computer.

○ TURNKEY INSTALLATION

For peace of mind, done by professionals to meet your needs, from design to start-up.

Carnot: a pioneer in transcritical CO₂ and cooling systems

Carnot has proven itself regarding the performance of its CO₂ transcritical refrigeration system. With the longest-lasting legacy of high quality demonstrations across North American and Europe since 2008, CO₂ refrigeration technology by Carnot has set standards with its efficiency, profitability, sustained performance in the most extreme conditions, simplicity and operational reliability.

NOTEWORTHY FACTS

Installations performed throughout North-America and Europe;

Daily savings for our clients;

Highly qualified engineers who are constantly trying to set higher standards for CO₂ refrigeration technology;

Standards and certifications including CSA, UL and CE;

Awards and recognition from recognized organizations such as ASHRAE and EPA;

Competent customer service team focused on customer satisfaction.



Naturally cooled by **CARNOT**TM



LEADER IN HIGH PRESSURE **CO₂** COOLING
AND REFRIGERATION SYSTEMS

PASSION INNOVATION THOROUGHNESS

INNOVATIVE COOLING SOLUTIONS BUILT
FOR **ENVIRONMENTAL SUSTAINABILITY**

WE OFFER

—

- Design and engineering
- Manufacturing
- Project management
- Commissioning and help desk 24/7

WE SERVE

—

- Industrials
- Supermarkets
- Sports centers
- Data centers

WE ARE

—

- Working to make Eco-friendly refrigeration a global standard

« **CO₂ IS NOURISHMENT FOR TREES:
SYNTHETIC MOLECULES ARE NOT.** »

MARC-ANDRÉ LESMERISES
CEO of Carnot, United Nations conference

**COMPUTER ROOMS
AIR CONDITIONING**

CARNOT

8500, boul. Industriel
Trois-Rivières, Québec
Canada G9A 5E1

+ 1 855 376-5959



sales@carnotrefrigeration.com
www.carnotrefrigeration.com