

SPORTS  
FACILITIES

# CO<sub>2</sub> CHILLER/ HEAT PUMP

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



**CARNOT**



**« THANKS TO THE TECHNOLOGY BY CARNOT  
REFRIGERATION. THE BOILERS INSTALLED TO  
HEAT OUR POOLS WERE NEVER USED. »**

**ERICK LALIBERTÉ**  
*City of Dollard-des-Ormeaux, Québec*

# CO<sub>2</sub> solution by Carnot: a smart, ecofriendly and profitable choice

Made by the most experienced company in CO<sub>2</sub> transcritical solutions in North America, the CO<sub>2</sub> cooling system by Carnot is the smart choice.

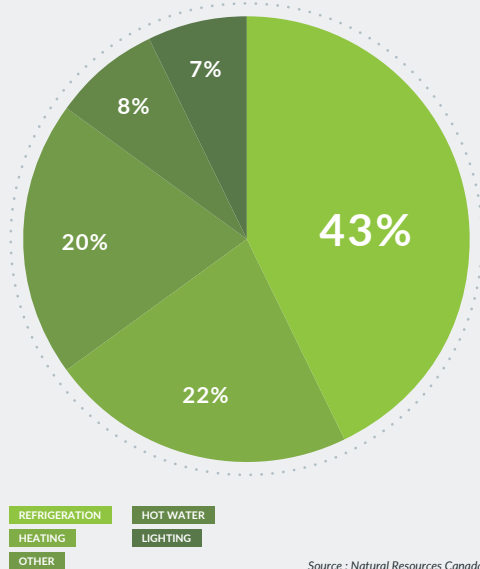
## PROVEN EFFICIENCY FOR MAJOR SAVINGS

Superior quality, performance and energy stability;

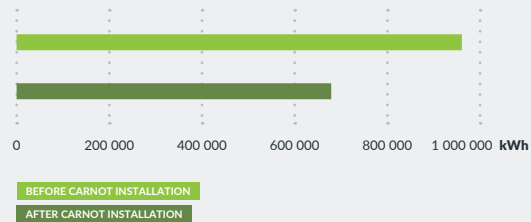
Flawless redesign to replace existing R-22 solutions;

Financial savings of up to 30% year after year due to the reduction of energy costs, maintenance and service costs and the elimination of refrigerant fees.

ENERGY CONSUMPTION PROFILE  
OF AN AVERAGE ARENA



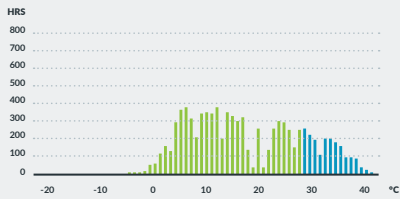
ANNUAL ENERGY CONSUMPTION  
IN OUR ARENAS



## SINGLE STAGE TRANSCRITICAL CO<sub>2</sub> CHILLER

Compressor Stage	(1) Cooling Capacity	Glycol Return Temperature	Glycol Supply Temperature	Condensing Temperature	Gas Cooling										
					[Tons]	[°F] / [°C]	[°F] / [°C]	[°F] / [°C]	45/7.2	50/10	55/12.7	60/15.5	65/18.3	70/21.1	75/23.8
High Stage [HS]	80	13 / -10.5	10 / -12.2	Capacity [Tons]	80	80	80	80	80	80	80	80	80	80	80
				kW	53	60	67	75	84	195	109	125	150	146	
				THR [MBH]	1142	1164	1188	1216	1248	1285	1331	1388	1472	1460	
				COP	5.3	4.7	4.2	3.8	3.3	3.0	2.6	2.3	1.9	1.9	
				MBH	700	700	700	700	700	700	700	700	700	700	
Heat Reclaim				COP w/ HR	9.2	8.2	7.3	6.5	5.8	5.1	4.5	3.9	3.3	3.3	

(1) Large possibilities of capacities – Contact us for details.



LAS VEGAS



MONTREAL

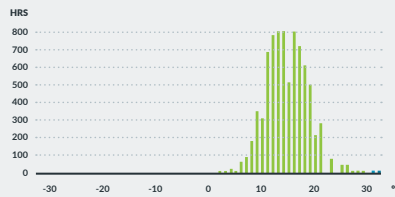


NEW YORK

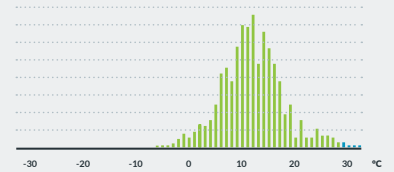
SUBCRITICAL OPERATION

TRANSCRITICAL OPERATION

- Kwref [kw]** Refrigeration capacity
- Thr [kw]** Rejected capacity
- KW [kw]** Energy consumption
- COPr** Refrigeration coefficient of performance
- COPc** Combined coefficient of performance including heating or rain cycle free cooling
- FC** Free cooling



SAN FRANCISCO



SEATTLE

# CO<sub>2</sub> technology by Carnot: a powerful cooling system

## 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;

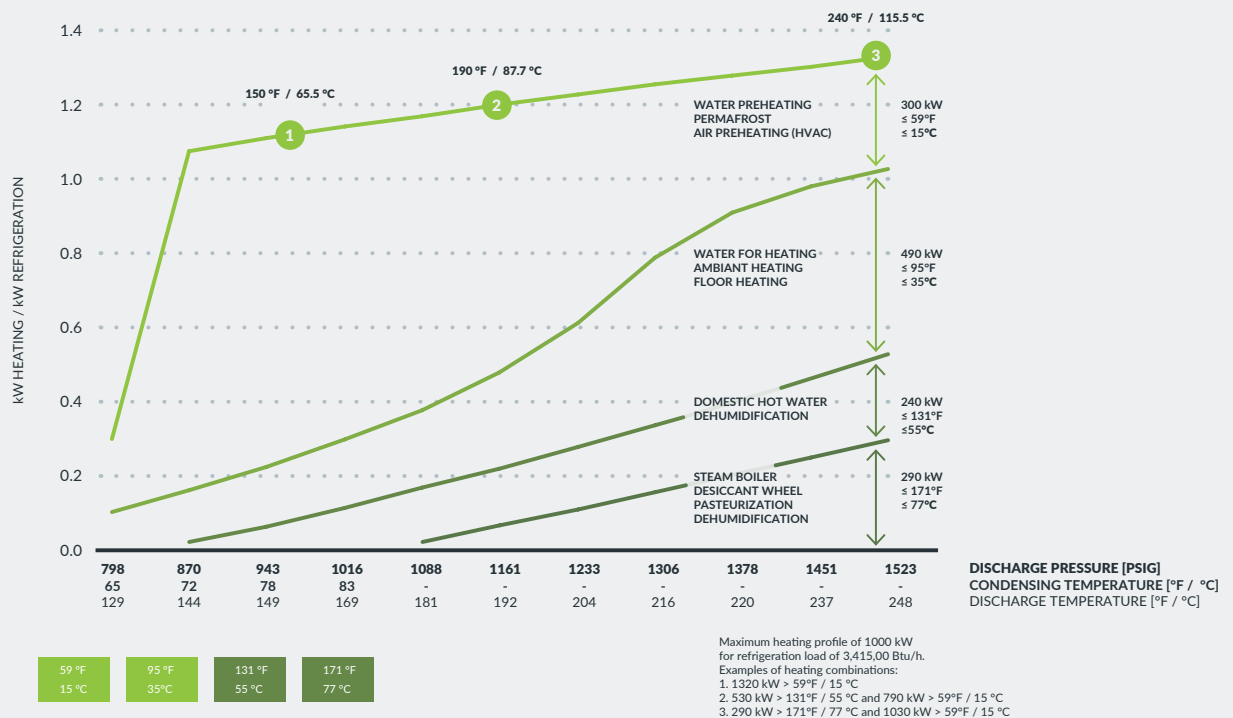
Equipment outlasts conventional installations;

Substantial financial savings are generated throughout equipment life;

Significant reduction in greenhouse gases (GHG);

Solution is eligible for current LEED programs.

## HEAT RECOVERY AVAILABLE WITH CARNOT CO<sub>2</sub> TRANSCRITICAL SYSTEMS



RCIntelligent is a smarter way to use the rejected energy of your process: system is composed of various components that recover energy rejected by the process in a smart and strategic way.

« RCINTELLIGENT MAKES YOUR SYSTEM WORK AS HARD AS IT SHOULD, NOT MORE. »

## DECISION-MAKING ALGORITHM

1. Is the refrigeration capacity sufficient?
2. Is the preheating of hot water sufficient and our heating needs are met?
3. Decision: reduce the head pressure to improve the overall Cop.

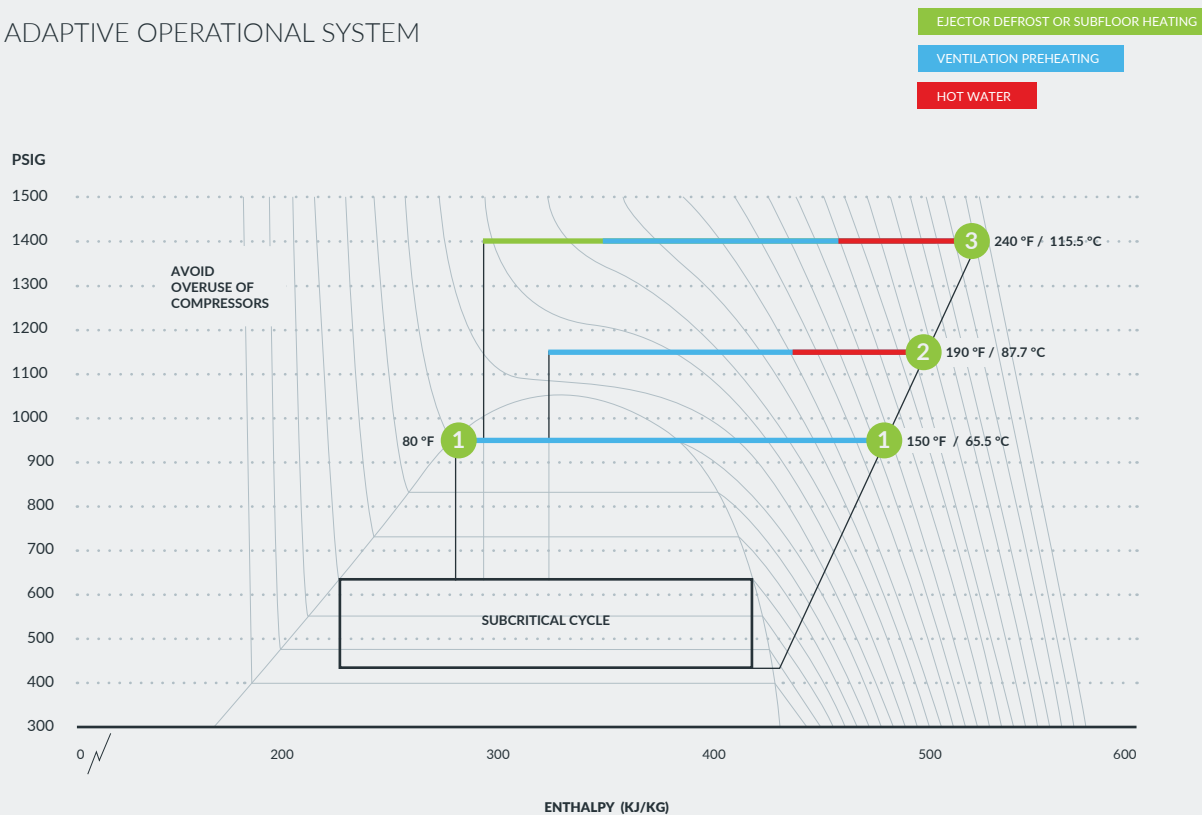
## REAL-TIME ARTIFICIAL INTELLIGENCE TO ENSURE OPTIMAL PERFORMANCES

Reduction of energy consumption for heating process;

Elimination of boiler to produce heat;

Significant recurrent financial savings.

## ADAPTIVE OPERATIONAL SYSTEM



LEADER IN HIGH PRESSURE **CO<sub>2</sub>** COOLING  
AND REFRIGERATION SYSTEMS

# PASSION INNOVATION THOROUGHNESS

INNOVATIVE COOLING SOLUTIONS BUILT  
FOR **ENVIRONMENTAL SUSTAINABILITY**

## WE OFFER

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

## WE SERVE

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- Industrials
- Supermarkets
- Sports centers
- Data centers

## WE ARE

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- Working to make Eco-friendly refrigeration a global standard

## 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;

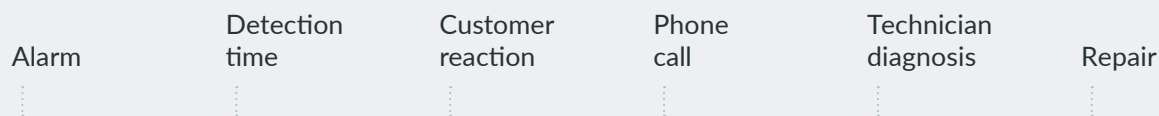
### POWERFUL TECHNOLOGY, QUITE SIMPLY

Remote controlled equipment and alarm system;

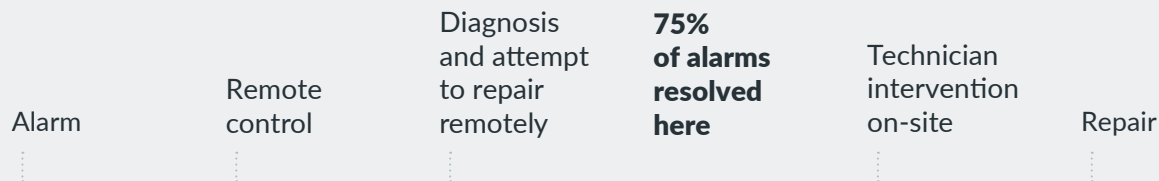
Real-time monitoring and performance reports by a highly qualified team;

24/7 technical support, quick and efficient interventions.

### 35% FASTER INTERVENTION



### STANDARD INTERVENTION





# CO<sub>2</sub> 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.

## ○ ENERGY METER WITH DISPLAY

Real-time display of your refrigeration consumption.

## ○ GAS COOLER / CONDENSER

Different options available for optimal performance and durability.

## ○ REMOTE CONTROL

To closely monitor your process using your smartphone or computer.

## ○ STAINLESS STEEL

Stainless steel covering and piping.

## ○ TURNKEY INSTALLATION

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

## ○ ENCLOSURE FOR OUTSIDE INSTALLATION

Weatherproof construction.

# Carnot: a pioneer in transcritical CO<sub>2</sub> and cooling systems

Carnot has proven itself regarding the performance of its CO<sub>2</sub> transcritical refrigeration system. With the longest-lasting legacy of high quality demonstrations across North American and Europe since 2008, CO<sub>2</sub> 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 CO<sub>2</sub> refrigeration technology;

Standards and certifications including CSA and UL;

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

Competent customer service team focused on customer satisfaction.



**« CO<sub>2</sub> IS NOURISHMENT FOR TREES:  
SYNTHETIC MOLECULES ARE NOT. »**

**MARC-ANDRÉ LESMERISES**  
*CEO of Carnot, United Nations conference*

**SPORTS  
FACILITIES**

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