SUSTAINABLE COOLING SOLUTIONS

SECOP

Contents

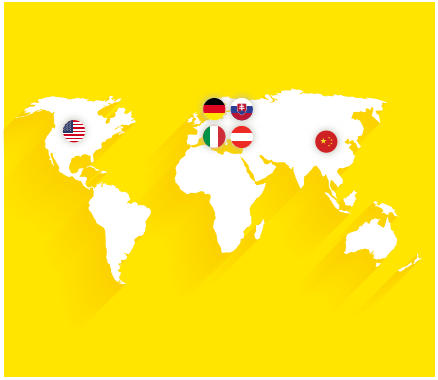
ABOUT SECOP

International Provider of:

→ Hermetic reciprocating compressors
→ Controllers for compressors
→ Condensing units
→ Refrigeration solutions

Our Markets Are:

→ **Light Commercial**, AC-powered applications
→ **Battery-Driven**, DC-powered and mobile applications
→ **Medical Cooling**, stationary or mobile applications



Vision

Secop strives to be the first choice for partners searching for leading-edge refrigeration solutions and premium customer experience.

Mission

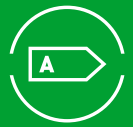
Secop is committed to delivering advanced refrigeration compressors and controls, offering customers tailored sustainable solutions for light commercial, battery-driven, and special cooling applications.

Values

- → Perform with **PASSION**
- → Deliver high **QUALITY**
- → Act with **INTEGRITY**
- → Work with **TEAM SPIRIT**

Integral to Your Success

These qualities make Secop an ideal partner for efficient cooling solutions:



Energy Efficient "Green Solutions"

Hydrocarbon Ready

Long Product Life Cycles

Premium Controllers for Compressors

Superior Product Quality and Reliability

Variable-Speed Compressors

CORE BUSINESSES AND PRODUCTS

Stationary Cooling

Refrigeration compressors and solutions for food retail, food service, medical, commercial freezers or coolers, beverage dispensers, special commercial equipment, and selected residential applications

Mobile Cooling

DC-powered or battery-driven compressors specifically designed for mobile cooling solutions: automotive (trucks, cars, bus), recreations vehicles, portable boxes, medical, solar, and special applications

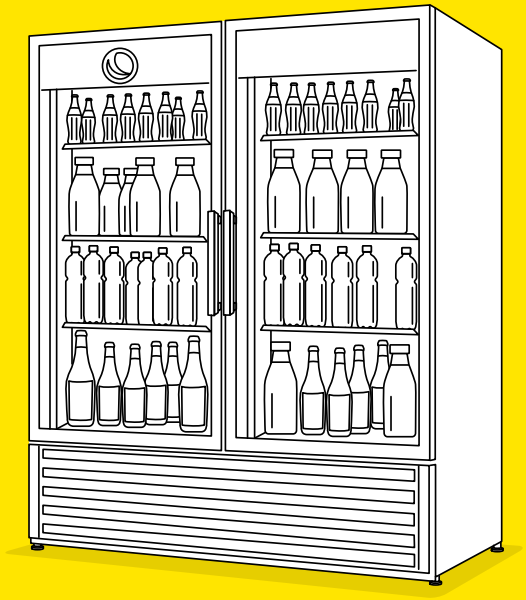
Medical Cooling

Refrigeration compressors and solutions for various vaccine and biomedical cooling requirements including ultra-low temperature models for stationary or mobile appliances providing world-wide safe storage or transport at different temperature levels

Stationary Cooling

The recipe for successful solutions:

- → 60 years of experience
- → Unparalleled reliability
- → Efficient solutions
- → Hydrocarbon optimized range
- → Premium variable-speed drive
- → Global service



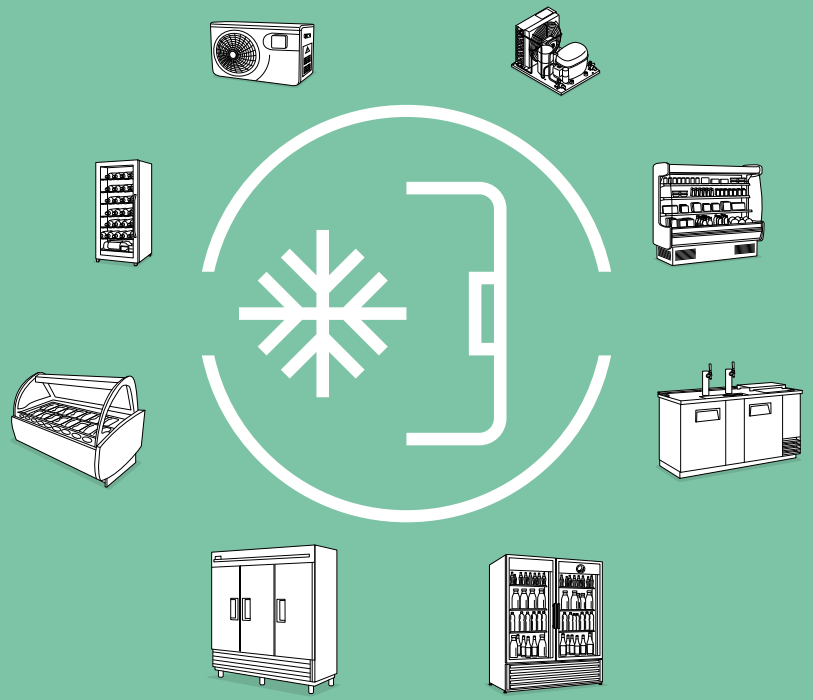
Variable-Speed Drive

Energy Optimized

Wide Application Range

Natural Refrigerants

Stationary Cooling



Stationary Cooling

Electronically Controlled Capacity

Series		Displacement (cm³)	Cooling Capacity: LBP (W) ASHRAE	Cooling Capacity: MBP (W) ASHRAE	Cooling Capacity: HBP (W) ASHRAE	Refrigerants
DLV		4.0 – 5.7	184 – 448	224 – 796		R290
NLV		7.96 – 12.55	265 – 937	490 – 1677		R290
SLV/ SLVE		15.28 – 17.7	403 – 1190	1200 – 2149		R290
		0 – 35	0 – 2000	0 – 3500	0 – 2750	

Natural Refrigerants

Variable-Speed Drive

Secop compressors are available for all worldwide AC mains supply standards.

SECOP

Stationary Cooling

Fixed-Speed

Series		Displacement (cm³)	Cooling Capacity LBP (W) ASHRAE	Cooling Capacity MBP (W) ASHRAE	Cooling Capacity HBP (W) ASHRAE	Refrigerants
P		1.41 – 2.50	25 – 59	66 – 126	130 – 192	R600a R134a
T		2.6 – 10.13	45 – 272	11 – 392	218 – 488	R600a R290 R134a R404A R513A R452A
D		4.0 – 10.14	62 – 382	324 – 678		R600a R290
K		5.6 – 12.5	92 – 260			R600a R134a
KL		4.0 – 7.7	200 – 395	401 – 704		R290 R134a
		0 – 35	0 – 2000	0 – 3500	0 – 2750	

Natural Refrigerants

Secop compressors are available for all worldwide AC mains supply standards.

Stationary Cooling

Fixed-Speed

Series	Displacement (cm³)	Cooling Capacity: LBP (W) ASHRAE	Cooling Capacity: MBP (W) ASHRAE	Cooling Capacity: HBP (W) ASHRAE	Refrigerants
N 	6.13 – 14.6 5	127 – 766	320 – 1359	1122 – 1211	R600a R290 R134a R404A R513A R452A
F 	6.23 – 11.15	120 – 332	296 – 514	516 – 950	R134a R404A R513A
S 	10.29 – 20.95	167 – 1137	493 – 1868	923 – 2266	R290 R134a R404A R407C R513A R452A
G 	21.2 – 33.8	1207 – 1912	1448 – 3363	2613	R134a R404A R513A
	0 – 35	0 – 2000	0 – 3500	0 – 2750	

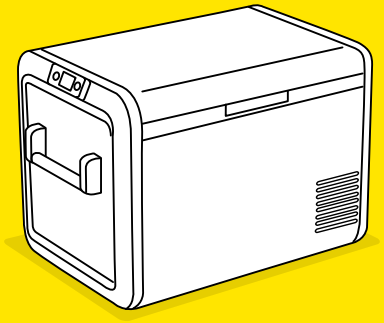
Natural Refrigerants

Secop compressors are available for all worldwide AC mains supply standards.

Mobile Cooling

Refrigeration anytime and anywhere:

- → DC-powered compressors
- → Pioneer with 40 years of experience in battery-driven mobile refrigeration solutions
- → Reliable solutions (automotive standards)
- → High performance in compact size
- → Premium control electronics
- → Global service



Variable-Speed Efficiency

Premium Controllers

Low Noise Low Vibration

Low GWP Refrigerants

Mobile Cooling

SECOP

Mobile Cooling

Product Portfolio

Series	Displacement (cm³)	Cooling Capacity: LBP (W) ASHRAE	Cooling Capacity: MBP (W) ASHRAE	Cooling Capacity: HBP (W) ASHRAE	Refrigerants
BD Nano 	1.42 – 2.60	28 – 69	62 – 139		R134a R1234yf R600a
BD Micro 	1.41	13 – 34	42 – 94	83 – 173	R134a R1234yf
BD-P 	2.0 – 3.0	29 – 71	65 – 223	115 – 390	R600a R290 R134a
BD-T 	3.86 – 5.08	115 – 245	242 – 473	433 – 804	R134a R404A
	0 – 35	0 – 2000	0 – 3500	0 – 2750	

Natural Refrigerants

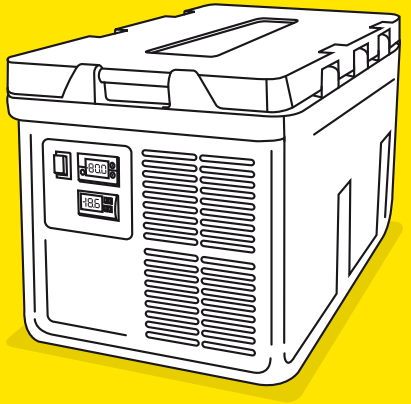
Variable-Speed Drive

Secop compressors are available for all worldwide AC mains supply standards.

Medical Cooling

Reliable stationary and mobile solutions:

- → For stationary biomedical appliances
- → Active mobile ULT compressor solutions
- → Safe storage and transport in AC/DC mode
- → SDD (Solar Direct Drive) solutions
- → Used in applications officially certified by WHO
- → Electronic controlled solutions
- → Global service



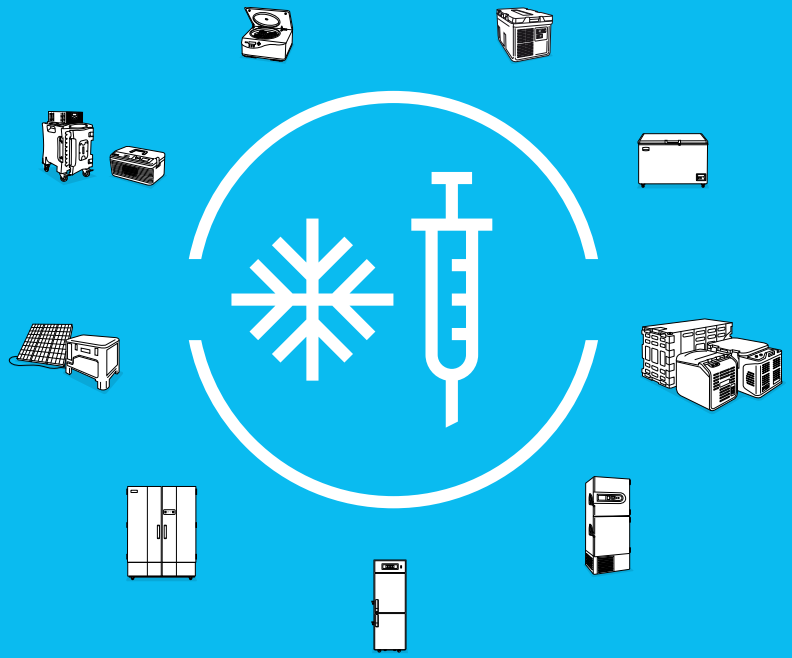
AC-Powered Applications

DC-Powered Applications

Energy Optimized

Ultra Low Temperature

Medical Cooling



Medical Cooling

Product Portfolio

Applications	Evap. temp. range (°C)	Displacement (cm^3)	Cooling Capacity (W)	Test Conditions	Refrigerants
Medical Refrigerators Freezers	+2 to +8 -20 to -30	1.41 – 20.95	14 – 1100	ASHRAE LBP	R290 R600a R134a R513A R1234yf R404A R452A
Biomedical Freezers	-30 to -60	3.89 – 20.95	79 – 648	EN 12900 LBP	R290 HC Mixture R404A R452A
Ultra-Low Temperature Freezers	-60 to -90	2.0 – 20.95	22 – 356	pe=-90 °C pc=-35 °C Tsuc=-20 °C Tliq=-35 °C Tamb=32.2 °C	R170 HC-Mixture
		0 – 35	0 – 1200		

Natural Refrigerants

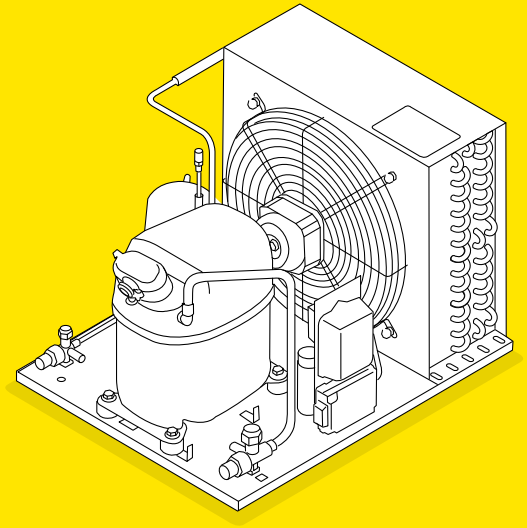
Variable-Speed Drive

Secop recommends using 2-stage cascade systems for the temperature range from -60 °C to -90 °C. These have been developed for highest reliability and product safety at ultra-low temperatures.

Stationary Cooling

Condensing Units:

- → Natural and alternative refrigerants
- → Comply with the EU Ecodesign Directive
- → Compact design for installation in tight spaces
- → 100 % quality control of every single unit
- → Using energy-optmized compressors
- → Global service



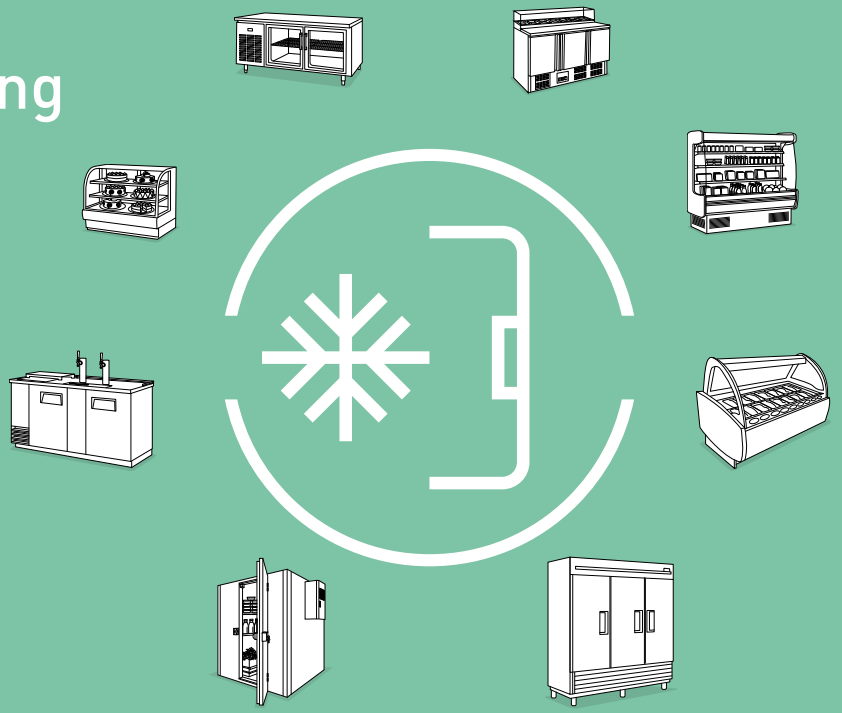
Natural Refrigerants

EU Sustainable Design

Alternative Refrigerants

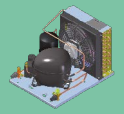
Wide Application Range

Condensing Units



Stationary Cooling

Product Portfolio

Series		Displacement (cm³)	Cooling Capacity: LBP (W) EN 13215*	Cooling Capacity: MBP (W) EN 13215*	Refrigerants
T D KL		3.9 – 7.7	184 – 422	239 – 700	R134a R513A R404A R452A R290
N		6.1 – 12.6	159 – 582	326 – 996	R134a R513A R404A R452A R290
S		10.3 – 21.0	590 – 944	752 – 1683	R134a R513A R404A R452A R449A R290
G		26.3 – 33.8	1275 – 1712	1372 – 1782	R134a R513A R404A R452A R449A
		0 – 35	0 – 2000	0 – 3500	

Natural Refrigerants

*Tsubcooling=2 K, Tsuc=20 °C, Tamb=25 °C, LBP: pe=-25 °C, MBP: pe=-10 °C

BEYOND THE PRODUCT

Premium Customer Support

- → Sales team aligned to customers
- → Support in 50+ countries
- → Customer service support in different regions
- → Worldwide distribution network
- → Application engineering worldwide support

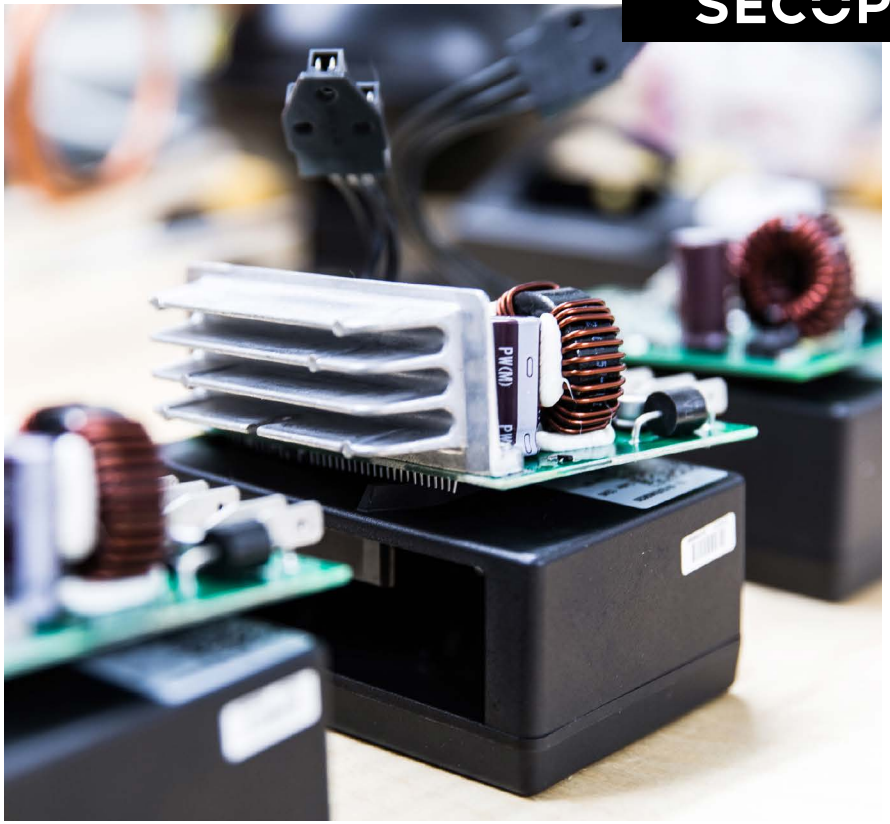
Committed to Quality Products

→ Preventive quality tools (PPAP, APQP, FMEA ...)

→ TS tools (SPC, product and process audits ...)

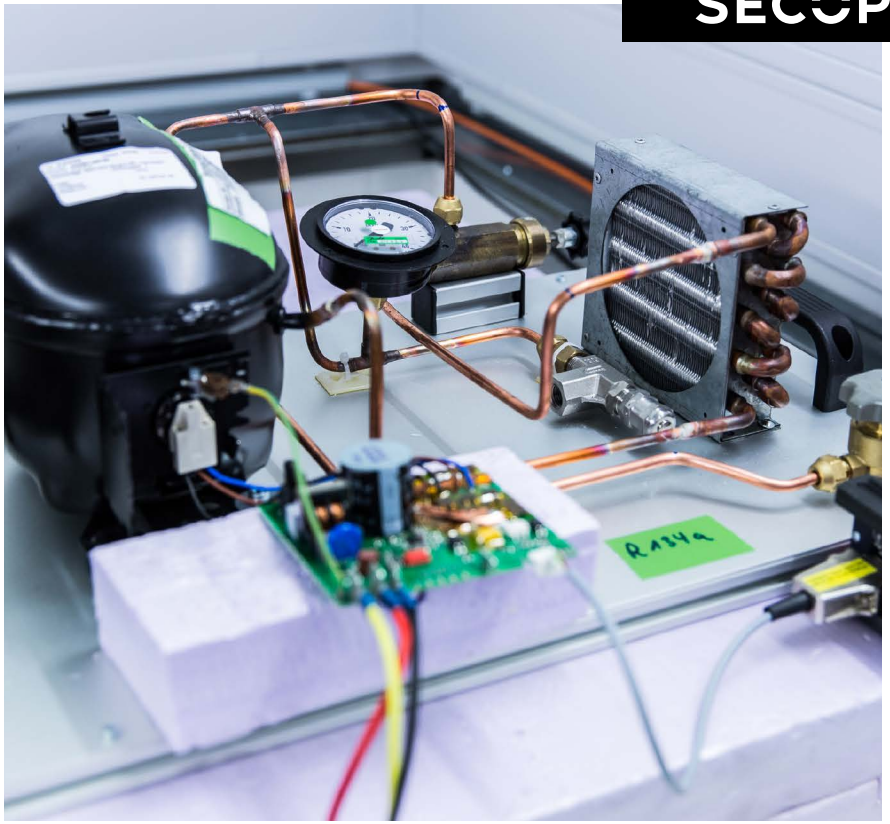
→ Efficient quality control systems

→ Field quality and application engineers



Leading Edge Application Engineering

- → Testing for customer's appliances
- → Advanced trouble shooting
- → System optimization support
- → Support conversions to HC refrigerants
- → System knowledge to support the introduction of variable-speed solutions



Research and Development

Rooted knowledge in mechanics, electrical motors, electronic controls, and thermodynamics development

→ 12 international partners for advanced development

→ 33 laboratories located in Austria, Germany, Slovakia, China, US, and Turkey

→ 160 R&D engineers and technicians

→ 440 patents globally

Advanced Electronics and Controls

→ Unparalleled competency in motor design and variable-speed control

→ Advanced motor and inverter electronics development

→ Simulation tools and innovative design systems

HISTORY AND MILESTONES

The Danfoss Compressors Era

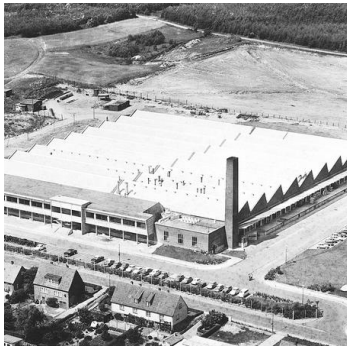
1956
Founded in Flensburg, Germany

1977
Mobile cooling is introduced

1989
100 Million compressors produced

1993
Production of first natural refrigerant compressors begins

1998
Introduction variable-speed compressors



The Secop Era

2010
BD Micro

2015
Energy-optimized DLE and NLE propane compressors

2016
DLV-CN variable-speed propane compressors

2017
NLV-CN variable-speed propane compressors

2020
SLVE18CN variable-speed propane compressor





The Secop Era

2021

ULT compressors for medical cold chain solutions

2022

KL-Series
A new premium propane solution

BD Nano-Series next-generation mobile cooling compressors

2023

Modular electronic MP and XT controllers

SECOP TODAY

Locations, Footprint, and Figures Today

- → Headquarters in Germany
- → Production facilities in China and Slovakia
- → 1,350 employees

6,000,000
compressors produced yearly

- **Flensburg:** Sales and R&D
- **Turin:** Sales
- **Gleisdorf:** R&D
- **Zlaté Moravce:** R&D, Logistics and Manufacturing
- **Tianjin:** Sales, R&D, Logistics and Manufacturing
- **Atlanta:** Sales and Logistics

Management Board

Dr. Jan Ehlers
Chief Executive Officer

Johannes Maerz
Chief Operation Officer

Michael Engelen
Chief Financial Officer

Norbert Brath
Chief Technology Officer

SECOP

Thank You for Your Attention

www.secop.com

Sustainable Cooling Solutions