SUSTAINABLE COOLING SOLUTIONS





CONTENTS

Foreword	3
Secop Group – Who We Are	4
Secop Group – Vision, Mission and Values	5
Secop Group – Around The World	6
Natural Refrigerants	8
Variable-Speed Drive	9
Core Businesses and Products	10
The Secop Compressor Range	13
Product Portfolio – Stationary Cooling	14
Product Portfolio – Mobile Cooling	16
Product Portfolio – Medical Cooling	18
Product Portfolio – Condensing Units	20
Highlight – SCE Plus	22
Highlight – KL-Series	23
Highlight – BD Nano-Series	24
Highlight – ULT Mobile Cooling	25
Highlight – ULT Stationary Cooling	26
Highlight – Solar Direct Drive	27
History and Milestones	28
Beyond the Product	30
Contact	32

A FOCUSED VISION AND A COMMITTED MISSION FOR SECOP GROUP

Dear Reader,

Despite the challenges of the market environment, the year 2025 marks a significant milestone for the Secop Group: the 15th anniversary of the Secop brand. It has been a long journey for our company, marked by various changes over the years. In 2019, we initiated a reorganization to realign our strategic focus, reaffirming our commitment to our core business areas: Stationary Cooling and Mobile Cooling, with Medical Cooling added in 2021.

Secop is a well-established and experienced player in the refrigeration industry, known for its tradition of high-quality, innovative solutions, application optimization, and strong customer service.

We will continue to focus on these strengths and all the transformation steps seen from 2019 are part of a strategic plan to concentrate valuable resources and know how on the light commercial, mobile cooling and medical cooling segments, the core areas in which our experience, leading technology, and support can differentiate with premium solutions for our partners.



Dr. Jan Ehlers Chief Executive Officer



Johannes Maerz Chief Operation Officer



Michael Engelen Chief Financial Officer



Norbert Brath Chief Technology Officer

SECOP GROUP: WHO WE ARE

Secop is the expert for advanced hermetic compressor technologies and cooling solutions in commercial refrigeration. We develop high performance stationary and mobile cooling solutions for leading international commercial refrigeration manufacturers and are the first choice when it comes to leading hermetic compressors and electronic controls for refrigeration solutions for light commercial and DC-powered applications.

Secop has a long track record of successful projects to adopt energy efficient and green refrigerants that feature innovative solutions for both compressors and control electronics.

Our Stationary Cooling business segment (AC-supply compressors for static applications) encompasses compressors for light commercial applications in food retail, food service, merchandisers, and special applications including selected residential applications.

Our Mobile Cooling business segment (battery-driven DC-supply for mobile applications) is the global leader in high-performance hermetic DC compressors for automotive, trucks, recreation vehicles, portable boxes, solar, and other mobile applications.

Our Medical Cooling business segment with its stationary and mobile solutions make us a reliable partner for leading companies supporting the development of a global ULT (ultra-low temperature) supply chain.



IT ALL STARTS WITH THE RIGHT MINDSET



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

Mission

Vision

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



- \rightarrow Perform with passion
- ightarrow Deliver high quality
- ightarrow Act with integrity

 \rightarrow Work with team spirit

"Secop is a strong brand that offers unique solutions with leading industry and operational expertise based on a tradition of high quality, innovation, application engineering, and customer service. With new solutions to support the medical industry and medical cold chain, Secop has contributed to fighting COVID-19. Some of the world's leading manufacturers of medical cooling solutions have been relying on our products for many years. Our experience in such medical applications has helped us to also develop ultra-low temperature cooling compressors. Energysaving and product life-extending measures, as well as a preference for natural refrigerants, make our solutions particularly sustainable and attractive to both users and manufacturers. With our structure, we aim to get to know our customers closely to better understand their need and view ourselves as a solution provider, solving specific problem together with the customer as our partner."

Dr. Jan Ehlers Chief Executive Officer n passion quality grity am spirit

12 international partners for advanced

33 laboratories located in Germany, Slovakia, China, U.S.A., and Turkey

150+ R&D engineers and technicians

400+

50+ countries with customer support

WE SUPPORT



SECOP GROUP: AROUND THE WORLD

Premium Customer Support

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

Locations, Footprint, and Figures Today

- \rightarrow Headquarters in Germany
- \rightarrow Production facilities in China and Slovakia

Profile

Secop is a very well-established and experienced player with a tradition of high quality, innovation, and application engineering, and customer service.

Secop was formerly known as Danfoss Compressors and is one of the founding fathers of modern compressor technology with years of experience that goes back to the beginning of the 1950s.

Since September 2019, Secop has belonged to ESSVP IV, advised by Orlando Management AG, a private equity firm with a long and successful track record in developing business in the industrial sector.

"In everything we do, we are focusing on our customers and provide them with the best possible solutions. Key for us is working end-to-end across all departments to keep delivering highend products and services to our customers. This applies to both of our business segments – stationary as well as mobile cooling."

> Johannes Maerz Chief Operation Officer

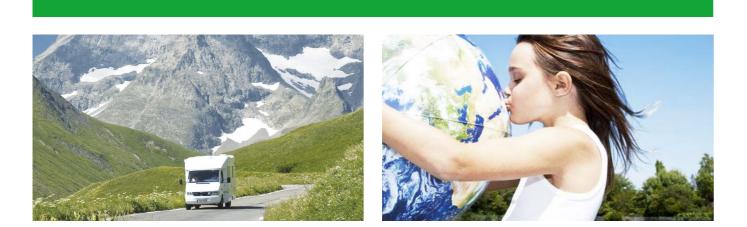
"Secop is a technology leader in battery-driven DC applications, commercial cooling solutions, and medical refrigeration. We continuously work on developing new products and delivering premium service to our customers. We also support the transition to new sustainable refrigerants, high energy efficient products and mobile cooling solutions including e-cars and medical applications"

Norbert Brath Chief Technology Officer

Since 2011, Secop has been committed to the UN Global Compact corporate responsibility initiative and its principles in the areas of human rights, labor, the environment, and anti-corruption.



NATURAL REFRIGERANTS



Secop has been developing highly efficient compressors that use hydrocarbons (R290 and R600a) for more than 25 years. Our successful R290 compressor range has been updated with continuous releases of higher efficiency models for both LBP and MBP applications, specifically designed for merchandisers, food service, food retail, medical refrigerators, and ultra-low temperature freezers.

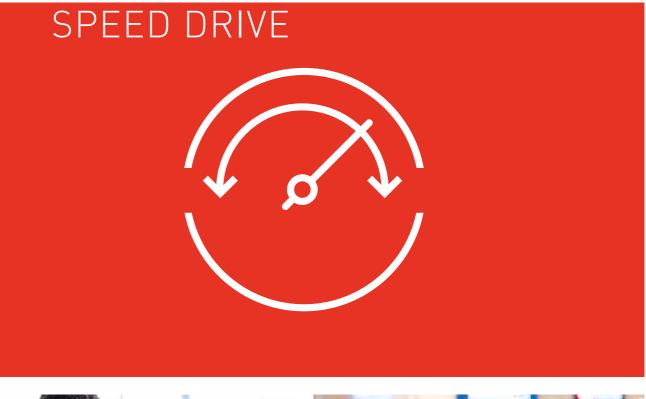
These NLE, SCE, and KLF compressors are tailored for commercial use and can be used to replace products made for high global warming potential (GWP) refrigerants such as R404A and R134a.

New 50/60 Hz compressor variants are designed to support regions that experience harsh and challenging environments and in which voltage fluctuations as well as high ambient temperatures need to be taken

into account, and when the ability to start under low voltage conditions without stalling is important.

Secop has been developing and promoting efficient low-GWP natural refrigerant solutions since 1993. The introduction of hydrocarbons R600a and R290 helps to protect the environment and updates commercial refrigeration systems with the latest generation of a highly efficient compressor technology.

VARIABLE-





Secop understands that operation at full capacity is extremely rare in most cooling applications, that's why we've built variable-speed controlling devices into the BD, NLV, and SLV/E compressors that automatically adapt the speed to your operating needs. This means compressors usually run at low speed, thus minimizing power consumption and greatly improving efficiency.

Our °CCD electronic units also feature built-in overload and thermal protection that automatically restarts the compressor after a certain time. Compressors can be powered up with high starting torque (HST), making equalizing pressure in the system before starting the device unnecessary.

Tool4Cool[®] is a unique software tool that lets you configure Secop's Cool Capacity Drive (°CCD) variablespeed compressors precisely to your cooling systems.

From the 1998 when the first TLV variable-speed compressor was developed, Secop has continuously developed and optimized its variable-speed compressors and control electronics for commercial applications and for DC battery-driven solutions. Today, we offer a full range of variable-speed drive compressors from the small BD-Series for mobile cooling up to the S-Series for large food retail solutions, including a green hydrocarbon refrigerants range.

CORE BUSINESSES AND PRODUCTS:

Stationary Cooling

The Recipe for Successful Solutions:

Integral to your success These qualities make Secop an ideal partner for efficient cooling solutions: We are the first choice in leading-edge refrigeration solutions.



Energy Efficient "Green Solutions"



Premium Controllers for Compressors



Superior Product **Quality and Reliability**



Hydrocarbon Ready



Long Product

Life Cycles



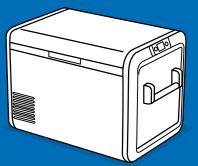
Refrigeration Anytime and Anywhere:

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

Our Mobile Cooling business segment (battery-driven DC-supply for mobile applications) is the global leader in high-performance hermetic DC compressors for automotive, trucks, recreation vehicles, portable boxes, solar, and other mobile applications.

In DC (direct current) applications, our BD Series compressors provide world-wide safe transport of sensitive biomedical goods. Our cutting-edge controls enable cooling solutions to be directly powered by solar panels (SDD, solar direct drive) in remote areas without stable electricity grids or are also used universally in AC/DC mode for both transport and storage.









Variable-Speed Compressors

Medical Cooling

Reliable Stationary and Mobile Solutions Supporting the Development of a Global Ultra-Low Temperature Supply Chain:

Our KL-, N-, S-, G-Series compressors, for stationary biomedical appliances -20 °C, +2 °C to +8 °C used in centrifugal coolers to process and preserve all types

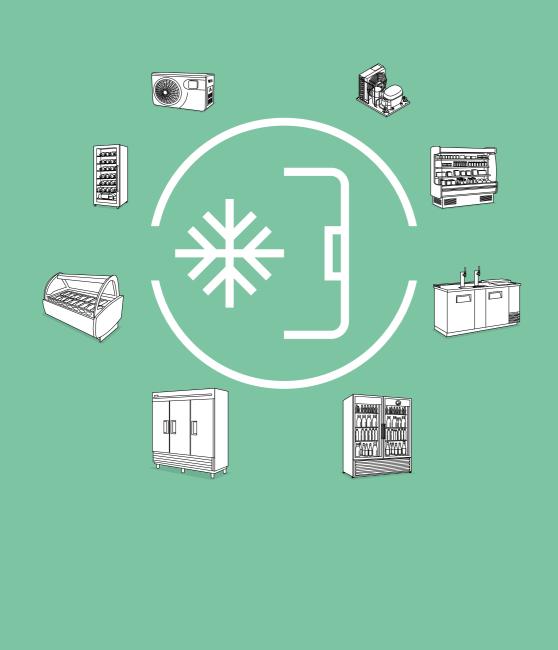


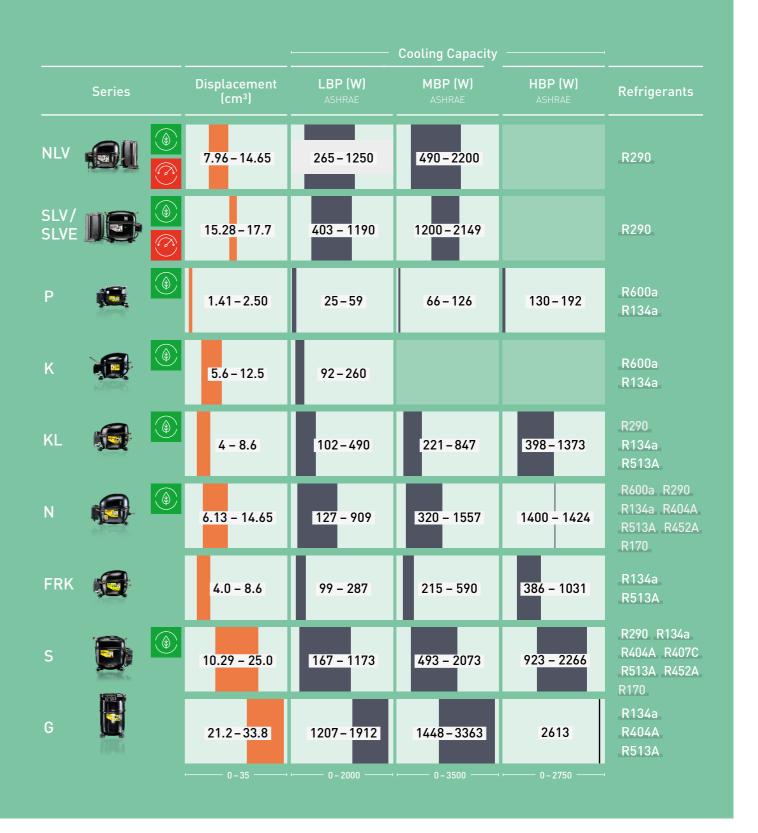
THE SECOP RANGE



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





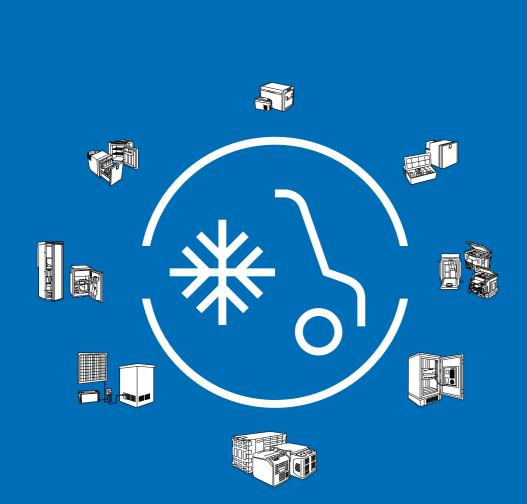
Secop stationary cooling compressors are available for all worldwide AC mains supply standards.

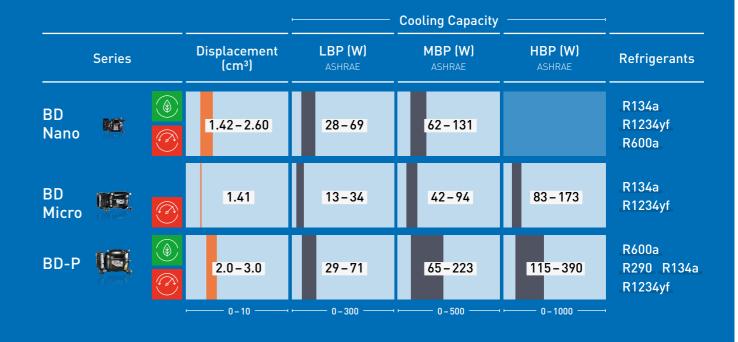




MOBILE COOLING

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







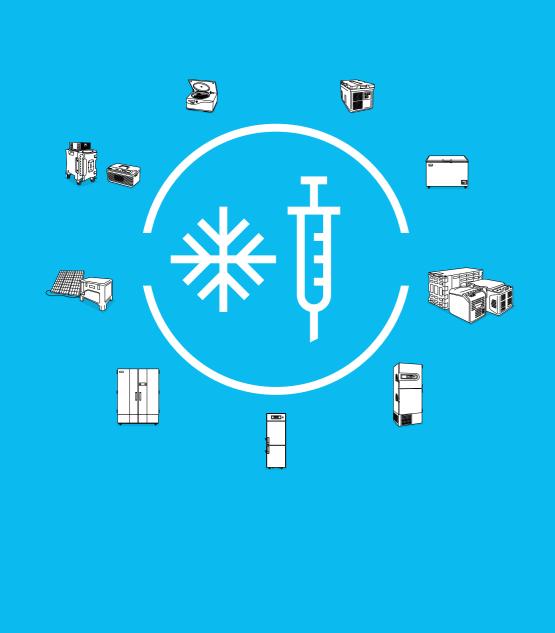
Secop mobile cooling compressors are available for a variety of DC voltage ranges and certain controllers even feature an AC option for various mains supply.





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



			Cooling
Sub Pl	atform	Applications Evap. Temp Range	Displacement (cm³)
МВ СКV		Solar Powered Vaccine Refrigerators -30 to 5° C	2.6
MN U/UV		Biomedical Freezers -30 to -60 °C	11.15 - 12.55
MS U/UV		Biomedical Freezers -30 to -60 °C	17.69 - 20.95
MP UV		Ultra-Low Temperature Freezers -60 to -90 °C	2
MN U/UV		Ultra-Low Temperature Freezers -60 to -90 °C	11.15 - 12.55
MS U/UV		Ultra-Low Temperature Freezers -60 to -90 °C	17.69 - 20.95
Mobile ULT Condensing Units		Ultra-Low Temperature Freezers -60 to -90 °C	2x 2
Stationary ULT Condensing Units		Ultra-Low Temperature Freezers -60 to -90 °C	2x 17.69
			0-35

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.



0-1200

Natural Refrigerants

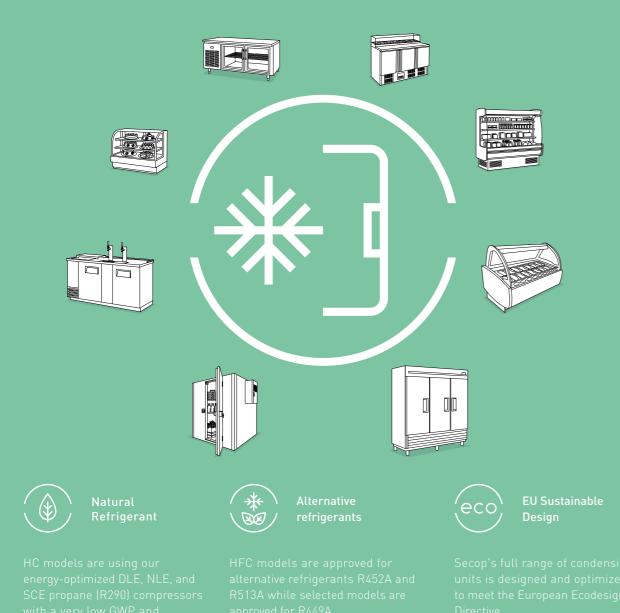


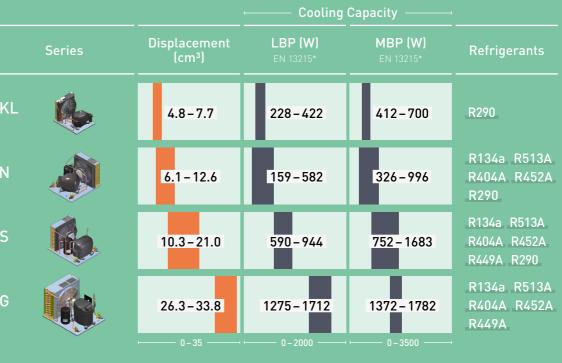
CONDENSING UNITS

Perfect for installation in tight spaces with a precise, compact design, they allow easy conversion for new drop-in replacement refrigerants.

The range is designed and optimized to meet the European Ecodesign Directive.

With high precision manufacturing and 100% quality control of every single unit, they are made to operate in the most demanding environments under all operating conditions.





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



Page 20



HIGHLIGHT







- \rightarrow Increased Cooling Capacity
- \rightarrow First-Class Robustness
- Improved robustness for liquid return
- Increased stability during defrosting by hot gas

R290 Green

Refrigerant

٦

Small

Footprint

- Improved noise/vibration reduction
- \rightarrow Optimized Electrical System (IP23 Protection Class)
- More compact, easier installation
- Additional connections
- Flexible configuration options
- → Innovative Solution for Flammable Refrigerants



The new **SCE Plus** refrigeration compressors expand the legendary S-Series by an extended displacement of 23 and 25 cm³.

It combines compact size with high performance and is optimized for Propane to ensure high energy efficiency.

Secop SCE Plus compressors offer optimized start equipment, are resistant to extreme liquid refrigerant returns, and include a special solution for a safe use of flammable hydrocarbons refrigerants.

This solution is perfect for applications such as supermarket refrigerators/freezers, walk-in freezers, double glass door merchandizers, and much more.

HIGHLIGHT KL-SERIES





- → High COP and top efficiency for light commercial applications with low GWP refrigerant propane
- → Including a patented hermetic terminal plug designed to increase robustness for usage with flammable refrigerants
- \rightarrow Improved noise and reduced vibration, a new benchmark level for hydrocarbon refrigerants
- \rightarrow New terminal board design for additional interconnections

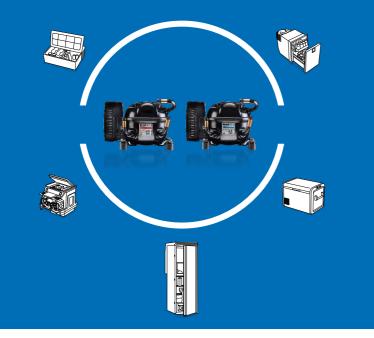


Secop's new **KL-Series** is based on the very successful K-Series with more than 50 million units installed.

The KL-Series was developed to offer a reliable, top performing, and cost-effective solution for the next generation of light commercial cabinets using environmentally friendly refrigerant propane and offering high energy efficiency.

A premium robust solution for food retail and food service applications.

HIGHLIGHT **BD NANO-SERIES**









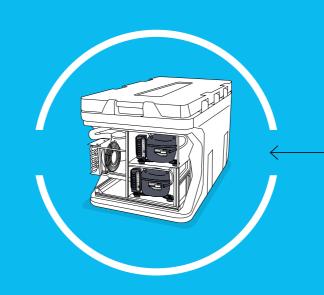
(** W

- \rightarrow Even more compact than a BD Micro compressor for more capacity in the cabinet
- \rightarrow Protection against electromagnetic interference (EMI)
- \rightarrow Greater energy savings, reduced total cost of ownership (TCO), and extending battery operation time
- \rightarrow Replaces larger compressors, thereby extending the range of applications
- \rightarrow Reduced noise and vibrations

Secop's latest innovation for mobile refrigeration is the new **BD Nano** compressor. The extreme compact BD Nano (40% shorter, 67% lighter in comparison controller included) provides the same cooling capacity as much bigger BD35F/50F/35K compressors yet with unrivaled efficiency.

The BD Nano features some technical innovations such as a new mobile stability concept, an improved lubrication concept, miniaturized new mufflers, a compact housing, a miniaturized new motor, improved valves, and compact versatile controllers, among other things.

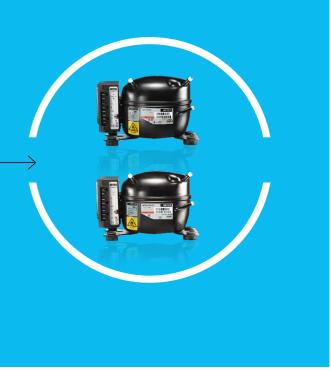
HIGHLIGHT ULT MOBILE COOLING





- \rightarrow Mobile solution which is able to reach -70 °C to -86 °C
- \rightarrow Ideal solution for mains voltage independent transport of mRNA-based COVID-19 vaccines with temperature control and no risk of wasting vaccine
- \rightarrow Precise cooling and control of target temperature
- \rightarrow Reliable long lasting systems with low TCO life cycle
- \rightarrow Electronically controlled variable-speed drive compressor







Secop has developed the technology for an ultra-low temperature cooling system. This system offers mobile operation even in high ambient conditions such as in tropical regions. This dedicated condensing unit features a compressor cascade solution with a MP2UVULTM (low stage) and a BD100CN (high stage) compressor takes advantage of Secop's experience in medical applications, vaccine solar freezers, and mobile solutions and combines all of these areas of use. Battery-driven active cooling systems for mRNA-based vaccines provide a lot of advantages compared to existing passive cooling.

HIGHLIGHT **ULT STATIONARY COOLING**



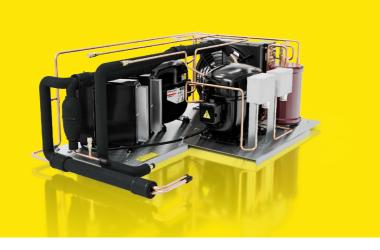


Premium

Controllers



- \rightarrow Reduction of variants thanks to a wide cooling capacity range
- \rightarrow Ideal solution for new highly effective mRNA-based vaccines for COVID-19, Ebola, and CGTs which require an ultra-low temperature storage
- \rightarrow One global reach electronic variant (90-270 V, 50-60 Hz)
- \rightarrow Variable cooling range for precise cooling and temperature control
- \rightarrow Robust compressors for medical use and ULT refrigerant approved
- \rightarrow Optimized for green refrigerants propane and ethane



Secop has developed new electronic controlled compressors for medical applications. Significantly more efficient and with additional features for the next generation of medical cold chain cabinets. Ultra-low temperature systems require reliable environmentally friendly solutions.

NM13UVULTM and MS18UVULTM medical variable-speed compressors come with innovative modular multi-voltage controllers featuring speed control through Adaptive Energy Optimization, frequency signal, or serial communication. These multi-voltage controller can be used for all voltages and frequencies globally.

HIGHLIGHT SOLAR DIRECT DRIVE



- \rightarrow AC/DC solution optimized for photovoltaic solar panel supply and weak AC grid installations
- \rightarrow Increased maximum PV voltage to 55 V to enable the use of popular PV modules
- \rightarrow Power input management and peak power point tracking
- \rightarrow Enhanced communication interface for operation and monitoring
- \rightarrow AC wide working range between 85 V and 264 V
- \rightarrow Additional 24 V DC output
- \rightarrow Designed for premium robustness and reliability: IP60 housing and robust against EMI



The new solar direct drive (SDD) and weak grid power management system designed by Secop consists of the new generation SDD Power Management Module, the new **MB3CKV** medical version of the BD Nano compressor series, and its dedicated Solar 1 controller.

It was specifically developed for applications using solar panels or operating in unstable and weak AC grids, and is tailored to meet WHO PQS requirements.

The new SDD Power Management Module features a wide range AC input, to allow world-wide usage and is optimized for DC for widely diffused PV panels up to 72 cells for effective installations.

A LONG EXPERIENCE IN REFRIGERATION: $1956 \rightarrow 2024$







1989 100 million compressors produced

1993

is launched



1998 Introduction of variablespeed compressor



2015 Energy-optimized DLE and NLE propane compressors





2017 Energy-optimized SCE propane compressors

2020

SLVE18CN

The most powerful

on the market

hermetic reciprocating

variable-speed compressor

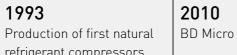
2021 Ultra-low temperature active mobile medical cooling technology

1977 Mobile cooling is Introduced





refrigerant compressors





2016 Introduction of NLV-CN variable-speed propane compressors for 220-240 V, 50/60 Hz









2023 Modular electronic MP and XT controllers

2022

KL-Series A new premium propane solution



BD Nano-Series next-generation mobile cooling compressors



2024

Energy-optimized SCE Plus 23/25 cc propane compressor



BEYOND THE PRODUCT



Committed to Quality Products

- \rightarrow Preventive quality tools (PPAP, APQP, FMEA ...)
- ightarrow TS tools (SPC, product and process audits ...)
- ightarrow Efficient quality control systems
- \rightarrow Field quality and application engineers



Leading-Edge Application Engineering

- ightarrow Testing for customer's appliances
- \rightarrow Advanced trouble shooting
- \rightarrow System optimization support
- \rightarrow 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

- \rightarrow 12 international partners for advanced development
- \rightarrow 33 laboratories located in Germany, Slovakia, China, U.S.A., and Turkey
- ightarrow 150+ R&D engineers and technicians
- ightarrow 400+ patents globally





Advanced Electronics and Controls

- \rightarrow Unparalleled competency in motor design and
- variable-speed control
- \rightarrow Advanced motor and inverter electronics development
- \rightarrow Simulation tools and innovative design systems

CONTACT WORLDWIDE

SECOP



GERMANY, Europe
 Secop GmbH
 Flensburg
 Lise-Meitner-Straße 29
 24941 Flensburg, Germany
 Phone: +49-461-4941-0
 GMT +1

🕑 SLOVAKIA, Europe

Secop s.r.o. Zlaté Moravce Továrenská 49 953 01 Zlaté Moravce, Slovakia Phone: +421-376-406-200 GMT +1

ITALY, Europe Secop Italia S.r.l. Turin Corso Guglielmo Marconi, 13 10125 Turin, Italy Phone: +39-011-1917-3107 GMT +1

🕑 CHINA, Asia

Secop Compressors Co., Ltd. Tianjin Wuqing Development Zone No. 27, Kai Yuan Road 301700 Tianjin Phone: +86-22-5909-1888 GMT +8

🕒 USA, America

Secop Inc. Roswell, Georgia 4000 Northfield Way, Suite 600 Roswell, GA 30076, USA Phone: +1-678-533-5022 GMT -5



Secop GmbH · Lise-Meitner-Str. 29 · 24941 Flensburg, Germany · Tel: +49 461 4941 0 · www.secop.com

Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary to specifications already agreed. All trademarks in this material are the property of the respective companies. Secop and the Secop logotype are trademarks of Secop GmbH. All rights reserved.