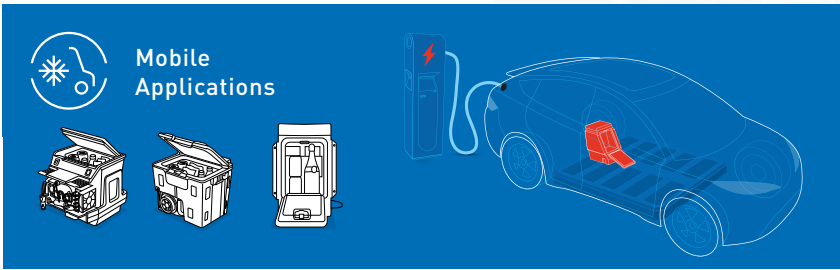


# THE PERFECT SOLUTION FOR REFRIGERATION IN ELECTRIC VEHICLES



**BD Nano EV**



**Variable-Speed Efficiency**

**Premium Controller**

**Low Noise Low Vibration**

**Optimized for E-Cars**

**Small Footprint**

→ **Compact, Efficient, and Silent Design**

The BD Nano EV (BDN-EV) compressor has a height of 93 mm and weighs only 1.38 kilograms, making it ideal for e-car refrigerators by maximizing space for food and drinks. Its efficiency ensures low energy consumption, extended battery life, and an optimized total cost of ownership. Additionally, the compressor enhances acoustic comfort by reducing knocking noise and vibration, making it suitable for noise-sensitive applications.

The BDN-EV is quieter and more powerful than similar predecessors, e.g. the BD Micro, which has been the benchmark in the car cooling solutions market.

→ **Proven Robustness**

BDN-EV compressors comply with the ISO16750 standard on improved transport stability.

→ **A Dedicated Controller for Automotive Applications**

Easy controller customization via Tool4Cool® software

→ **Produced in IATF16949-certified Plant**

BDN-EV compressors are manufactured at the Secop's plant in Tianjin, China. This facility has been IATF16949-certified and complies with the strict standards of the automotive industry.

Secop's **BDN-EV** compressor delivers premium cooling performance, high efficiency, and low noise and vibration levels in a compact design for new generation e-cars.

The BDN-EV compressor is controlled by a next-generation electronic control unit (ECU), offering users an easy-to-implement yet integral component of the refrigeration system. The ECU features Secop's unique compressor control algorithm, designed for efficient and silent operation of the compressor's electronic motor. The BD Nano EV control unit is lighter, smaller, and tailor-made for new electric vehicles, with a focus on controlling the compressor.

The new BDN-EV ECU represents Secop's next step toward an integrated solution for mobile refrigeration in vehicles. It includes industry-standard LIN connectivity, enabling the delivery and reception of operational data in real time. The BDN-EV significantly reduces the ECU's size and weight compared to Secop's previous BD Nano Automotive control units.

The BD Nano EV offers a 12 V single-range input, specifically optimized for automotive power networks. It provides plug-and-play compatibility with Secop's BD Nano Automotive Modbus interface. You'll also find Secop's proven and reliable battery protection functionality built in. The unit includes a thermostat that's fully configurable and offers rapid temperature response. Its stepless, state-of-the-art motor control ensures both load-matching and silent operation.

General		BDN-EV
Refrigerant		R134a, R1234yf
Compressor (1.37 kg)		109Z0700
Electronic unit (0.055 kg)		101N2830

Application		
Application		LBP/MBP
Evaporating temperature	°C	-30 to -5
Voltage range	VDC	9.6–17
Speed range	rpm	2300–3000

Performance Data ASHRAE LBP		R134a			R1234yf		
Speed	rpm	2300	2500	3000	2300	2500	3000
Cooling capacity	W	27.6	29.0	36.6	30.5	33.3	40.3
Power consumption	W	20.2	21.5	24.7	21.9	23.3	26.9
COP	W/W	1.37	1.35	1.48	1.39	1.42	1.50

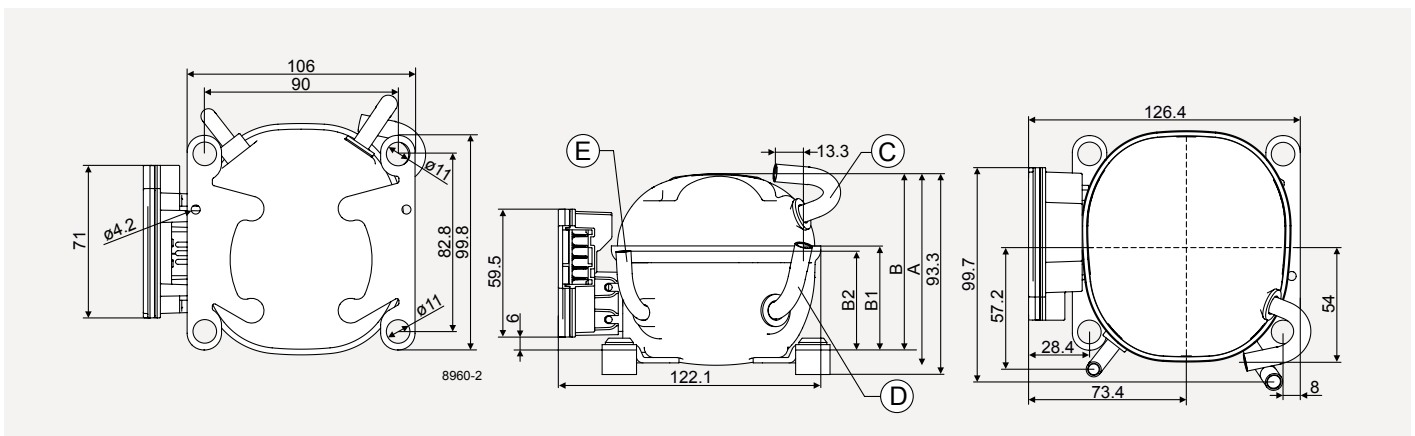
Test conditions  
 @ -23.3°C evaporating temperature      Condensing temp.: 54.4°C | Suction gas temp.: 32.2°C | Ambient temp.: 32.2°C | Liquid temp.: 32.2°C

Performance Data EN 12900 CECOMAF LBP		R134a			R1234yf		
Speed	rpm	2300	2500	3000	2300	2500	3000
Cooling capacity	W	19.9	20.8	26.2	21.2	23.1	28.0
Power consumption	W	19.0	20.2	23.2	20.9	22.2	25.4
COP	W/W	1.05	1.03	1.13	1.02	1.04	1.10

Test conditions  
 @ -25°C evaporating temperature      Condensing temp.: 55°C | Suction gas temp.: 32°C | Ambient temp.: 32°C | Liquid temp.: 55°C

Dimensions			
Height	mm	A	89.0
		B / B1 / B2	82.4 / 48.7 / 45.8
Suction connector	location/l.D. mm   angle material   seal	C	6.2   5° Copper   Rubber plug
		D	6.2   77.9° Copper   Rubber plug
Discharge connector	location/l.D. mm   angle material   seal	E	5.0   86.9° Cu-plated steel   Rubber plug
		Connector tolerance	I.D. mm

Electronic Unit Features	
32-bit STM32 microcontroller	Modern and robust instruction set microcontroller Proven reliability in several Secop products
LIN communication hardware	Standard transceivers · robust against ground voltage shift and EMI · Modbus protocol
State of the art hardware design	Modern components with proven track record · high efficiency due to optimized design
Modern honeycomb housing design	Active vibration noise cancellation · reduced size and weight · 5-pin RAST connector
Tailor made	Reduced complexity and cost for a master-slave car refrigerator system



Secop GmbH · Lise-Meitner-Str. 29 · 24941 Flensburg, Germany · Tel: +49 461 4941 0 · [www.secop.com](http://www.secop.com)

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