

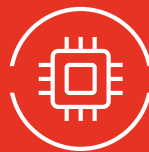
THE PERFECT SOLUTION FOR REFRIGERATION IN ELECTRIC VEHICLES

SECCP

BD Nano with plugged ECU

BD Nano with One-Control ECU

Mobile Applications

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, such as the BD Micro, which has long 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 or Modbus communication interface

→ 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. Controlled by a next-generation ECU, the BDN-EV compressor integrates seamlessly into the refrigeration system. Featuring Secop's unique control algorithm, it delivers efficient, silent operation in a lighter and more compact design optimized for new electric vehicles. The BD Nano EV is available in two versions:

BDN-EV with plugged ECU: Secop's next-generation integrated mobile cooling solution for electric vehicles. It features an ECU directly plugged, which controls the compressor only. It includes industry-standard LIN connectivity for real-time data exchange while significantly reducing size and weight compared to previous BD Nano Automotive control units.

BDN-EV with One-Control ECU: Combines compressor drive and refrigerator control functions on a single board for electric vehicles. By integrating compressor management with advanced cabinet features such as multi-temperature sensing, fan control, automatic door opening, heating, and LED lighting, it eliminates the need for a second control unit, significantly reducing cost, installation space, and system complexity.

The BD Nano EV features a 12 V single-range input optimized for automotive power networks and offers plug-and-play compatibility with Secop's BD Nano Automotive Modbus interface. It includes proven battery protection, a configurable thermostat with fast temperature response, and stepless motor control for load matching and silent operation.

General		BDN-EV	Secop works closely with its customers and offers controllers that can be fully integrated into the vehicle's electronic architecture.
Refrigerant		R134a, R1234yf	
Compressor (1.37 kg)		109Z0700	
Electronic unit (0.055 kg)		101N2830 or One-Control solutions	

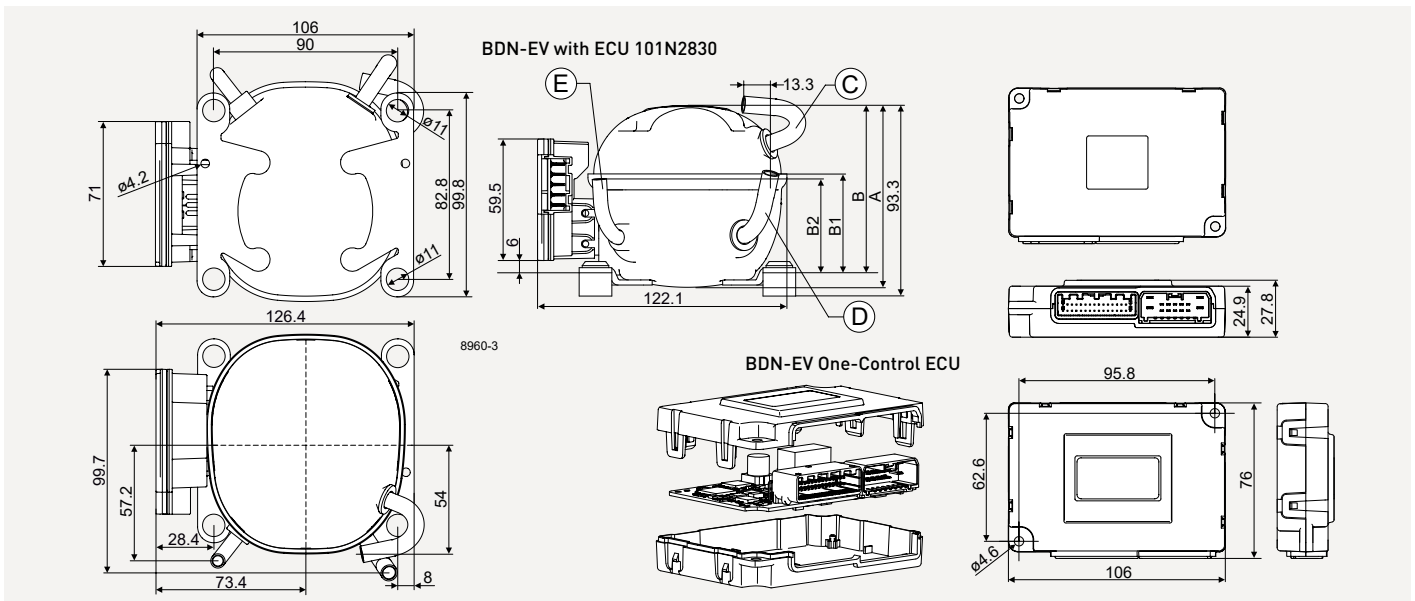
Application		
Application		LBP/MBP
Evaporating temperature	°C	-30 to -5
Voltage range	VDC	9.6–17
Speed range	rpm	2300–3000

Performance Data ASHRAE LBP		R134a			R1234yf		
Speed	rpm	2300	2800	3000	2300	2800	3000
Cooling capacity	W	27.5	33.3	36.2	30.3	36.7	39.9
Power consumption	W	21.9	24.2	25.7	23.8	26.2	27.8
COP	W/W	1.25	1.37	1.41	1.27	1.40	1.44
Test conditions @ -23.3°C evaporating temp.		Condensing temp.: 54.4°C Suction gas temp.: 32.2°C Ambient temp.: 32.2°C Liquid temp.: 32.2°C					

Dimensions			
Height	mm	A	89.0
		B / B1 / B2	82.4 / 48.7 / 45.8
Suction connector	location/I.D. mm angle material seal	C	6.2 5° Copper Rubber plug
Process connector	location/I.D. mm angle material seal	D	6.2 77.9° Copper Rubber plug
Discharge connector	location/I.D. mm angle material seal	E	5.0 86.9° Cu-plated steel Rubber plug
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20

Electronic Unit 101N2830 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

Benefits of One-Control Electronic Unit (customized variants with limited functionality are available upon request)	
LIN communication interface	Configurable LIN interface enabling direct communication with the vehicle network
Multi-temperature sensor support	Supports optimal sensor positioning for cooling, heating and protection features
Multiple fan driver support	Enables independent control of condenser and evaporator fans for efficient thermal management
Automated door opening support	Supports motorized door operation triggered by vehicle commands, incl. integrated anti-pinch protection.
Heating functionality	Provides cabinet heating via a heating strip and ice formation during cooling operation through a heating wire
Interior illumination support	Allows integration of LED lighting for cabinet illumination and improved visibility



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