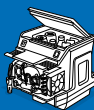
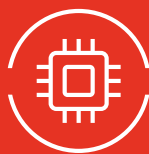


THE NEW GEN COOLING SOLUTION FOR AUTOMOTIVE REFRIGERATION

SECCP

BD Nano Automotive.2

**Mobile
Applications**

**Variable-Speed
Efficiency**

**Premium
Controller**

**Low Noise
Low Vibration**

**Low GWP
Refrigerant**

**Small
Footprint**

→ Compact, Efficient, and Silent Design

The BD Nano new generation automotive compressor has a height of 93 mm and weighs only 1.38 kilograms, making it ideal for car (w. internal combustion engine), truck, and bus 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 BD Nano is more powerful than similar predecessors, e.g. the BD Micro, which has been the benchmark in the car cooling solutions market.

→ Proven Robustness

The BDN45F-A.2 compressor complies with the ISO16750 standard on improved transport stability.

→ Enhanced EMC Performance

Complies with CISPR 25 Class 5 without additional measures

→ A Dedicated Controller for Automotive Applications

Easy controller customization via Tool4Cool® software or Modbus communication interface

→ Produced in IATF16949-certified Plant

BDN45F-A.2 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 **BDN45F-A.2** is the next generation automotive compressor which delivers **premium cooling performance, high efficiency, and low noise and vibration levels in a compact design for cars, trucks, and buses**. Its significantly reduced power consumption allows multiple refrigeration units, such as a drawer fridge and a main fridge, to operate from a single vehicle battery without overloading the electrical system.

The compressor is controlled by a **new generation electronic control unit (ECU)** featuring Secop's unique control algorithm for efficient and silent motor operation. The ECU includes industry-standard LIN interface for real-time operational data exchange and is **significantly smaller and lighter than previous Secop BD Nano Automotive control units**.

The EMC performance of the new ECU has been improved and **complies with CISPR 25 Class 5** without additional measures. Connection is via a plug-in connector that combines all cables and is fully suitable for automotive applications, including connector position assurance (CPA) and terminal position assurance (TPA).

The new optimized ECU offers a 12/24 V input range and plug-and-play compatibility with Secop's BD Nano Automotive Modbus interface. It includes Secop's **proven battery protection, an integrated tilt sensor, and a fully configurable thermostat** with rapid temperature response. Its stepless, state-of-the-art motor control ensures load-matching and silent operation.

General		BDN45F-A.2
Refrigerant		R134a, R1234yf
Compressor (1.37 kg)		109Z0740*
Electronic unit (0.072 kg)		101N3000

*preliminary data

Application		
Application		LBP/MBP
Evaporating temperature	°C	12VDC: -30 to 0 24VDC: -30 to -5
Voltage range	VDC	8.5-17 / 19-34
Speed range	rpm	12VDC: 2300-3000 24VDC: 2300-4500

Performance Data ASHRAE LBP		BDN45F-A.2 @ 12 VDC			BDN45F-A.2 @ 24 VDC			
Speed	rpm	2300	2800	3000	2300	2800	4000	4500
Cooling capacity	W	30.3	36.7	39.9	30.3	36.7	55.9	64.1
Power consumption	W	23.8	26.2	27.8	25.4	27.2	39.0	45.0
COP	W/W	1.27	1.40	1.43	1.19	1.35	1.43	1.42

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
BDN45F-A.2 performance data measured with R1234yf (R134a values similar)

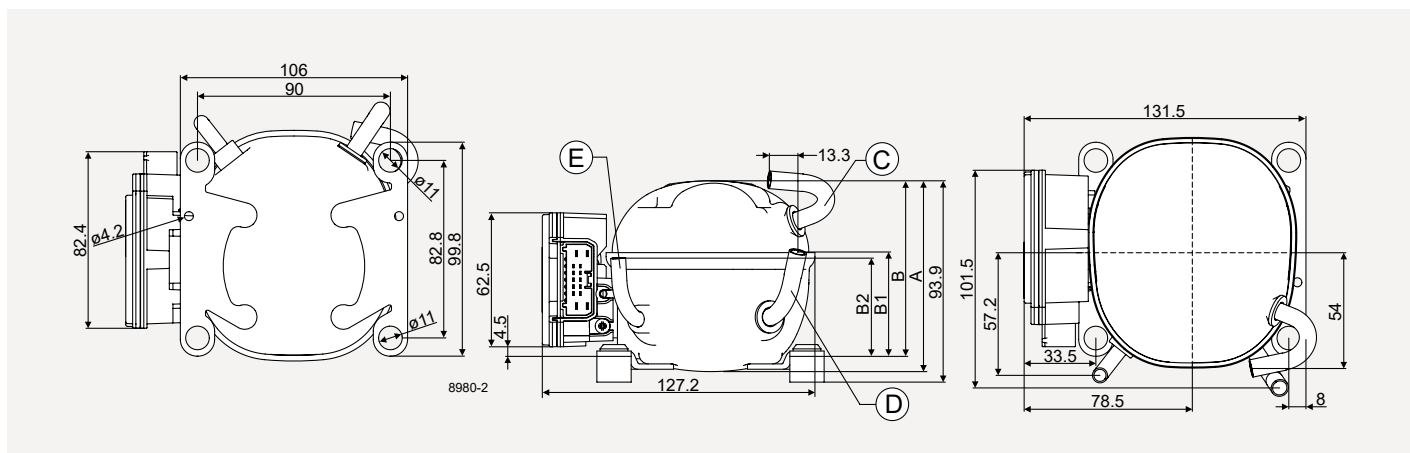
Performance Data ASHRAE MBP		BDN45F-A.2 @ 12 VDC			BDN45F-A.2 @ 24 VDC			
Speed	rpm	2300	2800	3000	2300	2800	4000	4500
Cooling capacity	W	61.7	76.8	83.4	61.7	76.8	111.9	125.5
Power consumption	W	37.2	41.3	43.8	39.6	42.8	59.0	66.4
COP	W/W	1.66	1.86	1.90	1.56	1.79	1.90	1.89

Test conditions
@ -6.7°C evaporating temperature

Condensing temp.: 54.4°C | Suction gas temp.: 35°C | Ambient temp.: 32.2°C | Liquid temp.: 46.1°C
BDN45F-A.2 performance data measured with R1234yf (R134a values similar)

Dimensions			
Height	mm	A	89.0
		B / B1 / B2	81.9 / 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 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 w. proven track record · high efficiency due to optimized design · CISPR 25 Class 5
Acoustically optimized housing design	Active vibration noise cancellation · reduced size and weight · automotive connector with CPA and TPA
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

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