SECOP BD COMPRESSORS
A STORY OF INNOVATION

The Journey of Battery-Driven DC Compressors

The story of battery-driven compressors begins in the late 1970s, a time when mobility and independence were becoming increasingly important. In 1977, Danfoss took a decisive step forward with the launch of the TL compressor, a modern successor to the smaller PW model. The TL quickly proved its worth, helping Danfoss reclaim its position as a quality and sales leader in Western Europe.
That same year marked another breakthrough: the introduction of the BD compressor. Initially based on the PW design and later refined using TL technology, the BD was engineered to operate on 12- and 24-volts DC. This innovation opened entirely new possibilities. For the first time, reliable cooling could travel anywhere – into caravans, buses, trucks, and yachts. Appropriately, the name "BD" stood for "battery driven," and it soon became synonymous with dependable mobile refrigeration and food preservation.
As the years passed, innovation continued. In 1992, Danfoss began piloting what was then the smallest hermetic piston compressor in the world: the PL type. Its name reflected both its compact nature – derived from the word piccolo – and its technical sophistication. This platform would later become the foundation for many future BD models.

The late 1990s ushered in a new era of efficiency. In 1998, the BD35F was introduced for 12 and 24 V DC applications, featuring variable-speed control that significantly reduced energy consumption. Just a year later, the more powerful BD50F followed, expanding the range while maintaining the same efficiency-driven philosophy.

The early 2000s saw rapid expansion of the BD family. Models such as the BD35K (for solar applications and the environmentally friendly refrigerant R600a), and the BD80F demonstrated a clear focus on versatility and sustainability. New refrigerants like isobutane (R600a) and propane (R290) reflected growing environmental awareness, while AC/DC electronic units and higher-capacity compressors addressed increasingly demanding applications.

In 2010, a new chapter began under the Secop name with the launch of the BD1.4F Micro compressor. Developed at the end of the Danfoss era, this tiny powerhouse was 60% smaller and weighed just 2.3 kilograms, making it ideal for tight automotive installations. Further refinements followed, including telecom solutions running on 48 V DC and variable-speed micro compressors for vehicles, boats, and portable cooling boxes.
Over time, Secop continued to refine and diversify its portfolio, introducing heavy-duty versions, bus-optimized models, and dedicated compressors for portable boxes. Each new variant built on decades of expertise in battery-driven technology.

The story reaches a modern milestone with the introduction of the BD Nano compressor in 2022. Drawing on more than 45 years of experience, this next-generation solution redefined compactness and efficiency. Despite being dramatically smaller and lighter than earlier models, the BD Nano delivers the same cooling capacity, freeing up valuable space and reducing weight. In 2025, Secop marked the production of one million BD Nano compressors at its Tianjin plant; the model had been introduced in 2022. The journey of innovation, which began in 1977, is far from over.

PW and TL based early BD Compressors

Milestones and Highlights

- 1977: Introduction of BD Compressors
- 1998: BD35F compressors for 12 or 24 V DC
- 1999: BD50F compressors for 12 or 24 V DC
- 2003: BD35K compressors for solar applications and refrigerant isobutane (R600a)
- 2004: BD80F compressors for 12 or 24 V DC
- 2005: BD250GH compressors & AC/DC electronic unit
- 2006: BD100CN compressors for refrigerant propane (R290)
- 2007: BD350GH compressors for 12 or 24 V DC
- 2010: Introduction of BD1.4F Micro Automotive (A) compressors for 12 V DC
- 2011: BD250GH and BD350GH compressors for telecom cooling with 48 V DC
- 2012: BD80CN compressors for refrigerant propane (R290)
- 2012: BD1.4F Micro Variable-Speed (VSD) compressors for 12 or 24 V DC
- 2022: Introduction of BD Nano compressors for 12 or 24 V DC, BD45F and BDN50K (R600a)

Secop BD Nano DC Compressor

Secop's BD Portfolio

BD80 / 100CN
R290, -40°C, -5°C evap. temp.

Freezer applications, solar-powered applications, ice cream boxes up to 200 l,
16-203 W / 20-250 W cooling capacity*.

BD35F / 50F / 80F Basic, and BD35F.2
R134a/R1234yf, -30°C, +10°C, -5°C (BD80F) evap. temp.

All mobile applications for portable boxes, boats, trucks, solar-powered applications, etc.,
16-152 W / 21-191 W / 35-221 W cooling capacity*.

BD35K Multivoltage, BD50K, and BD35K.2
R600a, -30°C, +10°C evap. temp.

Solar-powered applications, etc., 100-250 l coolers, BD35K can be powered with AC and DC, 85-240 V AC 50/60 Hz, 12-24 V DC, automatic selection of AC when available.
13-128 W and 17-242 W cooling capacity*.

BD35F/ 50F Multivoltage
R134a/ R1234yf, -30°C, +10°C evap. temp.

All mobile applications for portable boxes, boats, trucks, etc., can be powered with AC and DC, 85-240 V AC 50/60 Hz, 12-24 V DC, automatic selection of AC when available,
16-152 W / 21-191 W cooling capacity*.

BD1.4F-VSD.3 (BD Micro)
R134a/ R1234yf, -30°C, +15°C evap. temp.

In-car cabinets and all mobile applications for portable boxes, boats, trucks, etc.,
10-203 W cooling capacity*.

BD250GH.2
R134a, -25°C, +15°C evap. temp.

Designed for cabin cooling in trucks during nighttime, very silent operation,
31-446 W cooling capacity*.

BDN45F /-A, BDN50K /-A, and MB3CKV (BD Nano)
R134a/ R1234yf, R600a, -30°C, +5°C evap. temp.

In-car cabinets and all mobile applications for portable boxes, boats, trucks, etc.,
Solar Direct Drive powered vaccine refrigerators,
14-130 W and 17-146 W cooling capacity*.

**Test Conditions*
EN12900 / CECOMAF**

Condensing temperature: 55°C
Suction gas temperature: 32°C
Ambient temperature: 32°C
Liquid temperature: no subcooling

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