Singolo
Imballi

# Single Pack BD100CN 12/24V DC PM

Codice Imballo Singolo: **195B4439**

| Posizione | Titolo | Codice | Quantità |
|---|---|---|---|
| 1 | Compressor BD100CN | 101Z0401 | 1 |
| 2 | Electronic unit High Speed | 101N0391 | 1 |
| 3 | Bolt joint for one compressor \| M6 \| ø16mm | 118-1917 | 1 |

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

Secop non si assume alcuna responsabilità per eventuali errori presenti in cataloghi, brochure e altro materiale stampato. Secop si riserva il diritto di modificare i propri prodotti senza preavviso. Ciò vale anche per i prodotti già ordinati, a condizione che tali modifiche possano essere apportate senza che siano necessarie modifiche successive alle specifiche già concordate. Tutti i marchi presenti in questo materiale sono di proprietà delle rispettive aziende. Secop e il logo Secop sono marchi di Secop GmbH. Tutti i diritti sono riservati.

# BD100CN
# Direct Current Compressor
# R290
# 12/24V DC

TOOL4COOL®

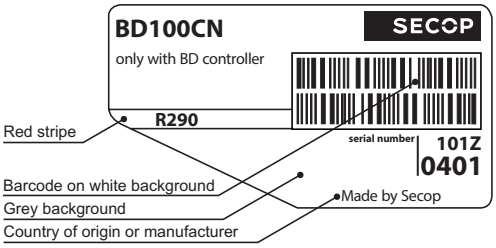
**General**

| | |
|---|---|
| Code number (without electronic units) | 101Z0401 |
| Electronic unit - High Speed | 101N0390, 30 pcs: 101N0391 |
| Electronic unit - ULT High Speed | 101NULT1, 30 pcs: 101NULT2 |
| Compressors on pallet | 150 |

**Approvals**

| |
|---|
| – |
| UL / CB |

Approval mark Yellow warning label




**Application**

| | | |
|---|---|---|
| Application | | LBP/MBP |
| Evaporating temperature | °C | -40 to -5 (5) |
| Voltage/max. voltage | VDC | 9.6 - 17 / 21.3 - 31.5 |
| Max. condensing temperature continuous (short) | °C | 55 (65) |
| Max. winding temperature continuous (short) | °C | 125 (135) |

**Cooling requirements**

| Application | LBP | MBP | HBP |
|---|---|---|---|
| 32°C | S | S | – |
| 38°C | S | S | – |
| 43°C | S | S | – |
| Remarks on application: | | | |

S = Static cooling normally sufficient
O = Oil cooling
$F_1$ = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
$F_2$ = Fan cooling 3.0 m/s necessary
SG = Suction gas cooling normally sufficent
– = not applicable in this area

**Motor**

| | | |
|---|---|---|
| Motor type | | Variable speed |
| Resistance, all 3 windings (25°C) | Ω | 1.8 |

**Design**

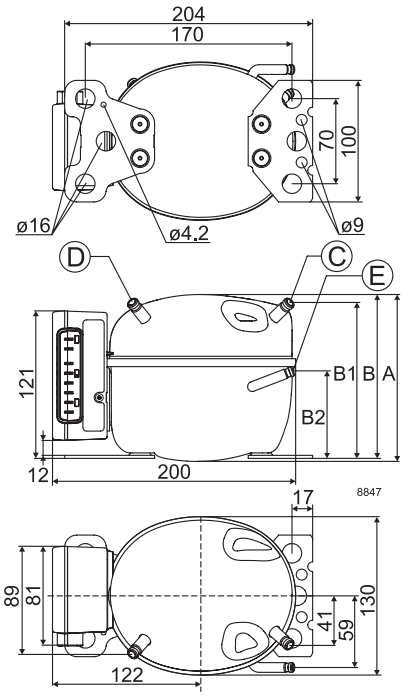
| | | |
|---|---|---|
| Displacement | $cm^3$ | 2.00 |
| Oil quantity (type) | $cm^3$ | 150 (polyolester) |
| Maximum refrigerant charge | g | 120 |
| Free gas volume in compressor | $cm^3$ | 870 |
| Weight - Compressor/Electronic unit | kg | 4.3/0.32 |

**Standard battery protection settings** (refer to electronic unit *Instructions* for optional settings)

| | | 12V | 24V |
|---|---|---|---|
| Voltage | | | |
| Cut out | VDC | 10.4 | 22.8 |
| Cut in | VDC | 11.7 | 24.2 |

**Dimensions**

| | | | |
|---|---|---|---|
| Height | mm | A | 137 |
| | | B | 135 |
| | | B1 | 128 |
| | | B2 | 73 |
| Suction connector | location/I.D. mm \| angle | C | 6.2 \| 40° |
| | material \| comment | | Cu-plated steel \| Al cap |
| Process connector | location/I.D. mm \| angle | D | 6.2 \| 45° |
| | material \| comment | | Cu-plated steel \| Al cap |
| Discharge connector | location/I.D. mm \| angle | E | 5.0 \| 21° |
| | material \| comment | | Cu-plated steel \| Al cap |
| Connector tolerance | I.D. mm | | ±0.09, on 5.0 +0.12/+0.20 |
| Remarks: | | | |



**Capacity (EN 12900 Household/CECOMAF)** 24V DC, static cooling **watt**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 20.2 | 31.8 | 50.9 | 67.6 | 73.0 | 83.7 | 101 | 121 | 146 | 178 | 217 | |
| 3,100 | 27.2 | 43.9 | 64.0 | 84.1 | 91.2 | 106 | 130 | 159 | 194 | 236 | 287 | |
| 3,800 | 42.9 | 58.5 | 77.0 | 98.6 | 107 | 124 | 153 | 185 | 223 | 264 | | |
| 4,400 | 47.2 | 61.3 | 83.4 | 108 | 118 | 137 | 169 | 207 | 250 | | | |

**Capacity (ASHRAE LBP)** 24V DC, static cooling **watt**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 22.5 | 35.5 | 56.7 | 75.4 | 81.5 | 93.4 | 113 | 135 | 163 | 199 | 243 | |
| 3,100 | 29.3 | 49.0 | 71.4 | 93.8 | 102 | 118 | 145 | 177 | 216 | 264 | 321 | |
| 3,800 | 47.8 | 65.2 | 85.9 | 110 | 119 | 138 | 170 | 207 | 249 | 296 | | |
| 4,400 | 52.7 | 68.4 | 93.1 | 121 | 131 | 153 | 189 | 231 | 280 | | | |

**Power consumption** 24V DC, static cooling **watt**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 33.6 | 38.3 | 43.3 | 48.5 | 50.3 | 53.8 | 58.9 | 63.7 | 68.1 | 72.0 | 75.2 | |
| 3,100 | 36.9 | 45.5 | 53.8 | 61.5 | 64.1 | 68.9 | 75.9 | 82.7 | 89.2 | 95.5 | 102 | |
| 3,800 | 44.8 | 55.5 | 65.7 | 75.5 | 78.7 | 84.7 | 93.2 | 101 | 108 | 115 | | |
| 4,400 | 51.7 | 65.4 | 77.8 | 89.3 | 93.0 | 99.9 | 110 | 119 | 129 | | | |

**Current consumption (for 12V applications the following must be doubled)** **A**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 1.26 | 1.53 | 1.79 | 2.03 | 2.11 | 2.26 | 2.47 | 2.66 | 2.84 | 3.00 | 3.14 | |
| 3,100 | 1.55 | 1.91 | 2.25 | 2.57 | 2.68 | 2.88 | 3.17 | 3.45 | 3.72 | 3.97 | 4.21 | |
| 3,800 | 2.00 | 2.37 | 2.76 | 3.14 | 3.27 | 3.52 | 3.89 | 4.22 | 4.52 | 4.77 | | |
| 4,400 | 2.80 | 3.03 | 3.32 | 3.69 | 3.82 | 4.09 | 4.53 | 4.96 | 5.35 | | | |

**COP (EN 12900 Household/CECOMAF)** 24V DC, static cooling **W/W**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 0.60 | 0.83 | 1.17 | 1.39 | 1.45 | 1.56 | 1.72 | 1.90 | 2.15 | 2.47 | 2.89 | |
| 3,100 | 0.74 | 0.96 | 1.19 | 1.37 | 1.42 | 1.53 | 1.71 | 1.92 | 2.17 | 2.47 | 2.82 | |
| 3,800 | 0.96 | 1.05 | 1.17 | 1.31 | 1.36 | 1.46 | 1.64 | 1.83 | 2.05 | 2.30 | | |
| 4,400 | 0.91 | 0.94 | 1.07 | 1.21 | 1.26 | 1.37 | 1.54 | 1.73 | 1.95 | | | |

**COP (ASHRAE LBP)** 24V DC, static cooling **W/W**

| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,500 | 0.67 | 0.93 | 1.31 | 1.55 | 1.62 | 1.74 | 1.92 | 2.13 | 2.40 | 2.76 | 3.23 | |
| 3,100 | 0.79 | 1.08 | 1.33 | 1.52 | 1.59 | 1.71 | 1.91 | 2.15 | 2.43 | 2.76 | 3.16 | |
| 3,800 | 1.07 | 1.18 | 1.31 | 1.46 | 1.51 | 1.63 | 1.83 | 2.05 | 2.30 | 2.58 | | |
| 4,400 | 1.02 | 1.05 | 1.20 | 1.35 | 1.41 | 1.53 | 1.72 | 1.94 | 2.18 | | | |

| **Test conditions** | **EN 12900/CECOMAF*** | **ASHRAE LBP*** |
|---|---|---|
| Condensing temperature | 45°C | 45°C |
| Ambient temperature | 32°C | 32°C |
| Suction gas temperature | 32°C | 32°C |
| Liquid temperature | no subcooling | 32°C |

| **Accessories for BD100CN** | | **Code number** |
|---|---|---|
| Bolt joint for one comp. | Ø:16 mm | 118-1917 |
| Bolt joint in quantities | Ø:16 mm | 118-1918 |
| Snap-on in quantities | Ø:16 mm | 118-1919 |
| Remote kit (without cable) | | 105N9210 |
| One Wire/LIN gateway | | 105N9518 |
| Automobile fuse, DIN 7258 | 12V: 30A \| 24V: 15 A | Not deliverable from Secop |
| Main switch | min. 30A | |

**Compressor speed**

| Electronit unit<br>Code number | Resistor (R1) [Ω]<br>calculated values | Motor speed<br>[rpm] |
|---|---|---|
| **101N0390 with AEO** | 0 | AEO |
| | 203 | 2,500 |
| | 451 | 3,100 |
| **101NULT1 with AEO** | 867 | 3,800 |
| | 1700 | 4,400 |

In AEO (Adaptive Energy Optimizing) speed mode the BD compressor will always adapt its speed to the actual cooling demand.

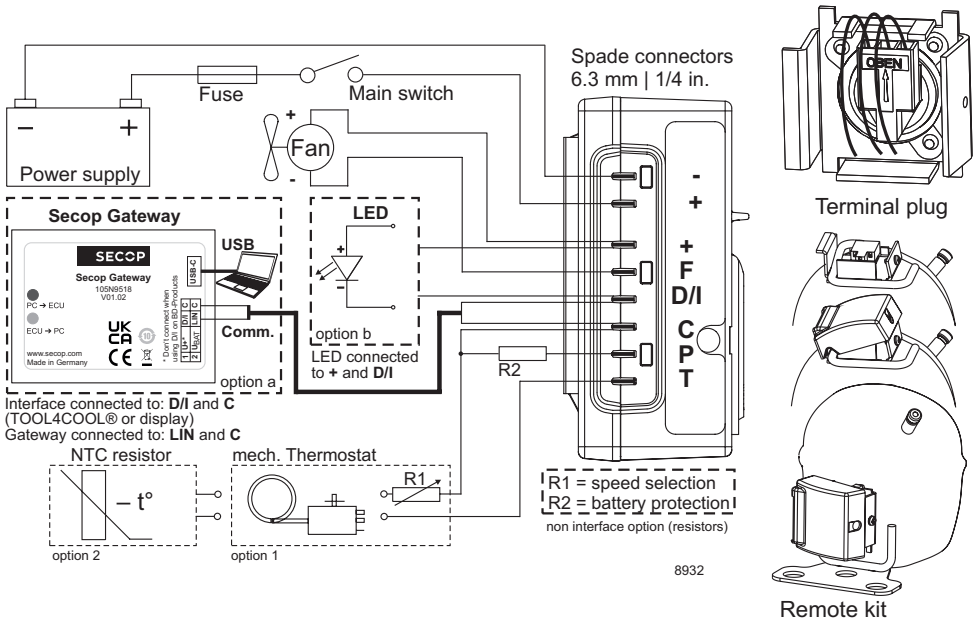
**Wire dimensions**

| **Size** | | **Max. length* 12V operation** | | **Max. length* 24V operation** | |
|---|---|---|---|---|---|
| **Cross section** | **AWG** | | | | |
| [mm²] | [Gauge] | [m] | [ft.] | [m] | [ft.] |
| 6 | 10 | 2.5 | 8 | 5 | 16 |

*Length between battery and electronic unit

**Operational errors**

| **Error code or LED flashes** | **Error type**<br>Can be read out in the software **TOOL4COOL®** |
|---|---|
| **6** | **Thermostat failure**<br>(If the NTC thermistor is short-circuit or has no connection). |
| **5** | **Thermal cut-out of electronic unit**<br>(If the refrigeration system has been too heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot). |
| **4** | **Minimum motor speed error**<br>(If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm). |
| **3** | **Motor start error**<br>(The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)). |
| **2** | **Too many start attempts or fan over current**<br>(Too many compressor or fan starts in short time or fan current higher than $0.5A_{avg}$). |
| **1** | **Battery protection cut-out**<br>(The voltage is outside the cut-out setting). |



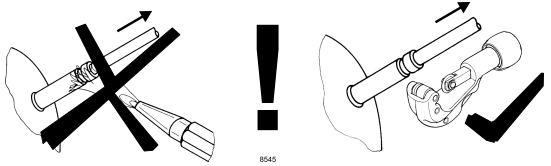

Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary 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. **www.secop.com**

Keep electrical equipment clear from oil, chemicals, and water

# BD Compressors

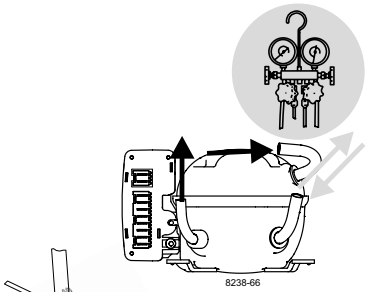
SECOP

**Service/Repair – R290, R600a, R170, R1270, R1234yf** (applies to all flammable refrigerants)



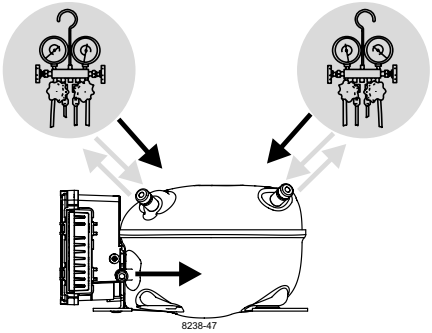
TOOL4COOL®

## BD Nano

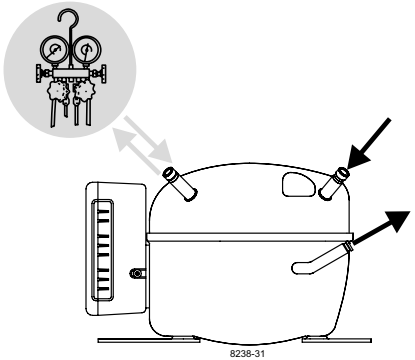



Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

## BD Micro



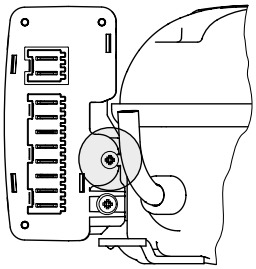

## BD-P



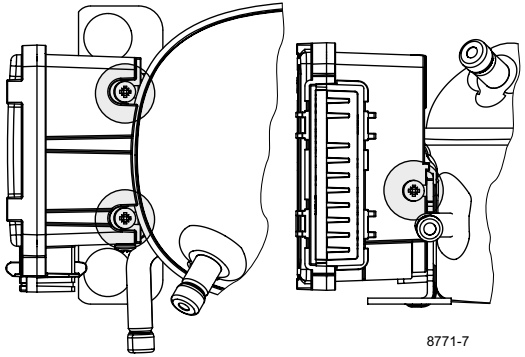

**Dismantling, recycling, disposal:** At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be released into the environment and should be recovered by qualified operators. Compressor oil must also be collected separately. The compressor should be disposed of at specialized disposal centers in accordance with the applicable regulations. **Subject to modifications/alterations. www.secop.com**

Instructions for Electronic Units are available for download on **www.secop.com**

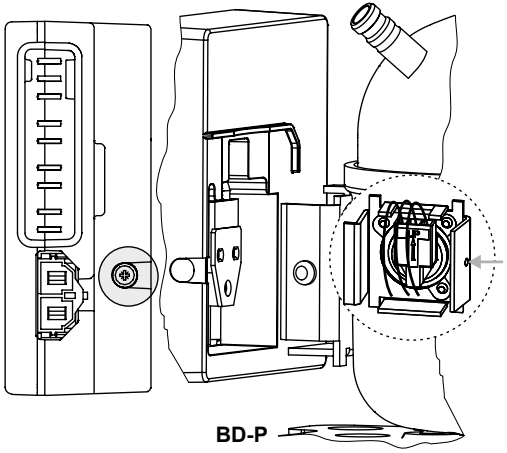
# BD Compressors



**BD Nano**




**BD Micro**



**BD-P**

**BD Nano**
Attach the electronic unit by pressing it linearly onto the compressor's Fusite® connector and bracket. The electronic unit must be mounted straight onto the compressor terminals. Ensure correct alignment before pressing it into place. Apply pressure until both screw heads snap into place. For high-vibration environments, the unit can optionally be secured with a third screw (marked in grey).

**BD Micro**
Attach the electronic unit by pressing it linearly onto the compressor's Fusite® connector and bracket. The electronic unit must be mounted straight onto the compressor terminals. Ensure correct alignment before pressing it into place. Secure it with at least two screws, either from the side or from above (marked in grey).

**BD-P**
The cable plug of the electronic unit is connected to the compressor's Fusite® connector. The electronic unit is then mounted onto the compressor bracket. First, the left side is attached; next, the right side is pressed sideways over the screw on the bracket (marked in grey). The unit snaps into place on the bracket and is now securely fixed to the compressor. An earth connection (via the compressor baseplate) can be used if required.

**Dismantling, recycling, disposal:** At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be released into the environment and should be recovered by qualified operators. Compressor oil must also be collected separately. The compressor should be disposed of at specialized disposal centers in accordance with the applicable regulations. **Subject to modifications/alterations. www.secop.com**