

# Singolo Imballi

**SECOP**

## Single Pack BD100CN 12/24V DC PM

Codice Imballo Singolo: **195B4344**

| Posizione | Titolo                                     | Codice   | Quantità |
|-----------|--|----------|----------|
| 1         | Compressor BD100CN                         | 101Z0401 | 1        |
| 2         | Bolt joint for one compressor   M6   ø16mm | 118-1917 | 1        |

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



### 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 |



### 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: |     |     |     |

### Motor

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

### Design

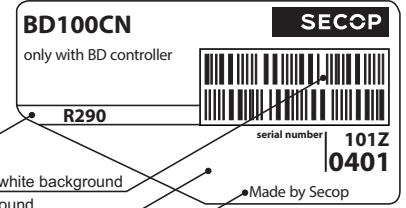
|   |                   |
|---|-------------------|
| Displacement cm <sup>3</sup>                  | 2.00              |
| Oil quantity (type) cm <sup>3</sup>           | 150 (polyolester) |
| Maximum refrigerant charge g                  | 120               |
| Free gas volume in compressor cm <sup>3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

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

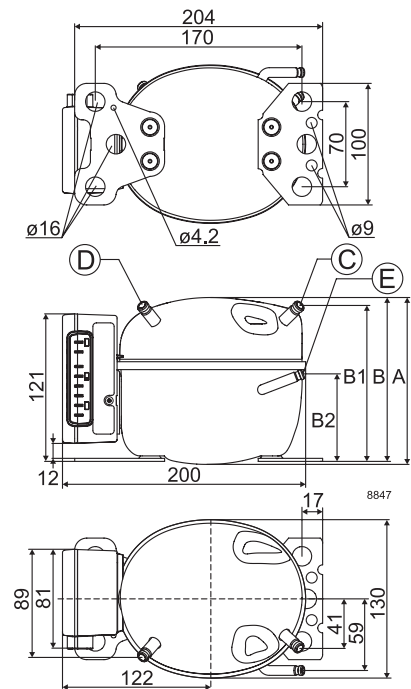
|             |      |      |
|-------------|------|------|
| Voltage     | 12V  | 24V  |
| Cut out VDC | 10.4 | 22.8 |
| Cut in VDC  | 11.7 | 24.2 |

### 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:                                     |                           |                          |



- S = Static cooling normally sufficient
- O = Oil cooling
- F<sub>1</sub> = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
- F<sub>2</sub> = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficient
- = not applicable in this area



| 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                |
| Main switch                | min. 30A Not deliverable from Secop |

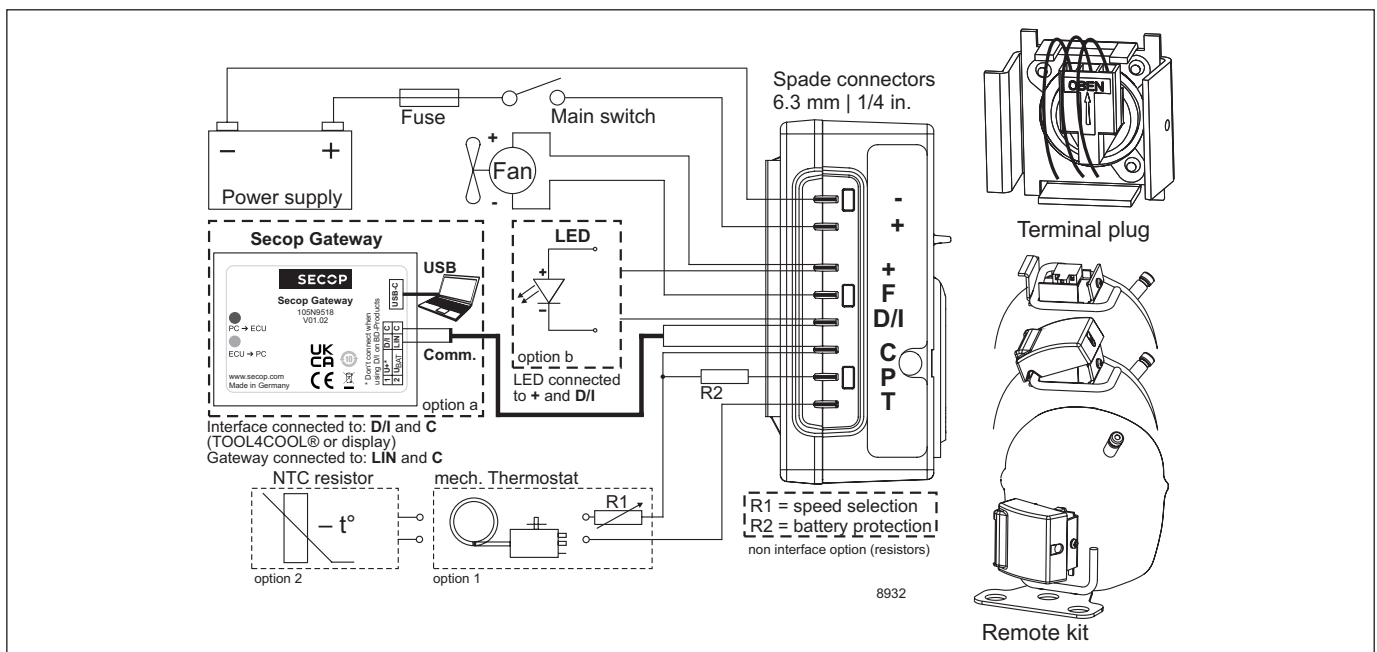
| Compressor speed  |                   |             |
|-------------------|-------------------|-------------|
| Electronit unit   | Resistor (R1) [Ω] | Motor speed |
| Code number       | calculated values | [rpm]       |
| 101N0390 with AEO | 0                 | AEO         |
|                   | 203               | 2,500       |
| 101NULT1 with AEO | 451               | 3,100       |
|                   | 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 |          |                            |         |                            |       |     |       |
|-----------------|----------|----------------------------|---------|----------------------------|-------|-----|-------|
| Cross section   | Size AWG | Max. length* 12V operation |         | Max. length* 24V operation |       |     |       |
|                 |          | [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   |
|                           | Can be read out in the software <b>TOOL4COOL®</b>  |
| 6                         | <b>Thermostat failure</b><br>(If the NTC thermistor is short-circuit or has no connection).  |
| 5                         | <b>Thermal cut-out of electronic unit</b><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                         | <b>Minimum motor speed error</b><br>(If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm).                         |
| 3                         | <b>Motor start error</b><br>(The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)).  |
| 2                         | <b>Too many start attempts or fan over current</b><br>(Too many compressor or fan starts in short time or fan current higher than 0.5A <sub>avg</sub> ).                             |
| 1                         | <b>Battery protection cut-out</b><br>(The voltage is outside the cut-out setting).   |



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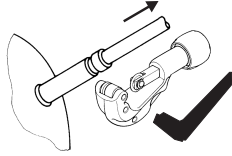
Instructions for Electronic Units  
are available for download on  
[www.secop.com](http://www.secop.com)



# BD Compressors



## Service/Repair



### BD Nano



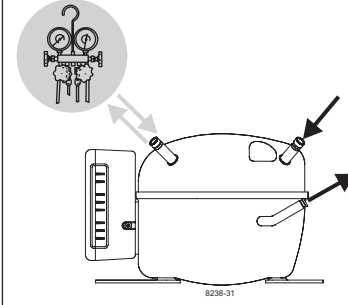
**! max. 150°C/302°F !  
at socket**  
brazing solder: silver with flux

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.M1).

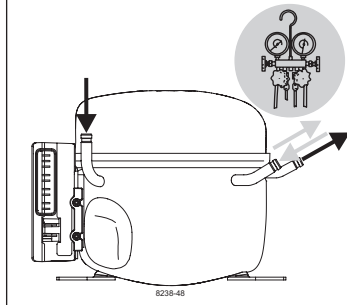
### BD Micro



### BD P-Housing



### BD T-Housing



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