

Single Pack BD100CN 12/24V DC PM

Single pack code number: **195B4439**

| Position | Title | Code | Amount |
|----------|--|----------|--------|
| 1 | Compressor BD100CN | 101Z0401 | 1 |
| 2 | Electronic unit High Speed | 101N0391 | 1 |
| 3 | 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

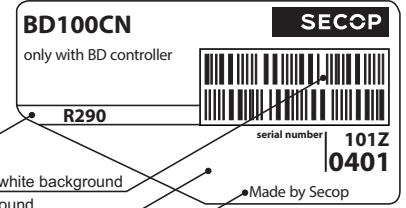
| | |
|---|-------------------|
| Displacement cm ³ | 2.00 |
| Oil quantity (type) cm ³ | 150 (polyolester) |
| Maximum refrigerant charge g | 120 |
| Free gas volume in compressor cm ³ | 870 |
| Weight - Compressor/Electronic unit kg | 4.3/0.32 |

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

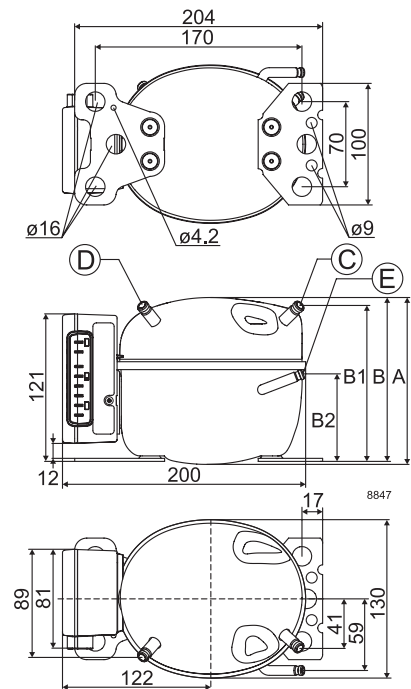
| | | |
|-------------|------|------|
| Voltage | 12V | 24V |
| Cut out VDC | 10.4 | 22.8 |
| Cut in VDC | 11.7 | 24.2 |

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
- F₁ = Fan cooling 1.5 m/s
(compressor compartment temperature equal to ambient temperature)
- F₂ = 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 | | | |

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.

| 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 | | | |

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

| 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 | | | |

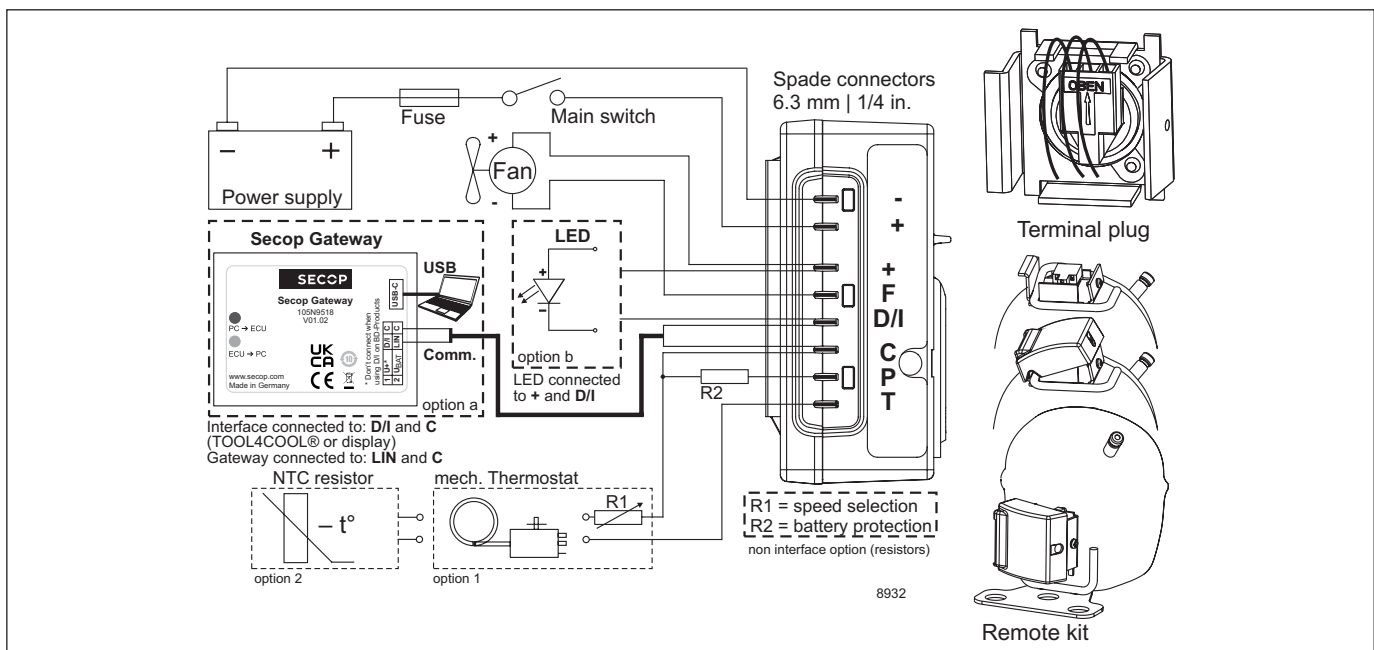
| COP (ASHRAE LBP) 24V DC, static cooling W/W | | | | | | | | | | | | |
|---|------|------|------|------|-------|------|------|------|------|------|------|-----|
| rpm \ °C | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -5 | 0 | 5 | 7.2 |
| 2,500 | 0.67 | 0.93 | 1.31 | 1.55 | 1.62 | 1.74 | 1.92 | 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 | | | |

Operational errors

| Error code or LED flashes | Error type |
|---------------------------|--|
| | Can be read out in the software TOOL4COOL® |
| 6 | Thermostat failure (If the NTC thermistor is short-circuit or has no connection). |
| 5 | Thermal cut-out of electronic unit (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 (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm). |
| 3 | Motor start error (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 (Too many compressor or fan starts in short time or fan current higher than 0.5A _{avg}). |
| 1 | Battery protection cut-out (The voltage is outside the cut-out setting). |

| 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 |



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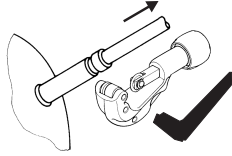
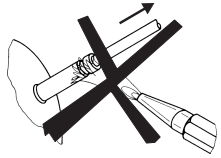
Instructions for Electronic Units
are available for download on
www.secop.com



BD Compressors



Service/Repair



BD Nano



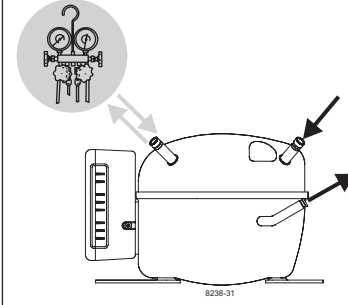
**! max. 150°C/302°F !
at socket**
brazing solder: silver with flux

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).

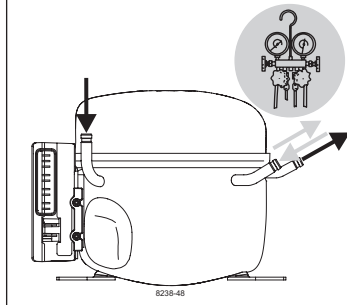
BD Micro



BD P-Housing



BD T-Housing



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