Single
Packs

Single Pack BD80CN 12/24V DC, 100-240V AC 50/60Hz PM

Single pack code number: **195B4200**

Position	Title	Code	Amount
1	Compressor BD80CN	101Z0403	1
2	Electronic unit 12/24V DC, 100-240V AC 50/60Hz	101N0510	1
3	Bolt joint for one compressor | M6 | ø16mm	118-1917	1

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BD80CN
Direct Current Compressor
R290, 12/24V DC, 10-45V DC Solar & 100-240V AC 50/60Hz

TOOL4COOL®

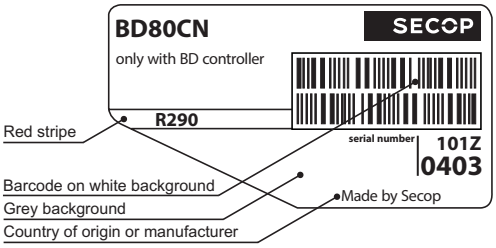
General

Code number (without electronic units)	101Z0403
Electronic unit 12/24V DC - Standard	101N0242, 30 pcs: 101N0243
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341
Electronic unit 10-45V DC - Solar	101N0420, 30 pcs: 101N0421
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511
Electronic unit 12/24V DC - Automotive	101N0680, 30 pcs: 101N0681
Compressors on pallet	150

Approvals

–
CB / UL / VDE
CB / UL / VDE
UL
CB / UL

Approval mark Yellow warning label



Application

Application		LBP/MBP
Evaporating temperature	°C	-40 to -5 (5)
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Voltage range AC	V/Hz	100 - 240 / 50 - 60
Voltage range for solar applications	VDC	10 - 45
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	F_1	–
38°C	S	F_1	–
43°C	S	F_1	–
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

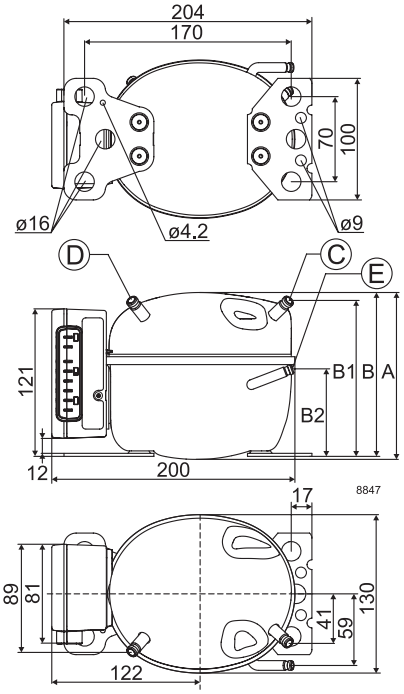
Displacement	cm^3	2.00
Oil quantity (type)	cm^3	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm^3	870
Weight - Compressor/Electronic unit	kg	4.3 / 0.19 (Standard)

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			



Capacity (EN 12900 Household/CECOMAF) 12V DC, static cooling **watt**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	16.4	24.7	34.6	46.4	50.8	60.2	76.2	94.8	116	140	167	
2,500	20.2	29.0	40.7	55.5	61.2	73.0	95.0	119	147	179	215	
3,000	26.3	39.6	54.4	71.6	78.0	92.0	116	144	178	217		
3,500	31.1	45.6	62.3	82.0	89.0	105	132	165	203			

Capacity (ASHRAE LBP) 12V DC, static cooling **watt**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	18.2	27.5	38.6	51.7	56.7	67.2	85.1	106	130	157	187	
2,500	22.5	32.3	45.4	61.9	68.0	82.0	106	133	165	200	240	
3,000	29.3	44.1	60.7	80.0	87.0	102	129	161	199	243		
3,500	34.7	50.8	69.5	91.0	100	117	148	184	227			

Power consumption 12V DC, static cooling **watt**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	27.3	29	31.8	35.5	36.9	39.8	44.3	48.9	53.3	57.1	60.1	
2,500	31.5	35.9	41.1	46.9	49.0	53.0	58.9	64.4	69.2	72.9	75.1	
3,000	42.9	45.3	51.0	58.8	61.6	67.3	75.2	81.4	85.0	89.0		
3,500	45.3	52.2	60.4	69.3	72.4	78.2	87.0	93.0	98.0			

Current consumptiom (for 24V applications the following must be halfed) **A**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	2.13	2.25	2.47	2.78	2.89	3.13	3.51	3.89	4.23	4.52	4.73	
2,500	2.84	3.20	3.60	4.03	4.18	4.48	4.93	5.36	5.76	6.11	6.40	
3,000	3.60	3.78	4.25	4.89	5.13	5.60	6.27	6.78	7.02	7.20		
3,500	3.31	3.99	4.56	5.08	5.26	5.63	6.28	7.10	8.17			

COP (EN 12900 Household/CECOMAF) 12V DC, static cooling **W/W**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	0.60	0.85	1.09	1.31	1.38	1.51	1.72	1.94	2.18	2.45	2.78	
2,500	0.64	0.81	0.99	1.18	1.25	1.39	1.61	1.85	2.13	2.46	2.85	
3,000	0.61	0.87	1.07	1.22	1.27	1.36	1.54	1.77	2.10	2.43		
3,500	0.69	0.87	1.03	1.18	1.23	1.34	1.53	1.76	2.06			

COP (ASHRAE LBP) 12V DC, static cooling **W/W**

rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,000	0.67	0.95	1.21	1.46	1.54	1.69	1.92	2.16	2.43	2.75	3.12	
2,500	0.71	0.90	1.10	1.32	1.40	1.55	1.79	2.07	2.38	2.75	3.20	
3,000	0.68	0.97	1.19	1.36	1.41	1.52	1.72	1.98	2.35	2.73		
3,500	0.77	0.97	1.15	1.32	1.38	1.50	1.71	1.97	2.30			

Test conditions with electronic units		EN 12900/CECOMAF*	ASHRAE LBP*
Condensing temperature	101N0242 101N0680	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 BD80CN			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
Secop Gateway			105N9518
DC usage:	Automobile fuse, DIN 7258	12V: 15A | 24V: 7.5 A	Not deliverable from Secop
	Main switch	min. 20A	
AC usage:	Fuse, 100-240V		
	Main switch	min. 6A	

Compressor speed

Electronit unit Code number	Resistor (R1) [Ω] calculated values	Motor speed [rpm]
101N0242 101N0510 101N0680	0	2,000
	277	2,500
	692	3,000
	1523	3,500
101N0340 101N0420 with AEO	0	AEO
	173	2,000
	450	2,500
	865	3,000
	1696	3,500

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

Wire dimensions DC

Size		Max. length* 12V operation		Max. length* 24V operation	
Cross section	AWG				
[mm²]	[Gauge]	[m]	[ft.]	[m]	[ft.]
2.5	12	2.5	8	5	16
4	12	4	13	8	26
6	10	6	20	12	39
10	8	10	33	20	66

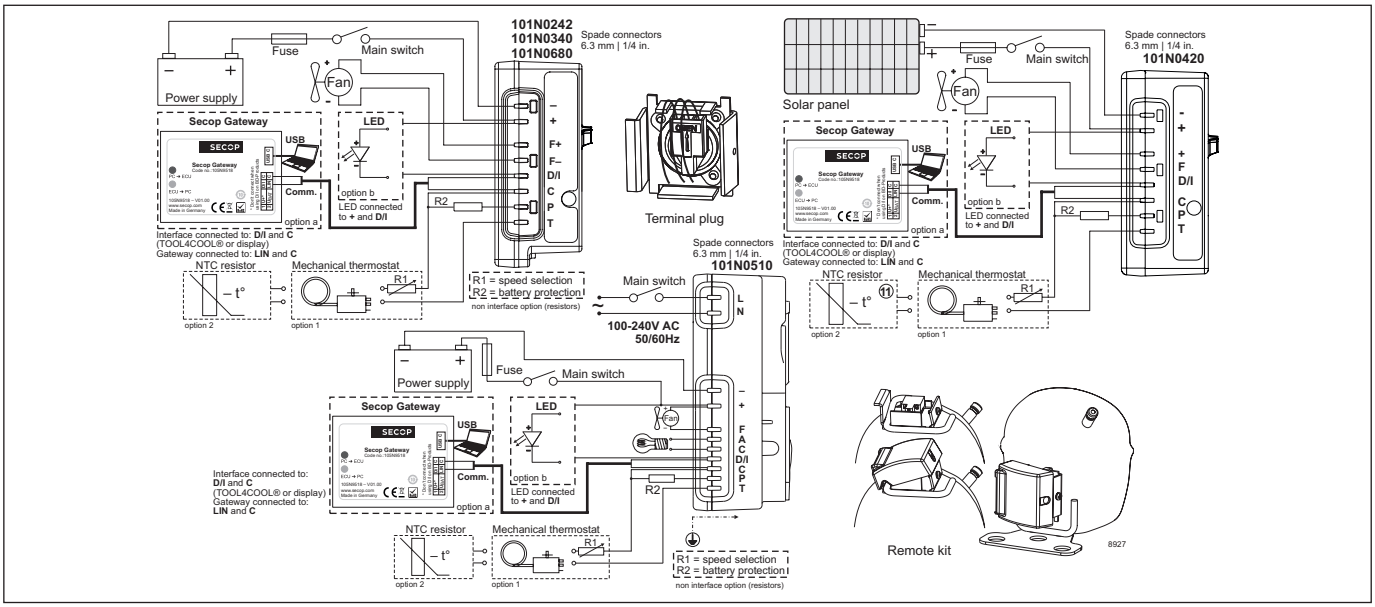
*Length between battery and electronic unit

Wire dimensions AC

Cross section min. 0.75 mm² or AWG 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).



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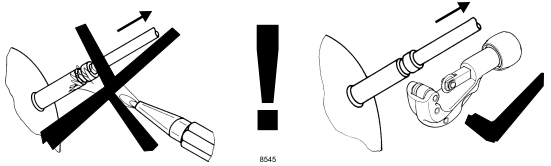
Keep electrical equipment clear from oil, chemicals, and water

BD Compressors

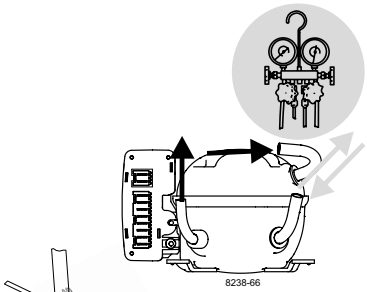
SECOP

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



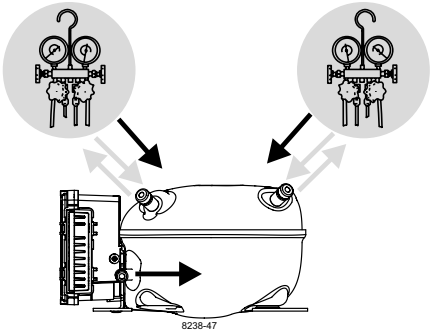
TOOL4COOL®

BD Nano

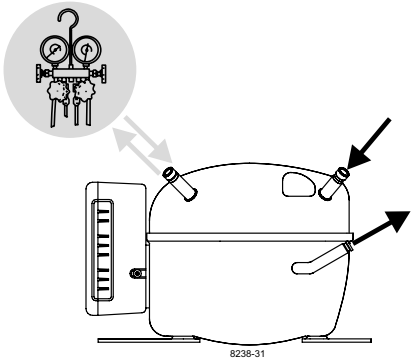


Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

BD Micro



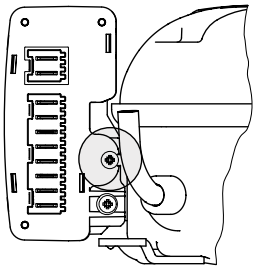
BD-P



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



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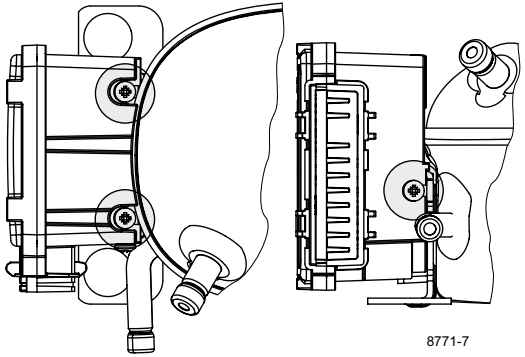

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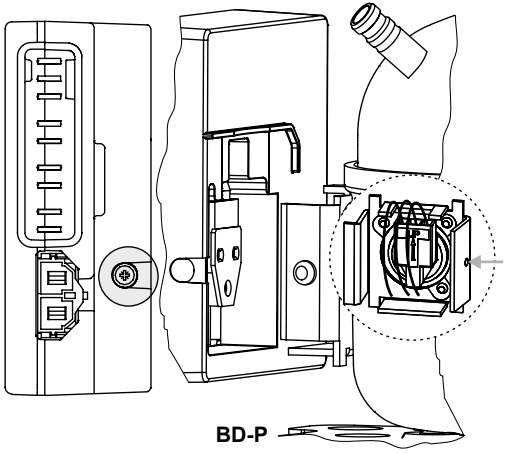

BD-P

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**