Single
Packs

SECOP

Single Pack BD1.4F-VSD.2 12/24V DC PM

Single pack code number: **195B3444**

Position	Title	Code	Amount
1	Compressor BD1.4F-VSD.2	109Z0206	1
2	Electronic unit BD	101N2131	1
3	Bolt joint for one compressor | M6 | ø16mm	118-1917	1

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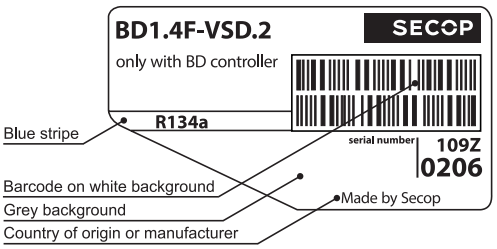
BD1.4F-VSD.2
Direct Current Compressor
R134a, 12/24V DC

TOOL4COOL®



General

Code number (without electronic units)	109Z0206
Electronic unit - Variable Speed	101N2130, 30 pcs: 101N2131
Approvals	–
Compressors on pallet	180

Application

Application		LBP/MBP/HBP
Evaporating temperature	°F	-20 to 59
Voltage range	VDC	9.6 - 17 / 19 - 34
Max. condensing temperature continuous (short)	°F	140 (158)
Max. winding temperature continuous (short)	°F	257 (275)

Cooling requirements

Application	LBP	MBP	HBP
32°C	S	S	S
38°C	S	S	S
43°C	S	S	S
Remarks on application: **New generation with optimized noise level during rough vehicle motions.**			

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		permanet magnet, brushless DC
Speed		variable speed
Resistance, all 3 windings (25°C)	mΩ	210

Design

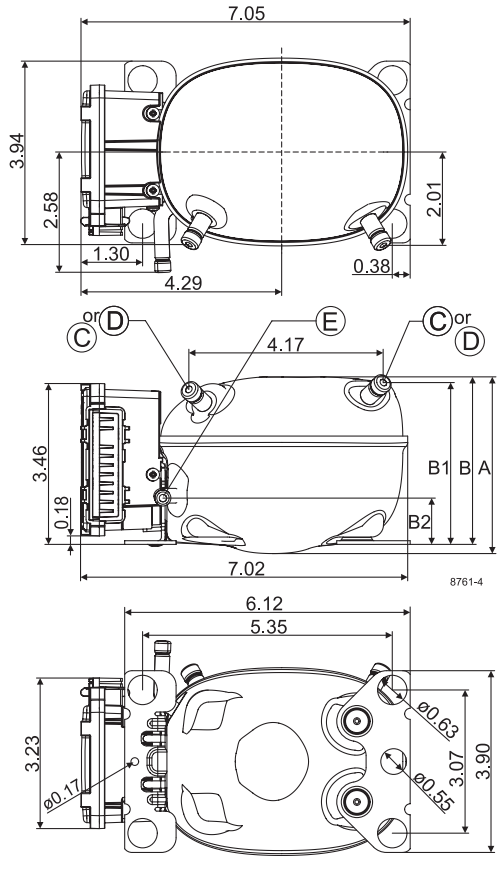
Displacement	cu.in.	0.086
Oil quantity (type)	fl.oz.	2.64 (polyolester)
Maximum refrigerant charge	oz.	2.47
Free gas volume in compressor	fl.oz.	17.60
Weight - Compressor/Electronic unit	lbs.	4.63 / 0.24

Standard battery protection settings (refer to 101N2130 *Instructions* for optional settings)

Voltage (0.1 steps)				Min. value	Default	Max. value
12V	± 0.3V DC, all values	Cut out	VDC	9.6	10.4	17
		Cut in diff.	VDC	0.5	1.3	10
24V	± 0.3V DC, all values	Cut out	VDC	19	21.3	27
		Cut in diff.	VDC	0.5	1.3	10

Dimensions

Height		inch	A	3.79
			B	3.59
			B1	3.46
			B2	0.99
Suction connector	location/I.D. inch | angle		C	0.252-0259 | 25°
	material | comment			Cu-plated steel | Al cap
Process connector	location/I.D. inch | angle		D	0.252-0259 | 25°
	material | comment			Cu-plated steel | Al cap
Discharge connector	location/I.D. inch | angle		E	0.202-0.205 | 0°
	material | comment			Cu-plated steel | Al cap
Remarks: **inch connectors**				



Capacity (ASHRAE LBP) 12V DC, static cooling **BTU/h**

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2,000		39	47	77	116	133	162	219	290	319	357	431
3,000	44	69	82	130	190	217	261	344	448	488	543	648
3,500	52	83	98	156	227	258	309	406	525	573	635	756
4,000	61	98	115	182	264	300	358	468	604	657	728	865

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

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2,000		9	11	18	27	31	38	51	68	75	84	101
3,000	10	16	19	31	45	51	61	81	105	115	128	152
3,500	12	20	23	37	54	61	73	96	124	135	150	178
4,000	14	23	27	43	62	71	85	110	142	155	172	203

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

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2,000		16	17	20	24	25	28	33	39	41	44	50
3,000	20	24	26	31	37	39	43	49	56	59	62	68
3,500	24	29	31	37	44	47	51	58	65	68	71	78
4,000	28	34	36	44	52	55	59	67	75	77	81	87

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

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2,000		1.25	1.33	1.59	1.89	2.02	2.22	2.58	3.02	3.18	3.40	3.81
3,000	1.56	1.84	1.96	2.37	2.81	2.99	3.26	3.74	4.29	4.49	4.75	5.24
3,500	1.86	2.19	2.34	2.82	3.33	3.53	3.84	4.38	4.98	5.20	5.49	6.01
4,000	2.19	2.58	2.75	3.31	3.88	4.11	4.46	5.05	5.71	5.95	6.26	6.82

EER (ASHRAE LBP) 12V DC, static cooling **BTU/h**

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2.000		2.51	2.83	3.87	4.89	5.27	5.83	6.69	7.54	7.82	8.16	8.73
3.000	2.15	2.87	3.18	4.17	5.15	5.53	6.09	7.03	8.03	8.38	8.83	9.61
3.500	2.17	2.89	3.19	4.17	5.14	5.52	6.09	7.05	8.10	8.47	8.95	9.81
4.000	2.18	2.89	3.19	4.15	5.12	5.50	6.07	7.04	8.12	8.52	9.03	9.95

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

rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59
2.000		0.59	0.66	0.91	1.15	1.24	1.37	1.57	1.76	1.82	1.90	2.03
3.000	0.50	0.67	0.74	0.98	1.21	1.30	1.43	1.65	1.88	1.96	2.06	2.24
3.500	0.51	0.68	0.75	0.98	1.21	1.30	1.44	1.66	1.90	1.99	2.10	2.29
4.000	0.50	0.68	0.75	0.98	1.21	1.30	1.43	1.66	1.91	2.00	2.12	2.32

Operational errors (TOOL4COOL® or LED flashes)

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, the electronic unit will enter manual mode).
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	**Fan over-current cut-out** (The fan loads the electronic unit with more than $0.65A_{peak}$).
1	**Battery protection cut-out** (The voltage is outside the cut-out setting).

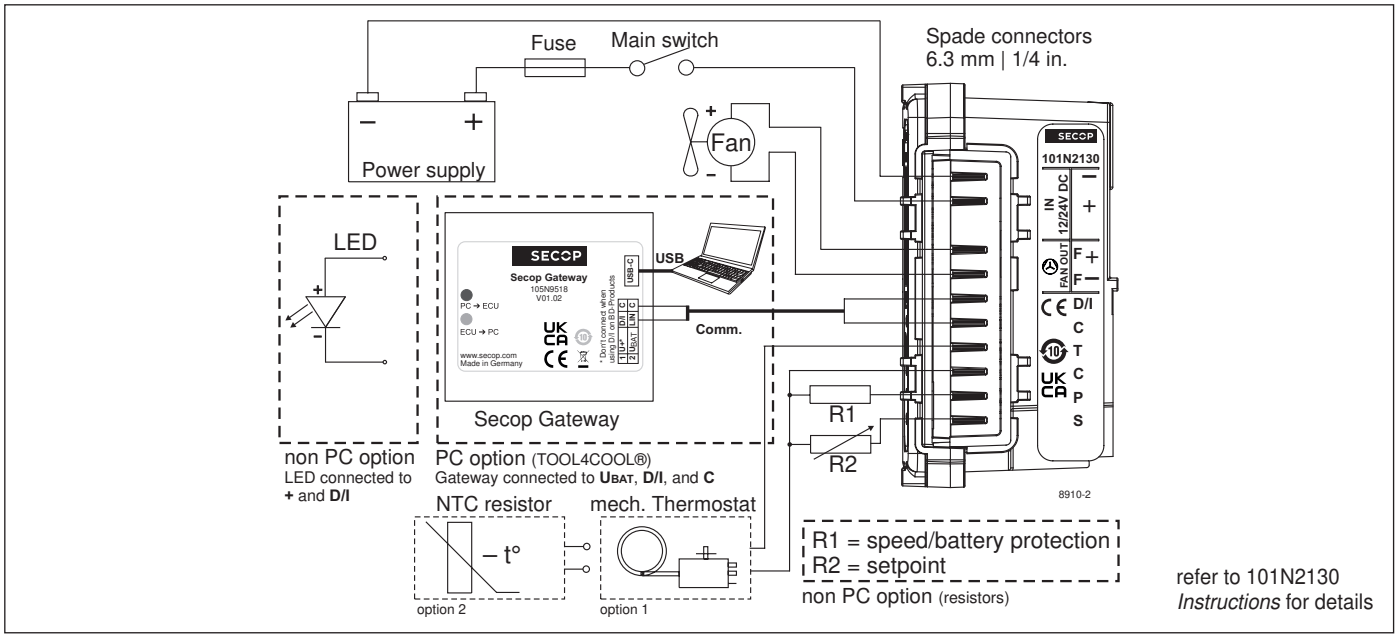
Wire Dimensions DC

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

Accessories for BD1.4F-VSD.2		Code number
Bolt joint for one compressor	Ø:16 mm	118-1917
Bolt joint in quantities	Ø:16 mm	118-1918
Snap-on in quantities	Ø:16 mm	118-1919
Terminal cover for electronic unit		105N9120
Automoblie fuse DIN 7258	12V: 15A 24V: 15A	Not deliverable from Secop
Main switch	min. 20A	

Test conditions	EN 12900 CECOMAF	ASHRAE LBP
Condensing temperature	131°F	130°F
Ambient temperature	90°F	90°F
Suction gas temperature	90°F	90°F
Liquid temperature	no subcooling	90°F



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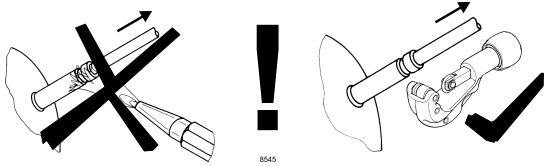
Keep electrical equipment clear from oil, chemicals, and water

BD Compressors

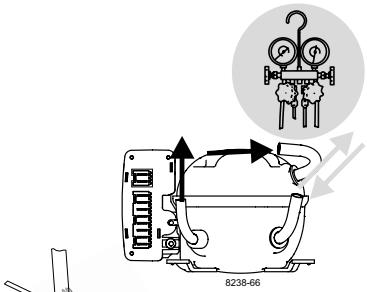
SECOP

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



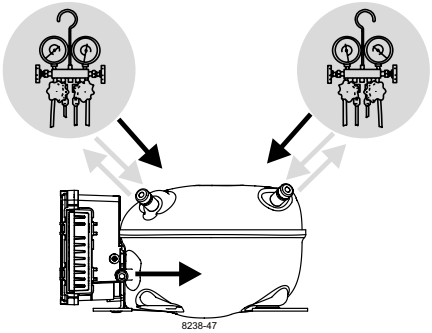
TOOL4COOL®

BD Nano

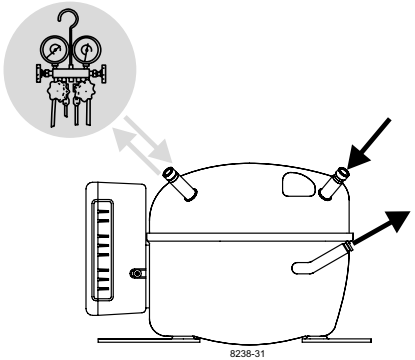


Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

BD Micro



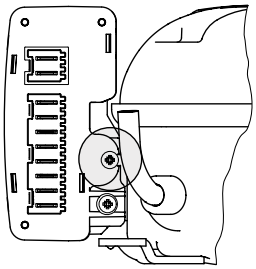
BD-P



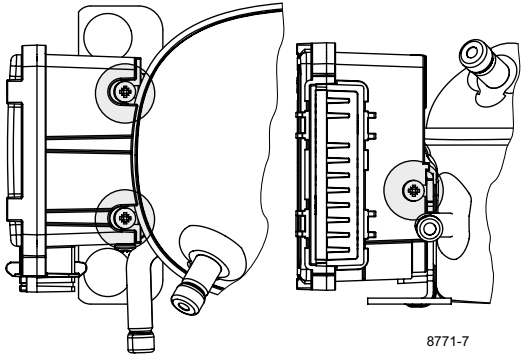
Dismantling, recycling, disposal: At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be 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



BD Nano



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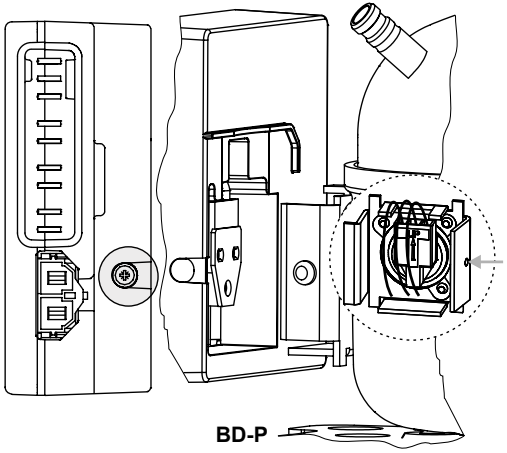

BD-P

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.

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