Single
Packs

Single Pack BD50K 12/24V DC PM

Single pack code number: **195B4644**

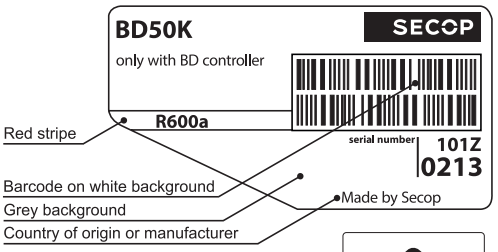
Position	Title	Code	Amount
1	Compressor BD50K	101Z0213	1
2	Electronic unit High Speed	101N0390	1
3	Bolt joint for one compressor | M6 | ø16mm	118-1917	1

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

Secop 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.

BD50K
Direct Current Compressor
R600a
12/24V DC

TOOL4COOL®



Yellow warning label

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

General

Code number (without electronic units)	101Z0213
Electronic unit 12/24V DC - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 10
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

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

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	1.8

Design

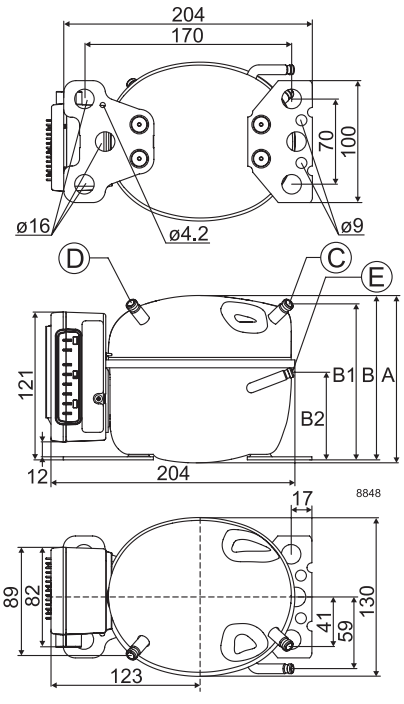
Displacement	cm^3	3.00
Oil quantity (type)	cm^3	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm^3	870
Weight - Compressor/Electronic unit	kg	4.4 / 0.32

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:			



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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	16.9	23.8	26.6	32.7	43.8	57.2	73.1	91.7	113	123	137	
3,100	21.3	29.9	33.4	41.1	55.0	71.9	91.9	115	142	155	173	
3,800	25.9	36.4	40.7	50.1	67.0	87.6	112	140	173	189	210	
4,400	29.9	42.0	46.9	57.7	77.3	101	129	162	199	218	242	

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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	20.6	29.0	32.4	39.9	53.4	69.8	89.3	112	138	151	168	
3,100	25.9	36.4	40.7	50.1	67.1	87.7	112	141	174	189	211	
3,800	31.5	44.4	49.6	61.1	81.8	107	137	171	211	231	257	
4,400	36.4	51.2	57.2	70.4	94.3	123	158	198	244	266	296	

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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	24.9	26.8	27.6	29.3	32.4	35.8	39.6	43.6	47.6	49.4	51.7	
3,100	32.4	35.5	36.8	39.6	44.4	49.8	55.6	61.6	67.6	70.2	73.5	
3,800	37.4	43.1	45.2	49.5	56.6	64.1	71.9	79.6	87.3	90.5	94.6	
4,400	41.6	50.0	53.0	58.8	67.7	76.7	85.7	94.4	103	107	111	

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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	0.6	0.8	0.8	1.0	1.2	1.4	1.7	1.9	2.2	2.2	2.4	
3,100	0.8	1.0	1.1	1.3	1.6	1.9	2.3	2.7	3.0	3.1	3.3	
3,800	1.1	1.4	1.5	1.7	2.1	2.5	2.9	3.3	3.7	3.8	4.0	
4,400	1.6	1.9	2.0	2.3	2.6	3.0	3.4	3.8	4.1	4.2	4.4	

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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	0.68	0.89	0.96	1.11	1.35	1.60	1.85	2.10	2.37	2.50	2.66	
3,100	0.66	0.84	0.91	1.04	1.24	1.44	1.65	1.87	2.10	2.21	2.35	
3,800	0.69	0.85	0.90	1.01	1.18	1.37	1.56	1.76	1.98	2.09	2.22	
4,400	0.72	0.84	0.89	0.98	1.14	1.32	1.51	1.71	1.94	2.04	2.18	

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

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,500	0.83	1.08	1.17	1.36	1.65	1.95	2.26	2.58	2.91	3.07	3.27	
3,100	0.80	1.02	1.10	1.26	1.51	1.76	2.02	2.29	2.58	2.71	2.89	
3,800	0.84	1.03	1.10	1.23	1.45	1.67	1.91	2.16	2.43	2.56	2.73	
4,400	0.87	1.02	1.08	1.20	1.39	1.61	1.84	2.10	2.38	2.51	2.68	

Test conditions	EN 12900/CECOMAF	ASHRAE LBP
Condensing temperature	55°C	54.4°C
Ambient temperature	32°C	32°C
Suction gas temperature	32°C	32°C
Liquid temperature	no subcooling	32°C

Accessories for BD50K		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
Automobile fuse, DIN 7258	12V: 30A | 24V: 15 A	Not deliverable from Secop
Main switch	min. 30A	

Compressor speed

Electronit unit Code number	Resistor (R1) [Ω] calculated values	Motor speed [rpm]
101N0390 with AEO	0	AEO
	203	2,500
	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.

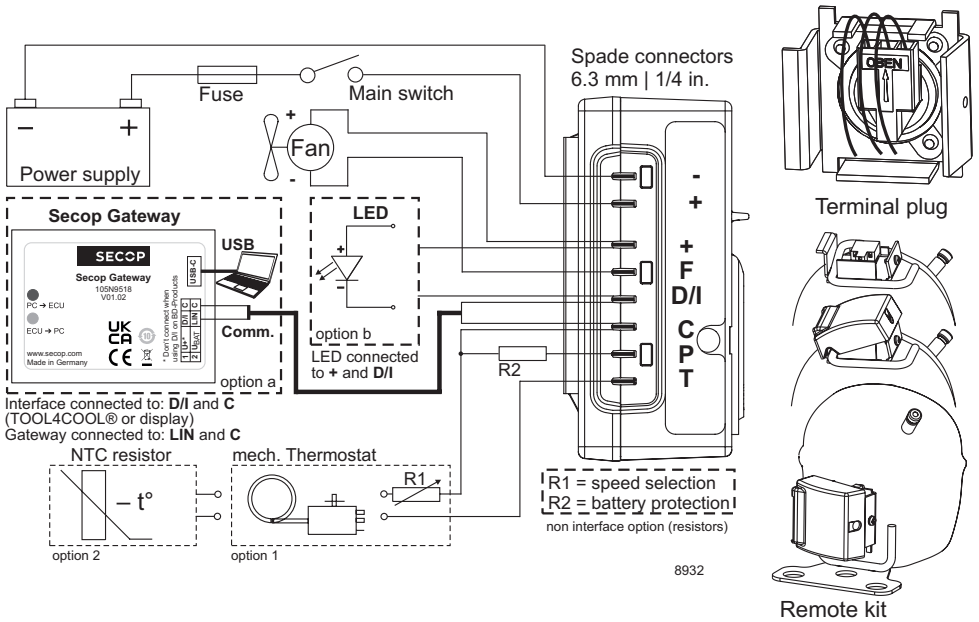
Wire dimensions

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 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).



Terminal plug

Remote kit

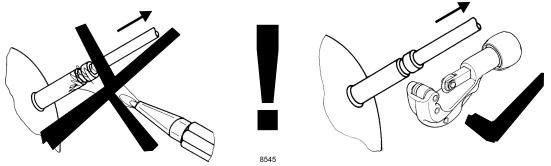
Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary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

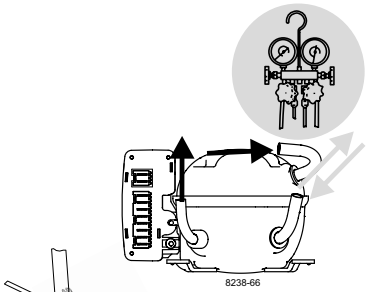
SECOP

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



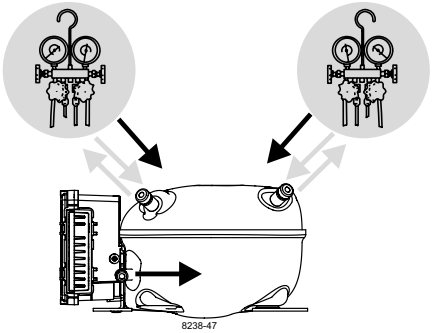
TOOL4COOL®

BD Nano

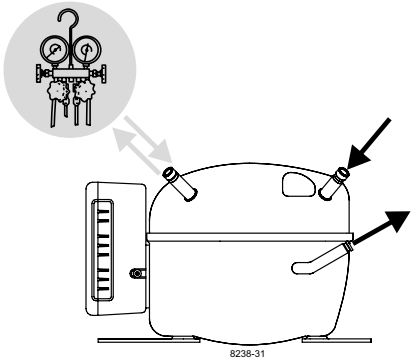


Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

BD Micro



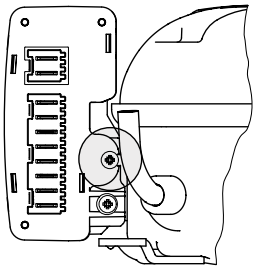
BD-P



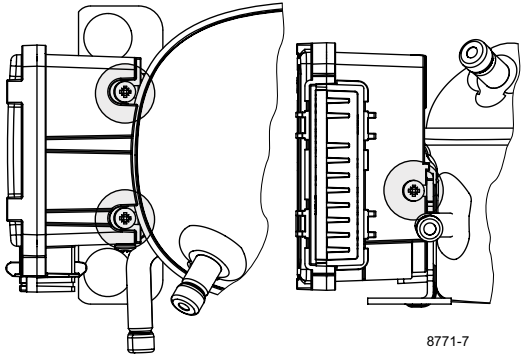
Dismantling, recycling, disposal: At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be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

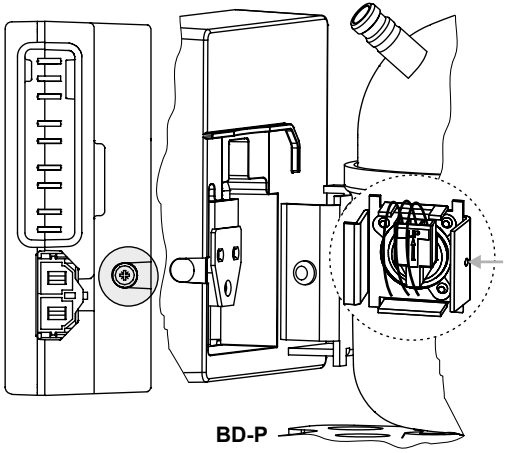
BD Compressors



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**