Single
Packs

Single Pack BD80F 12/24V DC PM

Single pack code number: **195B4790**

Position	Title	Code	Amount
1	Compressor BD80F	101Z0280	1
2	Electronic unit High Speed	101N0391	1
3	Snap-on in quantities | ø7,3 | ø16mm	118-1919	1

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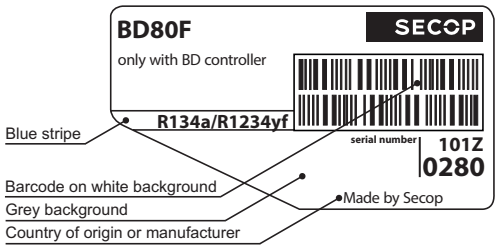
BD80F
Direct Current Compressor
R134a, R1234yf
12/24V DC

TOOL4COOL®



General

Code number (without electronic units)	101Z0280
Electronic unit - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application

Application		LBP
Evaporating temperature	°C	-30 to -5
Voltage/max. voltage	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	–	–
38°C	S	–	–
43°C	S	–	–
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

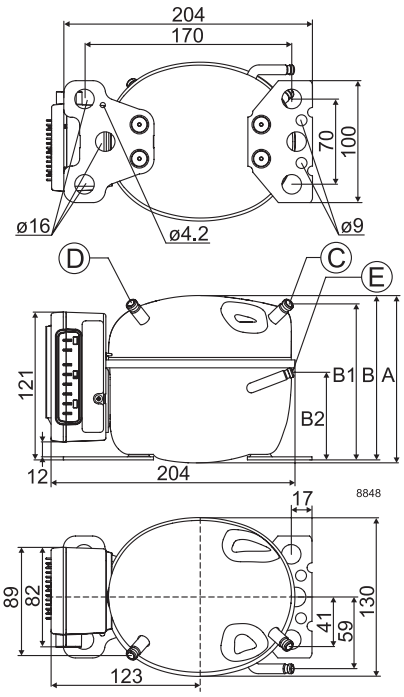
Displacement	cm^3	3.00
Oil quantity (type)	cm^3	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm^3	870
Weight - Compressor/Electronic unit	kg	4.4/0.32

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

		12V	24V
Voltage			
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:			



Performance Data with Refrigerant R134a

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	35.2	49.8	55.3	67.0	87.3	112	140					
3,100	41.9	59.2	65.8	79.8	104	133	168					
3,800	50.1	70.8	78.7	95.4	125	159	200					
4,400	54.9	78.1	86.8	105	138	176	221					

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	43.7	61.8	68.6	83.1	108	138	174					
3,100	52.0	73.4	81.6	98.8	129	165	208					
3,800	62.1	87.8	97.5	118	154	197	248					
4,400	68.1	96.7	108	130	171	218	274					

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	38.4	47.9	51.2	57.8	68.2	79.5	91.9					
3,100	46.9	58.9	62.9	70.8	83.4	97.3	113					
3,800	57.5	72.0	76.9	86.5	102	119	139					
4,400	66.3	83.5	89.2	100	118	138	161					

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	1.6	2.0	2.1	2.4	2.8	3.3	3.8					
3,100	1.9	2.4	2.6	3.0	3.5	4.1	4.7					
3,800	2.4	3.0	3.2	3.6	4.3	5.0	5.8					
4,400	2.8	3.5	3.7	4.2	4.9	5.8	6.7					

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	0.92	1.04	1.08	1.16	1.28	1.40	1.53					
3,100	0.89	1.01	1.05	1.13	1.25	1.37	1.48					
3,800	0.87	0.98	1.02	1.10	1.22	1.34	1.44					
4,400	0.83	0.94	0.97	1.05	1.16	1.27	1.37					

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	1.14	1.29	1.34	1.44	1.59	1.75	1.90					
3,100	1.10	1.25	1.30	1.40	1.55	1.70	1.85					
3,800	1.07	1.22	1.27	1.37	1.52	1.66	1.80					
4,400	1.02	1.16	1.21	1.30	1.45	1.58	1.71					

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 BD80F		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.

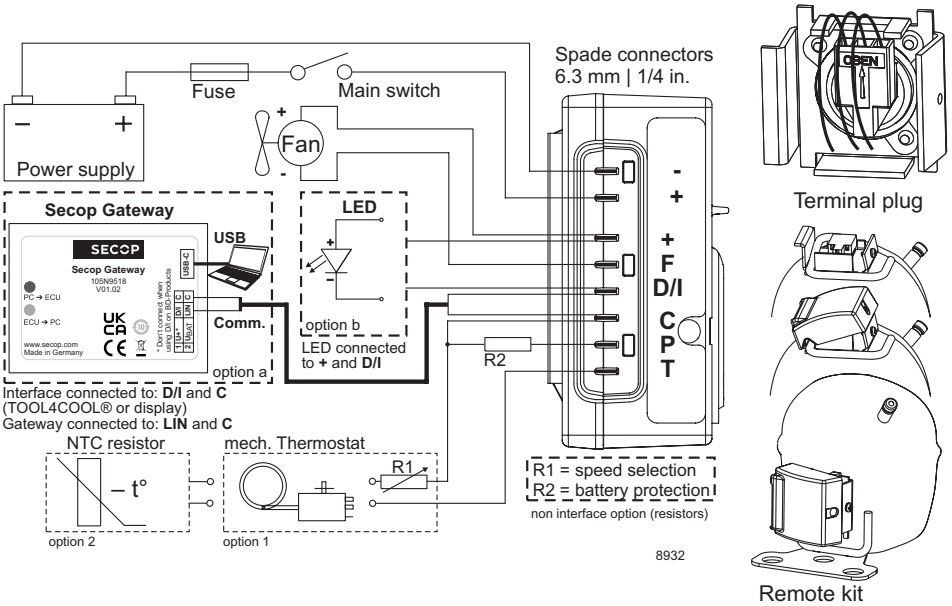
Wire dimensions

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).



Performance Data with Refrigerant R1234yf

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	37.2	51.7	57.3	69.0	89.2	113	139					
3,100	42.6	59.9	66.8	81.7	108	137	170					
3,800	46.9	66.0	74.3	92.5	125	161	200					
4,400	57.5	76.5	84.3	101	132	168	211					

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	48.1	66.8	74.0	89.1	115	146	180					
3,100	54.9	77.0	86.0	105	139	177	220					
3,800	60.2	84.7	95.3	119	160	207	257					
4,400	73.7	98.7	109	131	171	218	273					

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	42.6	51.5	54.6	60.9	70.9	81.7	93.2					
3,100	50.0	60.3	64.2	72.1	85.4	100	116					
3,800	59.6	71.3	75.9	85.9	103	123	144					
4,400	71.0	84.8	90.2	101	121	142	166					

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	1.8	2.1	2.3	2.5	3.0	3.4	3.9					
3,100	2.1	2.5	2.7	3.0	3.6	4.2	4.8					
3,800	2.5	3.0	3.2	3.6	4.3	5.1	6.0					
4,400	3.0	3.5	3.8	4.2	5.0	5.9	6.9					

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	0.87	1.00	1.05	1.13	1.25	1.37	1.48					
3,100	0.85	0.99	1.04	1.13	1.25	1.36	1.45					
3,800	0.79	0.92	0.97	1.07	1.20	1.31	1.38					
4,400	0.81	0.90	0.93	1.00	1.09	1.18	1.26					

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	1.13	1.30	1.35	1.46	1.63	1.78	1.93					
3,100	1.10	1.28	1.34	1.46	1.62	1.77	1.89					
3,800	1.01	1.19	1.26	1.38	1.55	1.69	1.79					
4,400	1.04	1.16	1.21	1.29	1.42	1.54	1.65					

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

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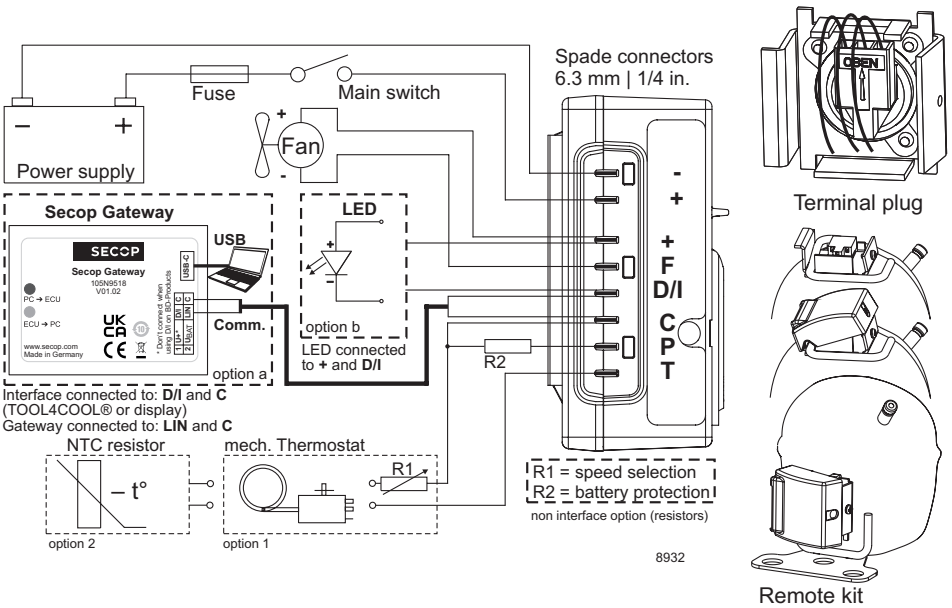

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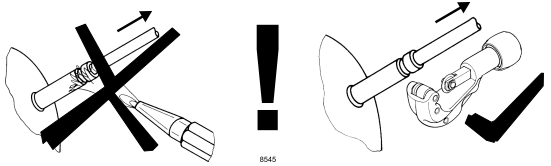
Keep electrical equipment clear from oil, chemicals, and water

BD Compressors

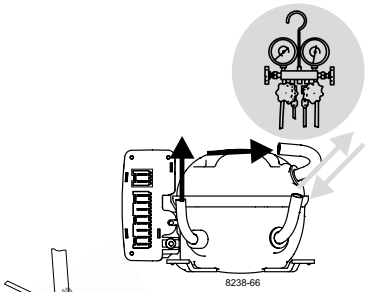
SECOP

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



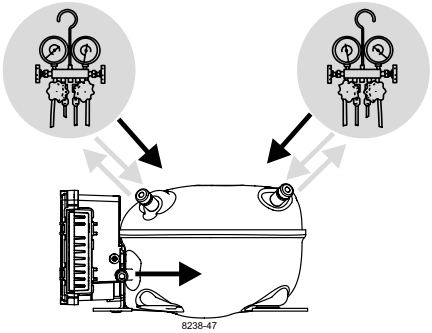
TOOL4COOL®

BD Nano

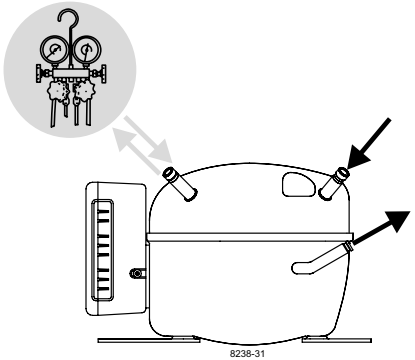


Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

BD Micro



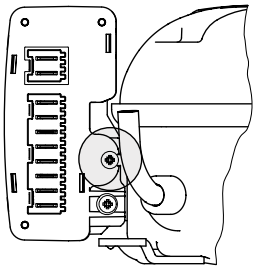
BD-P



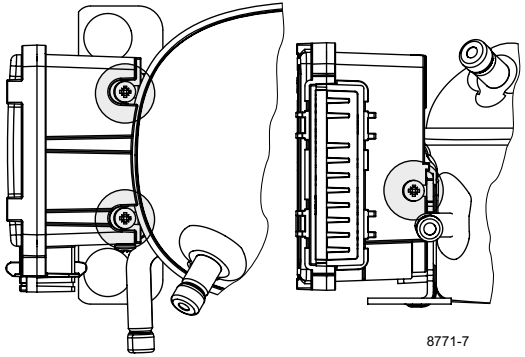
Dismantling, recycling, disposal: At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be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

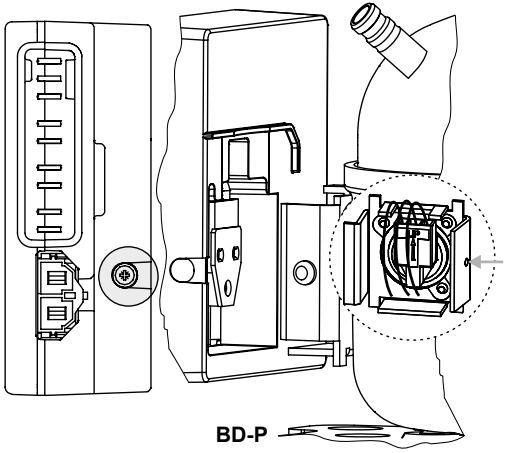
BD Compressors



BD Nano



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.

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