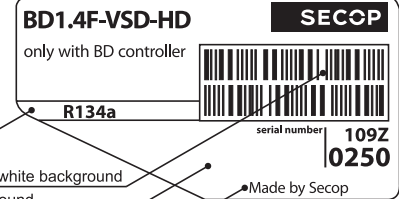


## BD1.4F-VSD-HD Heavy Duty Direct Current Compressor R134a, 12/24V DC



Blue stripe  
Barcode on white background  
Grey background  
Country of origin or manufacturer

### General

Code number (without electronic unit)	109Z0250
Electronic unit - Variable Speed	101N2130, 30 pcs: 101N2131
Approvals	-
Compressors on pallet	180

### Application

Application	LBP/MBP/HBP
Evaporating temperature °C	-30 to 15
Voltage range VDC	9.6 - 17 / 19 - 34
Max. condensing temperature continuous (short) °C	60 (70)
Max. winding temperature continuous (short) °C	125 (135)

- S = Static cooling normally sufficient
- O = Oil cooling
- F<sub>1</sub> = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
- F<sub>2</sub> = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficient
- = not applicable in this area

### Cooling requirements

Application	LBP	MBP	HBP
32°C	S	S	S
38°C	S	S	S
43°C	S	S	S

Remarks on application:  
**HD (Heavy Duty) version of the BD1.4F-VSD which can handle extreme vibrations.**

### Motor

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

### Design

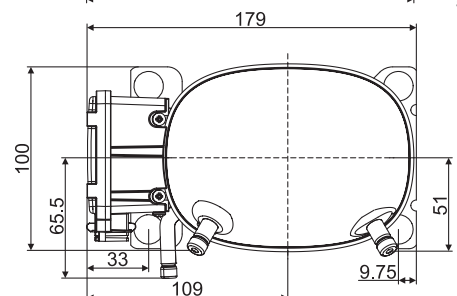
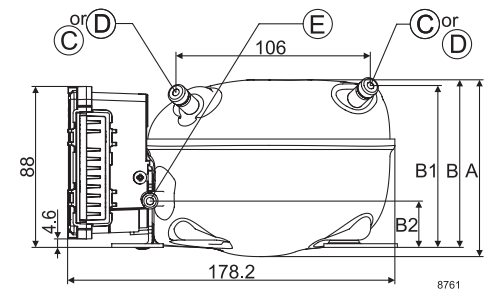
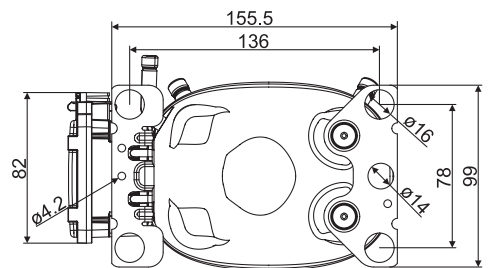
Displacement cm <sup>3</sup>	1.41
Oil quantity (type) cm <sup>3</sup>	75 (polyolester)
Maximum refrigerant charge g	70
Free gas volume in compressor cm <sup>3</sup>	500
Weight - Compressor/Electronic unit kg	2.1/0.11

### 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	mm	A	96.25
		B	91.25
		B1	88.00
		B2	25.20
Suction connector	location/I.D. mm   angle	C	6.2   25°
	material   comment	Cu-plated steel   Al cap	
Process connector	location/I.D. mm   angle	D	6.2   25°
	material   comment	Cu-plated steel   Al cap	
Discharge connector	location/I.D. mm   angle	E	5.0   0°
	material   comment	Cu-plated steel   Al cap	
Connector tolerance	I.D. mm	±0.09, on 5.0 +0.12/+0.20	



Capacity (EN 12900 Household/CECOMAF)		12V DC, static cooling										watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	9	11	15	22	31	42	54	69	76	86	106	
2,500	7	13	15	20	30	41	55	70	87	96	109	134
3,000	9	16	19	26	37	51	67	85	105	116	131	161
3,500	10	20	23	31	45	61	80	101	124	137	154	190
4,000	12	23	27	36	52	71	92	116	144	158	178	218

Capacity (ASHRAE LBP)		12V DC, static cooling										watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	12	14	19	28	39	52	68	86	95	107	132	
2,500	9	16	19	25	37	51	68	87	109	120	135	167
3,000	11	20	24	32	47	64	84	106	131	144	163	201
3,500	13	24	29	39	56	76	99	125	155	170	192	237
4,000	15	29	34	45	65	88	114	144	179	197	222	272

Power consumption		12V DC, static cooling										watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	16	17	19	22	25	29	34	40	42	43	45	
2,500	16	20	21	24	28	32	37	42	48	50	52	54
3,000	19	24	26	29	34	39	45	50	57	59	61	63
3,500	23	29	31	35	41	47	53	59	66	69	72	77
4,000	27	34	36	41	48	55	61	68	76	79	83	90

Current consumption (for 24V applications the following must be halved)		A										
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	1.25	1.33	1.48	1.74	2.02	2.32	2.65	2.74	2.85	3.00	3.28	
2,500	1.25	1.53	1.63	1.83	2.15	2.48	2.84	3.22	3.69	3.84	4.00	4.20
3,000	1.49	1.84	1.96	2.20	2.59	2.98	3.40	3.82	4.38	4.56	4.77	5.09
3,500	1.77	2.19	2.34	2.63	3.07	3.53	4.00	4.47	5.06	5.26	5.51	5.89
4,000	2.08	2.58	2.75	3.08	3.59	4.10	4.63	5.16	5.87	6.07	6.31	6.63

COP (EN 12900 Household/CECOMAF)		12V DC, static cooling										W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	0.59	0.66	0.81	1.03	1.24	1.43	1.60	1.72	1.83	1.99	2.36	
2,500	0.43	0.64	0.72	0.86	1.08	1.29	1.48	1.67	1.83	1.94	2.10	2.46
3,000	0.45	0.67	0.74	0.89	1.10	1.30	1.50	1.69	1.84	1.97	2.14	2.54
3,500	0.46	0.68	0.75	0.89	1.10	1.30	1.51	1.70	1.88	1.99	2.15	2.47
4,000	0.45	0.68	0.75	0.89	1.09	1.30	1.50	1.70	1.88	1.99	2.14	2.42

COP (ASHRAE LBP)		12V DC, static cooling										W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	0.74	0.83	1.01	1.29	1.55	1.79	2.01	2.17	2.31	2.52	2.98	
2,500	0.54	0.80	0.89	1.07	1.34	1.60	1.84	2.08	2.29	2.43	2.64	3.10
3,000	0.57	0.84	0.93	1.11	1.37	1.62	1.87	2.11	2.35	2.47	2.70	3.20
3,500	0.58	0.85	0.94	1.11	1.36	1.62	1.87	2.12	2.36	2.49	2.69	3.11
4,000	0.58	0.85	0.94	1.11	1.36	1.61	1.87	2.12	2.36	2.50	2.68	3.05

Error code or LED flashes	Error type
	Can be read out in the software TOOL4COOL®
6	<b>Thermostat failure</b> (If the NTC thermistor is short-circuit or has no connection, the electronic unit will enter manual mode).
5	<b>Thermal cut-out of electronic unit</b> (If the refrigeration system has been too heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot).
4	<b>Minimum motor speed error</b> (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	<b>Motor start error</b> (The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)).
2	<b>Fan over-current cut-out</b> (The fan loads the electronic unit with more than 0.65A <sub>peak</sub> ).
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out setting).

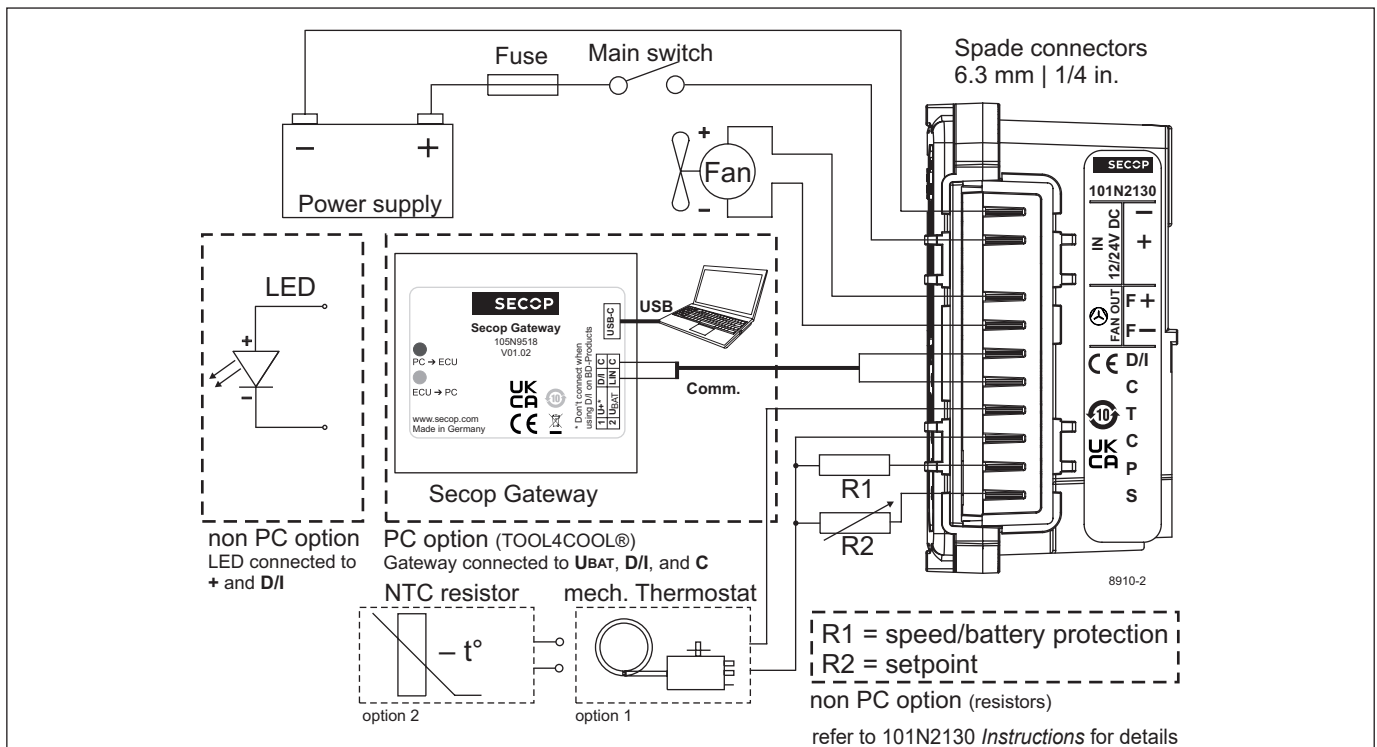
### Wire Dimensions DC

Cross section [mm <sup>2</sup> ]	Size		Max. length* 12V operation		Max. length* 24V operation	
	AWG	[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-HD	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
Automobile fuse DIN 7258	12V: 15A 24V: 15A
Main switch	min. 20A Not deliverable from Secop

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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