

BD35F

Direct Current Compressor

R134a

12 - 24V

Data Sheet (Replaces CD.46.A7.02)

Code numbers

BD35F without electronic unit	101Z0200
Electronic unit 12-24V DC - standard	single: 101N0210, 30 pcs: 101N0211
Electronic unit 12-24V DC - w. metal shielding	single: 101N0220, 30 pcs: 101N0221
Electronic unit 12-24V DC - with AEO	single: 101N0300, 30 pcs: 101N0301

Application

Application	LBP/MBP/(HBP)
Evaporating temperature range °C	-30 to 0 (10)
Voltage range / max. voltage	12 - 24V DC / 31.5V DC
Max. machine compartment temperature °C	55
Comp. cooling at ambient temp. 43°C	S or F ₁ *

Design

* depending on application

Displacement	cm ³	2.00
Oil quantity	cm ³	150
Maximum refrigerant charge	g	300
Free gas vol. in compressor	cm ³	870
Weight: Compressor/Electronic unit	kg	4.3/0.25

Motor

Motor type	Variable speed
Resistance, all 3 windings (25°C)	Ω 2.3
Approvals	E4 72/245 95/54 0277 00, UL984, CSA-C22.2

Dimensions

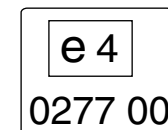
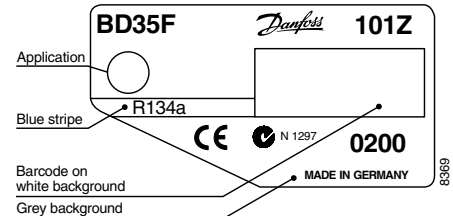
Height	mm	A	137
		B	135
		B1	128
		B2	73
Suction connector	location/I.D. mm	C	6.2 ±0.09
Process connector	location/I.D. mm	D	6.2 ±0.09
Discharge connector	location/I.D. mm	E	5.0 +0.12/+0.20
Compressors on a pallet	pcs.		150

Standard battery protection settings (no connection C - P)

12V cut-out [V]	12V cut-in [V]	24V cut-out [V]	24V cut - in [V]
10.4	11.7	22.8	24.2

Optional battery protection settings

Resistor (R2) [kΩ]	12V cut-out [V]	12V cut-in [V]	12V max. Voltage	24V cut-out [V]	24V cut-in [V]	24V max. Voltage
0	9.6	10.9	17.0	21.3	22.7	31.5
1.6	9.7	11.0	17.0	21.5	22.9	31.5
2.4	9.9	11.1	17.0	21.8	23.2	31.5
3.6	10.0	11.3	17.0	22.0	23.4	31.5
4.7	10.1	11.4	17.0	22.3	23.7	31.5
6.2	10.2	11.5	17.0	22.5	23.9	31.5
8.2	10.4	11.7	17.0	22.8	24.2	31.5
11	10.5	11.8	17.0	23.0	24.5	31.5
14	10.6	11.9	17.0	23.3	24.7	31.5
18	10.8	12.0	17.0	23.6	25.0	31.5
24	10.9	12.2	17.0	23.8	25.2	31.5
33	11.0	12.3	17.0	24.1	25.5	31.5
47	11.1	12.4	17.0	24.3	25.7	31.5
82	11.3	12.5	17.0	24.6	26.0	31.5
220	9.6	10.9				31.5

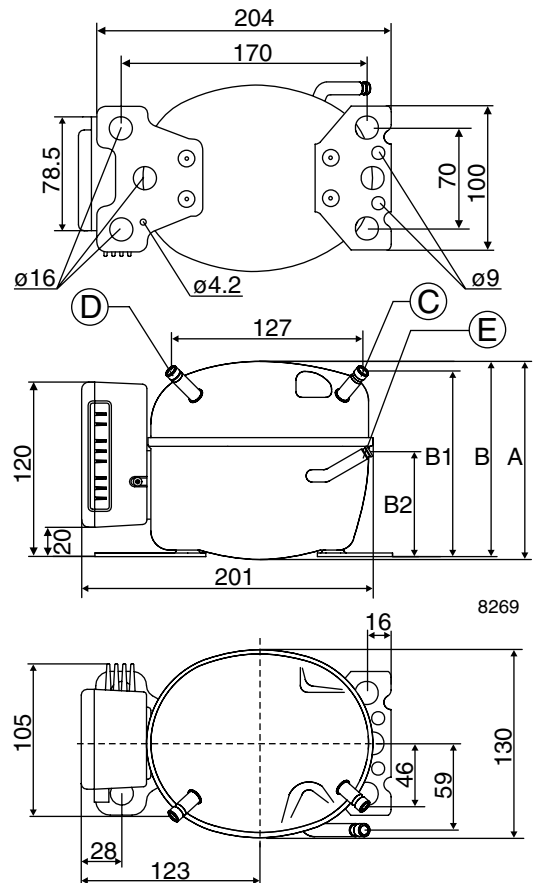


EC approval mark (electronic unit)



Approval mark

- S = Static cooling normally sufficient
- O = Oil cooling
- F₁ = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary



Capacity (EN 12900/CECOMAF)

watt

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	15.8	23.9	26.9	33.1	43.8	56.6	71.7	89.9	111	136
2,500	20.2	29.9	33.5	41.2	54.6	70.7	89.7	112	139	
3,000	22.5	32.4	36.5	45.4	61.8	81.7	105	133		
3,500	26.2	35.9	40.4	50.5	69.8	93.6	122			

Capacity (ASHRAE)

watt

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	19.5	29.4	33.1	40.7	54.0	69.8	88.6	111	137	169
2,500	24.9	36.8	41.3	50.7	67.3	87.1	111	139	172	
3,000	27.7	39.9	44.9	55.9	76.1	101	130	164		
3,500	32.2	44.2	49.7	62.2	86.0	115	150			

Power consumption

watt

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	17.6	23.4	25.3	28.7	33.6	38.3	43.0	48.0	53.4	59.5
2,500	23.3	30.9	33.3	37.8	44.1	50.2	56.2	62.3	68.7	
3,000	29.9	36.0	38.3	43.0	50.7	58.7	66.8	74.8		
3,500	36.0	42.8	45.4	50.8	59.5	68.9	78.5			

Current consumption (for 24V applications the following must be halved)

A

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	1.5	2.0	2.1	2.4	2.8	3.2	3.6	4.0	4.5	5.0
2,500	1.9	2.6	2.8	3.2	3.7	4.2	4.7	5.2	5.8	
3,000	2.5	3.0	3.2	3.6	4.2	4.9	5.6	6.2		
3,500	3.0	3.6	3.8	4.3	5.0	5.7	6.5			

COP (EN 12900/CECOMAF)

W/W

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	0.90	1.02	1.06	1.15	1.31	1.48	1.67	1.87	2.08	2.29
2,500	0.87	0.97	1.01	1.09	1.24	1.41	1.60	1.80	2.02	
3,000	0.75	0.90	0.95	1.06	1.22	1.39	1.58	1.78		
3,500	0.73	0.84	0.89	1.00	1.17	1.36	1.55			

COP (ASHRAE)

W/W

rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	10
2,000	1.10	1.25	1.31	1.42	1.61	1.82	2.06	2.31	2.57	2.84
2,500	1.07	1.19	1.24	1.34	1.53	1.74	1.97	2.23	2.50	
3,000	0.93	1.11	1.17	1.30	1.50	1.72	1.95	2.20		
3,500	0.89	1.03	1.09	1.23	1.44	1.68	1.91			

Test conditions EN 12900/CECOMAF ASHRAE
 Condensing temperature 55°C 55°C
 Ambient and suction gas temp. 32°C 32°C
 Liquid temperature 55°C 32°C
 Static cooling, 12V DC
 1 Watt = 0.86 kcal/h

Compressor speed

Electronic unit	Resistor (R1) Ω	Motor speed rpm	Contr.circ. current mA
101N0210 101N0220	0	2,000	5
	277	2,500	4
	692	3,000	3
	1523	3,500	2
101N0300 with AEO	0	AEO	6
	173	2,000	5
	450	2,500	4
	865	3,000	3
	1696	3,500	2

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

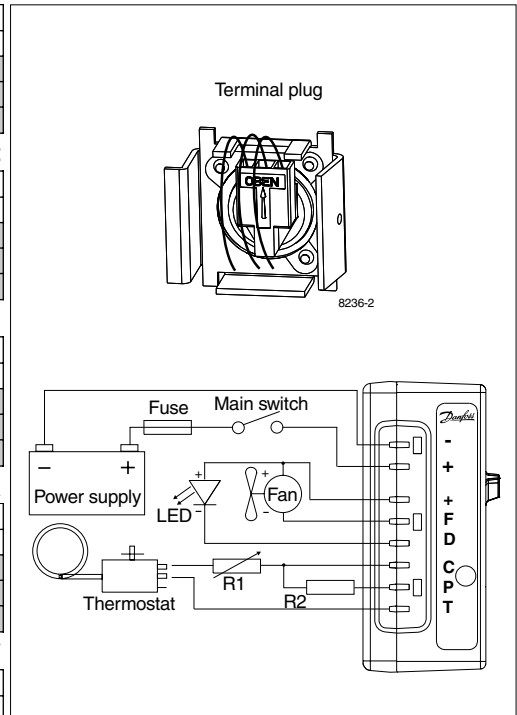
Accessories

Devices	BD35F
Standard automobile fuse DIN 7258 12V: 15A 24V: 7.5A	Not deliverable from Danfoss
Mounting accessories	
Bolt joint for one compressor	118-1917
Bolt joint in quantities	118-1918
Snap on in quantities	118-1919

Wire dimensions

Gauge	Size		Max length* 12V operation		Max length* 24V operation	
	AWG	Cross section mm ²	ft.	m	ft.	m
12	2.5		8	2.5	16	5
12	4		13	4	26	8
10	6		19.5	6	39	12
8	10		32.8	10	65.6	20

*Length between battery and electronic unit



Operational errors shown by LED (optional)

Number of flashes	Error type
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 1A _{peak}).
1	Battery protection cut-out (The voltage is outside the cut-out setting).