



# R134a • R600a • R290

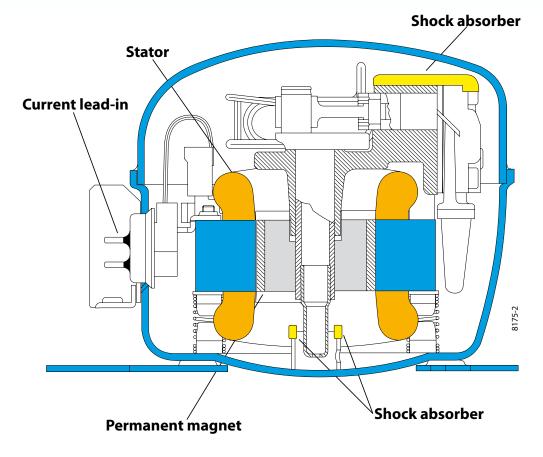
# **Danfoss BD Compressors**

Direct current & multivoltage applications 12-24 V DC • 100-240 V AC, 50/60 Hz

Collection of datasheets

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General	<ul> <li>Danfoss variable speed refrigeration compressors type BD35F, BD50F, BD80F and BD250GH are designed for connection to 12V and 24V DC power supply and for refrigerant R134a (CF<sub>3</sub>-CH<sub>2</sub>F). The compressors are intended especially for use in mobile applications, e.g. cooling boxes, boats, caravans, trucks, vans and buses. Due to their low energy consumption and the option for a wide supply voltage range, the compressors are also very suitable for stationary applications powered by photovoltaic solar panels. The compressors can be used in refrigerators and freezers using either capillary tube or TEV as the throttling device.</li> <li>The compressors BD35K and BD100CN are especially designed for refrigeration systems using isobutane, refrigerant R600a (C4H10) and propane, refrigerant R290 (C3H8), respectively, as can be seen from the individual type label information.</li> <li>R600a and R290 are classified as flammable refrigerants of class A3 according to ANSI/ASHRAE 34. Accordingly, special safety regulations must be complied with. A special Test Schedule has been integrated in the European Standards EN 60335-2-24 for domestic and EN 60335-2-89.</li> <li>The compressors BD35K and BD100CN must only and exclusively be used in appliances certified for flammable refrigerants according to these or later regulations. This means that the compressors must not be used in appliances which are not originally designed and certified for flammable refrigerants. These compressors are designed for stationary use only.</li> </ul>				
Acoustic noise & tilt angle	tection; fan, LEE internal voltage directly from ce In addition to b	ssor concept includes an electronic unit which features overload protection, battery pro- b, lamp connections; load dump and <i>Adapative Energy Optimizing</i> . The electronic unit has recording and calibration to the applied voltage. The electronic unit may also be powered rtain types of electronic power supply units and thus no battery is required. eing especially quiet in operation - approx. 35db(A) at 3000 rpm, the compressors have a and they will operate under continual heeling of 30° such as occurs on boats.			
	The BD compressors must be mounted in a dry and clean place. The compressors will withstand storage temperatures down to -35°C.				
		nperatures: able conditions and max. 70°C at peak load. eratures: Min10°C, max. 55°C			
Data stamping	of the coding is Z02007 (6 char 117A01 Compos Z0200: 7: Compos 11: 7: A: 01: F: In addition the	F (7 characters)         sition of line 1         Compressor type information (101Z0200 = Z0200)         internal Danfoss code         sition of line 2         Production week         Production year         Production day         A = Monday, B = Tuesday, C = Wednesday, , D=Thursday, etc.         Production hour 00 to 23 or shift code -1, -2, -3         Danfoss Compressors internal production location code         A to G       Germany, A until week 50/2005         D until week 35/2006         K to N       Slovenia         A, D, R       Slovakia, A from week 01/2006         D from week 38/2006         R from week 01/2005         production location code will in the future be marked - for export reasons (outside EU)			
		try of origin on the type label.			
	-	e barcode on the printed circuit board (inside the electronic unit):			
	0727200983 (1 072:	Production day			
	7:	Production day Production year			
	2:	Number of lot			
		Number of electronic unit			

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#### Label design



For the electronic unit, the code for date of manufacture is located on the printed circuit board, visible through the opening on the backside of the housing, where the cables get out.

All BD compressors are designed to meet specifications according to CE requirements. Furthermore they are designed to meet the automotive e-standard.

In addition we have VDE and UL/ CSA approval on most products (see table below for further information).

Nominal voltage has been removed and moved to the electronic unit.

LBP/MBP marking has also been removed. VDE marking will not appear on the label due to the fact that the compressor can be applied with non VDE approved electronic units.

The label on the electronic unit contains the nominal supply voltage. Located between + and – terminal. The AC/DC electronic contains in addition the applied nominal AC voltage. Voltage on the UL label has been removed and moved to the electronic unit.

All changes have been made from approx. June/July 2006

#### Compressors **Electronic Units** Standard EMI Extended EMI AEO Solar 101N0210 101N0220 101N0900 101N0300 101N0400 BD35F mm 101Z0200 VDE/UL/CSA VDE/UL/CSA UL/CSA UL/CSA BD35F inch 101Z0204 VDE/UL/CSA VDE/UL/CSA UL/CSA UL/CSA BD35K (R600a) 101Z0211 BD50F mm 101Z1220 VDE/UL/CSA VDE/UL/CSA UL/CSA VDE/UL/CSA **BD50F inch** 101Z0203 VDE/UL/CSA UL/CSA BD80F 101Z0280 BD250GH 101Z0400 BD250GH Twin 101Z0500 BD100CN (R290) 101Z0401 Compressors **Electronic Units** AC/DC conv. High start High speed Automotive 101N0500 101N0230 101N0280 101N0600 BD35F mm 10170200 VDE/UL/CSA BD35F inch VDE/UL/CSA 101Z0204 BD35K (R600a) 101Z0211 BD50F mm 101Z1220 VDE/UL/CSA UL/CSA UL/CSA BD50F inch VDE/UL/CSA 101Z0203 BD80F 101Z0280 UL/CSA BD250GH 101Z0400 UL/CSA BD250GH Twin UL/CSA 101Z0500 BD100CN (R290) 101Z0401

VDE/UL/CSA

= Combination possible, VDE or UL or CSA approval

= Combination possible, but no approval

= Combination not possible

#### VDE/UL/CSA approvals

#### Warnings (BD35K, BD100CN)



R600a is flammable in concentrations of air between approximately 1.5% and 8.5% by volume (LEL lower explosion limit and UEL upper explosion limit). An ignition source at a temperature higher than 460°C is needed for a combustion to occur.

Isobutane is significantly different from R12 and R134a. This means that compressors for R600a cannot be used with R12 or R134a.

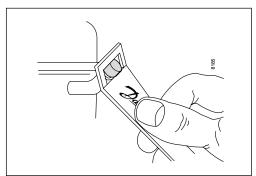


R290 is flammable in concentrations of air between approximately 2.1% and 9.5% by volume (LEL lower explosion limit and UEL upper explosion limit). An ignition source at a temperature higher than 470°C is needed for a combustion to occur.

No high potential test nor start tests must be carried out while the compressor is under vacuum. No attempt must be made to start the compressor without a complete starting device. Allow the compressor to reach a temperature above 10°C before starting the first time in order to avoid

starting problems. Anti-freeze agents must not be used in the compressors as such agents are damaging to several of the materials used. In particular, the ethyl or methyl alcohol contents of such anti-freeze agents have a destructive effect on the synthetic motor insulation.

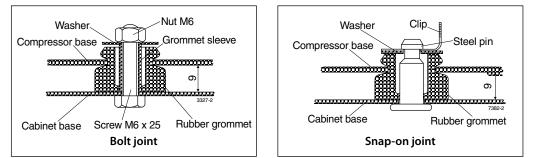
Connectors



The compressor is equipped with DANCON connectors which consist of a thick-walled, copperplated steel tube with high corrosion resistance, and a solderability equal to that of conventional copper connectors.

DANCON connectors are equipped with an aluminium cap (Capsolut) which gives a tight sealing. The seal cap is easily removed with an ordinary pair of pliers or with a special tool.

## Mounting accessories



The mounting accessories for the compressors are available in two versions, with bolt joint or snap-on joint. The rubber grommets are designed for the 16 mm holes of the baseplate.

Bolt joint for one compressor in a bag	118-1917
Bolt joint in quantities	118-1918
Snap-on in quantities	118-1919

#### **Filter drier selection**

Only filter driers which are declared by the manufacturer to be suitable for mobile applications must be used in refrigeration systems with BD compressors. Filter material powder ending up in the compressor will lead to excessive wear of the piston and transmission parts, and metal particles deposited in the motor windings will cause the compressor to stop because the electric signal back to the electronic unit is disturbed.



#### **Electric circuit**

The BD compressors are fitted with a brushless direct current motor which is electronically commutated by an electronic unit.

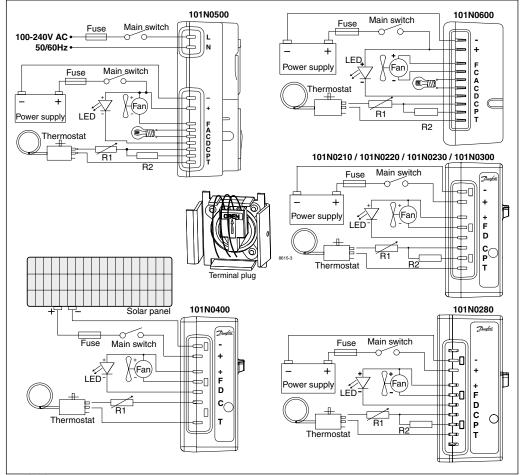
The electronic unit is delivered separately and must be mounted on the compressor, please see instructions page 7. The electronic unit must always be connected directly to the battery poles or power supply unit terminals. For the protection of the installation an external fuse must be installed in the power supply cable close to the battery or power supply unit.

If the chassis is used as a conductor, a proper connection between cable and chassis must be established.

Wrong polarity applied to the electronic unit does not destroy the unit, however, the compressor does not work.

If the compressor is planned to be stopped for a longer period, a main switch can be installed to avoid the battery from being drained.

#### **Electronic units & wiring**



available units:

BD35F: 101N0210, 101N0220, 101N0300, 101N0400, 101N0500, 101N0600 BD50F: 101N0210, 101N0220, 101N0230, 101N0300, 101N0500 BD80F: 101N0280 BD250GH: 101N280, BD250/250GH: 2 x 101N0280 BD35K: 101N0400, 101N0210, 101N0220 BD100CN: 101N0280

#### Voltage range

BD35/50/80F/250GH/100CN: 12V DC systems: 10.4V (9.6V min.) - 17V max.;

24V DC systems: 22.8V (21.3V min) - 31.5V max.

#### BD35F/BD35K:

Solar systems: 10V - 45V, no battery protection.

The low voltage limits stated in brackets () can be established if a connection is made between the terminals C and P, please see also the passage **Optional battery protection settings** page 9.

The electronic unit will calibrate to the applied voltage. This means that if the battery voltage is less than 17V, the electronic unit assumes that it is working in a 12V system. If the voltage is higher than 17V, the electronic unit assumes that it is working in a 24V system. Consequently, the compressor does not run at power supply voltages between about 17V and the desired battery protection cut-out voltage for 24V systems. A continuous voltage range from 9.6V to 31.5V can be established if a 220k $\Omega$  resistor (wiring diagram item 9) is connected between the terminals C and P. This wide voltage range makes the BD compressors very suitable for photovoltaic powering.

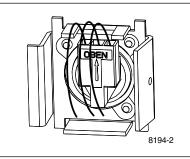
BD35/50F:AC power supply systems: Nominal voltages from 100 to 240V AC<br/>50/60Hz. 85V min. - 265V max., 50/60Hz. Power consumption is limited<br/>to 100W with the BD50F compressors. Earth connection required.



#### Electronic unit 101N0230

In applications providing pressure equalization before compressor start and operating in ambient conditions below 32°C (90°F), electronic unit 101N0210 is appropriate for both the BD35F and BD50F compressors. Electronic unit 101N0230 is offered for use with Danfoss BD50F compressors to provide additional starting torgue for the BD50F compressor. Electronic unit 101N0230 is not suitable for use with the BD35F compressor. The BD50F has a stronger motor than the BD35F and can tolerate the higher start current furnished by the 101N0230 electronic unit.

#### Mounting the electronic unit



The cable plug of the electronic unit is mounted on the pins of the current lead-in on the compressor. Then the electronic unit itself is mounted on the bracket of the compressor. At first the left side is mounted, then the right side is pressed over the screw on the bracket. The electronic unit snaps on to the bracket and is now securely mounted on the compressor.

In case the electronic unit must be removed from the compressor, the screw has to be dismantled.

Earth connection (via compressor baseplate) can be used if required.

#### **Cable dimensions**

To ensure correct start and operating conditions, the following cable dimensions must be observed:

OF & BD	)35K:			
ze AWG				ength* eration
[Gauge]	[m]	[ft.]	[m]	[ft.]
12	2.5	8	5	16
12	4	13	8	26
10	6	20	12	39
8	10	33	20	66
	<b>AWG</b> [Gauge] 12 12 12 10	AWG         12V op           [Gauge]         [m]           12         2.5           12         4           10         6	Reward         Max. length* 12V operation           [Gauge]         [m]         [ft.]           12         2.5         8           12         4         13           10         6         20	Awg         Max. length* 12V operation         Max. le 24V op           [Gauge]         [m]         [ft.]         [m]           12         2.5         8         5           12         4         13         8           10         6         20         12

Length between battery an electronic unit

#### BD35/50F AC operation:

Cross section min. 0.75 mm<sup>2</sup> or AWG 18

BD80F							
Siz Cross section	ze AWG		ength* eration	Max. lo 24V op			
[mm <sup>2</sup> ]	[Gauge]	[m]	[ft.]	[m]	[ft.]		
6	10	2.5	8	5	16		

3D250G	D250GH						
Size Cross   AWG		Max. length* 12V operation		Max. length* 24V operation			
section							
[mm <sup>2</sup> ]	[Gauge]	[m]	[ft.]	[m]	[ft.]		
8	8	2.5	8	5	16		
#1							

\*Length between battery an electronic unit

#### **Compressor speed**

Without any resistor in the control circuit, the compressor will run with a fixed speed of 2,000/2500 rpm when the thermostat is switched on, depending on the electronic unit version (see tables below). Other fixed speeds in the range between 2,000/2,500 and 3,000/3,100/3,800 or 3,500/4,400rpm can be obtained when a resistor (R1) is installed between terminal C and P to adjust the current of the contol circuit (please see wiring diagrammes page 6).

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

		I	I	I
Compressor	Electronit unit	Resistor (R1)	Motor speed	Control circuit
	Code number	[Ω]	[rpm]	current [mA]
	101N0210	0	2,000	5
BD35F	101N0220	277	2,500	4
БОЗЭГ	101N0500	692	3,000	3
	101N0600	1523	3,500	2
		0	AEO	6
BD35F	101N0300	173	2,000	5
БОЗЭГ	101N0400	450	2,500	4
	with AEO	865	3,000	3
		1696	3,500	2
	101N0210	0	2,000	5
BDEAE	101N0220	277	2,500	4
BD50F	101N0230	692	3,000	3
	101N0500	1523	3,500	2
		0	AEO	6
BD50F	10110200	173	2,000	5
BDSUF	101N0300 with AEO	450	2,500	4
	WITH AEO	865	3,000	3
		1696	3,500	2
		0	AEO	6
BD35K	101N0400	173	2,000	5
BUSSK	with AEO	450	2,500	4
	with AEO	865	3,000	3
		1696	3,500	2
BD80F		0	AEO	6
BD80F BD100CN	101N0280	203	2,500	5
	with AEO	451	3,100	4
BD250GH BD250/250GH	WITH AEU	867	3,800	3
		1700	4,400	2

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Thermostat connection	ances, or with electronic thermostats. The thermostat is connected between the term The compressor current does not flow through When the thermostat is cut out there will still be A system with no stand-by power consumption jumper between the terminals C and T, and the	the thermostat contacts.
Fan connection	101N0600 a fan must be connected to C andF. Always use a 12V fan, also in 24V systems, as th voltage to 12V for the fan. Using the special solar electronic unit 101N0400 The max. load on the electronic unit is 0.5A <sub>averag</sub> rent for the first 2 seconds.	he electronic unit terminals + and F. On electronic unit e electronic unit will automatically reduce the applied D, the fan runs with input voltage always. <sub>e</sub> or $1A_{peak}$ . The fan is allowed to start with a higher cur- mpressor will be cut out by the overload protection.
Lamp connection	and 101N0600. The output voltage between the	een the terminals A and C on electronic unit 101N0500 ne terminals A and C is always regulated to 12V DC. A V power supply systems. The lamp output can supply a
LED connection	the terminals + and D. Operational errors will cause the LED to flash a what kind of operational error was recorded.	ssor operation monitoring can be connected between a number of times. The number of flashes depends on umber of flashes there will be a delay with no flashes, so peated every 4 seconds.
	BD35/50F, BD35K	BD80F, BD100CN, BD250GH, BD250/250GH_

BD35/50	DF, BD35K	B
Number of flashes	Error type	N of
5	Thermal cut-out of electronic unit	
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).	
3	Motor start error	
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).	
2	Fan over-current cut-out	
	(The fan loads the electronic unit with more than $1A_{\mbox{peak}}$ ).	
1	Battery protection cut-out	
	(The voltage is outside the cut-out setting).	

BD80F, BD100CN, BD250GH, BD250/250GH				
Number of flashes	Error type			
5	Thermal cut-out of electronic unit			
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 2,450 rpm).			
3	Motor start error			
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).			
2	Fan over-current cut-out			
	(The fan loads the electronic unit with more than $1A_{_{\rm peak}}).$			
1	Battery protection cut-out			
	(The voltage is outside the cut-out setting).			



Troubleshooting	Emitting Diode (LED electronic unit is pro emitted by the LED The motor windings in pins. If the measu all right.	) installed between the term perly connected to the powe will give a hint about the rea can be checked for defects	inals + and D, please see page er supply, and the thermosta ason for the interruption of by measuring the resistanc ns are approximately the sa	ended to have a 10mA Light ge 3 and 4. Provided that the t is on, the number of flashes the compressor operation. e between the current lead- me, the motor is most likely	
Protection systems	fan overload and ele When overload prote	ctronic unit overheating as	well as destructive battery operations of the second second second second second second second second second se	sor overload and start failure, discharge. ich it attempts to start at ap-	
Overload protections	The compressor overload and start protection cuts off power to the compressor if the compressor speed drops below approximately 1,850 rpm (BD35F/BD50F/BD35K) or 2,450 rpm (BD80F/BD250GH/BD100C or if this motor speed is not reached during the start sequence. Possible reasons for overload protection activating could be excess refrigeration system pressures during operation or an excessive pressure d ferential. The fan overload protection stops the compressor and fan if the fan current exceeds $0.5A_{aver}$ or $1A_{peak}$ . If the electronic unit heat sink senses a temperature >100°C it will cause the compressor to stop. Restawill occur automatically when the temperature has dropped. (<80°C, with 60 seconds additional dela If a fan is installed, it will continue to run if the compressor stops due to overload or electronic un overheating.				
Voltage protection	If a voltage outside the specified range is applied to the electronic unit, the compressor does not start, or it stops if the voltage limit is exceeded during operation. The compressor will restart automatically ap- proximately 60 seconds after the supply voltage has reached the reset voltage within the range in question. If a fan is installed, it will start to operate without a delay as soon as the reset voltage is reached.				
Battery protection	the battery because electronic unit 101N The compressor is st the + and - terminals Other battery protec	of heavy discharge, the BD e 0400). opped and restarted again s of the electronic unit.	electronic unit has integrate according to the dedicated f a connection, which inclu	woid permanent damage to d battery protection (except voltage limits measured on des a resistor, is established	
	Standard battery p	rotection settings (no con	nection C - P)		
	12V cut-out [V]	12V cut-in [V]	24V cut-out [V]	24V cut-in [V]	
	1		1	1	

11.7

#### **Optional battery protections settings**

10.4

	ci) protection	is settings				
Resistor (R2)	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]
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

22.8

tolerances:  $\pm$  0.3V DC

24.2

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BD35F Compressor with Electronic Unit 101N0500

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3369

BD35F

Code number & serial numbe barcode on white background

= Oil cooling

= Fan cooling 1.5 m/s

= not applicable in this area

Blue stripe

S

0 F<sub>1</sub>

 $F_2$ 

SG

Grey background

• R134a

CE

= Static cooling normally sufficient

(compressor compartment temperature equal to ambient temperature) = Fan cooling 3.0 m/s necessary

= Suction gas cooling normally sufficent

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101Z

MADE IN GERMANY

Danfoss®

THERMALLY PROTECTED SYSTEM

Approval mark

BD35F

*81* 

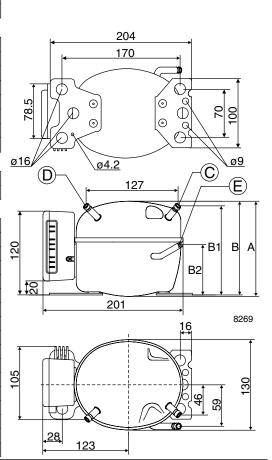
© N 1297 0200

## BD35F Direct Current Compressor R134a, 12-24V DC, 10-45V DC Solar & 100-240V AC 50/60Hz General

General						
Code number (without electroni	c units)			101Z0200		
Electronic unit 12-24V DC - stan	dard		single: 101N0210, 30 pcs: 101N0211			
Electronic unit 12-24V DC - with	metal shielding		single: 101N0220, 30 pcs: 101N0221			
Electronic unit 12-24V DC - with	single: 101N	10300, 30 pc	s: 101N0301			
Electronic unit 10-45V - for solar	applications		single: 101N	10400, 30 pc	s: 101N0401	
Electronic unit 12-24V DC & 100	-240V AC 50/60Hz		single: 101N	10500, 36 pc	s: 101N0501	
Electronic unit 12-24V DC - for a	utomotive applicat	tions	single: 101N	10600, 30 pc	s: 101N0601	
Approved compressor - electron	ic unit combination	ns	refer to Tecl	nnical Info DE	HC.EI.100.C	
Additional approvals				e4, CE, C-Ticl	(	
Compressors on pallet				150		
Application						
Application			L	.BP/MBP/HB	Р	
Evaporating temperature		°C		-30 to 0 (10)		
Voltage range (DC & AC)			12-24V DC	& 100-240V	AC 50/60Hz	
			10-45V D0	for solar ap	plications	
Max. condensing temperature co	ontinuous (short)	°C		60 (70)		
Max. winding temperature conti	nuous (short)	°C		125 (135)		
Cooling requirements						
Application			LBP	MBP	НВР	
32°C			S	S	S	
38°C			S	S	S	
43°C			S	S	S	
Remarks on application: Fan coo	ling F <sub>1</sub> depending	on app	lication and	speed.		
Motor						
Motor type				ariable spee	d	
Resistance, all 3 windings (25°C)		Ω	V	2.2	<u></u>	
		12		2.2		
Design		2				
Displacement		cm <sup>3</sup>		2.00		
Oil quantity (type)		cm <sup>3</sup>	15	0 (polyolest	er)	
Maximum refrigerant charge		<u> </u>		300		
Free gas volume in compressor	•.	cm <sup>3</sup>		870		
Weight - Compressor/Electronic	unit	kg		4.3/0.25		
Dimensions						
Height		mm	А	137		
			В	135		
			B1	128		
			B2	73		
Suction connector	location/I.D. mm		С	6.2 41.5°		
Process connector	location/I.D. mm		D	6.2   45°		
Discharge connector	location/I.D. mm		E	5.0   21°		
Connector tolerance	I.	D. mm	±0.09,	on 5.0 +0.12	2/+0.20	
Standard battery protection set	ttinas (no connect	tion C -	P)			

Standard battery prote	tandard 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						

Resistor (R2)	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]
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



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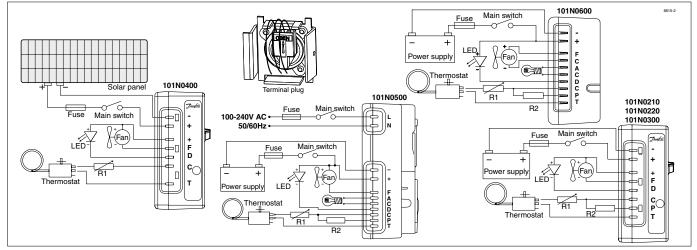
Capacity	EN 129	00 Hou	sehold/	CECOM	AF)				12V [	DC static	cooling	wat
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	15.8	23.9	26.9	33.1	43.8	56.6	71.7	89.9	111	122	136	
2,500	20.2	29.9	33.5	41.2	54.6	70.7	89.7	112	139	152		
3,000	22.5	32.4	36.5	45.4	61.8	81.7	105	133				
3,500	26.2	35.9	40.4	50.5	69.8	93.6	122					
Capacity	ASHRA	E LBP)							12V [	DC static	cooling	wat
rpm \ ℃	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	19.5	29.4	33.1	40.7	54.0	69.8	88.6	111	137	151	169	
2,500	24.9	36.8	41.3	50.7	67.3	87.1	111	139	172	189		
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 con	nsumpt	ion							12V [	DC static	cooling	wa
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	17.6	23.4	25.3	28.7	33.6	38.3	43.0	48.0	53.4	56.0	59.5	
2,500	23.3	30.9	33.3	37.8	44.1	50.2	56.2	62.3	68.7	71.7		
2,300												
3,000	29.9	36.0	38.3	43.0	50.7	58.7	66.8	74.8				
,		36.0 42.8	38.3 45.4	43.0 50.8	50.7 59.5	58.7 68.9	66.8 78.5	74.8				
3,000 3,500	29.9 36.0	42.8	45.4	50.8	59.5	68.9	78.5		1	2V DC st	atic cool	ing
3,000 3,500	29.9 36.0	42.8	45.4	50.8	59.5	68.9	78.5		1.	2V DC st 7.2	atic cool	ing 15
3,000 3,500 Current co	29.9 36.0 onsump	42.8 otion (fo	45.4 or 24V ap	50.8 plicatior	59.5 <b>ns the fo</b> l	68.9 Iowing r	78.5 nust be l	nalfed)				
3,000 3,500 <b>Current co</b> rpm \ °C	29.9 36.0 onsump -30	42.8 <b>otion (fo</b> -25	45.4 or <b>24V ap</b> -23.3	50.8 plicatior -20	59.5 <b>ns the fo</b> l -15	68.9 <b>Iowing r</b> -10	78.5 <b>nust be l</b> -5	nalfed) 0	5	7.2	10	
3,000 3,500 Current co rpm \ °C 2,000	29.9 36.0 <b>onsump</b> -30 1.5	42.8 <b>otion (fo</b> -25 2.0	45.4 <b>r 24V ap</b> -23.3 2.1	50.8 plicatior -20 2.4	59.5 <b>ns the fol</b> -15 2.8	68.9 Iowing r -10 3.2	78.5 nust be l -5 3.6	<b>alfed</b> ) 0 4.0	5 4.5	7.2 4.67	10	
3,000 3,500 Current co rpm \ °C 2,000 2,500	29.9 36.0 onsump -30 1.5 1.9	42.8 <b>otion (fo</b> -25 2.0 2.6	45.4 • <b>24V ap</b> -23.3 2.1 2.8	50.8 plication -20 2.4 3.2	59.5 <b>15 the fol</b> -15 2.8 3.7	68.9 Iowing r -10 3.2 4.2	78.5 nust be l -5 3.6 4.7	alfed) 0 4.0 5.2	5 4.5	7.2 4.67	10	
3,000 3,500 <b>Current co</b> rpm \°C 2,000 2,500 3,000 3,500	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0	42.8 <b>otion (fo</b> -25 2.0 2.6 3.0 3.6	45.4 <b>or 24V ap</b> -23.3 2.1 2.8 3.2 3.8	50.8 plication -20 2.4 3.2 3.6 4.3	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2	68.9 lowing r -10 3.2 4.2 4.9	78.5 nust be l -5 3.6 4.7 5.6	alfed) 0 4.0 5.2	5 4.5 5.8	7.2 4.67 5.98	10	
3,000 3,500 Current co rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1	29.9 36.0 -30 1.5 1.9 2.5 3.0	42.8 <b>otion (fo</b> -25 2.0 2.6 3.0 3.6	45.4 <b>or 24V ap</b> -23.3 2.1 2.8 3.2 3.8	50.8 plication -20 2.4 3.2 3.6 4.3	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2	68.9 lowing r -10 3.2 4.2 4.9	78.5 nust be l -5 3.6 4.7 5.6	alfed) 0 4.0 5.2	5 4.5 5.8	7.2 4.67 5.98	10 5.0	15
3,000 3,500 Current co rpm \ °C 2,000 2,500 3,000	29.9 36.0 <b>Dnsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b>	42.8 -25 2.0 2.6 3.0 3.6 ouseho	45.4 <b>r 24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>Id/CECC</b>	50.8 plication -20 2.4 3.2 3.6 4.3 DMAF)	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2 5.0	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7	78.5 nust be l -5 3.6 4.7 5.6 6.5	0 4.0 5.2 6.2	5 4.5 5.8 12V [	7.2 4.67 5.98 OC static	10 5.0	15 W/V
3,000 3,500 <b>Current co</b> rpm \°C 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30	42.8 -25 2.0 2.6 3.0 3.6 ouseho -25	45.4 <b>24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>Id/CECC</b> -23.3	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2 5.0 -15	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7 -10	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5	0 4.0 5.2 6.2	5 4.5 5.8 12V [ 5	7.2 4.67 5.98 DC static 7.2	10 5.0 	15 W/V
3,000 3,500 <b>Current co</b> rpm \°C 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C 2,000	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90	42.8 otion (fo -25 2.0 2.6 3.0 3.6 ouseho -25 1.02	45.4 <b>r 24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>Id/CECC</b> -23.3 1.06	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15	59.5 <b>as the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31	68.9 lowing r -10 3.2 4.2 4.9 5.7 -10 1.48	78.5 <b>nust be l</b> -5 3.6 4.7 5.6 6.5 -5 1.67	0 4.0 5.2 6.2 0 1.87	5 4.5 5.8 12V I 5 2.08	7.2 4.67 5.98 DC static 7.2 2.17	10 5.0 	15 W/V
3,000 3,500 Current co rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000 2,500	29.9 36.0 5.30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87	42.8 <b>stion (fo</b> -25 2.0 2.6 3.0 3.6 <b>ouseho</b> -25 1.02 0.97	45.4 r 24V ap -23.3 2.1 2.8 3.2 3.8 Id/CECC -23.3 1.06 1.01	50.8 plication -20 2.4 3.2 3.6 4.3 <b>DMAF)</b> -20 1.15 1.09	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7 -10 1.48 1.41	78.5 <b>nust be l</b> -5 3.6 4.7 5.6 6.5 -5 1.67 1.60	0 4.0 5.2 6.2 0 1.87 1.80	5 4.5 5.8 12V I 5 2.08	7.2 4.67 5.98 DC static 7.2 2.17	10 5.0 	15 W/V
3,000 3,500 Current co rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87 0.75 0.73	42.8 <b>stion (fc</b> -25 2.0 2.6 3.0 3.6 <b>ouseho</b> -25 1.02 0.97 0.90 0.84	45.4 r 24V ap -23.3 2.1 2.8 3.2 3.8 Id/CECC -23.3 1.06 1.01 0.95	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15 1.09 1.06	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24 1.22	68.9 lowing r -10 3.2 4.2 4.9 5.7 -10 1.48 1.41 1.39	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5 1.67 1.60 1.58	0 4.0 5.2 6.2 0 1.87 1.80	5 4.5 5.8 12V I 5 2.08 2.02	7.2 4.67 5.98 OC static 7.2 2.17 2.12	10 5.0 cooling 10 2.29	15 W/V 15
3,000 3,500 Current co rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87 0.75 0.73	42.8 <b>stion (fc</b> -25 2.0 2.6 3.0 3.6 <b>ouseho</b> -25 1.02 0.97 0.90 0.84	45.4 r 24V ap -23.3 2.1 2.8 3.2 3.8 Id/CECC -23.3 1.06 1.01 0.95	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15 1.09 1.06	59.5 <b>ns the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24 1.22	68.9 lowing r -10 3.2 4.2 4.9 5.7 -10 1.48 1.41 1.39	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5 1.67 1.60 1.58	0 4.0 5.2 6.2 0 1.87 1.80	5 4.5 5.8 12V I 5 2.08 2.02	7.2 4.67 5.98 OC static 7.2 2.17 2.12	10 5.0 	15 W/N 15
3,000 3,500 Current co rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH rpm \°C	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87 0.75 0.73 <b>RAE LB</b>	42.8 ption (fo -25 2.0 2.6 3.0 3.6 ouseho -25 1.02 0.97 0.90 0.84 P)	45.4 <b>r 24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>id/CECC</b> -23.3 1.06 1.01 0.95 0.89	50.8 plication -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15 1.09 1.06 1.00	59.5 <b>as the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24 1.22 1.17	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7 -10 1.48 1.41 1.39 1.36	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5 1.67 1.60 1.58 1.55	0 4.0 5.2 6.2 0 1.87 1.80 1.78	5 4.5 5.8 12V [ 5 2.08 2.02 12V [	7.2 4.67 5.98 OC static 7.2 2.17 2.12 OC static	10 5.0 cooling 10 2.29 cooling	15 W/N 15 W/N
3,000 3,500 Current co rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87 0.75 0.73 <b>RAE LB</b> -30	42.8 ption (fo -25 2.0 2.6 3.0 3.6 ouseho -25 1.02 0.97 0.90 0.84 P) -25	45.4 <b>r 24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>id/CECC</b> -23.3 1.06 1.01 0.95 0.89 -23.3	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15 1.09 1.06 1.00 -20 -20	59.5 <b>as the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24 1.22 1.17 -15	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7 -10 1.48 1.41 1.39 1.36 -10	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5 1.67 1.60 1.58 1.55 -5 -5	0 4.0 5.2 6.2 0 1.87 1.80 1.78 0	5 4.5 5.8 12V [ 5 2.08 2.02 12V [ 5	7.2 4.67 5.98 0C static 7.2 2.17 2.12 0C static	10 5.0 cooling 10 2.29 cooling 10	15 W/N 15 W/N
3,000 3,500 Current co rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH rpm \°C 2,000	29.9 36.0 <b>onsump</b> -30 1.5 1.9 2.5 3.0 <b>2900 H</b> -30 0.90 0.87 0.75 0.73 <b>RAE LB</b> -30 1.10	42.8 ption (fo -25 2.0 2.6 3.0 3.6 ouseho -25 1.02 0.97 0.90 0.84 P) -25 1.25	45.4 <b>r 24V ap</b> -23.3 2.1 2.8 3.2 3.8 <b>id/CECC</b> -23.3 1.06 1.01 0.95 0.89 -23.3 1.31	50.8 plicatior -20 2.4 3.2 3.6 4.3 DMAF) -20 1.15 1.09 1.06 1.00 -20 1.42	59.5 <b>as the fol</b> -15 2.8 3.7 4.2 5.0 -15 1.31 1.24 1.22 1.17 -15 1.61	68.9 <b>lowing r</b> -10 3.2 4.2 4.9 5.7 -10 1.48 1.41 1.39 1.36 -10 1.82	78.5 nust be l -5 3.6 4.7 5.6 6.5 -5 1.67 1.60 1.58 1.55 -5 2.06	0 4.0 5.2 6.2 0 1.87 1.80 1.78 1.78 0 2.31	5 4.5 5.8 12V [ 5 2.08 2.02 12V [ 5 2.57	7.2 4.67 5.98 0C static 7.2 2.17 2.12 0C static 7.2 2.70	10 5.0 cooling 10 2.29 cooling 10	15 W/N 15 W/N

Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\text{peak}}$ ).
1	Battery protection cut-out
	(The voltage is outside the cut-out setting).

Wire Di	Vire Dimensions DC									
Si	ze	Max. le	ength*	Max. length*						
Cross	AWG	12V op	eration	24V op	eration					
section										
[mm <sup>2</sup> ]	[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					
	*l eng	th hotwo	on hatter	, an elect	onic unit					

#### Wire dimensions AC

Cross section min. 0.75 mm<sup>2</sup> or AWG 18



#### Compressor speed

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
101N0210	0	2,000	5
101N0220	277	2,500	4
101N0500	692	3,000	3
101N0600	1523	3,500	2
	0	AEO	6
101N0300	173	2,000	5
101N0400	450	2,500	4
with AEO	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.

# Test conditionsEN 12900/CECOMAFASHRAECondensing temperature55°C54.4°CAmbient temperature32°C32°CSuction gas temperature32°C32°CLiquid temperatureno subcooling32°C

Accessories for	BD35F	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		
Remote kit (without cable)		105N9210		
AC line cord (UL approved/VDE ap	proved)	105N9520/30		
DC usage: Std. automobile fuse12V	: 15A / 24V: 7.5A	Not deliverable		
Main switch: rated to m	from			
AC usage: Fuse 100-240V: 4A / Maii	Danfoss			

Datasheet: DEHC.ED.100.D3.02 / January 2007

<u>Danfoss</u>

## BD35F Direct Current Compressor (Inch Connectors), R134a, 12-24V DC, 10-45V DC Solar & 100-240V AC 50/60Hz

Compressors							
Code number (wit	hout electro	nic units)	101Z0204				
Electronic unit 12-				single: 101	N0210, 30 pc	s: 101N0211	
Electronic unit 12-			dina			s: 101N0221	
Electronic unit 12-				single: 101N0300, 30 pcs: 101N0301			
Electronic unit 10-			15	single: 101N0400, 30 pcs: 101N0401			
Electronic unit 12-						s: 101N0501	
Electronic unit 12-	-24V - for aut	omotive app	lications			s: 101N0601	
Approved compre	ssor - electro	nic unit com	binations	refer to Te	chnical Info D	EHC.EI.100.C	
Additional approv					e4, CE, C-Tic	k	
Compressors on p	allet				150		
Application							
Application					LBP/MBP/HE	3P	
Evaporating temp	erature		°F	:	-20 to 50		
Voltage range (DC				12-24V D0	2 & 100-240V	AC 50/60Hz	
l l l l l l l l l l l l l l l l l l l	u, (c)				DC for solar a		
Max. condensing t	emperature	continuous (	short) °F		140 (158)	ppricedions	
Max. winding tem					257 (275)		
			-, 1	1			
Cooling requirement	=====			LBP	MBP	НВР	
32°C				S	S	S	
32 C 38°C				S	S	S	
43°C				S	S	S	
Remarks on applic	ation: Fan co	oling E. don	anding on an		J		
		oning i j uep	enuing on ap		i speeu.		
Motor					Verielele en e		
Motor type		-\		-	Variable speed		
Resistance, all 3 wi	naings (25°C	.)	Ω.	2	2.2		
Design							
Displacement			cu.in		0.12		
Oil quantity (type)			fl.oz		5.1 (polyolest	er)	
Maximum refriger			0Z	-	10.5		
Free gas volume in			fl.oz		29.6		
Weight - Compress	sor/Electroni	c unit	lbs	•	9.5/0.55		
Dimensions							
Height			inch		5.39		
				В	5.32		
				B1	5.04		
				B2	2.87		
Suction connector			/I.D. in.   angle		.252-0259   4		
Process connector			/I.D. in.   angle		0.252-0259		
Discharge connect	tor	location	/I.D. in   angle	E C	).202-0.205	21°	
Standard battery			onnection C	- P)			
12V cut-out [V]	12	/ cut-in [V]		ut-out [V]		ut-in [V]	
10.4		11.7		22.8	2	4.2	
Optional battery p	protections	<b>settings</b> (not	possible with	electronic u	<u>init 101N040</u>	0)	
Resistor (R2)	12V cut-out			24V cut-out		24V max.	
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]	
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 8.2	10.2 10.4	11.5 11.7	17.0 17.0	22.5 22.8	23.9 24.2	31.5 31.5	
11	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	
18	10.8	12.0	17.0	23.6	25.0	31.5	
	10.0	12.0	17.0	20.0	25.0	31.5	

17.0

17.0

17.0

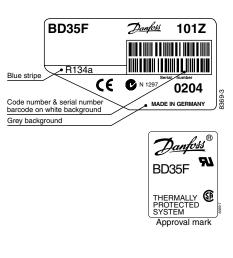
17.0

23.8

24.1

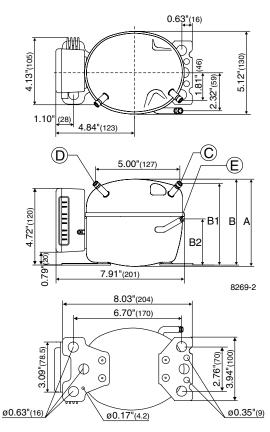
24.3

24.6



= Static cooling normally sufficient

- = Oil cooling
- = 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 sufficent
  - = not applicable in this area



25.2

25.5

25.7

26.0

31.5

31.5

31.5

31.5

31.5

24

33

47

82

220

10.9

11.0

11.1

11.3

9.6

12.2

12.3

12.4

12.5

10.9

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Capacity	(ASHRA	E LBP)							12V D0	C static o	cooling	Btu/l
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	74	101	113	159	214	238	280	361	458	471	514	575
2,500	95	127	142	199	268	298	351	452	574	586	643	
3,000	104	138	155	222	307	344	411	535	681			
3,500	119	153	171	248	349	396	473	620				
Capacity	(EN 129	00 Hou	sehold/	CECOM	AF)				12V D	C static o	cooling	wat
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	17.5	23.9	26.8	37.6	50.6	56.6	66.4	85.5	109	111	122	136
2,500	22.2	29.9	33.4	46.9	63.2	70.7	83.0	107	136	139	152	
3,000	24.5	32.4	36.4	52.3	72.4	81.7	97.0	126	161			
3,500	27.9	35.9	40.3	58.5	82.5	93.6	112	147				
Power co	nsumpt	ion							12V D	C static o	cooling	wat
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	19.1	23.5	25.3	30.8	36.1	38.3	41.3	46.6	52.5	53.4	55.7	59.1
2,500	25.2	31.0	33.3	40.7	47.4	50.2	54.0	60.7	67.7	68.7	71.5	
3,000	31.0	35.8	38.0	45.9	54.5	58.4	63.4	72.2	80.6			
3,500	37.5	42.9	45.4	54.5	64.4	68.9	74.9	85.7				
Current co	onsump	tion (fo	or 24V ap	plication	ns the fol	lowing r	nust be h	nalfed)	12V DC	static c	ooling	
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	1.59	1.96	2.10	2.57	3.01	3.19	3.44	3.89	4.37	4.45	4.64	4.93
2,500	2.10	2.58	2.77	3.38	3.95	4.18	4.49	5.05	5.63	5.73	5.95	
3,000	2.61	3.01	3.19	3.86	4.58	4.89	5.32	6.06	6.76			
3,500	3.14	3.58	3.79	4.55	5.38	5.74	6.25	7.15				
COP (ASH	RAE LB	P)							12V D0	C static o	cooling	Btu/W
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	3.88	4.30	4.48	5.16	5.93	6.24	6.80	7.74	8.73	8.82	9.23	9.73
2,500	3.75	4.09	4.26	4.89	5.64	5.93	6.50	7.46	8.47	8.53	9.00	
3,000	3.36	3.86	4.08	4.83	5.63	5.90	6.48	7.41	8.44			
3,500	3.16	3.56	3.77	4.56	5.42	5.73	6.31	7.23				
COP (EN 1	2900 H	ouseho	d/CEC	OMAF)					12V D	C static o	cooling	W/V
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	0.92	1.02	1.06	1.22	1.40	1.48	1.60	1.82	2.06	2.08	2.17	2.29
2,500	0.89	0.97	1.01	1.15	1.33	1.41	1.53	1.76	2.00	2.02	2.12	

1.40

1.36

1.52

1.49

1.32

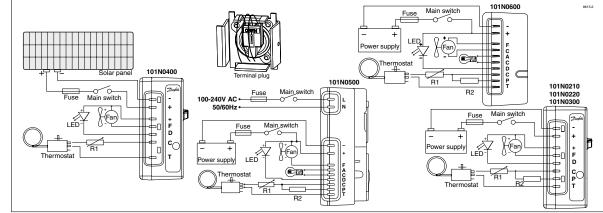
1.28

Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure 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 <sub>peak</sub> ).
1	Battery protection cut-out
•	(The voltage is outside the cut-out setting).

#### Wire Dimensions DC Max. length\* 12V operation Max. length\* 24V operation Size AWG | Cross sectior [Gauge] [ft.] [mm<sup>2</sup>] [m] [ft.] [m] 16 5 12 2.5 8 2.5 8 12 4 13 4 26 10 6 20 6 39 12 8 10 33 10 66 20 \*Length between battery an electronic unit

### Wire dimensions AC

Cross section min. AWG 18 or 0.75 mm<sup>2</sup>



1.98

1.74

1.70

#### **Compressor speed**

3,000

3,500

0.79

0.75

0.90

0.84

0.96

0.89

1.13

1.07

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
101N0210	0	2,000	5
101N0220	277	2,500	4
101N0500	692	3,000	3
101N0600	1523	3,500	2
	0	AEO	6
101N0300	173	2,000	5
101N0400	450	2,500	4
with AEO	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.

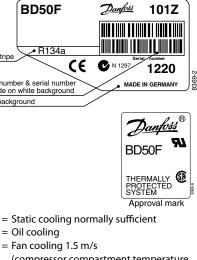
Test conditions	ASHRAE	EN 12900/CECOMAF
Condensing temperature	130°F	131°F
Ambient temperature	90°F	90°F
Suction gas temperature	90°F	90°F
Liquid temperature	90°F	no subcooling

Accessories for	BD35F	Code number
Bolt joint for one compressor	Ø: 5/8 in.	118-1917
Bolt joint in quantities	Ø: 5/8 in.	118-1918
Snap-on in quantities	Ø: 5/8 in.	118-1919
Remote kit (without cable)		105N9210
AC line cord (UL approved/VDE ap	oproved)	105N9520/30
DC usage: Std. automobile fuse12	V: 15A / 24V: 7.5A	Not deliverable
Main switch: rated to n	nin. 20A	from
AC usage: Fuse 100-240V: 4A / Mai	in switch: min. 6A	Danfoss

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# BD50F Direct Current Compressor, R134a 12-24V DC & 100-240V AC, 50/60Hz General

General								
Code number (with	hout electror	nic units)			101Z1220			
Electronic unit 12-	-24V DC - sta	ndard		single: 101	single: 101N0210, 30 pcs: 101N0211			
Electronic unit 12-	-24V DC - wit	h metal shiel	ding	single: 101	single: 101N0220, 30 pcs: 101N0221			
Electronic unit 12-	-24V DC - wit	h AEO		single: 101N0300, 30 pcs: 101N0301				
Electronic unit 12-	24V DC & 10	0-240V AC 50	0/60Hz	single: 101	N0500, 36 pc	s: 101N0501		
Approved compres	ssor - electro	nic unit com	binations	refer to Te	chnical Info DI	EHC.EI.100.C		
Additional approva	als				e4, CE, C-Tic	k		
Compressors on pa	allet				150			
Application								
Application					LBP/MBP/HE	 }P		
Evaporating tempe	erature		°(	2	-30 to 0 (10			
Voltage range (DC				12-24V D0	2 & 100-240V	,		
Max. condensing to		continuous (	short) °(		60 (70)			
Max. winding temp					125 (135)			
			-,	-				
Cooling requireme Application	21115			LBP	MBP	НВР		
Application 32°C				S	S	-		
32 C 38°C				S	S	F <sub>1</sub>		
43°C				S S	S	F <sub>1</sub>		
Remarks on applic	ation: Fan.co	olina E. don	ending on an			F <sub>1</sub>		
			enuing on ap		speed.			
Motor								
Motor type					Variable spee	2d		
Resistance, all 3 wi	ndings (25°C	)	1	2	1.8			
Design								
Displacement			cm	3	2.50			
Oil quantity (type)			cm	3 1	50 (polyoles	ter)		
Maximum refrigera	ant charge			9	300			
Free gas volume in	compressor		cm	3	870			
Weight - Compress	sor/Electroni	c unit	k	9	4.3/0.25			
Dimensions								
Height			mn	n A	137			
				В	135			
				B1	128			
				B2	73			
Suction connector		location/l.	D. mm   angl	e C	6.2   41.5°			
Process connector		location/l.	D. mm   angl	e D	6.2   45°			
Discharge connect	or	location/l.	D. mm   angl	e E	5.0   21°			
Connector tolerand	ce		I.D. mn	n ±0.09	9, on 5.0 +0.1	2/+0.20		
Standard battery p	protection s	ettings (no d	connection C	: - P)				
12V cut-out [V]	· · · · · · · · · · · · · · · · · · ·	/ cut-in [V]		ut-out [V]	24V cı	ut-in [V]		
10.4		11.7		22.8		4.2		
Optional battery p	rotections	ettings						
	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.		
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]		
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		



- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature)
- = Fan cooling 3.0 m/s necessary
- = Suction gas cooling normally sufficent

204 170

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 $(\mathcal{F})$ 

100

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B1

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(E)

B A

8269

130

20

= not applicable in this area

Design		
Displacement	cm <sup>3</sup>	2.50
Oil quantity (type)	cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm <sup>3</sup>	870
Weight - Compressor/Electronic unit	kg	4.3/0.25

Height	mm	А	137
		В	135
		B1	128
		B2	73
Suction connector	location/I.D. mm   angle	С	6.2   41.5°
Process connector	location/I.D. mm   angle	D	6.2   45°
Discharge connector	location/I.D. mm   angle	Е	5.0   21°
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20

12.3

12.4

12.5

10.9

17.0

17.0

17.0

11.0

11.1

11.3

9.6

V cut-out	24 V cut-in	24V max.	
[V]	[V]	Voltage [V]	
21.3	22.7	31.5	
21.5	22.9	31.5	
21.8	23.2	31.5	
22.0	23.4	31.5	
22.3	23.7	31.5	<u> </u>
22.5	23.9	31.5	16
22.8	24.2	31.5	
23.0	24.5	31.5	
23.3	24.7	31.5	
23.6	25.0	31.5	192
23.8	25.2	31.5	
24.1	25.5	31.5	
24.3	25.7	31.5	
24.6	26.0	31.5	.28
		31.5	

33

47

82

220

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Capacity (	EN 129	00 Hou	sehold/	CECOM	AF)				12V [	DC static	cooling	wat
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	20.8	30.0	33.6	41.6	55.9	72.6	91.9	114	138*	150*	165*	
2,500	25.9	37.3	41.8	51.4	68.4	88.9	113	142*	175*	191*		
3,000	30.9	44.8	50.2	61.7	82.2	107	136*	169*				
3,500	36.7	52.2	58.3	71.4	94.9	123*	157*					
Capacity (	ASHRA	E LBP)							12V [	DC statio	cooling	wa
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	25.6	37.0	41.5	51.4	69.0	89.8	114	141	171*	186*	205*	
2,500	31.9	46.0	51.5	63.4	84.5	110	140	176*	217*	237*		
3,000	38.1	55.3	61.9	76.2	101	132	168*	210*				
3,500	45.2	64.4	71.9	88.2	117	152*	194*					
Power cor	nsumpt	ion							12V [	DC statio	cooling	wa
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	26.0	32.7	34.9	39.2	45.8	52.6	60.0	68.0	76.9*	81.2*	87.0*	
	32.2	41.4	44.5	50.3	59.0	67.7	76.4	85.4*	94.9*	99.2*		
2,500	5Z.Z											
2,500 3,000	38.9	50.3	54.0	61.0	71.2	81.3	91.5*	102*				
		50.3 59.0	54.0 63.0	61.0 70.7	71.2 82.6	81.3 95.0*	91.5* 108*	102*				
3,000	38.9 47.0	59.0	63.0	70.7	82.6	95.0*	108*		1:	2V DC st	tatic cool	ing
3,000 3,500	38.9 47.0	59.0	63.0	70.7	82.6	95.0*	108*		12	2V DC st 7.2	tatic cool	ing 15
3,000 3,500 Current co	38.9 47.0 onsump	59.0 Dtion (fo	63.0 or 24V ap	70.7 plicatior	82.6 Is the fo	95.0* Ilowing r	108* nust be l	nalfed)				
3,000 3,500 <b>Current co</b> rpm \ °C	38.9 47.0 <b>onsump</b> -30	59.0 <b>tion (fo</b> -25	63.0 or <b>24V ap</b> -23.3	70.7 plicatior -20	82.6 <b>ns the fo</b> -15	95.0* Ilowing r -10	108* nust be h -5	nalfed) 0	5	7.2	10	
3,000 3,500 Current co rpm \ °C 2,000	38.9 47.0 <b>onsump</b> -30 2.16	59.0 <b>otion (fo</b> -25 2.69	63.0 <b>r 24V ap</b> -23.3 2.88	70.7 plicatior -20 3.26	82.6 <b>s the fo</b> -15 3.85	95.0* Ilowing r -10 4.49	108* nust be f -5 5.15	nalfed) 0 5.85	5 6.58*	7.2 6.91*	10	
3,000 3,500 Current cc rpm \ °C 2,000 2,500	38.9 47.0 <b>onsump</b> -30 2.16 2.69	59.0 •tion (fo -25 2.69 3.40	63.0 • <b>24V ap</b> -23.3 2.88 3.65	70.7 plication -20 3.26 4.12	82.6 <b>s the fo</b> -15 3.85 4.86	95.0* Ilowing r -10 4.49 5.61	108* nust be f -5 5.15 6.37	nalfed) 0 5.85 7.15*	5 6.58*	7.2 6.91*	10	
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,000 3,500	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02	59.0 -25 2.69 3.40 4.16 4.89	63.0 •r 24V ap -23.3 2.88 3.65 4.44 5.20	70.7 <b>plication</b> -20 3.26 4.12 5.00 5.83	82.6 <b>5 the fo</b> -15 3.85 4.86 5.87	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75	108* nust be F -5 5.15 6.37 7.65*	nalfed) 0 5.85 7.15*	5 6.58* 7.94*	7.2 6.91* 8.29*	10	
3,000 3,500 <b>Current co</b> rpm \°C 2,000 2,500 3,000 3,500	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02	59.0 -25 2.69 3.40 4.16 4.89	63.0 •r 24V ap -23.3 2.88 3.65 4.44 5.20	70.7 plication -20 3.26 4.12 5.00 5.83	82.6 <b>5 the fo</b> -15 3.85 4.86 5.87	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75	108* nust be F -5 5.15 6.37 7.65*	nalfed) 0 5.85 7.15*	5 6.58* 7.94*	7.2 6.91* 8.29*	10 7.35*	15
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1	38.9 47.0 <b>Disump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b>	59.0 -25 2.69 3.40 4.16 4.89 ouseho	63.0 <b>r 24V ap</b> -23.3 2.88 3.65 4.44 5.20 Id/CECC	70.7 plication -20 3.26 4.12 5.00 5.83 DMAF)	82.6 -15 3.85 4.86 5.87 6.83	95.0* <b>lowing r</b> -10 4.49 5.61 6.75 7.90*	108* nust be l -5 5.15 6.37 7.65* 9.03*	0 5.85 7.15* 8.57*	5 6.58* 7.94* 12V [	7.2 6.91* 8.29*	10 7.35*	15 W/
3,000 3,500 rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30	59.0 -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25	63.0 <b>24V ap</b> -23.3 2.88 3.65 4.44 5.20 <b>Id/CECC</b> -23.3	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20	82.6 -15 3.85 4.86 5.87 6.83 -15	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75 7.90* -10	108* nust be l -5 5.15 6.37 7.65* 9.03* -5	0 5.85 7.15* 8.57*	5 6.58* 7.94* 12V [ 5	7.2 6.91* 8.29* DC static 7.2	10 7.35* cooling 10	15 W/
3,000 3,500 rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80	59.0 tion (fo -25 2.69 3.40 4.16 4.89 ouseho -25 0.92	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06	82.6 <b>is the fo</b> -15 3.85 4.86 5.87 6.83 -15 1.22	95.0* <b>lowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38	108* <b>nust be F</b> -5 5.15 6.37 7.65* 9.03* -5 1.53	nalfed) 0 5.85 7.15* 8.57* 0 1.67	5 6.58* 7.94* 12V [ 5 1.79*	7.2 6.91* 8.29* DC static 7.2 1.84*	10 7.35* cooling 10	15 W/
3,000 3,500 Current cc 7pm \°C 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000 2,500	38.9 47.0 <b>Drsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80	59.0 <b>stion (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02	82.6 <b>is the fo</b> -15 3.85 4.86 5.87 6.83 -15 1.22 1.16	95.0* <b>lowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31	108* nust be H -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48	0 5.85 7.15* 8.57* 0 1.67 1.66*	5 6.58* 7.94* 12V [ 5 1.79*	7.2 6.91* 8.29* OC static 7.2 1.84*	10 7.35* cooling 10	15 W/
3,000 3,500 <b>Current cc</b> 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C 2,000 2,500 3,000 3,500	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80 0.79 0.78	59.0 <b>ption (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90 0.89 0.88	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94 0.93	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02 1.01	82.6 <b>is the fo</b> -15 3.85 4.86 5.87 6.83 -15 1.22 1.16 1.15	95.0* <b>lowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31 1.31	108* nust be f -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48 1.48*	0 5.85 7.15* 8.57* 0 1.67 1.66*	5 6.58* 7.94* 12V [ 5 1.79* 1.84*	7.2 6.91* 8.29* OC static 7.2 1.84* 1.92*	10 7.35* cooling 10	15 W/
3,000 3,500 Current cc 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80 0.79 0.78	59.0 <b>ption (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90 0.89 0.88	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94 0.93	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02 1.01	82.6 <b>is the fo</b> -15 3.85 4.86 5.87 6.83 -15 1.22 1.16 1.15	95.0* <b>lowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31 1.31	108* nust be f -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48 1.48*	0 5.85 7.15* 8.57* 0 1.67 1.66*	5 6.58* 7.94* 12V [ 5 1.79* 1.84*	7.2 6.91* 8.29* OC static 7.2 1.84* 1.92*	10 7.35* cooling 10 1.90*	15 W/ 15
3,000 3,500 <b>Current cc</b> 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C 2,000 2,500 3,000 3,500	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80 0.79 0.78 <b>RAE LB</b>	59.0 <b>ption (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90 0.89 0.88 <b>P</b> )	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94 0.93 0.93	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02 1.01 1.01	82.6 -15 3.85 4.86 5.87 6.83 -15 1.22 1.16 1.15 1.15	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31 1.31 1.30*	108* nust be F -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48 1.48* 1.48* 1.45*	0 5.85 7.15* 8.57* 0 1.67 1.66* 1.66*	5 6.58* 7.94* 12V [ 5 1.79* 1.84* 1.84*	7.2 6.91* 8.29* OC static 7.2 1.84* 1.92*	10 7.35* cooling 10 1.90* cooling	15 W/ 15 W/
3,000 3,500 <b>Current cc</b> 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C 2,000 2,500 3,000 3,500 <b>COP (ASH</b> rpm \°C	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80 0.79 0.78 <b>RAE LB</b> -30	59.0 <b>ption (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90 0.89 0.88 <b>P)</b> -25	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94 0.93 0.93 -23.3	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02 1.01 1.01 -20 -20	82.6 -15 3.85 4.86 5.87 6.83 -15 1.22 1.16 1.15 1.15 -15	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31 1.31 1.30* -10	108* nust be P -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48 1.48* 1.48* 1.45* -5	0 5.85 7.15* 8.57* 0 1.67 1.66* 1.66*	5 6.58* 7.94* 12V [ 5 1.79* 1.84* 12V [ 5	7.2 6.91* 8.29* 0C static 7.2 1.84* 1.92* 0C static 7.2	10 7.35* cooling 10 1.90* cooling cooling 10	15 W/ 15 W/
3,000 3,500 Current cc 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH rpm \°C 2,000	38.9 47.0 <b>onsump</b> -30 2.16 2.69 3.33 4.02 <b>2900 H</b> -30 0.80 0.80 0.79 0.78 <b>RAE LB</b> -30 0.99	59.0 <b>ption (fo</b> -25 2.69 3.40 4.16 4.89 <b>ouseho</b> -25 0.92 0.90 0.89 0.88 <b>P)</b> -25 1.13	63.0 r 24V ap -23.3 2.88 3.65 4.44 5.20 Id/CECC -23.3 0.96 0.94 0.93 0.93 -23.3 1.19	70.7 plicatior -20 3.26 4.12 5.00 5.83 DMAF) -20 1.06 1.02 1.01 1.01 -20 1.31	82.6 -15 3.85 4.86 5.87 6.83 -15 1.22 1.16 1.15 1.15 -15 1.51	95.0* <b>Ilowing r</b> -10 4.49 5.61 6.75 7.90* -10 1.38 1.31 1.31 1.30* -10 1.71	108* nust be P -5 5.15 6.37 7.65* 9.03* -5 1.53 1.48 1.48* 1.48* 1.45* -5 1.90	0 5.85 7.15* 8.57* 0 1.67 1.66* 1.66* 1.66*	5 6.58* 7.94* 12V [ 5 1.79* 1.84* 12V [ 5 2.23*	7.2 6.91* 8.29* 0C static 7.2 1.84* 1.92* 0C static 7.2 2.29*	10 7.35* cooling 10 1.90* cooling cooling 10	15 W/ 15 W/

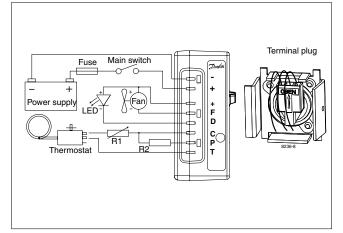
Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily loaded, or if the ambient temperature is high, the electronic unit will run too hot).
4	Minimum motor speed error
	(If the refrigeration system is too heavily lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\text{peak}}$ ).
1	Battery protection cut-out
	(The voltage is outside the cut-out setting).

Wire Dimensions DC							
Size Max. length* Max. length*							
Cross	AWG	12V op	eration	24V op	eration		
section							
[mm <sup>2</sup> ]	[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		
	*Leng	th betwe	en batter	y an electi	onic unit		

#### Wire dimensions AC

Cross section min. 0.75 mm<sup>2</sup> or AWG 18

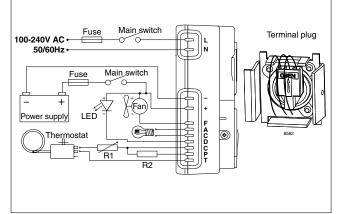
Power consumption is limited to 100W with electronic unit 101N0500. \* fan cooling of electronic unit compulsory



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	2,000	5
101N0210 101N0220	277	2,500	4
101N0220	692	3,000	3
101110500	1523	3,500	2
	0	AEO	6
	173	2,000	5
101N0300 with AEO	450	2,500	4
WITH AEO	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.



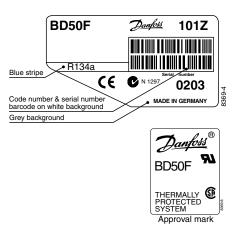
Test conditions	EN 12900/CECOMAF	ASHRAE
Condensing temperature	55°C	54.4°C
Ambient temperature	32°C	32°C
Suction gas temperature	32°C	32°C
Liquid temperature	no subcooling	32°C

Accessories for	BD50F	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
Remote kit (without cable)		105N9210
AC line cord (UL approved/VDE app	105N9520/30	
DC usage: Std. automobile fuse12V	Not deliverable	
Main switch: rated to m	from	
AC usage: Fuse 100-240V: 4A / Mair	Danfoss	

<u>Danfoss</u>

## **BD50F Direct Current Compressor** (Inch Connectors), R134a, 12-24V DC & 100-240V AC 50/60Hz

Compressors								
Code number (with	nout electror		101Z0203					
Electronic unit 12-	24V DC - star	single: 101	single: 101N0210, 30 pcs: 101N0211					
Electronic unit 12-	24V DC - wit	single: 101N0220, 30 pcs: 101N0221						
Electronic unit 12-		single: 101N0300, 30 pcs: 101N0301						
Electronic unit 12-	24V DC & 10	0-240V AC 50	0/60Hz			s: 101N0501		
Approved compres	sor - electro	nic unit com	binations		chnical Info D			
Additional approva					e4, CE, C-Tic	k		
Compressors on pa					150			
Application				1				
Application					LBP/MBP/HE	3P		
Evaporating tempe	erature			=	-20 to 50			
Voltage range (DC				-	2 & 100-240V	AC 50/60Hz		
Max. condensing te		ontinuous (	short) °		140 (158)	1.0 00,001.2		
Max. winding temp					257 (275)			
Cooling requireme Application	ints			LBP	MBP	НВР		
32°C				S	S	F <sub>1</sub>		
32 C 38°C				S	S			
43°C				S	S	F <sub>1</sub>		
Remarks on applica	ation: Fan ca	oling E. don	anding on an	-		F <sub>1</sub>		
		oning r <sub>1</sub> uep	enuing on ap	plication and	i speed.			
Motor								
Motor type					Variable spee	ed		
Resistance, all 3 win	ndings (25°C	)	(	2	1.8			
Design								
Displacement			cu.in		0.15			
Oil quantity (type)			fl.oz		5.1 (polyolester)			
Maximum refrigera	int charge		OZ		10.5			
Free gas volume in	compressor		fl.oz	<u>.</u>	29.6			
Weight - Compress	or/Electronic	: unit	lbs	i.	9.5/0.55			
Dimensions								
Height			incl	n A	5.39			
5				B 5.32				
				B1				
				B2				
Suction connector		location	/I.D. in.   angle	e C 0	.252-0259   4	1.5°		
Process connector			/I.D. in.   angle		0.252-0259			
Discharge connect	or		/I.D. in   angle		).202-0.205			
Standard battery p	protection				I			
12V cut-out [V]		/ cut-in [V]		ut-out [V]	24V ci	ut-in [V]		
10.4	121	11.7		22.8		4.2		
	rotortic		I					
Optional battery p Resistor (R2)	12V cut-out	12V cut-in	121/max	24V cut-out	24 V cut-in	24\/ may		
			12V max.			24V max. Voltage [V]		
[kΩ] 0	[V] 9.6	[V] 10.9	Voltage [V] 17.0	[V] 21.3	[V] 22.7	31.5		
1.6	9.6	11.0	17.0	21.3	22.7	31.5		
2.4	9.9	11.0	17.0	21.5	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 24	10.8 10.9	12.0 12.2	17.0 17.0	23.6 23.8	25.0 25.2	31.5 31.5		
24	11.0	12.2	17.0	23.8	25.2	31.5		



0.63"(16)

46) .81 32"(59) 5.12"(130)

= Static cooling normally sufficient

= Oil cooling

= Fan cooling 1.5 m/s

- (compressor compartment temperature equal to ambient temperature)
- = Fan cooling 3.0 m/s necessary  $F_2$
- = Suction gas cooling normally sufficent SG
  - = not applicable in this area

4.84"(123)

1.10" (28)

4.13"(105)

## Di

inch	А	5.39
	В	5.32
	B1	5.04
	B2	2.87
location/I.D. in.   angle	С	0.252-0259   41.5°
location/I.D. in.   angle	D	0.252-0259   45°
location/I.D. in   angle	E	0.202-0.205   21°
	location/I.D. in.   angle location/I.D. in.   angle	B B1

#### St

#### O

11.0

11.1

11.3

9.6

12.3

12.4

12.5

10.9

17.0

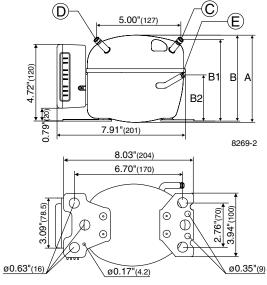
17.0

17.0

24.1

24.3

24.6



25.5

25.7

26.0

31.5

31.5

31.5

31.5

33

47

82

220

Danfoss

Capacity	(ASHRA	E LBP)							12V D	C static o	cooling	Btu/h
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	95	126	142	201	273	308	359	458	571	583	632*	697*
2,500	119	157	176	247	335	375	442	570	723*	740	809*	
3,000	142	189	211	297	402	450	529	682*	863*			
3,500	167	220	245	343	464	518*	612*	790*				
Capacity (EN 12900 Household/CECOMAF) 12V DC static cooling								cooling	wat			
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	22.6	30.0	33.6	47.7	64.9	72.6	85.2	109	135	138*	150*	165*
2,500	28.2	37.3	41.7	58.5	79.3	88.9	105	135	171*	175*	191*	
3,000	33.7	44.8	50.1	70.4	95.2	107	125	161*	204*			
3,500	39.8	52.2	58.2	81.3	110	123*	145*	187*				
Power con	nsumpt	ion							12V D0	C static o	cooling	wat
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	27.4	32.5	34.6	41.7	49.0	52.6	56.8	65.4	75.1	76.9*	80.4*	86.2*
2,500	34.3	41.4	44.3	54.0	63.4	67.7	73.0	82.8	93.1*	94.9*	98.6*	
3,000	41.4	50.1	53.7	65.2	76.2	81.3	87.4	98.9*	111*			
3,500	49.6	58.8	62.6	75.5	88.7	95.0*	103*	119*				
Current co	onsum	otion (fo	r 24V ap	plication	ns the fo	lowina r	nust be h	nalfed)	12V DC	Static c	oolina	F
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	2.28	2.69	2.87	3.50	4.18	4.49	4.90	5.65	6.45	6.58*	6.87*	7.29*
2,500	2.86	3.41	3.65	4.45	5.26	5.61	6.10	6.94	7.81*	7.94*	8.25*	
3,000	3.52	4.16	4.43	5.37	6.33	6.75	7.31	8.32	9.34*			
3,500	4.20	4.88	5.18	6.24	7.39	7.90*	8.61*	9.91*				
COP (ASH	RAE LB	P)							12V D(	C static o	cooling	Btu/Wi
rpm∖°F	-20	-13	-10	0	10	14	20	30	40	41	45	50
2,000	3.49	3.89	4.09	4.81	5.57	5.83	6.32	7.00	7.60	7.63*	7.86*	8.09*
2,500	3.47	3.81	3.97	4.58	5.28	5.52	6.05	6.89	7.76*	7.77*	8.21*	
3,000	3.43	3.77	3.93	4.55	5.27	5.52	6.05	6.89	7.76*			
3,500	3.37	3.74	3.91	4.54	5.23	5.46*	5.94*	6.66*				
COP (EN 1	2900 H	ouseho	ld/CEC	OMAF)					12V D	C static o	coolina	w/w
rpm \ °F	-20	-13	-10	0	10	14	20	30	40	41	45	50
	0.82	0.92	0.96	1.13	1.31	1.38	1.48	1.64	1.78	1.79*	1.84*	1.90*
2,000			0.94	1.08	1.24	1.31	1.42	1.62	1.82	1.89*	1.93*	
2,000 2,500	0.82	0.90	0.94									
2,000 2,500 3,000	0.82 0.81	0.90	0.94	1.00	1.24	1.31	1.42	1.62	1.82*			

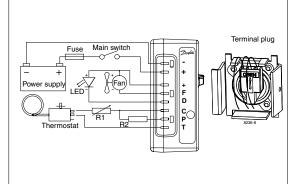
of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily loaded, or if the ambient temperature is high, the electronic unit will run too hot).
4	Minimum motor speed error
	(If the refrigeration system is too heavily lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\text{peak}}$ ).
1	Dettermine the strength and
1	Battery protection cut-out (The voltage is outside the cut-out setting).

#### Wire Dimensions DC Max. length\* 12V operation Max. length\* 24V operation Size AWG | Cross sectior [Gauge] [mm<sup>2</sup>] [ft.] [m] [ft.] [m] 16 5 12 2.5 8 2.5 8 12 4 13 4 26 10 6 20 6 39 12 8 10 33 10 66 20 \*Length between battery an electronic unit

Wire dimensions AC

Cross section min. AWG 18 or 0.75 mm<sup>2</sup>

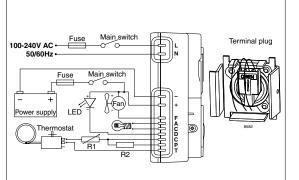
Power consumption is limited to 100W with electronic unit 101N0500. \* fan cooling of electronic unit compulsory



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0		5
101N0210 101N0220	277	2,500	4
101N0220 101N0500	692	3,000	3
101110500	1523	3,500	2
	0	AEO	6
	173	2,000	5
101N0300 with AEO	450	2,500	4
WITH AEO	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.



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

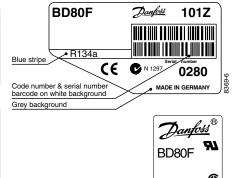
Accessories for	BD50F	Code number
Bolt joint for one compressor	Ø: 5/8 in.	118-1917
Bolt joint in quantities	Ø: 5/8 in.	118-1918
Snap-on in quantities	118-1919	
Remote kit (without cable)	105N9210	
AC line cord (UL approved/VDE ap	105N9520/30	
DC usage: Std. automobile fuse12	Not deliverable	
Main switch: rated to n	from	
AC usage: Fuse 100-240V: 4A / Mai	Danfoss	

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## BD80F **Direct Current Compressor** R134a, 12-24V

#### General

Code number (without electronic units)		101Z0280	
Electronic unit (with integrated fan cooling)	single: 101N0280, 28 pcs: 101N0281		
Approved compressor - electronic unit combination	refer to Technical Info DEHC.EI.100.C		
Additional approvals	e4, CE, C-Tick		
Compressors on pallet	150		
Application			
Application		LBP	
Evaporating temperature	°C	-30 to -5	
Voltage range/max. voltage	VDC	12-24/31.5	
Max. condensing temperature continuous (short)	°C	60 (70)	



#### **Cooling requirements**

Max. winding temperature continuous (short)

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

°C

125 (135)

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

## THERMA PROTEC SYSTEM Approval mark

- = Static cooling normally sufficient
- = Oil cooling  $F_1$ = Fan cooling 1.5 m/s

S 0

- (compressor compartment temperature
- equal to ambient temperature)  $F_2$ 
  - = Fan cooling 3.0 m/s necessary
- = Suction gas cooling normally sufficent SG
  - = not applicable in this area

#### Design

Displacement	cm <sup>3</sup>	3.00
Oil quantity (type)	cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm <sup>3</sup>	870
Weight - Compressor/Electronic unit	kg	4.4/0.3

#### Dimensions

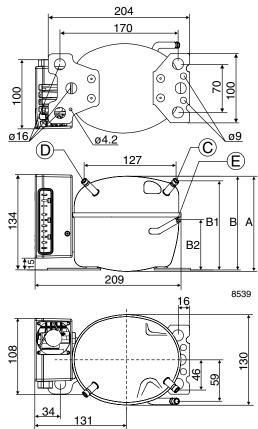
11-1-1-4		٨	127
Height	mm	A	137
		В	135
		B1	128
		B2	73
Suction connector	location/I.D. mm   angle	С	6.2   41.5°
Process connector	location/I.D. mm   angle	D	6.2   45°
Discharge connector	location/I.D. mm   angle	E	5.0   21°
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20

#### 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 protections settings**

Optional battery	protections :	ettings				
Resistor (R2)	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]
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

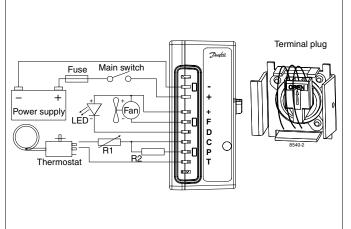


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eratio			cooling						-		sehold/			
mber lashes		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm∖°C
asnes	orna						140	112	87.1	66.6	55.0	49.5	35.3	2,500
5	5						168	133	104	79.6	65.6	59.0	41.8	3,100
							200	159	125	95.3	78.5	70.5	49.6	3,800
							221	176	138	105	86.7	78.0	54.8	4,400
		watt	cooling	OC static	12V [							E LBP)	ASHRA	Capacity (
4	4	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm∖°C
							174	138	108	82.2	67.8	61.1	43.5	2,500
							207	165	129	98.2	80.9	72.8	51.5	3,100
							248	197	154	118	96.8	87.0	61.1	3,800
3	3						274	218	170	130	107	96.1	67.6	4,400
		watt	cooling	)C static	12V Г							ion	sumnt	Power cor
		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
					-	-	96	83.1	71.3	60.3	53.4	50.0	40.0	2,500
2	2						118	101	87.0	73.8	65.4	61.2	48.7	3,100
							145	124	106	90.3	80.2	75.0	59.5	3,800
							168	144	123	105	93.0	87.0	69.0	4,400
		ling A	atic cool	DV DC st	1	alfed)	nust he k	lowing n	s the fol	nlication	r 24V an	tion (fo	nsumr	Current co
1		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm∖°C
					-	-	8.0	6.9	5.9	5.0	4.5	4.2	3.3	2,500
							9.8	8.5	7.2	6.1	5.5	5.1	4.1	3,100
							12.1	10.3	8.9	7.5	6.7	6.3	5.0	3,800
							14.0	12.0	10.3	8.7	7.7	7.2	5.8	4,400
e Din	Wire	w/w	cooling	)C static	12V F					MAF)		ouseho	2900 H	COP (EN 1
Size		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \°C
ross	Cro						1.46	1.34	1.22	1.10	1.03	0.99	0.88	2,500
ction	sect						1.42	1.31	1.20	1.08	1.00	0.96	0.86	3,100
nm²]	[mr						1.39	1.28	1.17	1.06	0.98	0.94	0.83	3,800
							1.32	1.22	1.12	1.01	0.93	0.90	0.79	4,400
6	6	w/w	cooling	)C static	1 2 V F							D)		COP (ASH
0		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \°C
		15	10	1.2	5	U	1.81	1.66	1.51	1.36	1.27	1.22	1.09	2,500
							1.76	1.62	1.48	1.33	1.24	1.19	1.05	3,100
I							1.71	1.59	1.45	1.30	1.21	1.16	1.03	3,800

Operati	onal errors shown by LED (optional)
Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 2,450 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\mbox{\tiny peak}}$ ).
1	Battery protection cut-out
	(The voltage is outside the cut-out setting).

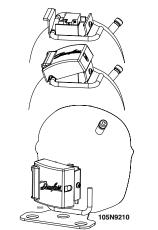
Wire Di	mensior	ns				
Size			ength*	Max. length*		
Cross	AWG	12V op	eration	24V op	eration	
section						
[mm <sup>2</sup> ]	[Gauge]	[m]	[ft.]	[m]	[ft.]	
6	10	2.5	8	5	16	
-			-	-		
*Length between battery an electronic unit						



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	AEO	6
	203	2,500	5
101N0280 with AEO	451	3,100	4
with AEO	867	3,800	3
	1700	4,400	2

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



Test conditions	EN 12900/CECOMAF	ASHRAE
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 compressor	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
Standard automoblie fuse	12V: 30A	N I II I I
DIN 7258	24V: 15A	Not deliverable from Danfoss
Main switch	rated to min. 30A	

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## BD250GH **Direct Current Compressor** R134a, 12-24V

Code number (without electronic units)	101Z0400
Electronic unit (with integrated fan cooling)	single: 101N0280, 28 pcs: 101N0281
Approved compressor - electronic unit combinations	refer to Technical Info DEHC.EI.100.C
Additional approvals	e4, CE, C-Tick
Compressors on pallet	150

Application		
Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range/max. voltage	VDC	12-24/31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

LBP

S

S

S

MBP

S

S

S

HBP

S

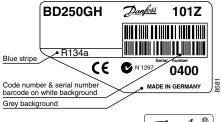
S

S

S

0

 $F_1$ 





- = Static cooling normally sufficient
- = Oil cooling
- = 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

#### Matau

32°C

38°C

43°C

**Cooling requirements** 

Remarks on application:

Application

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

#### Design

Displacement	cm <sup>3</sup>	2.50
Oil quantity (type)	cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm <sup>3</sup>	870
Weight - Compressor/Electronic unit	kg	4.4/0.3

#### Dimensions

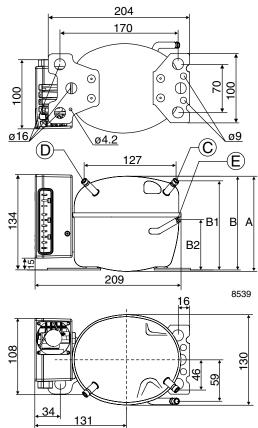
Height	mm	А	137
		В	135
		B1	128
		B2	73
Suction connector	location/I.D. mm   angle	С	6.2   41.5°
Process connector	location/I.D. mm   angle	D	6.2   45°
Discharge connector	location/I.D. mm   angle	Е	5.0   21°
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20

#### 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 protections settings**

optional battery	phonai battery protections settings						
Resistor (R2)	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.	
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]	
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	



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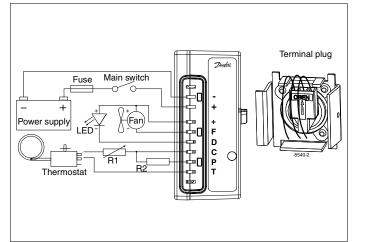
Capacity	(EN 129	<u>00 Ho</u> u	sehold/	CECOM	AF)				12V D	OC static	cooling	watt
rpm \ ℃	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	38.0	42.6	52.3	69.7	90.6	107	115	145	179	196	219	264
3,100	46.2	51.6	63.2	83.8	109	128	138	173	214	234	262	316
3,800	56.0	62.5	76.5	101	131	154	167	208	257	281	314	379
4,400	62.9	70.7	87.0	116	149	175	189	236	290	316	353	425
Capacity	(ASHRA	E LBP)							12V [	DC static	cooling	watt
rpm \°C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	47.0	52.6	64.7	86.2	112	132	143	180	222	243	272	329
3,100	57.1	63.8	78.1	104	134	158	171	215	266	291	325	394
3,800	69.2	77.3	94.6	125	162	191	206	258	319	349	390	471
4,400	78.0	87.6	108	143	185	216	234	292	360	393	438	528
Power co	nsumpt	ion							12V [	DC static	cooling	watt
rpm∖°C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	40.7	43.4	48.9	57.6	66.7	72.9	76.1	85.5	94.7	98.7	104	112
3,100	50.7	54.0	60.4	70.7	81.7	89.3	93.3	105	118	124	132	145
3,800	63.0	67.1	75.1	87.9	102	111	116	132	150	158	169	190
4,400	72.7	77.7	87.6	103	120	131	138	157	179	189	203	230
Current c	onsump	otion (fo	r 24V ap	plicatior	ns the fo	llowing r	nust be l	nalfed)	1.	2V DC st	atic coo	ling A
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
	1											
2,500	3.40	3.62	4.08	4.80	5.56	6.07	6.34	7.12	7.89	8.22	8.64	9.35
2,500 3,100	3.40 4.23	3.62 4.50	4.08 5.03	4.80 5.89	5.56 6.81	6.07 7.44	6.34 7.77	7.12 8.79	7.89 9.85	8.22 10.34		
, , , , , , , , , , , , , , , , , , ,											8.64	9.35
3,100	4.23	4.50	5.03	5.89	6.81	7.44	7.77	8.79	9.85	10.34	8.64 10.97	9.35 12.12
3,100 3,800 4,400	4.23 5.25 6.05	4.50 5.59 6.47	5.03 6.26 7.30	5.89 7.33 8.59	6.81 8.47	7.44 9.27	7.77 9.70	8.79 11.04	9.85 12.49 14.91	10.34 13.18	8.64 10.97 14.09 16.92	9.35 12.12 15.83 19.18
3,100 3,800 4,400 COP (EN 1	4.23 5.25 6.05	4.50 5.59 6.47	5.03 6.26 7.30	5.89 7.33 8.59	6.81 8.47	7.44 9.27	7.77 9.70	8.79 11.04	9.85 12.49 14.91	10.34 13.18 15.77	8.64 10.97 14.09 16.92	9.35 12.12 15.83 19.18
3,100 3,800 4,400	4.23 5.25 6.05 <b>2900 H</b>	4.50 5.59 6.47 <b>ouseho</b>	5.03 6.26 7.30	5.89 7.33 8.59 <b>DMAF)</b>	6.81 8.47 9.97	7.44 9.27 10.94	7.77 9.70 11.46	8.79 11.04 13.10	9.85 12.49 14.91 12V [	10.34 13.18 15.77 DC static	8.64 10.97 14.09 16.92	9.35 12.12 15.83 19.18 <b>W/W</b>
3,100 3,800 4,400 <b>COP (EN</b> 1 rpm \ °C	4.23 5.25 6.05 <b>2900 H</b> -25	4.50 5.59 6.47 <b>ouseho</b> -23.3	5.03 6.26 7.30 Id/CEC -20	5.89 7.33 8.59 <b>DMAF)</b> -15	6.81 8.47 9.97 -10	7.44 9.27 10.94 -6.7	7.77 9.70 11.46 -5	8.79 11.04 13.10 0	9.85 12.49 14.91 12V [ 5	10.34 13.18 15.77 DC static 7.2	8.64 10.97 14.09 16.92 cooling 10	9.35 12.12 15.83 19.18 <b>W/W</b> 15
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \ °C 2,500	4.23 5.25 6.05 <b>2900 H</b> -25 0.93	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98	5.03 6.26 7.30 Id/CEC0 -20 1.07	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21	6.81 8.47 9.97 -10 1.36	7.44 9.27 10.94 -6.7 1.46	7.77 9.70 11.46 -5 1.52	8.79 11.04 13.10 0 1.69	9.85 12.49 14.91 12V [ 5 1.89	10.34 13.18 15.77 DC static 7.2 1.98	8.64 10.97 14.09 16.92 cooling 10 2.11	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \ °C 2,500 3,100	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96	5.03 6.26 7.30 Id/CEC -20 1.07 1.05	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21 1.18	6.81 8.47 9.97 -10 1.36 1.33	7.44 9.27 10.94 -6.7 1.46 1.43	7.77 9.70 11.46 -5 1.52 1.48	8.79 11.04 13.10 0 1.69 1.64	9.85 12.49 14.91 12V [ 5 1.89 1.81	10.34 13.18 15.77 DC static 7.2 1.98 1.89	8.64 10.97 14.09 16.92 cooling 10 2.11 1.99	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \ °C 2,500 3,100 3,800 4,400	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91 0.89 0.87	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91	5.03 6.26 7.30 Id/CEC -20 1.07 1.05 1.02	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21 1.18 1.15	6.81 8.47 9.97 -10 1.36 1.33 1.29	7.44 9.27 10.94 -6.7 1.46 1.43 1.38	7.77 9.70 11.46 -5 1.52 1.48 1.43	8.79 11.04 13.10 0 1.69 1.64 1.57	9.85 12.49 14.91 12V [ 5 1.89 1.81 1.72 1.62	10.34 13.18 15.77 DC static 7.2 1.98 1.89 1.78	8.64 10.97 14.09 16.92 cooline 2.11 1.99 1.86 1.74	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17 1.99 1.85
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \°C 2,500 3,100 3,800 4,400 <b>COP (ASH</b>	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91 0.89 0.87	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91	5.03 6.26 7.30 Id/CEC -20 1.07 1.05 1.02	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21 1.18 1.15	6.81 8.47 9.97 -10 1.36 1.33 1.29	7.44 9.27 10.94 -6.7 1.46 1.43 1.38	7.77 9.70 11.46 -5 1.52 1.48 1.43	8.79 11.04 13.10 0 1.69 1.64 1.57	9.85 12.49 14.91 12V [ 5 1.89 1.81 1.72 1.62	10.34 13.18 15.77 OC static 7.2 1.98 1.89 1.78 1.67	8.64 10.97 14.09 16.92 cooline 2.11 1.99 1.86 1.74	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17 1.99 1.85
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \ °C 2,500 3,100 3,800 4,400	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b>	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 P)	5.03 6.26 7.30 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21 1.18 1.15 1.12	6.81 8.47 9.97 1.36 1.33 1.29 1.25	7.44 9.27 10.94 -6.7 1.46 1.43 1.38 1.33	7.77 9.70 11.46 -5 1.52 1.48 1.43 1.37	8.79 11.04 13.10 0 1.69 1.64 1.57 1.50	9.85 12.49 14.91 5 1.89 1.81 1.72 1.62 12V [	10.34 13.18 15.77 DC static 7.2 1.98 1.89 1.78 1.67 DC static	8.64 10.97 14.09 16.92 cooling 2.11 1.99 1.86 1.74 cooling	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b>
3,100 3,800 4,400 <b>COP (EN 1</b> rpm \°C 2,500 3,100 3,800 4,400 <b>COP (ASH</b> rpm \°C	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b> -25	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 <b>P)</b> -23.3	5.03 6.26 7.30 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99	5.89 7.33 8.59 <b>DMAF)</b> -15 1.21 1.18 1.15 1.12 -15	6.81 8.47 9.97 -10 1.36 1.33 1.29 1.25 -10	7.44 9.27 10.94 -6.7 1.46 1.43 1.38 1.33 -6.7	7.77 9.70 11.46 -5 1.52 1.48 1.43 1.37 -5	8.79 11.04 13.10 0 1.69 1.64 1.57 1.50	9.85 12.49 14.91 12V [ 5 1.89 1.81 1.72 1.62 12V [ 5	10.34 13.18 15.77 OC static 7.2 1.98 1.89 1.78 1.67 OC static 7.2	8.64 10.97 14.09 16.92 cooling 2.11 1.99 1.86 1.74 cooling 10	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b> 15
3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 COP (ASH rpm \°C 2,500	4.23 5.25 6.05 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b> -25 1.16	4.50 5.59 6.47 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 <b>P)</b> -23.3 1.21	5.03 6.26 7.30 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99 -20 1.33	5.89 7.33 8.59 <b>DMAF</b> ) -15 1.21 1.18 1.15 1.12 -15 1.50	6.81 8.47 9.97 -10 1.36 1.33 1.29 1.25 -10 1.68	7.44 9.27 10.94 -6.7 1.46 1.43 1.38 1.33 -6.7 1.82	7.77 9.70 11.46 -5 1.52 1.48 1.43 1.37 -5 1.89	8.79 11.04 13.10 0 1.69 1.64 1.57 1.50 0 2.11	9.85 12.49 14.91 12V [ 5 1.89 1.81 1.72 1.62 12V [ 5 2.36	10.34 13.18 15.77 OC static 7.2 1.98 1.89 1.78 1.67 OC static 7.2 2.48	8.64 10.97 14.09 16.92 cooling 2.11 1.99 1.86 1.74 cooling 10 2.64	9.35 12.12 15.83 19.18 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b> 15 2.96

perati	perational errors shown by LED (optional)				
Number of flashes	Error type				
5	Thermal cut-out of electronic unit				
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 2,450 rpm).				
3	Motor start error				
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).				
2	Fan over-current cut-out				
	(The fan loads the electronic unit with more than $1A_{\mbox{\tiny peak}}$ ).				
1	Battery protection cut-out				
	(The voltage is outside the cut-out setting).				

## **Wire Dimensions**

section		Max. length* 12V operation		240.00	eration
[mm²] [	[Gauge]	[m]	[ft.]	[m]	[ft.]
8	8	2.5	8	5	16

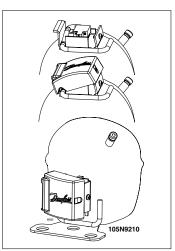
h between battery an electronic



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	AEO	6
444149999	203	2,500	5
101N0280 with AEO	451	3,100	4
WITHALO	867	3,800	3
	1700	4,400	2

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



Test conditions	EN 12900/CECOMAF	ASHRAE
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	BD250GH	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
Remote kit (without cable)		105N9210
Standard automoblie fuse	12V: 30A	N I II I I
DIN 7258	24V: 15A	Not deliverable from Danfoss
Main switch	rated to min. 30A	nom Damoss

<u>Danfoss</u>

## BD250/250GH Direct Current Twin Compressor R134a, 12-24V

Code number (without electronic units)	101Z0500
Electronic unit (with integrated fan cooling, 2 pcs. required)	single: 101N0280, 28 pcs: 101N0281
Remote kit (2 pcs. required)	105N9210 (without cable)
Approved compressor - electronic unit combinations	refer to Technical Info DEHC.EI.100.C
Additional approvals	e4, CE, C-Tick
Compressors on pallet	40

Appli	cation
-------	--------

Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range/max. voltage	VDC	12-24/31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

#### **Cooling requirements**

coomyrequirements				
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 <sup>3</sup>	2 x 2.50
Oil quantity (type)	cm <sup>3</sup>	400 (polyolester)
Maximum refrigerant charge	g	600
Free gas volume in compressor	cm <sup>3</sup>	2 x 870
Weight - Compressor/Electronic unit	kg	8.8/2 x 0.3

#### Dimensions

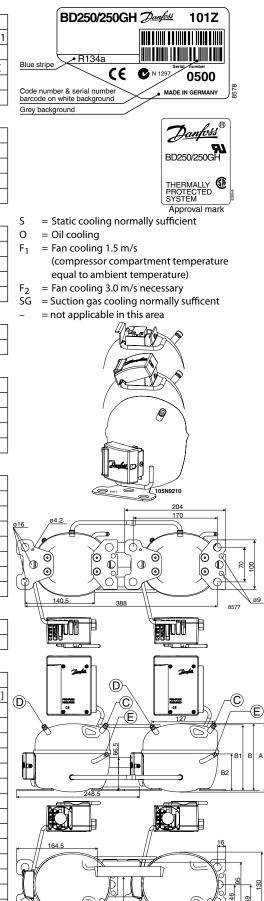
Dimensions			
Height	mm	А	137
		В	135
		B1	128
		B2	73
Suction connector	location/I.D. mm   angle	С	6.2   41.5°
Process connector	location/I.D. mm   angle	D	6.2   45°
Discharge connector	location/I.D. mm   angle	Е	5.0   21°
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20

#### 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 protections settings**

Optional battery	protections	settings				
Resistor (R2)	12V cut-out	12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.
[kΩ]	[V]	[V]	Voltage [V]	[V]	[V]	Voltage [V]
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

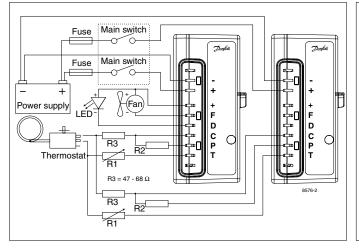


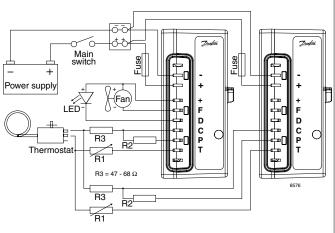
Danfoss

Capacity	(EN 129	00 Hou	sehold/	CECOM	AF)				12V D	C static	cooling	watt
rpm \°C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	76.0	85.1	105	139	181	213	231	290	358	392	438	529
3,100	92.5	103	126	168	217	255	277	347	429	469	524	633
3,800	112	125	153	203	262	308	333	417	514	562	627	757
4,400	126	141	174	231	299	349	378	471	580	633	705	849
Capacity	(ASHRA	E LBP)							12V [	DC statio	coolinc	watt
rpm \°C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	94.0	105	129	172	224	264	286	359	444	486	544	658
3,100	114	128	156	207	269	316	343	430	532	582	651	787
3,800	138	155	189	251	325	381	413	517	638	698	779	942
4,400	156	175	216	286	370	433	468	584	719	785	876	1057
Power co	nsumpt	ion							12V [	) C statio	coolinc	watt
rpm \°C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15
2,500	81.5	86.9	97.8	115	134	146	152	171	189	197	207	224
		108	121	141	163	179	187	211	237	248	263	291
3,100	102	1 100										
3,100 3,800	102 126				203	222	233	265	300	316	338	380
3,100 3,800 4,400	102 126 145	108 134 155	150	176 206	203 239	222 263	233 275	265 314	300 358	316 379	338 406	380 460
3,800 4,400	126 145	134 155	150 175	176 206	239	263	275	314	358	379	406	460
3,800 4,400 Current co	126 145	134 155	150 175	176 206	239	263	275	314	358	379		460
3,800 4,400 Current co rpm \ °C	126 145 onsump -25	134 155 otion (fo -23.3	150 175 <b>r 24V ap</b> -20	176 206 <b>plicatio</b> r -15	239 <b>ns the fo</b> l -10	263 Ilowing r -6.7	275 nust be l -5	314 nalfed) 0	358 12 5	379 2V DC st 7.2	406 atic coo 10	460 ling <b>A</b> 15
3,800 4,400 Current co	126 145 onsump	134 155 otion (fo	150 175 <b>r 24V ap</b>	176 206 plicatior	239 ns the fol	263 Ilowing r	275 nust be l	314 nalfed)	358 12	379 2V DC st	406 atic coo	460 ling <b>A</b>
3,800 4,400 Current co rpm \ °C 2,500	126 145 onsump -25 6.79	134 155 <b>tion (fo</b> -23.3 7.24	150 175 <b>r 24V ap</b> -20 8.15	176 206 <b>plicatior</b> -15 9.61	239 <b>ns the fol</b> -10 11.12	263 Ilowing r -6.7 12.15	275 nust be l -5 12.68	314 nalfed) 0 14.24	358 12 5 15.79	379 2V DC st 7.2 16.45	406 atic coo 10 17.28	460 ling <b>A</b> 15 18.69
3,800 4,400 <b>Current co</b> rpm \°C 2,500 3,100	126 145 onsump -25 6.79 8.46	134 155 •tion (fo -23.3 7.24 8.99	150 175 <b>r 24V ap</b> -20 8.15 10.07	176 206 <b>plicatior</b> -15 9.61 11.79	239 <b>15 the fol</b> -10 11.12 13.61	263 Ilowing r -6.7 12.15 14.88	275 nust be l -5 12.68 15.54	314 nalfed) 0 14.24 17.58	358 12 5 15.79 19.71	379 2V DC st 7.2 16.45 20.68	406 atic coo 10 17.28 21.93	460 ling <b>A</b> 15 18.69 24.25
3,800 4,400 <b>Current co</b> rpm \°C 2,500 3,100 3,800 4,400	126 145 <b>onsump</b> -25 6.79 8.46 10.51 12.11	134 155 •tion (fo -23.3 7.24 8.99 11.18 12.95	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19	239 -10 11.12 13.61 16.94	263 Iowing r -6.7 12.15 14.88 18.54	275 nust be l -5 12.68 15.54 19.40	314 0 14.24 17.58 22.07	358 12 5 15.79 19.71 24.99 29.82	379 2V DC st 7.2 16.45 20.68 26.35 31.54	406 atic coo 10 17.28 21.93 28.17 33.85	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35
3,800 4,400 Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1	126 145 onsump -25 6.79 8.46 10.51 12.11 <b>2900 H</b>	134 155 •tion (fo -23.3 7.24 8.99 11.18 12.95 ouseho	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF</b> )	239 -10 11.12 13.61 16.94 19.94	263 Iowing r -6.7 12.15 14.88 18.54	275 nust be l -5 12.68 15.54 19.40	314 0 14.24 17.58 22.07	358 12 5 15.79 19.71 24.99 29.82	379 2V DC st 7.2 16.45 20.68 26.35 31.54 DC static	406 atic coo 10 17.28 21.93 28.17 33.85 cooling	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b>
3,800 4,400 Current cc 7pm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C	126 145 onsump -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25	134 155 •tion (fo -23.3 7.24 8.99 11.18 12.95 ouseho -23.3	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20	176 206 plicatior -15 9.61 11.79 14.65 17.19 <b>DMAF)</b> -15	239 -10 11.12 13.61 16.94 19.94 -10	263 Ilowing r -6.7 12.15 14.88 18.54 21.88 -6.7	275 nust be l -5 12.68 15.54 19.40 22.93 -5	314 0 14.24 17.58 22.07 26.20 0	358 12 5 15.79 19.71 24.99 29.82 12V [ 5	379 2V DC st 7.2 16.45 20.68 26.35 31.54 DC static 7.2	406 atic coo 10 17.28 21.93 28.17 33.85 coolinc 10	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 9 <b>W/W</b> 15
3,800 4,400 Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1	126 145 onsump -25 6.79 8.46 10.51 12.11 <b>2900 H</b>	134 155 •tion (fo -23.3 7.24 8.99 11.18 12.95 ouseho	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF</b> )	239 -10 11.12 13.61 16.94 19.94	263 Iowing r -6.7 12.15 14.88 18.54 21.88	275 nust be l -5 12.68 15.54 19.40 22.93	314 0 14.24 17.58 22.07 26.20	358 12 5 15.79 19.71 24.99 29.82 12V [	379 2V DC st 7.2 16.45 20.68 26.35 31.54 DC static	406 atic coo 10 17.28 21.93 28.17 33.85 cooling	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b>
3,800 4,400 Current cc 7pm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100	126 145 onsump -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91	134 155 <b>xtion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>id/CECC</b> -20 1.07	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF)</b> -15 1.21 1.18	239 <b>ns the fol</b> -10 11.12 13.61 16.94 19.94 -10 1.36 1.33	263 <b>lowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48	314 nalfed) 0 14.24 17.58 22.07 26.20 0 1.69	358 12 5 15.79 19.71 24.99 29.82 12V [ 5 1.89	379 2V DC st 16.45 20.68 26.35 31.54 DC statio 7.2 1.98	406 atic coo 10 17.28 21.93 28.17 33.85 cooling 10 2.11	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36
3,800 4,400 Current cc 7pm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500	126 145 onsump -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93	134 155 <b>stion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05	176 206 plication -15 9.61 11.79 14.65 17.19 <b>DMAF)</b> -15 1.21	239 <b>-</b> 10 11.12 13.61 16.94 19.94 -10 1.36	263 <b>lowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43	275 <b>nust be l</b> -5 12.68 15.54 19.40 22.93 -5 1.52	314 nalfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64	358 1: 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81	379 2V DC st 7.2 16.45 20.68 26.35 31.54 DC statio 7.2 1.98 1.89	406 atic coo 10 17.28 21.93 28.17 33.85 coolinc 10 2.11 1.99	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17
3,800 4,400 <b>Current co</b> 7pm \°C 2,500 3,100 3,800 4,400 <b>COP (EN 1</b> 7pm \°C 2,500 3,100 3,800 4,400	126 145 -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91 0.89 0.87	134 155 <b>etion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05 1.02	176 206 elicatior -15 9.61 11.79 14.65 17.19 <b>DMAF</b> ) -15 1.21 1.18 1.15	239 <b>ns the fol</b> -10 11.12 13.61 16.94 19.94 -10 1.36 1.33 1.29	263 <b>lowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43 1.38	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48 1.43	314 nalfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64 1.57	358 1: 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81 1.72 1.62	379 2V DC st 7.2 16.45 20.68 26.35 31.54 0C static 7.2 1.98 1.89 1.78 1.67	406 10 17.28 21.93 28.17 33.85 cooling 10 2.11 1.99 1.86 1.74	460 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17 1.99 1.85
3,800 4,400 Current cc 7pm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 COP (ASH	126 145 -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91 0.89 0.87	134 155 <b>etion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05 1.02	176 206 elicatior -15 9.61 11.79 14.65 17.19 <b>DMAF</b> ) -15 1.21 1.18 1.15	239 <b>ns the fol</b> -10 11.12 13.61 16.94 19.94 -10 1.36 1.33 1.29	263 <b>lowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43 1.38	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48 1.43	314 nalfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64 1.57	358 1: 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81 1.72 1.62	379 2V DC st 7.2 16.45 20.68 26.35 31.54 0C static 7.2 1.98 1.89 1.78 1.67	406 atic coo 10 17.28 21.93 28.17 33.85 coolinc 10 2.11 1.99 1.86	460 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17 1.99 1.85
3,800 4,400 <b>Current co</b> rpm \°C 2,500 3,100 3,800 4,400 <b>COP (EN 1</b> rpm \°C 2,500 3,100 3,800	126 145 -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b>	134 155 <b>ption (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 <b>P</b> )	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF</b> ) -15 1.21 1.18 1.15 1.12	239 -10 11.12 13.61 16.94 19.94 -10 1.36 1.33 1.29 1.25	263 <b>lowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43 1.38 1.33	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48 1.43 1.37	314 alfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64 1.57 1.50	358 12 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81 1.72 1.62 12V [	379 2V DC st 7.2 16.45 20.68 26.35 31.54 0C static 7.2 1.98 1.89 1.78 1.67 0C static	406 10 17.28 21.93 28.17 33.85 cooling 10 2.11 1.99 1.86 1.74 cooling	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b>
3,800 4,400 rpm \°C 2,500 3,100 3,800 4,400 <b>COP (EN 1</b> rpm \°C 2,500 3,100 3,800 4,400 <b>COP (ASH</b> rpm \°C	126 145 -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b> -25	134 155 <b>extion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 <b>P)</b> -23.3	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF</b> ) -15 1.21 1.18 1.15 1.12	239 -10 11.12 13.61 16.94 19.94 -10 1.36 1.33 1.29 1.25 -10	263 <b>Iowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43 1.38 1.33 -6.7	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48 1.43 1.37 -5	314 alfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64 1.57 1.50 0 0	358 12 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81 1.72 1.62 12V [ 5 5	379 2V DC st 7.2 16.45 20.68 26.35 31.54 0C static 7.2 1.98 1.89 1.78 1.67 0C static 7.2	406 10 17.28 21.93 28.17 33.85 cooling 10 2.11 1.99 1.86 1.74 cooling 1.74	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b> 15
3,800 4,400 Current cc 7pm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 COP (ASH rpm \°C 2,500	126 145 -25 6.79 8.46 10.51 12.11 <b>2900 H</b> -25 0.93 0.91 0.89 0.87 <b>RAE LB</b> -25 1.16	134 155 <b>extion (fo</b> -23.3 7.24 8.99 11.18 12.95 <b>ouseho</b> -23.3 0.98 0.96 0.93 0.91 <b>P)</b> -23.3 1.21	150 175 <b>r 24V ap</b> -20 8.15 10.07 12.52 14.60 <b>Id/CECC</b> -20 1.07 1.05 1.02 0.99 -20 1.33	176 206 <b>plicatior</b> -15 9.61 11.79 14.65 17.19 <b>DMAF</b> ) -15 1.21 1.18 1.15 1.12 -15 1.50	239 -10 11.12 13.61 16.94 19.94 -10 1.36 1.33 1.29 1.25 -10 1.68	263 <b>Iowing r</b> -6.7 12.15 14.88 18.54 21.88 -6.7 1.46 1.43 1.38 1.33 -6.7 1.82	275 nust be l -5 12.68 15.54 19.40 22.93 -5 1.52 1.48 1.43 1.37 -5 1.89	314 alfed) 0 14.24 17.58 22.07 26.20 0 1.69 1.64 1.57 1.50 0 2.11	358 12 5 15.79 19.71 24.99 29.82 12V [ 5 1.89 1.81 1.72 1.62 12V [ 5 2.36	379 2V DC st 7.2 16.45 20.68 26.35 31.54 0C static 7.2 1.98 1.89 1.78 1.67 0C static 7.2 2.48	406 10 17.28 21.93 28.17 33.85 cooling 10 2.11 1.99 1.86 1.74 cooling 1.74 cooling 1.74	460 ling <b>A</b> 15 18.69 24.25 31.66 38.35 <b>W/W</b> 15 2.36 2.17 1.99 1.85 <b>W/W</b> 15 2.96

Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 2,450 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\text{peak}}$ ).
1	Battery protection cut-out
	(The voltage is outside the cut-out setting).

#### Wire Dimensions Max. length\* 12V operation Max. length\* 24V operation Size Cross AWG section [mm<sup>2</sup>] [m] [ft.] [m] [ft.] Gauge 2 wires 8 8 2.5 8 5 16 1 wire with terminal block 8 7 1 3 2 8 \*Length between battery an electronic unit





#### **Compressor speed**

compression opera			
Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	AEO	6
	203	2,500	5
101N0280 with AEO	451	3,100	4
WITTALO	867	3,800	3
	1700	4,400	2

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

Test conditions	EN 12900/CECOMAF	ASHRAE
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	BD250/250GH	Code number
Bolt joint for one compressor	Ø: 16 mm	118-1900
Bolt joint in quantities	Ø: 16 mm	118-1901
Snap-on in quantities	Ø: 16 mm	118-1902
Standard automoblie fuse	12V: 30A	N I II I I
DIN 7258	24V: 15A	Not deliverable from Danfoss
Main switch	rated to min. 30A	nom Damoss

Datasheet: DEHC.ED.100.B2.02 / June 2006

## **Direct Current Compressor** for Solar Applications (for stationary use only), R600a , 10-45V General

General	
Code number (without electronic units)	101Z0211
Electronic unit 10-45V - for solar applications	single: 101N0400, 30 pcs: 101N0401
Electronic unit 12-24V DC - standard	single: 101N0210, 30 pcs: 101N0211
Electronic unit 12-24V DC - with metal shielding	single: 101N0220, 30 pcs: 101N0221
Approved compressor - electronic unit combinations	refer to Technical Info DEHC.EI.100.C
Additional approvals	e4, CE, C-Tick
Compressors on pallet	150
Approved compressor - electronic unit combinations Additional approvals	refer to <i>Technical Info</i> DEHC.EI.100. e4, CE, C-Tick

#### Application

BD35K

Application		
Application		LBP/MBP/(HBP)
Evaporating temperature	°C	-30 to 0 (10)
Voltage range	VDC	10-45
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

#### AR600a Blue stripe CE C N 1297 0211 Code number & serial number barcode on white background MADE IN GERMANY Grey background

BD35K



Danfoss

3525

Yellow warning label

<u>Danfoss</u>

101Z

- = Static cooling normally sufficient
- = Oil cooling = Fan cooling 1.5 m/s

S

0

F<sub>1</sub>

 $F_2$ 

- (compressor compartment temperature equal to ambient temperature)
- = Fan cooling 3.0 m/s necessary SG
  - = Suction gas cooling normally sufficent
  - = 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: Fan cooling F <sub>1</sub> depending on app	lication and	speed.	

Motor

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

#### Desian

Dimensions Height

Suction connector

Process connector

Discharge connector

Oil cooler connector

Connector tolerance

Remarks:

Displacement	cm <sup>3</sup>	3.00
Oil quantity (type)	cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm <sup>3</sup>	870
Weight - Compressor/Electronic unit	kg	4.3/0.25

location/I.D. mm | angle

location/I.D. mm | angle

location/I.D. mm | angle

location/I.D. mm | angle

material | comment

material | comment

material | comment

material | comment

I.D. mm

А

B1

B2

С

D

Е

F

mm В 137

135

128

73

6.2 | 41.5°

Cu-plated steel | Al caps

6.2 | 45°

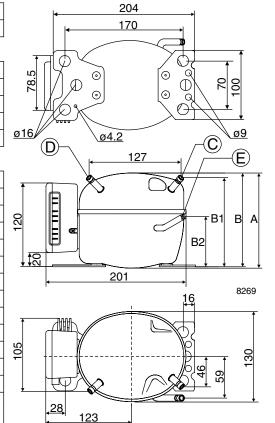
Cu-plated steel | Al caps

5.0 | 21°

Cu-plated steel | Al caps

\_

\_ ±0.09, on 5.0 +0.12/+0.20

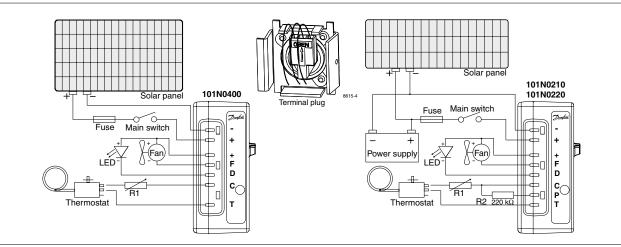


<u>Danfoss</u>

Capacity (	EN 129	00 Hou	sehold/	СЕСОМ	AF)				12V [	DC statio	: cooling	wat
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	13.2	21.0	23.8	29.7	39.6	51.0	64.0	79.1	96.3	105	116	
2,500	16.8	25.5	28.8	35.6	47.5	61.3	77.5	96.2	118	128		
3,000	20.7	30.5	34.3	42.3	56.3	72.9	92.4	115				
3,500	24.9	36.0	40.2	49.3	65.1	83.8	106					
Capacity (	ASHRA	E LBP)							12V [	) DC statio	cooling	wat
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	16.0	25.5	29.0	36.1	48.2	62.1	78.0	96.4	118	128	142	
2,500	20.4	31.0	35.0	43.4	57.8	74.7	94.4	117	144	157		
3,000	25.2	37.1	41.7	51.4	68.5	88.7	113	140				
3,500	30.3	43.8	49.0	59.9	79.2	102	129					
Power cor	nsumpt	ion							12V [	DC statio	cooling	wat
rpm∖°C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
2,000	18.5	22.5	23.9	26.4	30.3	34.2	38.0	41.8	45.7	47.4	49.6	
0. = 0.0	23.8	28.5	30.0	32.9	37.2	41.5	45.8	50.2	54.9	57.1		
2,500	23.0											
2,500 3,000	29.5	35.9	38.0	41.8	47.4	52.9	58.6	64.6				
,				41.8 49.7	47.4 56.4	52.9 63.0	58.6 69.7	64.6				
3,000 3,500	29.5 35.1	35.9 42.7	38.0 45.2	49.7	56.4	63.0	69.7		1	2V DC st	atic coo	ling
3,000 3,500 Current co	29.5 35.1	35.9 42.7	38.0 45.2	49.7	56.4	63.0	69.7		1	2V DC st 7.2	atic coo	ling 1
3,000 3,500	29.5 35.1 onsump	35.9 42.7 otion (fo	38.0 45.2 <b>r 24V ap</b>	49.7 plicatior	56.4 ns the fol	63.0 Iowing r	69.7 nust be l	nalfed)				
3,000 3,500 <b>Current co</b> rpm \ °C	29.5 35.1 <b>onsump</b> -30	35.9 42.7 <b>otion (fo</b> -25	38.0 45.2 <b>r 24V ap</b> -23.3	49.7 plication -20	56.4 <b>ns the fo</b> l -15	63.0 <b>Iowing r</b> -10	69.7 nust be h -5	nalfed) 0	5	7.2	10	
3,000 3,500 Current cc rpm \ °C 2,000	29.5 35.1 <b>onsump</b> -30 1.54	35.9 42.7 <b>otion (fo</b> -25 1.88	38.0 45.2 • <b>24V ap</b> -23.3 1.99	49.7 plicatior -20 2.20	56.4 <b>ns the fol</b> -15 2.53	63.0 Iowing r -10 2.85	69.7 nust be f -5 3.17	<b>alfed)</b> 0 3.48	5 3.81	7.2 3.95	10	
3,000 3,500 Current cc rpm \ °C 2,000 2,500	29.5 35.1 <b>onsump</b> -30 1.54 1.98	35.9 42.7 <b>otion (fo</b> -25 1.88 2.37	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50	49.7 plication -20 2.20 2.75	56.4 <b>56.4</b> <b>56.4</b> <b>5</b> <b>15</b> <b>2.53</b> <b>3.10</b>	63.0 Iowing r -10 2.85 3.46	69.7 nust be H -5 3.17 3.82	alfed) 0 3.48 4.19	5 3.81	7.2 3.95	10	
3,000 3,500 <b>Current co</b> rpm \°C 2,000 2,500 3,000 3,500	29.5 35.1 <b>DISUMP</b> -30 1.54 1.98 2.46 2.93	35.9 42.7 <b>etion (fo</b> -25 1.88 2.37 2.99 3.56	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76	49.7 plication -20 2.20 2.75 3.48 4.15	56.4 -15 2.53 3.10 3.95	63.0 lowing r -10 2.85 3.46 4.41	69.7 nust be F -5 3.17 3.82 4.88	alfed) 0 3.48 4.19	5 3.81 4.58	7.2 3.95 4.76	10 4.13	15
3,000 3,500 Current cc rpm \ °C 2,000 2,500 3,000	29.5 35.1 <b>DISUMP</b> -30 1.54 1.98 2.46 2.93	35.9 42.7 <b>etion (fo</b> -25 1.88 2.37 2.99 3.56	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76	49.7 plication -20 2.20 2.75 3.48 4.15	56.4 -15 2.53 3.10 3.95	63.0 lowing r -10 2.85 3.46 4.41	69.7 nust be F -5 3.17 3.82 4.88	alfed) 0 3.48 4.19	5 3.81 4.58	7.2 3.95 4.76	10	15
3,000 3,500 <b>Current cc</b> 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C	29.5 35.1 <b>Disump</b> -30 1.54 1.98 2.46 2.93 <b>2900 H</b>	35.9 42.7 <b>otion (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b>	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b>	49.7 plication -20 2.20 2.75 3.48 4.15 DMAF)	56.4 -15 2.53 3.10 3.95 4.70	63.0 <b>lowing r</b> -10 2.85 3.46 4.41 5.25	69.7 <b>nust be F</b> -5 3.17 3.82 4.88 5.81	alfed) 0 3.48 4.19 5.38	5 3.81 4.58 12V [	7.2 3.95 4.76	10 4.13	15 W/V
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1	29.5 35.1 onsump -30 1.54 1.98 2.46 2.93 2900 H -30	35.9 42.7 <b>otion (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3	49.7 plication -20 2.20 2.75 3.48 4.15 DMAF) -20	56.4 -15 2.53 3.10 3.95 4.70 -15	63.0 <b>lowing r</b> -10 2.85 3.46 4.41 5.25 -10	69.7 <b>nust be l</b> -5 3.17 3.82 4.88 5.81 -5	0 3.48 4.19 5.38	5 3.81 4.58 12V [ 5	7.2 3.95 4.76 OC static 7.2	10 4.13 cooling 10	15 W/V
3,000 3,500 Current cc 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000	29.5 35.1 <b>onsump</b> -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71	35.9 42.7 <b>btion (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00	49.7 plicatior -20 2.20 2.75 3.48 4.15 DMAF) -20 1.12	56.4 -15 2.53 3.10 3.95 4.70 -15 1.31	63.0 lowing r -10 2.85 3.46 4.41 5.25 -10 1.49	69.7 <b>nust be F</b> -5 3.17 3.82 4.88 5.81 -5 1.69	nalfed) 0 3.48 4.19 5.38 0 1.89	5 3.81 4.58 12V [ 5 2.11	7.2 3.95 4.76 DC static 7.2 2.21	10 4.13 cooling 10	15 W/V
3,000 3,500 <b>Current cc</b> 2,000 2,500 3,000 3,500 <b>COP (EN 1</b> rpm \°C 2,000 2,500	29.5 35.1 <b>Drsump</b> -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71	35.9 42.7 <b>btion (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96	49.7 <b>plication</b> -20 2.20 2.75 3.48 4.15 <b>DMAF</b> ) -20 1.12 1.08	56.4 <b>ns the fol</b> -15 2.53 3.10 3.95 4.70 -15 1.31 1.28	63.0 lowing r -10 2.85 3.46 4.41 5.25 -10 1.49 1.48	69.7 <b>nust be h</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69	0 3.48 4.19 5.38 0 1.89 1.92	5 3.81 4.58 12V [ 5 2.11	7.2 3.95 4.76 DC static 7.2 2.21	10 4.13 cooling 10	15 W/V
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,000 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000	29.5 35.1 -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71 0.70 0.71	35.9 42.7 <b>ption (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90 0.85 0.84	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96 0.90	49.7 <b>plication</b> -20 2.20 2.75 3.48 4.15 <b>DMAF</b> ) -20 1.12 1.08 1.01	56.4 <b>ns the fol</b> -15 2.53 3.10 3.95 4.70 -15 1.31 1.28 1.19	63.0 lowing r -10 2.85 3.46 4.41 5.25 -10 1.49 1.48 1.38	69.7 <b>nust be f</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69 1.58	0 3.48 4.19 5.38 0 1.89 1.92	5 3.81 4.58 12VI 5 2.11 2.15	7.2 3.95 4.76 OC static 7.2 2.21 2.25	10 4.13 cooling 10 2.34	15 W/V 15
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500	29.5 35.1 -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71 0.70 0.71	35.9 42.7 <b>ption (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90 0.85 0.84	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96 0.90	49.7 <b>plication</b> -20 2.20 2.75 3.48 4.15 <b>DMAF</b> ) -20 1.12 1.08 1.01	56.4 <b>ns the fol</b> -15 2.53 3.10 3.95 4.70 -15 1.31 1.28 1.19	63.0 lowing r -10 2.85 3.46 4.41 5.25 -10 1.49 1.48 1.38	69.7 <b>nust be f</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69 1.58	0 3.48 4.19 5.38 0 1.89 1.92	5 3.81 4.58 12VI 5 2.11 2.15	7.2 3.95 4.76 OC static 7.2 2.21 2.25	10 4.13 cooling 10	15 W/V 15
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH	29.5 35.1 <b>onsump</b> -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71 0.71 0.70 0.71 <b>RAE LB</b>	35.9 42.7 <b>ption (fc</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90 0.85 0.84 <b>P</b> )	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96 0.90 0.89	49.7 plicatior -20 2.20 2.75 3.48 4.15 DMAF) -20 1.12 1.08 1.01 0.99	56.4 -15 2.53 3.10 3.95 4.70 -15 1.31 1.28 1.19 1.15	63.0 <b>lowing r</b> -10 2.85 3.46 4.41 5.25 -10 1.49 1.48 1.38 1.33	69.7 <b>nust be f</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69 1.58 1.52	0 3.48 4.19 5.38 0 1.89 1.92 1.78	5 3.81 4.58 12V [ 5 2.11 2.15 	7.2 3.95 4.76 OC static 7.2 2.21 2.25 OC static	10 4.13 cooling 10 2.34 cooling	15 W/V 15 W/V
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH rpm \°C	29.5 35.1 -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71 0.71 0.70 0.71 <b>RAE LB</b> -30	35.9 42.7 <b>ption (fo</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90 0.85 0.84 <b>P)</b> -25	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96 0.90 0.89 -23.3	49.7 plicatior -20 2.20 2.75 3.48 4.15 DMAF) -20 1.12 1.08 1.01 0.99 -20	56.4 -15 2.53 3.10 3.95 4.70 -15 1.31 1.28 1.19 1.15 -15	63.0 <b>lowing r</b> -10 2.85 3.46 4.41 5.25 -10 1.49 1.48 1.38 1.33 -10	69.7 <b>nust be f</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69 1.58 1.52 -5 -5	0 3.48 4.19 5.38 0 1.89 1.92 1.78	5 3.81 4.58 12V [ 5 2.11 2.15 12V [ 5	7.2 3.95 4.76 0C static 7.2 2.21 2.25 0C static 7.2	10 4.13 cooling 10 2.34 cooling cooling 10	15 W/V 15 W/V
3,000 3,500 Current cc rpm \°C 2,000 2,500 3,500 COP (EN 1 rpm \°C 2,000 2,500 3,000 3,500 COP (ASH rpm \°C 2,000	29.5 35.1 -30 1.54 1.98 2.46 2.93 <b>2900 H</b> -30 0.71 0.71 0.71 0.70 0.71 <b>RAE LB</b> -30 0.87	35.9 42.7 <b>ption (fc</b> -25 1.88 2.37 2.99 3.56 <b>ouseho</b> -25 0.93 0.90 0.85 0.84 <b>P)</b> -25 1.13	38.0 45.2 <b>r 24V ap</b> -23.3 1.99 2.50 3.16 3.76 <b>Id/CECC</b> -23.3 1.00 0.96 0.90 0.89 -23.3 1.21	49.7 plicatior -20 2.20 2.75 3.48 4.15 DMAF) -20 1.12 1.08 1.01 0.99 -20 1.37	56.4 -15 2.53 3.10 3.95 4.70 -15 1.31 1.28 1.19 1.15 -15 1.59	63.0 lowing r -10 2.85 3.46 4.41 5.25 -10 1.49 1.48 1.38 1.33 -10 1.82	69.7 <b>nust be f</b> -5 3.17 3.82 4.88 5.81 -5 1.69 1.69 1.58 1.52 -5 2.05	0 3.48 4.19 5.38 0 1.89 1.92 1.78 0 2.31	5 3.81 4.58 12V [ 5 2.11 2.15 12V [ 5 2.57	7.2 3.95 4.76 7.2 2.21 2.25 0C static 7.2 2.70	10 4.13 cooling 10 2.34 cooling cooling 10	15 W/V 15 W/V

Number of flashes	Error type
5	Thermal cut-out of electronic unit
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	Motor start error
	(The rotor is blocked or the differential pres- sure in the refrigeration system is too high (>5 bar)).
2	Fan over-current cut-out
	(The fan loads the electronic unit with more than $1A_{\text{peak}}$ ).
1	Battery protection cut-out
	(The voltage is outside the cut-out setting).

Si			ength*		ength*
Cross	AWG	12V op	eration	24V op	eration
section					
[mm <sup>2</sup> ]	[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



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	AEO	6
	173	2,000	5
101N0400 with AEO	450	2,500	4
WITTALO	865	3,000	3
	1696	3,500	2
	0	2,000	5
101N0210	277	2,500	4
101N0220	692	3,000	3
	1523	3,500	2

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

Test conditions	EN 12900/CECOMAF	ASHRAE
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	BD35K	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
Remote kit (without cable)		105N9210
Standard automoblie fuse	12V: 30A	
DIN 7258	24V: 15A	Not deliverable from Danfoss
Main switch	rated to min. 30A	nom Damoss

## Datasheet: DEHC.ED.100.G3.02 / April 2007

<u>Danfoss</u>

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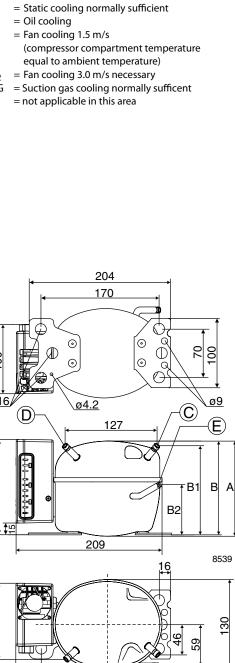
N 1297 0401

MADE IN GERMANY

R290 Yellow warning label

## **BD100CN Direct Current Compressor** (for stationary use only), R290, 12-24V General

General									
Code number (wit	thout electroi	nic units)		101Z0401				B	D100CN
Electronic unit (wi	it (with integrated fan cooling)				single: 101N0280, 28 pcs: 101N0281				
Approved compre	compressor - electronic unit combinations				refer to Technical Info DEHC.EI.100.C			L	▶ R290
Additional approv	/als			e4, CE, C-Tick			tripe >		
Compressors on p	Compressors on pallet								~ ~ `
Application				·			barco	number & de on whi backgrou	k serial number
Application					LBP		arey	buoligiou	
Evaporating temp	erature		°(	2	-40 to -10				
Voltage range/ma	ix. voltage		VDO	2	12-24/31.5	5			
Max. condensing	temperature	continuous (	short) °(	2	55 (65)				
Max. winding tem	perature con	tinuous (sho	rt) °(	2	125 (135)				
Cooling requirem	ents								
Application				LBP	MBP	HBP	S	= Stat	ic cooling no
32°C				S	-	-	0		cooling
38°C				S	-	-	F <sub>1</sub>	= Fan	cooling 1.5 r
43°C				S	-	-			npressor con
Remarks on applie	cation:						F <sub>2</sub>	•	al to ambien cooling 3.0 r
Motor							SG		tion gas cooli
Motor type					Variable spe	ed	-		applicable in
Resistance, all 3 w	indings (25°C	.)	(	2	1.8				
Design									
Displacement			cm		2.00				
Oil quantity (type)			cm	3 1	50 (polyoles	ter)			
Maximum refriger				9	120				
Free gas volume i	· · · · · · · · · · · · · · · · · · ·		cm	870					
Weight - Compres	sor/Electroni	c unit	k	9	4.3/0.3				
Dimensions									
Height			mn	n A	137				
				В	135				
				B1	128			∙	
				B2	73				
Suction connecto	r		.D. mm   angle		6.2   41.5°				
Process connector	r	location/l	.D. mm   angle	e D	6.2   45°		Ť	ЪЩ (	5 <
Discharge connec		location/l	.D. mm   angle		5.0   21°				୷ୖଡ଼ୗ
Connector tolerar	nce		I.D. mn	n ±0.09	, on 5.0 +0.1	2/+0.20	100		∕₽ ₀]
Standard battery					-1				
12V cut-out [V]	] 12\	/ cut-in [V] 11.7		ut-out [V] 22.8		ut-in [V] 4.2	<u>ø16</u>		ø4.2
				22.0	2	4.2		(D)-	
Optional battery	protections s 12V cut-out		121/	241/ 01+ 01+	241/ cut in	241/	•	F II	
Resistor (R2)		12V cut-in	12V max.	24V cut-out	24 V cut-in	24V max.		h	×5
[kΩ] 0	[V] 9.6	[V] 10.9	Voltage [V] 17.0	[V] 21.3	[V] 22.7	Voltage [V] 31.5		早	lí i
1.6	9.6	10.9	17.0	21.3	22.7	31.5	134	ĝ	<u> </u>
2.4	9.7	11.0	17.0	21.5	22.9	31.5		r Fa	0
3.6	10.0	11.1	17.0	21.8	23.2	31.5		U	
4.7	10.0	11.3	17.0	22.0	23.4	31.5		<u>د</u>	
6.2	10.1	11.4	17.0	22.5	23.7	31.5			20
8.2	10.2	11.5	17.0	22.3	23.9	31.5			
11	10.4	11.7	17.0	22.8	24.2	31.5	_		
14	10.5	11.8	17.0	23.0	24.3	31.5	Î	<b>H</b>	R
14	10.8	12.0	17.0	23.5	24.7	31.5	~		<b>9</b>
24	10.8	12.0	17.0	23.8	25.2	31.5	108	<b>-</b>	23 
33	11.0	12.2	17.0	23.8	25.5	31.5			
47	11.0	12.3	17.0	24.1	25.7	31.5	ļ	للكرر	Ľ 🔊
47	11.1	12.4	17.0	24.5	25.7	21.5	<u>.                                    </u>		



26.0

31.5

31.5

34

131

82

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11.3

9.6

12.5

10.9

17.0

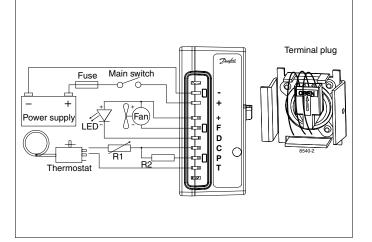
24.6

<u>Danfoss</u>

apacity	(EN 129	00 Hou	sehold/	CECOM	AF)				12V [	DC statio	cooling	wat
rpm∖°C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	30.6	40.2	51.9	66.0	71.4	82.9	103	126				
3,100	36.0	49.0	64.6	83.0	90.0	105	130	160				
3,800	40.5	56.6	75.6	98.0	106	124	154	189				
4,400	44.6	62.4	83.4	108	117	137	170	209				
Capacity	(ASHRA	E LBP)							12V [	DC statio	cooling	wat
rpm \ ℃	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	34.1	44.8	57.9	73.6	79.7	92.5	115	141				
3,100	40.1	54.6	72.0	92.6	100	117	145	178				
3,800	45.1	63.1	84.3	109	119	138	172	211				
4,400	49.7	69.6	93.0	121	131	153	190	233				
Power co	nsumpt	ion							12V [	DC statio	cooling	wat
rpm∖°C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	35.7	39.8	44.8	50.5	52.5	56.4	62.3	67.8				
3,100	41.9	48.9	56.3	64.0	66.7	71.8	79.4	86.5			1	
3,800	48.7	58.6	68.6	78.5	81.8	88.1	97.5	106				
4,400	57.4	69.1	80.8	92.5	96.4	104	115	125		1	1 1	
.,			00.0	12.5	20.1	101	115	125				
Current co	onsump								1	L 2V DC st	tatic coo	ling /
	onsump -40								-5	2V DC st 0	tatic coo	ling <b>/</b> 7.2
Current c		otion (fo	r 24V ap	plicatior	ns the fol	lowing r	nust be l	halfed)		1		
Current co rpm∖°C	-40	otion (fo -35	r <b>24V ap</b> -30	plication -25	rs the fol -23.3	lowing r -20	nust be l -15	halfed) -10		1		
Current co rpm∖°C 2,500	-40 2.97	-35 3.32	r 24V ap -30 3.74	plication -25 4.21	<b>s the fol</b> -23.3 4.38	lowing r -20 4.70	nust be l -15 5.19	nalfed) -10 5.65		1		
Current co rpm \ ℃ 2,500 3,100	-40 2.97 3.49	<b>otion (fo</b> -35 3.32 4.07	<b>r 24V ap</b> -30 3.74 4.69	plicatior -25 4.21 5.34	<b>is the fol</b> -23.3 4.38 5.56	lowing r -20 4.70 5.98	nust be l -15 5.19 6.61	nalfed) -10 5.65 7.20		1		
Current co rpm \ °C 2,500 3,100 3,800	-40 2.97 3.49 4.06 4.78	-35 3.32 4.07 4.88 5.76	r 24V ap -30 3.74 4.69 5.71 6.74	plication           -25           4.21           5.34           6.54           7.71	-23.3 4.38 5.56 6.82	lowing r -20 4.70 5.98 7.35	nust be l -15 5.19 6.61 8.12	nalfed) -10 5.65 7.20 8.86	-5	0		7.2
Current co rpm \ °C 2,500 3,100 3,800 4,400 COP (EN 1	-40 2.97 3.49 4.06 4.78	-35 3.32 4.07 4.88 5.76	r 24V ap -30 3.74 4.69 5.71 6.74	plication           -25           4.21           5.34           6.54           7.71	-23.3 4.38 5.56 6.82	lowing r -20 4.70 5.98 7.35	nust be l -15 5.19 6.61 8.12	nalfed) -10 5.65 7.20 8.86	-5	0	5	7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C	-40 2.97 3.49 4.06 4.78 <b>2900 H</b>	-35 3.32 4.07 4.88 5.76 ouseho	r 24V ap -30 3.74 4.69 5.71 6.74	plicatior -25 4.21 5.34 6.54 7.71 DMAF)	-23.3 4.38 5.56 6.82 8.04	lowing r -20 4.70 5.98 7.35 8.66	nust be l -15 5.19 6.61 8.12 9.58	halfed) -10 5.65 7.20 8.86 10.44	-5 12V (	0 DC statio	5 cooling	7.2
Current co rpm \ °C 2,500 3,100 3,800 4,400 COP (EN 1	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40	otion (fo       -35       3.32       4.07       4.88       5.76       ouseho       -35	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CEC0 -30	plicatior -25 4.21 5.34 6.54 7.71 <b>DMAF)</b> -25	-23.3 4.38 5.56 6.82 8.04 -23.3	lowing r -20 4.70 5.98 7.35 8.66	nust be l -15 5.19 6.61 8.12 9.58 -15	-10 5.65 7.20 8.86 10.44	-5 12V (	0 DC statio	5 cooling	7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86	otion (for       -35       3.32       4.07       4.88       5.76       ouseho       -35       1.01	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16	plication -25 4.21 5.34 6.54 7.71 <b>DMAF)</b> -25 1.31	-23.3 4.38 5.56 6.82 8.04 -23.3 1.36	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47	nust be l -15 5.19 6.61 8.12 9.58 -15 1.65	-10 5.65 7.20 8.86 10.44 -10 1.86	-5 12V (	0 DC statio	5 cooling	7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86	option (for           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15	plication -25 4.21 5.34 6.54 7.71 <b>DMAF)</b> -25 1.31 1.30	-23.3 4.38 5.56 6.82 8.04 -23.3 1.36 1.35	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46	-15 5.19 6.61 8.12 9.58 -15 1.65 1.64	-10 5.65 7.20 8.86 10.44 -10 1.86 1.85	-5 12V (	0 DC statio	5 cooling	7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86 0.83 0.78	option (for           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00           0.97           0.90	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15 1.10	plicatior -25 4.21 5.34 6.54 7.71 <b>DMAF</b> ) -25 1.31 1.30 1.25	is the fol           -23.3           4.38           5.56           6.82           8.04           -23.3           1.36           1.35           1.30	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46 1.41	nust be l -15 5.19 6.61 8.12 9.58 -15 1.65 1.64 1.58	nalfed) -10 5.65 7.20 8.86 10.44 -10 1.86 1.85 1.78	-5 12V [ -5	0 DC static	5 cooling	7.2 W/V 7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 COP (ASH	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86 0.83 0.78	option (for           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00           0.97           0.90	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15 1.10	plicatior -25 4.21 5.34 6.54 7.71 <b>DMAF</b> ) -25 1.31 1.30 1.25	is the fol           -23.3           4.38           5.56           6.82           8.04           -23.3           1.36           1.35           1.30	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46 1.41	nust be l -15 5.19 6.61 8.12 9.58 -15 1.65 1.64 1.58	nalfed) -10 5.65 7.20 8.86 10.44 -10 1.86 1.85 1.78	-5 12V [ -5	0 DC static	5 c cooling 5	7.2 W/V 7.2
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86 0.83 0.78 <b>RAE LB</b>	option (fo           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00           0.97           0.90           P)	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15 1.10 1.03	plicatior -25 4.21 5.34 6.54 7.71 DMAF) -25 1.31 1.30 1.25 1.17	sthe fol           -23.3           4.38           5.56           6.82           8.04           -23.3           1.36           1.35           1.30           1.22	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46 1.41 1.32	nust be l -15 5.19 6.61 8.12 9.58 -15 1.65 1.64 1.58 1.48	halfed) -10 5.65 7.20 8.86 10.44 -10 1.86 1.85 1.78 1.66	-5 12V [ -5 12V [	0 C static 0 C static	5 cooling 5 cooling	7.2 W/W 7.2 W/W
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 3,800 4,400 COP (ASH rpm \°C	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86 0.83 0.78 <b>RAE LB</b> -40	option (fo           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00           0.97           0.90           P)           -35	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15 1.10 1.03 -30	plicatior -25 4.21 5.34 6.54 7.71 DMAF) -25 1.31 1.30 1.25 1.17 -25	-23.3 4.38 5.56 6.82 8.04 -23.3 1.36 1.35 1.30 1.22 -23.3	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46 1.41 1.32 -20	-15 5.19 6.61 8.12 9.58 -15 1.65 1.64 1.58 1.48 -15	halfed) -10 5.65 7.20 8.86 10.44 -10 1.86 1.85 1.78 1.66 -10	-5 12V [ -5 12V [	0 C static 0 C static	5 cooling 5 cooling	7.2 W/W 7.2 W/W
Current co rpm \°C 2,500 3,100 3,800 4,400 COP (EN 1 rpm \°C 2,500 3,100 3,800 4,400 COP (ASH rpm \°C 2,500	-40 2.97 3.49 4.06 4.78 <b>2900 H</b> -40 0.86 0.86 0.83 0.78 <b>RAE LB</b> -40 0.96	option (fo           -35           3.32           4.07           4.88           5.76           ouseho           -35           1.01           1.00           0.97           0.90           P)           -35           1.13	r 24V ap -30 3.74 4.69 5.71 6.74 Id/CECC -30 1.16 1.15 1.10 1.03 -30 1.29	plicatior -25 4.21 5.34 6.54 7.71 DMAF) -25 1.31 1.30 1.25 1.17 -25 1.46	-23.3 4.38 5.56 6.82 8.04 -23.3 1.36 1.35 1.30 1.22 -23.3 1.52	lowing r -20 4.70 5.98 7.35 8.66 -20 1.47 1.46 1.41 1.32 -20 1.64	nust be l -15 5.19 6.61 8.12 9.58 -15 1.65 1.64 1.58 1.48 -15 1.84	-10           5.65           7.20           8.86           10.44           -10           1.86           1.85           1.78           1.66           -10	-5 12V [ -5 12V [	0 C static 0 C static	5 cooling 5 cooling	7.2 W/W 7.2 W/W

Operati	perational errors shown by LED (optional)			
Number of flashes	Error type			
5	Thermal cut-out of electronic unit			
	(If the refrigeration system has been too hea- vily 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 lo- aded, the motor cannot maintain minimum speed at approximately 2,450 rpm).			
3	Motor start error			
	(The rotor is blocked or the differential pres- sure 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).			

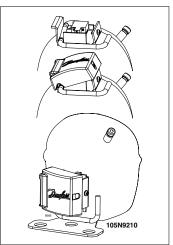
Wire Dimensions						
Size Cross   AWG			ength* eration	Max. length* 24V operation		
section				•		
[mm <sup>2</sup> ]	[Gauge]	[m]	[ft.]	[m]	[ft.]	
6	10	2.5	8	5	16	
*Length between battery an electronic unit						



#### **Compressor speed**

Electronit unit	Resistor (R1)	Motor speed	Control circuit
Code number	[Ω]	[rpm]	current [mA]
	0	AEO	6
10110000	203	2,500	5
101N0280 with AEO	451	3,100	4
WITTALO	867	3,800	3
	1700	4.400	2

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

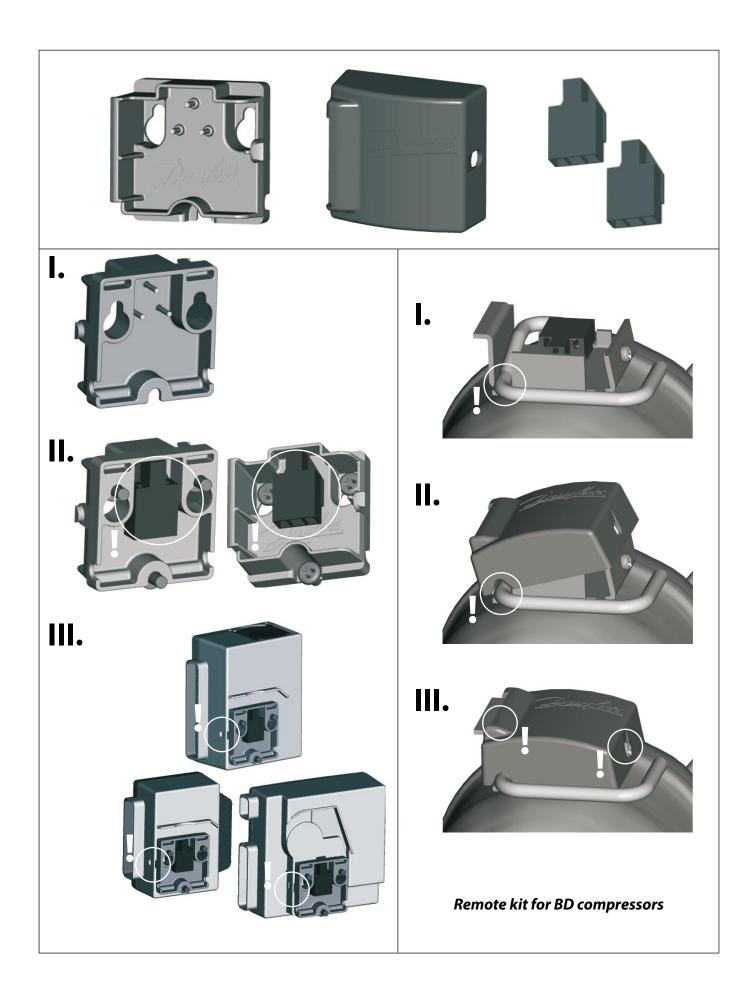


Test conditions	EN 12900/CECOMAF	ASHRAE
Condensing temperature	55°C	54.4°C
Ambient temperature	32°C	32°C
Suction gas temperature	32°C	32°C
Liquid temperature	no subcooling	32°C

Accessories for	BD100CN	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
Remote kit (without cable)		105N9210
Standard automoblie fuse	12V: 30A	N I II I I
DIN 7258	24V: 15A	Not deliverable from Danfoss
Main switch	rated to min. 30A	

## Datasheet: DEHC.ED.100.H2.02 / June 2006

<u>Danfoss</u>





## BD code numbers

BD code numbers						
Compressors	Code number	Description				
BD35F mm standard	101Z0200	standard compressor, mm tube connectors, UL recognized				
BD35F inch	101Z0204	same as 101Z0200, inch tube connectors, UL recognized				
BD35K (R600a)	101Z0211	for stationary use only, mainly solar applications, mm tube connectors				
BD50F mm	101Z1220	standard compressor, mm tube connectors, UL recognized				
BD50F inch	101Z0203	same as 101Z1220, inch tube connectors, UL recognized				
BD80F mm	101Z0280	standard compressor, mm tube connectors, UL recognized				
BD250GH	101Z0400	mm tube connectors, HBP compressor				
BD250GH Twin	101Z0500	mm tube connectors, HBP compressor				
BD100CN (R290)	101Z0401	mm tube connectors, LBP compressor				
Electronic Single Pack	Code number	Description				
Electronic standard	101N0210	for BD35F/BD50F, speed setting, battery protection				
Electronic EMI	101N0220	for BD35F/BD50F, radiation extra shielded, speed setting, battery protection				
	101100000	for BD35F/BD50F, radiation extra shielded, conduction extra filtered,				
Electronic extended EMI	101N0900	speed setting, battery protection				
Electronic AEO	101N0300	for BD35F/BD50F, Adaptive Energy Optimization, speed setting, battery protection				
Electronic solar	101N0400	for BD35F/BD35K, optimized for direct solar panel operation, speed setting				
Electronic w. AC/DC converter	101N0500	for BD35F/BD50F, speed setting, battery protection, integrated AC/DC converter				
Electronic BD50F high start	101N0230	for BD50F only, extra high start performance, speed setting, battery protection				
Electronic high speed	101N0280	for BD80F/BD250GH/etc., Adaptive Energy Optimization, speed setting, battery protection				
Electronic automotive	101N0600	for BD35F, CISPR 25 class 5 approved, speed setting, battery protection, lamp output				
Remote kit without cable	105N9210	bracket, cover and two plugs				
AC line cord (UL approved)	105N9520	for electronic unit with AC/DC converter				
AC line cord (VDE approved)	105N9530	for electronic unit with AC/DC converter				
Electronic I - Pack	Code number	Description				
Electronic standard	101N0211	for BD35F/BD50F, speed setting, battery protection, 30 pcs.				
Electronic EMI	101N0221	for BD35F/BD50F, radiation extra shielded, speed setting, battery protection, 30 pcs.				
Electronic AEO	101N0301	for BD35F/BD50F, Adaptive Energy Optimization, speed setting, battery protection, 30 pcs.				
Electronic solar	101N0401	for BD35F/BD35K, optimized for direct solar panel operation, speed setting, 30 pcs.				
Electronic w. AC/DC converter	101N0501	for BD35F/BD50F, speed setting, battery protection, integrated AC/DC converter, 36 pcs.				
Electronic BD50F high start	101N0231	for BD50F only, extra high start performance, speed setting, battery protection, 30 pcs.				
Electronic high speed	101N0281	for BD80F/BD250GH/etc., Adaptive Energy Optimization, speed setting, battery protection, 28 pcs.				
Electronic automotive	101N0601	for BD35F, CISPR 25 class 5 approved, speed setting, battery protection, lamp output, 30 pcs.				
Remote kit without cable	105N9200	bracket, cover and two plugs, 200 pcs.				
AC line cord (UL approved)	105N9521	for electronic unit with AC/DC converter, 80 pcs.				
AC line cord (VDE approved)	105N9531	for electronic unit with AC/DC converter, 80 pcs.				

#### Accessories



Remote kit, parts (cable assembly not shown)



Electronic unit with AC/DC converter with L-N socket for AC line cord





AC line cord UL/VDE approved versions









#### BD100CN

R290, -40°C, -10°C evap. Stationary freezer application, not approved for vehicles, solar powered



#### **BD250GH & BD250/250GH (Twin)** R134a, -30°C, +15°C evap.

Dedicated for cabin cooling in trucks during night-times, very silent operation, 850 W cooling capacity.



#### BD35K

cooling capacity.

cooling capacity.

R600a, -30°C, +10°C evap. Stationary application, solar-powered vaccine coolers etc., 100-200 l coolers, 15-120 W cooling capacity.

systems, ice cream boxes up to 200 l,

pharmaceutical applications, 260 W



# if risk

## BD35F multivoltage

R134a, 30°C, -10°C evap. All mobile applications for portable boxes, boats, trucks etc., 15-120 W cooling capacity, can be powered with AC and DC, 85-265 V AC 50/60 Hz, 12-24 V DC, automatic selection between AC and DC.



#### **BD35F with EMI electronic** Designed for boats and trucks if risk of electric inference with radio and navigation equipment, 15-140 W



### BD35F/50F/80F Basic

R134a, -30°C, -10°C evap. All mobile applications for port-able boxes, boats, trucks etc., 5-140/20-180/35-220 W cooling capacity.

# Second to none

Danfoss BD compressors mean: extraordinary performance at minimum power consumption, superbly silent running, reliable operation even when tilted up to 30 degrees, problem-free operation at 12/24 volts and more than 25 years' of experience in mobile refrigeration. Transport-stable, speed/capacity stable, multifunctional electronic, silent, high COP and compact design.



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