

## **BD150F**

*Extending the Compressor Range for Mobile Refrigeration*



The BD150F compressor is designed for use in vans, small trucks etc. It extends the application range of refrigerated transportation by increasing the capacity of Danfoss Compressors' BD series. The extension was triggered by the EU directive on active refrigeration for food transportation, particularly frozen goods, fish etc.

The new compressor makes it easier to comply with legal requirements and thus keep the refrigeration chain unbroken, even in traditionally weak links such as transportation for shops and supermarkets, supplies for hotels, restaurants etc.

The BD150F is a wide voltage range type, allowing mains operation overnight. In the daytime, 12/24V operation is established with a DC/AC inverter. This combination enables a carrier to become a distributor of smaller amounts of frozen goods - without having to invest in a refrigerated truck.

The design of the BD150F is based on Danfoss Compressors' long-term and unique experience with DC mobile refrigeration. This foundation secures stable and safe operation of any refrigeration unit, also under severe road conditions.

### Data Sheet

#### General

Compressor	<b>BD150F</b>
Code number: Comp. without electronic unit	102G4784
Code number: Electronic unit	105N4220

#### Application

Application	LBP
Evaporating temperature range	°C -35 to -10
Voltage range	160-254V AC /50-60Hz 250-350V DC with power inverter for mobile use 12/24V DC (see page 4)
Starting characteristics	HST
Max. ambient temperature	°C 43
Comp. cooling at ambient temp.	32°C S 38°C S 43°C S

#### Features

Speed range	rpm	2000 - 4000
Protections		current, voltage, speed, temperature
Usage		<ul style="list-style-type: none"> <li>z mobile refrigeration, designed for use in vans, small trucks, etc.</li> <li>active refrigeration for food transportation</li> <li>expanded 230V AC range / DC input for 300V DC supply</li> </ul>

#### Design

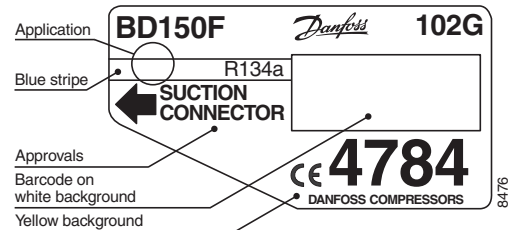
Displacement	cm <sup>3</sup>	6.49
Oil quantity	cm <sup>3</sup>	180
Maximum refrigerant charge	g	400
Free gas vol. in compressor	cm <sup>3</sup>	1790
Weight: Compressor/Electronic unit	kg	7.9/0.6

#### Motor

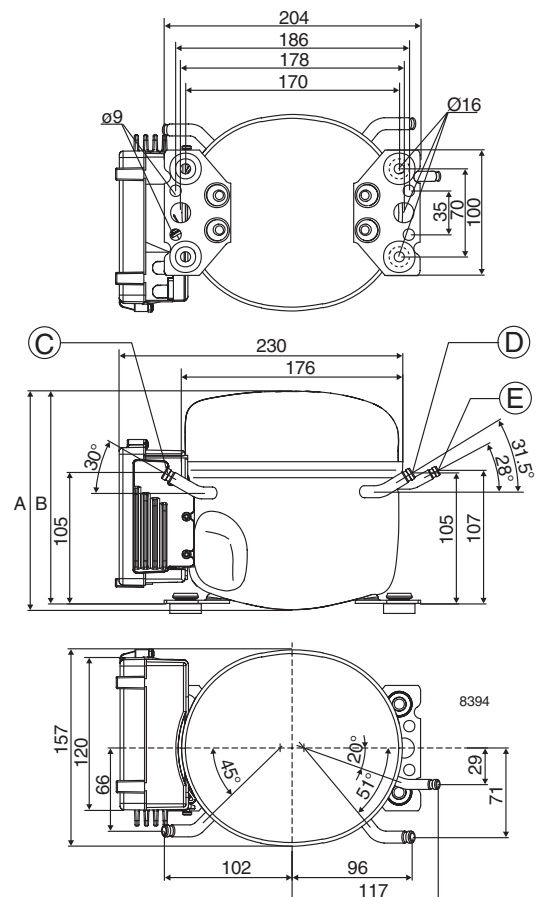
Motor type		permanent magnet
LRA (rated after 4 sec. UL984) HST	A	electronic cut-off
Cut-in current HST	A	6
Resistance, all 3 windings (25°C)	Ω	14.0
Approvals		EN 60335-2-34 with Annex AA

#### Dimensions

Height	mm	A	173
		B	169
Suction connector	location/I.D. mm	C	6.2 ±0.09
Process connector	location/I.D. mm	D	6.2 ±0.09
Discharge connector	location/I.D. mm	E	5.0 +0.12/+0.20
Compressors on a pallet (without el. unit)	pcs.		125



- S = Static cooling normally sufficient
- O = Oil cooling
- F<sub>1</sub> = Fan cooling 1.5 m/s  
(compressor compartment temperature equal to ambient temperature)
- F<sub>2</sub> = Fan cooling 3.0 m/s necessary



### Capacity (EN 12900/CECOMAF)

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	47.5	66.2	90.0	99.3	120	156	199
2,500	56.3	80.7	111	122	147	192	245
3,000	64.2	92.8	128	141	171	222	284
4,000	78.3	111	153	170	205	269	345

watt

### Capacity (ASHRAE)

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	58.6	81.7	111	123	148	192	246
2,500	69.3	99.5	137	151	182	237	302
3,000	79.1	114	158	175	211	274	350
4,000	96.6	137	189	210	253	332	427

watt

### Power consumption

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	51.8	64.6	78.3	83.3	93.1	109	125
2,500	63.0	79.8	97.6	104	116	136	156
3,000	74.2	94.2	115	123	137	161	185
4,000	96.2	120	146	155	174	203	235

watt

### Current consumption

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	0.49	0.63	0.74	0.78	0.85	0.96	1.10
2,500	0.59	0.70	0.84	0.90	1.00	1.12	1.32
3,000	0.69	0.80	0.95	1.02	1.14	1.35	1.55
4,000	0.84	1.05	1.24	1.31	1.45	1.67	1.90

A

### COP (EN 12900/CECOMAF)

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	0.92	1.03	1.15	1.19	1.28	1.43	1.59
2,500	0.89	1.01	1.13	1.18	1.27	1.41	1.57
3,000	0.87	0.99	1.11	1.15	1.24	1.38	1.53
4,000	0.81	0.93	1.05	1.09	1.18	1.32	1.47

W/W

### COP (ASHRAE)

rpm \ °C	-35	-30	-25	-23.3	-20	-15	-10
2,000	1.13	1.27	1.42	1.47	1.59	1.77	1.97
2,500	1.10	1.25	1.40	1.45	1.56	1.74	1.94
3,000	1.07	1.22	1.37	1.42	1.53	1.71	1.90
4,000	1.00	1.14	1.29	1.35	1.46	1.63	1.81

W/W

#### Test conditions

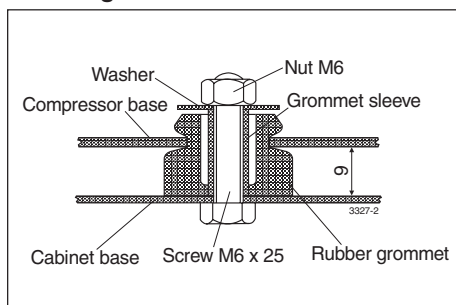
	EN 12900/CECOMAF	ASHRAE
Condensing temperature	55°C	55°C
Ambient and suction gas temp.	32°C	32°C
Liquid temperature	55°C	32°C
Static cooling, 220V 50Hz		

### Application Advantage:

#### Adaptive control (AEO - Adaptive Energy Optimizer)

By means of the adaptive energy optimizer the compressor capacity is automatically adapted to requirements, and thus the energy consumption of the compressor is considerably reduced.

### Mounting accessories



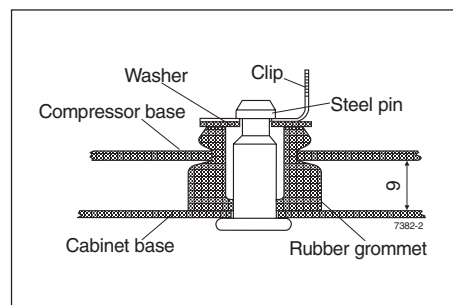
Bolt joint

The mounting accessories for the BD150F are available in two versions, with bolt joint or snap-on joint.

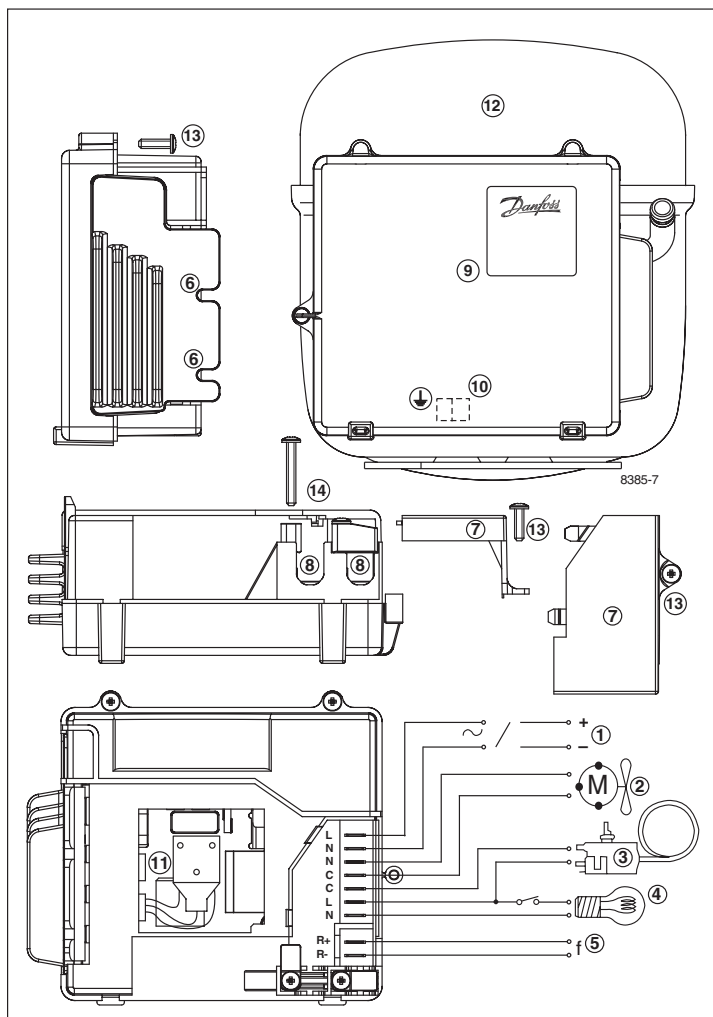
Bolt joint for one compressor in a bag:  
118-1917

Bolt joint in quantities:  
118-1918

Snap-on in quantities:  
118-1919



Snap-on joint



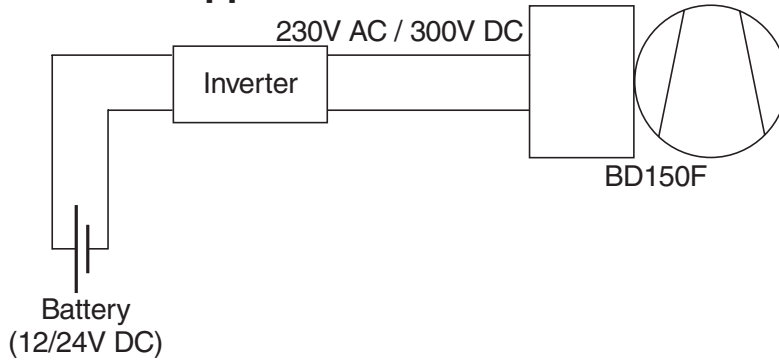
### Legend

- 1: 230V AC / 300V DC power supply
- 2: Fan connection
- 3: Thermostat connection
- 4: Light connection
- 5: Signal input
- 6: Mounting recesses
- 7: Cover
- 8: Cord relief
- 9: Electronic unit
- 10: Earth connection
- 11: Connector
- 12: Compressor
- 13: Screw 3.5 x 12 mm (3 pcs.)
- 14: Screw 3.5 x 25 mm (2 pcs.)

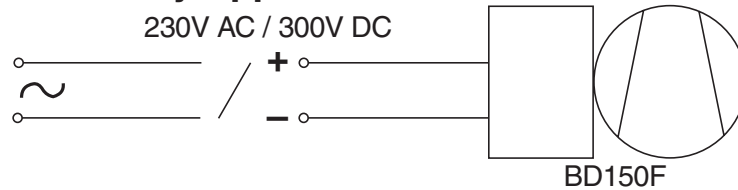
## Examples of Application:

**Note** - the inverter should be a 12/24V DC to 230V AC type, with a peak voltage of minimum 300V. Lower peak voltages will result in lower performance at high cooling capacity (continuous output power minimum 300W).

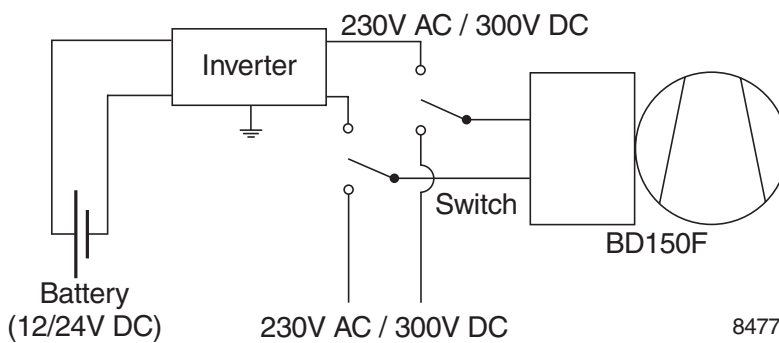
### Mobile Application



### Stationary Application



### Combined Application



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