

BD80F Direct Current Compressor R134a 12 - 24V

BD80F	Formerly Danfoss Compressors
Blue stripe R134a	serial number 101Z 0280
Barcode on white background	
Grey background	Made by Secop
Country of origin or manufacturer	

General

General	
Code number (without electronic units)	101Z0280
Electronic unit	101N0290, 28 pcs: 101N0291
Approved compressor - electronic unit combinations	refer to Instructions for 101N0290
Additional approvals	e4, C-Tick
Compressors on pallet	150
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Application

Application		LBP
Evaporating temperature	°C	-30 to -5
Voltage/max. voltage	VDC	12-24/31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

= Static cooling normally sufficient

O = Oil cooling

S

- F₁ = 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

Cooling requirements

Application	LBP	MBP	HBP
32°C	S	_	_
38°C	S	_	_
43°C	S	_	_
Remarks on application:		<u> </u>	

Motor

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

Design

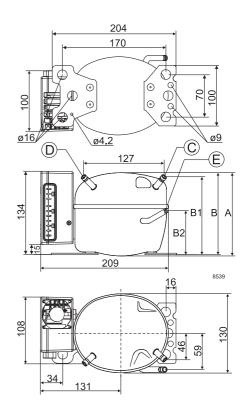
Displacement	cm ³	3.00
Oil quantity (type)	cm ³	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.4/0.3

Standard battery protection settings (refer to 101N0290 Instructions for optional settings)

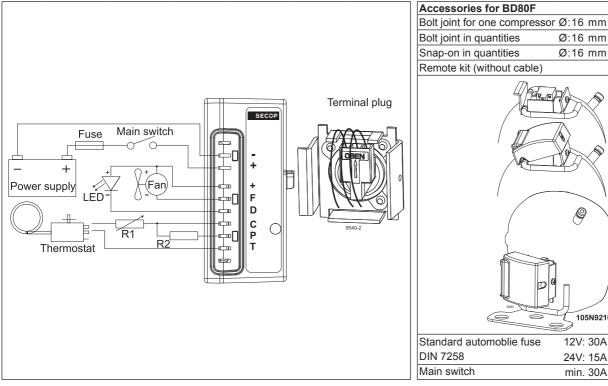
Voltage		12V	24V
Cut out	VDC	10.4	22.8
Cut in	VDC	11.7	24.2

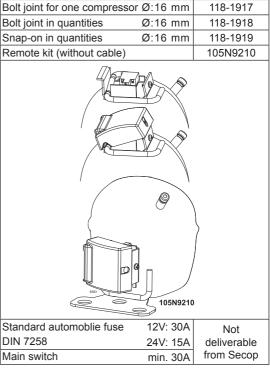
Dimensions

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



Ipm 1°C - 30 25 2.3 3.20 15 102 103 112 140 5 7.2 10 15 3.100 41.8 50.0 66.6 71.1 140 133 168 - - - code	Capacity	(EN 1	2900 H	louse	hold/C	ECON	IAF)		12V	DC, s	static c	ooling	watt	Operatio	nal erro	rs errors s	hown by	LED (op	tional)
2.500 35.3 49.5 55.0 66.6 87.1 112 140 Code 3.100 41.8 59.0 66.6 79.6 104 133 168	rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Error		E	rror type	9	
3.800 40.6 70.5 78.5 95.3 125 129 200 item construction 4.400 54.8 78.0 86.7 105 138 176 221 item construction item constructon item construc	2,500	35.3	49.5	55.0	66.6	87.1	112	140											
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	3,100	41.8	59.0	65.6	79.6	104	133	168						5	5 Thermal cut-out of electronic unit				
Lincol 10:00 Loss	3,800	49.6	70.5	78.5	95.3	125	159	200							(If the re	efrigeration	system ha	as been to	o heavily
Capacity (ASHRAE LBP) 12V DC, static cooling watt pm *C 20 30 - 25 23.3 -20 -15 -10 -5 7.2 10 15 3.100 51.5 7.2.8 80.9 98.2 128 165 20.7 - - - - - - ft motor speed error (ft the refigeration system is to heavily loaded approximately 2.450 rpm). 3 Motor stat error - 10 - <t< td=""><td>4,400</td><td>54.8</td><td>78.0</td><td>86.7</td><td>105</td><td>138</td><td>176</td><td>221</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>perature is</td><td>high, the</td></t<>	4,400	54.8	78.0	86.7	105	138	176	221										perature is	high, the
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Capacity	(ASH	RAE L	BP)					12V	DC, s	static co	ooling	watt				,		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	4				1	
3,100 51.5 7.2.8 80.9 98.2 1.29 1.65 207 approximately 2.450 rpm). 3,800 61.1 87.0 96.8 118 154 197 248 approximately 2.450 rpm). Power consumption 12V DC, static cooling watt 1 100 48.7 61.2 65.4 73.8 87.0 101 118 approximately 2.450 rpm). 3.800 59.5 75.0 80.2 90.3 106 124 145 approximately 2.450 rpm.). 4.400 69.0 87.0 93.0 105 123 144 168 approximately 2.450 rpm.). Current consumption (for 24V applications the following must be halfed) A 4.400 5.0 5.0 5.0 5 7.2 10 15 2,500 3.3 42.2 4.5 6.0 9.8 approximately 2.450 rpm.). 3 3,100 4.4 5.6 6.7 7.2 10 15 10 5 0 5 7.2 10 15 3,100 <td>2,500</td> <td>43.5</td> <td>61.1</td> <td>67.8</td> <td>82.2</td> <td>108</td> <td>138</td> <td>174</td> <td></td>	2,500	43.5	61.1	67.8	82.2	108	138	174											
3.800 61.1 87.0 96.8 118 154 197 248 4 5 97.2 10 15 10 -5 0 5 7.2 10 15 10 -5 0 5 7.2 10 15 10 -5 0 5 7.2 10 15 10 -5 0 5 7.2 10 15 10 -5 0 5 7.2 10 15 10 -5 0 5 7.2 10 15 10 123 14 18 14	3,100	51.5	72.8	80.9	98.2	129	165	207										minimum	speeu ai
Image: Construction Condensing temperature Cond	3,800	61.1	87.0	96.8	118	154	197	248						2		-	P).		
Power consumption 12V DC, static cooling watt the refrigeration system is too high (>5 bar)). Ipm \^C 3.0 40.0 50.0 53.4 60.3 10.6 1.0 1.5 3.00 48.7 61.2 65.4 73.8 87.0 101 118 1	4,400	67.6	96.1	107	130	170	218	274						3			or the dif	forontial nr	oc-curo in
2,500 40.0 50.0 53.4 60.3 71.3 83.1 96 1 </td <td>Power co</td> <td>nsum</td> <td>ption</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>12V</td> <td>DC, s</td> <td>static co</td> <td>ooling</td> <td>watt</td> <td></td> <td>`</td> <td></td> <td></td> <td></td> <td></td>	Power co	nsum	ption						12V	DC, s	static co	ooling	watt		`				
3,100 48.7 61.2 65.4 73.8 87.0 101 118 118 11 3,800 59.5 75.0 80.2 90.3 106 123 144 168 14 114 14	rpm \ °C	-30	-25					-5	0	5	7.2	10	15	2	Fan over	-current cu	t-out		
3.800 59.5 75.0 80.2 90.3 106 124 145 1 Battery protection cut-out (The voltage is outside the cut-out setting). Current consumption (tor 24V applications the following must be halfed) A frpm \°C -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 3.800 5.0 6.3 6.7 7.2 8.5 9.8 1 1 Battery protection cut-out (The voltage is outside the cut-out setting). Compressor speed 3.800 5.0 6.3 6.7 7.5 8.9 10.3 12.1 1 1 Battery protection cut-out (R1) [Ω] Speed Control 3.800 5.8 7.2 7.7 8.7 10.3 12.0 14.0 Motor Control 2.500 8.8 0.99 1.03 1.10 1.22 1.34 1.46 1 1 3.800 0.83 0.99 1.03 1.01 1.22 1.33 1.42 1 1 1 1 10 10	2,500	40.0				71.3	83.1	96							(The fan	loads the	electronic	unit with i	more than
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	3,100	48.7	61.2	65.4	73.8	87.0	101	118							1A _{peak}).				
4,400 69.0 87.0 93.0 105 123 144 168 (The voltage is outside the cut-out setting). Current consumption (for 24V applications the following must be halfed) A rpm \°C -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 2,500 3.3 4.2 4.5 5.0 5.9 6.9 8.0 - - - 3,800 5.0 6.3 6.7 7.5 8.9 10.3 12.1 -	3,800	59.5	75.0	80.2		106	124	145						1		protection c	ut-out		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	4,400	69.0	87.0	93.0	105	123	144	168										out setting)	
2,500 3.3 4.2 4.5 5.0 5.9 6.9 8.0 Image: constraint of the system of the s	Current c	onsu	nptior	1 (for 2	4V app	licatior	ns the f	ollowin	g must	t be ha	lfed)		Α						
3,100 4.1 5.1 5.5 6.1 7.2 8.5 9.8 Image: constraint of the second difference of the second dif	rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Compres	Compressor speed				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	2,500	3.3	4.2	4.5	5.0	5.9	6.9	8.0						Electron	it unit	Resistor	Moto	or (Control
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	3,100	4.1	5.1	5.5	6.1	7.2	8.5	9.8								(R1) [Ω]	spee	ed	circuit
COP (EN 12900 Household/CECOMAF) W/W rpm\°C -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 2,500 0.88 0.99 1.03 1.10 1.22 1.34 1.46 101N0290 with AEO 203 2,500 5 3,100 0.86 0.96 1.00 1.08 1.20 1.31 1.42 101N0290 with AEO 451 3,100 4 4,400 0.79 0.90 0.93 1.01 1.12 1.22 1.32 101N0290 with AEO 101N0290 with AEO 867 3,800 3 COP (ASHRAE LBP) 1.01 1.12 1.22 1.32 101 1.12 1.22 1.32 101 1.42 101 101N0290 with AEO 101N0290 <td>3,800</td> <td>5.0</td> <td></td> <td>6.7</td> <td>7.5</td> <td>8.9</td> <td>10.3</td> <td>12.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Code nu</td> <td>mber</td> <td>calculated</td> <td></td> <td></td> <td>current</td>	3,800	5.0		6.7	7.5	8.9	10.3	12.1						Code nu	mber	calculated			current
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	4,400	5.8	7.2	7.7	8.7	10.3	12.0	14.0								values	[rpm	ן [ו	[mA]
2,500 0.88 0.99 1.03 1.10 1.22 1.34 1.46 1	COP (EN	12900	Hous	ehold	CECC	OMAF)							W/W				6		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	4041000	<u> </u>	203	2,50	0	5
3,100 0.86 0.96 1.00 1.08 1.20 1.31 1.42 867 3,800 3 3,800 0.83 0.94 0.98 1.06 1.17 1.28 1.39 1 1 1.12 1.22 1.32 1 1.10 1.11 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1 1.12 1.22 1.32 1.20 1.20 1.20 1.20 1.20 1.21 1.32 1.22 1.32 1.20 1.20 1.21 1.30 1.45 1.51 1.66 1.81 1 1 1.51 1.66 1.81 1 1 1.53 1 1.63 1 1 1.53 1 1.53 1 1.53 1 1.51 1.63 1 </td <td>2,500</td> <td>0.88</td> <td>0.99</td> <td>1.03</td> <td>1.10</td> <td>1.22</td> <td>1.34</td> <td>1.46</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="2"></td> <td>3,10</td> <td>0</td> <td>4</td>	2,500	0.88	0.99	1.03	1.10	1.22	1.34	1.46									3,10	0	4
In AEO (Adaptive Energy Optimizing) speed mode the BD compression will always adapt its speed to the actual cooling demand COP (ASHRAE LBP) 12V DC, static cooling W/W rpm \°C -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 3,100 1.06 1.19 1.24 1.33 1.48 1.62 1.76 Constant Size Max. length* Max. length* 3,100 1.06 1.11 1.15 1.24 1.33 1.48 1.62 1.76 Constant Max. length* Max. length* 24V operation 4,400 0.98 1.11 1.15 1.24 1.38 1.51 1.63 Intervention Max. length* 24V operation Test conditions EN 12900/CECOMAF ASHRAE LBP 6 10 2.5 8 5 16	3,100	0.86	0.96	1.00	1.08	1.20	1.31	1.42							0 [867	3,80	0	3
COP (ASHRAE LBP) 12V DC, static cooling W/W rpm \ °C -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 2,500 1.09 1.22 1.27 1.36 1.51 1.66 1.81 Image: colored coloredc	3,800	0.83	0.94	0.98	1.06	1.17	1.28	1.39								1700	4,40	0	2
Top (ASHRAE LBP) Text conditions EN 12900/CECOMAF ASHRAE LBP Wire Dimensions DC Size Max. length* Max. length* 24V operation Image: Condensing temperature 55°C 54.4°C 6 10 2.5 8 5 16	4,400	0.79	0.90	0.93	1.01	1.12	1.22	1.32						In AEO (A	daptive Er	ergy Optimiz	zing) speed	d mode the	BD com-
2,500 1.09 1.22 1.27 1.36 1.51 1.66 1.81 Wire Dimensions DC 3,100 1.06 1.19 1.24 1.33 1.48 1.62 1.76 Size Max. length* 24V operation 3,800 1.03 1.16 1.21 1.30 1.45 1.59 1.71 Max. length* 24V operation 4,400 0.98 1.11 1.15 1.24 1.38 1.51 1.63 Image: model with the second mark in the sec	COP (AS	HRAE	LBP)						12V	DC, s	static co	ooling	W/W	ressor will	always ac	apt its speed	d to the act	tual cooling	demand.
3,100 1.06 1.19 1.24 1.33 1.48 1.62 1.76 Max. length* Max. length* Max. length* 3,800 1.03 1.16 1.21 1.30 1.45 1.59 1.71 Image: Section sectio	rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15						
3,800 1.03 1.16 1.21 1.30 1.45 1.59 1.71 Cross AWG 12V operation 24V operation 4,400 0.98 1.11 1.15 1.24 1.38 1.51 1.63 Image: section </td <td>2,500</td> <td>1.09</td> <td>1.22</td> <td>1.27</td> <td>1.36</td> <td>1.51</td> <td>1.66</td> <td>1.81</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Wire Dim</td> <td>nensions</td> <td>DC</td> <td></td> <td></td> <td></td>	2,500	1.09	1.22	1.27	1.36	1.51	1.66	1.81						Wire Dim	nensions	DC			
4,400 0.98 1.11 1.15 1.24 1.38 1.51 1.63 section [mm²] [Gauge] [m] [ft.] Test conditions EN 12900/CECOMAF ASHRAE LBP Condensing temperature 55°C 54.4°C 6 10 2.5 8 5 16	3,100	1.06	1.19	1.24	1.33	1.48	1.62	1.76						Si	ze	Max. le	ength*	Max. I	ength*
Test conditionsEN 12900/CECOMAFASHRAE LBP[mm²][Gauge][m][ft.]Condensing temperature55°C54.4°C6102.58516	3,800	1.03	1.16	1.21	1.30	1.45	1.59	1.71						Cross	AWG	12V op	eration	24V op	eration
Test conditionsEN 12900/CECOMAFASHRAE LBPCondensing temperature55°C54.4°C6102.58516	4,400	0.98	1.11	1.15	1.24	1.38	1.51	1.63						section					
Test conditionsEN 12900/CECOMAFASHRAE LBPCondensing temperature55°C54.4°C6102.58516	·													[mm ²]	Gauge	[m]	[ft]	[m]	[fft]
	Test con	dition	s			EN	12900/	CECO	MAF		ASHRA	AE LB	C	[]	louuge	[]	[re]	[]	[re.]
Ambient temperature 32°C 32°C 5 10 2.0 0 10 10	Condens	ing ter	nperat	ure			55	°C			54.	4°C		6	10	2.5	8	5	16
	Ambient	tempe	rature				32	°C			32	°C				2.0	5		
Suction gas temperature 32°C 32°C *Length between battery an electronic ur	Suction g	jas ter	nperat	ure			32	°C			32	°C		L	I	*l enath be	etween hat	l Iterv an ele	ctronic unit
Liquid temperature no subcooling 32°C	Liquid ter	mpera	ture				no sub	coolin	g		32	°C				Longui De			





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Code number