WE HAVE MORE THAN 40 YEARS OF EXPERIENCE IN DEVELOPING DIRECT CURRENT COMPRESSORS AND HELPING CUSTOMERS BENEFIT FROM THE OPPORTUNITIES OF MOBILE REFRIGERATION TECHNOLOGY. WITH IN-DEPTH KNOWLEDGE OF USE ACROSS VARIOUS APPLICATIONS, WE HAVE EARNED A POSITION AS MARKET LEADER, WORKING WITH OEM CUSTOMERS.

SECOP

HERMETIC COMPRESSORS FOR DC VOLTAGE

12124148

DIRECT CURRENT COMPRESSORS APPLICATION ALSO WITH MULTIPLE VOLTAGES WITH MINIMUM ENERGY CONSUMPTION AND MAXIMUM PERFORMANCE

3 GWP

ACHIEVABLE WITH A POWERFUL EFFICIENT COMPRESSOR, DESIGNED FOR MOBILE SOLAR POWERED OPERATION, WITHIN A WIDE VOLTAGE RANGE FROM 10-45 V DC COOLING WITH CONSCIENCE® COMFORT COOLING ON THE MOVE INTELLIGENT SOLUTIONS THAT ONLY PROVIDE COOLING WHEN NEEDED

STABLE PORTABLE BEYOND LIMITS RELIABLE OPERATION EVEN WHEN TILTED UP

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SETTING THE STANDARD



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T00L4C00L® Software

Tool4Cool® is a unique PC software tool that enables you to precisely configure your Secop BD compressors to your cooling systems.

Via microprocessor-based controllers, Tool4Cool® gives you easy access to all parameters. These can be changed, monitored, downloaded or uploaded to get the optimum performance out of your cooling system. Modern comfort is brought into life when leaving home. As people go mobile, so does food. The excellent performance of the BD series safeguards food preservation.

With our outstanding DC compressors for cars, vans, boats, trucks, etc., Secop has transcended the barriers for mobile refrigeration.



	Capacity [W] at max. speed ***** EN12900 Household/CECOMAF ASHRAE Evaporating temperature [°C]												
-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
		27 34	36 45	40 51	50 63	70 87	94 117	122 153					
		37 46	52 64	58 72	71 88	95 117	123 152	157 194					
		55 68	78 96	87 108	105 130	138 170	176 218	221 274					
			61 76	69 86	87 108	119 148	156 194	200 249	251 311	308 383	336 418	373 465	446 556
			64 80	73 91	91 113	124 153	162 201	208 257	261 323	322 400	352 437	392 488	472 589
			126 156	139 173	169 209	220 273	282 349	355 440	440 546	540 670	588 731	654 814	786 979
			126 156	139 173	169 209	220 273	282 349	355 440	440 546	540 670	588 731	654 814	786 979
			121 150	135 167	164 203	216 267	277 343	350 434	436 540	535 664	584 725	650 808	781 973
83 96	121 140	166 193	220 255	240 279	283 328	355 413	439 511	535 624					
		25 31	36 44	40 49	49 60	65 79	84 102	106 129					
		30 36	42 51	47 57	58 70	77 94	101 123	129 158	162 198	199 244	218 266	242 296	
31 35	45 51	62 69	82 91	90 100	105 118	133 148	164 184						
44 49	62 70	83 93	108 120	117 131	137 153	170 190	209 233						
		12 15	23 29	27 34	36 45	52 65	71 88	92 114	116 144	142 177	155 193	172 214	203 254
		13 17	24 32	29 38	38 50	54 70	71 93	91 118	111 145	134 174	144 188	158 206	182 239
			16 20	19 24	26 32	37 47	51 64	67 84	85 106	105 131			
			17 23	21 27	27 35	39 50	52 68	67 87	83 108	100 130			
3	33 96	33 96 121 140 31 35 45 51	27 34 37 46 55 68 27 34 37 46 55 68 20 21 20 21 140 166 193 25 31 30 36 31 35 45 51 62 70 83 93 12 15	27 34 36 45 37 46 52 64 55 68 78 96 55 68 78 96 61 76 64 80 126 156 126 156 126 156 121 150 33 96 121 140 166 193 220 255 25 31 36 44 30 36 42 51 31 35 45 51 62 69 82 91 44 49 62 70 83 93 108 120 12 15 23 29 13 17 24 32 13 17 24 32 16 20	27 34 36 45 40 51 37 46 52 64 58 72 55 68 78 96 87 108 61 76 69 86 61 76 69 86 64 80 73 91 126 156 139 173 126 156 139 173 126 156 139 173 121 140 166 193 220 255 25 31 36 44 40 49 30 36 42 51 47 57 31 35 45 51 62 69 82 91 90 100 44 49 62 70 83 93 108 120 117 131 121 15 23 29 27 34 13 17 24 32 29 38 16 20 19 24	-40 -35 -30 -25 -23.3 -20 27 34 36 45 40 51 50 63 37 46 52 64 58 72 71 88 37 46 52 64 58 72 71 88 40 55 68 78 96 87 108 105 130 40 55 68 78 96 87 108 105 130 40 64 87 108 105 130 105 130 40 64 80 73 91 91 113 41 64 139 173 169 209 41 126 156 139 173 169 209 42 121 140 166 193 220 255 240 279 283 328 43 90	-40 -35 -30 -25 -23.3 -20 -15 27 34 36 45 40 51 50 63 70 87 37 46 52 64 58 72 71 88 95 117 55 68 78 96 87 108 105 130 138 170 61 76 69 86 87 108 105 130 138 170 64 176 69 86 87 108 119 148 64 87 108 119 148 124 153 64 166 139 173 169 209 220 273 126 156 139 173 169 209 220 273 121 140 166 193 200 255 240 279 283 328 355 413 <th>-40 -35 -30 -25 -23.3 -20 -15 -10 27 34 36 45 40 51 50 63 70 87 94 117 37 46 52 64 58 72 71 88 95 117 123 152 55 68 78 96 87 108 105 130 138 170 176 218 61 76 69 86 87 108 119 148 156 194 61 64 80 73 91 91 113 124 153 162 201 126 156 139 173 169 209 220 273 282 349 126 156 139 173 169 209 220 273 282 349 126 156 139 173 169 209 220 273 282 349 121 150 135 167 164 203 216 267 277 343 33 96 121 140 166 193 220 255 240 279 283 328 355 413 439 511 25 31 36 44 40 49 49 60 65 79 84 102 30 36 42 51 47 57 58 70 77 94</th> <th>-40 -35 -30 -25 -23.3 -20 -15 -10 -5 1 27 34 36 45 40 51 50 63 70 87 94 117 122 153 1 37 46 52 64 58 72 71 88 95 117 123 152 157 194 1 55 68 78 96 87 108 105 130 138 170 176 218 221 274 1 61 76 69 86 87 108 119 148 156 194 200 249 1 64 80 73 91 91 113 124 153 162 201 208 257 1 126 156 139 173 169 209 220 273 282 349 355 440 1 126 156 139 173 169 209 220 273 282 349 355 440 1 126 156 139 173 169 209 220 273 282 349 355 440 1 121 150 135 167 164 203 216 267 277 343 350 434</th> <th>-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 27 34 36 45 40 51 50 63 70 87 94 117 122 153 37 46 52 64 58 72 71 88 95 117 123 152 157 194 55 68 78 96 87 108 105 130 138 170 176 218 221 274 61 76 69 86 87 108 119 148 156 194 200 249 251 311 64 80 73 91 91 113 124 153 162 201 208 257 261 323 126 156 139 173 169 209 220 273 282 349 355 440 440 546 126 156 139 173 169 209 220 273 282 349 355 440 440 546 121 140 166 193 220 255 240 279 283 328 355 413 439 511 535 624 231 96 121 140 166 193 220 255 240 279 283 3</th> <th>-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 5 27 34 36 45 40 51 50 63 70 87 94 117 122 153 37 46 52 64 58 72 71 88 95 117 123 152 157 194 55 68 78 96 87 108 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173 169 209 220 273 282 349 121 150 135 167 164 203 216 267 277 343 33 96 121 140 166 193 220 255 240 279 283 328 355 413 439 511 25 31 36 44 40 49 49 60 65 79 84 102 30 36 42 51 47 57 58 70 77 94	-40 -35 -30 -25 -23.3 -20 -15 -10 -5 1 27 34 36 45 40 51 50 63 70 87 94 117 122 153 1 37 46 52 64 58 72 71 88 95 117 123 152 157 194 1 55 68 78 96 87 108 105 130 138 170 176 218 221 274 1 61 76 69 86 87 108 119 148 156 194 200 249 1 64 80 73 91 91 113 124 153 162 201 208 257 1 126 156 139 173 169 209 220 273 282 349 355 440 1 126 156 139 173 169 209 220 273 282 349 355 440 1 126 156 139 173 169 209 220 273 282 349 355 440 1 121 150 135 167 164 203 216 267 277 343 350 434	-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 27 34 36 45 40 51 50 63 70 87 94 117 122 153 37 46 52 64 58 72 71 88 95 117 123 152 157 194 55 68 78 96 87 108 105 130 138 170 176 218 221 274 61 76 69 86 87 108 119 148 156 194 200 249 251 311 64 80 73 91 91 113 124 153 162 201 208 257 261 323 126 156 139 173 169 209 220 273 282 349 355 440 440 546 126 156 139 173 169 209 220 273 282 349 355 440 440 546 121 140 166 193 220 255 240 279 283 328 355 413 439 511 535 624 231 96 121 140 166 193 220 255 240 279 283 3	-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 5 27 34 36 45 40 51 50 63 70 87 94 117 122 153 37 46 52 64 58 72 71 88 95 117 123 152 157 194 55 68 78 96 87 108 105 130 138 170 176 218 221 274 641 76 69 86 87 108 119 148 156 194 200 249 251 311 308 383 64 80 73 91 91 113 124 153 162 201 208 257 261 323 322 400 126 156 139 173 169 209 220 273 282 349 355 440 440 546 540 670 126 156 139 173 169 209 220 273 282 349 355 440 440 546 540 670 121 140 166 193 220 255 240 279 283 328 355 413 439 511 535 624 30 36 42 51 47 57 5	-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 27 34 36 45 40 51 50 63 70 87 94 117 122 153	-40 -35 -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 27 34 36 45 40 51 50 63 70 87 94 117 122 153 2 2 2 37 46 52 64 58 72 71 88 95 117 123 152 157 194 2 2 2 2 2 2 2 3 36 45 40 51 50 63 70 87 94 117 122 153 2

Compressors R134a						Power	consum	nption [V	V] at ma	x. speed	l *****				
R404A/R507 * R600a **, R290 ***	Code numbers	Evaporating temperature [°C]													
R1234yf ****		-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
BD35F /-B /-HD.2	101Z0200 /204 /205 /216			35	41	44	49	57	66	75					
BD50F	101Z1220 /0203			45	57	61	68	80	91	104					
BD80F	101Z0280			66	83	89	100	118	138	161					
BD250GH.2	101Z0406				65	69	78	91	104	117	132	150	158	170	194
BD250GH.2 /-HD (48V)	101Z0405 /410				72	77	85	99	113	128	143	160	167	177	196
BD350GH (12V)	102Z3015				140	149	168	197	228	259	292	325	340	358	391
BD350GH (24V)	102Z3016				122	129	144	169	194	221	248	276	288	303	330
BD350GH (48V)	102Z3031				131	139	155	181	208	236	265	294	307	323	352
BD220CL *	102Z3020	121	147	173	200	209	227	255	284	314					
BD35K /-B **	101Z0211/214			34	41	44	48	54	60	67					
BD50K **	101Z0213			42	50	53	59	68	77	86	94	103	107	111	
BD80CN ***	101Z0403	47	55	63	72	75	81	89	97						
BD100CN ***	101Z0401	55	66	78	89	93	100	110	120						
BD1.4F-VSD.2/.3 /-HD	109Z0206 /209 /250 /251			27	34	36	41	48	55	61	68	75	77	81	87
BD1.4F-VSD.3 ****	109Z0209			30	37	40	44	51	57	63	68	74	76	78	83
BD1.4F-AUT0.3	109Z0106				24	26	29	34	39	45	50	56			
BD1.4F-AUT0.3 ****	109Z0106				26	28	31	36	41	46	51	55			

BD COMPRESSORS ELECTRONIC UNITS & APPLICATIONS

							Ele	ctronic units	(voltag	jes 8	k cod	<mark>e nu</mark>	mbe	rs)										
Compressors R134a R404A/R507 * R600a ** R290 ***			Automotive 12-24V DC	101N0650	101N08xxx	12V DC 101N0820+0800	(alt.: 101N0830)	101N8xxx	24V DC 101N0820+0810		101N07xx	24V UC 101N0715		Telecom 48V DC	101N0720			76/NNI.NI.						
BD35F	10	D1Z0200	1	·		1	1	1	1															
BD35F (inch con.)		01Z0204	1			1	1	1																
BD35F-B		D1Z0205	1			1		1	1															
BD35F-HD.2		D1Z0216	1	_		1			1															
BD50F		D1Z1220	1			1		1	1															
BD50F (inch con.)	10	D1Z0203	1			1		1	1															
BD80F		01Z0280			1																			
BD250GH.2		01Z0406			1					_		_		_	_								_	
BD250GH.2 (48V)		01Z0405																					1	
BD250GH.2-HD (48		01Z0410																					1	
BD350GH (12V)		02Z3015									•	/+√												
BD350GH (24V)		02Z3016												1	+/		•	/						
BD350GH (48V)		02Z3031																	1		<u> </u>			
BD220CL *		02Z3020									√+√		√+√											
BD35K /-B **	_	Z0211 /214	1			1			1															
BD50K **	_	01Z0213			1																			
BD80CN ***	_	01Z0403	1			1		1	1	1														
BD100CN ***		01Z0401			1																			
TOOL4COOL® appl	licable		1		1		1		1			1			/		v	/		1	,		1	
					nic units	;									С	om	pres	sor	s					
Compressors R134a R134a/R1234yf * I	Code numbe		101N2100	Variable Speed (VSD) w. AC/DC converter	12-24V DC & 100 -240V AC 101N5100	Automotive 12V DC 101N1010	Applications Truck refrigerators		BD1.4F-AUT0.3	Solution States - Solution - S	BD1.4F-VSD-HD	Sector	BD35F-B	BD35F-HD.2	Sector	Sector	Sector	▲ BD80F	Second	BD100CN	BD250GH.2	BD350GH	BD220CL	
BD1.4F-AUT0.3 *	109Z01	06				1	Boat refrigerators Bus refrigerators			· ·		<i>\</i>	1		<i>、</i>	1	•	•	1	•				
	109Z02						Portable boxes			• •		• •	•		• •	•	1	1	-					
							Car minbars (high end)		1	· ·		· ·			• •	-	•	•						
	109Z02	50 1					Car minibars (SUV, MPV)			· •		~			· /									
BD1.4F-VSD.2 (inch connectors)	109Z02	06 🗸			/		Spot cooling (e.g. trucks)				-					-						1	<	
BD1.4F-VSD-HD (inch connectors)	109Z02	51 🗸					Van box											~	~	~	1	1	✓ ✓	~
TOOL4COOL® appl	licable	1			/	1	Battery Solar ca	•					1			1	1	1		1	1	1	/	
		•			-	•		UNICIS					•			v	v	v		v	v			



BD1.4F-AUTO.3 and BD1.4F-VSD.3 R134a / R1234yf, -30°C, +5 and +15 / 0°C evap. temp. In-car cabinets and all mobile applications for portable boxes, boats, trucks etc., 14-108 W and 7-218 W / 5-85 W cooling capacity*.



BD80/100CN R290, -40°C, -10°C evap. temp. Freezer application (not approved for vehicles), solar-powered systems, ice cream boxes up to 200 l, 20-164 W / 31-209 W cooling capacity*.



BD35K Multivoltage and BD50K

R600a, -30°C, +10°C evap. temp. Solar-powered vaccine coolers etc., 100-250 l coolers, 13-242 W cooling capacity*. BD35K can be powered with AC and DC, 85-240 V AC 50/60 Hz, 12-24 V DC, automatic selection of AC when available.



BD250GH.2 R134a, -25°C, +15°C evap. temp. Designed for cabin cooling in trucks during nighttime, very silent operation, 32-446 W cooling capacity*.



BD35F/50F Multivoltage R134a, -30°C, +10°C evap. temp. All mobile applications for portable boxes, boats, trucks etc., can be powered with AC and DC, 85-240 V AC 50/60 Hz, 12-24 V DC, automatic selection of AC when available, 15-152 W / 20-191 W cooling capacity*.



BD35F/50F/80F Basic R134a, -30°C, +10°C evap. temp. All mobile applications for portable boxes, boats, trucks etc., 15-152 W / 20-191 W / 35-221 W cooling capacity*.



BD350GH R134a, -25°C, +15°C evap. temp. Tailored for spotcooling systems in sleeping compartments in trucks, caravans, golf buggies etc., 85-786 W cooling capacity*.

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

CODE NUMBERS BD35/50/80F | BD250GH.2 BD35F-HD.2 | BD35F-B BD35/50K | BD80/100CN

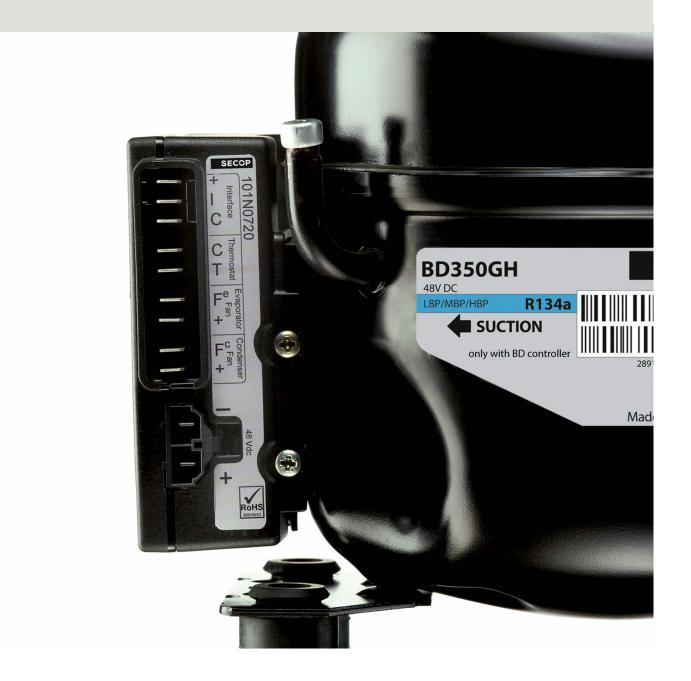


Compressors	Code number	Description
BD35F	101Z0200	standard compressor, mm tube connectors
BD35F inch	101Z0204	same as 101Z0200, inch tube connectors
BD35F-B	101Z0205	optimized for rough vehicle motions (especially in buses), mm tube connectors
BD35F-HD.2	101Z0216	heavy duty version which can handle extreme vibrations, mm tube connectors
BD35K (R600a)	101Z0211	mainly solar applications, mm tube connectors
BD35K-B (R600a)	101Z0214	optimized for rough vehicle motions (especially in buses), other HD applications, mm tube connectors
BD50K (R600a)	101Z0213	standard compressor, mm tube connectors
BD50F	101Z1220	standard compressor, mm tube connectors
BD50F inch	101Z0203	same as 101Z1220, inch tube connectors
BD80F	101Z0280	standard compressor, mm tube connectors
BD250GH.2	101Z0406	mm tube connectors, HBP compressor
BD80CN (R290)	101Z0403	mm tube connectors
BD100CN (R290)	101Z0401	mm tube connectors

Electronic Unit Single Pack	Code number	Description
Standard (2nd generation) for gateway or sensors refer to page 9	101N0212	for BD35F/BD50F/BD35K, speed setting, battery protection, ECO function, communication interface for PC software Tool4Cool®, high starting torque (HST), reduced EMI and leakage current
AEO	101N0340	for BD35F/BD50F/BD80CN, Adaptive Energy Optimization
High speed	101N0390	for BD80F/BD250GH.2/etc., Adaptive Energy Optimization, speed setting, battery protection
Solar 10-45 V DC	101N0420	for BD35F/BD35K, optimized for direct solar panel operation, speed setting
AC/DC converter	101N0510	for BD35F/BD50F/BD35K, speed setting, battery protection, integrated AC/DC converter
Automotive (2nd generation) for gateway or sensors refer to page 9	101N0650	for BD35F/BD50F, speed setting, battery protection, ECO function, communication interface for PC software Tool4Cool®, high starting torque (HST), significant reduced EMI and leakage current
Remote kit with cable	105N9100	bracket, cover, 750 mm cable with two plugs
Remote kit without cable	105N9210	bracket, cover, two plugs

Electronic Unit I - Pack	Code number	Description
Standard (2nd generation) for gateway or sensors refer to page 9		for BD35F/BD50F/BD35K, speed setting, battery protection, ECO function, communication interface for PC software Tool4Cool®, high starting torque (HST), reduced EMI and leakage current, 30 pcs.
AEO	101N0341	for BD35F/BD50F/BD80CN, Adaptive Energy Optimization, 30 pcs.
High speed	101N0391	for BD80F/BD250GH.2/etc., Adaptive Energy Optimization, speed setting, battery protection, 30 pcs.
Solar 10-45 V DC	101N0421	for BD35F/BD35K, optimized for direct solar panel operation, speed setting, 30 pcs.
AC/DC converter	101N0511	for BD35F/BD50F/BD35K, speed setting, battery protection, integrated AC/DC converter, 28 pcs.
Automotive	101N0601	for BD35F, speed setting, battery protection, lamp output, 30 pcs.
Automotive (harness connector)	101N0631	for BD35F, speed setting, battery protection, lamp output, 30 pcs.
Automotive (2nd generation) for gateway or sensors refer to page 9	101N0651	for BD35F/BD50F, speed setting, battery protection, ECO function, communication interface for PC software Tool4Cool®, high starting torque (HST), significant reduced EMI and leakage current, 30 pcs.
Remote kit without cable	105N9200	bracket, cover and two plugs, 200 pcs.

CODE NUMBERS BD250GH.2 | BD350GH WITH 101N07XX SERIES CONTROLLERS



	ltem	Code number	Description
-S	BD250GH.2 48 V DC supply	101Z0405	for telecommunication applications (battery cooling)
Compres- sors	BD350GH 24 V DC supply	102Z3016	for cooling and comfort cooling in trucks and vans
Ŝ	BD350GH 48 V DC supply	101Z3031	for telecommunication applications (battery cooling)
	Electronic unit 24 V DC	101N0715	for BD350GH (24 V), 40/60 W fan output, ECO function
	Electronic unit 48 V DC	101N0732	for BD250GH.2 (48 V), 60 W fan output, ECO function
	Electronic unit 48 V DC	101N0720	for BD350GH (48 V), 60 W fan output, ECO function
×	48 V DC line cord, 900 mm, 6mm ²	105N9542	accessories
Single-Pack	48 V DC line cord, 2000 mm, 6 mm ²	105N9540	accessories
ngle	48 V DC line cord, 5000 mm, 6 mm²	105N9538	accessories
Si	Temperature sensor, 470 mm, spade connectors	105N9612	accessories
	Temperature sensor, 1000 mm, spade connectors	105N9614	accessories
	Temperature sensor, 1500 mm, spade connectors	105N9616	accessories
	Secop One Wire/LIN gateway with cables & driver	105N9501	accessories
	Electronic unit 24 V DC	101N0714	for BD350GH (24 V), 36 pcs.
	Electronic unit 48 V DC	101N0733	for BD250GH.2 (48 V), 36 pcs.
	Electronic unit 48 V DC	101N0721	for BD350GH (48 V), 36 pcs.
(¥)	Communication cable, 1500 mm, AMP connector	105N9545	100 pcs.
Industrial-Pack (I-Pack)	Communication cable, 3000 mm, AMP connector	105N9547	50 pcs.
ack (48 V DC line cord, 900 mm, 6 mm ²	105N9543	36 pcs.
al-P	48 V DC line cord, 2000 mm, 6 mm ²	105N9541	36 pcs.
ustr	48 V DC line cord, 5000 mm, 6 mm²	105N9539	36 pcs.
pul	Temperature sensor, 470 mm, spade connectors	105N9613	200 pcs.
	Temperature sensor, 1000 mm, spade connectors	105N9615	100 pcs.
	Temperature sensor, 1500 mm, spade connectors	105N9617	100 pcs.
	Temperature sensor, 400 mm, AMP connector	105N9611	200 pcs.

Software

Tool4Cool® LabEdition

download from: https://www.secop.com/solutions/application-show/variable-speed-drive-software-tool4cool

CODE NUMBERS BD350GH | BD220CL WITH 101N08XX SERIES CONTROLLERS



	Item	Code number	Description					
es-	BD350GH 12 V DC supply	102Z3015	for cooling and comfort cooling in trucks and vans					
Compres- sors	BD350GH 24 V DC supply	102Z3016	for cooling and comfort cooling in trucks and vans					
ပိ	BD220CL 12 V DC supply	102Z3020	for mobile refrigeration units (boxes, containers, trolleys)					
	Electronic unit (compressor module) 12 V DC	101N0800	electronic module (to be used together with 101N0820)					
	Electronic unit (compressor module) 24 V DC	101N0810	electronic module (to be used together with 101N0820)					
	Electronic unit (application module) 12 & 24 V DC	101N0820	electronic module (to be used together with 101N800/810)					
ack	Electronic unit (single solution) 12 V DC	101N0830	electronic unit (no fan control)					
Single-Pack	Temperature sensor, 470 mm, spade connectors	105N9612	accessories					
Sing	Temperature sensor, 1000 mm, spade connectors	105N9614	accessories					
	Temperature sensor, 1500 mm, spade connectors	or, 1500 mm, spade connectors 105N9616 accessories						
	Secop One Wire/LIN gateway with cables & driver	ire/LIN gateway with cables & driver 105N9501 accessories						
	One Wire/LIN gateway communication cable	105N9524	accessories (for 101N8xxx series)					
	Electronic unit (compressor module) 12 V DC	101N0801	30 pcs.					
	Electronic unit (compressor module) 24 V DC	101N0811	30 pcs.					
÷	Electronic unit (application module) 12 & 24 V DC	101N0821	30 pcs.					
Pacl	Electronic unit (single solution) 12 V DC	101N0831	30 pcs.					
- K	Compressor communication cable assembly 1500 mm	105N9553	80 pcs.					
-Pac	Compressor communication cable assembly 3000 mm	105N9554	45 pcs.					
strial	Temperature sensor, 470 mm, spade connectors	105N9613	200 pcs.					
Industrial-Pack (I-Pack)	Temperature sensor, 1000 mm, spade connectors	105N9615	100 pcs.					
-	Temperature sensor, 1500 mm, spade connectors	105N9617	100 pcs.					
	Display cable assembly without fuse 1500 mm	105N9557	65 pcs.					
	Display cable assembly without fuse 3000 mm	105N9558	35 pcs.					

Software

Tool4Cool® LabEdition

download from: https://www.secop.com/solutions/application-show/variable-speed-drive-software-tool4cool

CODE NUMBERS BD1.4F-AUTO.3 | BD1.4F-VSD.2/.3 BD1.4F-VSD-HD



Compressors	Code number	Description
BD1.4F-AUT0.3 mm	109Z0106	automotive compressor, mm tube connectors
BD1.4F-VSD.3 mm	109Z0209	variable speed drive compressor, mm tube connectors
BD1.4F-VSD.2 inch	109Z0206	similar as 109Z0209, inch tube connectors
BD1.4F-VSD-HD mm	109Z0250	variable speed drive compressor (heavy duty), mm tube connectors, for trucks and buses
BD1.4F-VSD-HD inch	109Z0251	same as 109Z0250, inch tube connectors, for trucks and buses

Electronic Single Pack	Code number	Description
Automotive	101N1010	for BD1.4F-AUT0.3, battery protection, 12 V, fixed speed (3,000 rpm)
Variable Speed (VSD)	101N2100	for BD1.4F-VSD.2/.3, BD1.4F-VSD-HD, speed setting, battery protection, 12/24 V, ECO function
VSD with AC/DC converter	101N5100	for BD1.4F-VSD.2, speed setting, battery protection, 12/24 V DC & 100 - 240 V AC, ECO function

Electronic I - Pack	Code number	Description	
Automotive	101N1011	for BD1.4F-AUT0.3, battery protection, 12 V, fixed speed (3,000 rpm), 30 pcs.	
Variable Speed (VSD)	101N2101	for BD1.4F-VSD.2/.3, BD1.4F-VSD-HD, speed setting, battery protection, 12/24 V, ECO function, 30 pcs.	
VSD with AC/DC converter	101N5101	for BD1.4F-VSD.2, speed setting, battery protection, 12/24 V DC & 100-240 V AC, ECO function, 24 pcs.	
Software		Location	
Tool4Cool® LabEdition	download from: https://www.secop.com/solutions/application-show/variable-speed-drive-software-tool4cool		



PART II APPLICATION EXAMPLES



BD compressors bring comfort at work and leisure

The direct current compressors BD35F/50F/80F for 12/24 V DC power supply can be used in mobile refrigerators and freezers with refrigerant R134a. The BD250GH.2 and the BD350GH compressors in 12/24 or 48 V DC versions are R134a HBP compressors used for mobile spot cooling systems or telecommunication cooling. BD35/50K (R600a) and BD80/100CN (R290) are compressors using HFC-free refrigerants.

All compressors are equipped with an electronic unit with built-in protection against shortages, operation outside temperature limits and destructive battery discharge. The advanced micro controller technology enables new functions like:

electronic thermostat, fan speed, ECO function, alarm log, event log and software main switch.

Second to none – even cooling "without power supply"

Thanks to an extensive voltage rate the BD compressors are ideal for solar energy supply.

The exceptionally low starting current eliminates the need for current batteries if an ice bank is used for energy storage. When storing the sun energy in ice packs the cabinet can be kept at desired temperatures both night and day.

This feature offers numerous uses in areas without power supply like storage and transportation of drugs, ice cream stands in holiday resorts, food preservation under off road conditions, refrigerators in boats to name only a few.

BD1.4F-AUT0.3 (BD Micro)

The BD1.4F-AUT0.3 is the latest generation of BD Micro compressors especially designed for high end car minibars.

It features an optimized noise level and it is also released for refrigerant R1234yf.

BD1.4F-VSD.3 (BD Micro Variable Speed Drive)

The BD1.4F-VSD.3 (new BD Micro generation with optimized noise level and released for refrigerant R1234yf) is 60% smaller than previous models and weighs in at only 2.3 kilos.

Perfect for 10-30 litre in car / van / boat cabinets or portable boxes that need to fit into tight spaces without compromising storage space.

Specially designed for maximum efficiency and reliability this powerhouse of a compressor makes it easier than ever to provide leading class mobile refrigerators.

Enabling the variable speed function increases the system's COP. Low energy consumption is good for car/ boat/ van batteries – as well as the environment. The optimized, low noise motor ensures outstanding performance when you want to provide that extra degree of luxury on the move.

The electronic thermostat (NTC sensor support) provides an accurate temperature while the failure detection allows a fast fault diagnosis. The computer interface makes it easier for customization.

BD35F-HD.2, BD250GH.2-HD, BD1.4F-VSD-HD (Heavy Duty)

BD35F-HD.2, BD250GH.2-HD (48V) and BD1.4F-VSD-HD and are new versions which can handle extreme vibrations.

BD35F-B, BD35K-B (Bus-optimized)

The BD35F-B and the BD35K-B are special versions optimized for rough vehicle motions, especially in buses.

BD50K (Isobutane, R600a)

The new BD50K offers 25 % additional cooling capacity compared to the BD35K compressor.

Secop 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 12/24/48 volts and more than 40 years' of experience in mobile refrigeration.

Transport stable, speed/capacity stable, multifunctional electronic, silent, high COP and compact design.



COMFORT COOLING



In the USA, Australia, Asia, South America, and Europe many of the heavy trucks are equipped with sleeping compartments. The cab gives the driver the opportunity to respond to spontaneous transport tasks and to plan his own work day.

To ensure a good night sleep it is important to keep the temperature and humidity in the cabin at a comfortable level also during night time when the engine is shut off and the air conditioning system is not running. Many states and countries have abandoned idle cooling, meaning the diesel engine is not allowed to run when the truck is parked.

To keep a comfortable temperature during the hot summer nights, a small DC-driven comfort cooler system could be the solution. It cools down the cabin and at the same time lowers the humidity to a comfortable level. BD250GH.2 and BD350GH compressors are tailored to workplaces where driving is required.

They are universal for 12 V and 24 V DC power supplies. In addition, they are unsurpassed when it comes to tolerating changeable climatic conditions and vibrations under harsh road conditions all over the world.

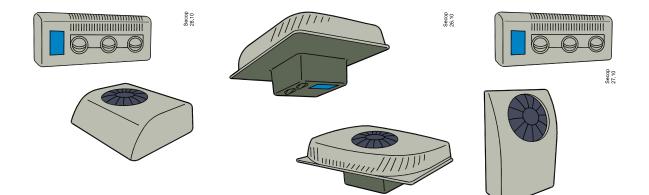
BD compressors cover a capacity range from 180 W to 850 W at Te +15 °C and are specially designed for high back pressure applications.

The compressors are controlled by an electronic unit that also offers protection against overload and hazardous battery discharge. The unit also features an internal voltage recorder as well as calibration to the applied voltage (compressor monitoring) plus many other smart features in order to save energy and maximize performance.

Features

- Silent operation
- High efficiency. Low current consumption
- Variable speed/capacity
- Direct 12 V/24 V DC power supply
- Modbus communication connection
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %. Start/stop delays
- Advanced battery protection function
- No APU necessary
- Transport stable

- The driver can sleep without being disturbed by a noisy compressor.
- Energy-saving. Less battery power needed to cool overnight.
- Energy savings. Adapts speed to cooling needs.
- Same compressor can be used globally. One product covers the world. Customers can make their own control box including control of the
- BD compressor. Cost savings. No extra thermostat needed.
- Fewer components and failure modes.
- Makes identifying errors fast and is easy to service.
- Lower service costs. Less noise during night.
- Fewer components, fewer costs, less wiring, fewer installation costs Safety. The battery will never be drained.
- Truck can be started safely every time.
- Runs directly on battery. No additional cost for an auxiliary power unit.
 Lower costs and failure modes.
- Designed to resist vibrations, shocks, and bumping roads.
 Design lifetime 10 years. Lower service costs.





COOLING IN MARITIME APPLIANCES



The BD compressor series is specially designed for refrigeration in boat applications. A sturdy design enables it to resist vibrations, hard impacts, and heavy seas.

BD compressors cover a capacity range from 20 to 180 Watt. They are ideal for low and medium back pressure applications and refrigerator sizes up to 180 liters and freezers up to 90 liters.

The compressor's capacity can be adjusted manually. A special version of the electronic unit will adapt the capacity of the compressor automatically (AEO) to the actual load on the refrigeration system. The algorithm will adjust the speed of the compressor to achieve a running time of approximately 30 minutes. This is the most energy efficient way to operate the compressor.

The BD1.4F-VSD.3 and BD35F/BD50F (with second generation electronic unit 101N0212) offer an ECO function which adapts the speed of the compressor so that it runs at an optimal level.

Furthermore, these functions protect the compressor from short cycling in low load situations and also reduce the number of starts and thus saving battery life. An optional LED (diode) will flash and the following faults will be indicated by a blinking light: low battery voltage, fan overload, minimum speed exceeded, thermal cut-out, motor start error.

The new BD1.4F-VSD.3 has additional features such as fan speed control, built in electronic thermostat, communication interface which makes programming the controller easy without requiring resistors or extra wiring.

The electronic unit provides protection against electromagnetic interference (EMI) which will allow communication and navigation equipment to work unproblematically without any disturbance.

Features

- Silent operation
- High efficiency. Low current consumption
- Variable speed/capacity
- Direct 12 V/24 V DC power supply
- Modbus communication connection
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %.
- Start/stop delays
- Advanced battery protection function
- AC/DC module available as option
- Transport stable

- No compressor noise at night when sleeping next to the refrigerator in the boat.
- Energy-saving. Operates on a smaller battery.
- Energy savings. Adapts speed to cooling needs.
- Same compressor can be used globally. One product covers the world.
 Customized settings and fast programming on the production line
- are possible. Cost savings. No extra thermostat needed.
- Fewer components and failure modes.
- Makes identifying errors fast and is easy to service. • Lower service costs.
- Less noise during night.
- Fewer components, fewer costs, less wiring, fewer installation costs.Safety. The battery will never be drained to a dangerously low level.
- When staying in a port the refrigerator can be powered by shore power
- (100–240 V AC, 50/60 Hz). Designed to resist conditions on the sea such as vibrations, shocks,
- and inclement weather. Design lifetime 10 year. Lower service costs.



COOLING IN RECREATIONAL VEHICLES (RV)



Everybody wants to bring modern comfort with them when going on vacation or a weekend tour.

BD compressors make it possible to go on vacation in recreational vehicles all over the world and to bring along a refrigerator and a freezer – even in "off grid" places without power supply. The compressors are universal for 12 and 24 V DC power supply and can be used in recreational vehicles like luxury coaches, diesel motor homes, mini motor homes, travel trailers, and fifth wheels, truck campers, etc. They are unsurpassed when it comes to tolerating changeable climatic conditions and vibrations under harsh road conditions.

The BD1.4F-VSD.3, BD35F, BD50F and BD80F compressors cover a capacity range from 20 to 180 W. They are ideal for low and medium back pressure applications and refrigerator sizes up to 180 liters and freezers up to 90 liters.

A special version of the electronic unit adapts the capacity of the compressor automatically (AEO) to the actual load on the refrigeration system. The algorithm adjusts the speed of the compressor to achieve a running time of approximately 30 minutes. This is the most energy efficient way to operate the compressor. The BD1.4F-VSD.3 and BD35F/BD50F (with second generation electronic unit 101N0212) offer an ECO function which adapts the speed of the compressor so that it runs at an optimal level. It has additional features such as fan speed control, built in electronic thermostat, communication interface which makes programming the controller easy, without resistors and extra wiring.

The compressors are controlled by an electronic unit that also offers protection against overload and hazardous battery discharge. The unit also features an internal voltage recorder as well as calibration to the applied voltage (compressor monitoring).

Features	Benefits
Silent operation	No compressor noise during night when sleeping next to the refrigerator in the RV.
 High efficiency. Low current consumption 	 Energy-saving. Operates on a smaller battery. Three times less energy consumption compared to absorption and fast pull down.
 Variable speed/capacity 	 Energy savings. Adapts speed to cooling requirement.
• Direct 12 V/24 V DC power supply	• Same compressor can be used globally. One product covers the world.
Modbus communication connection	Customized settings and fast programming on the production line are possible.
Electronic thermostat	Cost savings. No extra thermostat needed. Fewer components and failure modes.
Alarm & event logs	Makes identifying errors fast and is easy to service. • Reduced service costs.
Fan speed control 40-100 %.	Less noise during night.
Start/stop delays	Fewer components, fewer costs, less wiring, fewer installation costs.
 Advanced battery protection function 	 Safety. The battery will never be drained to a dangerously low level.
• Transport stable	Designed to resist vibrations, shocks, mountain terrain, and bumping roads. Design lifetime 10 year. Reduced service costs.
• AC/DC module available as option	 During a stay at a campsite the refrigerator can be powered by mains power (100–240 V AC, 50/60 Hz).





REFRIGERATORS



Most truck drivers are on the road for many days at a time. To keep their food and beverages cold they need refrigerators that can be built into the cab.

The BD compressors are tailored for the driving workplaces. BD35F-HD.2 and BD1.4F-VSD-HD are special versions designed to meet even harder road conditions where the refrigerator is mounted on the chassis of the truck. They are universal for 12 V and 24 V DC power supply.

Besides this they are unsurpassed in their ability to tolerate changeable climatic conditions and vibrations under harsh road conditions all over the world.

BD35F and BD50F compressors can be used for both refrigerators and freezers.

The compressors cover a capacity range from 20 to 180 W. They are ideal for low, medium and high back pressure applications and refrigerator sizes up to 80 liters incl. freezer compartment.

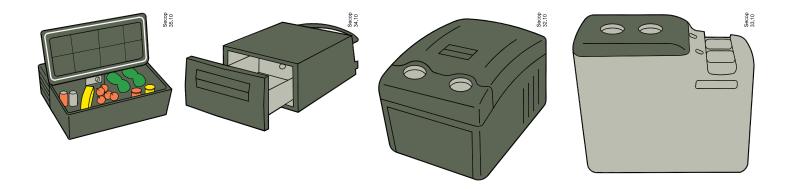
The compressors are controlled by an electronic unit that also offers protection against overload and hazardous battery discharge.

The unit also features an internal voltage recorder as well as calibration to the applied voltage (compressor monitoring).

The new BD1.4F-VSD.3 and the BD35F-HD.2 have additional features such as fan speed control, builtin electronic thermostat, communication interface which makes programming the controller easy without requiring resistors or extra wiring.

Features	Benefits
Silent operation	• The driver can sleep without being disturbed by a noisy compressor.
 High efficiency. Low current consumption 	• Energy saving. Less batteries needed to cool overnight.
 Variable speed/capacity 	 Energy-savings. Adapts speed to cooling requirement.
• Direct 12 V/24 V DC power supply	• Same compressor can be used globally. One product covers the world.
Modbus communication connection	Customers can make their own control box including control of the BD compressor.
Electronic thermostat	Cost savings. No extra thermostat needed. Fewer components and failure modes.
• Alarm & event logs	Makes identifying errors fast and is easy to service. • Lower service costs.
Fan speed control 40-100 %. Start/stop delays	Reduces noise. • Fewer components, fewer costs, less wiring, fewer installation costs.
Advanced battery protection function	Safety. The battery will never be drained. Trucks can be started safely every time.
• Meets EMI standards	The electronic unit meets automotive standards and in most cases no additional EMI filters are needed.

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COOLING IN MEDI BOXES



Manufacturers and users of transport equipment for medicines, vaccines, blood plasma, and organs know how critically important it is to store these products at the right temperature during transport. Vaccines and stored blood for example may only be given, if the temperature gradient during transport can be completely proven. Similar high requirements apply to protein medicines, dialysis preparations, and organs.

The BD35F and BD50F compressors have been specially designed for temperature controlled transportation. They ensure that the temperature can be kept at a constant temperature within the range of -18 °C to +8 °C and are therefore unsurpassed to be used in medi boxes for transporting medicines from main pharmacies to drugstores and organs from donor to recipient as well as storing medicines and vaccines in ambulances, for example.

BD compressors are universal for 12 V and 24 V DC power supply and can be used in medi boxes up to 150 liters.

The compressors cover a capacity range from 20 to 180 W. They are ideal for low and medium back pressure applications.

An electronic unit including protection against overload and hazardous battery discharge controls the compressors.

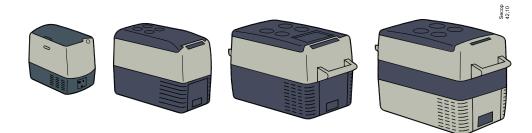
The unit also features an internal voltage recorder as well as calibration to the applied voltage (compressor monitoring).

The new BD1.4F-VSD.3 has additional features such as fan speed control, built in electronic thermostat, communication interface which makes programming the controller easy without requiring resistors or extra wiring.

Features

- Reliable compressor.
- More than 40 years in the market. High efficiency.
- Low current consumption
- Variable speed/capacity
- Direct 12 V/24 V DC power supply
- Modbus communication connection
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %. Start/stop delays
- Advanced battery protection function
- Lightweight compressor

- Benefits High level of security.
- No damage to vaccines, etc. due to too high temperatures.
- Energy-saving. Less battery consumption needed to cool overnight.
- Energy savings. Adapt speed to cooling requirement.
- Same compressor can be used globally. One product covers the world.
- Customers can make their own control box including control of the BD compressor. Temperatures can be logged via communication interface.
- Very accurate temperature control. Cost savings.
- No extra thermostat needed. Fewer components and failure modes. Makes identifying errors fast and is easy to service.
- Reduced service costs.
- Fewer components, fewer costs, less wiring, fewer installation costs.
- Safety. The battery will never be drained. Vans can be started safely every time.
- Easy to carry a smaller medical box to small towns, even with a small battery mounted in the box.





SOLAR ASSISTED COOLING



With its BD35F and BD35K solar compressors, Secop offers a refrigeration solution for places with poor or no power supply. Thanks to the exceptionally low starting current, batteries are not required if an ice bank is used for energy storage.

BD35F and BD35K solar compressors offer numerous functions for manufacturers within the rapidly growing area of mobile and stationary refrigeration. For example, storage and transportation of drugs, storage of food under difficult conditions without power supply, ice cream stands in holiday resorts, remote bottle coolers, refrigerators in boats, just to name a few.

At times when there is no sun, the ice packs keep the cabinet at the set temperatures.

Its wide voltage range (10–45 V DC) makes the BD very suitable for powering photovoltaic systems.

The new BD50K with its High Speed controller needs an addional capacitor or battery but offers higher cooling capacity.

An example on the latter was displayed at a UN summit in Johannesburg, South Africa. On this occasion, we supplied the compressor for a solar cabinet, complying with the tough demands of WHO (storage for 3 days without power supply).

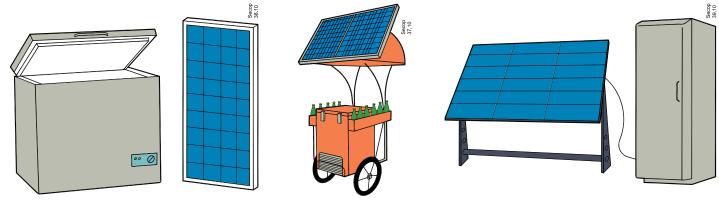
The concept is well accepted by WHO and UNICEF today.

Features

- Reliable compressor.
- More than 40 years in the market. High efficiency.
- Low current consumption
- Variable speed/capacity
- Direct 12 V/24 V DC power supply
- Modbus communication connection
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %. Start/stop delays
- Advanced battery protection function
- Very low weight of compressor

High level of security.

- No damage to vaccines, etc. due to too high temperatures.
- Energy-saving. Less batteries needed to cool overnight.
- Energy savings. Adapts speed to cooling requirement.
- Same compressor can be used globally. One product covers the world.
- Customers can make their own control box including control of the BD compressor. Temperatures can be logged via communication interface. Very accurate temperature control. Cost savings.
- No extra thermostat needed. Fewer components and failure modes. Makes identifying errors fast and is easy to service.
- Lower service costs.
- Fewer components, fewer costs, less wiring, fewer installation costs.
- Safety. The battery will never be drained. Vehicles can be started safely every time.
- Easy to carry a smaller medical box to small towns, even with a small battery mounted in the box.





COOLING IN PORTABLE COOLING BOXES



Today, more and more people want to spend their vacation in places that are off the beaten track where there is no electricity power, yet they still want to be able to cool their food and beverages. This has created a demand for a market for portable cooling boxes.

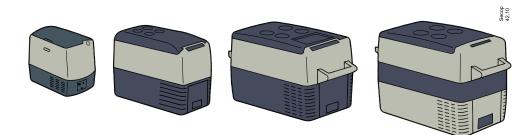
The BD35F compressor is the ideal choice for this application. It is battery-powered, compact, light, and easy to carry around. It also functions as an independent compressor to refrigerate a cooler in the car during family outings. What's more, it's also nice for a salesperson to always have chilled food and beverages at hand.

The BD35F is universal for 12 and 24 V DC power supply. The compressors cover a capacity range from 20 to 130 W. They are ideal for low and medium back pressure applications. Cooling boxes from 18-150 liters. The electronic unit is mounted on the compressor – this means no additional mounting costs.

The compressors operate with electronic as well as standard mechanical thermostats. They can be powered directly from an AC/DC unit. A switch in the power supply cables can be mounted to eliminate standby power consumption.

The BD compressors have an internal voltage recorder and calibration to the applied voltage as well as adjustable battery protection settings. The capacity can be varied by regulating motor speed. An electronic unit including protection against overload and hazardous battery discharge controls the compressors. The new BD1.4F-VSD.3 has additional features such as fan speed control, built-in electronic thermostat, communication interface which makes programming the controller easy, without requiring resistors or extra wiring.

Features	Benefits
Low weight	• The smallest BD compressor weighs only 2.3 kg, making it easy to carry.
Small and compact	60 % less volume on BD1.4F-VSD.3 compared to BD35F. Increase net volume of the box.
Silent operation	 The owner can sleep close to the box without being disturbed by a noisy compressor.
 High efficiency. Low current consumption 	• Energy-saving. Less battery capacity needed to keep the goods cooled.
 Variable speed/capacity 	 Energy savings. Adapts speed to cooling requirement.
• Direct 12 V/24 V DC power supply	• Same compressor can be used globally. One product covers the world.
• AC/DC module available as option	 If grid power is available, the box can be powered by mains power (100-240 V AC, 50/60 Hz).
Electronic thermostat	• Cost savings. No extra thermostat needed. Fewer components and failure modes.
• Alarm & event logs	Makes identifying errors fast and is easy to service. • Reduced service costs.
 Fan speed control 40-100 %. Start/stop delays 	Reducing noise. Fewer components, fewer costs, less wiring, fewer installation costs.
• Advanced battery protection function	• Safety. The battery will never be drained. Cars can be started safely every time.





CONTROL YOUR COLD CHAIN BD VAN BOXES



The most economical and efficient solution for smallscale transport is a mobile refrigeration unit that fits easily into cars and vans, and is powered by the car's own battery.

The advantages of such a solution are clear: The vehicle does not need to be altered. Cabinets can also be moved from vehicle to vehicle and even run on 220 V AC with the help of an AC/DC converter when the engine is turned off. In addition, the systems are more energy efficient and can be custom built to a wide range of sizes — depending on storage requirements.

Finally, an expensive, impractical, specially adapted refrigerated van is no longer the only option on the market. In recent years, mobile cooling solutions have become increasingly competitive, and the latest solutions are far more economical, practical, and efficient. This is the most flexible and cost effective solution for meeting the HACCP guidelines.

Features

• Direct 12 V/24 V DC power supply

Fan speed control 40-100 %.

• Advanced battery protection function

• Electronic thermostat

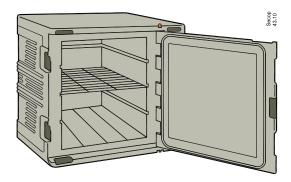
• Alarm & event logs

• Start/stop delays

Modbus communication connection

- Vans can be bought in standard model version and no extra bodywork on van is required
- Refrigeration when the engine is not running
- Both battery and AC utility can be used via a converter
- The box is mobile and can be handled separately. Can be used as extra refrigerator and can be loaded directly in the cooling or freezer room
- Lower energy consumption (lower CO₂ emission per kilometer)
- The can can be used for other purposes when not being used to carry refrigerated food
- Van can be resold much easier
- No hygiene issues with the car itself
- "Streamlined" car lower wind resistance, lower energy consumption, lower CO₂ emission
- Operation and service much easier

- Runs directly on the car batteries
 High efficiency. Low current consumption
 Variable speed/capacity
 Keeps the goods active cooled also when the van is stopped for loading and unloading.
 Energy-saving. Makes it possible to cool also when the van's motor is stopped.
 Energy savings. Adapt speed to cooling requirement.
 - Same compressor can be used globally. One product covers the world.
 - Customers can make their own control box including control of the BD
 - compressor. Cost savings.
 - No extra thermostat needed. Fewer components and failure modes.
 Makes identifying errors fast and is easy to service.
 Reduced service costs.
 - Fewer components, fewer costs, less wiring, fewer installation costs.
 - Safety. The battery will never be drained. Vans can be started safely every time.





TELECOM COOLING INCREASE BATTERY LIFETIME



When power fails, battery cooling systems must draw on their batteries' power. Since the compressor is the main power consumer, a lot can be gained with a solution that is extremely efficient without being overly power hungry.

By using a battery powered direct current (DC) compressor, it is possible to build a cooling system that can run on batteries, solar cells, and wind turbines without needing to convert to alternating current (AC).

The BD250GH.2 and BD350GH compressors are unique as they are constructed with integrated fan control and electronic thermostat. In this way, it is possible to simplify the design of the overall system and still ensure maximum performance. With battery drain being a big issue, it is important to use an energy efficient compressor with the highest COP possible.

Compared to other solutions that rely on AC and 230 V AC conversion, the BD250GH.2 and BD350GH compressors save up to 250 W per hour.

In areas that rely on battery power for up to 16 hours a day, you can be certain that Secop BD compressors will ensure that batteries will last as long as possible.

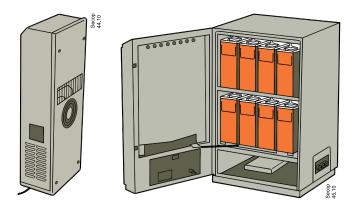
The optimal temperature for batteries is 25 °C. Anything above this will shorten their life expectancy and provide their owners with an inconvenient replacement cost.

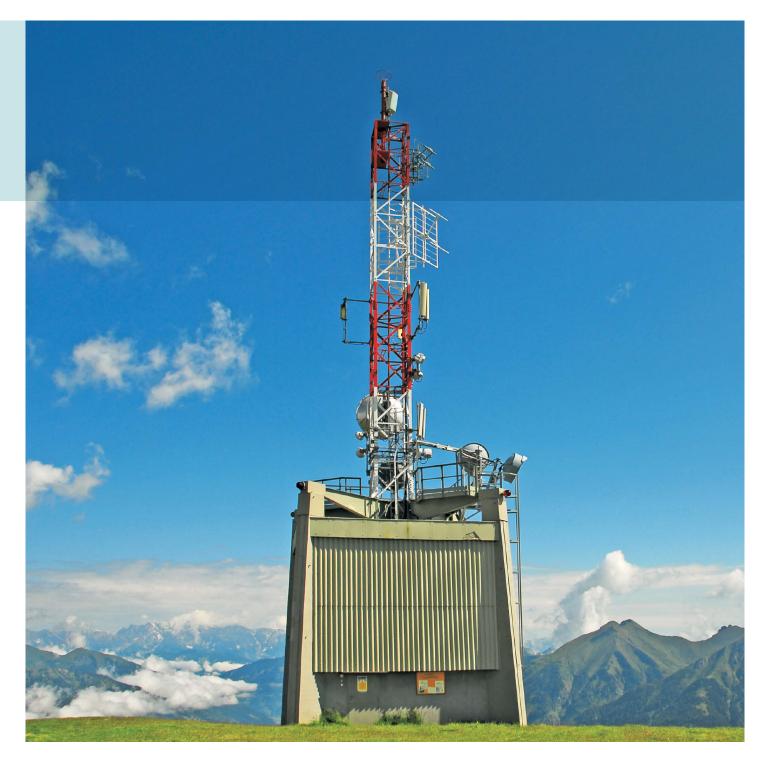
Features

- Higher COP with DC compressors
- Direct power supply to the compressor (32–62 V DC)
- 100 % cooling, also at grid power failure
- Up to 90 % less failure modes on BD compressors compared to AC solutions.
- Modbus communication connection
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %. Start/stop delays

Better efficiency.

- Fast installation and fewer failure modes.
- Maintaining lifetime of batteries save up to 20.000 USD over 8 years.
- Reduced service costs and much better "up-time" of the BTS station.
- Customers can make their own control box including control of the BD compressor. Remote monitoring possible.
- Cost savings. No extra thermostat needed. Fewer components and failure modes.
- Makes identifying errors fast and is easy to service. Reduced service costs
- Fewer components, fewer costs, less wiring, fewer installation costs.





MOBILE REFRIGERATION IN CARS



The demand for mobile refrigeration in cars has increased due to the increasing amount of time that people spend in them. With its compact design, low noise level, and robustness against vibrations, the BD compressor is the perfect solution for cool boxes in cars offering the driver and passengers the comfort not to stop every time they want food or something to drink. And when not on the road, the storage box keeps items cold for up to five hours after the car engine has been turned off. There are number of areas to place a cool box in a car. The center console area is possibly the most obvious location, but the cool box can also be put under the passenger seat or even within the front passenger seat — where access is via a lift-up seat cushion.

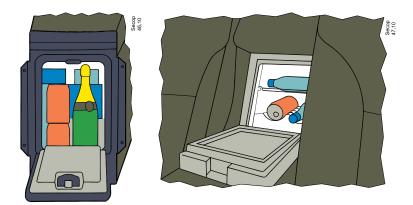
Lose excess weight and use the extra space for what really matters. The new BD1.4F-AUT0.3 and the BD1.4F-VSD.3 from Secop are 60% smaller than previous models

and weigh in at only 2.3 kilos. Perfect for 10–15 liter in-car cabinets that need to fit into tight spaces without compromising storage space.

Specially designed for maximum efficiency and reliability, this tiny powerhouse of a compressor makes it easier than ever to provide leading class mobile fridges to the discerning automobile manufacturers. The optimized, low-noise motor ensures outstanding performance when you want to provide that extra degree of luxury on the move.

Cool beverages on demand make driving so much more of an experience. Fridges using the BD1.4F-AUT0.3 or the BD1.4F-VSD.3 take up less space and allow small fridges to fit easily with maximum storage space for snacks and beverages. Low energy consumption is good for car batteries and the environment.

Features	Benefits
Low weight	Only 2.3 kg for the smallest BD compressor. • Overall weight reduction in the car.
Small and compact	60 % less volume on BD1.4F-AUT0.3/-VSD.3 compared to BD35F. Increase net volume of the box.
Silent operation	The owner can sleep close to the box without being disturbed by a noisy compressor.
 High efficiency. Low current consumption 	• Energy-saving. Less battery capacity needed to keep the goods cooled.
 Variable speed/capacity 	 Energy savings. Adapts speed to cooling requirement.
 Direct power supply 	• Same compressor can be used globally. One product covers the world.
 Transport stable 	 Long lifetime. Minimum of spare parts.
Electronic thermostat	• Cost savings. No extra thermostat needed. • Fewer components and failure modes.
 Alarm & event logs 	• Makes identifying errors fast and is easy to service. Reduced service costs.
Fan speed control 40-100 %. Start/stop delays	 Reducing noise. Fewer components, fewer costs, less wiring, fewer installation costs.
Advanced battery protection function	Safety. The battery will never be drained. Cars can be started safely every time.
 Meets EMI standards 	• The electronic unit meets automotive standards.





MOBILE REFRIGERATION IN BUSES



Many coaches offer passengers to buy cold beverages during a long tour. BD compressors are universal for 12 V and 24 V DC power supply and can be used in all kind of busses. They are unsurpassed in tolerating changeable climatic conditions and vibrations under harsh road conditions. The BD1.4F-VSD.3, BD35F, BD35F-B and BD35K-B compressors cover a capacity range from 20 to 180 W. They are ideal for low and medium back pressure applications.

A special version of the electronic unit adapts the capacity of the compressor automatically (AEO) to the actual load on the refrigeration system. The algorithm adjusts the speed of the compressor to achieve a running time of approximately 30 minutes. This is the most energy efficient way to operate the compressor.

The BD1.4F-VSD.3 and BD35F/BD35F-B/BD35K-B (with second generation electronic unit 101N0212) offer an ECO function which adapt the speed of the compressor to an optimum level.

It has additional features such as fan speed control, built-in electronic thermostat, communication interface which makes programming the controller easy, without requiring resistors or extra wiring.

Ideal for refrigerator sizes up to 30–50 liters with freezer compartment. The compressors are controlled by an electronic unit including protection against overload and hazardous battery discharge.

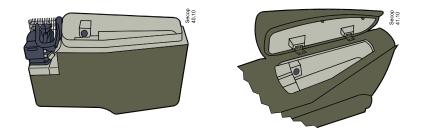
The unit also features an internal voltage recorder as well as calibration to the applied voltage (compressor monitoring).

Features

- Low weight
- Small and compact
- Silent operation
- High efficiency.
- Low current consumption
- Variable speed/capacity
- Direct 12 V/24 V DC power supply
- Special designed BD for buses.
- Electronic thermostat
- Alarm & event logs
- Fan speed control 40-100 %. Start/stop delays
- Advanced battery protection function
- Meets EMI standards

- Only 2.3 kg for the smallest BD compressor makes it easy to carry. 60 % less volume on BD1.4F-VSD.3 compared to BD35F.
- Increase net volume of the box.

- The owner can sleep close to the box without being disturbed by a noisy compressor.
- Energy-saving. Less battery capacity needed to keep the goods cooled.
- Energy savings. Adapts speed to cooling requirement.
- Same compressor can be used globally. One product covers the world.
- BD35F-B and BD35K-B reduce any noise from the compressor to an absolute minimum even on very bumpy roads.
- Cost savings. No extra thermostat needed. Fewer components and failure modes.
- Makes identifying errors fast and is easy to service. Reduced service costs.
- Reducing noise. Fewer components, fewer costs, less wiring, fewer installation costs.
- Safety. The battery will never be drained. Busses can be started safely every time.
- The electronic unit meets automotive standards and in most cases no additional EMI filters are required.





AIR FREIGHT COOLING



Transporting pharmaceutical products by air around the world under safe and temperature-controlled conditions can mean the difference between life and death. Especially in the globalized world that we live in, reliable cooling of airfreight is vital for the patients who depend on effective medication. Having a dependable cold chain during the whole transportation is key to keeping the number of wasted pharmaceuticals due to a broken cold chain as low as possible.

On many occasions, temperature fluctuations around 2 °C can make the difference regarding the viability of vaccines. To maintain these strict temperature conditions, Secop offers a multitude of DC-powered compressors to equip specialized containers. While the usual transportation methods rely on gel packs, dry ice, or operating compressors during transportation to cool goods, the installed BD series compressor operates prior to transport to freeze the container's eutectic plates.

Thereby the current containers are able to get FAA approval while exceeding the World Health Organization's "Cold Chain Storage and Distribution" guidelines.

The BD series compressors use approximately 6 kilowatts of energy to freeze the cooling plates prior to the transportation which reduces the cost down to \$ 0.50. The eutectic cooling plates can keep the goods cool for days while the containers can be moved without any additional necessary equipment.

Our BD series compressors are able to withstand harsh changes in climate conditions and are unsurpassed in tolerating vibrations.

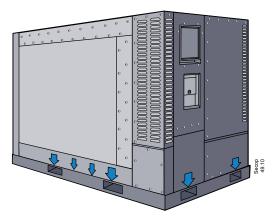
Our compressor models BD350GH and BD250GH.2 have been used for many years specifically for cooling airfreight. The installed electronic control unit is proven to be very robust while maintaining accurate temperatures and meeting the EMC requirements for aviation.

Features

- Runs directly on batteries.
- High efficiency. Low current consumption.
- Variable speed/capacity
- No need for insulated packaging.
- Modbus communication
- Internally powered during transport.
- Precise temperature control.
- No need for dry ice.
- Advanced battery protection function

Benefits

- Active cooling through the whole cold chain.
- Energy-saving. Batteries will last longer.
- Energy savings. Adapts speed to cooling requirement.
- Eliminates the need for a refrigerated truck. Saves time and costs.
- Customers can communicate with the compressor for monitoring and control.
- Always active cooling.
- No scrap or damaged pharmaceutical products.
- Eliminates HAZMAT costs.
- Safety. The battery will never be drained.





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SECOP VARIABLE SPEED COMPRESSORS FOR DIRECT CURRENT

Secop variable speed compressors type BD (battery driven) BD1.4F-AUT0.3/-VSD.3, BD35F, BD50F, BD80F, BD250GH.2, BD350GH and BD220CL are designed for connection to 12 - 24V DC and 48V DC power supply and for refrigerant types R134a or R404A/R507 and prepared for R513A, R452A and/or R1234yf.

The compressors are intended especially for use in mobile applications, e.g. cooling boxes, boats, caravans, trucks, vans, buses and cars. 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.

The compressors BD35K, BD50K, BD80CN and BD100CN are especially designed for refrigeration systems using isobutane, refrigerant R600a and propane, refrigerant R290, respectively, as can be seen from the individual type label information. Isobutane and propane are also called hydrocarbons.

Hydrocarbons are not implicated in ozone depletion (ODP), and the majority of hydrocarbon refrigerants have a GWP rating (Global Warming Potential) of 3.

The role of hydrocarbon refrigerant systems in reducing harmful greenhouse gases is twofold: Firstly, direct greenhouse gas (CO₂) emissions are significantly decreased thanks to the low GWP rating of hydrocarbons. And secondly, the features of a hydrocarbon system (lower condensing point, positive thermodynamic attributes, and superior COP) act in combination to optimize energy-efficient operation.

Assisted by the cheap availability of hydrocarbons produced as a by-product of gas and oil working, and by many studies demonstrating the energy savings hydrocarbon systems can deliver, hydrocarbons have proved to be viable replacements for fluorocarbons and other environmentally harmful refrigerants.

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 for commercial appliances and in the corresponding international standards IEC 60335-2-24 and IEC 60335-2-89.

The compressors BD35K, BD50K, BD80CN and BD100CN must only and exclusively be used in appliances certified for flammable refrigerants according to these or later regulations.



BD P-Housing

BD T-Housing

Secop BD compressors are intended for use in mobile and stationary applications e.g. portable cooling boxes, boats, caravans, trucks, parking cooling in trucks, vans, buses, cars and battery and shelter cooling in telecom stations. Due to the low power consumption and the option for a wide supply voltage range, the compressors are also suitable for stationary applications powered by photovoltaic solar panels, or fuel cells. In bus applications a special version of **BD35F-B** has been developed. It is designed to minimize noise when the bus is driving.

In truck applications special versions, BD35F-HD.2 and BD1.4F-VSD-HD, have been made to meet truck standards in regards to shock and vibration.

1.1 Refrigerants	Refrigerants with certain molecular structures have been identified as substances that can be harmful to the environment. Two properties are critical: the ozone depleting potential (ODP) and the global warming potential (GWP). The first negative property is covered by the Montreal Protocol ('Montreal Protocol on Substances that Deplete the Ozone Layer') from 1987 which is an international agreement designed to protect the earth's ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. The result was the replacement of HCFC (halogenated chlorofluorocarbon, R22) refrigerants with HFC (hydrofluorocarbon, e.g. R134a) refrigerants which have an ODP of zero (or close to zero). The significant downside of HFC refrigerants is their high global warming potential since they belong to the category of greenhouse gases. This fact was discovered after the Montreal Protocol was adopted and was recently covered by an amendment adopted in Kigali in October 2016. Before this amendment, the United States and the EU had introduced regulations to define the phase down and replacement of these HFCs on a federal level.
	Secop has been a pioneer and early adopter of hydrocarbons as refrigerants and believes the most efficient and economical friendly substances for use in cooling appliances are isobutane (R600a) and propane (R290). Secop recommends the first one as a replacement for household appliances and small capacities in the light commercial segment and the latter one for medium to large light commercial applications. Secop is also aware that the transition towards hydrocarbons is challenging for manufacturers as well as for service pro- viders and not always feasible in the short term.
	Tests have so far shown good results with refrigerant R452A as a drop-in replacement for R404A and R507. Based on this information, Secop allows the use of R452A on all its R404A and R507 released compressors. It is the customer's responsibility to validate the application, and they should carefully consider the require- ments and drawbacks when changing from R404A/R507 to R452A in their application.
	The HFO (hydrofluoroolefin) R1234yf can be used as drop-in for replacing R134a in the short-term for most of the applications. R1234yf is classified as flammable according to relevant safety standards. It is more expensive than R134a, however, it holds remarkably less greenhouse potential than R134a. Our R134a compressors can be used for testing with this refrigerant, and we will be more than happy to assist you in discovering that right solution for you and when it comes to the approval procedure. Investigations into material compatibility have so far shown good results with refrigerant R1234yf in Secop R134a compressors. These results must be confirmed in ongoing long-term tests. Currently, testing system performance can be conducted using compressors originally designed for R134a. The same application limits as described on the R134a data sheet may be used, however, partly with changed electrical equipment. Since R1234yf is classified as a flammable refrigerant, the compressors must be used with starting equipment approved for flammable refrigerants. The compressors designed for R134a do not have a safety approval for flammable refrigerants like R1234yf.
1.2 Handling of refrigerants	To ensure reasonable refrigeration system life, the refrigerant must have a maximum moisture content of 20 ppm (20 mg/kg). Do not fill the refrigerant from a large container into a filling bottle through several container sizes, as with every drawing-off the water content in the refrigerant is increased considerably.
1.3 Charging with refrigerant	Normally, charging with refrigerant is no problem with a suitable charge, provided that the charging amount of the refrigeration system equipment is known.
	Always charge the refrigerant amount and type stated by the refrigerator manufacturer. In most cases this information is stated on the refrigerator type label. The different compressor brands contain different amounts of oil, so when converting to another brand it may be advisable to correct the amount of refrigerant. Charge of refrigerant can be made by weight or volume.
	Flammable refrigerants like R600a and R290 must always be charged by weight. Charging by volume must be made with a refrigerant charging cylinder. The refrigerant R404A and all other refrigerants in the 400 series must always be charged as liquid.
	If the charging amount is unknown, charging must be done gradually until the temperature distribution above the evaporator is correct. However, mostly it will be more appropriate to overcharge the system and then gradually draw off refrigerant until the correct charge has been obtained. The refrigerant charge must be made with the compressor running, the refrigerator without load and with the door closed.
	The correct charge is characterized by the temperature being the same from the inlet to the outlet of the evaporator. At the compressor suction connector the temperature must be approx. ambient temperature. Thus transfer of moisture to the refrigerator insulation is avoided.
	Systems with an expansion valve must be charged with refrigerant until there are no bubbles in the sight glass, which should be placed as close to the expansion valve as possible.

The HFC refrigerant R134a and HFC mixtures require Polyester type oil. Contamination of components and systems with mineral oil and alkylbenzols must be avoided. Greasy substances and other long-chained, high molecular substances not dissolved must not be present. Manufacturing processes which require a lubricant can be done with Polyester oil approved for the compressors. Procedures for mounting, evacuation and charging must be carried out in such a way that contamination with chlorine refrigerants is avoided. HFC refrigeration systems must always have a drier with 3 Angstrom Molecular Sieves.

1.5 Flammable refrigerants R290 and R600a

16

Connectors

R600a and R290 are hydrocarbons. These refrigerants are flammable and are only allowed for use in appliances which fulfil the requirements laid down in the latest revision of EN/IEC 60335-2-24. (To cover potential risk originated from the use of flammable refrigerants). Consequently, R600a and R290 are only allowed to be used in household appliances designed for this refrigerant and fulfil the above-mentioned standard. R600a and R290 are heavier than air and the concentration will always be highest at the floor. R600a must only be stored and transported in approved containers and must be handled according to existing guidelines.

Do not use open fire near the refrigerants R600a and R290. The refrigeration systems must be opened with a tube cutter.

The flammability limits are approx. as follows,

Refrigerant	R600a	R290
Lower limit	1.5 % by vol. (38 g/m³)	2.1 % by vol. (39 g/m³)
Upper limit	8.5 % by vol. (203 g/m³)	9.5 % by vol. (177 g/m³)
Ignition temperature	460 °C	470 °C

In order to carry out service and repair on R600a and R290 systems the service personnel must be properly trained to be able to handle flammable refrigerants. This includes knowledge on tools, transportation of the compressor and refrigerant, and the relevant regulations and safety precautions when carrying out service and repair.

Do not use open fire when working with refrigerants $\mathsf{R600a}$ and $\mathsf{R290!}$

Conversions from refrigerants R12 or R134a to R600a is not permitted, as the refrigerators are not approved for operation with flammable refrigerants, and the electrical safety has not been tested according to existing standards either. The same applies to conversions from refrigerants R22, R502 or R134a to R290.



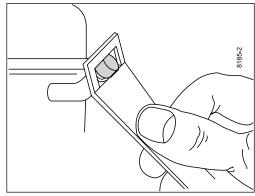
Secop compressors for the flammable refrigerants R600a and R290 are equipped with a yellow warning label as shown.

BD compressors are supplied with sealed connectors, which consist of a thick walled copper plated steel tube with great corrosion resistance and good braze ability. The connectors are welded in the compressor housing and thus the welding cannot be destroyed by overheating during brazing operations. The sealing is an aluminium cap which gives a tight sealing. The seal is easily removed with an ordinary pair of pliers or with the tool shown in the figure.

Most BD compressors are supplied with millimetre tubes, but some variants supplied with inch tubes.

All connectors have a shoulder to provide optimal brazing conditions. Drifting of the connectors for more than 0.3 mm is not allowed.

For the refrigerants R600a and R290, process tubes can be closed with a LOKRING® connection. Brazing is not allowed during servicing systems with flammable refrigerants.



1.7 Advantages of direct current compressors	Secop direct current compressors can be used in applications using either capillary tube or TEV as the throt- tling device. The BD compressor must be mounted in a dry and clean place. The compressors will withstand storage tem- peratures down to -25°C and up to +70°C. Condensing temperatures: Max. 60°C at stable conditions and max. 70°C at peak load. Ambient temperatures: Min10°C, max. 43°C
	The BD compressor concept includes an electronic unit which features overload protection, battery protec- tion, wrong polarity protection, evaporator and condenser fan control, LED diagnosis signal, light bulb con- nection, load dump protection, mechanical or electronic thermostat, ECO function, AEO (Adapative Energy Optimizing) function and bus communication interface. These features are model dependant. The electronic module has internal voltage recording and calibration to the applied voltage. The electronic module may also be powered directly from certain types of electronic power supply units and thus no battery is required.
	In addition to being especially quiet in operation – ranging from 33 dB(A) to 38 dB(A)- depending on model and speed of compressor, all BD compressors have high COP values.
1.7.1 Tilt angle	The BD compressors are designed to be mounted in a horizontal position. However they are also designed to operate temporarily in conditions with heeling up to 30° such as can occur in boats, car and trucks driving in mountains. Under such heeling conditions the compressor can be noisy when internal compressor parts knock against the compressor shell.

Key	to DC-Com	pressor Type	Designation	(BD-Series)
-----	-----------	--------------	-------------	-------------

1	2		3		4	5
Compressor design	Compressor size		Application range	Refrigerant	Special features (optional, can be used in combination)	Generation
	Capacity at rating point	Displacement				
BD P/T-Housing	35 50 80 100 250 350		CN = LBP CL = LBP F = LBP/MBP/HBP	R290 R404A/507 R134a	 AUTO = automotive VSD = variable speed drive 	Blank → first generation .2 → second
BD Micro		1.4	GH = (LBP/MBP)/HBP K = LBP/(MBP)	R134a/R1234yF R134a R600a	 HD = heavy duty (can handle extreme vibrations) B = bus-optimized (optimized for rough vehicle motions) 	generation .3 → third generation

1.8 Denomination

1 The first letter of the denomination indicates compressor series

LBP (Low Back Pressure) indicates the range of low evaporating temperatures, typically -10°C down to -35°C or even -45°C.

MBP (Medium Back Pressure) indicates the range of medium evaporating temperatures, typically -20°C up to 0°C.

HBP (High Back Pressure) indicates high evaporating temperatures, typically -5°C up to +15°C.

R134a or **R134a/R1234yf** \rightarrow **F**: BD Compressors with denominations ending with Fare primarily designed for lowevaporating temperatures (LBP/MBP) but will also work with high evaporating temperatures (HBP). **R134a** \rightarrow **GH**: Compressors with denominations ending with GH are designed for high evaporating temperatures (HBP).

R290 \rightarrow **CN**: Compressors with denominations ending with CN are designed for low evaporating temperatures (LBP) and medium evaporating temperatures (MBP).

R404A/R507 \rightarrow **CL**: Compressors with denominations ending with CL are primarily designed for low evaporating temperatures (LBP).

R600a \rightarrow **K**: All compressors for R600a have denominations ending with K after the number for displacement or capacity. They are designed for low operating temperatures (LBP).

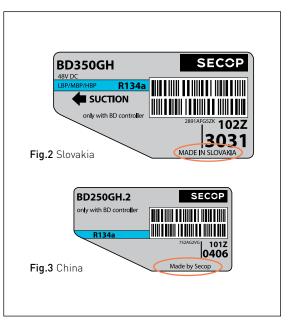
- **4** The next letter in the compressor denomination provides information on special features the BD compressor offers.
- **5** The final letter (separated by a dot) mentions the generation of the compressor.

² For BD-Micro compressors a number indicates the displacement in cm³, but for BD compressors based on P/T housing the number indicates the nominal capacity.

³ The letter after the displacement indicates which refrigerant must be used as well as the field of application for the compressor.

1.9 Date code format & country of origin Secop compressors have a manufacturing date code stamping on the housing. The content of the coding (Fig.1) is in two lines according to the example below: H4485C (6 characters) 051D11R (7 characters, 8 characters for BD Micro) Composition of line 1 H4485: Compressor type information (102H4485 = H4485)C: Internal Secop code Composition of line 2 Production week 05: Production year 1: D: Production day A = Monday, B = Tuesday,C = Wednesday, D=Thursday, etc. 11: Production hour 00 to 23 or shift code -1, -2, -3 R: Internal production location code A to G, U Germany: A until week 50/2005 D until week 35/2006 U until week 08/2010 K to N Slovenia: K until week 39/2012 L until week 34/2011 M until week 02/2012 N until week 02/2012 A, D, L,M, R, U Slovakia: A from week 01/2006 D from week 38/2006 L from week 45/2011 M from week 09/2012 R from week 01/2005 U from week 12/2010 S, R Mexico: R up to week 27/2004 W to Z China On BD Micro compressors (code number 109Z....),

Fig.1 Needle print coding on compressor housing and country of origin on type label



1.10 Country of origin on typelabel

On BD Micro compressors (code number 109Z....), the production year is indicated by two digits, e.g. "11" for 2011 and a serial number behind the location code.

The country of origin (in capital letters) or the manufacturer will also be marked on the typelabel, examples:

MADE IN SLOVAKIA

- for compressors made in Slovakia (Fig.2) Made by Secop | optional label "Made in China"

- for compressors made in China (Fig.3)
 - "Made by Nidec" from 05/2018 to 12/2019

1.11 Typelabels overview	BD Micro Series
Typetabets over them	Background colour
	Coloured stripe for refr

I

Background colourgreyColoured stripe for refrigerantR134a/R1234yf or R134a: blueBarcodeon white backgroundApprovals printed on labelyesVoltage printed on labelnoApplication printed on labelnoBackground colourgreyColoured stripe for refrigerantR134a: blue, R600a or R290: redBarcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelnoApprovals printed on labelyes (except UL)Voltage printed on labelnoBackground colourgreyBackground colourgreyBackground colourgreyBackground colourgreyBackground colourgreyBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: litacBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: litacBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: litacBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: litacBaccodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelyesApprovals printed on labelyesApplic	BD Micro Series	Label Width = 47 mm	Example			
Barcode on white background Approvals printed on label yes Voltage printed on label no Application printed on label no BD Series based on P-Housing Label Width = 67 mm Background colour grey Coloured stripe for refrigerant R134a: blue, R600a or R290: red Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label no BD Series based on T-Housing Label Width = 85 mm Background colour grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label no BD Series based on T-Housing Label Width = 85 mm Background colour grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes (except UL)	Background colour	grey				
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BD Series based on P-HousingLabel Width = 67 mmExampleBackground colourgreyColoured stripe for refrigerantR134a: blue, R600a or R290: redBarcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelnoApplication printed on labelnoBD Series based on T-HousingLabel Width = 85 mmBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: lilacBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: lilacBarcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelyes (except UL)Voltage printed on labelyes (except UL)Approvals printed on labelyes (except UL)Voltage printed on labelyes (except UL)Baser ColourgreyBaser ColourgreyBaser ColourgreyBaser ColourgreyBaser ColourgreyBaser ColourgreyBaser ColourgreyBaser ColourgreyBaser Colourgre	Voltage printed on label	no				
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Barcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelnoApplication printed on labelnoBD Series based on T-HousingLabel Width = 85 mmExampleBackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: lilacBarcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelyes (except UL)Sackground colourgreyColoured stripe for refrigerantR134a: blue, R404A/R507: lilacBarcodeon white backgroundApprovals printed on labelyes (except UL)Voltage printed on labelyes (except UL)Subscription3020	Coloured stripe for refrigerant	R134a: blue, R600a or R290: red				
Approvals printed on label yes (except UL) Voltage printed on label no Application printed on label no BD Series based on T-Housing Label Width = 85 mm Background colour grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes (accept UL)	Barcode	on white background				
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BD Series based on T-Housing Label Width = 85 mm Example Background colour grey grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes	Voltage printed on label	no				
Background colour grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes	Application printed on label	no				
Background colour grey Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes						
Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes 3020	BD Series based on T-Housing	Label Width = 85 mm	Example			
Coloured stripe for refrigerant R134a: blue, R404A/R507: lilac Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes	Background colour	grey				
Barcode on white background Approvals printed on label yes (except UL) Voltage printed on label yes	Coloured stripe for refrigerant	R134a: blue, R404A/R507: lilac	12V DC			
Approvals printed on label yes (except UL) only with BD controller 2891AFG5ZK 102Z 3020	Barcode	on white background				
Voltage printed on label yes 3020	Approvals printed on label	yes (except UL)	only with BD controller			
Application printed on label yes MADE IN SLOVAKIA	Voltage printed on label	yes	3020			
	Application printed on label	yes	MADE IN SLOVAKIA			

Note: The remark "only with BD controller" was introduced on all BD compressors in the mid of 2013.

1.12 Labels on electronic units

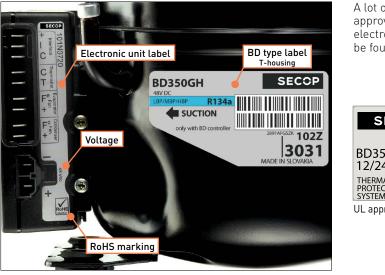
Labels on electronic units

Labels on electronic units consist of a 2D Data Matrix code area and a number of lines with informations. The 2D Data Matrix Code is always built up with 62 characters containing information about type, code number, product version, product revision, unit ID, supplier, part number and text.

Text information on the label: Line 1: ID: PLYYWWssssss (unique number) Line 2: Date: YYWW Line 3: Ver.: VV Line 4: Text: text Meaning: PL Production location, 01 ... 99 YY Year, 12 = 2012 WW Week number, 01 ... 52 sssss Serial number, 000001 ... 999999 VV Version, 00 ... 99



1.13 Label design



A lot of our BD compressors have UL approvals. Approved compressor electronic unit combinations can be found in the table below.



Nominal voltage has been removed from BD compressor type labels based on the P-housing and moved to the electronic unit.

Application marking (LBP/MBP/HBP) has been removed on BD compressors based on the P- and BD-Micro housings.

1.14 VDE/CB/UL approved compressor - electronic unit combinations (BD P-Housing)

Compressors	Electronic Units							
		Standard	AEO	High speed	Solar	AC/DC	Automotive	Telecomm.
		101N0212	101N0340	101N0390	101N0420	101N0510	101N0650	101N0732
BD35F mm	101Z0200		UL/CB/VDE		CB / VDE	UL / VDE	UL/CB/VDE	
BD35F inch	101Z0204		UL/CB/VDE		CB / VDE	UL / VDE	UL/CB/VDE	
BD35F-B	101Z0205		UL/CB/VDE		CB / VDE	UL / VDE	UL/CB/VDE	
BD35F-HD.2	101Z0216						UL/CB/VDE	
BD35K (R600a)	101Z0211		UL/CB/VDE		CB / VDE	CB / VDE	UL/CB/VDE	
BD35K-B (R600a)	101Z0214		UL/CB/VDE		CB / VDE	CB / VDE	UL/CB/VDE	
BD50F mm	101Z1220		UL/CB/VDE			UL / VDE	UL/CB/VDE	
BD50F inch	101Z0203		UL / CB / VDE			UL / VDE	UL/CB/VDE	
BD50K (R600a)	101Z0213							
BD80F mm	101Z0280							
BD80CN (R290)	101Z0403		UL / CB / VDE			UL	UL/CB/VDE	
BD100CN (R290)	101Z0401							
BD250GH.2 [12/24V]	101Z0406							
BD250GH.2 [48V]	101Z0405							UL

UL/CB/VDE

- = Combination possible, VDE, CB or UL approval
 - = Combination possible, but no approval
 - = Combination not possible

2. ELECTRONIC UNITS

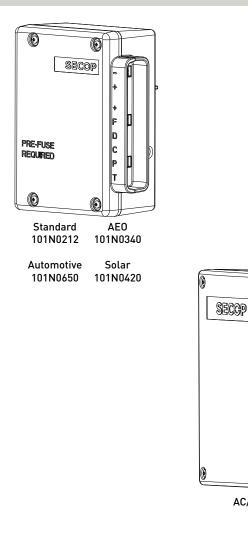
		Electronic units (code number)							
Те	chnical data	BD, P-Housing							
		Standard (2nd generation) 101N0212	High Speed 101N0390	AE0 101N0340	Solar 101N0420	AC/DC converter 101N0510	Automotive 2nd generation) 101N0650	Telecom 101N0732	
	Approvals and certificates *	-	-	UL/VDE/CB	UL/VDE/CB	UL/VDE	UL/ VDE/CB UN-ECE-R10	UL	
ovals	Type approval (E-marking) 2004/104/EC	-	-	-	-	e4 03 1588	-	-	
Approvals	EU declaration 2014/30/EU and RoHS declaration 2011/65/EU	yes	yes	yes	yes	yes	yes	yes	
	Further EMC tests	CISPR25/1 CISPR14	CISPR25/1	CISPR25/1	CISPR25/1	-	CISPR25/5	-	
ge	DC supply voltage range (V)	(9) 9.6 - 17, 21.3 - 31.5	(9) 9.6 - 17, 21.3 - 31.5	(9) 9.6 - 17, 21.3 - 31.5	10 - 45	(9) 9.6 - 17, 21.3 - 31.5	(9) 9.6 - 17, 21.3 - 31.5	32 - 60	
/olta	AC supply voltage range (V)	-	-	-	-	100 -240	-	-	
Supply voltage	Frequency (Hz)	-	-	-	-	50-60	-	-	
Sup	Fuses required for e.g. 12/24V DC usage (A)	15 / 7.5	30 / 15	15 / 7.5	15	15 / 7.5	15 / 7.5	15	
	Fuse required AC usage	-	-	-	-	4	-	-	
Environments	Ambient temperature operation (°C)	55	55	55	55	55	55	55	
Enviror	Ambient temp. during storage/transport (°C)	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	
Enclosure	IP Class	20	20	20	20	20	20	20	
Enclo	Weight (kg)	0.19	0.26	0.19	0.19	0.40	0.19	0.24	
	Connectors	6.3 mm	6.3 mm	6.3 mm	6.3 mm	6.3 mm	6.3 mm	6.3 mm, Molex	
	Fan (V/W _{max})	12/6	12/6	12/6	12/6	12 / 6	6 / 12	48 / 60+60	
	NTC sensor	yes	yes	yes	yes	yes	yes	yes	
ivity	Bus communication	1 wire	1 wire	1 wire	1 wire	1 wire	1 wire	1 wire	
Connectivity	Light (V/W)	-	-	-	-	12 / 5	-	-	
Con	LED (alarm)	yes	yes	yes	yes	yes	yes	-	
	TOOL4COOL®	yes	yes	yes	yes	yes	yes	yes	
	Setpoint selection (mechanical thermostat -M / (external resistor -R / TOOL4COOL® - T)	M / - / T	M / - / T	M / - / T	M / - / T	M / - / T	M / - / T	M / - / T	

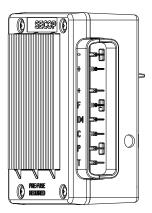
* please refer to table: VDE/CB/UL approved compressor - electronic unit combinations

- TECHNICAL DATA

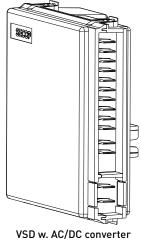
		BD, T-Housing				BD-Micro	
					5		
101N8xxx-Series 101N0820+0800	101N8xxx-Series 101N0820+0810	101N8xxx-Series 101N0830	101N07xx-Series 101N0715	Telecom 101N0720	Variable Speed (VSD) 101N2100	Variable Speed (VSD) AC/DC conv. 101N5100	Automotive (AUTO) 101N1010
-	-	-	-	-	-	UL	-
-	-	-	-	-	compliant	compliant	compliant
yes	yes	yes	yes	yes	yes	yes	yes
CISPR25/1	-	-	CISPR25/3	-	CISPR25/1	CISPR25/1	VW 80101
9.6 - 17	19 - 31.5	9.6 - 17	19 - 31.5	32 - 60	9.6 - 17 19 - 34	9.6 - 17 19 - 34	8.5 - 17
-	-	-	-	-	-	100 - 240 50 - 60	-
30 + 2 x 60	15 + 2 x 30	60	30	15	15 / 7.5	15 / 7.5	12
-	-	-	-	-	-	4	-
55	55	55	55	55	55	55	55
-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85	-40 to 85
20	20	20	20	20	42	42	40
0.28 + 0.33	0.28 + 0.25	0.28	0.27	0.27	0.11	0.29	0.17
6.3 spades, 9.5 mm spades	6.3 spades, 9.5 mm spades	6.3 spades, 9.5 mm spades	6.3 spades, 9.5 mm spades	6.3 mm, Molex	6.3 mm	6.3 mm	Tyco Electronics
12-24 / 200+100	12-24 / 200+100	-	12+24 / 60+40	48 / 60+60	12 / 6	12/6	12 / 7.8
yes	yes	yes	yes	yes	yes	yes	yes
1 wire, LIN, Modbus	1 wire, LIN, Modbus	1 wire	1 wire	1 wire	1 wire	1 wire	1 wire
-	-	-	-	-	-	12 / 5	LED
-	-	-	-	-	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes	yes
M / - / T	M / - / T	M / - / T	M / - / T	M / - / T	M / R / T	M / R / T	M/R/T

3. ELECTRONIC UNITS

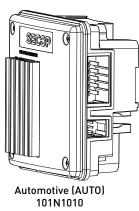


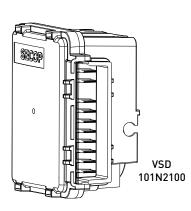


High Speed 101N0390









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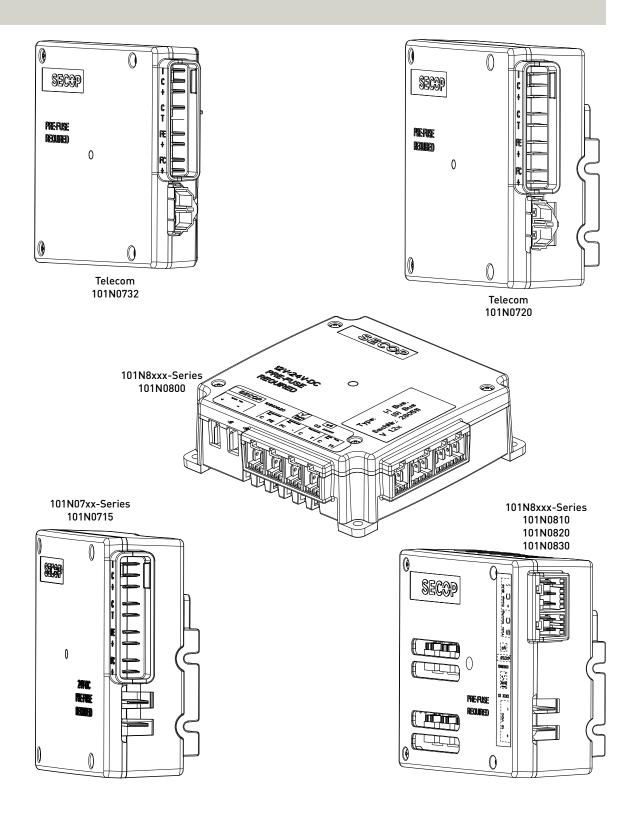
12/2494-DC Pre-fuse Reguired

AC/DC converter 101N0510

กกกกกุล A C D C P

C

- HOUSINGS



4. **ELECTRONIC UNITS – FEATURES**

Secop BD compressors are fitted with brushless direct current motors (BLDCM) which are electronically commutated by an electronic unit.

The electronic unit is delivered separately and for most of the units, be mounted on the compressor. A few units must be mounted separately from the compressor. Please follow our Instructions. 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 will not work.

Some electronic units can run on either 12 V DC or 24 V DC. The electronic unit will be calibrated to the applied voltage. This means that if the battery voltage is less than 17 V, the electric unit assumes that it is working in a 12 V DC system. If the voltage is higher than 17 V DC the electronic unit assumes that it is working in a 24 V DC system. Voltages are measured on the power supply terminals of the electronic unit. If the compressor is planned to be stopped for long periods, a main switch can be installed.

For detailed function descriptions of the individual unit please, refer to our Instructions for that specific unit.

4.1 Voltage ranges with compressors	BD Compressors with various electronic units (P-Housing)	Voltage range	BD Compressors with various electronic units (T-Housing)	Voltage range
	BD35F /-HD.2 /-B	9.6 - 31.5 V DC	BD350GH 24V	19 – 31.5 V DC
	BD35F AC/DC	85 – 265 V AC, 50/60 Hz	BD350GH 12/24V	9.6 – 31.5 V DC
		9.6 - 31.5 V DC	BD350GH 48V	32 - 60 V DC
	BD35F Solar	9.6 - 45 V DC	BD220CL	9.6 - 17 V DC
	BD50F	9.6 - 31.5 V DC		
	BD50F AC/DC	85 – 265 V AC, 50/60 Hz		
		9.6 - 31.5 V DC	BD Compressors with	Voltage range
	BD80F	9.6 - 31.5 V DC	various electronic units (Micro Series)	
	BD35K	9.6 - 31.5 V DC		
	BD35K AC/DC	85 – 265 V AC, 50/60 Hz	BD1.4F-AUT0.3	8.5 - 17 V DC
		9.6 - 31.5 V DC	BD1.4F-VSD.2/.3	9.6 – 34 V DC
	BD35K Solar	9.6 - 45 V DC	BD1.4F-VSD-HD	9.0 - 34 V DC
	BD50K	9.6 - 31.5 V DC	BD1.4F-VSD.2 AC/DC	85 – 265 V AC, 50/60 Hz
	BD80CN	9.6 - 31.5 V DC		9.6 – 34 V DC
	BD100CN	9.6 - 31.5 V DC		
	BD250GH.2 12/24V	9.6 – 31.5 V DC		
	BD250GH.2 48V	32 – 60 V DC		

4.2 Cable dimensions	To ensure correct starting and operating conditions, the cable dimensions must be observed and sized correctly. We recommend a maximum voltage drop of 0.3 V in the cable between power supply source and supply terminals on the electronic module. Calculation of voltage drop = 0.0175 * (cable length in meter / cable square in mm ²) * 2 * current in Ampere Example: Cable length = 5 meter Cable square = 4 mm ² Current consumption = 6.5 A Voltage drop = 0.0175 * (5/4) * 2 * 6.5 = 0.28 V.
4.3 Compressor speed control	All BD compressors have brushless DC motors and therefore speed/capacity control can be made in an easy way. The applied voltage to the motor inside is proportional with compressor speed. Note - the voltage applied to the motor inside the compressor is not the same as supply voltage! On BD35F/K, BD50F/K, BD80F/CN, BD100CN and BD250GH.2 the speed can be set via an external resistor in series with the thermostat circuit between terminal C & T. For further details on the different electronic units please refer to the Instruction and Data Sheets for specific models. On electronic units with communication interface the speed can be selected via PC software Tool4Cool®. Depending on the electronic unit the speed range varies. All compressor models offer speed control by means of Tool4Cool® or by means of an external resistor. Please refer to Instructions and Operating Instructions for specific units. For each electronic unit there is a built in protection function for over and under speed which stops the compressor when these limits are exceeded.
4.4 Thermostat connection	The electronic unit on the BD compressor can operate with normal mechanical type thermostats as used in refrigeration appliances, or with electronic thermostats. The thermostat is connected between the terminals C and T of the electronic unit. The compressor current does not flow through the thermostat contacts. When the thermostat is cut out there will still be power on to the electronic unit. A system with no stand-by power consumption can be established if the thermostat is replaced by a jumper between the terminals C and T, and the main switch is replaced by a thermostat. In this case the full current to the compressor flows through the thermostat, which must be rated accordingly. Electronic units with communication interface have a built in electronic thermostat that controls the temperature via an NTC sensor connected to terminal C & T on the electronic unit. Recommended NTC sensor type Epcos M800/5K. The thermostat can be adjusted via communication interface and PC software Tool4Cool®. BD1.4F-VSD.2/.3 compressor model offers thermostat adjustment feature by means of PC software Tool4Cool® or by means of an external resistor. For further details on thermostat function for the individual electronic units please refer to our Instructions.
4.5 Adaptive Energy Opti- mization (AEO) function	The AEO function is very suitable for tropical applications, systems with huge load variations and applications where energy is an important issue. Furthermore it can be an advantage to use it when it is difficult to determine at what speed the compressor should run. Customers producing condensing units see this as the preferred solution. The function will prevent short cycling of the compressor and thereby protect the battery. The AEO is built into electronic modules with separate code numbers. The AEO function can be overruled by means of a resistor to set a fixed speed. See Instructions for details on resistor size.

4.6 AEO function for BD35F/K, BD50F, BD80F, BD250GH.2 and BD100CN If no resistors are connected between C and T, speed control is done by AEO. The AEO function can be adapted via four setpoint parameters:

• AEO Runtime setpoint:

The target runtime for the compressor during cut-in

• AEO Start speed at power up:

The start speed of compressor in AEO mode, overruled by fixed speed with 2500 rpm for 30 sec

• AEO Max. ramp up time:

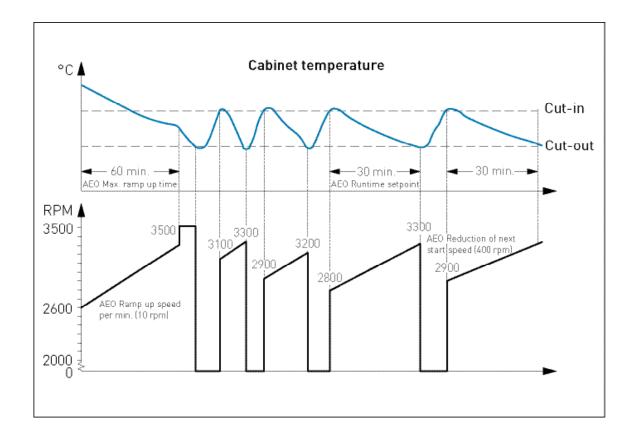
The maximum time that the speed is ramping up before reaching maximum speed for the compressor (3500 rpm for 101N0340 and 4400 rpm for 101N0390)

• AEO Reduction of next start speed:

The parameter defines how much the next start speed shall be reduced at next thermostat cut-in

	Motor speed [rpm]	Resistor R1 [0hm]
	AEO	0
0341 0421 AEO	2000	173
101N034 101N042 with AEC	2500	450
	3000	865
	3500	1696

	Motor speed [rpm]	Resistor R1 [Ohm]
8.0	AEO	0
0391 AEC	2500	203
101N0390 with AE0	3100	451
	3800	867
	4400	1700



NTC and ECO Speed

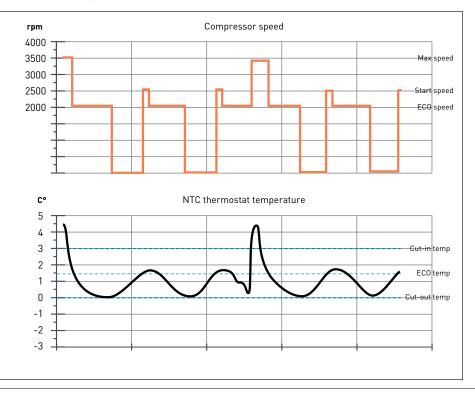
"NTC and ECO speed set via Tool4Cool[®] / communication interface" would be used if a NTC is used to control the temperature inside the cabinet. This is the most advanced function of the new controllers. The compressor speed is automatically adapted to the current cooling requirement.

Operation in ECO mode reduces energy consumption and noise by controlling compressor speed as a function of temperature.

The Eco Temperature is automatically calculated to be in the middle between cut in temperature and cut out temperature:

- when operating below ECO temperature, compressors run at the set ECO speed (often 2000 rpm)
- when operating above ECO temperature, the compressors run at Requested speed (often 3500 rpm)

The temperatures can be adjusted in the "Thermostat" section within Tool4Cool®.



4.8 Fan connections

BD35F/K, BD50F/K, 80F/CN, 100CN and BD250GH.2

If a condenser fan is to be used, it must be connected to the electronic unit terminals + and F. Always use a 12V fan, even in 24V systems, as the electronic unit will automatically reduce the applied voltage to 12V for the fan.

The max. load on the electronic unit is 0.5A $_{\rm avg}$ or 1A $_{\rm peak}$.

The fan is allowed to start with a higher current for the first 2 seconds. If the fan becomes overloaded, both fan and compressor will be cut out by the overload protection.

BD350GH, BD220CL, BD250GH.2 48 V, and BD1.4F-xxx

Electronic units with communication interface via Tool4Cool® have fan speed control in the range from 40 to 100 % controlled via a PWM signal.

Some of these controllers have the possibility to control both a condenser and evaporator fan via 2 fan outlets on the electronic unit.

Besides speed control it is possible to define a start and stop delay of the fans related to thermostat function. The table below shows the different settings that can be made via PC software Tool4Cool®. This varies from unit to unit.

Name	Default	Max. value	Min. value	Step	Unit
Cond. Fan voltage	24	31	12	1	Volt
Fan speed	100	100	40	10	%
Fan start delay	0	240	0	1	Seconds
Fan stop delay	0	240	0	1	Seconds
Fan forced ON	OFF	ON	OFF	1	-
Detect missing fan	OFF	ON	OFF	1	-

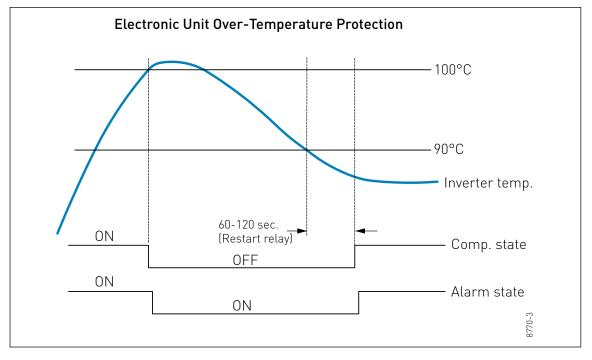
4.9 Fan output power	Electronic Unit Code number	Fan output (Watt) and voltage (V)	Electronic Unit Code number	Fan output (Watt) and voltage (V)	Electronic Unit Code number	Fan output (Watt) and voltage (V)
	101N0212	6 / 12	101N0715	60/40 / 12 or 24	101N1010	6 / 12
	101N0390	5 / 12	101N0720	60 / 48	101N2100	6 / 12
	101N0340	6 / 12	101N0732	60 / 48	101N5100	6 / 12
	101N0420	6 / 12	101N0800	100/200 / 12		
	101N0510	6 / 12	101N0810	100/200 / 24		
	101N0650	6 / 12				

4.10 Lamp connection	A 12V DC 5 Watt lamp can be connected between the terminals A and C on electronic unit 101N0510 and 101N5100. The output voltage between the terminals A and C is always regulated to 12V DC. A 12V DC lamp must be used for both 12V and 24V power supply systems. The lamp output can supply a continuous curren of 0.5A _{avg}
4.11 Fault detection and diagnosis	BD35F/K, BD50F/K, 80F/CN, 100CN and BD250GH.2 12/24 V To diagnose why a compressor comes to an unintended stop, it is recommended to have a 10 mA Light Emitting Diode (LED) installed between the terminals + and D. Provided that the electronic unit is properly connected to the power supply, and the thermostat is on, the number of flashes depends on what kind of operational error was recorded. Each flash will last ¼ second. After the actual number of flashes there will be a delay with no flashes, so that the sequence for each error recording is repeated every 4 seconds.
	LED flashes when: Battery voltage low: Battery must be charged. Hereafter start delay of 60 sec Fan is overloaded: Restart made after 60 sec Motor start error: Restart made after 60 sec Compressor speed too low: Restart made after 60 sec PCB temperature too high: Temperature must be below 90 / 100 °C. Hereafter delay of 60 sec
	Electronic unit with communications interface via Tool4Cool® shows actual alarm message on the PC screen. Alarm messages (depending on electronic unit): No error Voltage failure Fan failure Motor failure Min. speed failure Max. speed failure Thermal failure NTC Sensor Failure
	Some units also offer the possibility to connect an LED in order to get a flash pattern to identify the error. For details please refer to the Instructions for a specific unit.

In order to protect the electronic unit from destruction due to overheating a built in temperature sensor monitors the PCB temperature.

If the temperature exceeds 100 °C the compressor is stopped until the PCB temperature has dropped below 90 °C. For the second generation electronic units 101N0212 and 101N0650 the temperature limits are 10 °C above these values. The compressor is stopped until the PCB temperature has dropped below 100 °C. Hereafter the compressor will start again with a delay of approx. 1 minute (depends on the electronic unit).

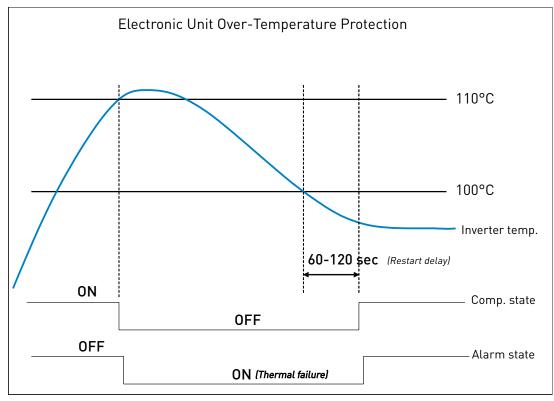
The heat influencing the PCB comes from its surrounding temperature and the temperature generated in the PCB due to load, meaning that a higher load is possible when surrounding temperature is low and vice versa.



101N0212, 101N0340. 101N0390, 101N0420, 101N0510

When the unit reaches 110 °C the system will shut down and an alarm error (Alarm 6: Thermal failure) will be sent.

The system restarts automatically after the temperature has dropped below 100 °C. Hereafter the set delay **Compressor restart delay** must be terminated. The default duration is 60 sec.



The battery protection prevents permanent damage to the battery by discharge.

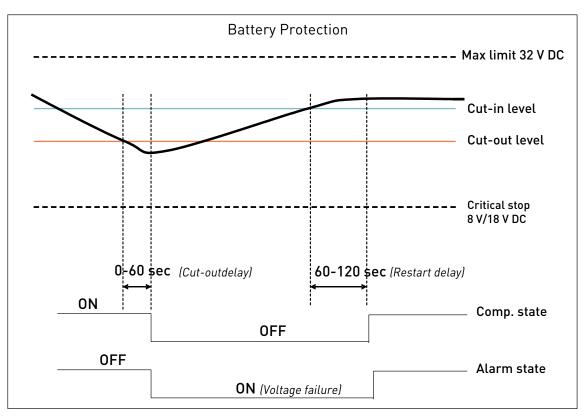
The setting range is 9-17 V DC for 12 V DC systems, and 19 to 27 V DC for 24 V DC systems. The cut out values and cut in differences can be set individual for 12 V systems and 24 V systems. Battery protection function is disabled in Solar controller 101N0420 (fixed range 10 to 45 V DC).

If the voltage remains below the cut-out voltage for the time specified in the parameter "Cut-out delay" (default 3s), compressor and fan are stopped.

Compressor and fan are stopped immediately, if the voltage drops below 8 V in 12 V systems and below 18 V in 24 V systems (critical stop).

If Solar mode is enabled, the electronic will be able to run over the entire input voltage range (9-32 V), without stopping between 12 V and 24 V range.

Tolerances are ± 0.30 V DC.



Settings

Name	Default	Max value	Min value	Step	Unit
Battery cutout level 12 V DC	10.4	17	9	0.1	Volt
Battery cut-in diff. 12 V DC	1.3	10	0.5	0.1	Volt
Battery cut-out level 24 V DC	22.8	32	19	0.1	Volt
Battery cut-in diff. 24 V DC	1.3	10	0.5	0.1	Volt
Battery Solar mode on/off	Disable	Enable	Disable	-	-
Cutout delay	3	60	0	1	Seconds

4.13.1 Battery protection for electronic units 101N0212, 101N0390, 101N0340, 101N0510, and 101N0650

Standard battery protection settings

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

Optional battery protection settings

Resistor [kΩ]	12V cut-out	12V cut-in	12V max.	24V cut-out	24V cut-in	24V max.
terminals C - P	[V]	[V]	Voltage	[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

4.13.2 Battery protection for electronic unit 101N1010

Standard battery protection settings

12V cut-out [V]	12V cut-in [V]
8.5	9.0

Optional battery protections settings

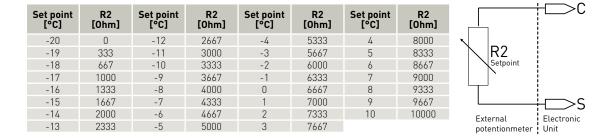
Resistor [kΩ]	12V cut-out	12V cut-in	12V max.
terminals S2 - C	[V]	[V]	Voltage [V]
0	9.60	10.90	17.0
0.17	9.73	11.03	17.0
0.34	9.86	11.16	17.0
0.54	10.00	11.30	17.0
0.75	10.12	11.42	17.0
0.97	10.25	11.55	17.0
1.23	10.38	11.68	17.0
1.50	10.52	11.82	17.0
1.81	10.65	11.95	17.0
2.15	10.78	12.08	17.0
2.53	10.91	12.21	17.0
2.96	11.04	12.34	17.0
3.44	11.17	12.47	17.0
3.99	11.30	12.60	17.0

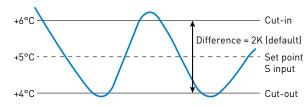
4.13.3 Standard battery protection settings for electronic units 101N2100 / 101N5100

4.13.4 Optional battery protection settings for electronic units 101N2100 / 101N5100

Voltage (0.1 ste	ps)				Min. value	Default	
12V	± 0.3V DC,	Cut-out		VDC	9.6	10.4	
IZV	all values	Cut-in diff.		VDC	0.5	1.3	
200	± 0.3V DC,	Cut-out		VDC	19	21.3	
24V	all values	Cut-in diff.		VDC	0.5	1.3	
Resistor [kΩ]	Duty Cycle	Speed	Cut-out level	Cut-in level	Cut-out level	Cut-in level	
terminals C - P	[%]	[RPM]	[V]	[V]	[V]	[V]	
open	0	Maintain	Maintain	current value. Ca	n be changed via	Modbus	
220	3	-		current value. Ca			ITC
130	6	-		current value. Ca			ITC of
91	9	-		current value. Ca			ECO
68	12	-		current value. Ca	J		ECO o
51	15		, idinitali	9.6 - 34	3		Sola
43	18			Defa			Solar
							ootai
36	21			Reset bat	tery only		
30	24		Re	set battery and sp	eed to default va	lue	
27	27	4000	Maintain	current value. Ca	n he changed via	Modhus	
22	30	4000	9.6	10.9	21.3	22.6	
20	33	4000	10.1	11.4	22.3	23.6	
18	36	4000	11.1	12.4	23.3	24.6	
15	39	4000	12.1	13.4	24.3	25.6	
13	42	3500		current value. Ca			
12	45	3500	9.6	10.9	21.3	22.6	
11	48	3500	10.1	11.4	22.3	23.6	
9.1	51	3500	11.1	12.4	23.3	24.6	
8.2	54	3500	12.1	13.4	24.3	25.6	
7.5	57	3000	Maintain	current value. Ca	n be changed via	Modbus	
6.2	60	3000	9.6	10.9	21.3	22.6	
5.6	63	3000	10.1	11.4	22.3	23.6	
5.1	66	3000	11.1	12.4	23.3	24.6	
4.3	69	3000	12.1	13.4	24.3	25.6	
3.9	72	2500	Maintain	current value. Ca	n he changed via	Modhus	
3.3	75	2500	9.6	10.9	21.3	22.6	
2.7	78	2500	10.1	11.4	22.3	23.6	
2.2	81	2500	11.1	12.4	23.3	24.6	
1.8	84	2500	12.1	13.4	23.3	25.6	
1.5	87	2000		current value. Ca			
1.0	90	2000	9.6	10.9	21.3	22.6	
0.68	93	2000	10.1	11.4	22.3	23.6	
0.36	96	2000	11.1	12.4	23.3	24.6	
0.051	99	2000	12.1	13.4	24.3	25.6	

4.14 Set point selection during standalone operation (w/o Tool4Cool®) for electronic unit 101N2100





Example: R2 = $8330 \Omega \sim +5^{\circ}C$ Difference 2K (default value, can be changed via T4C) Cut-out = $+4^{\circ}C$ Cut-in = $+6^{\circ}C$

- Cut-out value will be written into EEPROM

- If R2 resistor is removed, Cut-out will

continue to be 4°C and difference 2K

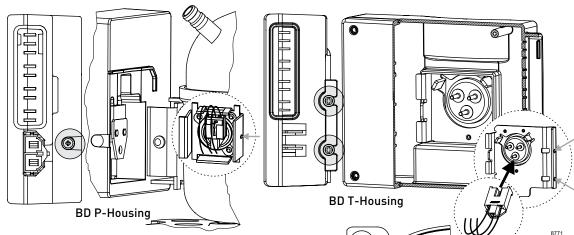
In order to utilize the integrated temperature control, connect a 10K potentiometer (or fixed resistor), between S and C (R2). Via the resistance, a temperature set point between -20 °C and 10 °C can be selected as per the table above.

The resistance adjusts the temperature set point around which the Cut-in and Cut-out occurs. It is defined as the average value between Cut-in and Cut-out.

The temperature set point will not change the Cut-in difference, but only adjust the Cut-out based on the temperature set point and the actual Cut-in diff setting.

(Cut-out = temperature set point – Cut-in diff / 2).



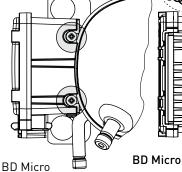


BD P-Housing

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 (sideways, marked in grey). The electronic unit snaps on to the bracket and is now securely mounted on the compressor. Earth connection (via compressor baseplate) can be used if required.

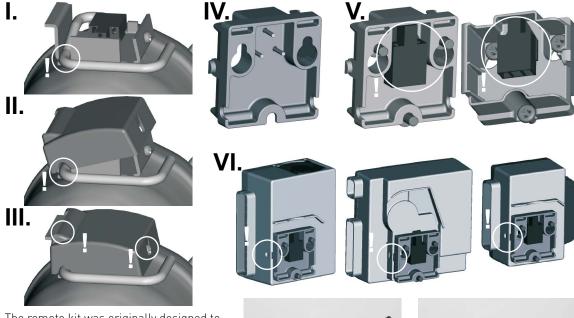
BD T-Housing

Connect the terminal plug from the electronic unit to the compressor terminal. Mount the electronic unit on the compressor and fix it with two screws (sideways, marked in grey).



Mount the electronic unit directly on the compressor plug and fix it with two screws (sideways or from above, marked in grey)

4.16 Mounting the remote kit



The remote kit was originally designed to be used together with the BD250GH twin compressor.

It is applicable to all electronic units used with the BD P-Housing compressor platform.

The remote kit supports in mounting the electronic unit in small machine compartments.

The electronits unit can be placed next to the compressor.





5. PRECONDITION FOR LONG OPERATING LIFE

In order to achieve trouble free operation and long operating life for a hermetic compressor, the following preconditions should be observed:

- 1. Sufficient starting torque of the compressor motor to allow the motor to start at the pressure conditions in the refrigeration system.
- Sufficient breakdown torque to allow the motor to handle the load conditions at start up and during operation.
- 3. When the refrigeration system is in operation, the temperature in the compressor should not rise to levels which could damage its components. Consequently, condensing and compression temperatures should be kept as low as possible.
- 4. Precise dimensioning of the refrigeration system in question and careful evaluation of the operating conditions of the compressor at expected maximum loads.
- 5. Sufficient cleanliness and low residual humidity in the circuit.

5.1 Motor overload Compressor start up is influenced by the starting and/ or breakdown torque of the motor. If starting and/ or breakdown torque is insufficient, the compressor either cannot start or the start will be hampered and delayed because the motor protector is activated. Repeated start attempts subject the motor to overload, which sooner or later will result in failure. Faults of this kind can mostly be avoided by using the correct compressor/ motor combination. Secop offers the best solution for nearly all applications. It is a question of selecting the correct compressor for difficult fields of application.

5.2 Thermal overload Operating conditions resulting in thermal decomposition of the materials used in the compressor must be avoided to ensure long compressor life. The materials relevant in this relation are motor insulation, refrigerant and oil.

The motor insulation consists of the insulating enamel for the copper wires, the slot liner of the stator iron, bandages and feeder cables.

As early as 1960, Secop (Danfoss Compressors) introduced fully synthetic insulation materials on all its compressors and the enamel for the wire insulation and the insulating system itself has improved continuously ever since. The result is constantly improved protection against motor overload. Like all other CFC gases, R12 and R502 were found to be harmful to the environment and were consequently prohibited. These refrigerants were used together with mineral oils. A so called Spauschus reaction between oil and refrigerant could consequently occur at high temperatures, which led to valve coking, especially at high residual humidity.

6.		
D	ESIGN	LIMITS
		In order to secure a satisfying lifetime of the compressor, some design criteria for the appliances must be fulfilled. Both the condensing temperature and the compressor temperature should be kept as low as possible. This can be done by using well dimensioned condenser surfaces and by ensuring good ventilation around the compressor under all operating conditions.
		In order to protect the compressor against overload, the compressor must start and work properly through pressure peaks obtained in the highest ambient temperature and lowest working voltage. These limitations ensure a protection of valves, gaskets, oil, and motor insulation. Refrigerants R134a, R404A or R507 need polyester oils (POE).
		Because of these oil types and the application of the above mentioned refrigerants there is – in practice – no longer any danger of valve coking. Restrictions on condensing and motor temperatures are now set to protect the motor and thus increase its life.
		For the application of Secop compressors in household, commercial and mobile refrigeration using the available refrigerants, we recommend the following rules to be observed:

 6.1
 Coil temperature

 Coil temperature
 Coil temperature must not exceed 125°C during continuous operation.

 For limited periods of time, e.g. during compressor start up or in the case of short load peaks, the temperature should not exceed 135°C.

 For commercial refrigeration with R134a the same limits as for household refrigeration apply.

 However, fan cooling of the compressor is recommended.

 6.2
 When using R600a or R134a the condensing temperature during continuous operation must not exceed 40°C. During limited load peaks the temperature must not exceed 70°C. In commercial refrigeration using R404A and R507 the condensing temperature limit is 48°C during continuous operation and 58°C in the case

of load peaks.

7. MOISTURE AND IMPURITIES/ FILTER DRIER SELECTION

The compressors are dried to a maximum moisture content of 60 to 75 mg depending on the compressor size. The maximum impurity content is 40 to 50 mg depending on the compressor size.

Secop compressors leave the factories with a moisture load less or equal 125 ppm. This ppm rate includes a safety factor for a storing time up to one year or longer. In addiction of storing time and storing conditions the moisture level will increase. A level between 200 and 250 ppm in general is not critical and will not harm the compressors or systems, where the compressors will be implemented.

Test parameters	Demand
Conditioning	24 h, room temperature
Condition of compressor	charged with oil
Measurement temperature	room temperature
Measurement time	1-2 min
Medium	dew point
Measurement cell	electrical hydrometer
Demand	max.125 ppm H20

Measurement method

With this measurement method, the total moisture in the air volume will be measured. The water, which is fixed in the plastic structure and the oil, will only be measured indirectly. Within 24 hours equilibrium between the humidity contents of the air and compressor parts is reached. The limit of 125 ppm is very low, if we consider that the surrounding air contains approx. 8000 ppm at 22°C

and a relative humidity load of 40 %.

7.1 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. The common desiccant is a molecular sieve, a zeolite. For R134a, R404A, R290 and R600a a material with 3 Å pores is recommended, e.g. UOP, XH 9 or XH 11, Grace 594, CECA Siliporite H3R. Pencil driers for R134a can possibly be used for R290, if they are tested according to IEC / EN 60 335 burst pressure demands.

In systems using a TEV valve it can be recommend using a combo drier, which is a drier with a free volume that functions as receiver.

8. CONDITION AT DELIVERY/ WARNINGS

The compressors are delivered without mounted starting devices on pallets. The standard pack can be stacked and is intended for transport by forklift truck. The bottom pallet has the dimensions 1144 x 800mm.

Quantities per pallets are specified in the individual data sheets. Electrical equipment is packed in separate boxes.

The most important performance controls carried out during manufacturing are,

- A high potential insulation test with 1650V for 1 second
- Pumping capacity
- Tightness of discharge side and discharge valve
- Tightness of compressor housing
- Check of the right oil charge
- Noise test

The compressors are supplied with sealed connectors and the sealing should not be removed before the system assembly takes place. (max. 15 minutes with open connectors).

The compressors are supplied charged with dried and degassed oil, which is normally sufficient for the lifetime of the compressor. The refrigeration systems and the system components must be dimensioned in such a way that the oil can be lead back continuously to the compressor housing without accumulating in the system, e.g. without the oil pockets and with sufficient gas velocity. The compressors use polyolester or mineral oils and are approved only for these oils and **for the refrigerant to be used**. The oil charge is specified in the individual data sheets.

A high potential test with 1650V for 1 second is carried out on all compressors before delivery. No high potential test or 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

9. MAX. REFRIGERANT CHARGE

R134a, R600, R290, and R404A/R507

Only the refrigerant amount which is necessary for the system to function must be charged. The refrigerant amount may be critical, regarding oil foaming and liquid hammer after long standstill periods. Because of this, limitations of refrigerant charges have been introduced.

If the permissible limit of refrigerant charge stated in the compressor data sheet is exceeded the oil will foam in the compressor after a cold start and may result in a damaged valve system in the compressor. The refrigerant charge must never exceed the amount that can be contained in the condenser side of the system.

If these limitations cannot be complied with, the risk may be reduced if a crankcase heater is properly used or if a pump down system is established.

Please refer to the compressor data sheets, as the maximum refrigerant charge may deviate on single types from the statements in the form. The maximum charge of 150g for R600a, R290 and R1234yf is an upper safety limit of the appliance standards, whereas the other weights are stated to avoid liquid hammer.

Compressor type	Max. refrigerant charge				
Compressor type	R134a	R1234yf	R600a	R290	R404A/R507
BD, P-Housing	300 g	150 g	120 g	120 g	-
BD, T-Housing	400 g	150 g	-	-	400 g
BD Micro	70 g	70 g	-	-	-

According to the European Standard EN 60335-2-24 or draft IEC 60335-2-89, which must be complied with, the refrigerant charge must not exceed 150g.

Commercially available R600a and R290 must not be used because the fuel grades of these products are of a variable composition. These products may also contain impurities which could significantly reduce the reliability and performance of the system and lead to premature failure. All Secop compressors for R600a and R290 are released for a base purity of 97 % or better. Impurity limits shall comply with DIN 8960 of 1998 (extended version of ISO 916).

All users of refrigerant R600a should refer to the chemical data safety sheets for full information on the safe handling of R600a and R290.

In general the charge of R600a or R290 is approximately 40-50 % by weight than that for HFC.

The refrigerant charge must never be too large to be contained on the condenser side of the refrigeration system. Only the refrigerant amount which is necessary for the system to function must be charged.

10. CONVERSIONS

From R404A to R452A	At Secop, product development is focused on high efficiency and eco-friendly products. We believe – as all the major market stakeholders – that hydrocarbon refrigerants (isobutane R600a and propane R290) are the best solution for DC-powered applications. The use of R404A is under pressure due to global regulations, however special attention is given to F-gas regulation in Europe. Secop recommends the move to hydrocarbon refrigerant solutions (R600a and R290) which perfectly meet the increasing market demand for high efficiency while utilizing natural refrigerants with very low GWPs. We understand that there is a transition period, where specific applications will use different refrigerants while application redesign to hydrocarbons is not possible in a short time. Tests have so far shown good results with refrigerant R452A as a drop-in replacement for R404A. Based on this information, Secop allows the use of R452A on all its R404A released compressors. It is the customer's responsibility to validate the application and they should carefully consider the requirements and constrains when changing the R404A to R452A in their application. [Please refer to Product Bulletin " Refrigerant R452A in Secop Compressors "]
From R134a to R600a or R290	Conversions from refrigerants R134a to R600a are not permitted as 1:1 replacements, as the refrigerator must be approved for operation with flammable refrigerants, and the electrical safety has to be tested according to existing standards. The same applies to conversions from refrigerants R502 or R134a to R290. In many cases of transition from non-flammable to flammable refrigerants the appliance cabinet must be modified for safety or other reasons. Refrigerant containing system parts according to IEC / EN 60335 must withstand a specified pressure without leaking. High pressure side must withstand saturation overpressure of 70 °C times 3.5, low pressure side must withstand saturation overpressure of 20 °C times 5. Secop [formerly Danfoss Compressors] has been a pioneer and early adopter of hydrocarbons as refrigerants and offers a variety of suitable compressors for R600a and R290. [Please refer to Application Guideline "Practical Application of Refrigerants R600a and R290 in Small Hermetic Systems"].
From R134a to R1234yf or R513A and R452A	R1234yf is a future refrigerant candidate in auto air conditioning replacing R134a. Likewise it might be used in DC-powered applications where redesign of the system to propane is not possible. R1234yf is classified as flammable in the relevant safety standards. It is more expensive than R134a, however holds remarkably less greenhouse potential than R134a. Our R134a compressors can be used for testing with this refrigerant and we are ready to support you in your investigation and approval procedure. Investigations on material compatibility have so far shown good results with refrigerant R1234yf in Secop R134a compressors. These results must be confirmed in the ongoing long term tests. At present, testing system performance can be carried out with the compressors originally designed for R134a. The same application limits as described on the R134a data sheet may be used. The compressors designed for R134a do currently (03/2020) not have a safety approval for flammable refrigerants like R1234yf, but might be available in approved variants within the near future. [Please refer to Product Bulletin " Refrigerant R1234yf in Secop Compressors "] Various new refrigerant types have been developed by the chemical industry to offer alternative solutions to hydrocarbons while some high-GWP refrigerants are to be phased out due to global regulations. R513A and R452A are refrigerants which are designed to work as "drop-in" or replacement refrigerants for R134a and R404A. Secop ran development projects to verify that existing compressor types are compatible with these new refrigerants. As a result, most of Secop R134a compressors have now been additionally released for R513A and most R404A compressors have been released for R452A (all including approvals by the relevant authorities]. [Please refer to Product Bulletin " Multi-Refrigerant Release of Secop Compressor Types, R513A and R452A "]

11. MOUNTING THE COMPRESSOR

Brazing problems caused by oil in the connectors can be avoided by placing the compressor on its base plate some time before brazing it into the system.

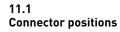
The compressor must never be placed upside down when mounting the rubber grommets in the base plate. Instead place the compressor on its side with

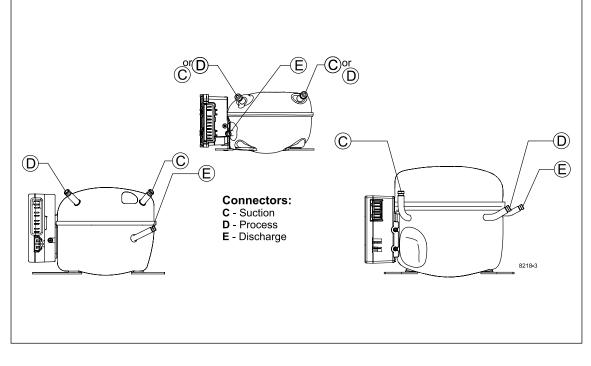
the connectors upwards.

The system should be closed within 15 minutes to avoid moisture and dirt penetration.

Tightening torque for M6 bolt joint mountings should be 5 Nm ± 0,5 (hand-tight).

The positions of connectors are found in the sketches. **C** means suction and must always be connected to the suction line. **E** means discharge and must be connected to the discharge line. **D** means process and is used for processing the system.





Secop BD compressors are equipped with tube connectors of thick-walled, copper-plated steel tube which have a brazeability which comes up to that of conventional copper connectors.

The connectors are welded into the compressor housing and weldings cannot be damaged by overheating during brazing.

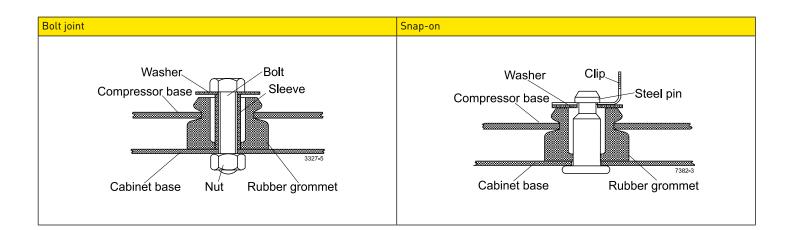
These copper-plated steel connectors have an aluminium cap sealing which gives a tight sealing. The sealing secures that the compressors have not been opened after leaving Secop's production lines. In addition to that, the sealing makes a protecting charge of nitrogen superfluous.

12. MOUNTING ACCESSORIES

Mounting	Code number	Bolt / pin dimension	Compressor base hole	Parts list	Type of packaging	
Bolt joint	118-1917	M6 metric	16 mm	I	Single pack for one compressor	
Bolt joint	118-1918	M6 metric	16 mm	I	Industrial pack in any quantity	
Snap-on *	118-1947	Ø 7.3 mm	16 mm	П	Single pack for one compressor	
Snap-on *	118-1919	Ø 7.3 mm	16 mm	Ш	Industrial pack in any quantity	

* not applicable to BD80F, BD100CN and BD250GH.2 using electronic units 101N0290 or 101N0732

Parts list		Code number
	Sleeve Ø 8 mm x 6.4 mm x 0.8 mm	112-2052
	Washer Ø 20 mm x Ø 6.7 mm x 1 mm	112-2053
I	Bolt M6 x 25 mm	681X1130
	Nut M6	118-3659
	Rubber grommet 16 mm	118-3661
	Steel pin	118-3586
	Washer Ø 21 x Ø 8.1 mm x 0.9 mm	118-3588
II	Clip	118-3585
	Rubber Grommet 16 mm	118-3661



13. SHIPMENT POSITIONS

Shipment of refrigeration appliances in horizontal position

When refrigeration appliances are shipped in the normal vertical position, this will normally not cause any damage to the compressor. If transported in horizontal position, the compressor must be oriented as shown in the table on the next page to prevent the accumulation of oil in the muffler and subsequent risk of damage. It is important to note that the compressor must be securely fastened and well supported during transportation.

Refrigeration appliances can be safely transported in horizontal position:

- with trucks on roads and motorways in good condition
- by ship in containers
- on railways in good condition

Compressors Verdichter Compresors	Shipment positions of refrigeration appliances - Position X must not be used					
	Connectors up	Electrical lead-in up	Connectors down	Electrical lead-in down	Base plate up	
BD Micro - Series						
BD - Series (P-Housing)						
BD - Series (T-Housing)						

APPENDIX DATA SHEETS

R134a:

R134a:	
BD1.4F-AUTO.3 DC Compressor · R134a · R1234yf · 12V DC	72-73
BD1.4F-VSD.3 DC Compressor · R134a · R1234yf · 12/24V DC	
BD1.4F-VSD-HD Heavy Duty DC Compressor R134a 12/24V DC	
BD1.4F-VSD.2 DC Compressor · R134a · 12/24DC V · Inch Connectors · 100-240V AC 50/60Hz	80-81
BD1.4F-VSD-HD Heavy Duty DC Compressor · R134a · 12/24DC V · Inch Connectors	82-83
BD35F DC Compressor · R134a · 12/24V DC · 10-45V Solar · 100-240V AC 50/60Hz	84-85
BD35F DC Compressor · R134a · 12/24V DC · 10-45V Solar · 100-240V AC 50/60Hz · Inch Connectors .	86-87
BD35F-HD.2 Heavy DC Compressor · R134a · 12/24V DC	88-89
BD35F-B Bus-optimized DC Compressor · R134a · 12/24V DC · 100-240V AC 50/60Hz	90-91
BD50F DC Compressor · R134a · 12/24V DC · 100-240V AC 50/60Hz	92-93
BD50F DC Compressor · R134a · 12/24V DC · 100-240V AC 50/60Hz · Inch Connectors	94-95
BD80F DC Compressor · R134a · 12/24V DC	96-97
BD250GH.2 DC Compressor · R134a · 12/24V DC	98-99
BD250GH.2 DC Compressor · R134a · 48V DC	100-101
BD350GH DC Compressor · R134a · 12V DC - with 101N08xx Series Controllers	102-103
BD350GH DC Compressor · R134a · 24V DC - with 101N07xx Series Controllers	104-105
BD350GH DC Compressor · R134a · 24V DC - with 101N08xx Series Controllers	106-107
BD350GH DC Compressor · R134a · 48-56V DC	108-109

R600a:

BD35K DC Compressor · R600a · 12/24V DC · 10-45V Solar · 100-240V AC 50/60Hz	. 110-111
BD35K-B DC Compressor R600a 12/24V DC 10-45V Solar 100-240V AC 50/60Hz	. 112-113
BD50K DC Compressor · R600a · 12/24V DC	. 114-115

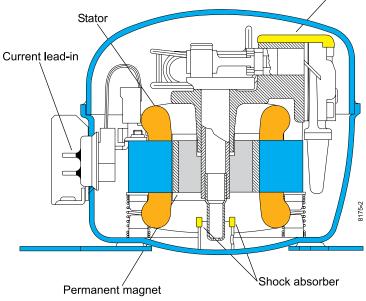
R290:

BD80CN DC Compressor · R2	90 · 12/24V DC	
BD100CN DC Compressor R	290 · 12/24V DC	

R404A/R507:

Cutaway drawing BD35F:

Shock absorber





SECOP

109Z

le by Secop

R134a/R1234yf

BD1.4F-AUTO.3 Direct Current Compressor R134a, R1234yf 12V DC

TOOL4COOL	
Flexible control settings	

General

Code number (without electronic unit)	109Z0106			
Electronic unit - Automotive	101N1000, 30 pcs: 101N1001			
Electronic unit - Automotive	101N1010, 30 pcs: 101N1011			
Approvals	-			
Compressors on pallet	180			
Application				

Application		LBP/MBP
Evaporating temperature	°C	-25 to 5
Voltage range	VDC	8.5 - 17
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

= Static cooling normally sufficient

BD1.4F-AUTO.3

only with BD controller

C€

= Oil cooling

Barcode on white background

Grey background Country of origin or manufacturer

Blue stripe

S

0 F_1

- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature) $F_2 = Fan \text{ cooling 3.0 m/s necessary}$
- SG = Suction gas cooling normally sufficent
 - = not applicable in this area

Cooling requirements

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

- New generation with optimized noise level

- New generation also released for R1234yf

Motor

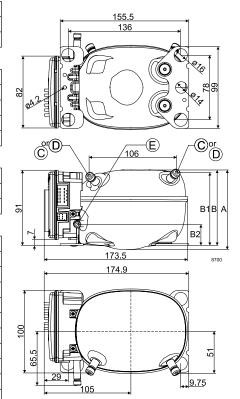
Motor type		permanent magnet, brushless DC
Speed	rpm	3,000
Resistance, all 3 windings (25°C)	mΩ	370

Design

)

Standard battery protection settings (refer to 101N1000 Instructions for optional settings)					
Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	8.5	8.5	17
Cut in diff.	(0.1 steps)	VDC	0.5	0.5	8

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



January 2020

Performance Data with Refrigerant R134a & R1234yf

Capacity in W 16.1 19. Power cons. in W 24.1 25. Current cons. in A 1.84 1.9 COP in W/W 0.67 0.7 EN 12900 Household (CECOM/ Evap. temp. in °C -25 Capacity in W 17.4 20. Power cons. in W 26.5 28. Current cons. in A 2.02 2.1: COP in W/W 0.66 0.7 ASHRAE LBP, R134a Evap. temp. in °C -25 Capacity in W 0.26 23. Power cons. in A 2.02 23. Power cons. in A 2.02 23. Power cons. in W 24.0 25. Current cons. in A 1.84 0.97 COP in W/W 0.84 0.97 COP in W/W 0.84 0.97 Corrent cons. in A 1.84 1.97 Cop in W/W 0.84 0.97 COP in W/W 0.93 1.07 Test conditions E Condensing temperature Condensing temperature Suction gas temperature NTC Temperature Senso	-23.3 -2 19.2 25 25.7 29 1.96 2.3 0.74 0.3
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Software-Setup	no
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$ \begin{array}{c} $	

*Length between battery and electronic unit

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January 2020



R134a / R1234yf

SECOP

109Z

e by Secop

BD1.4F-VSD.3 Direct Current Compressor R134a, R1234yf 12/24V DC



General

Code number (without electronic unit)	109Z0209
Electronic unit - Variable Speed	101N2100, 30 pcs: 101N2101
Compressors on pallet	180

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 15
Voltage range DC	VDC	9.6 - 17 / 19 - 34
Voltage range AC	V/Hz	100 - 240 / 50 - 60
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

= Static cooling normally sufficient

BD1.4F-VSD.3

only with BD controller

CE

= Oil cooling

Barcode on white background

Blue stripe

S 0

F₁

 F_2

Grey background Country of origin or manufacturer

- = Fan cooling 1.5 m/s (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

- New generation with optimized noise level - New generation also released for R1234yf

Motor

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

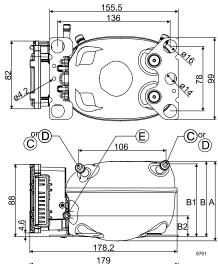
Design

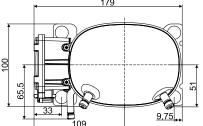
Displacement	cm ³	1.41
Oil quantity (type)	cm ³	75 (polyolester)
Maximum refrigerant charge	g	70
Free gas volume in compressor	cm ³	500
Weight - Compressor/Electronic unit	kg	2.1 / 0.11
i		

Standard battery protection settings (refer to 101N2100 Instructions for optional settings)

	· · · · · · · · · · · · · · · · · · ·	<u> </u>				5.)
Voltag	e (0.1 steps)			Min. value	Default	Max. value
12V ± 0.3V	± 0.3V DC,	Cut out	VDC	9.6	10.4	17
120	all values	Cut in diff.	VDC	0.5	1.3	10
24V ±0.	± 0.3V DC,	Cut out	VDC	19	21.3	27
24V	all values	Cut in diff.	VDC	0.5	1.3	10

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





March 2020

Performance Data with Refrigerant R134a

Capacity	(EN 1	2900 H	louse	hold/C	ECON	IAF), F	R134a	12	/ DC, :	static o	cooling	watt		nal error	s (TOOL40	COOL® or L	.ED flash	es)
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Error code or LED			Error type		
2,000		9	11	15	22	31	42	54	68	75	84	101	flashes			n the software	e TOOL40	OOL®
3,000	9	16	19	26	37	51	67	85	105	115	128	152	6	Thermost		s short-circuit		
3,500	10	20	23	31	45	61	80	101	124	135	150	178				enter manual		connection,
4,000	12	23	27	36	52	71	92	116	142	155	172	203	5			electronic u		
Capacity	(ASH	RAE L	BP), F	134a				12	V DC,	static o	cooling	watt				stem has bee erature is hig		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15		will run too				
2,000		12	14	19	28	39	52	68	85	93	105	126	4		motor spe			
3,000	11	20	24	32	47	64	83	106	131	143	159	190				ystem is too minimum sp		
3,500	13	24	29	38	56	76	99	125	154	168	186	222		1,850 rpm)		inininani op	oou ut up	proximatory
4,000	15	29	34	45	65	88	114	144	177	193	214	254	3	Motor sta				
Power co	onsum	ption.	R134	а				12	V DC,	static o	cooling	watt				or the differe too high (>5		sure in the
rpm \ °C	1	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	2	Fan over-	current cu	it-out		
2,000		16	17	19	22	25	29	34	39	41	44	50		(The fan 0.65A _{neek}).	loads the	electronic u	init with	more than
3,000	19	24	26	29	34	39	45	50	56	59	62	68	1	peak	rotection o	ut-out		
3,500	23	29	31	35	41	47	53	59	65	68	71	78				the cut-out	setting).	
4,000	27	34	36	41	48	55	61	68	75	77	81	87	Wire Dim	nensions	DC			
Current o	consu	motior	1. R13	4a (for	24V an	plicatio	ons the	follow	ina mu	st be h	alfed)	А		ze		ength*	Max.	length*
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Cross	AWG	12V op	eration	24V o	peration
2,000		1.25	1.33	1.48	1.74	2.02	2.33	2.66	3.02	3.18	3.40	3.81	section [mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]
3,000	1.49	1.84	1.96	2.20	2.59	2.99	3.40	3.84	4.29	4.49	4.75	5.24	2.5	12	2.5	8	5	16
3,500	1.77	2.19	2.34	2.62	3.07	3.53	4.00	4.48	4.98	5.20	5.49	6.01	4	12 10	4 6	13 20	8 12	26 39
4,000	2.09	2.58	2.75	3.08	3.59	4.11	4.64	5.17	5.71	5.95	6.26	6.82	10	8	10	33	20	66
	40000			0000		DADA	_	4.01	(*Length be	tween batte	ry and el	ectronic unit
COP (EN	-30	-25	-23.3	-20	-15	-10	a -5	0	5 5	static of 7.2	10	W/W		ories for E				e number
2,000	-30	0.59	0.66	0.81	1.03	1.24	1.43	1.60	1.76	1.82	1.90	2.03		for one con		Ø:16 m	_	8-1917
3,000	0.45	0.67	0.74	0.89	1.10	1.30	1.50	1.69	1.88	1.96	2.06	2.24		in quantities		Ø:16 m Ø:16 m	_	8-1918 8-1919
3,500	0.46	0.68	0.75	0.89	1.10	1.30	1.51	1.70	1.90	1.99	2.10	2.29		Ferminal cover for electronic unit 105N9120				
4,000	0.45		0.75	0.89	1.09	1.30	1.50	1.70	1.91	2.00	2.12	2.32	Automoblie fuse 12V: 15A Not					
											1		DIN 7258			24V: 15	_	iverable
COP (AS	ř.				45	10	-			static o			Main swite			min. 20		m Secop
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Test con	ditions		EN 1290		SHRAE
2,000 3,000	0.57	0.74 0.84	0.83	1.01	1.29 1.37	1.55 1.62	1.79 1.87	2.01 2.12	2.21 2.35	2.29 2.46	2.39	2.56	Condensi	ng tempera	ture	CECOM 55°C		LBP 54.4°C
3,500	0.57	0.85	0.93	1.11	1.37	1.62	1.87	2.12	2.35	2.40	2.59	2.88	Ambient t	emperature	;	32°C		32°C
4,000	0.58	0.85	0.94	1.11	1.36	1.61	1.87	2.12	2.38	2.40	2.65	2.92	Suction ga	as tempera	ture	32°C no subcoo	lina	32°C 32°C
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	Fuse Main switch Spade connectors 6.3 mm 1/4 in.																	
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					opti	ion 2			option 1							2100 Instru	ictions f	r dataila
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March 2020

Performance Data with Refrigerant R1234yf

Capacity	(EN 1	2900 H			ECON	•	R1234	vf 12	/ DC. :	static o	coolina	watt	Operatio	nal error	s (TOOL40	COOL® or L	.ED flash	ies)
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Error code or LED			Error type		,
2,000		10	12	16	23	32	42	53	65	70	78	91	flashes	Can b	e read out ir	n the softwar	e TOOL4	COOL®
3,000	10	17	21	27	39	52	67	83	100	108	118	137	6	Thermost				
3,500	11	20	24	32	45	60	78	97	118	128	141	166				s short-circuit enter manual		connection,
4,000	13	24	29	38	54	71	91	111	134	144	158	182	5	Thermal	ut-out of	electronic ı	init	
Capacity	(ASH	RAE L	BP), F	R1234y	/f			12	VDC,	static o	cooling	watt				stem has bee erature is high		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15		will run too			g.i., the en	
2,000		13	15	21	30	42	55	69	85	92	102	120	4		motor spe			
3,000	13	23	27	35	50	68	87	108	130	141	155	180				ystem is too minimum so		
3,500	14	26	31	41	58	78	101	126	154	167	184	217		1,850 rpm)				
4,000	17	32	38	50	70	93	118	145	174	188	206	239	3	Motor sta		ar the differ	antial area	aura in the
Power co	onsum	ption,	R123	4yf				12	V DC,	static	cooling	watt		(The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)).				
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	2	Fan over-	current cu	it-out		
2,000		17	18	20	23	27	30	34	38	40	42	46		(The fan 0.65A _{nesk}).	loads the	electronic u	unit with	more than
3,000	22	27	28	31	36	41	46	51	55	57	60	64	1	p - mail	rotection of	sut-out		
3,500	26	31	33	37	43	49	54	59	64	67	69	74				the cut-out	setting).	
4,000	30	37	40	44	51	57	63	68	74	76	78	83	Wire Din	nensions				
Current	coneu	mntio	D12	2 <i>1</i> 1.1f /f	or 241/	onnling	tions t	ha falla	wina n	nuct be	halfor) A	-	ize	T	ength*	Max.	length*
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5		5	7.2	10	15	Cross	AWG		eration		peration
2,000	-30	1.39	1.47	1.62	1.88	2.14	2.41	2.69	2.97	3.09	3.25	3.53	[mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]
3,000	1.66	2.02	2.15	2.39	2.76	3.13	3.50	3.86	4.22	4.38	4.58	4.93	2.5	12	2.5	8	5	16
3,500	1.98	2.40	2.13	2.82	3.24	3.66	4.08	4.50	4.92	5.11	5.34	5.76	4	12	4	13	8	26
4,000	2.34	2.83	3.00	3.32	3.81	4.28	4.75	5.20	5.64	5.83	6.06	6.47	6 10	10	6 10	20 33	12 20	39 66
																		ectronic unit
COP (EN	1		r	r	· · ·	i			· · ·	r		W/W	Accesso	ories for l	3D1.4F-V	SD.3	Cod	e number
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Bolt joint	for one con	npressor	Ø:16 m	m 1 [.]	18-1917
2,000	0.44	0.58	0.65	0.79	1.00	1.20	1.38	1.55	1.70	1.76	1.84	1.97		in quantities Ø:16 mm 118-1918				
3,000	0.44	0.66	0.73	0.87	1.07	1.26	1.45	1.63	1.81	1.89	1.98	2.15		in quantities Ø:16 mm 118-1919 cover for electronic unit 105N9120				
3,500	0.42	0.64	0.71	0.84	1.05	1.25	1.44 1.44	1.64 1.63	1.84 1.82	1.93 1.90	2.04	2.24		noblie fuse 12V: 15A Not				
4,000	0.45	0.00	0.75	0.00	1.00	1.25	1.44	1.05	1.02	1.90	2.01	2.20	DIN 7258			24V: 1		liverable
COP (AS	1			-							cooling	·	Main swit	ich		min. 20	DA fro	m Secop
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Test cor	nditions		EN 129		SHRAE
2,000	0.50	0.75	0.85	1.03	1.3	1.56	1.81	2.03	2.24	2.33	2.44	2.62	Condono	ing tempera	turo	CECOM 55°C		LBP 54.4°C
3,000 3,500	0.59	0.86	0.95	1.13	1.39	1.65	1.9 1.88	2.14 2.14	2.38 2.40	2.48 2.52	2.61	2.84 2.94		temperature		32°C		32°C
4,000	0.55	0.85	0.92	1.13	1.30	1.63	1.88	2.14	2.40	2.32	2.63	2.94		as tempera	ture	32°C no subcoo	ling	32°C 32°C
4,000	0.00	0.00	0.00	1.10	1.00	1.00	1.00	2.10	2.00	2.40	2.00	2.00		nperature			iirig	32 0
	Fuse Main switch Spade connectors 6.3 mm 1/4 in.																	
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3/3



109Z 0250

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



General

Code number (without electronic unit)	109Z0250				
Electronic unit - Variable Speed	101N2100, 30 pcs: 101N2101				
Approvals	-				
Compressors on pallet	180				

Application

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

Barcode on white background Grey background Country of origin or manufacturer

= Static cooling normally sufficient

BD1.4F-VSD-HD

only with BD controller

R134a

= Oil cooling

Blue stripe

S

0 F₁

- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature)
- F₂ = 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:

HD (Heavy Duty) version of the BD1.4F-VSD which can handle extreme vibrations.

Motor

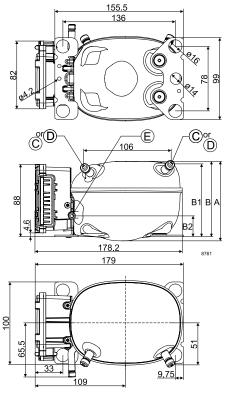
Motor type		permanet magnet, brushless DC
Speed	rpm	variable speed
Resistance, all 3 windings (25°C)	mΩ	210

Design

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

Standard battery protection settings (refer to 101N2100 *Instructions* for optional settings)

	Voltage	e (0.1 steps)			Min. value	Default	Max. value
12V ± 0.3V		± 0.3V DC,	Cut out	VDC	9.6	10.4	17
	121	all values	Cut in diff.	VDC	0.5	1.3	10
	24V	± 0.3V DC,	Cut out	VDC	19	21.3	27
	24 V	all values	Cut in diff.	VDC	0.5	1.3	10

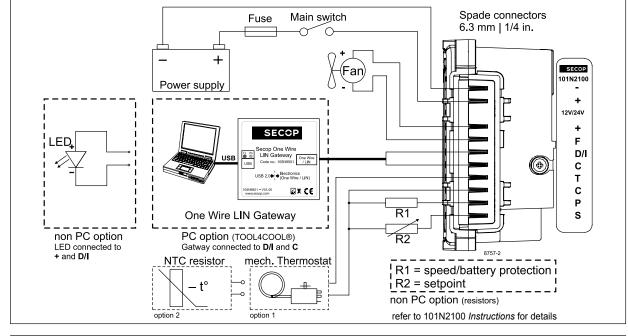


Dimensions

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

February 2020

nal errors (TOOL4COOL® or LED flashes)		watt				V DC,		IAF)		nold/C				Capacity
Error type	Error code	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
Can be read out in the software TOOL4COOL	or LED flashes	106	86	76	69	54	42	31	22	15	11	9		2,000
Thermostat failure	6	134	109	96	87	70	55	41	30	20	15	13	7	2,500
(If the NTC thermistor is short-circuit or has no conne		161	131	116	105	85	67	51	37	26	19	16	9	3,000
the electronic unit will enter manual mode).		190	154	137	124	101	80	61	45	31	23	20	10	3,500
Thermal cut-out of electronic unit	5	218	178	158	144	116	92	71	52	36	27	23	12	4,000
(If the refrigeration system has been too heavily lo		watt		oolina	static c	V DC,	12				BP)	RAE L	(ASHF	Capacity
or if the ambient temperature is high, the electroni will run too hot).		15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25		rpm \ °C
Minimum motor speed error	4	132	107	95	86	68	52	39	28	19	14	12		2,000
(If the refrigeration system is too heavily loaded	-	167	135	120	109	87	68	51	37	25	19	16	9	2,500
motor cannot maintain minimum speed at approxim		201	163	144	131	106	84	64	47	32	24	20	11	3,000
1,850 rpm).		237	192	170	155	125	99	76	56	39	29	24	13	3,500
Motor start error	3	272	222	197	179	144	114	88	65	45	34	29	15	4,000
(The rotor is blocked or the differential pressure i							4.01							.
refrigeration system is too high (>5 bar)).		watt				V DC,		10	45	00	00.0	•		Power co
Fan over-current cut-out	2	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
(The fan loads the electronic unit with more $0.65A_{\text{next}}$).		45 54	43 52	42	40	34	29	25	22	19	17	16	10	2,000
	1	-	-	50	48	42	37	32	28	24	21	20	16	2,500
Battery protection cut-out (The voltage is outside the cut-out setting).		63 77	61 72	59 69	57 66	50 59	45 53	39 47	34 41	29 35	26 31	24 29	19 23	3,000 3,500
(The voltage is outside the cut-out setting).		90	83	79	76	- 59 - 68	61	47 55	41	35 41	36	29 34	23	4,000
ensions DC	Wire Dim	90	03	19	70	00	01	55	40	41	- 30	34	21	4,000
ze Max. length* Max. lengtl		Α		fed)	be hal	ig must	ollowin	is the f	lication	IV app	ہ (for 24	nptior	onsur	Current c
AWG 12V operation 24V operati	Cross section	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
[Gauge] [m] [ft.] [m] [f	[mm ²]	3.28	3.00	2.85	2.74	2.65	2.32	2.02	1.74	1.48	1.33	1.25		2,000
12 2.5 8 5 1	2.5	4.20	4.00	3.84	3.69	3.22	2.84	2.48	2.15	1.83	1.63	1.53	1.25	2,500
12 4 13 8 2	4	5.09	4.77	4.56	4.38	3.82	3.40	2.98	2.59	2.20	1.96	1.84	1.49	3,000
10 6 20 12 3	6	5.89	5.51	5.26	5.06	4.47	4.00	3.53	3.07	2.63	2.34	2.19	1.77	3,500
8 10 33 20 6	10	6.63	6.31	6.07	5.87	5.16	4.63	4.10	3.59	3.08	2.75	2.58	2.08	4,000
*Length between battery and electron		w/w		oolina	static c	V DC, s	12			CECC	ehold	Hous	12900	COP (EN
ries for BD1.4F-VSD-HD Code nur	Accesso	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
or one compressor Ø:16 mm 118-191	Bolt joint	2.36	1.99	1.83	1.72	1.60	1.43	1.24	1.03	0.81	0.66	0.59	00	2.000
n quantities Ø:16 mm 118-191	Bolt joint i	2.46	2.10	1.94	1.83	1.67	1.48	1.29	1.08	0.86	0.72	0.64	0.43	2,500
n quantities Ø:16 mm 118-191	Snap-on i	2.54	2.14	1.97	1.84	1.69	1.50	1.30	1.10	0.89	0.74	0.67	0.45	3.000
cover for electronic unit 105N912	Terminal of	2.47	2.15	1.99	1.88	1.70	1.51	1.30	1.10	0.89	0.75	0.68	0.46	3.500
ie fuse 12V: 15A Not	Automobl	2.42	2.14	1.99	1.88	1.70	1.50	1.30	1.09	0.89	0.75	0.68	0.45	4,000
24V: 15A deliveral	DIN 7258							1.00	1.00	0.00	0.70			I
ch min. 20A from Sec	Main swit	w/w				V DC, s								COP (ASI
	Test con	15	10	7.2	5	0	-5	-10	-15	-20	-23.3	-25	-30	rpm \ °C
ditions EN 12000 ACUD	1031 001	2.98	2.52	2.31	2.17	2.01	1.79	1.55	1.29	1.01	0.83	0.74		2,000
		3.10	2.64	2.43	2.29	2.08	1.84	1.60	1.34	1.07	0.89	0.80	0.54	2,500
CECOMAF LBP	Condensi				2.35	2.11	1.87	1.62	1.37	1.11	0.93	0 01		3.000
CECOMAF LBP		3.20	2.70	2.47			-		-			0.84	0.57	- /
CECOMAF LBP ng temperature 55°C 54.4° emperature 32°C 32°C as temperature 32°C 32°C	Ambient t	3.20 3.11 3.05	2.70 2.69 2.68	2.47 2.49 2.50	2.35 2.36 2.36	2.11	1.87	1.62	1.36	1.11	0.94	0.85	0.57	3,500 4,000



February 2020

SECOP

BD1.4F-VSD.2 **Direct Current Compressor** R134a, 12/24V DC & 100-240V AC 50/60Hz



S 0

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General

Code number (without electronic units)	109Z0206
Electronic unit - Variable Speed	101N2100, 30 pcs: 101N2101
Electronic unit - Variable Speed w. AC/DC converter	101N5100, 24 pcs: 101N5101
Approvals	UL
Compressors on pallet	180

Application

Application		LBP/MBP/HBP
Evaporating temperature	°F	-20 to 59
Voltage range DC	VDC	9.6 - 17 / 19 - 34
Voltage range AC	V/Hz	100 - 240 / 50 - 60
Max. condensing temperature continuous (short)	°F	140 (158)
Max. winding temperature continuous (short)	°F	257 (275)

Cooling requirements

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

marks on applic

New generation with optimized noise level during rough vehicle motions.

Motor

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

Design

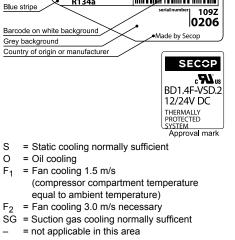
Displacement	cu.in.	0.086
Oil quantity (type)	fl.oz.	2.64 (polyolester)
Maximum refrigerant charge	0Z.	2.47
Free gas volume in compressor	fl.oz.	17.60
Weight - Compressor/Electronic unit	lbs.	4.63 / 0.24 (DC) / 0.64 (AC/DC)

Standard battery protection settings (refer to 101N210	0/5100 Instructions for optional settings)

Voltag	e (0.1 steps)	Min. value	Default	Max. value		
12V	± 0.3V DC,	Cut out	VDC	9.6	10.4	17
120	all values	Cut in diff.	VDC	0.5	1.3	10
24V	± 0.3V DC,	Cut out	VDC	19	21.3	27
24 V	all values	Cut in diff.	VDC	0.5	1.3	10

Dimensions

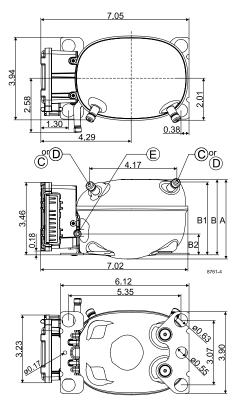
Height	inch	А	3.79
		В	3.59
		B1	3.46
		B2	0.99
Suction connector	location/I.D. inch angle	С	0.252-0259 25°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. inch angle	D	0.252-0259 25°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. inch angle	Е	0.202-0.205 0°
	material comment		Cu-plated steel Al cap
Remarks: inch connectors			



BD1.4F-VSD.2

only with BD controller

R134a



February 2020

DES.D.101.K3.22

Capacity	(ASHE		RD)				12	V DC.	static r	ooling		BTU/h	Oneratio	nal errore		COOL® or		asho	2)
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	Error code			Error type		43110	<i>י</i> ן
2,000	-20	39	47	77	116	133	162	219	290	319	357	431	or LED flashes	Can be		n the softwa			OI ®
3,000	44	69	82	130	190	217	261	344	448	488	543	648	6		mostat failure			010	
3,500	52	83	98	150	227	258	309	406	525	400 573	635	756				s short-circu	it or has	s no co	nnection,
<u> </u>	61	98	115	182	264	300	358	400	604	657	728	865		the electron	nic unit will	enter manua	al mode	e).	
4,000	01	90	115	102	204	300	300	400	004	057	120	605	5	5 Thermal cut-out of electronic unit					
Capacity	(EN 12	2900 -	lousel	nold/C	ЕСОМ	AF)	12	V DC,	static o	coolina		watt				stem has be			
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59		will run too		erature is h	ign, ine	eleci	
2,000	-	9	11	18	27	31	38	51	68	75	84	101	4	Minimum	motor spe	eed error			
3,000	10	16	19	31	45	51	61	81	105	115	128	152				ystem is to			
3,500	12	20	23	37	54	61	73	96	124	135	150	178		motor canr 1,850 rpm)		n minimum s	peed a	t appr	oximately
4,000	14	23	27	43	62	71	85	110	142	155	172	203	3	Motor sta					
4,000	17	20	21		02	/ 1	00	110	172	100	172	200				or the differ	rential	pressu	ire in the
Power co	nsum	ption					12	V DC,	static o	cooling		watt				too high (>5			
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	2	Fan over-	current cu	ut-out			
2,000		16	17	20	24	25	28	33	39	41	44	50		•	loads the	electronic	unit w	ith m	ore than
3,000	20	24	26	31	37	39	43	49	56	59	62	68		0.65A _{peak}).					
3,500	24	29	31	37	44	47	51	58	65	68	71	78	1	Battery p					
4,000	28	34	36	44	52	55	59	67	75	77	81	87		(The voltag	e is outside	e the cut-out	setting).	
4,000	20	54	50	44	52	55	39	07	15	11	01	07	Wire Dim	ensions	DC				
Current o	onsur	nptior	ار (for 2	4V appl	ication	s the fo	llowing	must b	oe halfe	ed)		Α		ze		ength*		ax. le	
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	Cross	AWG	12V op	peration	24	V ope	ration
2,000		1.25	1.33	1.59	1.89	2.02	2.22	2.58	3.02	3.18	3.40	3.81	[mm ²]	[Gauge]	[m]	[ft.]	[m	1	[ft.]
3,000	1.56	1.84	1.96	2.37	2.81	2.99	3.26	3.74	4.29	4.49	4.75	5.24	2.5	12	2.5	8	5		16
3,500	1.86	2.19	2.34	2.82	3.33	3.53	3.84	4.38	4.98	5.20	5.49	6.01	4	12	4	13	8		26
<u> </u>		-											6	10	6	20	12		39
4,000	2.19	2.58	2.75	3.31	3.88	4.11	4.46	5.05	5.71	5.95	6.26	6.82	10	8	10	33	20		66
EER (ASH	HRAE	LBP)					12	V DC,	static o	coolina		BTU/h			0	etween batte	ery and	a elec	tronic unit
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59		ories for E					number
2.000	20	2.51	2.83	3.87	4.89	5.27	5.83	6.69	7.54	7.82	8.16	8.73		for one com		Ø:16 n			1917
	2.15	2.87	3.18	4.17	5.15	5.53	6.09		8.03	8.38	8.83			n quantities		Ø:16 n			1918
3.000								7.03				9.61	-	n quantities			16 mm		1919
3.500	2.17	2.89	3.19	4.17	5.14	5.52	6.09	7.05	8.10	8.47	8.95	9.81		cover for ele	ectronic un	12V: 15A			N9120
4.000	2.18	2.89	3.19	4.15	5.12	5.50	6.07	7.04	8.12	8.52	9.03	9.95	Automobi DIN 7258			12V: 1 24V: 1			lot erable
COP (EN	12900	Hous	ehold	CECO	MAF)		12	V DC,	static	nolina		w/w	Main swite						Secop
rpm \ °F	-20	-13	-10		10	14	20	30	41	45	50	59							
<u> </u>	-20	-	-	-			-			-			Test con	ditions		EN 129			HRAE
2.000	0.50	0.59	0.66	0.91	1.15	1.24	1.37	1.57	1.76	1.82	1.90	2.03	Condonai	ng tempera	turo	131°F			. BP 30°F
3.000	0.50	0.67	0.74	0.98	1.21	1.30	1.43	1.65	1.88	1.96	2.06	2.24		emperature		90°F			0°F
3.500	0.51	0.68	0.75	0.98	1.21	1.30	1.44	1.66	1.90	1.99	2.10	2.29		as tempera		90°F			0°F
4.000	0.50	0.68	0.75	0.98	1.21	1.30	1.43	1.66	1.91	2.00	2.12	2.32	Liquid ten	nperature		no subco	oling	ę	0°F
non PC op LED connects + and DJ LED	tion option	PC op	tion (TOO connected ire LIN G	ech, Therr lion 1 L4COOL®) to D/I and C ateway SECOP Cop One We N Galerany 2224 Cop Cop We Cop One Cop One Cop One We Cop One Cop One Co				C option (r d/battery int Lamp 1	protecti 2V DC		10		-	USB Secop Or LIN Gat USB Colores 1			Space 6.3 r		SECOP 101N2100 + 12V/24V + F D/I C T
100-240V A 50/60 Hz		+ Power sup	 -]		Main s	witch O Spade	n) 12V 2 connect m 1/4 in	ors		12/24V 100.240V AC 50/80 Hz 8/60.3	LED	PC option connected to d D/I	PC opt	ire LIN Gatew ion (TOOL4COC connected to D/l a or mech. T	I	R1 R2 R1 = spe R2 = set non PC opt	point		c P S otection

refer to 101N2100 and 101N5100 Instructions for details

February 2020

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

Code number (without electronic units)

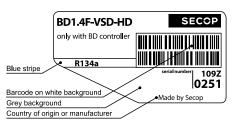
Electronic unit - Variable Speed



109Z0251

101N2100, 30 pcs: 101N2101

180



= Static cooling normally sufficient

= Fan cooling 3.0 m/s necessary SG = Suction gas cooling normally sufficent = not applicable in this area

(compressor compartment temperature equal to ambient temperature)

S 0

 F_1

 F_2

_

= Oil cooling

= Fan cooling 1.5 m/s

Application

Approvals

Application		LBP/MBP/HBP
Evaporating temperature	°F	-20 to 59
Voltage range	VDC	9.6 - 17 / 19 - 34
Max. condensing temperature continuous (short)	°F	140 (158)
Max. winding temperature continuous (short)	°F	257 (275)

Cooling requirements

Compressors on pallet

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

Remarks on application:

HD (Heavy Duty) version of the BD1.4F-VSD which can handle extreme vibrations.

Motor

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

Design

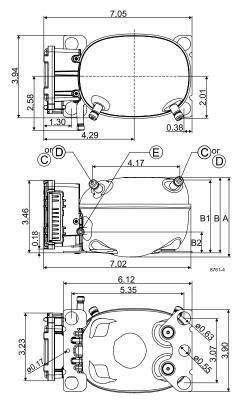
Displacement	cu.in.	0.086
Displacement	cu.iii.	0.000
Oil quantity (type)	fl.oz.	2.64 (polyolester)
Maximum refrigerant charge	oz.	2.47
Free gas volume in compressor	fl.oz.	17.60
Weight - Compressor/Electronic unit	lbs.	4.63/0.24

Standard battery protection settings (refer to 101N2100 Instructions for optional settings)

Voltage	e (0.1 steps)			Min. value	Default	Max. value	
12V	± 0.3V DC,	Cut out	VDC	9.6	10.4	17	
121	all values	Cut in diff.	VDC	0.5	1.3	10	
24V	± 0.3V DC,	Cut out	VDC	19	21.3	27	
24 V	all values	Cut in diff.	VDC	0.5	1.3	10	



Height	inch	Α	3.79
		В	3.59
		B1	3.46
		B2	0.99
Suction connector	location/I.D. inch angle	С	0.252-0259 25°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. inch angle	D	0.252-0259 25°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. inch angle	Е	0.202-0.205 0°
	material comment		Cu-plated steel Al cap
Remarks: inch connectors	;		



February 2020

DES.D.101.B5.22

Capacity	(ASHI	RAFI	RP)				12	V DC,	static	cooling		BTU/h	Operatio	nal errors		COOL® or	LED fla	ashes)
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	Error code			Error type		
2,000		39	47	77	116	133	162	219	290	319	357	431	or LED flashes	Can be		the softwar		L4COOL®
3,000	44	69	82	130	190	217	261	344	448	488	543	648	6	Thermost				
3,500	52	83	98	156	227	258	309	406	525	573	635	756				s short-circui	it or has	no connectio
4,000	61	98	115	182	264	300	358	468	604	657	728	865		the electror	nic unit will e	enter manua	al mode).
4,000	01	00		102	204	000	000	400	004	007	120	000	5			electronic		
Capacity	(EN 1	2900 H	lousel	nold/C	ECOM	AF)	12	V DC,	static o	cooling		watt						heavily loade electronic ur
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59		will run too			.g.,	
2,000		9	11	18	27	31	38	51	68	75	84	101	4		motor spe			
3,000	10	16	19	31	45	51	61	81	105	115	128	152						ily loaded, th approximate
3,500	12	20	23	37	54	61	73	96	124	135	150	178		1,850 rpm)		minimum s	peeu a	approximate
4,000	14	23	27	43	62	71	85	110	142	155	172	203	3	Motor sta	rt error			
_																		pressure in th
Power co	r	·		-			r	V DC,		`		watt		-		too high (>5	o bar)).	
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	2		current cu		upit w	ith more tha
2,000		16	17	20	24	25	28	33	39	41	44	50		0.65A _{peak}).	ioaus trie	electronic	unit w	
3,000	20	24	26	31	37	39	43	49	56	59	62	68	1		rotection of	ut-out		
3,500	24	29	31	37	44	47	51	58	65	68	71	78				the cut-out	setting).
4,000	28	34	36	44	52	55	59	67	75	77	81	87						
Current		nn4! -		·····		41 1								iensions		ength*	Ma	ax. length*
Current	· · · · · ·	<u> </u>	<u> </u>					i		<u>,</u>	50	A	Cross	AWG		eration		/ operation
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	section					1
2,000	4	1.25	1.33	1.59	1.89	2.02	2.22	2.58	3.02	3.18	3.40	3.81	[mm ²]	[Gauge] 12	[m] 2.5	[ft.] 8	[m] 5	[ft.] 16
3,000	1.56	1.84	1.96	2.37	2.81	2.99	3.26	3.74	4.29	4.49	4.75	5.24	2.5	12	2.5	8 13	5 8	26
3,500	1.86	2.19	2.34	2.82	3.33	3.53	3.84	4.38	4.98	5.20	5.49	6.01	6	10	6	20	12	
4,000	2.19	2.58	2.75	3.31	3.88	4.11	4.46	5.05	5.71	5.95	6.26	6.82	10	8	10	33	20	
EER (AS	HRAF	I RP)					12	V DC.	static	nolina		BTU/h			*Length be	tween batte	ery and	l electronic u
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59		ories for E				ode numbe
2.000	20	2.51	2.83	3.87	4.89	5.27	5.83	6.69	7.54	7.82	8.16	8.73		for one com		Ø:16 n		118-1917
3.000	2.15	2.87	3.18	4.17	5.15	5.53	6.09	7.03	8.03	8.38	8.83	9.61		in quantities		Ø:16 n		118-1918
3.500	2.13	2.89	3.19	4.17	5.14	5.52	6.09	7.05	8.10	8.47	8.95	9.81	<u> </u>	n quantities		Ø:16 n	nm	118-1919 105N9120
4.000	2.17	2.89	3.19	4.17	5.14	5.52	6.07	7.03	8.12	8.52	9.03	9.91	Automob			12V: 1	54	Not
4.000	2.10	2.09	0.19	4.15	J.12	5.50	0.07	1.04	0.12	0.52	9.05	9.95	DIN 7258			24V: 1		deliverable
COP (EN	12900	Hous	ehold/	CECO	MAF)		12	V DC,	static o	cooling	1	W/W	Main swit	ch		min. 2		from Secop
rpm \ °F	-20	-13	-10	0	10	14	20	30	41	45	50	59	Test cor	ditions		EN 129	00	ASHRAE
2.000		0.59	0.66	0.91	1.15	1.24	1.37	1.57	1.76	1.82	1.90	2.03	1031 001			CECOM		LBP
3.000	0.50	0.67	0.74	0.98	1.21	1.30	1.43	1.65	1.88	1.96	2.06	2.24	Condensi	ng tempera	ture	131°F		130°F
3.500	0.51	0.68	0.75	0.98	1.21	1.30	1.44	1.66	1.90	1.99	2.10	2.29		emperature		90°F		90°F 90°F
4.000	0.50	0.68	0.75	0.98	1.21	1.30	1.43	1.66	1.91	2.00	2.12	2.32		as tempera nperature	ture	90°F no subcoo		90°F
							-		-				Liquid to	iperature			oning	001
			₽ . - -],		- Powers		SB USB	SECC SECCO One Wirk IN Gateway Code no. 1008090 Second Code Code Wirk Code Wirk C	P e Conserver inter Iter Iter Iter Iter Iter Iter Iter I					1/4 in.	ESCOP2 101N2100 - 12V/24V + D/I C T C P S		
		LEI	n PC o D connec nd D/I				way conr	(TOOL4 nected to meg		Ċ	at		R2 R1 = spec R2 = setp			on i		
						X	· L		¥	 E	\square	-	ion PC opt			- 1		
					L	ion 2		J L	on 1		1			N2100 Ins	·	or dotaile		

DES.D.101.B5.22

February 2020

refer to 101N2100 Instructions for details



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



General

General						
Code number (without electronic units)			101Z0200		Approvals	SECOP
Electronic unit 12/24V DC - Standard	1(01N0212	2, 30 pcs: 1	01N0213	-	100010 1 /R :
Electronic unit 12/24V DC - AEO	1(01N0340), 30 pcs: 1	01N0341	UL / VDE / CB	BD35F
Electronic unit 10-45V DC - Solar	1(01N042), 30 pcs: 1	01N0421	VDE / CB	12/24V DC
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	1(01N051), 28 pcs: 1	01N0511	UL / VDE	THERMALLY PROTECTED
Electronic unit 12/24V DC - Automotive	1(01N065), 30 pcs: 1	01N0651	UL / VDE / CB	SYSTEM Approval mark
Compressors on pallet			150			
Application					BD35F only with BD controller	SECOP
Application		LE	BP/MBP/HE	3P		
Evaporating temperature	°C	-	30 to 0 (10)	Blue stripe	
Voltage range DC VE	C	9.6 -	17 / 21.3 -	31.5		serial number 101Z
Voltage range AC	Ηz	100) - 240 / 50	/60	Barcode on white background	0200 Made by Secop
Voltage range for solar applications	C		10 - 45		Grey background	•Widde by Secop
Max. condensing temperature continuous (short)	°C		60 (70)		Country of origin or manufacturer	
Max. winding temperature continuous (short)	°C		125 (135)		S = Static cooling norm	ally sufficient
Cooling requirements					O = Oil cooling F_1 = Fan cooling 1.5 m/s	
Application		LBP	MBP	HBP		s artment temperature
32°C		S	S	S	equal to ambient te	•
38°C		S	S	S	F ₂ = Fan cooling 3.0 m/	s necessary
43°C		S	S	S	SG = Suction gas cooling	
Remarks on application: Fan cooling F ₁ depending	on app	ication a	and speed.		 – = not applicable in th 	is area
Motor					1	
Motor type		Va	ariable spee	h]	
Resistance, all 3 windings (25°C)	Ω		2.2			
Design					I	
	m ³		2.00			
•	n ³	15) (polyolest	er)		
Maximum refrigerant charge	g		300		. 204	
	n ³		870		170	<u> </u>
	kg	4.3 /	0.19 (Stan	dard)		
Standard battery protection settings (refer to electro	nic unit	Instructio	one for option	al cottings)		
Voltage		12V		24V		(N 2 2
Cut out VE		10.4		22.8		
Cut in VE		11.7		24.2		
				27.2		
Dimensions						∕ ∕ ́€
	1.				1	
Height m	m A		137			
Height rr	В		135		E C	
Height m	B B1		135 128			
	B B1 B2		135 128 73			B1BA
Suction connector location/I.D. mm and	B B1 B2 Ile C		135 128 73 6.2 40°			
Suction connector location/I.D. mm and material comme	B B1 B2 Ile C		135 128 73 6.2 40° ated steel	Al cap		B1BA
Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang	B B1 B2 Ile C Int I Ile D	Cu-pla	135 128 73 6.2 40° ated steel 6.2 45°			B1BA
Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang material comme	B B1 B2 Ile C Int Ile D	Cu-pla	135 128 73 6.2 40° ated steel 6.2 45° ated steel			B1 B A B2
Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang material comme Discharge connector location/I.D. mm ang	B B1 B2 Ile C Int Ile D Int Ile E	Cu-pla Cu-pla	135 128 73 6.2 40° ated steel 6.2 45° ated steel 5.0 21°	Al cap		B1 B A B2
Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang material comme Discharge connector location/I.D. mm ang material comme	B B1 B2 Ile C Int Ile D Int Ile E Int	Cu-pla Cu-pla Cu-pla	135 128 73 6.2 40° ated steel 6.2 45° ated steel 5.0 21° ated steel	Al cap Al cap		B1 B A
Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang material comme Discharge connector location/I.D. mm ang	B B1 B2 Ile C Int Ile D Int Ile E Int	Cu-pla Cu-pla Cu-pla	135 128 73 6.2 40° ated steel 6.2 45° ated steel 5.0 21°	Al cap Al cap		B1BA B2

May 2016

	hold/CE0	COMAR)		120	DC, S	tatic co	ooling	watt	Compre	essor spe	ed			
rpm \ °C -30 -25 -23.3	-	15 -1	_	5	0	5	7.2	10	15	Electror	nit unit	Resistor (R1) [Q]	Motor	speed
2,000 16.0 23.8 26.7 2,500 18.8 29.9 33.9		3.7 56 5.4 71			89.8 112	111 139	121 152	136		Code n	umber	calculated			
3,00022.432.937.13,50027.035.940.2		2.5 82 9.8 93		22	133							0		[rp	-
Capacity (ASHRAE LBP)					121/		tatic co	nolina	watt	101N02	212	0	,	2,0	
rpm \ °C -30 -25 -23.3	-20 -	15 -1	0 -	5	0	5	7.2	10	15	101N05	510 -	277		2,5	
2,000 20.0 29.8 33.4		4.6 70	_		112	139	152	169		101N06	50	692		3,0	
2,500 23.6 37.5 42.4		9.2 88			140	173	190					152	3	3,5	
3,00028.141.346.53,50033.945.150.5		8.2 10		32 53	166						-	0 173		AE	
Power consumption					121/		tatic co	oolina	watt	101N03		450		2,0	
rpm \ °C -30 -25 -23.3	-20 -	15 -1	0 -	5	0	5	7.2	10	15	with AE	-	865		2,5	
2,000 17.7 22.9 24.6		2.2 36			46.2	51.6	54.3	57.8			-•	169		3,0	
2,500 22.1 29.7 32.0 3,000 29.3 34.6 36.7		2.4 48 8.7 56			59.7 72.0	66.1	69.1				dantivo E	nergy Optim		,	
3,00029.334.636.73,50034.541.343.8		7.3 66		5.4	12.0							dapt its spee			
Current consumption (for 24					ı must	be hal	fed)		A						
rpm \ °C -30 -25 -23.3		15 -1		5	0	5	7.2	10	15		nension				
2,000 1.4 1.9 2.0		2.7 3.	_	.4	3.8	4.3	4.5	4.8			Size		length*		ength*
2,500 1.8 2.5 2.7 3,000 2.4 2.9 3.1		3.5 4. 4.0 4.		.5 .3	5.0 6.0	5.5	5.8			Cross section	AWG	120 0	peration	240 0	eration
3,500 2.9 3.4 3.6		4.0 4. 4.8 5.		.3 .3	0.0							1 [m]	r# 1	[m]	1 141
COP (EN 12900 Household	· · · ·				12V	DC. s	tatic co	oolina	w/w	[mm ²]	[Gauge 12	e] [m] 2.5	[ft.] 8	[m] 5	[ft.] 16
rpm \ °C -30 -25 -23.3	-20 -	15 -1		5	0	5	7.2	10	15	4	12	4	13	8	26
2,000 0.90 1.04 1.09		.36 1.	_		1.94	2.15	2.24	2.35		6	10	6	20	12	39
2,500 0.85 1.01 1.06 3,000 0.76 0.95 1.01		.31 1.4 .28 1.4			1.88 1.85	2.10	2.20			10	8	10	33	20	66
3,500 0.78 0.87 0.92		.22 1.4		62	1.00							•	etween batte	ery and ele	ectronic un
COP (ASHRAE LBP)					12V	DC.s	tatic co	oolina	w/w		nension	s AC 1. 0.75 mm	² or AMG	18	
rpm \ °C -30 -25 -23.3	-20 -	15 -1		5	0	5	7.2	10	15					10	
2,000 1.13 1.30 1.36		.70 1.9	_		2.44	2.70	2.81	2.95		Error	onal erro		Error type		
2,500 1.07 1.26 1.33 3,000 0.96 1.19 1.27	-	.64 1. .61 1.			2.36 2.32	2.64	2.77			code or LED			ad out in the	coftware	
3,500 0.98 1.09 1.15		.53 1.			2.02					flashes			OL4COOL®		
Test conditions with electronic	c units	EN 129	00/CE	сом	AF		ASHRA	E LBP		-	hermosta				
Condensing temperature	212		55°C					4°C				thermistor is a			onnection).
Ambient temperature Suction gas temperature	101N0212 101N0650		32°C 32°C					°C °C		-		ut-out of ele ration system			ded. or if the
Liquid temperature	è è	no	subcoc	ling			32	°C				perature is hig			
												notor speed			
Accessories for BD35F				~				numb				eration syste tain minimum			
Bolt joint for one comp. Bolt joint in quantities					<u>:16 r</u> :16 r			<u>8-1917</u> 8-1918		3 N	Notor star	t error			
Snap-on in quantities					1:16 r			8-1919				is blocked of system is too			sure in the
Remote kit (without cable)								5N9210			•	,	0 (,,	•
One Wire/LIN gateway		58 12	V: 15/	1 2/	4\/· 7	5 4	105	5N9501	1			start attemp compressor			
	, 011172	00 12	v. 10/		min. 2			Not verable		c	urrent high	er than 0.5A _a	_{vg}).		
DC usage: Main switch							oen								
Main switch									- 1			otection cut		ttin a)	
DC usage: Main switch					min.	6A		n Seco	- 1			e is outside th		tting).	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch		Ó		101	1N0212	6A Spade conne 6.3 mm 1/4	fron		- 1					ors	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch	use	Ó		101	1N0212 1N0340 1N0650		fron		- 1		The voltage	e is outside th	e cut-out set	ors	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch	Fan Pway	Main switch			1N0212 1N0340 1N0650		fron		p		The voltage	e is outside th	e cut-out set	ors	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch	Fan Pway				1N0212 1N0340 1N0650 -+ + F		fron		p	canel	The voltage	e is outside th	e cut-out set	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate					1N0212 1N0340 1N0650 -++ F D/I C		fron actors	n Seco	p	Danel ne Wire LIN Gate	The voltage	EED-	Spade connect 6.3 mm 14 in. 101N042	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Main switch					1N0212 1N0340 1N0650 -++ F D/I C		from actors in. Terminal	n Seco	p Solar	Danel ne Wire LIN Gate Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints	The voltage	e is outside th	e cut-out set	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate Popton a Popton a Interface convected to DM (FOCUL 600 eV or Self)	and C	LED i			1N0212 1N0340 1N0650 -+ + F D/I C P T		from actors in. Terminal	n Seco	p Solar I	connected to DN	The voltage	EE	e cut-out set	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate		LED i		101 101	1N0212 1N0340 1N0650 -++ F D/I C	Spade conner	from actors in. Terminal	n Seco	p Solar I	Danel ne Wire LIN Gate Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints Inter State Constraints	The voltage	EE	Sonde connect 6.3 mm 1/4 in. 101N042	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate Popton a Popton a Popton a	and C	LED i		101 101	1N0212 1N0340 1N0650 - + + F D/I C P T T	Spade conne 6.3 mm 1/4	from ctors in. Terminal Second	n Seco	p Solar I	connected to DN	The voltage	EE	State connect 6.3 mm 1/4 in. 101N042	20	
AC usage: Main switch Fuse, 100-240V Main switch Main switch Power supply One Wire LN Gate Poton a Totel Gate of DM (TOOL COLL of or Shift)	and C	LED i		101 101 = speed = battery	1N0212 1N0340 1N0650 - + + F D/I C P T T	Spade conne 6.3 mm 1/4	from ectors in. Terminal	n Seco	p Solar I	connected to DN	The voltage	EE	Sonde connect 6.3 mm 1/4 in. 101N042	20	
AC usage: Main switch Fuse, 100-240V Main switch Main switch Power supply One Wire LN Gate Poton a Totel Gate of DM (TOOL COLL of or Shift)	and C	LED i	+	101 101	IN0212 IN0340 IN0650 -++ P D/I P T selection r protection	Spade conne 6.3 mm 1/4	from ctors in. Terminal Second	n Seco	p Solar I	connected to DN	The voltage	EE	Sonde connect 6.3 mm 1/4 in. 101N042	20	
AC usage: Main switch Fuse, 100-240V Main switch Main switch Power supply One Wire LN Gate Poton a Totel Gate of DM (TOOL COLL of or Shift)	and C	LED Donnected stat stat - Power	HILIN G	101 101 101 = speed = speed Fuse	IN0212 IN0340 IN0650 - + + F D/I CP T Selection r protection	Spade conne 6.3 mm 1/4	from telors in. Terminal in switch 40V AC 50/60Hz	plug plug 101N05	p Solar I	connected to DN	The voltage	e is outside the	Sonde connect 6.3 mm 1/4 in. 101N042	20	
AC usage: Main switch Fuse, 100-240V Main switch Main switch Power supply One Wire LN Gate Poton a Totel Gate of DM (TOOL COLL of or Shift)	and C	LED Donnected stat stat - Power	+	101 101 101 = speed = speed Fuse	IN0212 IN0340 IN0650 - + + F D/I CP T Selection r protection	Spade conne 6.3 mm 14	from ctors in. Terminal S auxitch 40V AC	plug plug 101N05	p Solar I	connected to DN	The voltage	e is outside the	Spade connect 6.3 mm 114 in. 101N042 FR1 = speed select In manufactor (connection)	20	
AC usage: Main switch Fuse, 100-240V Main switch Main switch Power supply One Wire LN Gate Poton a Totel Gate of DM (TOOL COLL of or Shift)	and C	LED Donnected stat stat - Power	Wire LIN G	Fuse	IN0212 IN0340 IN0650		from sctors in. Terminal in switch 40V AC 50/60H2	n Seco	p Solar I	connected to DN	The voltage	e is outside the	Spade connect 6.3 mm 114 in. 101N042 FR1 = speed select In manufactor (connection)	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate Popton a Terreface connected to DI (TOOL COLOR or GRIPH)	and C	LED	Wire LIN G	Fuse Fuse	IN0212 IN0340 IN0650 - + + + F D/I CP T Selection r protection		from sctors in. Terminal in switch 40V AC 50/60H2	plug plug 101N05	p Solar I	connected to DN	The voltage	e is outside the	Spade connect 6.3 mm 114 in. 101N042 FR1 = speed select In manufactor (connection)	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate Popton a Terreface connected to DI (TOOL COLOR or GRIPH)	and C	LED	R2 non i upply Wire LIN G	101 101 = speed = spee	IN0212 IN0340 IN0650		Terminal sources an system an system an system an system an system an system an system an system an an a		p Solar I Solar I Interface	conceled of bibly	The voltage	e is outside the	Spade connect 6.3 mm 114 in. 101N042 FR1 = speed select In manufactor (connection)	20	
AC usage: Main switch AC usage: Fuse, 100-240V Main switch Power supply One Wire LN Gate Lopion a Lopion a Interface connected to DI TOOL RECOVER OF BRIEFIC	and C	LED	R2 non i upply Wire LIN G SE SE SE SE SE SE SE SE SE SE SE SE SE	101 101 = speed = spee	IN0212 IN0340 IN0550		Terminal		p Solar I Solar I Interna- Interna- Interna- Interna- Solar I Interna- Solar Interna- Solar Interna- Interna- Solar Interna- Interna	conceled of bibly	The voltage	e is outside the	R = sped selec	20	



. **A**L

BD35F **Direct Current Compressor** & 100-240V AC 50/60Hz



R134a, 12/24V DC, 10-45V DC Solar General

Code number (without electronic units)	101Z0204	Approvals
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341	UL / VDE / CB
Electronic unit 10-45V DC - Solar	101N0420, 30 pcs: 101N0421	VDE / CB
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511	UL / VDE
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	UL / VDE / CB
Compressors on pallet	150	

°F

VDC

V/Hz

VDC

°F

°F

LBP/MBP/HBP

-20 to 50 9.6 - 17 / 21.3 - 31.5

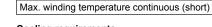
100 - 240 / 50 - 60

10 - 45

140 (158)

257 (275)

	serial number 101Z
K R134a	
only with BD controller	
BD35F	SECOP
СВ	THERMALLY PROTECTED SYSTEM Approval mark
	BD35F 12/24V DC



Voltage range DC

Voltage range AC

Evaporating temperature

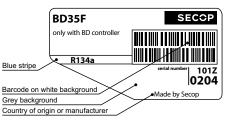
Voltage range for solar applications

Max. condensing temperature continuous (short)

Application

Application

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 cooli	ng F1 depending on application	and speed.	



- = Static cooling normally sufficient S
- 0 = Oil cooling
- $F_1 = Fan \text{ cooling 1.5 m/s}$ (compressor compartment temperature
- equal to ambient temperature) F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficent
- = not applicable in this area

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	2.2

Design

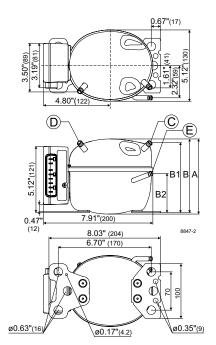
Displacement	cu.in.	0.12
Oil quantity (type)	fl.oz.	5.1 (polyolester)
Maximum refrigerant charge	oz.	10.5
Free gas volume in compressor	fl.oz.	29.6
Weight - Compressor/Electronic unit	lbs.	9.5 / 0.42 (Standard)

Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

Dimensions

Height	inch	Α	5.39
		В	5.32
		B1	5.04
		B2	2.87
Suction connector	location/I.D. inch angle	С	0.252-0259 40°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. inch angle	D	0.252-0259 45°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. inch angle	E	0.202-0.205 21°
	material comment		Cu-plated steel Al cap
Remarks: inch connectors			



Capacity (ASHRAE LBP) 12V DC, static cooling BTU/h Compressor speed	
rpm \°F -20 -13 -10 0 10 14 20 30 40 41 45 50 Electronit unit	
2,000 75.2 101 114 160 215 241 283 364 462 472 517 577 Resistor (R1) [Ω] Mo	or speed
2,500 90.9 128 144 203 272 303 354 455 577 591 649 Code number calculated values	
<u>3,000</u> 105 141 158 226 311 350 415 539 685	[rpm]
3,500 122 154 172 249 352 400 479 626 101 101 0 101 0 101 0 101 0 101 0 101 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 0 101 <td>2,000</td>	2,000
Jupacity (EN 12500 Householaro Ecompany) 120 De, static cooling water	2,500
rpm \ °F -20 -13 -10 0 10 14 20 30 40 41 45 50 101N0510 692 2.000 17.7 23.8 26.7 37.4 50.5 56.5 66.4 85.5 108 111 121 136 101N0650 10202	3,000
2 500 21 3 29 9 33 8 47 6 63 8 71 1 83 2 107 136 139 152 152	3,500
3.000 24.5 32.9 37.0 53.0 73.0 82.2 97.4 127 161 0	AEO
3,500 28.5 35.9 40.1 58.4 82.6 93.9 112 147 101N0340 173	2,000
Power consumption 12V DC, static cooling watt 101N0420 450	2,500
rows/ containpriori 12 / 30 / otal cost of an angle of a sector of a	3,000
2,000 19.0 22.9 24.5 29.6 34.6 36.5 39.5 44.8 50.7 51.4 54.0 57.5	3,500
2,500 23.9 29.7 31.9 39.0 45.4 47.9 51.6 58.0 65.0 65.7 68.8 In AEO (Adaptive Energy Optimizing) speed mode a constraint of the actual constraints and the a	
	ning demand.
wire dimensions DC	
	x. length*
2,000 1,51 1,97 2,02 2,47 2,90 2,05 2,20 2,72 4,20 4,25 4,46 4,74 Gross Ave 127 operation 244	operation
2 500 1 99 2 47 2 66 3 25 3 79 4 00 4 31 4 84 5 42 5 48 5 74	
3,000 2,49 2,88 3,05 3,70 4,39 4,67 5,10 5,81 6,49 [mm ²] [Gauge] [m] [ft.] [m	
3,500 2.99 3.42 3.63 4.36 5.15 5.48 5.99 6.85 2.5 12 2.5 8 5	16
EER (ASHRAE LBP) 12V DC, static cooling BTU/Wh 4 12 4 13 8 12V DC, static cooling BTU/Wh 6 10 6 20 11	26
rpm \°F -20 -13 -10 0 10 14 20 30 40 41 45 50 6 10 6 20 12	
2,500 3.80 4.31 4.51 5.21 5.98 6.32 6.86 7.84 8.89 9.00 9.43 *Length between battery and	electronic unit
3,000 3.45 4.06 4.31 5.11 5.89 6.22 6.74 7.70 8.83 Wire dimensions AC 3,500 3.39 3.73 3.93 4.75 5.68 6.07 6.65 7.62 Cross section min. 0.75 mm ² or AWG 18	
COP (EN 12900 Household/CECOMAF) 12V DC, static cooling W/W Operational errors rpm \ °F -20 -13 -10 0 10 14 20 30 40 41 45 50 Error Error	
rpm / F -20 -13 -10 0 10 14 20 30 40 41 45 50 Error Error Error type 2,000 0.93 1.04 1.09 1.26 1.46 1.54 1.67 1.90 2.13 2.15 2.24 2.35 code	
2 500 0 89 1 01 1 06 1 22 1 40 1 48 1 60 1 83 2 08 2 10 or LED Can be read out in the softwar	e
3.000 0.81 0.95 1.01 1.19 1.38 1.45 1.58 1.80 2.06	
3,500 0.79 0.87 0.92 1.11 1.33 1.42 1.55 1.78 6 Thermostat failure (If the NTC thermistor is short-circuit or has a start of the start of	o connection)
Test conditions with electronic units EN 12900/CECOMAF ASHRAE LBP	o connection).
Condensing temperature P 6 Ambient temperature 131°F 130°F Thermal cut-out of electronic unit (If the refrigeration system has been too heavil ambient temperature is high, the electronic unit Liquid temperature Liquid temperature P 9 P P 90°F 90°F 4 Minimum motor speed error	loaded or if the
Ambient temperature Solution gas	
Suction gas temperature Z Z 90°F 90°F Liquid temperature P P no subcooling 90°F 4	
(If the refrigeration system is too heavily lo	aded, the motor
Accessories for BD35F Code number cannot maintain minimum speed at approxim	tely 1,850 rpm).
Bolt joint for one comp. Ø: 5/8 in. 118-1917 Bolt joint in guantities Ø: 5/8 in. 118-1918	
Shap on in quantities QL E/9 in 119 1010	pressure in the
Remote kit (without cable) 105N9210	
One Wire/LIN gateway 105N9501 2 Too many start attempts or fan over cu	
DC usage: Main putther and the principal and the	or ume or tan
Main switch min. 20A deliverable	
AC usage: Fuse, 100-240V and the from Secop The voltage is outside the cut-out setting).	
101/N0212 101/N0340 Spade connectors 101/N0650 S 3.mm 1/4 is. 101/N0650 S 3.mm 1/4 is.	
TurnWada 63 nm j 1/4 is. Fuse Main switch Fuse Main switch	
NTC register much Thermoster 101N0510	
R1 = Speed Selection Main switch	
Power supply	

May 2016



SECOP

101Z

BD35F 12/24V DC THERMALLY PROTECTED SYSTEM Approval mark

Made by Secop

BD35F-HD.2 Heavy Duty Direct Current Compressor R134a, 12/24V DC



General

Code number (without electronic units)	101Z0216	Approvals
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	UL / VDE / CB
Compressors on pallet	150	

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 0 (10)
Voltage range	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

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

Blue stripe R134a Barcode on white background Grey background Country of origin or manufacturer

BD35F

-HD.2

only with BD controller

- S = Static cooling normally sufficient O = Oil cooling
- F_1 = 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

Remarks on application: Fan cooling F₁ depending on application and speed.

HD (Heavy Duty) version of the BD35F which can handle extreme vibrations.

New generation with optimized noise level during rough vehicle motions.

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	2.2

Design

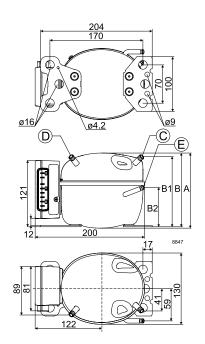
cm ³	2.00
cm ³	150 (polyolester)
g	300
cm ³	870
kg	4.3/0.19
	cm ³ g cm ³

Standard battery protection settings (refer to electronic unit *Instructions* for optional settings)

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

Dimensions

Billionolono		
Height	mm	A 137
		B 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	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	E 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:		



Capacity			r	1	1					tatic c	-		Compre		beed			
rpm \ °C	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15	Electro	nit unit	Resistor (F	21) [0]	Motor s	heed
2,000	16.0	23.8	26.7	32.9	43.7	56.5	71.8	89.8	111	121	136						motor s	peeu
2,500	18.8	29.9		41.9	55.4	71.1	89.8	112	139	152			Code r	number	calculated	values	-	
3,000	22.4	32.9		46.1	62.5	82.2	106	133									[rpr	
3,500	27.0	35.9	40.2	50.3	69.8	93.9	122								0		2,00	
Capacity					·					tatic c	-	watt	101N0		277		2,50	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	101N0	650	692		3,00	
2,000	20.0	29.8	33.4	41.2	54.6	70.6	89.7	112	139	152	169				1523	3	3,50)0
2,500	23.6	37.5	42.4	52.4	69.2	88.8	112	140	173	190								
3,000	28.1	41.3	46.5	57.9	78.2	103	132	166										
3,500	33.9	45.1	50.5	63.1	87.3	117	153											
Power co										static c	-		Wire di				1	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15		Size		ength*	Max. I	-
2,000	17.7	22.9	24.6	27.7	32.2	36.7	41.3	46.2	51.6	54.3	57.8		Cross		∃ 12V op	peration	24V op	eratio
_,	22.1	29.7	32.0	36.3	42.4	48.1 56.5	53.8 64.5	59.7 72.0	66.1	69.1			sectio	n				
3,000 3,500	29.3 34.5	34.6 41.3	36.7 43.8	41.2	40.7 57.3	66.2	75.4	12.0					[mm ²]	Gau	[m] [m]	[ft.]	[m]	[ft.]
· · · · ·													2.5	12	2.5	8	5	16
Current o												A	4	12	4	13	8	26
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	6	10	6	20	12	39
2,000	1.4	1.9	2.0	2.3	2.7	3.1	3.4	3.8	4.3	4.5	4.8		10	8	10	33	20	66
2,500	1.8 2.4	2.5 2.9	2.7	3.0	3.5 4.0	4.0	4.5 5.3	5.0	5.5	5.8					*Length be	tween batt	ery and ele	ctronic
3,000 3,500	2.4	2.9	3.1 3.6	3.4	4.0	4.7	6.3	6.0							5		,	
· · · ·						0.0	0.3	40		1	P	14/24						
			r	1	· · · ·	40	-			tatic c		W/W						
rpm \ °C	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15						
2,000	0.90	1.04	1.09	1.19	1.36	1.54	1.74	1.94	2.15	2.24	2.35							
2,500	0.85	1.01	1.06	1.15	1.31	1.48	1.67	1.88	2.10	2.20								
3,000 3,500	0.76	0.95 0.87	1.01	1.12	1.28	1.45	1.64	1.85										
· · · · ·			0.92	1.05	1.22	1.42	1.02							ional err	ors			
COP (AS										static c	-	W/W	Error code		E	Error type		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	or LED		Can be rea	ad out in the	software	
2,000	1.13	1.30	1.36	1.49	1.70	1.93	2.18	2.44	2.70	2.81	2.95		flashes			OL4COOL		
2,500	1.07	1.26	1.33	1.45	1.64	1.86	2.10		2.64	2.77			6	Thermos	tat failure			
3,000 3,500	0.96	1.19	1.27	1.41	1.61	1.83 1.78	2.06	2.32						(If the NTC	thermistor is s	short-circuit	or has no co	nnectior
,													5	Thermal	cut-out of ele	ctronic un	it	
Test cond Condensir					EN		CECOI				AE LBP 4°C				eration system			
Ambient te				101N0212 101N0650			2°C				°C				nperature is hig		onic unit will	un too r
Suction ga				žž			2°C				°C				motor speed			44-1-1-1
Liquid tem	peratur	e		66		no sub	cooling			32	°C				igeration system intain minimum			
Accesso	ries fo	r BD3	5F-HC) 2						Code	numb	per				spece at ap	proximatory	1,000 ip
Bolt joint							(Ø:16 r	nm		3-1917			Motor sta	interror is blocked o	or the diffe	ontial nroce	ure in
Bolt joint								Ø:16 r			3-1918				n system is too			
Snap-on								Ø:16 r			3-1919			-	start attemp	•		
Remote I			able)								5N9210				compressor			
One Wire											5N950				her than 0.5A			
Automob						12V:	15A 2	24V: 7	5 A		elivera		1	Battery p	rotection cut	-out		
Main swi		,						min. 2			1 Seco				ge is outside th		tting).	
													L					
Spade connectors 6.3 mm 1/4 in. 101N0212 101N0650 																		
Image: Second on Wire Image: Second on Wire Image: Second on Wire Image: Second on Wire <t< td=""><td></td></t<>																		
	NTC resistor mech. Thermostat								(l								

R1 = speed selection I R2 = battery protection I non interface option (resistors)

8615-21

Remote kit

ť

option

-

R1



SECOP BD35F-B 12/24V DC

BD35F-B **Bus-optimized Direct Current Compressor** R134a, 12/24V DC & 100-240V AC 50/60Hz Flexible control settings



S

0

 F_1

 F_2

= Oil cooling

= Fan cooling 1.5 m/s

General

Code number (without electronic units)	101Z0205	Approvals
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341	UL / VDE / CB
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511	UL / VDE
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	UL / VDE / CB
Compressors on pallet	150	

Application		
Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 0 (10)
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Voltage range AC	V/Hz	100 - 240 / 50/60
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

THERMALLY PROTECTED SYSTEM Approval mark SECOP BD35F-B only with BD controller R134a Blue strip 101Z 0205 Barcode on white background Made by Secop Grey background Country of origin or manufactu

= Static cooling normally sufficient

= Fan cooling 3.0 m/s necessary SG = Suction gas cooling normally sufficent

= not applicable in this area

(compressor compartment temperature equal to ambient temperature)

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 ₁ depending on application and speed.								

Special version of the BD35F optimized for rough vehicle motions, especially in buses.

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	2.2

Design

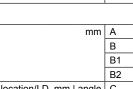
Dimensions

Height

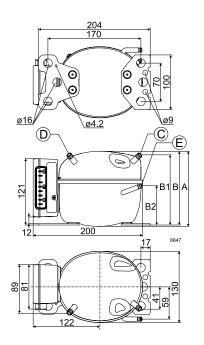
Displacement	cm ³	2.00
Oil quantity (type)	cm ³	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.3 / 0.19 (Standard)

Standard battery protection settings (refer to electronic unit Instructions for optional settings) Voltage 12V 24V

Voltage		120	270
Cut out	VDC	10.4	22.8
Cut in	VDC	11.7	24.2



		B1	128
		B2	73
Suction connector	location/I.D. mm angle	С	6.2 40°
	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:			

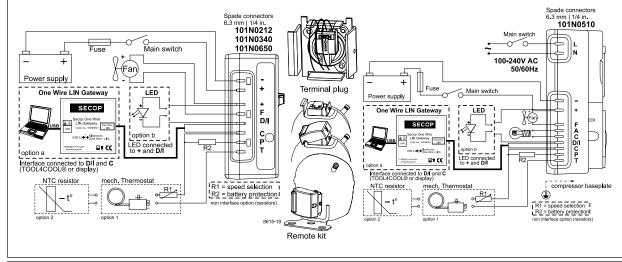


May 2016

137

135

	(EN 1									static c			Compre		eed			
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15	Electro	nit unit	Resistor (Motor s	need
2,000	16.0		26.7		43.7	56.5	71.8		111	121	136							peeu
2,500	18.8			41.9		71.1	89.8	112	139	152			Code n	umber	calculated values			
3,000	22.4		37.1		62.5	82.2	106	133									[rpr	n]
3,500	27.0	35.9	40.2	50.3	69.8	93.9	122						101N02	12	0		2,00	00
Capacity								12V	′ DC, s	static c	ooling	watt	101N0		277	,	2.50	00
rpm \ °C			-23.3		-15	-10	-5	0	5	7.2	10	15	101N06		692	,	3,00	10
2,000	20.0		33.4		54.6	70.6	89.7	112	139	152	169				152			
2,500		37.5		52.4	69.2	88.8	112	140	173	190						3	3,50	
3,000		41.3			78.2	103	132	166							0		AE	0
3,500	33.9	45.1	50.5	63.1	87.3	117	153								173	3	2,00	00
Power co										static c		watt	101N03		450)	2,50	00
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15	with Al	-0	865	5	3,00	0
2,000	17.7	22.9			32.2	36.7	41.3				57.8			-			,	
2,500	22.1				42.4	48.1		59.7	66.1	69.1					169	-	3,50	
3,000		34.6			48.7		64.5	72.0					In AEO (A	Adaptive E	nergy Optim	izing) spee	d mode the	BD co
3,500	34.5	41.3	43.8	48.9	57.3	66.2	75.4						ressor wi	i always a	adapt its spee	eu to the ac	tual cooling	uema
Current o		mptior	1 (for 2	4V app	licatior	ns the f	ollowin	ig must	be ha	lfed)		A						
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15		nension				
2,000	1.4	1.9	2.0	2.3	2.7	3.1	3.4	3.8	4.3	4.5	4.8			Size		length*	Max. I	
2,500	1.8	2.5	2.7	3.0	3.5	4.0	4.5	5.0	5.5	5.8			Cross	AWG	i 12V op	peration	24V op	eratio
3,000	2.4	2.9	3.1	3.4	4.0	4.7	5.3	6.0					section	1				
3,500	2.9	3.4	3.6	4.1	4.8	5.5	6.3						[mm ²]	[Gaug	e] [m]	[ft.]	[m]	[ft.
COP (EN	12900) Hous	ehold	CECC	MAF)			12V	DC, s	static c	ooling	W/W	2.5	12	2.5	8	5	16
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	4	12	4	13	8	26
2,000	0.90	1.04	1.09	1.19	1.36	1.54	1.74	1.94	2.15	2.24	2.35		6	10	6	20	12	39
2,500	0.85	1.01		1.15		1.48	1.67		2.10	2.20			10	8	10	33	20	66
3,000	0.76			1.12	1.28	1.45		1.85							-	etween batt		
3,500	0.78	0.87	0.92	1.03	1.22	1.42	1.62						Wiro di	nension	0		ory and oro	0
COP (AS	HRAE	LBP)						12V	' DC, s	static c	ooling	W/W			n. 0.75 mm	² or AWG	18	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15					10	
2,000	1.13	1.30	1.36	1.49	1.70	1.93	2.18	2.44	2.70	2.81	2.95			onal erre				
2,500	1.07	1.26	1.33		1.64	1.86	2.10	2.36					Error code		I	Error type		
3,000	0.96	1.19	1.27		1.61		2.06	2.32					or LED		Can be rea	ad out in the	software	
3,500	0.98	1.09	1.15	1.29	1.53	1.78	2.03						flashes			OL4COOL	B	
3,500	1:4:0.00	with el	ectroni	c units	EN	12900/	CECO	MAF		ASHR/	AE LBP			hermost				
Test cond	annons			0 0		55	°С				4°C		,		thermistor is			nnectio
Test cond Condensir	ng temp			2.12					1	32	°C	I	5 7	hermal c	mal cut-out of electronic unit			
Test cond Condensir Ambient te	ng temp empera	ture		4021 4065		32	2°C				00						o heavily load	
Test cond Condensir Ambient te Suction ga	ng temp empera as temp	ture erature		01N021 01N065		32 32	°C			32	°C				eration system			
Test cond Condensir Ambient te Suction ga	ng temp empera as temp	ture erature		101N0212 101N0650		32 32				32	°C °C		a	mbient ten	nperature is hig	gh, the electr		un too
Test cond Condensir Ambient te Suction ga Liquid tem	ng tempera empera as temp nperatu	ture erature re		101N021 101N065		32 32	°C			32 32	°C	Der	4	mbient ten	nperature is hig motor speed	gh, the electri d error	onic unit will	
Test cond Condensir Ambient te Suction ga Liquid tem	ng temp empera as temp nperatu pries fo	ture erature re or BD3	5F-B	101N021 101N065		32 32	2°C cooling		nm	32 32 Code	°C e numb		4	mbient ten /inimum If the refrig	mperature is hig motor speed geration syste	gh, the electron d error m is too he	onic unit will	, the m
Test cond Condensir Ambient te Suction ga Liquid tem Accesso Bolt joint	ng temp empera as temp peratu pries for for on	ture erature re or BD3 e com	5F-B	101N021 101N065		32 32	2°C cooling	Ø:16 r		32 32 Code 11	°C 9 numt 8-1917		4 I	mbient ten /inimum If the refrig annot main	nperature is hig motor speed geration syste ntain minimum	gh, the electron d error m is too he	onic unit will	, the m
Test cond Condensir Ambient te Suction ga Liquid tem Accesso Bolt joint Bolt joint	ng temp empera as temp peratu ories fo for on for on	ture perature re or BD3 e com antities	5F-B	101N021 101N065		32 32	°C cooling (Ø:16 r Ø:16 r	nm	32 32 Code 11	°C • numt 8-1917 8-1918	•	4 (3 (mbient ten /inimum If the refrig annot main	mperature is hig motor speed geration syste ntain minimum rt error	gh, the electro d error im is too he i speed at ap	onic unit will avily loaded proximately	, the m 1,850 r
Test cond Condensir Ambient te Suction ga Liquid tem Accesso Bolt joint Bolt joint Snap-on	ng temp empera as temp peratu ories fo for on in qua in qua	ture berature or BD3 e com antities intities	5F-B	101N021 101N065		32 32	°C cooling (Ø:16 r	nm	32 32 Code 11 11 11	°C numt 8-1917 8-1918 8-1919	, , , ,	4 4 3	mbient ten linimum If the refrig annot main Notor sta The rotor	mperature is hig motor speed geration syste ntain minimum rt error is blocked o	gh, the electron d error m is too he a speed at ap or the differ	onic unit will avily loaded proximately rential press	, the m 1,850 r
Test cond Condensir Ambient to Suction ga Liquid tem Accesso Bolt joint Bolt joint Snap-on Remote I	ng temp empera as temp peratu ories for for on in qua in qua kit (wit	ture erature or BD3 e com antities intities hout ca	5F-B o. able)	101N051 101N065		32 32	°C cooling (Ø:16 r Ø:16 r	nm	32 32 Code 11 11 11 11	°C numk 8-1917 8-1918 8-1919 5N921() 	4 (3 (mbient ten finimum If the refrig annot main fotor sta The rotor efrigeration	mperature is hig motor speed geration syste ntain minimum rt error is blocked on n system is too	gh, the electron d error m is too he a speed at ap or the differ o high (>5 ba	onic unit will avily loaded proximately rential press ar)).	, the m 1,850 r sure in
Test cond Condensir Ambient to Suction ga Liquid tem Accesso Bolt joint Bolt joint Snap-on Remote I One Wire	ng temp empera as temp peratu ries for for on in qua kit (wit e/LIN g	ture erature re or BD3 e com antities intities hout ca gatewa	5F-B o. able)		7258	32 32 no sub	2°C cooling (Ø:16 r Ø:16 r Ø:16 r	nm nm	32 32 Code 11 11 11 11	°C numt 8-1917 8-1918 8-1919) 	4 (3 (7	mbient ten Ainimum If the refrigannot main Notor stat The rotor efrigeration Too many	mperature is hig motor speed geration syste ntain minimum rt error is blocked on system is too start attemp	gh, the electron d error m is too he is speed at ap or the differ o high (>5 ba ots or fan o	onic unit will avily loaded proximately rential press ar)). ver current	, the m 1,850 rj sure in
Test cond Condensir Ambient to Suction ga Liquid tem Accesso Bolt joint Bolt joint Snap-on Remote I	ng temp empera as temp peratur ories for for on in qua kit (wit e/LIN g	ture erature re or BD3 e com antities antities hout ca gatewa tomobi	5F-B p. able) y le fuse		7258	32 32 no sub	2°C cooling (2:16 r 2:16 r 2:16 r 2:4V: 7.	nm nm 5 A	32 32 Code 11 11 11 11	°C numk 8-1917 8-1918 8-1919 5N921() 		mbient ten Ainimum If the refrigannot main Notor stat The rotor efrigeration Too many Too many	mperature is hig motor speed geration syste ntain minimum rt error is blocked on system is too start attemp compressor	gh, the electri d error m is too he is speed at ap or the differ o high (>5 ba ots or fan o or fan start	onic unit will avily loaded proximately rential press ar)). ver current	, the m 1,850 rj sure in
Test cond Condensir Ambient to Suction ga Liquid tem Accesso Bolt joint Bolt joint Snap-on Remote I One Wire	ng temp empera as temp peratu ries for for on in qua kit (wit e/LIN g Ru e: Au Ma	ture erature re or BD3 e com antities intities hout ca gatewa	5F-B o. able) y le fuse ch	, DIN 7	7258	32 32 no sub	2°C cooling (Ø:16 r Ø:16 r Ø:16 r	nm nm 5 A	32 32 Code 11 11 11 10 10 5	°C a numb 8-1917 8-1918 8-1919 5N9210 5N9501)) 1		mbient ten finimum If the refrigannot main Notor sta The rotor efrigeration Too many urrent high	mperature is hig motor speed geration syste ntain minimum rt error is blocked on system is too start attemp	gh, the electron d error m is too he is speed at ap por the differ o high (>5 ba ots or fan o or fan start v _y).	onic unit will avily loaded proximately rential press ar)). ver current	, the m 1,850 rp sure in



2/2

May 2016



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



General

Code number (without electronic units)	101Z1220	Approvals
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341	UL / VDE / CB
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511	UL / VDE
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	UL / VDE / CB
Compressors on pallet	150	
Application		BD50

Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 0 (10)
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Voltage range AC	V/Hz	100 - 240 / 50 - 60
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

Application	LBP	MBP	HBP				
32°C	S	S	F ₁				
38°C	S	S	F ₁				
43°C	S	S	F ₁				
Remarks on application: Fan cooling F ₁ depending on	Remarks on application: Fan cooling F ₁ depending on application and speed.						

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

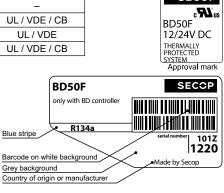
Design

Displacement	cm ³	2.50
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	4.3 / 0.19 (Standard)

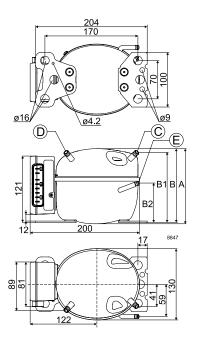
Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

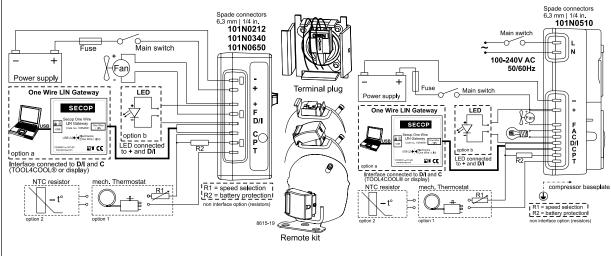
Height	mm	A 137
		B 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	material comment	Cu-plated steel Al cap
Process connector	location/I.D. mm angle	D 6.2 45°
	material comment	Cu-plated steel Al cap
Discharge connector	location/I.D. mm angle	E 5.0 21°
	material comment	Cu-plated steel Al cap
Connector tolerance	I.D. mm	±0.09, on 5.0 +0.12/+0.20
Remarks:		



- S = Static cooling normally sufficient = Oil cooling 0
 - = Fan cooling 1.5 m/s
- F_1 (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
- _



Capacity rom \ °C	-30	-25	-23.3	1	-15	-10	-5	0	5	static c 7.2	10	15	Electro		peeu		1		
2.000	20.9		-		56.1	72.8	-5 92.1	114	138*		165*	15	Electro	Resistor (R1) [Ω]		Motor s	Motor speed		
2,000	20.9			50.9	68.0	88.7	113	142*	175*		105		Coder	Code number		Nulotod	voluce		
3,000	31.2		50.2			107	136*	169*	175	191			Couci	umber	Cal	culated	values	Iror	n 1
3,500			58.0		94.7	123*	157*	103										[rpr	
,				1 / 1.1	01.1	120	107	401		-			101N0	212		0		2,00	
Capacity rpm \ °C		-25	-23.3	-20	-15	-10	-5	0	5	static c	10	15	101N0			277	'	2,50	00
2,000	25.9			51.7	69.3	90.0	114	141	171*	185*	205*	15	101N0	650		692		3,00	00
2,500	32.3				84.3	110	140	176*	217*		200					1523	3	3,50	00
3,000		55.4		76.4	102	132	168*	210*		201						0		AE	0
3,500		64.2		87.8	117	152*	194*									173		2,00	
Power co	nsum	ntion	·					12\/		static c	oolina	watt	101N0	340		450		2,50	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	with A	EO					
2,000	25.0		-		44.3	50.8	-	-		* 77.9*	-					865		3,00	
2,500	30.7			48.0	-			82.0*								1696	6	3,50	00
3,000	37.4	48.1	51.6	58.3			87.9*	98.0*										d mode the	
3,500	45.0	56.8	60.7	68.2	79.5	91.2*	104*						ressor w	ll always	adapt	its spee	ed to the ac	tual cooling	dema
Current o	consu	mptio	n (for 2	4V app	lication	ns the f	ollowir	na must	be ha	alfed)		Δ							
rpm \ °C	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15	Wire di	mensio	ns DO	C			
2,000		2.58		3.12	3.70	-	-			* 6.64*	7.05*		:	Size		Max. I	ength*	Max. I	engtl
2,500	2.62				4.63			6.88*					Cross	AW	G	12V op	peration	24V op	erati
3,000	3.20			4.80			7.34*						sectio	n					
3,500	3.86	4.70	4.99	5.60	6.56	7.58*	8.67*						[mm ²]	[Gau		[m]	[ft.]	[m]	[ff
COP (EN	12900		sehold									w/w	2.5		• •	2.5	8	5	1
rpm \ °C	-30	-25	-23.3	1	-15	-10	-5	0	5	7.2	10	15	2.5	12		2.5 4	13	8	2
2,000	0.84				1.27	1.43	1.60	-	1.87	-	1.97*	10	6			4 6	20	0 12	2
2,500	0.85			-	1.20	1.37		1.73*	-	-	1.07			10		ь 10	33	20	-
3,000	0.83			1.06	1.21	1.37	1.54*						10	0					6
3,500		0.92	-	-	1.19		1.51*									•	etween batt	ery and ele	ctroni
COP (AS								12\/		static c	ooling	w/w	Wire di				2	10	
rpm \ °C		-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Cross s	section min. 0.75 mm ² or AWG 18					
2,000	1.04	1.19			1.58	1.79	1.99	-		* 2.40*	2.47*	.0		tional errors					
2,500	1.05	1.16	_	1.32	1.50	1.70				* 2.52*			Error			E	Error type		
3,000	1.03				1.50			2.16*					code or LED		C	an be rea	ad out in the	software	
3,500	1.01					1.68*							flashes		50		OL4COOL		
								fan cooli	ng of e	lectronic	unit com	pulsory	6	Thermos	tat fai	lure			
Test cond	litions	with e	lectroni	c units	EN	12900			, 		AE LBP			If the NT	C therm	nistor is s	short-circuit	or has no co	nnecti
Condensir	ng tem	peratur		20		55	5°C			54.	4°C		5	Thermal	cut-ou	ut of ele	ctronic un	it	
Ambient te				600			2°C				°C							o heavily load	
Suction ga			9	101 N02 12 101 N0650			2°C				°C			ambient te	mperat	ture is hig	h, the electr	onic unit will	run too
Liquid tem	iperatu	ie		- - -		no sub	cooling		l	32	°C			Minimun					
Accesso	ries fo	or BD	50F							Code	e numb	ber						avily loaded	
Bolt joint							9	Ø:16 r	nm		8-1917						speed at ap	proximately	1,850
Bolt joint								Ø:16 r	nm	11	8-1918			Motor st					
Snap-on								Ø:16 r	nm		8-1919						or the differ o high (>5 bi	ential press	sure in
Remote I											5N9210			-	-				
One Wire										105	5N950 ⁻	1						ver current	
DC usag		tomob iin swi	ile fuse tch	e, DIN 1	7258	12V:	15A 2	24V: 7. min. 2		.1	Not			Too man current hig				s in short t	ime o
	Fu	se, 10	0-240V	/							verabl	I		Battery p					
AC usage	e. Ma	in swi	tch					min.	6A	tron	n Seco	h		The volta	ge is o	utside th	e cut-out se	tting).	
							6.3 m	e connecto im 1/4 in.			7 772	l						Spade conn 6.3 mm 1/4 101N (l in.
					n switch		6.3 m T	e connecto im 1/4 in. 01N021 01N034	2			7					Main switch	Spade conn 6.3 mm 1/4 101N	lin.



DES.D.100.E4.02

May 2016



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



Code number (without electronic units)	101Z0203	Approvals
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341	UL / VDE / CB
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511	UL / VDE
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	UL / VDE / CB
Compressors on pallet	150	

Application

	LBP/MBP/HBP
°F	-20 to 50
VDC	9.6 - 17 / 21.3 - 31.5
V/Hz	100 - 240 / 50 - 60
°F	140 (158)
°F	257 (275)
	VDC V/Hz °F

Cooling requirements

Application	LBP	MBP	HBP
32°C	S	S	F ₁
38°C	S	S	F ₁
43°C	S	S	F ₁
Remarks on application: Fan cooling F_1 depending on	application	and speed.	

Motor

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

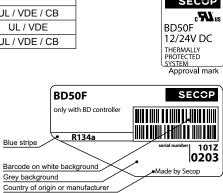
Design	

Displacement	cu.in.	0.15
Oil quantity (type)	fl.oz.	5.1 (polyolester)
Maximum refrigerant charge	OZ.	10.5
Free gas volume in compressor	fl.oz.	29.6
Weight - Compressor/Electronic unit	lbs.	9.5 / 0.42 (Standard)

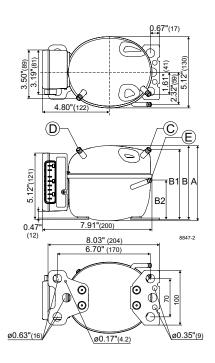
Standard battery protection settings (refer to electronic unit <i>Instructions</i> for optional settings)							
Voltage		12V	24V				
Cut out	VDC	10.4	22.8				
Cut in	VDC	11 7	24.2				

Dimensions

Height	inch	А	5.39
		В	5.32
		B1	5.04
		B2	2.87
Suction connector	location/I.D. inch angle	С	0.252-0259 40°
	material comment		Cu-plated steel AI cap
Process connector	location/I.D. inch angle	D	0.252-0259 45°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. inch angle	Е	0.202-0.205 21°
	material comment		Cu-plated steel AI cap
Remarks: inch connector	S		



- S = Static cooling normally sufficient
- O = Oil cooling
- F_1 = Fan cooling 1.5 m/s
 - (compressor compartment temperature equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficent
- = not applicable in this area



Capacity (ASHRAE LBP)				12	V DC.	static o	cooling		BTU/h	Comp	essor s	peed	d			
rpm \ °F -20 -13 -10	0 (10	14	20	30	40	41	45	50		onit unit					
2,000 96 127 14		274	307	360	459	572	584*	633*	698*			R	esistor (R	(1) [Ω]	Motor	speed
2,500 119 156 17		334	375	442	572	724	741*	810*		Code	number	ca	alculated	values		
3,000 143 189 21		403	452	531	682	858*									[rp	m]
3,500 168 219 24		464	520*	613*	792*					40.00			0		2,0	000
Capacity (EN 12900 Hous							cooling		watt	101N0			277		2,5	500
rpm \ °F -20 -13 -10		10	14	20	30	40	41	45	50	101N0			692		3,0	00
2,000 22.8 30.1 33.		65.1	72.8	85.4	109	135	138*	150*	165*	101N0	0000		1523		3,5	600
2,500 28.2 37.0 41. 3,000 33.9 44.8 50.		79.1 95.6	88.7	105 126	135 161	171 203*	175*	191*					0		A	0
3,500 40.0 52.0 57.		110	123*	145*	187*	205				40410	240		173		2,0	000
	0 01.0	110	120		•	ototio			wett	101N0			450		2,5	500
Power consumption	0 0	10	14	20	<u>V DC,</u> 30	40	cooling	45	watt 50	with A	EO		865		3,0	000
2,000 26.4 31.4 33.		47.4	50.3	54.8	63.0	72.2		77.3*	82.8*				1696	;	3,5	500
2,500 32.8 39.5 42.		60.9	64.6	70.2	79.6	89.3			02.0				rgy Optimiz			
3,000 39.9 48.0 51.		73.2	77.5	84.0	95.0	107*				ressor w	ill always	ada	pt its speed	d to the ac	tual coolin	g demand.
3,500 47.7 56.7 60.	5 72.9	85.4	90.6*	98.7*	113*							_				
Current consumption (for	24V appl	ication	s the fo	llowing	ı must	be half	ed)		Α	Wire d	imensio	ns L				
rpm \ °F -20 -13 -10		10	14	20	30	40	41	45	50		Size	~	Max. le			length*
2,000 2.19 2.58 2.7	6 3.37	4.01	4.29	4.70	5.43	6.20	6.28*	6.60*	7.01*	Cros		G	12V op	eration	240 0	peration
2,500 2.76 3.25 3.4		5.03		5.86	6.69		7.59*	7.91*		sectio				10.3		
3,000 3.38 3.99 4.2		6.08	6.46	7.03	7.99	8.98*				[mm ²		<u> </u>	[m]	[ft.]	[m]	[ft.]
3,500 4.04 4.69 4.9	8 6.00	7.09	7.55*		9.51*					2.5	12		2.5	8	5	16
EER (ASHRAE LBP)		1 4 -	1		<u> </u>		cooling		TU/Wh	4	12		4	13	8	26
rpm \ °F -20 -13 -10		10	14	20	30	40	41	45	50	6	10	2	6	20	12	39
2,000 3.64 4.04 4.2 2,500 3.64 3.96 4.1		5.78	6.10 5.80	6.57 6.30	7.29	7.92	7.98*	8.19*	8.43*	10	8		10	33	20	66
3,000 3.58 3.93 4.1		5.51		6.30	7.18		0.20	0.00					Length bet	tween batt	tery and ele	ectronic un
3,500 3.53 3.86 4.0			5.74*		6.99*	0.00					imensio				4.0	
COP (EN 12900 Househo						etatic	cooling		w/w	Cross	section n	nin. (0.75 mm ²	or AvvG	18	
rpm \ °F -20 -13 -10		10	14	20	30	40	41	45	50	Operat	ional er	rors	;			
2,000 0.86 0.95 1.0		1.36	1.43	1.54	1.71		1.87*		1.97*	Error				rror type		
2,500 0.86 0.94 0.9	-	1.29	1.37	1.48	1.69		1.92*			code or LED			Can be read	d out in the	software	
3,000 0.85 0.93 0.9	7 1.12	1.30	1.37	1.49	1.68	1.89*				flashes						
3,500 0.84 0.92 0.9	5 1.11	1.28	1.35*	1.46*	1.64*					6	Thermos	stat f	ailure			
							ctronic u				(If the NT	C the	rmistor is sl	hort-circuit	or has no c	onnection).
Test conditions with electro	nic units	EN	12900/		/AF		ASHR/			5	Thermal	cut-	out of elec	ctronic un	nit	
																مطفعة ممناهطهم
Condensing temperature	212		13				130						ion system h			
Ambient temperature	N0212		90	D°F			90)°F								run too hot)
	101N0212 101N0650		90 90				90 90			4	ambient te Minimun	emper n mo	rature is high	n, the electr error	onic unit wil	run too hot)
Ambient temperature Suction gas temperature Liquid temperature	101 N0212 101 N0650		90 90)°F)°F			90 90 90)°F)°F)°F	er	4	ambient te Minimun (If the ref	emper n mo rigera	rature is high tor speed ation system	n, the electr error n is too he	onic unit wil	d, the moto
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F	101 N0650		90 90)°F)°F ocooling	: 5/8]	n.	90 90 90 Code)°F)°F)°F numb	er		ambient te Minimun (If the ref cannot ma	emper n mo rigera aintair	rature is high otor speed ation system n minimum s	n, the electr error n is too he	onic unit wil	d, the moto
Ambient temperature Suction gas temperature Liquid temperature	101 N0650		90 90	0°F 0°F bcooling Ø	: 5/8 i : 5/8 i		90 90 90 Code 118)°F)°F)°F		4	ambient te Minimun (If the ref cannot ma Motor st	n mo rigera aintair art e	rature is high tor speed ation system n minimum s rror	h, the electr error n is too he speed at ap	onic unit wil eavily loade oproximately	d, the moto 1,850 rpm)
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp.	101 N0650		90 90)°F)°F pcooling Ø		n.	90 90 90 Code 118 118	0°F 0°F 0°F numb 3-1917			ambient te Minimun (If the ref cannot ma Motor st (The roto	mper n mo rigera aintair art e or is	rature is high tor speed ation system n minimum s rror blocked or	h, the electr error n is too he speed at ap	onic unit wil eavily loade oproximately rential pres	d, the moto 1,850 rpm)
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp. Bolt joint in quantities Snap-on in quantities Remote kit (without cable)			90 90)°F)°F pcooling Ø	: 5/8	n.	90 90 90 Code 118 118 118 105	^o F numb <u>3-1917</u> <u>3-1918</u> <u>3-1919</u> <u>N9210</u>)	3	ambient te Minimun (If the ref cannot ma Motor st (The roto refrigerati	mper n mo rigera aintair art e or is on sy	rature is high tor speed ation system n minimum s rror blocked or rstem is too	h, the electr error n is too he speed at ap r the differ high (>5 b	ronic unit wil eavily loade pproximately rential pres ar)).	d, the moto 1,850 rpm) sure in the
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp. Bolt joint in quantities Snap-on in quantities Remote kit (without cable) One Wire/LIN gateway	· 		90 90 no sub	D°F D°F pcooling Ø Ø	: 5/8 : 5/8	n. n.	90 90 90 Code 118 118 118 105	^o F ^o F numb 3-1917 3-1918 3-1919)		ambient te Minimun (If the ref cannot ma Motor st (The roto refrigerati Too man	n mo rigera aintair art e or is on sy y sta	rature is high ation speed ation system n minimum s rror blocked or stem is too art attempt	n, the electr error n is too he speed at ap r the differ high (>5 b s or fan o	enic unit wil eavily loade pproximately rential pres ar)). ver currer	d, the moto (1,850 rpm) (1,850 rpm) (1,850 rpm)
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp. Bolt joint in quantities Snap-on in quantities Remote kit (without cable) One Wire/LIN gateway	· 	7258	90 90 no sub	D°F D°F D°Cooling Ø Ø 15A 24	: 5/8 i : 5/8 i 4V: 7.5	n. n.	90 90 90 Code 118 118 118 105 105	^o F numb <u>3-1917</u> <u>3-1918</u> <u>3-1919</u> <u>N9210</u>)	3	ambient te Minimun (If the ref cannot ma Motor st (The roto refrigerati Too man (Too mar	rigera aintair art e or is on sy y sta	rature is high ation speed ation system n minimum s rror blocked or stem is too art attempt	error n is too he speed at ap r the differ high (>5 b s or fan o or fan star	enic unit wil eavily loade pproximately rential pres ar)). ver currer	d, the moto (1,850 rpm) (1,850 rpm) (1,850 rpm)
Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp. Bolt joint for one comp. Bolt joint in quantities Snap-on in quantities Remote kit (without cable) One Wire/LIN gateway DC usage: Automobile fu: Main switch Eure 100-200	se, DIN 7	7258	90 90 no sub	D°F D°F D°Cooling Ø Ø 15A 24	: 5/8 : 5/8	n. n.	90 90 90 118 118 118 118 105 105	[°] F [°] F numb 3-1917 3-1918 3-1919 N9210 N9501)	3	ambient te Minimum (If the ref cannot ma Motor st (The roto refrigerati Too man (Too mar current hi	mper n mo rigera aintair art e or is on sy y sta y sta	rature is high tor speed ation system n minimum s rror blocked or stem is too art attempt mpressor c than 0.5A _{avg}	n, the electr error n is too he speed at ap r the differ high (>5 b s or fan o or fan star).	enic unit wil eavily loade pproximately rential pres ar)). ver currer	d, the moto (1,850 rpm) (1,850 rpm) (1,850 rpm)
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Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint for one comp. Bolt joint for one comp. Bolt joint in quantities Snap-on in quantities Remote kit (without cable) One Wire/LIN gateway DC usage: Automobile fu: Main switch Eure 100-200	se, DIN 7	7258	90 90 no sub	D°F D°F Docooling Ø Ø Ø I5A 24	: 5/8 : 5/8 4V: 7.5 min. 2 min. 1 e connecter m 1/4 in.	n. n. 5 A DA 6 A	90 90 90 Code 118 118 105 105 105	°F numb 3-1917 3-1918 3-1919 N9210 N9501 Not verable)	3	ambient te Minimun (If the ref cannot ma Motor st (The roto refrigerati Too man (Too mar current hi Battery	aintair aintair art ei on sy y sta y coi gher f	rature is high tor speed ation system minimum s rror blocked or stem is too art attempt mpressor of than 0.5A _{arg} ection cut-	n, the electr error n is too he speed at ap r the differ high (>5 b s or fan o or fan star). out	conic unit will eavily loade oproximately rential pres ar)). ver currer ts in short etting).	d, the motor r 1,850 rpm) sure in the time or far
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Ambient temperature Suction gas temperature Liquid temperature Accessories for BD50F Bolt joint in quantities Snap-on in quantities Remote kit (without cable) One Wire/LIN gateway DC usage: Automobile fu: Main switch AC usage: Fuse, 100-24C Main switch AC usage: Fuse, 100-24C Main switch AC usage: Use fuse fuse fuse fuse fuse fuse fuse fu	Se, DIN 7	ected		0°F 0°F </td <td>: 5/8 : 5/8 : 5/8 min. 2/ min. 2/ min. 2/ min. 2/ 01N02/ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>n. n. A DA A DA DA A DA DA A DA DA A DA A DA A DA A DA A DA DA A DA DA A DA DA A DA DA DA A DA DA</td> <td>90 90 90 70 70 70 70 70 70 70 70 70 70 70 70 70</td> <td>1°F 1°F 1°F 1°F 1975 1977 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1977 1978 1977 1978 1977 1978 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1970</td> <td></td> <td>3 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>ambient te Minimum (If the ref cannot ma Motor st (The rotot refrigerati Too man (Too man (Too man (Too man (Too man (The volta Battlery) (The volta Fuse Gateway Code C</td> <td>mper monoralization of the second sec</td> <td>rature is high tor speed ation system n minimum s rror blocked or stem is too rrt attempt mpressor of than 0.5A ang conton cut- outside the Main switch LED outside the conton bu- to outside the conton bu- conton bu- con</td> <td>A the electr error n is too he speed at ap r the differ high (>5 b s or fan o or fan star). Main switch 0-240V AC 50/60Hz F2 F2 F2 F7 F7 F7 F7 F7 F7 F7 F7 F7 F7</td> <td>encircumit will eavily loade opproximately rential pres ar)). ver currer ts in short tting). Spade con 6.3 mm 1 101N</td> <td>d, the motor 1,850 rpm sure in th t time or fa</td>	: 5/8 : 5/8 : 5/8 min. 2/ min. 2/ min. 2/ min. 2/ 01N02/ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	n. n. A DA A DA DA A DA DA A DA DA A DA A DA A DA A DA A DA DA A DA DA A DA DA A DA DA DA A DA	90 90 90 70 70 70 70 70 70 70 70 70 70 70 70 70	1°F 1°F 1°F 1°F 1975 1977 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1978 1979 1977 1978 1977 1978 1977 1978 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1979 1970		3 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ambient te Minimum (If the ref cannot ma Motor st (The rotot refrigerati Too man (Too man (Too man (Too man (Too man (The volta Battlery) (The volta Fuse Gateway Code C	mper monoralization of the second sec	rature is high tor speed ation system n minimum s rror blocked or stem is too rrt attempt mpressor of than 0.5A ang conton cut- outside the Main switch LED outside the conton bu- to outside the conton bu- conton bu- con	A the electr error n is too he speed at ap r the differ high (>5 b s or fan o or fan star). Main switch 0-240V AC 50/60Hz F2 F2 F2 F7 F7 F7 F7 F7 F7 F7 F7 F7 F7	encircumit will eavily loade opproximately rential pres ar)). ver currer ts in short tting). Spade con 6.3 mm 1 101N	d, the motor 1,850 rpm sure in th t time or fa

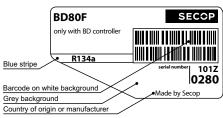
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May 2016



BD80F Direct Current Compressor R134a 12/24V DC





General

Code number (without electronic units)	101Z0280
Electronic unit - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application		LBP
Evaporating temperature	°C	-30 to -5
Voltage/max. voltage	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

= Static cooling normally sufficient

= Oil cooling

S O

 F_1

 F_2

_

- = Fan cooling 1.5 m/s (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	-	_
38°C	S	_	_
43°C	S	-	_
Remarks on application:		•	

Motor

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

Design

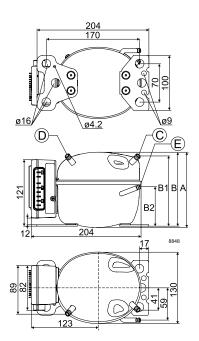
Displacement	cm ³	3.00
Oil quantity (type)	CM3	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.4/0.32

Standard battery protection settings (refer to electronic unit Instructions for optional settings)

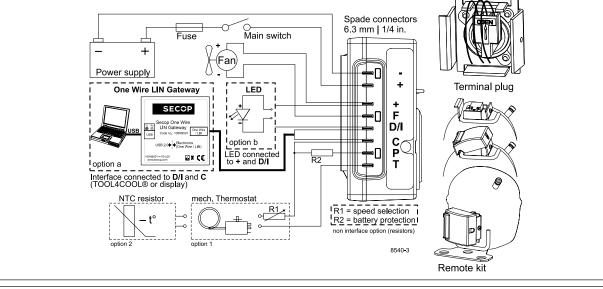
Voltage		12V	24V
Cut out	VDC	10.4	22.8
Cut in	VDC	11.7	24.2

Dimensions

Height	mm	A 137
		В 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	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	E 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:		



Capacity	(EN 1	2900 I	louse	hold/C	ECON	IAF)		24\	/ DC. :	static co	poling	watt	Compre	essor spe	ed			
rpm \ °C		-25	-23.3	1	-15	-10	-5	0	5	7.2	10	15	Electro	-			Matan	
2,500	35.2	49.8	55.3	67.0	87.3	112	140						Liectio	int unit	Resistor (F		Motor :	speed
3,100	41.9	59.2	65.8	79.8	104	133	168						Code n	umber	calcula	ted		
3,800		70.8		95.4	125	159	200								values [rpm]		nl	
4,400	54.9	78.1	86.8	105	138	176	221								0	.5	ipi AE	•
Capacity	(ASH	RAE L	BP)					24\	/ DC, :	static co	ooling	watt		-	-			-
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15	101	0390	203		2,5	00
2,500	43.7	61.8	68.6		108	138	174							AEO -	451		3,1	00
3,100		73.4			129	165	208								867		3,8	00
3,800		87.8	97.5	118	154	197	248							-	1700		4.4	0
4,400		96.7	108	130	171	218	274							Adaptiva F			,	
Power co										static co		watt			nergy Optimi dapt its spee			
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15						
2,500	38.4		51.2		68.2	79.5	91.9											
3,100	46.9		62.9		83.4	97.3	113						Wire di	mension	6			
3,800		72.0	76.9	-	102	119	139							Size	Max I	ength*	Max I	ength*
4,400		83.5			118	138	161						Cross			eration		eration
Current of												A		-	120 00	eration	24V 0p	eration
rpm \ °C		-25	-23.3		-15	-10	-5	0	5	7.2	10	15	section	า				
2,500	1.6	2.0	2.1	2.4	2.8	3.3	3.8						[mm ²]	[Gauge] [m]	[ft.]	[m]	[ft.]
3,100 3,800	1.9	2.4	2.6	3.0	3.5 4.3	4.1 5.0	4.7 5.8						<u> </u>	1				
4,400	2.4	3.5	3.7	4.2	4.3	5.0	6.7											
COP (EN					1	0.0	0.7	241		atatia a	aalina	w/w	6	10	2.5	8	5	16
rpm \°C		-25	-23.3		-15	-10	-5	240	5	static co	10	15						
2.500	0.92		1.08		1.28	1.40	1.53	0	5	1.2	10	15			*Length be	etween batt	ery and ele	ctronic unit
3.100	0.89		1.05	1.13	1.25	1.37	1.48											
3,800		0.98	1.02	1.10	1.22	1.34	1.44						Operati	onal erro	rs			
4,400	0.83	0.94	0.97	1.05	1.16	1.27	1.37						Error		E	Error type		
COP (AS	HRAE	LBP)						24\	, DC, :	static co	poling	w/w	code or LED			d out in the		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	flashes		то	OL4COOL	B	
2,500	1.14	1.29	1.34	1.44	1.59	1.75	1.90						6	Thermosta	t failure			
3,100	1.10		1.30		1.55	1.70	1.85							If the NTC I	hermistor is s	short-circuit	or has no co	nnection).
3,800	1.07		1.27	1.37	1.52	1.66	1.80											
4,400	1.02	1.16	1.21	1.30	1.45	1.58	1.71								It-out of ele ration system			dad ar if tha
Test cond					EN	12900/		MAF		ASHRA					perature is hig			
Condensir)				5°C			54.4					notor speed			,
Ambient te Suction ga							2°C 2°C			32					eration system		avily loaded	, the motor
Liquid tem										32					ain minimum			
Accesso			0E								numb		-	Notor star				
Bolt joint			-					Ø:16 r	nm		8-1917				s blocked o			sure in the
Bolt joint								Ø:101 Ø:16 r			8-1917 8-1918			-	system is too	•		
Snap-on								Ø:101 Ø:16 r			8-1919 8-1919				start attemp			
Remote			ahle)				,	0.101			5N9210				compressor er than 0.5A		is in short	ume or tan
One Wire											5N950					8		
Automob		/	/			12\/·	304 1	24V: 1	5.4		elivera				tection cut			
Main swi		с, DIN	1200			12.0.		min. 3	-		n Seco			The voltage	is outside the	e cut-out se	tting).	
										101	. 0000	٢						



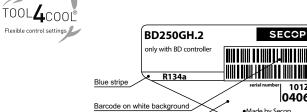
May 2016



101Z 0406

de by Secop

BD250GH.2 Direct Current Compressor R134a 12/24V DC



General

Code number (without electronic units)	101Z0406
Electronic unit - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application
Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

= Static cooling normally sufficient

= Oil cooling

S 0

 F_1

 F_2

Grey background Country of origin or manufacture

- = Fan cooling 1.5 m/s (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:	•		

Motor

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

Design

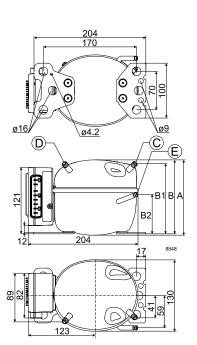
Displacement	cm ³	2.50
Oil quantity (type)	CM3	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.4/0.32

Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

Dimensions

Height	mm	A 137
		В 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	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	E 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:		



Capacity	(EN 1	2900 H	louse		ECON			24V	<u>/ DC, s</u>	static c	ooling	watt	Cor
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Ele
2,500	31.3	38.1	50.8	70.0	90.5	106	114	142	177	194	219	271	
3,100	42.9	48.5	61.0	83.5	111	132	143	181	225	246	275	332	Co
3,800	54.6	61.9	77.7	106	140	165	179	225	278	303	337	404	
4,400	61.2	69.4	87.2	119	156	184	200	251	308	336	373	446	
Capacity	(ASH	RAE L	BP)					24V	' DC, s	static c	ooling	watt	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	
2,500	38.3	46.8	62.6	86.6	112	131	142	177	220	242	274	340	1
3,100	53.4	60.4	75.9	104	138	164	178	225	280	307	343	415	1
3,800	68.1	77.1	96.7	132	173	205	223	280	345	377	420	504	
4,400	76.3	86.5	109	148	194	229	249	311	383	418	465	556	
Power co	onsum	ption						24V	/ DC, s	static c	ooling	watt	In A
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	ress
2,500	38.1	42.0	48.5	55.9	61.4	64.4	65.9	70.7	76.6	79.9	84.8	96.4	
3,100	42.0	46.0	53.1	62.4	70.8	76.2	79.0	87.8	98	103	110	125	14/2-
3,800	55.0	59.4	67.6	79.0	90.2	97.7	102	114	129	136	146	167	Wir
4,400	64.8	69.5	78.2	91	104	113	117	132	150	158	170	194	
Current o	consu	mntior) (for 1	2V ann	lication	ns the f	ollowin		he do	ubled)		A	C
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	se
2,500	1.7	1.8	2.0	2.3	2.5	2.6	2.6	2.8	3.0	3.2	3.3	3.7	
3,100	2.0	2.1	2.3	2.7	3.0	3.2	3.3	3.7	4.1	4.3	4.6	5.1	[n
3,800	2.5	2.6	2.9	3.3	3.7	4.0	4.2	4.7	5.3	5.6	6.0	6.8	
4,400	2.7	2.9	3.2	3.6	4.1	4.5	4.7	5.3	6.0	6.4	6.8	7.8	
COP (EN										static c		W/W	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	
2,500	0.82	0.91	1.05	1.25	1.47	1.64	1.73	2.01	2.31	2.43	2.58	2.82	
3,100	1.02	1.05	1.15	1.34	1.56	1.73	1.81	2.06	2.30	2.40	2.51	2.66	
3,800	0.99	1.00	1.15	1.34	1.55	1.69	1.76	1.97	2.15	2.22	2.30	2.42	Оре
4,400	0.94	1.00	1.11	1.31	1.51	1.64	1.71	1.89	2.06	2.12	2.20	2.30	Er
COP (AS										static c		W/W	or L
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	240	5	7.2	10	15	flas
2,500	1.01	1.11	1.30	1.56	1.84	2.05	2.17	2.53	2.91	3.07	3.26	3.55	
3,100	1.27	1.31	1.43	1.67	1.95	2.05	2.17	2.53	2.88	3.07	3.14	3.35	
3,800	1.27	1.30	1.43	1.67	1.95	2.15	2.20	2.36	2.60	2.78	2.88	3.04	
4.400	1.18	1.24	1.39	1.63	1.88	2.04	2.13	2.36	2.57	2.65	2.75	2.88	
Test con			1.00	1.00	·		CECO						
Condens					ENT	55		WAF		ASHR/	<mark>4°C</mark>	-	
Ambient			uie			32	°C				°C		4
Suction of			ure				°C				°Č		
Liquid ter					r	no sub	cooling	7		32	°C		
	rico fo	- 002	FOCH	<u> </u>						Code			;
Accesso				2				X.1 0 -			e numl 8-1917		
Bolt joint			5.					Ø:16 r					
Bolt joint								<u>Ø:16 r</u>			8-1918		1
Snap-on							\$	Ø:16 r	nm		8-1919		
Remote I											5N921	-	
One Wire									_		5N950		1
Automob Main swi		e, DIN	7258			12V:	30A	24V: 1	-		elivera		
								min. 3		fron	n Seco		

watt Compressor speed

Electronit unit	Resistor (R1) [Ω]	Motor speed									
Code number	calculated										
	values	[rpm]									
	0	AEO									
	203	2,500									
101N0390 with AEO	451	3,100									
	867	3,800									
	1700	4,400									

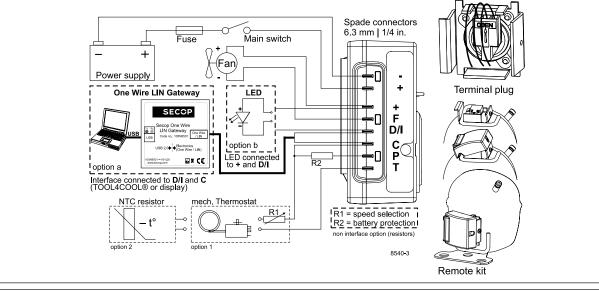
In AEO (Adaptive Energy Optimizing) speed mode the BD comressor will always adapt its speed to the actual cooling demand.

Wire dimensions

Si	ze	Max. I	ength*	Max. length*						
Cross	AWG	12V op	eration	24V operation						
section										
[mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]					
6	10	2.5	8	5	16					

*Length between battery and electronic unit

perational errors rror code LED Error type Can be read out in the software shes TOOL4COOL® 6 Thermostat failure (If the NTC thermistor is short-circuit or has no connection). Thermal cut-out of electronic unit 5 (If the refrigeration system has been too heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot). Minimum motor speed error 4 (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm). 3 Motor start error (The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)). 2 Too many start attempts or fan over current (Too many compressor or fan starts in short time or far current higher than 0.5Aavg). 1 Battery protection cut-out (The voltage is outside the cut-out setting). min. 30A from Secop



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BD250GH.2 Direct Current Compressor R134a **48V DC**

TOOL4COOL	
Flexible control settings	

General

Code number (without electronic units)	101Z0405
Electronic unit - Telecom	101N0732, 36 pcs: 101N0733
Approvals	UL
Compressors on pallet	150

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range	VDC	32 - 60
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

Application		LBP	MBP	HBP
32°C		S	S	S
38°C		S	S	S
43°C		S	S	F ₁
Remarks on application:	I			

BD250GH.2 SECOP only with BD controller R134a Blue stripe 101Z 0405 Code number & serial number barcode on white background Made by Secop Grey background Country of origin or manufacture SECOP c**RU**"us C TANUS BD250GH.2 48V DC THERMALLY PROTECTED SYSTEM Approval mark

- = Static cooling normally sufficient
- 0 = Oil cooling F_1

S

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- = 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

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	1.03

Design

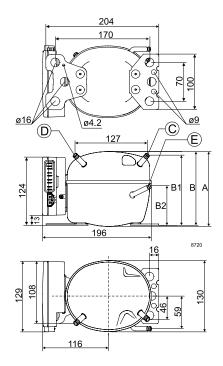
Displacement	cm ³	2.50
Oil quantity (type)	cm ³	150 (polyolester)
Maximum refrigerant charge	g	300
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.4/0.24

Battery protection settings

Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	32	36	60
Cut in diff.	(0.1 steps)	VDC	0.5	4.0	10.0

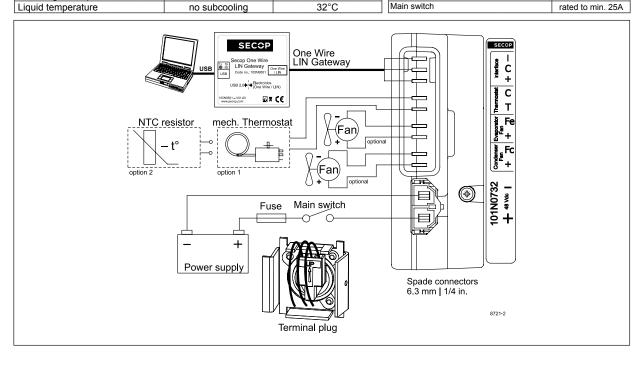
Dimensions

Height	mm	А	137				
		В	135				
		B1	128				
		B2	73				
Suction connector	location/I.D. mm angle	С	6.2 40°				
	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: Clearance between electronic unit and baseplate does not allow the snap-on option for mounting.							



November 2013

Capacity	(EN 1	2900 H	louse	hold/C	ECON	IAF)		53V	DC, fa	n cooli	ng F₁	watt	Operatio	onal errors			
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Error		Error type		
2,500	31.4	36.6	47.2	65.5	87.0	103	112	143	178	195	219	267	code	Can be read out	in the softwar	e TOOL4COOL®	
3,100	42.9	49.1	62.1	84.8	112	132	144	181	224	246	275	333	6	Thermostat failure)		
3,800	55.0	62.4	78.3	106	139	165	179	224	277	303	337	408				or has no connection,	
4,400	64.3	72.8	91.1	124	162	191	208	261	322	352	392	472		the electronic unit wi	II enter manua	mode).	
Capacity			BP)					53V	DC, fa	n cooli	ng F ₁	watt	5	Thermal cut-out o	f electronic ι	unit	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15				en too heavily loaded,	
2,500	40.1	46.3	59.3	81.8	108	129	140	177	222	243	273	334		or if the ambient terr will run too hot).	nperature is hig	gh, the electronic unit	
3,100	54.0	61.6	77.6	106	139	164	178	225	279	306	342	416		,			
3,800	68.7	77.9	97.4	132	173	204	222	279	345	377	421	509	4	Minimum motor s			
4,400	80.0	90.5	113	153	201	237	257	323	400	437	488	589				heavily loaded, the beed at approximately	
Power co		ption						53V	DC, fa	n cooli	ng F ₁	watt		1,850 rpm).	ini minimum sp	eeu al approximately	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	3	Motor start error			
2,500	40.8	44.1	50.1	58.5	66.0	70.4	72.5	78.5	83.9	86.1	88.7	93.1	–		d or the differ	ential pressure in the	
3,100	46.5	50.1	57.0	66.9	76.5	82.6	85.7	94.7	103	107	112	121		refrigeration system			
3,800	58.2	62.2	70.0	81.7	93.7	102	106	119	132	137	145	159		-			
4,400	72.4	76.7	85.3	98.8	113	122	128	143	160	167	177	196	2	Fan over-current o			
Current o	onsu	mptior	ı					53V	DC, fa	n cooli	ng F ₁	Α		(The fan loads the electronic unit with more the 1.8A _{next}).			
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15					
2,500	0.78	0.86	1.01	1.23	1.43	1.55	1.60	1.75	1.87	1.91	1.95	1.98	1 Battery protection cut-out				
3,100	0.65	0.74	0.90	1.14	1.38	1.52	1.59	1.79	1.97	2.04	2.12	2.23	(The voltage is outside the cut-out setting).			setting).	
3,800	0.87	0.96	1.13	1.40	1.67	1.85	1.94	2.20	2.45	2.55	2.68	2.89					
4,400	1.36	1.45	1.64	1.93	2.24	2.44	2.55	2.86	3.17	3.30	3.47	3.76					
COP (EN	12900	Hous	ehold	/CECC	OMAF)			53V	DC, fa	n cooli	ng F₁	W/W	Accesso	ories for BD250G	H.2		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Mounting			Code number	
2,500	0.77	0.83	0.94	1.12	1.32	1.47	1.55	1.82	2.12	2.27	2.47	2.87		for one compressor	Ø: 16 mm	118-1917	
3,100	0.92	0.98	1.09	1.27	1.46	1.60	1.67	1.91	2.17	2.29	2.45	2.74	Bolt joint i	in quantities	Ø: 16 mm	118-1918	
3,800	0.94	1.00	1.12	1.30	1.49	1.62	1.68	1.89	2.11	2.21	2.33	2.57	Electrica	1	Co	de number	
4,400	0.89	0.95	1.07	1.25	1.44	1.56	1.63	1.82	2.01	2.10	2.21	2.41		' sensors, etc.)	Single pack	I - Pack	
COP (AS	HRAE	LBP)						53V	DC, fa	n cooli	ng F₁	W/W		ord, 900 mm	105N9542	105N9543, 36 pcs.	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	DC line co	ord, 2000 mm	105N9540	105N9541, 36 pcs.	
2,500	0.98	1.05	1.19	1.41	1.66	1.84	1.95	2.28	2.67	2.86	3.12	3.63	DC line co	ord, 5000 mm	105N9538	105N9539, 36 pcs.	
3,100	1.16	1.23	1.37	1.59	1.83	2.00	2.09	2.39	2.72	2.87	3.07	3.45	Temperati	ure sensor 470 mm	105N9612	105N9613, 200 pcs	
3,800	1.18	1.25	1.40	1.62	1.85	2.01	2.10	2.36	2.64	2.76	2.92	3.22	Temperati	ure sensor 1000 mm	105N9614	105N9615, 100 pcs	
4,400	1.10	1.18	1.33	1.55	1.79	1.94	2.02	2.27	2.51	2.62	2.76	3.02	Temperati	ure sensor 1500 mm	105N9616	105N9617, 100 pcs	
		-									-		One Wire	/LIN gateway	105N9501		
Test con	dition					2900/							Comm. cable, 1500 mm –			105N9545, 100 pcs	
		-					-			-		-	Comm. ca	able, 3000 mm	-	105N9547, 50 pcs.	
Condens Ambient			ure			55 32	-				<u>4°C</u> ℃		Not delive	erable from Secop			
						32	-				<u>°C</u>					16A	
	Suction gas temperature			<u> </u>						<u>ິ</u>					rated to min 254		





BD350GH **Direct Current Compressor** R134a



LBP/MBP/HBP

-25 to 15

9.6 - 17

60 (70)

125 (135)

12V DC - with 101N08xx Series Controllers

General

Application

Application

Voltage range

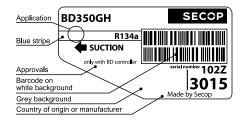
102Z3015
101N0800, 30 pcs: 101N0801
101N0820, 30 pcs: 101N0821
101N0830, 30 pcs: 101N0831
_
125

°C

°C

°C

VDC



- = Static cooling normally sufficient
- = Oil cooling

S

0 F_1

- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficent
 - = not applicable in this area

Cooling requirements

Evaporating temperature

Application	LBP	MBP	HBP
32°C	F ₁	F ₁	F ₁
38°C	F ₁	F ₁	F ₁
43°C	F ₁	F ₁	F ₁
Remarks on application:			

- evaporator fan max. 200W

- condenser fan max. 100W

- starting ability: LST (low starting torque) only

Max. condensing temperature continuous (short)

Max. winding temperature continuous (short)

Motor

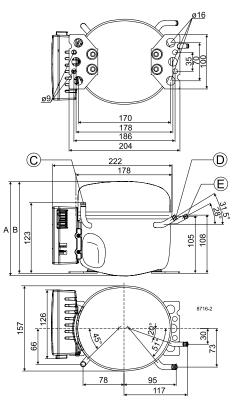
Motor type		Variable speed
Resistance, all 3 windings (25°C)	Ω	0.1

Design

-		
Displacement	cm ³	5.08
Oil quantity (type)	cm ³	280 (polyolester)
Maximum refrigerant charge	g	400
Free gas volume in compressor	cm ³	1690
Weight - Compressor/Electronic unit	kg	7.9 / 0.33 / 0.28 (101N820)

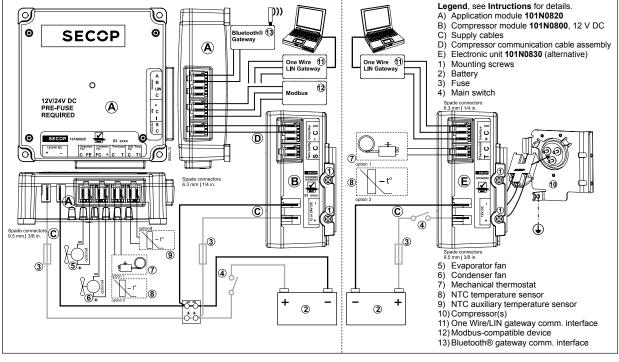
Battony protection settings

VDC	Min. value	Default	Max. value
VDC			inana raiao
	9.6	10.4	17
VDC	0.5	1.3	10
mm	A	173	
	В	169	
	B1	_	
	B2	_	
location/I.D. mm angle	С	6.2 90°	
material comment	Cu-pl	ated steel	Al cap
location/I.D. mm angle	D	6.2 31.5°	
material comment	Cu-pl	ated steel	Al cap
location/I.D. mm angle	E	5.0 28°	
material comment	Cu-pl	ated steel	Al cap
I.D. mm	±0.09,	on 5.0 +0.1	2/+0.20
	mm location/I.D. mm angle material comment location/I.D. mm angle material comment location/I.D. mm angle material comment	mm A B B1 B2 location/I.D. mm angle C material comment Cu-pl location/I.D. mm angle D material comment Cu-pl location/I.D. mm angle E material comment Cu-pl	Mm A 173 B 169 B1 - B2 - location/I.D. mm angle C 6.2 90° material comment Cu-plated steel location/I.D. mm angle D 6.2 31.5° material comment Cu-plated steel location/I.D. mm angle E 5.0 28° material comment Cu-plated steel



June 2013

Capacity									DC, fa					nal errors		
rpm \ °C		-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Error		Error type	
2,500	87.5	96.9	117	152	194	226	244	302	370	403	448	538	code			e TOOL4COOL®
3,000	101	112	136	177	225	262	283	351	430	468	521	625	6	Thermostat failure		
3,500	114	126	152	198	254	296	319	396	485	528	588	706		(If the NTC thermistor		
4,000	126	139	169	220	282	329	355	440	540	588	654	786		the electronic unit wi		
Capacity	(ASH	RAE L	BP)					12V	DC, fa	n cooli	ing F ₁	watt	5	Thermal cut-out of		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		(If the refrigeration s or if the ambient terr		
2,500	108	120	145	188.3	240	280	302	375	459	501	557	670		will run too hot).		
3,000	126	139	168	219	279	325	351	435	534	582	648	778	4	Minimum motor s	peed error	
3,500	141	156	188	246	314	366	395	491	602	656	731	879		(If the refrigeration		heavily loaded, th
4,000	156	173	209	273	349	407	440	546	670	731	814	979		motor cannot mainta		
Power co	neum	ntion						12\/	DC, fa	n cooli		watt		1,850 rpm).		
D° / mar		-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	3	Motor start error		
2.500	90.5	95.6	106	123	140	152	156	177	196	204	215	233		(The rotor is blocked		ential pressure in th
3.000	108	114	127	148	169	184	192	215	238	248	261	284		refrigeration system		
3,500	122	130	146	170	197	214	224	252	280	292	308	335	2	Fan over-current of		
4,000	140	149	168	197	228	249	259	292	325	340	358	391		(The fan loads the el		ith too high current).
,				197	220	249	209	-					1	Battery protection		
Current o		_							DC, fa		<u> </u>	<u> </u>		(The voltage is outsid	de the cut-out	setting).
rpm \ °C	-	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Accesso	ries for BD350G	4	
2,500	7.71	8.15		10.45									Mounting			Code number
3,000	8.99			12.32										or one compressor	Ø: 16 mm	118-1917
3,500		11.10												n quantities	Ø: 16 mm	118-1918
4,000	11.70	12.46	13.98	16.41	18.97	20.72	21.63	24.35	27.10	28.31	29.84	32.55		n quantities	Ø: 16 mm	118-1919
OP (EN	12900	Hous	ehold	CECC	MAF)			12V	DC, fa	n cooli	ing F₁	W/W				
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15			de number	
2,500	0.97	1.01	1.10	1.24	1.38	1.48	1.54	1.71	1.89	1.97	2.09	2.30		ensors, etc.)	Single pack	I - Pack
3.000	0.94	0.98	1.07	1.20	1.33	1.43	1.48	1.63	1.81	1.89	1.99	2.20		LIN gateway	105N9501	-
3,500	0.93	0.97	1.04	1.16	1.29	1.38	1.43	1.57	1.73	1.81	1.91	2.10		cation cable	105N9524	-
4,000	0.90	0.93	1.01	1.12	1.24	1.32	1.37	1.51	1.66	1.73	1.83	2.01		® gateway	105N9502	-
COP (AS						-		121/	DC, fa		na E	W/W		cation cable	105N9525	-
rom \ °C		-23.3	-20	-15	-10	-6.7	-5	0	5 DC, 1a	7.2	10	15		ure sensor 470 mm	105N9612	105N9613, 200 pc
2,500	1.20	1.26	1.37	1.54	1.72	1.85	-5	2.13	2.36	2.47	2.61	2.89	<u> </u>	ure sensor 1000 mm	105N9614	105N9615, 100 pc
	1.20	1.20					1.92	2.13	2.30	2.47		2.69		ure sensor 1500 mm	105N9616	105N9617, 100 pc
3,000			1.33	1.49	1.66	1.78	-		-		2.50	-		ble, 1500 mm	-	105N9553, 80 pcs
3,500	1.15	1.20	1.30	1.45	1.61	1.72	1.78	1.96	2.17	2.26	2.39	2.64		ble, 3000 mm	-	105N9554, 45 pcs
4,000	1.11	1.16	1.25	1.39	1.54	1.65	1.70	1.88	2.08	2.17	2.29	2.53	Display ca	ble, 1500 mm	-	105N9557, 65 pcs
Test con	dition	s			EN 1	2900/	CECO	MAF	A	SHR/	AE LBI	Р	Display ca	ble, 3000 mm	-	105N9558, 35 pcs
Condens		-	ure			55				-	4°C		Not delive	rable from Secop		
Ambient		_				32					°C			/ fuse compressor m	odule	60A
			ıre								°C			/ fuse application mo		30A
		s temperature perature			32°C no subcooling					32	-		Main switch rated to min. 100A			





BD350GH **Direct Current Compressor** R134a



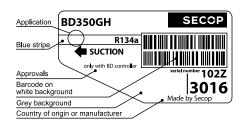
24V DC - with 101N07xx Series Controllers

General

Code number (without electronic units)	102Z3016
Electronic unit	101N0715, 36 pcs: 101N0714
Approvals	-
Compressors on pallet	125

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range	VDC	19 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)



= Static cooling normally sufficient

= Oil cooling F_1

S

0

- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature)
- F₂ = 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	F ₁	F ₁	F ₁
38°C	F ₁	F ₁	F ₁
43°C	F ₁	F ₁	F ₁
Remarks on application: - evaporator fan max. 60W			

condenser fan max. 40W

- starting ability: LST (low starting torque) only

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	0.2

Design

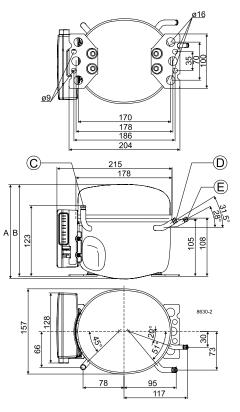
cm ³	5.08
cm ³	280 (polyolester)
g	400
cm ³	1690
kg	7.9/0.27
	cm ³ g cm ³

Battery protection settings

Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	19.0	21.1	27.0
Cut in diff.	(0.1 steps)	VDC	0.5	3.9	10.0

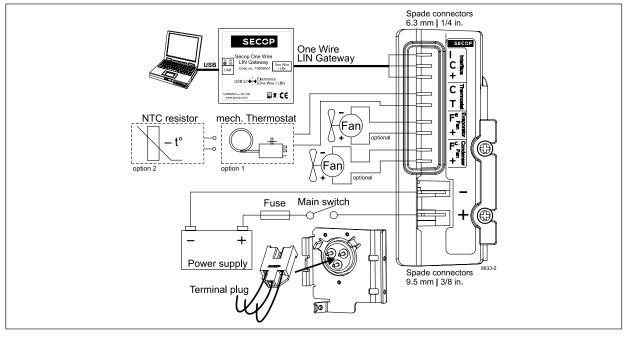


Dimensions			
Height	mm	А	173
		В	169
		B1	-
		B2	-
Suction connector	location/I.D. mm angle	С	6.2 90°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. mm angle	D	6.2 31.5°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. mm angle	Е	5.0 28°
	material comment		Cu-plated steel Al cap
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20
Remarks			



June 2013

Capacity				r	r	<u> </u>	-	r	<i>,</i>	n cooli			Operatio				
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Error code		Error type		
2,500	84.7	93.7	113	147	188 225	219	236	292	358	390	434 521	520				e TOOL4COOL®	
3,000	101	112	136	176	-	262	283	351	430	468	-	625	6	Thermostat failure	-		
3,500	114	126	152	198	254	296	319	396	485	528	588	706		(If the NTC thermistor the electronic unit wi			
4,000	126	139	169	220	282	329	355	440	540	588	654	786		the electronic drift wi		r mode).	
Capacity	(ASH	RAE L	BP)					_24V	DC, fa	n cooli	ng F ₁	watt	5	Thermal cut-out o	f electronic ι	unit	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		(If the refrigeration s			
2,500	105	116	140	182	233	271	292	363	445	485	539	648		or if the ambient terr will run too hot).	perature is hi	gh, the electronic un	
3,000	126	139	168	219	279	325	351	435	534	582	648	779		,			
3,500	141	156	188	246	314	366	395	491	602	656	731	879	4	Minimum motor s			
4,000	156	173	209	273	349	407	440	546	670	731	814	979		(If the refrigeration motor cannot mainta			
ower co	nsum	ption						24V	DC, fa	n cooli	ing F ₁	watt		1,850 rpm).	in minimum sp	beeu al approximate	
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	3	Motor start error			
2,500	77.4	81.8	90.8	105	120	130	136	152	168	175	184	200	1	(The rotor is blocked	d or the differ	ontial prossure in th	
3,000	95.5	101	112	129	148	160	167	186	206	215	226	245		refrigeration system			
3,500	109	115	128	149	171	186	194	217	241	251	264	288			-		
4,000	122	129	144	169	194	212	221	248	276	288	303	330	2				
Current c	onsu	nption	1					24V	DC, fa	n cooli	ina F₁	A		(The evaporator fan loads the than 1.8A _{neak} / the condenser fa			
rpm \ °C		-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		with more than 2.5A).		
2,500	3.23	3.41	3.78	4.38	5.01	5.43	5.66	6.32	7.00	7.29	7.67	8.33	1	p			
3.000	3.98	4.20	4.66	5.39	6.15	6.67	6.95	7.76	8.58	8.94	9.40	10.21	1 Battery protection cut-out (The voltage is outside the cut-out setting).		ootting)		
3.500	4.52	4.79	5.34	6.21	7.12	7.75	8.08		10.03					(The voltage is outsid		setting).	
4,000	5.07	5.38	6.02	7.03	8.10	8.82	9.20					13.75					
OP (EN	12900								DC, fa			W/W					
rom \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15					
2,500	1.09	1.15	1.25	1.40	1.56	1.68	1.74	1.93	2.13	2.23	2.36	2.60		pries for BD350GI	H		
3,000	1.06	1.11	1.21	1.37	1.53	1.64	1.70	1.88	2.09	2.18		2.55	Mounting		a 10	Code number	
3,500	1.05	1.09	1.19	1.33	1.48	1.59	1.65	1.82	2.00	2.10	2.22	2.45		for one compressor	Ø: 16 mm	118-1917	
4.000	1.03	1.08	1.17	1.31	1.45	1.55	1.61	1.77	1.96	2.05		2.38		in quantities	Ø: 16 mm	118-1918	
,				1.01	1.10	1.00	1.01						Snap-on	in quantities	Ø: 16 mm	118-1919	
COP (AS	-25	-23.3	-20	-15	-10	-6.7	-5	240	DC, fa 5	7.2	ng F ₁	W/W	Electrica		-	de number	
2.500	-25	-23.3	1.55	1.74	1.95	2.09	-5	2.40	2.67	2.79	2.95	3.27		sensors, etc.)	Single pack	I - Pack	
2,500	1.30	1.42	1.55	1.74	1.95	2.09	2.17	2.40	2.67	2.79	2.95	3.27	<u> </u>	ure sensor 470 mm	105N9612	105N9613, 200 pc	
- /				1.66		1.98	2.12	2.35	2.51	2.73	2.69			ure sensor 1000 mm	105N9614	105N9615, 100 pc	
3,500 4,000	1.30	1.36	1.48	1.60	1.85	1.98	2.05	2.27	2.52	2.63	2.79	3.08	<u> </u>	ure sensor 1500 mm	105N9616	105N9617, 100 pc	
4,000	1.20	1.34	1.45	1.02	1.01	1.95	2.00	2.22	2.45	2.50	2.71	2.99		/LIN gateway	105N9501	-	
Test con	dition	s			EN 1	2900/	CECO	MAF	l A	SHRA	AE LB	Р		able, 1500 mm	-	105N9545, 100 pc	
Condens	ing ter	nperat	ure			55	°C			54.	4°C		Comm. ca	able, 3000 mm	-	105N9547, 50 pcs	
Ambient		_				32	°C			32	°C		Not delive	erable from Secop			
Suction g			ure			32	°C			32	°C		Slow-blov	v fuse		30A	
	mperat					no sub	cooling	r			°C					rated to min. 50A	





BD350GH **Direct Current Compressor** R134a



24V DC - with 101N08xx Series Controllers

General

Code number (without electronic units)			102Z3016		
Compressor module	101N0810, 30 pcs: 101N0811				
Application module		101N082	0, 30 pcs: 1	01N0821	
Approvals			-		
Compressors on pallet			125		
Application					
Application		LI	BP/MBP/HE	3P	
Evaporating temperature	°C	-25 to 15			
Voltage range	VDC	19 - 31.5			
Max. condensing temperature continuous (short)	°C	60 (70)			
Max. winding temperature continuous (short)	°C	125 (135)			
Cooling requirements					
Application		LBP	MBP	HBP	
32°C		F ₁	F ₁	F ₁	
38°C		F ₁	F ₁	F ₁	
43°C		F ₁	F ₁	F ₁	
Remarks on application: - evaporator fan max. 200W - condenser fan max. 100W					

- starting ability: LST (low starting torque) only

Motor

Motor type		Variable speed
Resistance, all 3 windings (25°C)	Ω	0.1

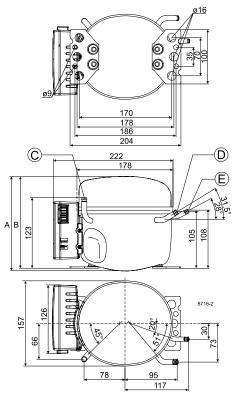
Design

5.08
280 (polyolester)
400
1690
7.9 / 0.25 / 0.28 (101N820)

Battery protection settings

Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	19.0	21.1	27.0
Cut in diff.	(0.1 steps)	VDC	0.5	3.9	10.0

Dimensions			
Height	mm	А	173
		В	169
		B1	-
		B2	-
Suction connector	location/I.D. mm angle	С	6.2 90°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. mm angle	D	6.2 31.5°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. mm angle	Е	5.0 28°
	material comment		Cu-plated steel Al cap
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20



R134a Blue stripe SUCTION only with BD co Approvals 102Z Barcode on white background 3016 by Secol Grey background Country of origin or manufacturer

BD350GH

Application

= Static cooling normally sufficient

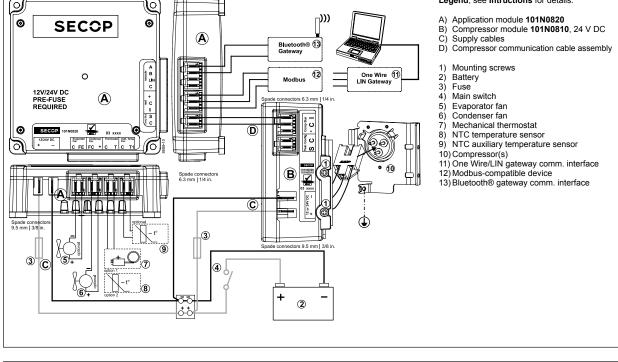
= Oil cooling F_1

S

0

- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficent
 - = not applicable in this area

Capacity				1					DC, fa		<u> </u>			nal errors		
rpm \ °C	-	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Error		Error type	
2,500	84.7	93.7	113	147	188	219	236	292	358	390	434	520	code	Can be read out	in the softwar	e TOOL4COOL®
3,000	101	112	136	176	225	262	283	351	430	468	521	625	6	Thermostat failure)	
3,500	114	126	152	198	254	296	319	396	485	528	588	706		(If the NTC thermisto		
4,000	126	139	169	220	282	329	355	440	540	588	654	786		the electronic unit wi		,
Capacity	(ASH	RAE L	BP)					24V	DC, fa	n cooli	ng F ₁	watt	5	Thermal cut-out o		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		(If the refrigeration s or if the ambient ten		
2,500	105	116	140	182	233	271	292	363	445	485	539	648		will run too hot).		
3,000	126	139	168	219	279	325	351	435	534	582	648	779	4	Minimum motor s	peed error	
3,500	141	156	188	246	314	366	395	491	602	656	731	879		(If the refrigeration	system is too	heavily loaded, th
4,000	156	173	209	273	349	407	440	546	670	731	814	979		motor cannot mainta	in minimum sp	peed at approximate
ower co	onsum	ption						24V	DC, fa	n cooli	na F₁	watt		1,850 rpm).		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	3	Motor start error		
2.500	77.4	81.8	90.8	105	120	130	136	152	168	175	184	200		(The rotor is blocked refrigeration system		ential pressure in th
3,000	95.5	101	112	129	148	160	167	186	206	215	226	245	2	Fan over-current		
3,500	109	115	128	149	171	186	194	217	241	251	264	288	2	(The fan loads the el		with too high current)
4,000	122	129	144	169	194	212	221	248	276	288	303	330	1	Battery protection	nui too nigri current).	
Current o	oneu	nntior						241/	DC, fa	n cooli	na E.	A	· ·	(The voltage is outsid	settina)	
rpm \ °C		-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		(The foliage is called		ootanig).
2,500	3.23	3.41	3.78	4.38	5.01	5.43	5.66	6.32	7.00	7.29	7.67	8.33	Accesso	ries for BD350G	Н	1
3.000	3.98	4.20	4.66	5.39	6.15	6.67	6.95	7.76	8.58	8.94	9.40	10.21	Mounting			Code number
3.500	4.52	4.79	5.34	6.21	7.12	7.75	8.08	-	10.03					or one compressor	Ø: 16 mm	118-1917
4,000	5.07	5.38	6.02	7.03	8.10	8.82			11.48				Bolt joint in quantities		Ø: 16 mm	118-1918
OP (EN						0.0-	0		DC, fa			W/W	Snap-on i	n quantities	Ø: 16 mm	118-1919
D° / mar		-23.3	-20	-15	-10	-6.7	-5	240	5 DC, 1a	7.2	<u>10 10 10 10 10 10 10 10 10 10 10 10 10 1</u>	15	Electrical		Co	de number
2.500	1.09	1.15	1.25	1.40	1.56	1.68	1.74	1.93	2.13	2.23	2.36	2.60	(cables, s	ensors, etc.)	Single pack	I - Pack
3.000	1.09	1.13	1.21	1.40	1.53	1.64	1.70	1.88	2.13	2.23	2.30	2.55	One Wire/	LIN gateway	105N9501	-
3,500	1.00	1.09	1.19	1.33	1.48	1.59	1.65	1.82	2.03	2.10	2.22	2.45	communi	cation cable	105N9524	-
4.000	1.03	1.08	1.17	1.31	1.45	1.55	1.61	1.77	1.96	2.05	2.16	2.38	Bluetooth	® gateway	105N9502	-
1			1.17	1.01	1.40	1.00	1.01						communi	cation cable	105N9525	-
COP (AS				45	10	07	-		DC, fa		<u> </u>	W/W	Temperatu	ire sensor 470 mm	105N9612	105N9613, 200 pc
rpm \ °C		-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Temperatu	ire sensor 1000 mm	105N9614	105N9615, 100 pc
2,500	1.36	1.42	1.55	1.74	1.95	2.09	2.17	2.40 2.35	2.67 2.61	2.79	2.95	3.27	· ·	ire sensor 1500 mm	105N9616	105N9617, 100 pc
3,000	1.32	1.38	1.51	1.70	1.90	2.04	2.12			2.73	2.89	3.20		ble, 1500 mm	-	105N9553, 80 pc
3,500	1.30	1.36	1.48	1.66	1.85	1.98	2.05	2.27	2.52	2.63	2.79	3.08		ble, 3000 mm	-	105N9554, 45 pc
4,000	1.28	1.34	1.45	1.62	1.81	1.93	2.00	2.22	2.45	2.56	2.71	2.99	<u> </u>	ble, 1500 mm	-	105N9557, 65 pc
Test con	dition	s			EN 1	2900/	CECO	MAF	ŀ	SHR	E LB	>	Display ca	ble, 3000 mm	-	105N9558, 35 pc
Condens	ing ter	nperat	ure			55	°C			54.	4°C		Not delive	rable from Secop		
Ambient	tempe	rature				32	°C			32	°C		Slow-blow	fuse compressor m	odule	60A
Suction g	gas ter	nperati	ure			32	°C			32	°C		Slow-blow	fuse application mo	dule	30A
Liquid ter	mpera	ture				no sub	cooling	1		32	°C		Main swite	ch		rated to min. 100/
Liquid ter	mpera	ture				no sub]		32	°C		Main swite	ch Legend, see I	ntructions for	



June 2013



R134a

SECOP

102Z

3031

SECOP **. FL** BD350GH 48V DC

THERMALLY PROTECTED SYSTEM Approval mark

by See

BD350GH **Direct Current Compressor** R134a 48-56V DC

TOOL4COOL	
Flexible control settings	

Application BD350GH

SUCTION

only with BD c

= Static cooling normally sufficient

= Fan cooling 3.0 m/s necessary

SG = Suction gas cooling normally sufficent = not applicable in this area

(compressor compartment temperature equal to ambient temperature)

Blue stripe

Approvals

S 0

 F_1

 F_2

_

Barcode on white background

Grey background Country of origin or manufacturer

= Oil cooling

= Fan cooling 1.5 m/s

General

Code number (without electronic units)	102Z3031
Electronic unit - Telecom	101N0720, 36 pcs: 101N0721
Approvals	UL, CCC
Compressors on pallet	125

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-25 to 15
Voltage range	VDC	32 - 60
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

<u> </u>			
Application	LBP	MBP	HBP
32°C	F ₁	F ₁	F ₁
38°C	F ₁	F ₁	F ₁
43°C	F ₁	F ₁	F ₁
Remarks on application:			

- evaporator fan max. 60W

- condenser fan max. 40W

- starting ability: LST (low starting torque) only

Motor

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	0.4

Design

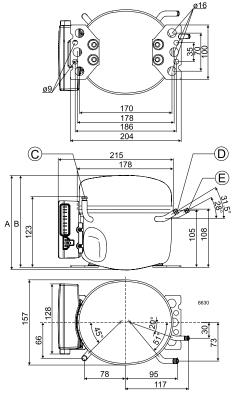
Displacement	Cm ³	5.08
Oil quantity (type)	cm ³	280 (polyolester)
Maximum refrigerant charge	g	400
Free gas volume in compressor	cm ³	1690
Weight - Compressor/Electronic unit	kg	7.9/0.27

Battery protection settings

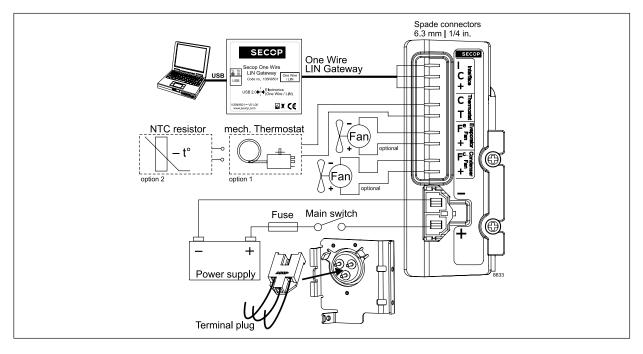
Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	32	36	60
Cut in diff.	(0.1 steps)	VDC	0.5	4.0	10.0

Dimensions

Height	mm	A	173
		В	169
		B1	-
		B2	-
Suction connector	location/I.D. mm angle	С	6.2 90°
	material comment		Cu-plated steel Al cap
Process connector	location/I.D. mm angle	D	6.2 31.5°
	material comment		Cu-plated steel Al cap
Discharge connector	location/I.D. mm angle	Е	5.0 28°
	material comment		Cu-plated steel Al cap
Connector tolerance	I.D. mm	±	0.09, on 5.0 +0.12/+0.20
Remarks			



Capacity		2900 H	louse	hold/C	ECON	IAF)		56V	DC, fa	n cooli	ng F ₁	watt	Operatio	nal errors		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	Error		Error type	
2,500	84,7	93,7	113	147	188	219	236	292	358	390	434	520	code	Can be read out	in the softwar	e TOOL4COOL®
3,000	101	112	135	176	224	261	282	349	428	466	518	622	6	Thermostat failure	i i i i i i i i i i i i i i i i i i i	
3,500	112	125	151	196	251	293	316	392	480	523	582	698		(If the NTC thermistor is short-circuit or has no connect		
4,000	121	135	164	216	277	324	350	436	535	584	650	781		the electronic unit will enter manual mode).		
Capacity	(ASH		BP)					56V	DC, fa	n cooli	ng F ₁	watt	5	Thermal cut-out of	felectronic ι	unit
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15				en too heavily loaded,
2,500	105	116	140	182	233	271	292	363	444	484	539	648		or if the ambient tem will run too hot).	perature is hi	gh, the electronic unit
3,000	125	138	167	217	278	324	349	433	531	579	644	775				
3,500	139	154	186	243	311	362	391	486	596	650	723	870	4	Minimum motor sp		
4,000	150	167	203	267	343	401	434	540	664	725	808	973				heavily loaded, the
Power co	onsum	ption						56V	DC, fa	n cooli	ng F ₁	watt		1,850 rpm).	in minimum sp	beed at approximately
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	3	Motor start error		
2,500	85.2	89.6	98.3	112	127	137	142	158	174	181	190	205	l v		d or the differ	ential pressure in the
3,000	95.0	100	111	129	147	159	166	185	205	214	225	244			ne rotor is blocked or the differential pressure in the rigeration system is too high.	
3,500	107	114	127	147	169	184	192	215	238	249	262	285			0	
4,000	131	139	155	181	208	226	236	265	294	307	323	352	2	Fan over-current cut-out		
Current o	consur	nption	ı					56V	DC, fa	n cooli	ng F₁	Α		(The fan loads the electronic unit with more than 1.8A _{ceak}).		
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15				
2,500	1.52	1.60	1.76	2.01	2.27	2.45	2.54	2.82	3.11	3.23	3.39	3.67	1	Battery protection		
3,000	1.70	1.79	1.99	2.30	2.62	2.85	2.96	3.31	3.66	3.81	4.01	4.35		(The voltage is outside the cut-out setting).		setting).
3,500	1.92	2.03	2.26	2.63	3.02	3.29	3.43	3.84	4.26	4.44	4.67	5.08	Accessories for PD250CH			
4,000	2.34	2.48	2.77	3.23	3.71	4.04	4.22	4.73	5.25	5.48	5.77	6.28	Accessories for BD350GH Mounting Code number			
COP (EN	12900	Hous	ehold	CECC	(MAF			56V	DC, fa	n cooli	ng F ₁	W/W		or one compressor	Ø: 16 mm	118-1917
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		n quantities	Ø: 16 mm	118-1918
2,500	0.99	1.05	1.15	1.31	1.48	1.59	1.66	1.85	2.06	2.16	2.29	2.53		n quantities	Ø: 16 mm	118-1919
3,000	1.06	1.11	1.21	1.37	1.53	1.64	1.70	1.88	2.09	2.18	2.31	2.55	<u> </u>			
3,500	1.05	1.09	1.19	1.33	1.48	1.59	1.65	1.82	2.01	2.10	2.22	2.45	Electrical			de number I - Pack
4,000	0.92	0.97	1.06	1.19	1.33	1.43	1.48	1.64	1.82	1.90	2.01	2.22	-	ord, 900 mm	Single pack 105N9542	105N9543, 36 pcs.
COP (AS	HRAE	LBP)						56V	DC, fa	n cooli	ng F₁	W/W		ord, 2000 mm	105N9542	105N9541, 36 pcs.
rpm \ °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15		ord, 2000 mm	105N9538	105N9539, 36 pcs.
2,500	1.23	1.30	1.43	1.63	1.84	1.98	2.06	2.31	2.57	2.70	2.86	3.18		ure sensor 470 mm	105N9612	105N9613, 200 pcs.
3,000	1.32	1.38	1.51	1.70	1.90	2.04	2.12	2.35	2.61	2.73	2.89	3.20	· ·	ure sensor 1000 mm	105N9614	105N9615, 100 pcs.
3,500	1.30	1.36	1.48	1.66	1.85	1.98	2.05	2.27	2.52	2.63	2.79	3.08		are sensor 1500 mm	105N9614	105N9617, 100 pcs.
4,000	1.15	1.21	1.31	1.48	1.66	1.78	1.85		2.28	2.38	2.52	2.79		LIN gateway	105N9501	
Test con	dition				EN 1	2900/	CECO	MAF		SHR/		P		ble, 1500 mm	-	105N9545, 100 pcs.
Condens		-	ure			55				54.4			Comm. ca	ble, 3000 mm	-	105N9547, 50 pcs.
Ambient						32	-			32	-		Not delive	rable from Secop		
Suction of			ire			32				32	-		Slow-blow fuse			16A
Liquid te					, I	no sub	-								rated to min. 25A	
					· · ·			,			-					





BD35K Direct Current Compressor R600a,12/24V DC, 10-45V DC Solar, & 100-240V AC 50/60Hz



General

General					
Code number (without electronic units)		101Z0211		Approvals	
Electronic unit 12/24V DC - Standard	101N02	12, 30 pcs: 1	01N0213	-	
Electronic unit 12/24V DC - AEO	101N034	40, 30 pcs: 1	01N0341	CB / VDE	
Electronic unit 10-45V DC - Solar	101N042	20, 30 pcs: 1	01N0421	CB / VDE	
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N05	10, 28 pcs: 1	01N0511	CB / VDE	R600a
Electronic unit 12/24V DC - Automotive	101N06	50, 30 pcs: 1	01N0651	CB / VDE	Yellow warning lat
Compressors on pallet		150		(
Application				BD35K only with BD co	SECOP
Application		_BP/MBP/HE	3P		
		-30 to 0 (10		R600a	
Voltage range DC VD	C 9.6	- 17 / 21.3 -	,	Red stripe	serial number 1012
Voltage range AC V/H		00 - 240 / 50		Barcode on white background	× ⁰²¹¹
Voltage range for solar applications VD		10 - 45		Grey background	Made by Secop
		60 (70)		Country of origin or manufactu	irer
	2	125 (135)		S = Static cool	ling normally sufficient
	1	(O = Oil cooling	
Cooling requirements				F ₁ = Fan coolin	
Application	LBP	MBP	HBP		sor compartment temperature
32°C	S	S	S		mbient temperature) ng 3.0 m/s necessary
38°C	S	S	S		as cooling normally sufficent
43°C	S	S	S		able in this area
Remarks on application: Fan cooling F1 depending of	n applicatior	and speed.]	
Motor					
Motor type		variable spee	ed		
	2	1.8			
Design				1	
Displacement cn	13	3.00]	
•		50 (polyolest			
	1° I I I I		ter)		
Oil quantity (type) cn Maximum refrigerant charge			ter)	2	204
Maximum refrigerant charge	g	120	ter)		2 <u>04</u> 70
Maximum refrigerant charge Free gas volume in compressor cn	g 1 ³	120 870			
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k	g 1 ³ g 4.3	120 870 / 0.19 (Stand	dard)		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electronic) compression	g 4.3	120 870 / 0.19 (Stand	dard) nal settings)		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electron Voltage	g ³ g 4.3 nic unit <i>Instruct</i> 12V	120 870 / 0.19 (Stand tions for option	dard) nal settings) 24V		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro) Voltage Cut out VD	g g 4.3 g 4.3 nic unit <i>Instruct</i> 12V C 10.4	120 870 / 0.19 (Stand tions for option	dard) nal settings) 24V 22.8		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro) Voltage	g g 4.3 g 4.3 nic unit <i>Instruct</i> 12V C 10.4	120 870 / 0.19 (Stand tions for option	dard) nal settings) 24V		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro Voltage Cut out VD Cut in VD	g g 4.3 g 4.3 nic unit <i>Instruct</i> 12V C 10.4	120 870 / 0.19 (Stand tions for option	dard) nal settings) 24V 22.8		
Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro Voltage Cut out VD Cut in VD	g 4.3 g 4.3 ic unit <i>Instruct</i> 12V C 10.4 C 11.7	120 870 / 0.19 (Stand tions for option	dard) nal settings) 24V 22.8		
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Maximum refrigerant charge Free gas volume in compressor cn Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro Voltage Cut out VD Cut in VD Dimensions VD	g 4.3 g 4.3 ic unit Instruct 12V C 10.4 C 11.7 n A B	120 870 / 0.19 (Stand tions for option / 4 137 135	dard) nal settings) 24V 22.8		
Maximum refrigerant charge Free gas volume in compressor Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro) Voltage Cut out VD Cut in VD Dimensions	g 4.3 ³ 4.3 ic unit <i>Instruct</i> 12V C 10.4 C 11.7 n A B B1 B2	120 870 / 0.19 (Stand tions for option / 1 1 1 37 135 128	dard) nal settings) 24V 22.8		
Maximum refrigerant charge Free gas volume in compressor Weight - Compressor/Electronic unit Standard battery protection settings (refer to electro Voltage Cut out VD Cut in VD Dimensions Height mit	g 4.3 ³ 4.3 ic unit <i>Instruct</i> 12V C 10.4 C 11.7 n A B B1 B2 e C	120 870 / 0.19 (Stand tions for option / 137 135 128 73	dard) hal settings) 24V 22.8 24.2		
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Maximum refrigerant charge Free gas volume in compressor Weight - Compressor/Electronic unit Standard battery protection settings (refer to electro Voltage Cut out VD Cut in VD Dimensions Height mi Suction connector location/I.D. mm ang material commet	g g (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	120 870 / 0.19 (Stand tions for option / 137 135 128 73 6.2 40° plated steel	dard) hal settings) 24V 22.8 24.2 24.2 Al cap		
Maximum refrigerant charge Free gas volume in compressor cm Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electro Voltage Cut out Cut out VD Cut in VD Dimensions Height Suction connector location/I.D. mm ang material comme Process connector location/I.D. mm ang	g 4.3 ³ 4.3 ¹³ 12V C 10.4 C 10.4 C 11.7 n A B B1 B2 e C tt Cu-p e D tt Cu-p	120 870 / 0.19 (Stand tions for option / 137 135 128 73 6.2 40° plated steel . 6.2 45°	dard) hal settings) 24V 22.8 24.2 24.2 Al cap		
Maximum refrigerant charge Free gas volume in compressor cm Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electron voltage cut out Cut out VD Cut in VD Dimensions Height Height material comment Process connector location/I.D. mm ang material comment material comment	g g (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	120 870 / 0.19 (Stand tions for option / 137 135 128 73 6.2 40° olated steel . 6.2 45° olated steel .	dard) hal settings) 24V 22.8 24.2 Al cap Al cap		
Maximum refrigerant charge Free gas volume in compressor cm Weight - Compressor/Electronic unit k Standard battery protection settings (refer to electron voltage cut out Cut out VD Cut in VD Dimensions Height Height material commer Process connector location/I.D. mm ang material commer Discharge connector	g g 3 3 4.3 4.3 4.3 12V C 10.4 C 10.4 C 10.4 C 11.7 M A B B1 B2 e C tt Cu-p e D tt Cu-p e E tt Cu-p	120 870 / 0.19 (Stand tions for option / 137 135 128 73 6.2 40° blated steel . 6.2 45° blated steel . 5.0 21°	dard) hal settings) 24V 22.8 24.2 Al cap Al cap Al cap		

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3,500 2	2.36	2.20	2.40		2.98		3.67	4.02	4.40	4.57			Cross	AWG	12V op	eration	24V op	peration
·		2.87	3.03		3.79		4.69	5.16					section	ו				
OP (EN 1	2.81	3.42			4.52	5.04	5.58						[mm ²]	[Gauge] [m]	[ft.]	[m]	[ft.]
					· · ·		-		DC, s			W/W	2.5	12	2.5	8	5	16
	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15	4	12	4	13	8	26
·	0.75	0.97	1.04	1.17	1.36	1.56 1.54	1.76 1.76	1.97 1.99	2.18	2.28 2.34	2.41		6	10	6	20	12	39
	0.73	0.89	0.94	1.05	1.24		1.63	1.84	2.25	2.34			10	8	10	33	20	66
,	0.74	0.87	0.92	1.03	1.20	1.39	1.58								Ũ	tween batt	ery and ele	ectronic un
OP (ASH	IRAE	LBP)						12V	DC, s	tatic co	oolina	w/w		nension	s AC 1. 0.75 mm ²		10	
	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15				- OI AWG	10	
	0.91	1.19	1.27	1.43	1.67	1.91	2.15	2.41	2.69	2.81	2.97			onal erro				
,	0.90	1.14	1.22	1.38	1.63			2.45	2.74	2.87			Error code		E	Fror type		
	0.89	1.08	1.15		1.51	1.75	2.00	2.26					or LED			d out in the		
,	0.90	1.07	1.13		1.47	1.70	1.94						flashes			OL4COOL®	0	
est condit				c units	EN	12900/		MAF						fhermosta	t failure hermistor is s	bort-circuit (or has no c	onnection)
Condensing				101N0212 101N0650			°C °C			<u>54.4</u> 32			ľ – ľ		it-out of ele			Shineedon).
Suction gas				2 ž ž			2°C			32			-		ration system			ded, or if the
iquid temp				è è			cooling			32					perature is hig			
													4	Minimum I	notor speed	lerror		
ccessori	ies fo	r BD3	5K							Code	numb	ber			eration syster			
Bolt joint f			р.				Ş	Ø:16 r	nm		8-1917				tain minimum	speed at ap	proximately	1,850 (pm)
Bolt joint ir								<u> Ø:16 r</u>			8-1918			Notor star	is blocked o	r the differ	ential nres	sure in the
Snap-on ir Remote ki			abla)				Ş	ð:16 r	nm		8-1919 5N9210				system is too			
One Wire/											5N950		2 1	Too many	start attemp	ts or fan o	ver curren	t
	Δ t .			, DIN	7258	12V:	15A 2	24V: 7.	5 A				(Too many	compressor	or fan start		
DC usage		n swit		,				min. 2	20A		Not verable	,			er than 0.5A	а.		
AC usage:	. Fus	e, 100)-240V	1							1 Seco				otection cut			
to usuge.	Mai	n swit	ch					min.	6A	101	10000	Ρ	(The voltage	is outside the	e cut-out sei	tting).	

August 2019



R600a

Yellow warning label

SECOP

101Z 0214

Made by Secop

BD35K-B Direct Current Compressor R600a,12/24V DC, 10-45V DC Solar, & 100-240V AC 50/60Hz



Red stripe

Grey background Country of origin or manufacture

S

0

 F_1

 F_2

Barcode on white background

R600a

= Oil cooling

= Fan cooling 1.5 m/s

= Static cooling normally sufficient

= Fan cooling 3.0 m/s necessary SG = Suction gas cooling normally sufficent = not applicable in this area

(compressor compartment temperature equal to ambient temperature)

General

		1	
Code number (without electronic units)	101Z0214	Approvals	_
Electronic unit 12/24V DC - Standard	101N0212, 30 pcs: 101N0213	-	
Electronic unit 12/24V DC - AEO	101N0340, 30 pcs: 101N0341	CB / VDE	
Electronic unit 10-45V DC - Solar	101N0420, 30 pcs: 101N0421	CB / VDE]
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0510, 28 pcs: 101N0511	CB / VDE]
Electronic unit 12/24V DC - Automotive	101N0650, 30 pcs: 101N0651	CB / VDE]
Compressors on pallet	150		-
· · · · · · · · · · · · · · · · · · ·	L	BD35k	(-В
Application		only with E	BD contro ll er
Application	LBP/MBP/HBP		
		1	

replication		
Evaporating temperature	°C	-30 to 0 (10)
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Voltage range AC	V/Hz	100 - 240 / 50/60
Voltage range for solar applications	VDC	10 - 45
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

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 F1 depending on application and speed. Special version of the BD35K optimized for rough vehicle motions, especially in buses or other heavy duty applications.

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	120
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.3 / 0.19 (Standard)

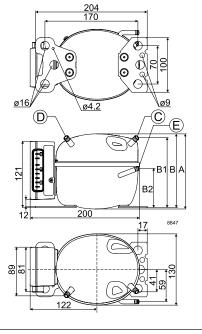
Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

mm 🗛

Dimensions
Height

пеідпі	11111	A	137
		В	135
		B1	128
		B2	73
Suction connector	location/I.D. mm angle	С	6.2 40°
	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:			



June 2020

137

Capacity (1			1		tatic c			Compre		ed			
-	-30	-25	-23.3	1	-15	-10	-5	0	5	7.2	10	15	Electron	nit unit	Resistor (R1) [0]	Motor	speed
	13.1	20.9	23.8	29.8	39.7	51.1	64.1	79.1	96.2	104	116		Code nu			<i>/</i>		5000
	16.8 21.1	25.2 30.6	28.4		47.0	60.9 72.7	77.2 92.2	96.0	118	128				JUDEL	calculated	values	[rp	ml
,			40.2		65.0	83.8	106	110							0			000
Capacity (12\	/ DC <	tatic c	oolina	watt	101N02	12 -	277	,	,	
	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	101N05	10 -			2,5	
2,000	16.0	25.6	29.1	36.3		62.4	78.4	97	118	128	142		101N06	50	692		,	000
	20.7	30.9	34.8			74.5	94.3	117	144	157					152	3	,	500
· ·	25.8	37.4 43.9	42.0	51.6 60.0	68.6 79.2	88.9 102	113 129	140						F	0		AE	
· · · ·			49.0	00.0	19.2	102	129	10		totic		1110 44	101N03		173		2,0	
Power cou rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	120	5	tatic c	001ing	15	101N04		450		2,5	
-	17.5	21.5	22.8		29.1	32.8	36.5	40.2	44.1	45.8	48.0	13	with AE	.u	865		,	000
,	22.9	27.2	28.6	31.3	35.4	39.5	43.6	48.0		54.5					169	-	3,5	
,	28.9	34.6	36.4		-	50.9	56.5	62.5								izing) spee		
3,500	33.7	41.1	43.5	47.8	54.1	60.4	67.1						ressor will	always ac	lapt its spee	ed to the ac	tual cooliny	g demand
Current co							r	-				Α	Wire din	nensions				
	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15		ize	-	length*	Max	length*
,	1.48 1.90	1.80 2.28	2.40	2.12		2.74	3.04 3.67	3.35	3.65	3.79 4.57	3.97		Cross	AWG		peration		peration
		2.20		3.34		4.23	4.69	5.16	4.40	4.57			section			sorution		porution
,	2.81	3.42	-			5.04							[mm ²]	[Gauge] [m]	[ft.]	[m]	[ft.]
COP (EN			•					12\	DC s	tatic c	oolina	w/w	2.5		2.5	8	5	16
	-30	-25	-23.3		-15	-10	-5	0	5	7.2	10	15	2.5	12	2.5	13	8	26
	0.75	0.97	1.04	1	1.36	1.56	1.76	1.97	2.18	2.28	2.41		6	10	6	20	12	39
	0.73	0.93	1.00	1.12	1.33	1.54	1.76	1.99	2.23	2.34			10	8	10	33	20	66
<i>,</i>	0.73	0.89	0.94	1.05	1.24	1.43	1.63	1.84								etween batt	-	
· · · ·	0.74		0.92	1.03	1.20	1.39	1.58						Wire din	nensions	•		-	
COP (ASH			00.5	0.0	1 4 -	1.0	-			tatic c		W/W				² or AWG	18	
-	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	Operatio	onal erro	rs			
· ·	0.91	<u>1.19</u> 1.14	1.27	1.43	1.67	1.91	2.15	2.41		2.81	2.97		Error			Error type		
	0.90	1.08	1.15	1.29	1.51	1.75	2.00	2.45	2.14	2.07			code or LED			ad out in the	software	
,	0.90	1.07	1.13		1.47	1.70							flashes			OCL4COOL®		
Test condi	itions	with el	ectroni	c units	EN	12900/	CECO	MAF		ASHR	AE LBP		6 T	hermosta	t failure			
Condensing				2 3		55	5°C		i		4°C		1 10	f the NTC t	hermistor is	short-circuit	or has no co	onnection)
Ambient ter	mperat			102			2°C			32	°C		5 T	hermal cu	t-out of ele	ectronic un		
Ambient ter Suction gas	mperat s temp	erature		101N02		32	2°C			32 32	2°C 2°C		5 T	hermal cu f the refriger	t-out of ele	has been to	o heavily loa	
	mperat s temp	erature		101N0212 101N0650		32				32 32	°C		5 T (It a)	hermal cu f the refriger mbient temp	ration system perature is high	has been too gh, the electro	o heavily loa	
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SECOP

BD50K **Direct Current Compressor** R600a 12/24V DC



General

Code number (without electronic units)	101Z0213
Electronic unit 12/24V DC - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application

Application		LBP/MBP/HBP
Evaporating temperature	°C	-30 to 10
Voltage range DC	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

<u>v</u>			
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

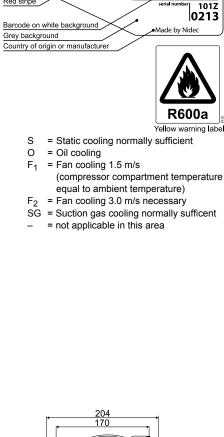
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Displacement	cm ³	3.00
Oil quantity (type)	cm ³	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.4 / 0.32

Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

Dimensions

Height	mm	A 137
		В 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	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	E 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:		

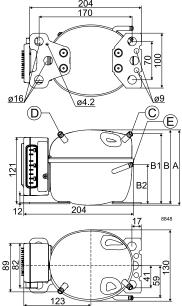


BD50K

Red stripe

only with BD controller

R600a



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t for on t in qua in qua kit (wit	e com intities intities hout ca	able)				Ş			113 113 105	8-1918 8-1919 5N9210)	
t for on t in qua in qua	e com intities intities hout ca jatewa	able) y			12V:	\$ \$		nm	113 113 105	8-1918 8-1919 5N9210 5N9501) I	
	(ASH) -30 20.6 25.9 31.5 36.4 0.30 -30 0.24.9 32.4 37.4 41.6 0.6 0.8 1.1 1.6 12900 0.68 0.66 0.69 0.72 0.83 0.80 0.83 0.80 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.84 0.85 0.	(ASHRAE L -30 -25 20.6 29.0 25.9 36.4 31.5 44.4 36.4 51.2 onsumption -30 -25 24.9 32.4 35.5 37.4 43.1 41.6 50.0 consumption -30 -30 -25 0.6 0.8 0.8 1.0 1.1 1.4 1.6 1.9 12900 Hous -30 -25 0.68 0.89 0.66 0.84 0.69 0.85 0.72 0.84 SHRAE LBP) -30 -30 -25 0.84 1.03 0.87 1.02 0.84 1.03 0.87 1.02	(ASHRAE LBP) -30 -25 -23.3 20.6 29.0 32.4 25.9 36.4 40.7 31.5 44.4 49.6 36.4 51.2 57.2 onsumption -30 -25 -23.3 -30 -25 -23.3 36.4 32.4 35.5 36.8 37.4 43.1 45.2 41.6 50.0 53.0 consumption (for 1: -30 -25 -30 -25 -23.3 0.6 0.8 0.8 0.8 1.0 1.1 1.1 1.4 1.5 1.6 1.9 2.0 12900 Household -30 -25 -30 -25 -23.3 0.68 0.89 0.90 0.72 0.84 0.89 0.83 1.08 1.17 0.80 0.25 -23.3 0.83 1.08 1.17 0.80 1.02 1.08 0.84	(ASHRAE LBP) -30 -25 -23.3 -20 20.6 29.0 32.4 39.9 25.9 36.4 40.7 50.1 31.5 44.4 49.6 61.1 36.4 51.2 57.2 70.4 onsumption -30 -25 -23.3 -20 24.9 26.8 27.6 29.3 32.4 35.5 36.8 39.6 37.4 43.1 45.2 49.5 41.6 50.0 53.0 58.8 consumption (for 12V app -30 -25 -23.3 -20 0.6 0.8 0.8 1.0 1.1 1.1 1.4 1.5 1.7 1.6 1.9 2.0 2.3 12900 HOUSEHOH/CECCC -30 -25 -30 -25 -23.3 -20 0.66 0.89 0.96 1.01 0.72 0.84 0.99 1.01 0.66 0.89 0.98	(ASHRAE LBP) -30 -25 -23.3 -20 -15 20.6 29.0 32.4 39.9 53.4 25.9 36.4 40.7 50.1 67.1 31.5 44.4 49.6 61.1 81.8 36.4 57.2 70.4 94.3 onsumption - - 32.4 32.4 32.4 35.5 36.8 37.6 29.3 32.4 32.4 35.5 36.8 39.6 44.4 37.4 43.1 45.2 49.5 56.6 41.6 50.0 53.0 58.8 67.7 consumption (for $12V$ application 1.3 1.6 1.1 1.3 1.6 1.1 1.4 1.5 1.7 2.1 1.6 1.9 2.0 2.3 2.6 12900 Household/CECOMAF -30 -25 -23.3 -20 -15 0.66 0.89 0.96 1.11 1.35 0.66 $0.$	(ASHRAE LBP) -30 -25 -23.3 -20 -15 -10 20.6 29.0 32.4 39.9 53.4 69.8 25.9 36.4 40.7 50.1 67.1 87.7 31.5 44.4 49.6 61.1 81.8 107 36.4 51.2 57.2 70.4 94.3 123 onsumption -30 -25 -23.3 -20 -15 -10 24.9 26.8 27.6 29.3 32.4 35.8 32.4 35.5 36.8 39.6 44.4 49.8 37.4 43.1 45.2 49.5 56.6 64.1 41.6 50.0 53.0 58.8 67.7 76.7 consumption (for 12V applications the f -30 -25 -23.3 -20 -15 -10 0.6 0.8 0.8 1.0 1.2 1.4 0.8 1.0 1.2 1.4 0.6 0.8 0.8 1.0 1.2 1.4 1.3 1.6 1.9	(ASHRAE LBP) -30 -25 -23.3 -20 -15 -10 -5 20.6 29.0 32.4 39.9 53.4 69.8 89.3 25.9 36.4 40.7 50.1 67.1 87.7 112 31.5 44.4 49.6 61.1 81.8 107 137 36.4 57.2 70.4 94.3 123 158 onsumption	(ASHRAE LBP) $24\vee$ -30 -25 -23.3 -20 -15 -10 -5 0 20.6 29.0 32.4 39.9 53.4 69.8 89.3 112 25.9 36.4 40.7 50.1 67.1 87.7 112 141 31.5 44.4 49.6 61.1 81.8 107 137 171 36.4 57.2 70.4 94.3 123 158 198 onsumption -25 -23.3 -20 -15 -10 -5 0 24.9 26.8 27.6 29.3 32.4 35.8 39.6 43.6 32.4 35.5 36.8 39.6 44.4 49.8 55.6 61.6 37.4 43.1 45.2 49.5 56.6 64.1 71.9 79.6 41.6 50.0 53.0 58.8 67.7 76.7 85.7 94.4 consumption (for 12V applications the following must -30 -25 -23.3 -20 -15	(ASHRAE LBP) $24 \lor DC$, -30 -25 -23.3 -20 -15 -10 -5 0 5 20.6 29.0 32.4 39.9 53.4 69.8 89.3 112 138 25.9 36.4 40.7 50.1 67.1 87.7 112 141 174 31.5 44.4 49.6 61.1 81.8 107 137 171 211 36.4 57.2 70.4 94.3 123 158 198 244 onsumption 24.V DC, -30 -25 -23.3 -20 -15 -10 -5 0 5 24.9 26.8 27.6 29.3 32.4 35.8 39.6 43.6 47.6 32.4 35.5 36.8 39.6 44.4 49.8 55.6 61.6 67.6 37.4 43.1 45.2 49.5 56.6 64.1 71.9 79.6 87.3 41.6 50.0 53.0 58.8 67.7 76.7 85.7 94.4 <	(ASHRAE LBP) 24V DC, static cr -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 20.6 29.0 32.4 39.9 53.4 69.8 89.3 112 138 151 25.9 36.4 40.7 50.1 67.1 87.7 112 141 174 189 31.5 44.4 49.6 61.1 81.8 107 137 171 211 231 36.4 51.2 57.2 70.4 94.3 123 158 198 244 266 onsumption -24V DC, static cr -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 24.9 26.8 27.6 29.3 32.4 35.8 39.6 43.6 47.6 49.4 32.4 35.5 36.8 39.6 44.4 49.8 55.6 61.6 67.6 70.2 37.4 43.1 45.2 49.5 56.6 64.1 71.9 79.6 87.3<	(ASHRAE LBP) 24V DC, static cooling -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 20.6 29.0 32.4 39.9 53.4 69.8 89.3 112 138 151 168 25.9 36.4 40.7 50.1 67.1 87.7 112 141 174 189 211 31.5 44.4 49.6 61.1 81.8 107 137 171 211 231 257 36.4 51.2 57.2 70.4 94.3 123 158 198 244 266 296 onsumption 24V DC, static cooling -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 24.9 26.8 27.6 29.3 32.4 35.8 39.6 43.6 47.6 49.4 51.7 32.4 35.5 36.8 37.7 76.7 85.7 94.4 103 107 111 for 12V applicatio	(ASHRAE LBP) 24V DC, static cooling watt -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 20.6 29.0 32.4 39.9 53.4 69.8 89.3 112 138 151 168 25.9 36.4 40.7 50.1 67.1 87.7 112 141 174 189 211 31.5 44.4 49.6 61.1 81.8 107 137 171 211 231 257 36.4 51.2 57.2 70.4 94.3 123 158 198 244 266 296 onsumption 24V DC, static cooling watt -30 -25 -23.3 -20 -15 -10 -5 0 5 7.2 10 15 32.4 35.5 36.8 37.6 64.1 71.9 79.6 87.3 90.5 94.6 41.6 50.0 53.0 58.8 67.7 76.7 85.7 94.4 103 107

ompressor speed

Electronit unit	Resistor (R1) [Ω]	Motor speed								
Code number	calculated									
	values	[rpm]								
	0	AEO								
	203	2,500								
101N0390 with AEO	451	3,100								
	867	3,800								
	1700	4,400								

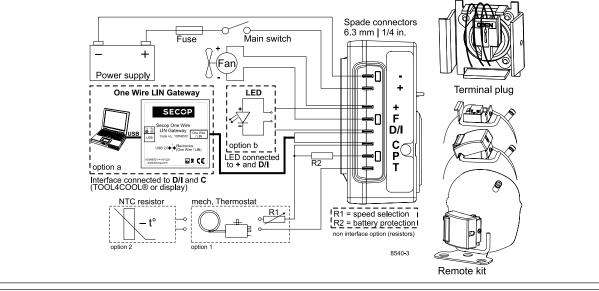
AEO (Adaptive Energy Optimizing) speed mode the BD comessor will always adapt its speed to the actual cooling demand.

/ire dimensions

Si	ze	Max. I	ength*	Max. length*						
Cross	AWG	12V op	eration	24V operation						
section										
[mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]					
6	10	2.5	8	5	16					

*Length between battery and electronic unit

66	0.84	0.91	1.04	1.24	1.44	1.65	1.87	2.10	2.21	2.35		-			
69	0.85	0.90	1.01	1.18	1.37	1.56	1.76	1.98	2.09	2.22			tional errors		
72	0.84	0.89	0.98	1.14	1.32	1.51	1.71	1.94	2.04	2.18		Error	Error type		
AE	LBP)						24V	' DC, s	, static cooling W/W		or LED	Can be read out in the software			
30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	flashes	TOOL4COOL®		
83	1.08	1.17	1.36	1.65	1.95	2.26	2.58	2.91	3.07	3.27		6	Thermostat failure		
80	1.02	1.10	1.26	1.51	1.76	2.02	2.29	2.58	2.71	2.89			(If the NTC thermistor is short-circuit or has no connection).		
84	1.03	1.10	1.23	1.45	1.67	1.91	2.16	2.43	2.56	2.73					
87	1.02	1.08	1.20	1.39	1.61	1.84	2.10	2.38	2.51	2.68		5	Thermal cut-out of electronic unit		
ons				EN	12900/	CECO	MAF		ASHR/				(If the refrigeration system has been too heavily loaded, or if the		
-	perature	<u>}</u>				5°C			-	4°C			ambient temperature is high, the electronic unit will run too hot).		
	ture				32	°C			32	°C		4	Minimum motor speed error		
emp	erature				32	°C			32	°C			(If the refrigeration system is too heavily loaded, the motor		
atu	re				no sub	cooling			32	°C			cannot maintain minimum speed at approximately 1,850 rpm).		
s fo	or BD5	0K							Code	numb	ber	3	Motor start error (The rotor is blocked or the differential pressure in the		
on	e com	D.				(Ø:16 r	nm	11	8-1917			refrigeration system is too high (>5 bar)).		
	ntities						Ø:16 r			8-1918			o , o , <i>n</i>		
_	Intities						Ø:16 r			8-1919		2	Too many start attempts or fan over current		
-	hout ca					,	0.101			5N921			(Too many compressor or fan starts in short time or fan current higher than 0.5A,).		
·		,											current night than 0.5A _{avg}).		
	jatewa	/								5N950		1	Battery protection cut-out		
tus	e, DIN	7258			12V:	30A	24V: 1		Not deli				(The voltage is outside the cut-out setting).		
							min. 3	30A N	idec GA	Compr	essors		(



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BD80CN Direct Current Compressor R290, 12/24V DC & 100-240V AC 50/60Hz



General

General					
Code number (without electronic units)		101Z0403		Approvals	SECOP
Electronic unit 12/24V DC - Standard	101N02	212, 30 pcs: 1	101N0213	-	
Electronic unit 12/24V DC - AEO	101N03	340, 30 pcs: 1	101N0341	UL / VDE / CB	BD80CN 12/24V DC
Electronic unit 12/24V DC & 100-240V AC 50/60Hz	101N0	510, 28 pcs: 1	101N0511	UL	THERMALLY
Electronic unit 12/24V DC - Automotive	101N06	650, 30 pcs: 1	101N0651	UL / VDE / CB	
Compressors on pallet		150			Approval mark Yellow warning labe
Application				BD80	
Application		LBP/MBP		only with	h BD controller
Evaporating temperature	2	-40 to -5 (5		R R	
Voltage range DC VD	-	6 - 17 / 21.3 -		Red stripe	serial number 101Z
Voltage range AC	_	00 - 240 / 50		Barcode on white backg	pround 0403
Max. condensing temperature continuous (short)		55 (65)		Grey background	Niade by Secop
		125 (135)		Country of origin or mar	nufacturer
		120 (100)		S = Statio	c cooling normally sufficient
Cooling requirements			1	O = Oil co	
Application	LBP	MBP	HBP		cooling 1.5 m/s
32°C	S	F ₁	-		pressor compartment temperature I to ambient temperature)
38°C	S	F ₁	-		cooling 3.0 m/s necessary
43°C	S	F ₁	-		on gas cooling normally sufficent
Remarks on application:				– = not a	pplicable in this area
Motor					
Motor type		variable spe	ed		
	2	1.8			
				I	
Design				1	
Displacement cn	_	2.00	()		
Oil quantity (type) cn		150 (polyoles	iter)	+	204
	9	120		│	170
Free gas volume in compressor cn	_	870	al a sul X		
Weight - Compressor/Electronic unit k	g 4.3	3 / 0.19 (Stan	dard)		
Standard battery protection settings (refer to electron	nic unit <i>Instru</i>	ctions for optio	nal settings)		
Voltage	12	V	24V		ZOH!
Cut out VD	C 10.	4	22.8	ø16	ø4.2 ø9
Cut in VD	C 11.	7	24.2	(D)	
Dimensions					
Height mi	n A	137			
lingin III	П <u>А</u> В	137			
	B1	133		8	B1 BA
	B1 B2	73			B2
Suction connector location/I.D. mm angl	_	6.2 40°			200
material comme		plated steel	Alcan	IZ ₄	17, ⁸⁸⁴⁷
Process connector location/I.D. mm angl	_	6.2 45°	, ii cap		
material comme		· · · ·	Al cap		
Discharge connector location/I.D. mm ang		· · · · · ·			
material comme		plated steel	Alcan	╽╴╴╽╽╫┰┯╇╷	
Connector tolerance I.D. mi), on 5.0 +0.1	· · · · · · · · · · · · · · · · · · ·		
Remarks	<u>10.08</u>	9, 011 J.U ±U. I	2/10.20	La 122	<u>-</u> γ

		2900 H					45		· · · ·	static co		watt	
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	E
2,000	16.4	24.7	34.6	46.4	50.8		76.2	94.8	116	140	167		
2,500	20.2	29.0	40.7	55.5	61.2	73.0	95.0	119	147	179	215		
3,000	26.3	39.6	54.4	71.6	78.0	92.0	116	144	178	217			
3,500	31.1	45.6	62.3	82.0	89.0	105	132	165	203				
Capacity	(ASH	RAE L	BP)					12V	DC,	static c	ooling	watt	
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	1
2,000	18.2	27.5	38.6	51.7	56.7	67.2	85.1	106	130	157	187		1
2,500	22.5	32.3	45.4	61.9	68.0	82.0	106	133	165	200	240		
3,000	29.3	44.1	60.7	80.0	87.0	102	129	161	199	243			
3,500	34.7	50.8	69.5	91.0	100	117	148	184	227				
ower co	nsum	ntion			·			12\/		static c	oolina	watt	1
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	i V
2,000	27.3	29	31.8	35.5	36.9	39.8	44.3	48.9	53.3	-	60.1	1.2	
2,500	31.5	35.9	41.1	46.9	49.0	53.0	58.9	64.4	69.2		75.1		
3,000	42.9	45.3	51.0	58.8	61.6	67.3	75.2	81.4	85.0		75.1		In
3,500	45.3	52.2	60.4	69.3	72.4	78.2	87.0	93.0	98.0				re
													่ง
Current o											_	Α	ιĒ
rpm \ °C	-40	-35	-30	-25	-23.3		-15	-10	-5	0	5	7.2	
2,000	2.13	2.25	2.47	2.78	2.89	3.13	3.51	3.89	4.23	-	4.73		
2,500	2.84	3.20	3.60	4.03	4.18	4.48	4.93	5.36	5.76		6.40		5
3,000	3.60	3.78	4.25	4.89	5.13	5.60	6.27	6.78	7.02	-			
3,500	3.31	3.99	4.56	5.08	5.26	5.63	6.28	7.10	8.17				
COP (EN	12900	Hous	ehold	/CECC	OMAF)			12V	DC,	static co	ooling	W/W	
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	
2,000	0.60	0.85	1.09	1.31	1.38	1.51	1.72	1.94	2.18	2.45	2.78		
2,500	0.64	0.81	0.99	1.18	1.25	1.39	1.61	1.85	2.13	2.46	2.85		
3,000	0.61	0.87	1.07	1.22	1.27	1.36	1.54	1.77	2.10	2.43			
3,500	0.69	0.87	1.03	1.18	1.23	1.34	1.53	1.76	2.06				W
COP (AS						-				static c	ooling	w/w	C
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5		5	7.2	0
2,000	0.67	0.95	1.21	1.46	1.54	1.69	1.92	2.16	2.43	-	3.12	1.2	ΙŤ
2,000	0.07	0.90	1.10	1.32	1.40	1.55	1.79	2.10	2.43		3.12		
3,000	0.68	0.90	1.10	1.32	1.40	1.52	1.79	1.98	2.30		3.20		o f
3,500	0.00	0.97	1.15	1.30	1.38	1.50	1.72	1.90	2.30				
,			1.15	1.52									
Test cor					EN 1		CECO	MAF*	-	ASHRA)*	
Condens			ure				5°C 2°C				°C °C		
Ambient Suction			uro				2°C				2°C		
Liquid te			uie				coolin	a			<u>°C</u>		
					I	110 500	/000111	9					
Accesso								~			e numb		
Bolt joint			0.					<u>Ø:16 r</u>			8-1917		
Bolt joint								<u>Ø:16 r</u>			8-1918		
Snap-on							Ş	Ø:16 r	nm		8-1919		
Remote											5N9210		
One Wire									_	105	5N950	1	
DC usaq		omobi		e, DIN '	7258	12V:	15A 2				Not		
_ 0 1009	ivia	in swit						min. 2	20A	deli	verabl	e	
AC usag		se, 100									n Seco	-	
, is usay	<. I Mo	in swite	ch					min.	6A	11011		۲	

att	Com	pressor	speed
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Compressor speed					
Electronit unit	Resistor (R1) [Ω]	Motor speed			
Code number	calculated values				
		[rpm]			
404110040	0	2,000			
101N0212 101N0510	277	2,500			
101N0650	692	3,000			
101110030	1523	3,500			
	0	AEO			
101N0340	173	2,000			
with AEO	450	2,500			
WITTALO	865	3,000			
	1696	3,500			

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

Vire dimensions DC

Si	ze	Max. I	ength*	Max. length*		
Cross	AWG	12V op	eration	24V operation		
section						
[mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]	
2.5	12	2.5	8	5	16	
4	12	4	13	8	26	
6	10	6	20	12	39	
10	8	10	33	20	66	

*Length between battery and electronic unit dimensions AC

Cross section min. 0.75 mm² or AWG 18

С	ooling	W/W					
	5	7.2		ional errors			
5	3.12		Error	Error type			
5 3	3.20		or LED flashes	Can be read out in the software TOOL4COOL®			
			6	Thermostat failure			
RA	ELBP)*		(If the NTC thermistor is short-circuit or has no connection).			
	°C		5	Thermal cut-out of electronic unit			
32°C 32°C			If the refrigeration system has been too heavily loaded, or if the mbient temperature is high, the electronic unit will run too hot)				
32°C 4		4	Minimum motor speed error				
de number			(If the refrigeration system is too heavily loaded, the moto				
18	3-1917	·		cannot maintain minimum speed at approximately 1,850 rpm).			
18	3-1918		3	Motor start error			
	3-1919			(The rotor is blocked or the differential pressure in the			
05	5N9210)		refrigeration system is too high (>5 bar)).			
05N9501 2		2	Too many start attempts or fan over current				
	Not			(Too many compressor or fan starts in short time or fan current higher than $0.5A_{_{avg}}$).			
eliverable om Secop		1	Battery protection cut-out (The voltage is outside the cut-out setting).				

Spade connectors 6.3 mm | 1/4 in. 101N0510 Spade connectors 6.3 mm | 1/4 in. 101N0212 101N0340 Main switch O Main switch -0 ~o-Fuse 1 101N0650 N 100-240V AC 50/60Hz + (Fan д Δ Power supply -₽U + + ∐ Fuse Terminal plug Main switch One Wire LIN Gateway LED Power supply -0 đ + F D/I SECOP One Wire LIN Gateway + LED ₽п <u>}</u> +SECOP LIN 8y 0ee Wird 11N FACD/ICPT C ₽⊂ T ╈ option b \supset RR 2 04 + Electronics By One Miles +0100 LED connected to + and D/I ⊠¥ Ç€ R2 2.04 Bestronics option a $d \rightarrow$ Bx CE LED R2 Interface connected to D/I and C (TOOL4COOL® or display) nneci nd **D/** Ø Interface connected to D/I and C (TOOL4COOL® or display) e € NTC resistor mech. Thermostat R1 = speed selection R2 = battery protection NTC resistor mech. Thermostat compressor baseplate ∾_____ ٢ ±__p (- t° R1 = speed selection R2 = battery protection Ъ opt 8615-19 e Remote kit

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SECOP

101Z 0401

BD100CN Direct Current Compressor R290 12/24V DC



General

Code number (without electronic units)	101Z0401
Electronic unit - High Speed	101N0390, 30 pcs: 101N0391
Compressors on pallet	150

Application		LBP/MBP
Evaporating temperature	°C	-40 to -5 (5)
Voltage/max. voltage	VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short)	°C	55 (65)
Max. winding temperature continuous (short)	°C	125 (135)

Cooling requirements

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

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

BD100CN

only with BD controller

R290

Red stripe

S O

 F_1

 F_2

Grey background Country of origin or manufacture

Barcode on white background

- (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

Motor

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

Design

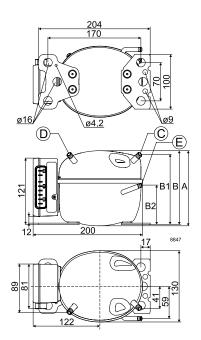
Displacement	cm ³	2.00
Oil quantity (type)	CM3	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.3/0.32

Standard battery protection settings (refer to electronic unit Instructions for optional settings)

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

Dimensions

Height	mm	A 137
		B 135
		B1 128
		B2 73
Suction connector	location/I.D. mm angle	C 6.2 40°
	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	E 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:		



	(EN 1									static c		watt	Com
rpm \ °C	-40	-35	-30	-25	-23.3		-15	-10	-5	0	5	7.2	Elec
2,500	20.2	31.8	50.9	67.6	73.0		101	121	146	178	217		
3,100	27.2	43.9	64.0	84.1	91.2	106	130	159	194	236	287		Cod
3,800	42.9	58.5	77.0	98.6	107	124	153	185	223	264			
4,400	47.2	61.3	83.4	108	118	137	169	207	250				
Capacity	(ASHI	RAE L	BP)					24V	/ DC, s	static c	ooling	watt	
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10
2,500	22.5	35.5	56.7	75.4	81.5	93.4	113	135	163	199	243		wi
3,100	29.3	49.0	71.4	93.8	102	118	145	177	216	264	321		
3,800	47.8	65.2	85.9	110	119	138	170	207	249	296			
4,400	52.7	68.4	93.1	121	131	153	189	231	280				
Power co	nsum	ption						24V	/ DC, s	static c	ooling	watt	In AE
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	ressor
2,500	33.6	38.3	43.3	48.5	50.3	53.8	58.9	63.7	68.1	72.0	75.2		
3,100	36.9	45.5	53.8	61.5	64.1	68.9	75.9	82.7	89.2	95.5	102		Wire
3,800	44.8	55.5	65.7	75.5	78.7	84.7	93.2	101	108	115			vviie
4,400	51.7	65.4	77.8	89.3	93.0	99.9	110	119	129				
Current o	onsu	mptior) (for 1)	2V app	lication	ns the f	ollowin	a must	t be do	ubled)		Α	Cro
rpm \ °C	-40	-35	-30	-25	-23.3		-15	-10	-5	0	5	7.2	sect
2,500	2.51	3.05	3.57	4.05	4.21	4.51	4.93	5.32	5.67	5.99	6.27		
3,100	3.10	3.81	4.49	5.14	5.35	5.75	6.34	6.90	7.43	7.94	8.42		[mr
3,800	3.99	4.74	5.51	6.28	6.54	7.04	7.77	8.44	9.04	9.54			
4,400	5.64	6.05	6.64	7.37	7.64	8.18	9.05	9.92	10.70				6
COP (EN	12900	Hous	ehold	/CECC	DMAF)			24V	/ DC. 9	static c	oolina	w/w	
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	
2,500	0.60	0.83	1.17	1.39	1.45	1.56	1.72	1.90	2.15	2.47	2.89		
3,100	0.74	0.96	1.19	1.37	1.42	1.53	1.71	1.92	2.17	2.47	2.82		
3,800	0.96	1.05	1.17	1.31	1.36	1.46	1.64	1.83	2.05	2.30			Oper
4,400	0.91	0.94	1.07	1.21	1.26	1.37	1.54	1.73	1.95				Erro
COP (AS	HRAE	LBP)						24\		static c	oolina	w/w	code or LE
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	flash
2,500	0.67	0.93	1.31	1.55	1.62	1.74	1.92	2.13	2.40	2.76	3.23		6
3,100	0.79	1.08	1.33	1.52	1.59	1.71	1.91	2.15	2.43		3.16		
3,800	1.07	1.18	1.31	1.46	1.51	1.63	1.83	2.05	2.30	2.58			
4,400	1.02	1.05	1.20	1.35	1.41	1.53	1.72	1.94	2.18				5
Test con	dition	s			EN 1	2900/	CECO	MAF*		SHRA)*	
Condens			ure				5°C				°C		
Ambient							2°C				°C		4
Suction of			ure				2°C				<u>°C</u>		
Liquid te	mpera	ture				no sub	coolin	g		32	°C		
Accesso	ries fo	r BD1	00CN							Code	numb	ber	3
							(Ø:16 r	nm		8-1917		
Bolt joint		Intities					(Ø:16 r	nm	11	8-1918		2
	in qua						(Ø:16 r	nm	11	8-1919		2
Bolt joint		ntities											
Bolt joint Snap-on	in qua		able)					-		105	5N9210		
Bolt joint Bolt joint Snap-on Remote I One Wire	in qua kit (witl	hout ca	,								5N9210)	1
Bolt joint Snap-on	in qua kit (witl e/LIN g	hout ca jatewa	y Ź			12V:		24V: 1	5 A	105)	1

npressor speed

Electronit unit	Resistor (R1) [Ω]	Motor speed										
Code number	calculated											
	values	[rpm]										
	0	AEO										
	203	2,500										
101N0390 with AEO	451	3,100										
	867	3,800										
	1700	4,400										

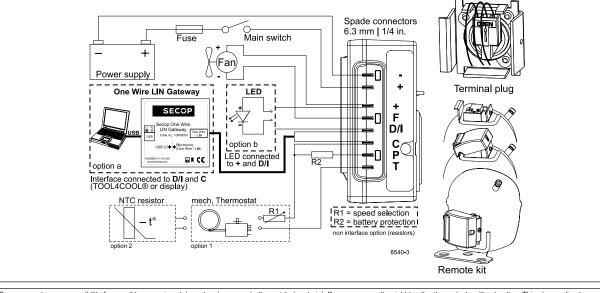
EO (Adaptive Energy Optimizing) speed mode the BD comor will always adapt its speed to the actual cooling demand.

e dimensions

Si	ze	Max. I	ength*	Max. length*									
Cross	AWG	12V op	eration	24V operation									
section													
[mm ²]	[Gauge]	[m]	[ft.]	[m]	[ft.]								
6	10	2.5	8	5	16								

*Length between battery and electronic unit

).74	0.96	1.19	1.37	1.42	1.53	1.71	1.92	2.17	2.47	2.82		_					
0.96	1.05	1.17	1.31	1.36	1.46	1.64	1.83	2.05	2.30			_	tional errors				
0.91	0.94	1.07	1.21	1.26	1.37	1.54	1.73	1.95				Error	Error type				
RAE	LBP)						24V	/ DC, s	static co	ooling	w/w	or LED	Can be read out in the software				
-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	flashes	TOOL4COOL®				
).67	0.93	1.31	1.55	1.62	1.74	1.92	2.13	2.40	2.76	3.23		6	Thermostat failure				
).79	1.08	1.33	1.52	1.59	1.71	1.91	2.15	2.43	2.76	3.16			(If the NTC thermistor is short-circuit or has no connection).				
1.07	1.18	8 1.31 1.46 1.51 1.63 1.83 2.05 2.30 2.58											(·····································				
1.02	1.05	1.20	1.35	1.41	1.53	1.72	1.94	2.18				5	Thermal cut-out of electronic unit				
ition	s			EN 1	2900/	CECO	MAF*	A	SHRA)*		(If the refrigeration system has been too heavily loaded, or if the				
	nperat	ure				5°C				°C			ambient temperature is high, the electronic unit will run too hot).				
empe	perature 32°C								32	°C			Minimum motor speed error				
is ter	nperat	ure			32	2°C			32	°C			(If the refrigeration system is too heavily loaded, the motor				
pera	ture				no sub	coolin	g		32	°C			cannot maintain minimum speed at approximately 1,850 rpm).				
oo fe	or BD1							1	Code	numb	or	-	Motor start error				
							7.16			8-1917	-		(The rotor is blocked or the differential pressure in the				
	e com						Ø:16 r						refrigeration system is too high (>5 bar)).				
	ntities						<u>Ø:16 r</u>			<u>8-1918</u>		2	Too many start attempts or fan over current				
	ntities					Ş	Ø:16 r	nm		8-1919			(Too many compressor or fan starts in short time or fan				
t (wit	vithout cable) 105NS												current higher than 0.5A _{avg}).				
LIN g	l gateway 105N9501 ise, DIN 7258 12V: 30A 24V: 15 A min. 30A from Secop											1	Battery protection cut-out				
e fus											ble		(The voltage is outside the cut-out setting).				
h											p		(The vollage is outside the cut-out setting).				
												-					



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March 2017



BD220CL **Direct Current Compressor** R404A/R507



12V DC - with 101N08xx Series Controllers

General

General														
Code numbe	r (without electr	onic units)			102Z3020									
Compressor	module			101N080	0, 30 pcs: 1	101N0801								
Application n	nodule			101N082	0, 30 pcs: 1	101N0821								
	one interface on hit (no fan conne	ly): ection/no twin option	1)	101N083	0, 30 pcs: ´	101N0831								
Approvals				_										
Compressor	s on pallet				125									
Application														
Application					LBP									
Evaporating	temperature		°C		-45 to -5									
Voltage rang	•		VDC	·	9.6 - 17									
		e continuous (short)			50 (60)									
	•	ontinuous (short)	°C		125 (135)									
					120 (100)									
Cooling requ	irements				MDD									
Application				LBP	MBP	HBP								
32°C				F ₁	_									
38°C				F ₁	_	-								
43°C				F ₁	-									
	fan max. 200W fan max. 100W													
Motor														
Motor type				Va	ariable spe	ed								
Resistance,	all 3 windings (2	25°C)	Ω	0.1										
Design														
Displacemen	it		cm ³		3.86									
Oil quantity (type)		cm ³	28	0 (polyoles	ter)								
Maximum re	frigerant charge		g		400									
Free gas vol	ume in compres	sor	cm ³		1690									
Weight - Cor	npressor/Electro	onic unit	kg	7.9/0.3	33 / 0.28 (1	01N820)								
Battery prote	ection settings													
Voltage	g_			Min. value	Default	Max. value								
Cut out	(0.1 steps)		VDC	9.6	10.4	17								
Cut in diff.	(0.1 steps)		VDC	0.5	1.3	10								
Dimensions														
Height			mm	A	173									
lioigin				В	169									
				B1	_									
				B2	_									
Suction conr	ector	location/I.D. mm	anale	C	6.2 90°									
		material con		-	ated steel	Al cap								
Process con	nector	location/I.D. mm		D	6.2 31.5°									
		material con			ated steel									
Discharge co	onnector	location/I.D. mm		E	5.0 28°									
coargo oc		material con			ated steel	Al cap								
O														



= Static cooling normally sufficient

- = Oil cooling
- = Fan cooling 1.5 m/s
- (compressor compartment temperature equal to ambient temperature) F₂ = Fan cooling 3.0 m/s necessary SG = Suction gas cooling normally sufficent

 - = not applicable in this area

Application	LBP	MBP	HBP
32°C	F ₁	_	-
38°C	F ₁	-	-
43°C	F ₁	-	-
Remarks on application: - evaporator fan max. 200W			

Motor type		variable speed
Resistance, all 3 windings (25°C)	Ω	0.1

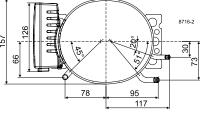
Displacement	cm ³	3.86
Oil quantity (type)	cm ³	280 (polyolester)
Maximum refrigerant charge	g	400
Free gas volume in compressor	cm ³	1690
Weight - Compressor/Electronic unit	kg	7.9 / 0.33 / 0.28 (101N820)

I.D. mm

170 178 186 204 \bigcirc 222 178 С lв 123 È 00 Se 157

R 0

3 0



June 2013

Connector tolerance

±0.09, on 5.0 +0.12/+0.20

16

(D)

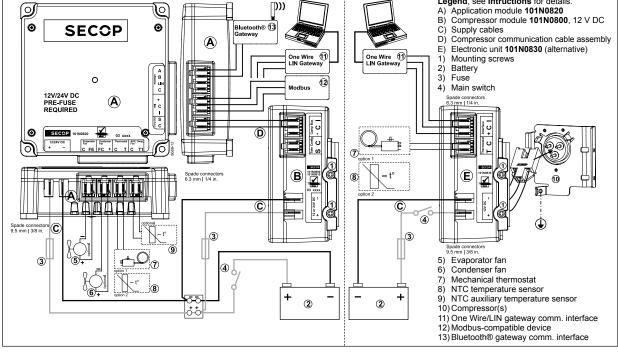
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Capacity rom \ °C	-45	-40	-35	-30	-25	-23.3	-20	-15	DC, fa -10	-6.7	-5	0	Error	nal errors	Error type								
2,500	26.4	47.1	71.9	101	136	149	177	224	278	318	340	0	code	Can be read out		e TOOL4COOL®							
3.000	31.4	56.0	85.5	121	162	178	210	266	331	379	405		6	Thermostat failure									
3,500	36.3	64.9		140	188	206	244	309	384	439	470		l .	(If the NTC thermistor		or has no connection							
4.000	40.8	73.1		158	212	232	275	349	433	495	530			the electronic unit wil									
Capacity	(\CU		BD)					12\/	DC, fa	n cooli	watt	5 Thermal cut-out of electronic unit											
rpm \ °C	-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0		(If the refrigeration system has been too heavily loaded									
2.500	31	55	83	117	158	173	205	260	323	370	396	0		or if the ambient terr	perature is high	gh, the electronic un							
3.000	36	65	99	140	188	206	203	310	385	441	472			will run too hot).									
3,500	42	75	115	162	218	239	284	360	447	512	547		4	Minimum motor s		handle traded the							
4.000	47	85	130	183	246	270	320	405	504	577	617			(If the refrigeration motor cannot mainta									
,			150	105	240	210	520			-				1,850 rpm).									
ower co			05	00	05	00.0	00		DC, fa			watt	3	Motor start error									
rpm \ °C	-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0		(The rotor is blocked		ential pressure in the							
2,500	65.2 75.2	82.8 96.0	98.9	114 134	129 152	133	143 170	158	174 210	185 225	191 233			refrigeration system i	s too high).								
3,000 3,500	75.2 84.3	96.0 108	115 131	134	152	158 181	196	190 219	210	225	233		2	Fan over-current o									
4,000	94.3	121	147	172	197	206	223	219	245	303	314			(The fan loads the el		ith too high current).							
·			l	172	197	200	223						1	Battery protection									
Current c		_							DC, fa			Α		(The voltage is outsid	de the cut-out	setting).							
rpm \ °C	-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	Accesso	ries for BD220Cl	_								
2,500	5.43	6.90	8.24			11.12							Mounting		_	Code number							
3,000	6.27	8.00				13.19							-	or one compressor	Ø: 16 mm	118-1917							
3,500	7.03					15.10								n quantities	Ø: 16 mm	118-1918							
4,000	7.86	10.12	12.26	14.34	16.43	17.15	18.59	20.90	23.41	25.22	26.20			n quantities	Ø: 16 mm	118-1919							
COP (EN	12900	Hous	ehold	/CECC	(MAF			12V	DC, fa	n cooli	ng F ₁	W/W	F lastrias		Co	de number							
rpm \ °C	-45	-40	-35	-30	-25	-23.3		-15	-10	-6.7	-5	0	Electrica (cables, s	ensors, etc.)	Single pack	I - Pack							
2,500	0.41	0.57	0.73	0.89	1.06	1.12	1.23	1.42	1.60	1.72	1.78			LIN gateway	105N9501	-							
3,000	0.42	0.58	0.74	0.90	1.07	1.12	1.23	1.40	1.57	1.68	1.74			cation cable	105N9524								
3,500	0.43	0.60	0.76	0.92	1.08	1.14	1.25	1.41	1.57	1.67	1.72			B gateway	105N9502	_							
4,000	0.43	0.60	0.76	0.92	1.08	1.13	1.23	1.39	1.54	1.64	1.68			cation cable	105N9525								
COP (AS	HRAE	LBP)						12V	DC, fa	n cooli	ng F ₁	W/W	-	ure sensor 470 mm	105N9612	105N9613, 200 pc							
rpm \ °C	-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	-	ure sensor 1000 mm	105N9614	105N9615, 100 pc							
2,500	0.47	0.66	0.84	1.03	1.23	1.30	1.43	1.65	1.86	2.00	2.07			ure sensor 1500 mm	105N9616	105N9617, 100 pc							
3,000	0.48	0.68	0.86	1.05	1.24	1.30	1.43	1.63	1.83	1.96	2.02		· ·	ble, 1500 mm	_	105N9553, 80 pcs							
3,500	0.50	0.69	0.88	1.07	1.26	1.32	1.45	1.64	1.83	1.95	2.01			ble, 3000 mm	_	105N9554, 45 pcs							
4,000	0.50	0.70	0.88	1.06	1.25	1.31	1.43	1.62	1.79	1.91	1.96		-	ible, 1500 mm	_	105N9557, 65 pcs							
Test con	dition	<u> </u>				2900/	CECO	MAE						ible, 3000 mm	-	105N9558, 35 pcs							
		-						WAF		45				rable from Secop		· · ·							
Condensing temperature45°CAmbient temperature32°C										32				/ fuse compressor m	odule	60A							
						°C			32	-			/ fuse application mo		30A								
Liquid ter	,					no sub		1		32			Main swit		dulo	rated to min. 100A							
	nperu				· · ·	10 300	0001112	,		02	<u> </u>		Indironit										
0		SEC			0			Bluetooth Gateway))) © 13					Legend, see I A) Application B) Compress C) Supply cab	n module 101 or module 10								



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DC-VOLTAGE MOBILE REFRIGERATION COMPRESSORS

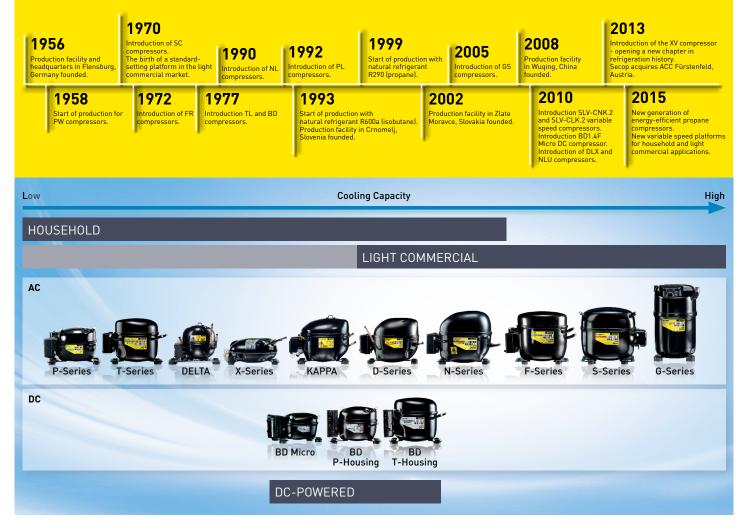
Secop BD compressors provide extraordinary performance with minimal power consumption, extremely silent running, reliable operation even when tilted up to 30°, problem-free operation at 12/24/48 V and more than 40 years of experience in mobile refrigeration.

Modern comfort is brought into life when leaving home. As people go mobile, so does food. The excellent performance of the BD series safeguards food preservation.

With our outstanding DC compressors for cars, vans, boats, trucks, etc., Secop has transcended the barriers for mobile refrigeration.



OUR JOURNEY SO FAR



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