

DLV4.0CN Variable Speed Drive Compressor R290, 220-240V 50/60Hz - with 105N4410 & 105N4510 Controllers



General

| | |
|---|----------|
| Code number (without electronic unit) | 102H3498 |
| Electronic unit (without PFC) | 105N4410 |
| Approvals: EN 60335-2-34 with Annex AA (pending) | |
| Electronic unit (with PFC) | 105N4510 |
| Approvals: EN 60335-2-34 with Annex AA, CCC (pending) | |
| Compressors on pallet | 100 |
| Remarks: PFC = power factor correction according to EN 61000-3-2:2014 | |

Application

| Application | LBP/MBP | | | |
|--|---------|------------|------------|--|
| | Hz | 50 | 60 | |
| Frequency | Hz | 50 | 60 | |
| Evaporating temperature | °C | -35 to 7.2 | -35 to 7.2 | |
| Voltage range / frequency | V/Hz | 180 - 270 | 180 - 270 | |
| Max. condensing temperature continuous (short) | °C | 60 (65) | 60 (65) | |
| Max. winding temperature continuous (short) | °C | 125 (135) | 125 (135) | |

Cooling requirements

| Frequency | Hz | LBP/MBP | | | | | |
|-----------|----|----------------|----------------|-----|----------------|----------------|-----|
| | | LBP | MBP | HBP | LBP | MBP | HBP |
| 32°C | | F ₂ | F ₂ | - | F ₂ | F ₂ | - |
| 38°C | | F ₂ | F ₂ | - | F ₂ | F ₂ | - |
| 43°C | | F ₂ | F ₂ | - | F ₂ | F ₂ | - |

Features

| | | |
|------------------------------------|-----|-----------------------------|
| Speed range | rpm | 2000 - 4500 |
| Speed control | | AEO, frequency, serial com. |
| Thermostat | | integrated, electronic |
| Protections | | current, speed, temperature |
| Protection class (electronic unit) | | IP54 |

Motor

| | | |
|-----------------------------------|---|--------------------|
| Motor type | | permanent magnet |
| LRA (rated after 4 sec. UL984), | A | electronic cut off |
| Maximum current | A | 3.1 |
| Resistance, all 3 windings (25°C) | Ω | 4.1 |

Design

| | | |
|-------------------------------------|-----------------|-------------------|
| Displacement | cm ³ | 4.00 |
| Oil quantity (type) | cm ³ | 230 (polyolester) |
| Maximum refrigerant charge | g | 150 |
| Free gas volume in compressor | cm ³ | 1390 |
| Weight - Compressor/Electronic unit | kg | 7.8 / 0.5 |

Dimensions

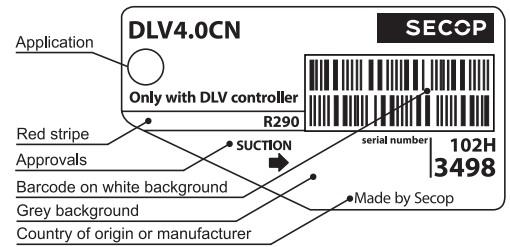
| | | | |
|---------------------|--------------------------|--------------------|----------------------|
| Height | mm | A | 175 |
| | | B | 169 |
| Suction connector | location/I.D. mm angle | C | 8.2 18° |
| | | material comment | Copper Rubber plug |
| Process connector | location/I.D. mm angle | D | 6.2 61° |
| | | material comment | Copper Rubber plug |
| Discharge connector | location/I.D. mm angle | E | 6.2 25° |
| | | material comment | Copper Rubber plug |
| Connector tolerance | I.D. mm | | ±0.09 |

Accessories

| Accessories | Code number |
|---------------------------------|-------------|
| Cover | 103N0492 |
| Cord relief | 103N1010 |
| Motor cable 900 mm cable length | 105B4477 |

Mounting accessories

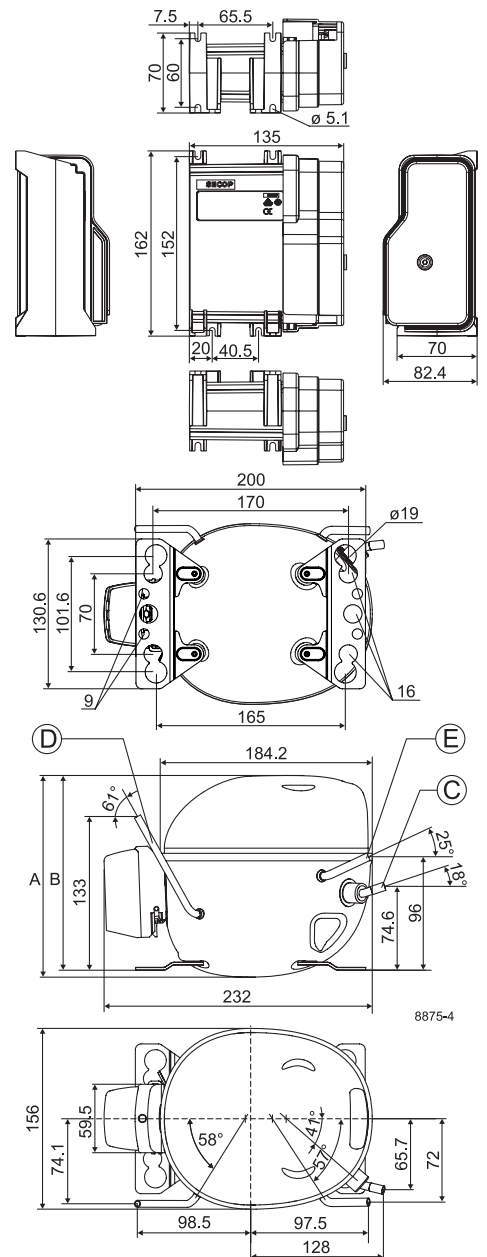
| | | |
|-------------------------------|----------|----------|
| Bolt joint for one compressor | Ø: 16 mm | 118-1917 |
| Bolt joint in quantities | Ø: 16 mm | 118-1918 |
| Snap-on in quantities | Ø: 16 mm | 118-1919 |



- S = Static cooling normally sufficient
- O = Oil cooling
- F₁ = Fan cooling 1.5 m/s (compressor compartment temp. equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficient
- = not applicable in this area



Yellow warning label



LBP: ASHRAE 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 119 | 136 | 153 | 170 | 186 | 219 | 251 | 299 |
| Capacity [BTU/h] | 406 | 465 | 524 | 580 | 635 | 747 | 859 | 1022 |
| Power cons. [W] | 79 | 87 | 95 | 106 | 116 | 137 | 158 | 175 |
| Current cons. [A] | 0.43 | 0.45 | 0.48 | 0.52 | 0.57 | 0.65 | 0.74 | 0.80 |
| COP [W/W] | 1.51 | 1.57 | 1.61 | 1.61 | 1.60 | 1.60 | 1.59 | 1.72 |
| EER [BTU/Wh] | 5.14 | 5.34 | 5.51 | 5.49 | 5.48 | 5.45 | 5.43 | 5.86 |

Test conditions

| | | |
|------------------------|---------|-------|
| Evaporation pressure | -23.3°C | -10°F |
| Condensing pressure | 54.4°C | 130°F |
| Liquid temperature | 32.2°C | 90°F |
| Return gas temperature | 32.2°C | 90°F |

LBP: CECOMAF 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 88 | 101 | 114 | 126 | 138 | 162 | 186 | 222 |
| Capacity [BTU/h] | 302 | 346 | 390 | 431 | 472 | 554 | 636 | 758 |
| Power cons. [W] | 76 | 84 | 92 | 102 | 112 | 132 | 153 | 169 |
| Current cons. [A] | 0.42 | 0.44 | 0.47 | 0.51 | 0.55 | 0.63 | 0.71 | 0.77 |
| COP [W/W] | 1.16 | 1.21 | 1.24 | 1.24 | 1.23 | 1.23 | 1.22 | 1.32 |
| EER [BTU/Wh] | 3.95 | 4.11 | 4.25 | 4.23 | 4.21 | 4.19 | 4.17 | 4.50 |

Test conditions

| | | |
|------------------------|-------|-------|
| Evaporation pressure | -25°C | -13°F |
| Condensing pressure | 55°C | 131°F |
| Liquid temperature | 55°C | 131°F |
| Return gas temperature | 32°C | 90°F |

LBP: EN12900 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 71 | 79 | 88 | 98 | 109 | 130 | 151 | 168 |
| Capacity [BTU/h] | 241 | 270 | 300 | 335 | 371 | 443 | 515 | 574 |
| Power cons. [W] | 55 | 63 | 70 | 77 | 84 | 98 | 112 | 130 |
| Current cons. [A] | 0.32 | 0.36 | 0.39 | 0.41 | 0.44 | 0.48 | 0.53 | 0.61 |
| COP [W/W] | 1.27 | 1.27 | 1.26 | 1.28 | 1.30 | 1.33 | 1.35 | 1.30 |
| EER [BTU/Wh] | 4.35 | 4.33 | 4.31 | 4.38 | 4.44 | 4.54 | 4.61 | 4.43 |

Test conditions

| | | |
|------------------------|-------|-------|
| Evaporation pressure | -35°C | -31°F |
| Condensing pressure | 40°C | 104°F |
| Liquid temperature | 40°C | 104°F |
| Return gas temperature | 20°C | 68°F |

MBP: ASHRAE 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 225 | 257 | 289 | 319 | 349 | 410 | 471 | 549 |
| Capacity [BTU/h] | 767 | 877 | 986 | 1090 | 1193 | 1400 | 1607 | 1875 |
| Power cons. [W] | 107 | 118 | 129 | 143 | 157 | 186 | 215 | 238 |
| Current cons. [A] | 0.55 | 0.58 | 0.61 | 0.67 | 0.74 | 0.86 | 0.99 | 1.06 |
| COP [W/W] | 2.11 | 2.18 | 2.25 | 2.23 | 2.22 | 2.20 | 2.19 | 2.31 |
| EER [BTU/Wh] | 7.19 | 7.45 | 7.67 | 7.62 | 7.58 | 7.52 | 7.48 | 7.88 |

Test conditions

| | | |
|------------------------|--------|-------|
| Evaporation pressure | -6.7°C | 20°F |
| Condensing pressure | 54.4°C | 130°F |
| Liquid temperature | 46.1°C | 115°F |
| Return gas temperature | 35°C | 95°F |

MBP: CECOMAF 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 176 | 201 | 227 | 251 | 275 | 323 | 371 | 436 |
| Capacity [BTU/h] | 600 | 687 | 774 | 857 | 939 | 1103 | 1268 | 1488 |
| Power cons. [W] | 102 | 113 | 123 | 137 | 150 | 178 | 205 | 227 |
| Current cons. [A] | 0.53 | 0.56 | 0.59 | 0.65 | 0.71 | 0.82 | 0.94 | 1.02 |
| COP [W/W] | 1.72 | 1.79 | 1.84 | 1.84 | 1.83 | 1.82 | 1.81 | 1.92 |
| EER [BTU/Wh] | 5.88 | 6.11 | 6.30 | 6.27 | 6.24 | 6.21 | 6.18 | 6.56 |

Test conditions

| | | |
|------------------------|-------|-------|
| Evaporation pressure | -10°C | 14°F |
| Condensing pressure | 55°C | 131°F |
| Liquid temperature | 55°C | 131°F |
| Return gas temperature | 32°C | 90°F |

MBP: EN12900 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 203 | 229 | 255 | 282 | 310 | 364 | 418 | 471 |
| Capacity [BTU/h] | 694 | 783 | 872 | 964 | 1057 | 1242 | 1427 | 1610 |
| Power cons. [W] | 90 | 101 | 112 | 124 | 136 | 160 | 183 | 209 |
| Current cons. [A] | 0.48 | 0.51 | 0.55 | 0.60 | 0.65 | 0.75 | 0.85 | 0.94 |
| COP [W/W] | 2.26 | 2.27 | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 | 2.25 |
| EER [BTU/Wh] | 7.70 | 7.76 | 7.80 | 7.79 | 7.79 | 7.79 | 7.79 | 7.69 |

Test conditions

| | | |
|------------------------|-------|-------|
| Evaporation pressure | -10°C | 14°F |
| Condensing pressure | 45°C | 113°F |
| Liquid temperature | 45°C | 113°F |
| Return gas temperature | 20°C | 68°F |

Optimization Point 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 130 | 146 | 163 | 181 | 198 | 233 | 268 | 304 |
| Capacity [BTU/h] | 443 | 500 | 557 | 617 | 676 | 796 | 916 | 1039 |
| Power cons. [W] | 67 | 75 | 83 | 91 | 99 | 116 | 133 | 152 |
| Current cons. [A] | 0.37 | 0.40 | 0.44 | 0.47 | 0.50 | 0.56 | 0.63 | 0.70 |
| COP [W/W] | 1.95 | 1.96 | 1.98 | 1.98 | 1.99 | 2.00 | 2.01 | 2.00 |
| EER [BTU/Wh] | 6.66 | 6.71 | 6.75 | 6.78 | 6.8 | 6.84 | 6.87 | 6.83 |

Test conditions

| | | |
|------------------------|-------|-------|
| Evaporation pressure | -25°C | -13°F |
| Condensing pressure | 35°C | 95°F |
| Liquid temperature | 35°C | 95°F |
| Return gas temperature | 32°C | 90°F |

Optimization Point 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|------|------|------|------|------|------|------|------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 212 | 239 | 266 | 294 | 322 | 379 | 435 | 491 |
| Capacity [BTU/h] | 723 | 815 | 908 | 1004 | 1100 | 1293 | 1486 | 1676 |
| Power cons. [W] | 90 | 101 | 112 | 124 | 136 | 160 | 183 | 209 |
| Current cons. [A] | 0.48 | 0.51 | 0.55 | 0.60 | 0.65 | 0.75 | 0.85 | 0.94 |
| COP [W/W] | 2.35 | 2.36 | 2.38 | 2.38 | 2.38 | 2.38 | 2.37 | 2.35 |
| EER [BTU/Wh] | 8.02 | 8.07 | 8.12 | 8.11 | 8.11 | 8.11 | 8.11 | 8.01 |

Test conditions

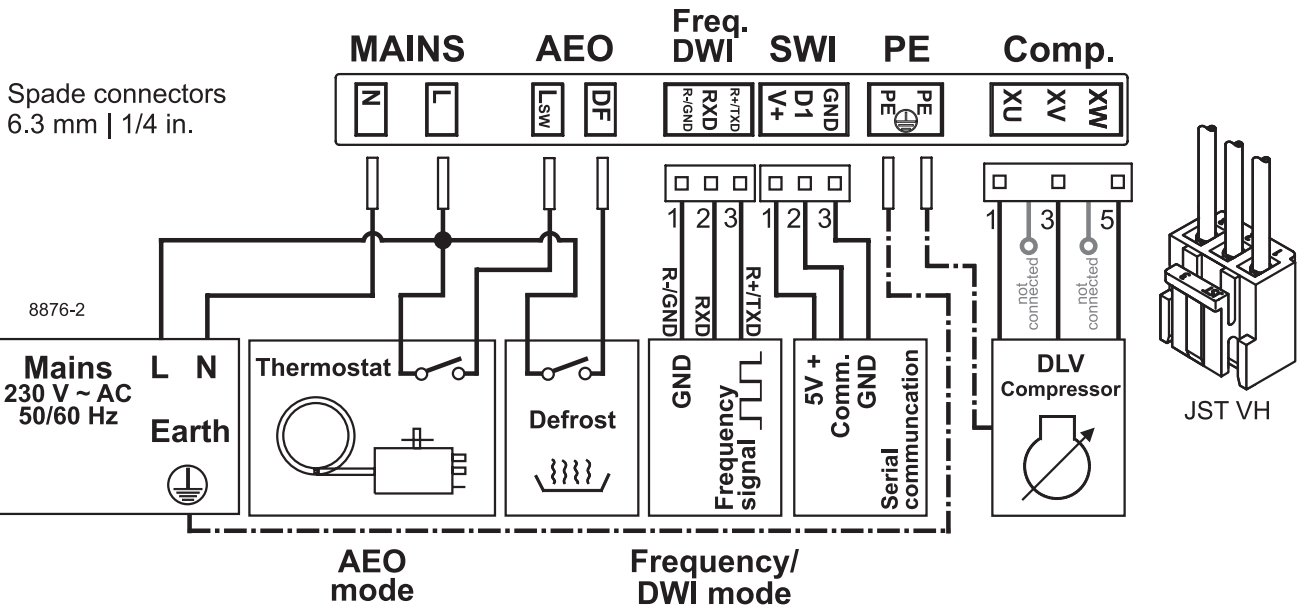
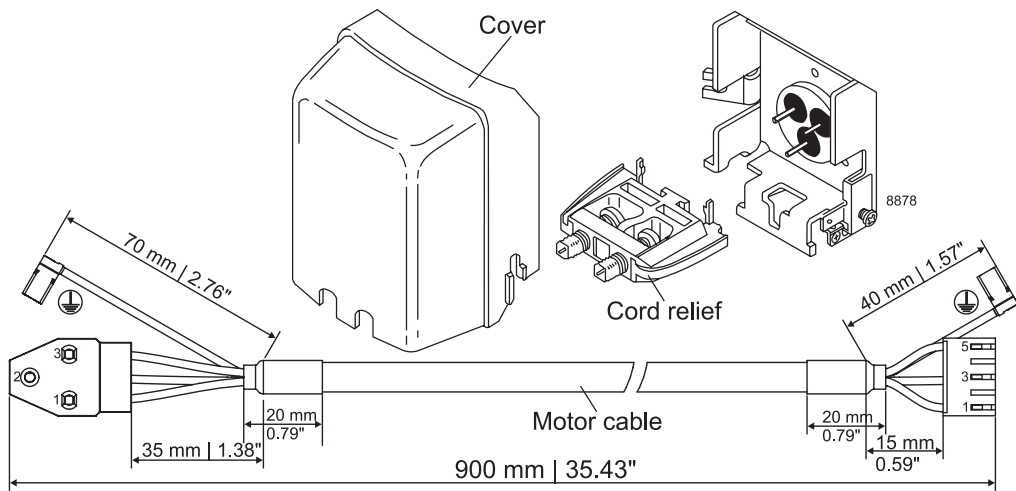
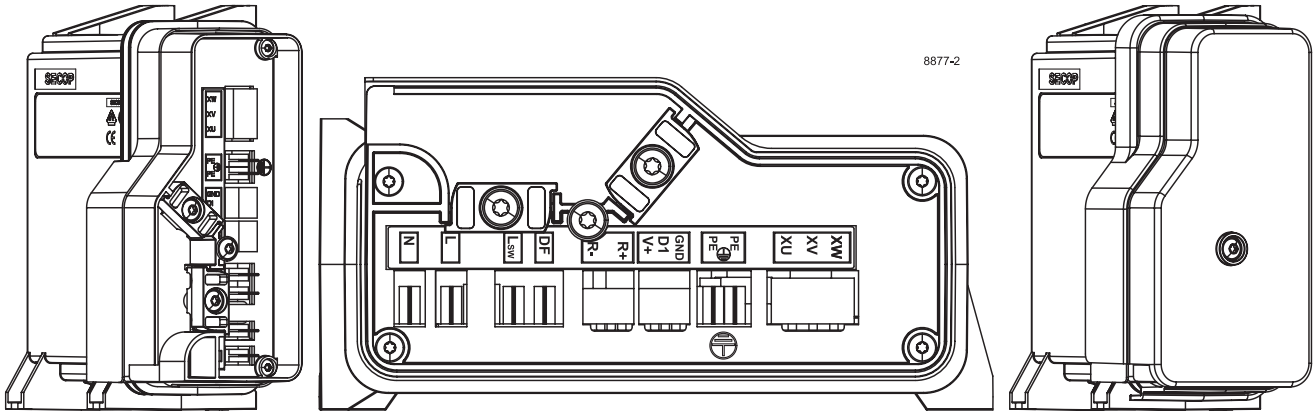
| | | |
|------------------------|-------|-------|
| Evaporation pressure | -10°C | 14°F |
| Condensing pressure | 45°C | 113°F |
| Liquid temperature | 45°C | 113°F |
| Return gas temperature | 32°C | 90°F |

Optimization Point 230V, 50/60Hz, fan cooling F₂

| | | | | | | | | |
|-------------------|-------|-------|-------|-------|------|-------|-------|-------|
| Speed (rpm) | 2000 | 2250 | 2500 | 2750 | 3000 | 3500 | 4000 | 4500 |
| Capacity [W] | 376 | 424 | 473 | 522 | 570 | 667 | 764 | 856 |
| Capacity [BTU/h] | 1285 | 1451 | 1616 | 1782 | 1948 | 2279 | 2610 | 2923 |
| Power cons. [W] | 103 | 115 | 128 | 142 | 156 | 184 | 212 | 242 |
| Current cons. [A] | 0.53 | 0.58 | 0.63 | 0.69 | 0.75 | 0.86 | 0.97 | 1.08 |
| COP [W/W] | 3.66 | 3.68 | 3.70 | 3.68 | 3.66 | 3.63 | 3.60 | 3.54 |
| EER [BTU/Wh] | 12.48 | 12.58 | 12.65 | 12.57 | 12.5 | 12.39 | 12.31 | 12.08 |

Test conditions

| | | |
|------------------------|------|-------|
| Evaporation pressure | 5°C | 41°F |
| Condensing pressure | 45°C | 113°F |
| Liquid temperature | 45°C | 113°F |
| Return gas temperature | 32°C | 90°F |



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