

***PR SERIES SELECTION AND OPTIMIZATION GUIDE***



## 

**SOLUTIONS TO FREQUENTLY MISSED SELECTIONS**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Field #** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| **Field Position & Length** | **1-2** | **3** | **4** | **5-6-7** | **8-9** | **10** | **11** | **12** | **13** | **14-15** |
| **Field Definition** | **Product Family** | **Type** | **Application** | **Nominal Capacity** | **Cabinet Size** | **Controls** | **Unit Voltage** | **Model Vintage** | **Airflow Orientation** | **Supply Blower / Size Type** |
| **Example** | **PR** | **O** | **A** | **240** | **C3** | **A** | **2** | **A** | **A** | **BG** |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Field #** | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **Field Position & Length** | **16** | **17** | **18** | **19** | **20** | **21** | **22-23** | **24** | **25** | **26-27** |
| **Field Definition** | **Supply Blower Options** | **Supply Motor Size** | **Supply Motor Type** | **Cooling Coil** | **Compressor Type** | **Reserve for future use** | **Refrigeration Controls / Options** | **Heating Type** | **Electric Heating Capacity** | **Gas Heating Capacity** |
| **Example** | **F** | **E** | **1** | **B** | **5** | **0** | **CF** | **0** | **0** | **00** |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Field #** | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| **Field Position & Length** | **28** | **29** | **30** | **31** | **32** | **33-34** | **35** | **36** | **37** | **38-39** |
| **Field Definition** | **Heater Control** | **Heating Gas Safety Controls** | **Energy Recovery** | **Energy Recovery Options** | **Ventilation** | **Exhaust Blower Size** | **Exhaust Blower Options** | **Exhaust Motor Size** | **Exhaust Motor Type** | **Corrosion Protection** |
| **Example** | **0** | **0** | **F** | **F** | **C** | **00** | **T** | **D** | **1** | **00** |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Field #** | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |  |  |
| **Field Position & Length** | **40-41** | **42-43** | **44-45** | **46-47** | **48** | **49** | **50-51** | **52-53** |  |  |
| **Field Definition** | **Maintenance Options** | **Power Options** | **Control Options** | **Safety Controls** | **Pre-Filter** | **Reserve for Future Use** | **ALC Ship With Options** | **PR ROOF CURBS** |  |  |
| **Example** | **00** | **00** | **00** | **00** | **0** | **0** | **BK** | **CC** |  |  |

Airflow Orientation & Ventilation

* These options are dependent upon the unit application and PR Controls selected. Use the tables in the Controls Guidelines section to ensure what is compatible.
* As of now, horizontal discharge is not selectable in ACE. If horizontal discharge is need then send to APPS.

Refrigeration Controls/Options

* These options are dependent upon the compressor type selected. Refer to the Refrigeration Controls Guideline section to ensure the correct components are selected with the desired application.

Supply Blower Options & Supply Blower Type

The ACE Selection Software tool auto selects the fan based on the data entered, and this needs to be verified in order to make sure the fan options do not conflict.

* If the ACE Selection Software selects an ECM Fan (GHKM), then only select from the ECM options.
* ANPL and ANPA fans are from Comefri, and this fan is compatible only with options labeled with “Comefri”
* Refer to the PR Cabinet Rules section to verify which fan sizes are compatible with which cabinet.

Exhaust Blower Options and Exhaust Motor Type

The ACE Selection Software tool auto selects the fan based on the data entered, and this needs to be verified in order to make sure the fans do not conflict.

* If the ACE Selection Software selects an ECM Fan (GHKM), then only select from the ECM options.
* ANPL and ANPA fans are Comefri, and this fan is compatible only with options labeled with “Comefri”
* Ensure that options with no exhaust air flow do not select any options regarding exhaust fans. This will cause a conflict in the software.
* If 25” fans select with 3 HP in the software, this will generate an error because the smallest motor available is 5 HP. If this occurs contact the apps department.
* Refer to the PR Cabinet Rules section to verify which fans are compatible with which unit

## PR CABINET RULES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cabinet** | **MAX Blower Size** | **MAX ECW** | **Max Furnace Heating Capacity** | **Max Furnace XL Cabinet** | **Max EH Cabinet** |
| **A Cabinet**  450-2500 CFM | **GHKM400**  **355,315,280**  **(ECM Motors ONLY)** | **ECW364**  **244,324** | **100 MBH Furnace**  **(30 KW Electric)** | **N/A** | **EH 30KW** |
| **B Cabinet**  2000-4000 CFM | **GHKM450**  **450,355**  **ANPL16**  **10,11,12,14,16** | **ECW424**  **244,324,**  **364** | **200 MBH Furnace**  **(100 KW Electric)** | **(2)200 MBH** | **EH 100KW** |
| **C Cabinet**  3000-7000 CFM | **GHKM450**  **ANPL20**  **14,16,18** | **ECW486**  **324,364,**  **424,484** | **300 MBH Furnace**  **(100 KW Electric)** | **(2)400 MBH** | **EH 100KW** |
| **D Cabinet** | **2-GHKM450**  **2-355, 450,** | **ECW706**  **484,486,** | **400 MBH Furnace**  **(150 KW Electric)** | **(2)600 MBH** | **EH 150KW** |
| 6000-11000 CFM | **ANPL25**  **22,20,18** | **544,606,**  **664,666** |  |
| **E Cabinet**  8000-20000 CFM | **(2) ANPL20**  **(1) ANPL25** | **ECW8412** | **600 MBH Furnace**  **(150 KW Electric)** | **Vertical Supply**  **(4)400 MBH** | **EH 150KW** |
|  |  | **(No horizontal supply available)** | **Horizontal Supply(EXL Only)(2)600 MBH** |

Furnace Options

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Furnace MBH Input** | **Furnace MBH Output** | **Heaters** | **Stages** | **Modulation** |
| **75** | **60** | **(1) 75** | **2** | **5:1** |
| **100** | **80** | **(1)100** | **2** | **5:1,10:1** |
| **150** | **120** | **(1)150** | **2** | **5:1,10:1** |
| **200** | **160** | **(1)200** | **2** | **5:1,10:1** |
| **250** | **200** | **(1)250** | **2** | **5:1,10:1** |
| **300** | **240** | **(1)300** | **2** | **5:1,10:1** |
| **350** | **280** | **(1)350** | **2** | **5:1,10:1** |
| **400** | **320** | **(1)400** | **2** | **5:1,10:1** |
| **500** | **400** | **(1)500** | **2** | **5:1,10:1** |
| **600** | **480** | **(1)600** | **2** | **5:1,10:1** |
| **200** | **160** | **(2)100** | **4** | **10:1** |
| **300** | **240** | **(2)150** | **4** | **10:1** |
| **400** | **320** | **(2)200** | **4** | **10:1** |
| **500** | **400** | **(2)250** | **4** | **10:1** |
| **600** | **480** | **(2)300** | **4** | **10:1** |
| **700** | **560** | **(2)350** | **4** | **10:1** |
| **800** | **640** | **(2)400** | **4** | **10:1** |
| **1000** | **800** | **(2)500** | **4** | **10:1** |
| **1200** | **960** | **(2)600** | **4** | **10:1** |
| **800** | **640** | **(4)200** | **8** | **20:1** |
| **1000** | **800** | **(4)250** | **8** | **20:1** |
| **1200** | **960** | **(4)300** | **8** | **20:1** |
| **1400** | **1120** | **(4)350** | **8** | **20:1** |
| **1600** | **1280** | **(4)400** | **8** | **20:1** |

## Electric Heater Options

|  |  |  |
| --- | --- | --- |
| 208 V Capacity  kW | 280/480 V Capacity  kW | Heater Control  Stages |
| 3.65 | 5 | 1,SCR |
| 7.50 | 10 | 2,SCR |
| 11.25 | 15 | 2,SCR |
| 15.00 | 20 | 2,4,SCR |
| 18.75 | 25 | 2,4,SCR |
| 22.50 | 30 | 2,4,SCR |
| 26.25 | 35 | 2,4,SCR |
| 30.00 | 40 | 2,4,SCR |
| 37.50 | 50 | 4,SCR |
| 45.00 | 60 | 4,SCR |
| 52.50 | 70 | 4,SCR |
| 60.00 | 80 | 4,SCR |
| 75.00 | 100 | 4,SCR |
| 81.40 | 110 | 4,SCR |
| 90.00 | 120 | 4,SCR |
| 97.50 | 130 | 4,SCR |
| 105.00 | 140 | 4,SCR |
| 112.50 | 150 | 4,SCR |

## OPTIMIZING PR CABINET SELECTIONS

*Use the following matrix for determining an optimal PR Cabinet when price is a concern.*

PR Cabinet Selection Guide

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cabinet** | **CFM Range** | **Gas Heater Max Size** | **Refrigeration Sizes Available** | **When to use XL** | **Notes** |
| **A Cabinet** | **450-3,300**  **Horizontal SA 3,300 Max**  **Horizontal RA 2,700 Max** | **100 MBH** | **3-8 Tons** | **NA** | **ECM fans ONLY.**  **If you need ODP or TEFC use B Cabinet.**  **On a PRRA, will require 6 row coil for DOE.** |
| **B Cabinet** | **1,000-5,200**  **Horizontal SA 5,200 Max**  **Horizontal RA 2,600 Max** | **200 MBH**  **400 MBH (XL)** | **3-20 Tons** | **When you need between**  **350-400 MBH** | **If you need 250-300 MBH use the C cabinet. (Price will be lower always)** |
| **C Cabinet** | **3,000-6,200**  **Horizontal SA 6,200 Max**  **Horizontal RA 2,000 Max** | **300 MBH**  **800 MBH (XL)** | **8-35 Tons** | **350-800 MBH** | **You might not be able to run ECW above 5,000 CFM in Ace. If this occurs send to apps.** |
| **D Cabinet** | **6,000-12,500**  **Horizontal SA 9.500 Max**  **Horizontal RA 4,400 Max** | **400 MBH**  **1,200 MBH (XL)** | **20-55 Tons** | **400 MBH-1,200 MBH**  **Some Heat Pumps** | **D Cabinet is going to be a better price than E 99% of the time.**  **Use Sub-cooling and always check 4 row coil performance compared to 6 row coils.** |
| **E Cabinet** | **8,000-20,000**  **Horizontal SA 16,000 Max (XL ONLY)**  **NO Horizontal RA (E AND EXL)** | **600 MBH**  **1,600 MBH (XL) (Vertical)**  **1,200 MBH (XL) (Horizontal)** | **40-70** | **Required for some**  **Tandem compressors**  **Above 1200 MBH** | **Check 4 row coil performance**  **to ensure price savings for minimal performance drop.** |

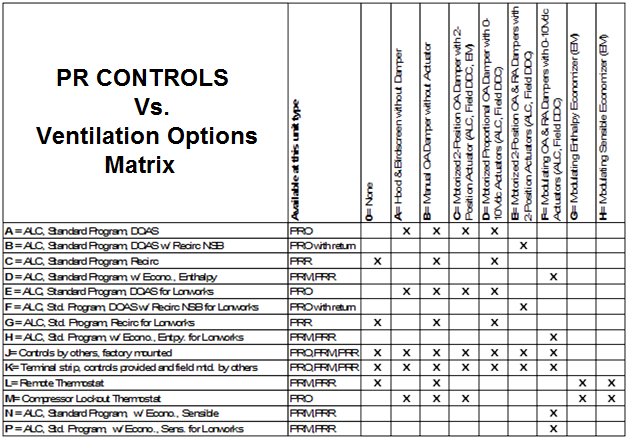
## REFRIGERATION CONTROLS GUIDELINES

*Use the following table to ensure the correct PR selections are made.*

PR Series Refrigeration Controls Application Based on Compressor Selection

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Compressor Type** | **How to Implement**  **HGRH** | **How to Implement**  **HGBP** | **Notes** | **How to Implement**  **Liquid Subcooling** |
| **Standard Scroll/Single Circuit** | Single Circuit  Staged or Modulating.. | **REQUIRED** for 100% OA applications.  Select HGBP on the Lead circuit | Units 96 MBH capacity and **BELOW** | **DO NOT** select with Dual Circuit HGRH.  Selectwith Single Circuit HGRH **OR** alone.  **DO NOT** select with Heat Pump applications. |
| **Dual Scroll/**  **Dual Circuit** | Select Dual Circuit **OR**  Single Circuit  Staged or Modulating. | Select Dual Circuit HGBP **ONLY** | Units 120 MBH capacity and **ABOVE** |
| **Digital Scroll/Single Circuit** | Single Circuit  Staged or Modulating. | No HGBP with Digital Scrolls. | Units 96 MBH capacity and **BELOW**  Heat pump and water source |
| **Single Digital and Single Scroll(Dual Circuit)** | Select Dual Circuit **OR**  Single Circuit  Staged or Modulating. | **REQUIRED** for 100% OA applications.  Select HGBP on the Lag circuit | Digital Scroll **ALWAYS** on lead circuit.  Units 120 MBH and **ABOVE** |
| **Dual Digital Scroll**  **(Dual Circuit)** | Select Dual Circuit **OR**  Single Circuit  Staged or Modulating. | **No HGBP with Digital Scrolls.** | Units 120 MBH and **ABOVE** |

**CONTROLS GUIDELINES**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PR Controls**  **Vs.**  **Airflow Orientation** | **A** = Vertical Supply and Vertical Return | **B** = Horizontal Supply and Vertical Return | **C** = Vertical Supply and Side Return | **D** = Horizontal Supply and Side Return | **E** = Vertical Supply and No Return | **F** = Horizontal Supply and No Return |
| **A** = ALC, Standard Program, DOAS |  |  |  |  | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |
| **B** = ALC, Standard Program, DOAS w/ Recirc NSB | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **C** = ALC, Standard Program, Recirc | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **D** = ALC, Standard Program, w/ Econo., Enthalpy | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **E** = ALC, Standard Program, DOAS for Lonworks |  |  |  |  | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |
| **F** = ALC, Std. Program, DOAS w/ Recirc NSB for Lonworks | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **G** = ALC, Std. Program, Recirc for Lonworks | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **H** = ALC, Std. Program, w/ Econo., Entpy. for Lonworks | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **J**= Controls by others, factory mounted | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |
| **K**= Terminal strip, controls provided and field mtd. by others | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |
| **L**= Remote Thermostat | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **M**= Compressor Lockout Thermostat |  |  |  |  | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |
| **N** = ALC, Standard Program, w/ Econo., Sensible | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |
| **P** = ALC, Std. Program, w/ Econo., Sens. for Lonworks | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png | C:\Users\gerald.hornik\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\I0MOGA84\Check_mark_23x20_02.svg[1].png |  |  |

**Price Optimizing Measures**

Compressors

* Digital is always more expensive than regular scroll compressors.
* A good balance in terms of performance and price for dual circuit units is to use the single digital/single scroll option with lag hot gas bypass (unless your project requires otherwise). This option will always be less expensive than dual digital scrolls.

Liquid Subcooling

* Recommended as a method to improve upon cost and provide more efficiency for 100% OA Units.
* No Liquid Subcooling is available for Heat Pump applications. The receiver for this application is too big and it cannot be implemented for that purpose.

4 row coils vs. 6 row coils (Especially when deciding between the E and D cabinet).

* 4 row coils are less expensive than 6 row coils, however compare with 6 row coils to ensure performance drop is minimal/acceptable. If the 6 row coil can get you to a smaller cabinet size, then it will usually be more cost effective in this case to use the 6 row coil.
* For smaller cabinets, it may be less expensive to select a 6 row coil with no subcooling than with a 4 row coil and subcooling.

Fans

* ECM fans are the most expensive, followed by the ANPA fans, and then the ANPL fans (in terms of fans of the same size). For example, an ANPL16 will be less expensive than an ANPA16.
* The software can be directed to choose one fan over the other in the selection page. For ANPL fans, you will have to select the ODP motor, and backwards incline. For ANPA fans you will have to select ODP motor and airfoil. For ECM, you will have to indicate the motor to be ECM, and the other field should automatically update with backwards incline as the option selected.

Heater controls

* Heater controls are more expensive with the higher degree of modulation that you go. For example, the 10:1 modulation is more expensive than the 5:1 modulation, and the 5:1 modulation is more expensive than the 2 stage.

**Procedure for Optimization**

It is advised when optimizing price to copy the unit multiple times and switch out the options accordingly, in order to definitively see which options are the cheapest. In most cases, going to the smallest cabinet possible will result in the best price. If the cabinet size can’t be changed, then coil size and refrigeration options can save the most money.

* Use the tables in the previous pages to determine which cabinet will be the optimal choice for your application.
* Once that is selected, refer to the tables to make sure the controls, refrigeration, and fan options are correct.
* Test your performance with the combination of 4 row coil, 6 row coil, and liquid subcooling (for 100% OA)

In terms of price, these features are listed from cheapest to most expensive:

* 1. 4 row coil with no subcooling
  2. 6 row coil with no subcooling
  3. 4 row coil with subcooling
  4. 6 row coil with subcooling
* As stated earlier, cabinet size is the most important factor for reducing price. For instance, a C cabinet with 6 row coil and liquid subcooling will be cheaper than a D cabinet with a 4 row coil only.
* If a furnace size is forcing you into a cabinet, always make sure to check performance between a 4 row and 6 row coil (sometimes the difference in performance is less than 1 degree).

**Notes**