# RZ Series

## Packaged Rooftop Units & Outdoor Air Handling Units

# Engineering Catalog

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G074280 · Rev. A · 240730

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- Factory Installed AAONAIRE® Energy Recovery Wheels
- Double Wall Rigid Polyurethane Foam Panel Construction, R-13 Insulation
- Modulating Natural Gas Heaters
- Modulating/SCR Electric Heaters
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**Indoor Air Quality**
- 100% Outside Air
- Outside Airflow Monitoring
- Economizer $CO_2$ Override
- High Efficiency Filtration
- Final Filters, including Gas Heat Systems
- UV Lights for Single Pass 90% Air Disinfection
- Double Wall Rigid Polyurethane Foam Panel Construction, R-13 Insulation
- Interior Corrosion Protection

**Humidity Control**
- High Capacity Cooling Coils
- Variable Speed Compressors
- Factory Installed AAONAIRE Total Energy Recovery Wheels
- Modulating Hot Gas Reheat

**Safety**
- Burglar Bars
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**System Integration**
- Chilled Water Cooling Coils
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- Hot Water/Steam Heating Coil
- Non-Compressorized DX Coils

**Environmentally Friendly**
- Airside Economizers
- Factory Installed AAONAIRE Energy Recovery Wheels
- R-410A Refrigerant
- R-454B Refrigerant

**Extended Life**
- 5 Year Compressor Warranty
- 25 Year Stainless Steel Heat Exchanger Warranty
- Interior Corrosion Protection
- Polymer E-Coated Coils - 5 Year Coating Warranty
- Stainless Steel Coil Casing
- Stainless Steel Drain Pans

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RZ** | **A** | **-** | **145** | **-** | **D** | **0** | **-** | **3** | **-** | **C** | **A** | **B** | **0** | A | - | 0 | 0 | 0 | 0 | 0 | : | N | 0 | - | A | A | K | A | Q | - | J | 0 | 0 | - | B | F | T | 0 | M | - | 0 | 0 | 0 | 0 | 0 | - | Q | F | - | A | 0 | A | A |
| | | | | | | - | 0 | 0 | - | M | 0 | - | C | - | 0 | 0 | 0 | - | 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - | A | B | E | Q | 0 | A | - | E | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | D | B |

| 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## MODEL OPTIONS

**SERIES AND GENERATION**
RZ

**MAJOR REVISION**
A

**UNIT SIZE**

| *Air-Cooled* | *Evaporative Condenser* |
|---|---|
| 045 = 45 ton Capacity | 051 = 51 ton Capacity |
| 055 = 55 ton Capacity | 066 = 66 ton Capacity |
| 065 = 65 ton Capacity | 073 = 73 ton Capacity |
| 075 = 75 ton Capacity | 079 = 79 ton Capacity |
| 090 = 90 ton Capacity | 101 = 101 ton Capacity |
| 105 = 105 ton Capacity | 109 = 109 ton Capacity |
| 120 = 120 ton Capacity | 124 = 124 ton Capacity |
| 130 = 130 ton Capacity | 136 = 136 ton Capacity |
| 140 = 140 ton Capacity | 148 = 148 ton Capacity |
| 145 = 145 ton Capacity | 161 = 161 ton Capacity |
| 160 = 160 ton Capacity | 172 = 172 ton Capacity |
| 180 = 180 ton Capacity | 197 = 197 ton Capacity |
| 200 = 200 ton Capacity | 221 = 221 ton Capacity |
| 220 = 220 ton Capacity | 241 = 241 ton Capacity |
| 240 = 240 ton Capacity | 261 = 261 ton Capacity |

**SERIES**

| *Air-Cooled* | *Evaporative Condenser* |
|---|---|
| A = 45-75 ton units | A = 51-79 ton units |
| B = 90-105 ton units | B = 101-109 ton units |
| C = 120-140 ton units | C = 124-148 ton units |
| D = 145-180 ton units | D = 161-197 ton units |
| E = 200-240 ton units | E = 221-261 ton units |

**MINOR REVISION**
0 = RZ-075 and higher
A = only for RZ-045,055,065 changing to 2-circuits

**VOLTAGE**
2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz

**VOLTAGE (continued)**
4 = 575V/3Φ/60Hz
8 = 208V/3Φ/60Hz

### Model Option A: COOLING/HEAT PUMP

**A1: COMPRESSOR STYLE**
0 = No Compressor
C = R-410A Variable Speed Scroll Compressor
H= R-454B Variable Speed Scroll Compressor

**A2: CONDENSER STYLE**
0 = No Condenser
A = Microchannel Air-Cooled Condenser
H = Evaporative Condenser
N = DX Air Handling Unit

**A3: INDOOR COIL CONFIGURATION**
0 = No Cooling Coil
A = Std Row Std Size Evaporator
B = 6 Row Std Size Evaporator
C = Std Row Large Size Evaporator
D = 6 Row Large Size Evaporator
E = 4 Row Chilled Water Coil Std Size
F = 6 Row Chilled Water Coil Std Size
G = 8 Row Chilled Water Coil Std Size
H = 4 Row Chilled Water Coil Large Size
J = 6 Row Chilled Water Coil Large Size
K = 8 Row Chilled Water Coil Large Size

**A4: COOLING HEAT EXCHANGER CONSTRUCTION**
0 = Standard
A = Polymer E-Coated Cooling Coil
B = Stainless Steel Cooling Coil Casing
D = Stainless Steel Cooling Coil Casing + Polymer E-Coated Cooling Coil
E = Polymer E-Coated Cond. Coil
J = Polymer E-Coated Evap. And Cond. Coil
T = Stainless Steel Cooling Coil Casing + Polymer E-Coated Evap. And Cond. Coil

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | **A** | **- 0** | **0** | **0** | **0** | **0** | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - | 0 | 0 | 0 | - 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | 11A | 11B | 12 | | 13A | 13B | 13C | 14 | 15 | | 16A | 16B | 16C | 16D | | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**A5: COOLING STAGING**
0 = No Cooling
A = Full Face Variable Capacity + Tandem On/Off Refrigeration Systems
E = All Variable Capacity Refrigeration Systems
F = Single Serpentine 8 FPI
G = Half Serpentine 8 FPI
H = Single Serpentine 10 FPI
J = Half Serpentine 10 FPI
K = Single Serpentine 12 FPI
L = Half Serpentine 12 FPI
M = DX Air Handling Unit with 4 Refrigeration Circuits
N = DX Air Handling Unit with 8 Refrigeration Circuits

## Model Option B: HEATING

**B1: HEAT TYPE**
0 = No Heat
B = Electric Heat
D = Natural Gas Single Rack
E = Natural Gas Double Rack
K = Hot Water Coil
M = Steam Distributing Coil

**B2: HEAT CONSTRUCTION**
0 = Standard
B = Stainless Steel Heat Exchanger
D = High Altitude Stainless Steel Heat Exchanger
G = Polymer E-Coated Heating Coil

**B3: HEAT DESIGNATION**
0 = No Heat
1 = Heat 1
2 = Heat 2
3 = Heat 3
4 = Heat 4
5 = Heat 5
6 = Heat 6
7 = Heat 7
8 = Heat 8

**B3: HEAT DESIGNATION Continued**
A = 1 Row Size A
B = 1 Row Size B
C = 1 Row Size C
D = 1 Row Size D
E = 2 Row Size A
F = 2 Row Size B
G = 2 Row Size C
H = 2 Row Size D

**B4: HEAT STAGING**
0 = No Heat
A = 1 Stage
B = 2 Stage
C = 3 Stage
D = 4 Stage
E = 5 Stage
F = 6 Stage
G = 7 Stage
H = 8 Stage
V = 10 Stage
J = 12 Stage
K = Modulating Gas Heat Temp Control
L = High Turndown Modulating Gas Heat – Temperature Control
M = Modulating SCR Electric with Potentiometer Control
N = Modulating SCR Electric with External 0-10 VDC
R = Single Serpentine 10 FPI
S = Half Serpentine 10 FPI

**B5: HEAT PUMP AUX HEATING**
0 = No Heat Pump

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : **N** | **0** | **- A** | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |

| 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

## 1: UNIT ORIENTATION

E = Draw Through SA Fan, Walk-in Vestibule, Left Side Access
F = Draw Through SA Fan, Walk-in Vestibule, Right Side Access
G = Draw Through Supply Fan, Non-compressorized, End Control Panel, Left Access
H = Draw Through Supply Fan, Non-compressorized, End Control Panel, Right Access
J = Draw Thru Supply Fan, Non-compressorized, Left Control Panel, Left Access
K = Draw Thru Supply Fan, Non-compressorized, Right Control Panel, Right Access
L = Draw Through SA Fan, Non-compressorized, Walk-in Vestibule, Left Access
M = Draw Through SA Fan, Non-compressorized, Walk-in Vestibule, Right Access
N = Blow Through SA Fan, Walk-in Vestibule, Left Side Access
P = Blow Through SA Fan, Walk-in Vestibule, Right Side Access
Q = Blow Through Supply Fan, Non-compressorized, End Control Panel, Left Access
R = Blow Through Supply Fan, Non-compressorized, End Control Panel, Right Access
S = Blow Thru Supply Fan, Non-compressorized, Left Control Panel, Left Access
T = Blow Thru Supply Fan, Non-compressorized, Right Contol Panel, Right Access
U = Blow Through SA Fan, Non-compressorized, Walk-in Vestibule, Left Access
V = Blow Through SA, Fan Non-compressorized, Walk-in Vestibule, Right Access
W = Draw Thru Supply Fan, End Control Panel, Left Side Air Tunnel Access
Y = Draw Thru Supply Fan, End Control Panel, Right Side Air Tunnel Access
Z = Blow Thru Supply Fan. End Control Panel, Left Side Air Tunnel Access
1 = Blow Thru Supply Fan. End Control Panel, Right Side Air Tunnel Access

## 2: SUPPLY & RETURN LOCATIONS

0 = Bottom Supply--Bottom Return
A = Bottom Supply--No Return
B = Bottom Supply--Left Return
C = Bottom Supply--Right Return
D = Bottom Supply--End Return
E = Left Supply--No Return
F = Left Supply--Bottom Return
G = Left Supply--Left Return
H = Left Supply--Right Return
J = Left Supply--End Return
K = Right Supply--No Return
L = Right Supply--Bottom Return
M = Right Supply--Left Return
N = Right Supply--Right Return
P = Right Supply--End Return
Q = Top Supply--No Return
R = Top Supply--Bottom Return
S = Top Supply--Left Return
T = Top Supply--Right Return
U = Top Supply--End Return
V = End Supply + No Return
W = End Supply + Bottom Return
Y = End Supply + Left Return
Z = End Supply + Right Return
1 = End Supply + End Return

## Feature 3: SUPPLY FAN OPTIONS

### 3A: SUPPLY FAN QUANTITY

0 = 1 Fan
A = 2 Fans
B = 3 Fans
C = 4 Fans
D = 5 Fans
E = 6 Fans
F = 7 Fans
G = 8 Fans
H = 9 Fans
J = 10 Fans
K = 11 Fans
L = 12 Fans

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | **3B** | **3C** | **3D** | **3E** | **4A** | **4B** | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : | N | 0 | - A | **A** | **K** | **A** | **Q** | - **J** | **0** | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | | 10A | 10B | | 11A | 11B | | 12 | | 13A | 13B | 13C | | 14 | 15 | | 16A | 16B | 16C | 16D | | 17A | 17B | | 18A | 18B | 18C | | 19 | 20 | 21 | 22 | 23 | 24 | | 25 | 26 | 27 | 28 | 29 | 30 | | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**3B: SUPPLY FAN CONFIGURATION**
0 = No VFDs + Full Width Fan
A = 1 Fan per VFD + Full Width Fan
B = 2 Fans per VFD + Full Width Fan
C = 3 Fans per VFD + Full Width Fan
D = 4 Fans per VFD + Full Width Fan
E = No VFDs + Narrow Width Fan
F = 1 Fan per VFD + Narrow Width Fan
G = 2 Fans per VFD + Narrow Width Fan
H = 3 Fans per VFD + Narrow Width Fan
J = 4 Fans per VFD + Narrow Width Fan
K = Option 0 + Inlet Backdraft Dampers
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N = Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers

**3C: SUPPLY FAN SIZE**
G = 27" Direct Drive Backward Curved Plenum Aluminum
J = 30" Direct Drive Backward Curved Plenum Steel
K = 33" Direct Drive Backward Curved Plenum Steel
L = 36.5" Direct Drive Backward Curved Plenum Aluminum
M = 42.5" Direct Drive Backward Curved Plenum Aluminum
N = 18.5" Direct Drive Airfoil Plenum Aluminum
P = 22" Direct Drive Airfoil Plenum Aluminum
Q = 24" Direct Drive Airfoil Plenum Aluminum
R = 27" Direct Drive Airfoil Plenum Aluminum

**3D: SUPPLY FAN MOTOR TYPE**
0 = High Efficiency Open Motor (1170 nominal rpm)
A = High Efficiency Open Motor (1760 nominal rpm)
K = High Efficiency Totally Enclosed Motor (1170 nominal rpm)

**3D: SUPPLY FAN MOTOR TYPE Continued**
L = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

**3E: SUPPLY FAN MOTOR SIZE**
G = 3 hp
H = 5 hp
J = 7.5 hp
K = 10 hp
L = 15 hp
M = 20 hp
N = 25 hp
P = 30 hp
Q = 40 hp
R = 50 hp

## Feature 4: RETURN/OUTSIDE AIR OPTIONS

**4A: OUTSIDE AIR SECTION**
0 = 100% Outside Air
A = 100% Outside Air with Motorized Dampers
B = Manual Outside Air + Return Air Opening
C = Motorized Outside Air Dampers + Return Air Opening
D = 100% Return Air
E = Economizer
G = Econ + Power Exhaust (Plenum Fans)
J = Econ + Power Return (Plenum Fans)
Q = Econ + Energy Recovery + Bypass Damper
R = Econ + Energy Recovery + Bypass Damper + Power Return (Plenum Fans)

**4B: ENERGY RECOVERY TYPE**
0 = No Energy Recovery
A = Polymer Energy Recovery Wheel
B = Polymer Energy Recovery Wheel + 1% Purge
C = Aluminum Energy Recovery Wheel
D = Aluminum Energy Recovery Wheel + 1% Purge

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | **4C** | **5A** | **5B** | **5C** | **5D** | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 - | D | 0 - 3 - | C | A | B | 0 | A | - | 0 | 0 | 0 | 0 | 0 | : | N | 0 | - | A | A | K | A | Q | - | J | 0 | **0 - B** | **F** | **T** | **0** | M | - | 0 | 0 | 0 | 0 | 0 | - | Q | F | - | A | 0 | A | A |
| | | | | - 0 0 - | M | 0 | - | C | - | 0 | 0 | 0 | - | 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - | A | B | E | Q | 0 | A | - | E | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | D | B |

| 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**4C: ENERGY RECOVERY SIZE**
0 = No Energy Recovery
A = Small Enthalpy
B = Medium Enthalpy
C = Large Enthalpy
D = Extra Large Enthalpy
E = Small Sensible
F = Medium Sensible
G = Large Sensible
H = Extra Large Sensible
J = Small Enthalpy + Exhaust Filters
K = Medium Enthalpy + Exhaust Filters
L = Large Enthalpy + Exhaust Filters
M = Extra Large Enthalpy + Exhaust Filters
N = Small Sensible + Exhaust Filters
P = Medium Sensible + Exhaust Filters
Q = Large Sensible + Exhaust Filters
R = Extra Large Sensible + Exhaust Filters

## Feature 5: RETURN FAN OPTIONS

**5A: RETURN FAN QUANTITY**
0 = No Return Fan
A = 1 Fan
B = 2 Fans
C = 3 Fans
D = 4 Fans

**5B: RETURN FAN CONFIGURATION**
0 = No Return Fan
A = No VFDs + Full Width Fan
B = 1 Fan per VFD + Full Width Fan
C = 2 Fans per VFD + Full Width Fan
D = 3 Fans per VFD + Full Width Fan
E = 4 Fans per VFD + Full Width Fan
F = No VFDs + Narrow Width Fan
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
J = 3 Fans per VFD + Narrow Width Fan
K = 4 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers

**5B: RETURN FAN CONFIGURATION (Cont.**
N= Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers
V = Option K + Inlet Backdraft Dampers

**5C: RETURN FAN SIZE**
0 = No Return Fan
N = 27" Direct Drive Backward Curved Plenum Aluminum
Q = 30" Direct Drive Backward Curved Plenum Steel
R = 33" Direct Drive Backward Curved Plenum Steel
S = 36.5" Direct Drive Backward Curved Plenum Aluminum
T = 42.5" Direct Drive Backward Curved Plenum Aluminum
U = 18.5" Direct Drive Airfoil Plenum Aluminum
V = 22" Direct Drive Airfoil Plenum Aluminum
W = 24" Direct Drive Airfoil Plenum Aluminum
Y = 27" Direct Drive Airfoil Plenum Aluminum

**5D: RETURN FAN MOTOR TYPE**
0 = No Return Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)
Q = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | **5E** | **6A** | **6B** | **6C** | **6D** | **6E** | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | **M** | **-** | **0** | **0** | **0** | **0** | **-** | Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - | 0 | 0 | 0 | - 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**5E: RETURN MOTOR SIZE**
0 = No Return Fan
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp

## Feature 6: EXHAUST FAN OPTIONS

**6A: EXHAUST FAN QUANTITY**
0 = No Exhaust Fan
A = 1 Fan
B = 2 Fans

**6B: EXHAUST FAN CONFIGURATION**
0 = No Exhaust Fan
A = No VFDs + Full Width Fan
B = 1 Fan per VFD + Full Width Fan
C = 2 Fans per VFD + Full Width Fan
D = 3 Fans per VFD + Full Width Fan
E = 4 Fans per VFD + Full Width Fan
F = No VFDs + Narrow Width Fan
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
J = 3 Fans per VFD + Narrow Width Fan
K = 4 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N= Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers
V = Option K + Inlet Backdraft Dampers

**6C: EXHAUST FAN SIZE**
0 = No Exhaust Fan
N = 27" Direct Drive Backward Curved Plenum Aluminum
Q = 30" Direct Drive Backward Curved Plenum Steel
R = 33" Direct Drive Backward Curved Plenum Steel
S = 36.5" Direct Drive Backward Curved Plenum Aluminum
T = 42.5" Direct Drive Backward Curved Plenum Aluminum
U = 18.5" Direct Drive Airfoil Plenum Aluminum
V = 22" Direct Drive Airfoil Plenum Aluminum
W = 24" Direct Drive Airfoil Plenum Aluminum
Y = 27" Direct Drive Airfoil Plenum Aluminum

**6D: EXHAUST FAN MOTOR TYPE**
0 = No Exhaust Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)
Q = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

**6E: EXHUAST MOTOR SIZE**
0 = No Exhaust Fan
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | **7** | **8** | **9A** | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - **Q** | **F** | - **A** | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

## 7: O/A CONTROL

0 = Standard (No Actuator)
C = Fully Modulating Actuator - Sensible Limit
D = Fully Modulating Actuator - Enthalpy Limit
E = DDC Actuator
P = Option C + $CO_2$ Override
Q = Option D + $CO_2$ Override
R = Option E + $CO_2$ Override
U = 2 Position Actuator
V = Fault Detection and Diagnostics Controller (FDD) Sensible Limit
W = FDD Enthalpy Limit
Y = Option V + $CO_2$ Override
Z = Option W + $CO_2$ Override

## 8: RETURN & EXHAUST OPTIONS

0 = No Return Opening
A = Standard Return Opening without EA Dampers
B = Large Return Opening without EA Dampers
C = Standard Return Opening + Barometric Relief EA Dampers
D = Large Return Opening + Barometric Relief EA Dampers
E = Standard Return Opening + Motorized EA Dampers
F = Large Return Opening + Motorized EA Dampers
G = Standard Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
H = Large Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
J = Standard Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
K = Large Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
L = Standard Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required)

## 8: RETURN & EXHAUST OPTIONS (cont.)

M = Large Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
N = Standard Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)
P = Large Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)
Q = Standard Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)
R = Large Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)
S = Standard Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)
T = Large Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)

## Feature 9: FILTER OPTIONS

### 9A: UNIT FILTER TYPE

0 = 2" Pleated MERV 8
A = 4" Pleated MERV 8
B = 2" Pleated MERV 8 + 4" Pleated MERV 11
C = 2" Pleated MERV 8 + 4" Pleated MERV 13
D = 2" Pleated MERV 8 + 4" Pleated MERV 14
E = 4" Pleated MERV 8 + 4" Pleated MERV 11
F = 4" Pleated MERV 8 + 4" Pleated MERV 13
G = 4" Pleated MERV 8 + 4" Pleated MERV 14
H = 2" Pleated MERV 8 + 12" Cartridge MERV 11
J = 2" Pleated MERV 8 + 12" Cartridge MERV 13
K = 2" Pleated MERV 8 + 12" Cartridge MERV 14
L = 4" Pleated MERV 8 + 12" Cartridge MERV 11
M = 4" Pleated MERV 8 + 12" Cartridge MERV 13
N = 4" Pleated MERV 8 + 12" Cartridge MERV 14
P = 2" Pleated MERV 8 + 30" Bag MERV 13
Q = 2" Pleated MERV 8 + 30" Bag MERV 14

# RZ Series Feature String Nomenclature

| GEN | MJREV | | SIZE | | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | **9A** | **9B** | **9C** | **9D** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - | 145 | - | D | 0 | - | 3 | - | C | A | B | 0 | A | - | 0 | 0 | 0 | 0 | 0 | : | N | 0 | - | A | A | K | A | Q | - | J | 0 | 0 | - | B | F | T | 0 | M | - | 0 | 0 | 0 | 0 | 0 | 0 | - | Q | F | - | **A** | **0** | **A** | **A** |
| | | | | - | | **0** | **0** | - | **M** | **0** | - | C | - | 0 | 0 | 0 | - | 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - | A | B | E | Q | 0 | A | - | E | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | **0** | **0** | **D** | **B** |
| | | | | | | **10A** | **10B** | | **11A** | **11B** | | 12 | | 13A | 13B | 13C | | 14 | 15 | | 16A | 16B | 16C | 16D | | 17A | 17B | | 18A | 18B | 18C | | 19 | 20 | 21 | 22 | 23 | 24 | | 25 | 26 | 27 | 28 | 29 | 30 | | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**9A: UNIT FILTER TYPE (Continued)**
R = 4" Pleated MERV 8 + 30" Bag MERV 13
S = 4" Pleated MERV 8 + 30" Bag MERV 14
W = 4" MERV 8 + 12" 99.97 HEPA

**9B: UNIT FILTER BOX SIZE/LOCATION**
0 = Standard Filters in Standard Position
A = Standard Filters in Pre-position
B = High Eff Filters Box A in Standard Position
C = High Eff Filters Box B in Standard Position
D = High Eff Filters Box C in Standard Position
E = High Eff Filters Box A in Pre-Position
F = High Eff Filters Box B in Pre-Position
G = High Eff Filters Box C in Pre-Position
H = Dual Angled Filter Racks Box A in Standard Position
J = Dual Angled Filter Racks Box B in Standard Position
K = Dual Angled Filter Racks Box A in Pre-Position
L = Dual Angled Filter Racks Box B in Pre-Position
N = HEPA Filters Box A in Standard Position
P = HEPA Filters Box B in Standard Position
Q = HEPA Filters Box A in Pre-position
R = HEPA Filters Box B in Pre-position

**9C: FINAL FILTER TYPE**
0 = No Final Filters
A = 12" Cartridge MERV 13--Filter Box A
B = 12" Cartridge MERV 13--Filter Box B
C = 12" Cartridge MERV 13--Filter Box C
D = 12" Cartridge MERV 14--Filter Box A
E = 12" Cartridge MERV 14--Filter Box B
F = 12" Cartridge MERV 14--Filter Box C
G = 30" Bag MERV 13--Filter Box A
H = 30" Bag MERV 13--Filter Box B
J = 30" Bag MERV 13--Filter Box C
K = 30" Bag MERV 14--Filter Box A
L = 30" Bag MERV 14--Filter Box B
M = 30" Bag MERV 14--Filter Box C
N = HEPA Frame (No Filter)--Filter Box A
P = HEPA Frame (No Filter)--Filter Box B
Q = 12" 99.97 HEPA--Filter Box A
R = 12" 99.97 HEPA--Filter Box B

**9D: FILTER OPTIONS**
0 = None
A = Clogged Filter Switch - Unit Filters
B = Clogged Filter Switch - Unit + Energy Recovery Filters
C = Clogged Filter Switch - Unit + Final Filters
D = Clogged Filter Switch - Unit + Energy Recovery + Final Filters
E = Magnehelic Gauge - Unit Filters
F = Magnehelic Gauge - Unit + Energy Recovery Filters
G = Magnehelic Gauge - Unit + Final Filters
H = Magnehelic Gauge - Unit + Energy Recovery + Final Filters
J = CFS + Magnehelic Gauge - Unit Filters
K = CFS + Magnehelic Gauge - Unit + Energy Recovery Filters
L = CFS + Magnehelic Gauge - Unit + Final Filters
M = CFS + Magnehelic Gauge - Unit + Energy Recovery + Final Filters

## Feature 10: REFRIGERATION CONTROL

**10A: REFRIGERATION CONTROL A**
0 = Standard
E = Freeze Stats (each circuit)

**10B: REFRIGERATION CONTROL B**
0 = Standard

## Feature 11: REFRIGERATION OPTIONS

**11A: REFRIGERATION OPTIONS A**
0 = Standard
D = Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)
E = Modulating Hot Gas Reheat [MHGR]
M = HGBNV + MHGR
Q = Polymer E-Coated MHGR
W = HGBNV + Polymer E-Coated MHGR

**11B: REFRIGERATION OPTIONS B**
0 = Standard Packaged Unit

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - **C** | - **0** | **0** | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | | 11A | 11B | **12** | | **13A** | **13B** | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**12: REFRIGERATION ACCESSORIES**

0 = Standard
B = Compressor Isolation Valves
C = Sight Glass + Compressor Isolation Valves

F = Option B + Variable Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
F = Option B + Lead Circuit -20°F Low Ambient [Size 045, 055, & 065]

G = Option C + Variable Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
G = Option C + Lead Circuit -20°F Low Ambient [Size 045, 055, & 065]

K = Option B + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
K = Option B + Lag Circuit -20°F Low Ambient [Size 045, 055, & 065]

L = Option C + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
L = Option C + Lag Circuit -20°F Low Ambient [Size 045, 055, & 065]

P = Option B + All Circuits -20°F Low Ambient
Q = Option C + All Circuits -20°F Low Ambient

## Feature 13: POWER OPTIONS

**13A: UNIT DISCONNECT TYPE**

0 = Single Point Power - Standard Power Block
A = Single Point Power - Non-fused Disconnect Power Switch
B = Single Point Power – Circuit Breaker
C = Dual Point Power – Standard Power Block – Method #1
D = Dual Point Power – Non-Fused Disconnect Power Switch – Method #1
E = Dual Point Power – Circuit Breaker – Method #1
F = Dual Point Power – Standard Power Block – Method #2

**13A: UNIT DISCONNECT TYPE (Cont.)**

G = Dual Point Power – Non-Fused Disconnect Power Switch – Method #2
H = Dual Point Power – Circuit Breaker – Method #2
J = Dual Point Power – Standard Power Block – Method #3
K = Dual Point Power – Non-Fused Disconnect Power Switch – Method #3
L = Dual Point Power – Circuit Breaker – Method #3
M = Dual Point Power – Standard Power Block– Method #4
N = Dual Point Power – Non-Fused Disconnect Power Switch – Method #1
P = Dual Point Power – Circuit Breaker – Method #1

**13B: DISCONNECT 1 SIZE / 13C: DISCONNECT 2 SIZE**

0 = Power Block
A = 15 amps
B = 20 amps
C = 25 amps
D = 30 amps
E = 35 amps
F = 40 amps
G = 45 amps
H = 50 amps
J = 60 amps
K = 70 amps
L = 80 amps
M = 90 amps
N = 100 amps
P = 110 amps
Q = 125 amps
R = 150 amps
S = 175 amps
T = 200 amps
U = 225 amps
V = 250 amps
W = 300 amps
Y = 350 amps
Z = 400 amps
1 = 450 amps
2 = 500 amp

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | **0** | **0** | **-** | **8** | **0** | **-** | **D** | **A** | **0** | **B** | - 0 | 0 | - 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | 11A | 11B | 12 | 13A | **13B** | **13C** | **14** | **15** | **16A** | **16B** | **16C** | **16D** | 17A | 17B | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | | |

**13B: DISCONNECT SIZE (cont.)**
3 = 600 amps
4 = 700 amps
5 = 800 amps
6 = 1000 amps
7 = 1200 amps

**14: SAFETY OPTIONS**
0 = Standard
A = RA & SA Firestat
B = RA Smoke Detector
C = SA Smoke Detector
D = High Supply Air Static Pressure Switch
E = Remote Safety Shutdown Terminals
F = Option A + B
G = Option A + C
H = Option A + D
J = Option A + E
K = Option B + C
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
R = Option A + B + C
S = Option A + B + D
T = Option A + B + E
U = Option A + C + D
V = Option A + C + E
W = Option A + D + E
Y = Option B + C + D
Z = Option B + C + E
1 = Option B + D + E
2 = Option C + D + E
3 = Option A + B + C + D
4 = Option A + B + C + E
5 = Option A + B + D + E
6 = Option A + C + D + E
7 = Option B + C + D + E
8 = Option A + B + C + D + E

**15: ELECTRICAL ACCESSORIES**
0 = Standard
B = Phase & Brown Out Protection
C = Air Disinfection UV Lights
E = Compressor Sound Blankets
K = Option B + C
M = Option B + E
P = Option C + E
Z = Option B + C + E

**Feature 16: UNIT CONTROLS**

**16A: CONTROL SEQUENCE**
0 = Standard Terminal Block for Thermostat
A = Terminal Block for Thermostat + Isolation Relays
B = Single Zone VAV Unit Controller - VAV Cool + CAV Heat
C = Single Zone VAV Unit Controller - VAV Cool + VAV Heat
D = VAV Unit Controller - VAV Cool + CAV Heat
E = Constant Air Volume Unit Controller - CAV Cool + CAV Heat
F = Makeup Air Unit Controller
M = Field Installed DDC Controls by Others
N = Field Installed DDC Controls + Installation Relays
P = Factory Installed DDC Controls by Others + Installation Relays (Requires SPA)

**16B: CONTROL SUPPLIER**
0 = Standard
A = AAON Controls
C = AAON Controls Supervisory

**16C: CONTROL SUPPLIER OPTIONS**
0 = Standard

**16D: BMS CONNECTION & DIAGNOSTICS**
0 = None
B = BACnet MSTP
K = BACnet MSTP with Diagnostics

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - **0** | **0** | **-** | **0** | | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | **17A** | **17B** | | **18A** | | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

## Feature 17: PREHEAT OPTIONS

### 17A: PREHEAT CONFIGURATION

0 = No Preheat
F = Hot Water Coil Preheat in Option Box
G = Steam Distributing Coil Preheat in Option Box
M = Polymer Coated Hot Water Coil Preheat in Option Box
N = Polymer Coated Steam Distributing Coil Preheat in Option Box
P = Direct Fired Heat 100% OA Nat Gas (CAV)

### 17B: PREHEAT SIZING

0 = No Preheat

**Hot Water Preheat Coil [17A = F, M]**

A = Size A 1 Row Half Serpentine 10 FPI
B = Size B 1 Row Half Serpentine 10 FPI
C = Size C 1 Row Half Serpentine 10 FPI
D = Size D 1 Row Half Serpentine 10 FPI
E = Size A 1 Row Quarter Serpentine 10 FPI
F = Size B 1 Row Quarter Serpentine 10 FPI
G = Size C 1 Row Quarter Serpentine 10 FPI
H = Size D 1 Row Quarter Serpentine 10 FPI
J = Size A 2 Row Full Serpentine 10 FPI
K = Size B 2 Row Full Serpentine 10 FPI
L = Size C 2 Row Full Serpentine 10 FPI
M = Size D 2 Row Full Serpentine 10 FPI
N = Size A 2 Row Half Serpentine 10 FPI
P = Size B 2 Row Half Serpentine 10 FPI
Q = Size C 2 Row Half Serpentine 10 FPI
R = Size D 2 Row Half Serpentine 10 FPI

**Steam Distributing Preheat Coil [17A = G, N]**

A = Size A 1 Row Full Serpentine 10 FPI
B = Size B 1 Row Full Serpentine 10 FPI
C = Size C 1 Row Full Serpentine 10 FPI
D = Size D 1 Row Full Serpentine 10 FPI
J = Size A 2 Row Full Serpentine 10 FPI
K = Size B 2 Row Full Serpentine 10 FPI
L = Size C 2 Row Full Serpentine 10 FPI
M = Size D 2 Row Full Serpentine 10 FPI

**Direct Fired Heat [17A = P]**

A = 1’ Burner
B = 1.5’ Burner
C = 2’ Burner
D = 2.5’ Burner
E = 3’ Burner
F = 4’ Burner
G = 4.5’ Burner
H = 5.5’ Burner
J = 6’ Burner
K = 7’ Burner
L = 7.5’ Burner
M = 8.5’ Burner

## Feature 18: OPTION BOXES

### 18A: BOX LOCATION

0 = No Option Box
A = One Option Box after Return
B = One Option Box after Pre-Filter
C = One Option Box after Cooling
D = One Option Box after Supply Fan
E = One Option Box after Heat
F = One Option Box after Return + One after Pre-Filter
G = One Option Box after Return + One after Cooling
H = One Option Box after Return + One after Supply Fan
J = One Option Box after Return + One after Heat
K = One Option Box after Pre-Filter + One after Cooling
L = One Option Box after Pre-Filter + One after Supply Fan
M = One Option Box after Pre-Filter + One after Heat
N = One Option Box after Cooling + One after Supply Fan
P = One Option Box after Cooling + One after Heat
Q = One Option Box after Supply Fan + One after Heat
R = Additional Vestibule
S = 2 ft First Box
T = 2 ft First Box + 2ft Second Box

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - | **0** | **0** | **0** | **-** | **A** | **B** | **E** | Q | 0 | A | - E | 0 | 0 | 0 | 0 | 0 | - 0 | 0 | 0 | 0 | 0 | D | B |
| | | | | 10A | 10B | | 11A | 11B | | 12 | | 13A | 13B | 13C | | 14 | 15 | | 16A | 16B | 16C | 16D | | 17A | 17B | | **18A** | **18B** | **18C** | | **19** | **20** | **21** | 22 | 23 | 24 | | 25 | 26 | 27 | 28 | 29 | 30 | | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

**18A: BOX LOCATION (cont.)**
U = 2 ft First Box + 4ft Second Box
V = 2 ft First Box + 6ft Second Box
W = 2 ft First Box + 8ft Second Box
Y = 2 ft First Box + 8ft Second Box

**18B: BOX SIZE**
0 = No Option Box
A = 2 ft First Box
B = 2 ft First Box + 2ft Second Box
C = 2 ft First Box + 4ft Second Box
D = 2 ft First Box + 6ft Second Box
E = 2 ft First Box + 8ft Second Box
F = 4 ft First Box
G = 4 ft First Box + 2ft Second Box
H = 4 ft First Box + 4ft Second Box
J = 4 ft First Box + 6ft Second Box
K = 4 ft First Box + 8ft Second Box
L = 6 ft First Box
M = 6 ft First Box + 2ft Second Box
N = 6 ft First Box + 4ft Second Box
P = 6 ft First Box + 6ft Second Box
Q = 6 ft First Box + 8ft Second Box
R = 8 ft First Box
S = 8 ft First Box + 2ft Second Box
T = 8 ft First Box + 4ft Second Box
U = 8 ft First Box + 6ft Second Box
V = 8 ft First Box + 8ft Second Box

**18C: BOX ACCESSORIES**
0 = None
A = 20" Drain Pan in First Box
B = 20" Drain Pan in First Box + 20" Drain Pan in Second Box
C = 20" Drain Pan in First Box + 44" Drain Pan in Second Box
D = Option A + Sound Attenuator
E = 44" Drain Pan in First Box
F = 44" Drain Pan in First Box + 20" Drain Pan in Second Box
G = 44" Drain Pan in First Box + 44" Drain Pan in Second Box
H = Option E + Sound Attenuator
J = Sound Attenuator in First Bo

**18C: BOX ACCESSORIES (cont.)**
K = Option J + 20" Dain Pan in Second Box
L =Option J + 44" Drain Pan in Second Box
M = Sound Attenuator in First Box + Sound Attenuator in Second Box
N = Empty First Box + 20" Drain Pan in Second Box
P = Empty First Box + 44" Drain Pan in Second Box
Q =Empty First Box + Sound Attenuator in Second Box
S = Air Mixer in First Box
T = Option S + 20" Drain Pan in Second Box
U =Option S + 44" Drain Pan in Second Box
V =Option S + Sound Attenuator in Second Box

**19: OUTSIDE AIR ACCESSORIES**
0 = No Outside Air Hood - 100% Return Air
A = Outside Air Hood
B = Outside Air Hood with Metal Mesh Filters
C = Outside Air Hood + Outside Air Flow Measuring Station
G = Option B + C

**20: CABINET OPTIONS**
0 = Standard
B = SA & RA Burglar Bars
C = SA & RA Walkable Safety Grates
D = Perforated Line for SA Fans
E = Perforated Liner for RA Fans
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
1 = Option B + D + E
2 = Option C + D + E

**21: ACCESSORIES**
0 = None
B = Motorized Service Vestibule Fresh Air
C = Supply Fan Air Flow Measuring

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : | N | 0 | - | A | A | K | A | Q | - | J | 0 | 0 | - | B | F | T | 0 | M | - | 0 | 0 | 0 | 0 | 0 | - | Q | F | - | A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - | 0 | 0 | 0 | - | 8 | 0 | - | D | A | 0 | B | - | 0 | 0 | - | 0 | 0 | 0 | - | A | B | **E** | **Q** | **0** | **A** | **-** | **E** | **0** | **0** | **0** | **0** | **0** | - | 0 | 0 | 0 | 0 | 0 | D | B |

| 10A | 10B | 11A | 11B | 12 | 13A | 13B | 13C | 14 | 15 | 16A | 16B | 16C | 16D | 17A | 17B | 18A | 18B | 18C | 19 | 20 | **21** | **22** | **23** | **24** | **25** | **26** | **27** | **28** | **29** | **30** | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**21: ACCESSORIES (cont.)**
D = Return Fan Air Flow Measuring
E = Access Door Windows
K = Option B + C
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
Y = Option B + C + D
Z = Option B + C + E
1 = Option B + D + E
2 = Option C + D + E
7 = Option B + C + D + E

**22: MAINTENANCE ACCESSORIES**
0 = Standard
A = Factory Wired 115V Convenience Outlet
B = Field Wired 115V Convenience Outlet
C = Service Lights
D = Remote Start/Stop contacts
E = Supply Fan Auxiliary Contacts
F = Option A + C
G = Option A + D
H = Option A + E
J = Option B + C
K = Option B + D
L = Option B + E
M = Option C + D
N = Option C + E
P = Option D + E
Q = Option A + C + D
R = Option A + C + E
S = Option A + D + E
T = Option B + C + D
U = Option B + C + E
V = Option B + D + E
W = Option C + D + E
Y = Option A + C + D + E
Z = Option B + C + D + E

**23: CODE OPTIONS**
0 = Standard - ETL U.S.A. Listing
A = Chicago Code
B = ETL U.S.A. + Canada Listing

**24: SHIPPING SPLITS**
0 = Standard
A = Two Piece Unit
D = Two Piece Unit (Refrigeration Split)

**25: AIR COOLED CONDENSER ACCESSORIES**
0 = Standard
E = VFD Condenser Fan Head Pressure Control
K = Low Sound Condenser Fan Head Pressure Control

**26: EVAPORATIVE CONDENSER ACCESSORIES**
0 = No Evaporative Condenser
A = No sump or vestibule heat
B = Sump & vestibule heaters

**27: WATER - COOLED CONDENSER ACCESSORIES**
0 = No Water-Cooled Condenser

**28: ENERGY RECOVERY WHEEL ACCESSORIES**
0 = None
A = Energy Recovery Wheel Defrost Start/Stop
B = Energy Recovery Wheel Rotation Detection
E =VFD for Heat Wheel Motor (Field Control)
F = Energy Recovery Wheel Defrost Start/Stop + Rotation Detection
M = Option B + E

**29: VFD Options**
0 = None
A = Shaft grounding on all SA, RA, EA motors
C = BACnet VFD on all motors
G = Option A + C

# RZ Series Feature String Nomenclature

| GEN | MJREV | SIZE | SERIES | MNREV | VLT | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | 1 | 2 | 3A | 3B | 3C | 3D | 3E | 4A | 4B | 4C | 5A | 5B | 5C | 5D | 5E | 6A | 6B | 6C | 6D | 6E | 7 | 8 | 9A | 9B | 9C | 9D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RZ | A | - 145 | - D | 0 | - 3 | - C | A | B | 0 | A | - 0 | 0 | 0 | 0 | 0 | : N | 0 | - A | A | K | A | Q | - J | 0 | 0 | - B | F | T | 0 | M | - 0 | 0 | 0 | 0 | 0 | - Q | F | - A | 0 | A | A |
| | | | | - 0 | 0 | - M | 0 | - C | - | 0 | 0 | 0 | - 8 | 0 | - D | A | 0 | B | - 0 | 0 | - | 0 | 0 | 0 | - A | B | E | Q | 0 | A | - E | 0 | 0 | 0 | 0 | **0** | **-** | **0** | **0** | **0** | **0** | **D** | **B** |
| | | | | 10A | 10B | 11A | 11B | 12 | | 13A | 13B | 13C | 14 | 15 | | 16A | 16B | 16C | 16D | | 17A | 17B | | 18A | 18B | 18C | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | **30** | **31** | **32** | **33** | **34** | **35** | **36** | **37** |

**30: Miscellaneous Options**
0 = None
A = High Condensate Level Switch

**30: Miscellaneous Options (cont.)**
S = Additional Vestibule Heater
T = Option A + S

**31: BLANK**
0 = Standard

**32: BLANK**
0 = Standard

**33: BLANK**
0 = Standard

**34: BLANK**
0 = Standard

**35: WARRANTY**
0 = Standard Warranty
A = 2 Year Parts Warranty
B = 5 Year Parts Warranty
C = 10 Year Parts Warranty

**36: CABINET MATERIAL**
D = Galvanized Cabinet - Double Wall + R-13 Foam Insulation + 6" Base Rail + Double Sloped Roof

**37: SPECIALS & PAINT**
B = Premium AAON Gray Paint Exterior
D = Premium AAON Gray Paint Exterior + Interior Corrosion Protection
G = Premium AAON Gray Paint Exterior + Interior Corrosion Protection + Shrink Wrap
X = SPA + Premium AAON Gray Paint Exterior
Z = SPA + Premium AAON Gray Paint Exterior + Interior Corrosion Protection
3 = SPA + Premium AAON Gray Paint Exterior + Interior Corrosion Protection + Shrink Wrap
4 = SPA + Special Exterior Paint Color
6 = SPA + Special Exterior Paint Color + Interior Corrosion Protection
9 = SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap

# Model Option
## Unit Size

Example:

**RZA - 145 - D 0** - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

The first number of the model string designates nominal tons of cooling at AHRI conditions for RZ Series units. Actual capacities will vary with conditions. Refer to the AAON ECat software for performance and cooling capacities at design conditions.

Table 1 - Unit Series, Major Revision, Sizes, Series, and Minor Revision

| Series | Major Revision | Unit Size Air-Cooled Condenser | Unit Size Evaporative Condenser | Series | Minor Revision | Compressors/Circuits |
|---|---|---|---|---|---|---|
| RZ | A | 045 | | A | A | 2 Variable Speed Scroll Compressors / 2 Circuits |
| | | 055 | | | | |
| | | 065 | | | | |
| | | | 051 | | 0 | 2 Variable Speed Scroll + 1 Tandem On/Off Scroll Compressors / 3 Circuits |
| | | | 066 | | | |
| | | | 073 | | | |
| | | 075 | 079 | | | |
| | | 090 | 101 | B | | |
| | | 105 | 109 | | | |
| | | 120 | 124 | C | | |
| | | 130 | 136 | | | |
| | | 140 | 148 | | | |
| | | 145 | 161 | D | | 4 Variable Speed Scroll + 2 Tandem On/Off Scroll Compressors / 6 Circuits |
| | | 160 | 172 | | | |
| | | 180 | 197 | | | |
| | | 200 | 221 | E | | |
| | | 220 | 241 | | | |
| | | 240 | 261 | | | |

# Model Option
## Voltage

Example:

RZ A - 145 - D 0 - **3** - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

All units have single point power blocks with grounding lugs and 120VAC control circuits for compressorized units and 24VAC control circuits for non-compressorized units.

**2** = 230V/3Φ/60Hz
**3** = 460V/3Φ/60Hz
**4** = 575V/3Φ/60Hz
**8** = 208V/3Φ/60Hz

# Model Option
## Model Option A1 - Compressor Style

Example:

RZ A - 145 - D 0 - 3 - **C** A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Compressor* - This selection will not include compressors.
**C** = *R-410A Variable Speed Scroll Compressor* - Compressorized DX cooling with R-410A using individually circuited VFD compatible scroll compressors. See Model Option A5 for selection of modulation options. A suction pressure sensor will be provided per variable speed compressor. Option provides the unit with tight temperature control, improved humidity control and energy savings at part load conditions.
**H** = *R-454B Variable Speed Scroll Compressor* - Compressorized DX cooling with R-454B using individually circuited VFD compatible scroll compressors. See Model Option A5 for selection of modulation options. A suction pressure sensor will be provided per variable speed compressor. Option provides the unit with tight temperature control, improved humidity control and energy savings at part load conditions.

Figure 1 - Variable Speed Scroll Compressor Deck

# Model Option

## Model Option A2 - Condenser Style

Example:

RZ A - 145 - D 0 - 3 - C**A** B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Condenser* - This selection will not include a condenser coil section.
**A** = *Microchannel Air-Cooled Condenser* - Air-cooled condenser with microchannel coils.
**H** = *Evaporative Condenser* - Option includes corrosion resistant material on all wetted surfaces, copper evaporative condenser coil, and AAON de-superheater coil with polymer e-coating.
**N** = *DX Air Handling Unit* - Air handling unit evaporator coil, but no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included.


Figure 2 - Air-Cooled Condenser

# Model Option

## Model Option A3 - Indoor Coil Configuration

Example:

RZ A - 145 - D 0 - 3 - C A **B** 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Cooling Coil*
**A** = *Standard Evaporator* - Standard capacity DX evaporator coils are copper tubes with aluminum fins.

# Model Option A3 - Indoor Coil Configuration (Continued)

**B** = *6 Row Evaporator* - Six row, high capacity DX evaporator coils are copper tubes with aluminum fins. High capacity coils improve unit's energy efficiency and dehumidification capability.
**C** = *Standard Row Large Size Evaporator* - This DX evaporator coil option has a larger face area than the standard evaporator. Larger face area can reduce air side pressure drop and increase capacity. DX evaporator coils are copper tubes with aluminum fins.
**D** = *6 Row Large Size Evaporator* - This DX evaporator coil option has a larger face area than the standard evaporator. Larger face area can reduce air side pressure drop and increase capacity. The six row high capacity coils improve unit's energy efficiency and dehumidification capability. DX evaporator coils are copper tubes with aluminum fins.
**E** = *4 Row Chilled Water Coil Standard Size* - Four row chilled water cooling coil. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.
**F** = *6 Row Chilled Water Coil Standard Size* - Six row chilled water cooling coil. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.
**G** = *8 Row Chilled Water Coil Standard Size* - Eight row chilled water cooling coil. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.
**H** = *4 Row Chilled Water Coil Large Size* - Four row chilled water cooling coil with a larger face area than the standard chilled water coil. Larger face area can reduce air side pressure drop and increase capacity. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.
**J** = *6 Row Chilled Water Coil Large Size* - Six row chilled water cooling coil with a larger face area than the standard chilled water coil. Larger face area can reduce air side pressure drop and increase capacity. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.
**K** = *8 Row Chilled Water Coil Large Size* - Eight row chilled water cooling coil with a larger face area than the standard chilled water coil. Larger face area can reduce air side pressure drop and increase capacity. No valves or valve controls are included with this option. 45-140 ton units include two coils and thus include two inlet and two outlet water connections. 145-240 ton units include four coils and thus include four inlet and four outlet water connections. Chilled water coils are copper tubes with aluminum fins.

# Model Option

## Model Option A4 - Cooling Heat Exchanger Construction

Example:

RZ A - 145 - D 0 - 3 - C A B **0** A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*

**A** = *Polymer E-Coated Cooling Coil* - Polymer e-coating is applied only to the cooling coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

**B** = *Stainless Steel Cooling Coil Casing*- A stainless steel casing is applied on the ends of the coil to protect the copper coil tubing from damage. Option can protect coil during shipping and can improver durability of the coil.

**D** = *Stainless Steel Cooling Coil Casing + Option A* - A stainless steel casing is applied on the ends of the coil to protect the copper coil tubing from damage. Option can protect coil during shipping and can improve durability of the coil. The condenser will also have a polymer E-coating to protect it against corrosion. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed.

**E** = *Polymer E-Coated Condenser Coil* - Polymer e-coating is applied only to the condenser coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

**J** = *Polymer E-Coated Evaporator and Condenser Coils* - Polymer e-coating applied to both the condenser and evaporator coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment

# A4 - Cooling Heat Exchanger Construction Continued

shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.
T = Stainless Steel Cooling Coil Casing + Option J = A stainless steel casing is applied to the ends of the condenser coil and the evaporator coil. A polymer e-coating is also applied to both the condenser and evaporator coil. Complete coil and casing are coated. Coating includes a 5 year warranty from the date of original equipment shipment from the factory.

# Model Option

## Model Option A5 - Cooling Staging

Example:

RZ A - 145 - D 0 - 3 - C A B 0 **A** - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Cooling* - Heating only air handling unit.
**A =** *Full Face Variable Speed + Tandem On/Off Comp* - Modulating DX cooling unit. The air-cooled condenser 75-140 ton and evaporative cooled condenser 51-148 ton RZ units include two variable speed scroll compressors and one tandem on/off compressor. The air-cooled condenser 145-240 ton and evaporative cooled condenser 161-261 ton RZ units include four variable speed scroll compressors and two tandem on/off compressors. With factory provided controls, on/off compressors are staged on while the variable capacity compressors modulate their capacity as needed.
**E =** *All Variable Capacity Refrigeration Systems* - Modulating DX cooling unit. The air-cooled condenser 45-65 ton RZ units include two variable speed scroll compressors.
**F**= *Single Serpentine 8 fpi* - Chilled water coil with single serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
**G** = *Half Serpentine 8 fpi* - Chilled water coil with half serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.
**H** = *Single Serpentine 10 fpi* - Standard chilled water coil option with single serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.
**J =** *Half Serpentine 10 fpi* - Chilled water coil with half serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.
**K** = *Single Serpentine 12 fpi* - Chilled water coil with single serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.
**L** = *Half Serpentine 12 fpi* - Chilled water coil with half serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.
**M** = *DX Air Handling Unit with 4 Refrigeration Circuits* – Air handling unit evaporator coil, but no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included. Option available for RZ size 45 – 140 tons. Available when A2 = N.
**N** = *DX Air Handling Unit with 8 Refrigeration Circuits* – Air handling unit evaporator coil, but no compressors or condenser. Option is used with a remote condensing unit. Thermal expansion valve and hot gas bypass connection are included. Option available for RZ size 145 – 240 tons. Available when A2 = N.

# Model Option

## Model Option B1 - Heat Type

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - **0** 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Heating*

**B** = *Electric Heat* - Electric heater with multiple elements.

**D** = *Natural Gas Single Rack* - Natural gas heater with a single vertical rack of heat exchangers. One to six heat exchangers are allowed. RZ Series units require only a single gas connection.

**E** = *Natural Gas Double Rack* - Natural gas heater with a double vertical rack of heat exchangers. Two to twelve heat exchangers are allowed. RZ Series units require only a single gas connection.

**K** = *Hot Water Coil* - Hot water heating coil. No valves or valve controls are included with this option.

**M** = *Steam Distributing Coil* - Steam heating coil. No valves or valve controls are included with this option. The maximum operating pressure for steam coils is 25 psi.

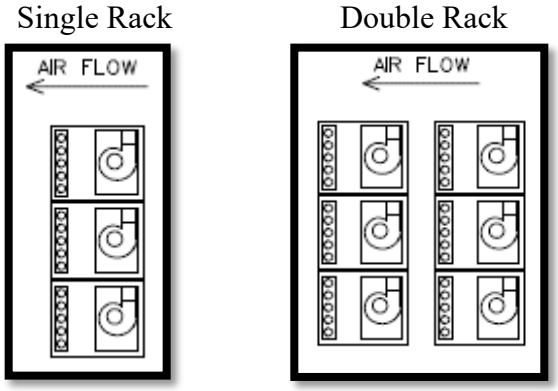



Figure 3 - Single Rack vs Double Rack Gas Heater

Figure 4 - Natural Gas Single Rack Heater

# Model Option

## Model Option B2 - Heat Construction

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 **0** 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0 =** *No Heat*

**B** = *Stainless Steel Heat Exchanger* - Natural gas or liquid propane gas heater with 304 stainless steel heat exchanger with a 25 year non-prorated warranty. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise across the heater exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F.

**D** = *High Altitude Stainless Steel* - Natural gas or liquid propane gas heater with 304 stainless steel heat exchanger with a 25 year non-prorated warranty. Burner orifices are chosen based on altitude at or above 2,000 feet as selected in AAON ECat. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise across the heater exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F.

**G** = *Hot Water Polymer E-Coated Coil* - Hot water coil with a polymer e-coating applied to the complete coil and casing. Coating exceeds a 10,000 hour salt spray test per ASTM B 117-90 requirements, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. No valves or valve controls are included with this option. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.

# Model Option

## Model Option B3 - Heat Designation

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 **0** 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = No Heat
**1** = Heat 1
**2** = Heat 2
**3** = Heat 3
**4** = Heat 4
**5** = Heat 5
**6** = Heat 6
**7** = Heat 7
**8** = Heat 8

**A** = 1 Row Size A
**B** = 1 Row Size B
**C** = 1 Row Size C
**D** = 1 Row Size D
**E** = 2 Row Size A
**F** = 2 Row Size B
**G** = 2 Row Size C
**H** = 2 Row Size D

**1 - 8** = *Gas Heat Input Capacity* - See Table 3
**A - D** = *1 Row Coil* - Single row hot water or steam heating coil. No valves or valve controls are included with this option. See Table 2
**E - H** = *2 Row Coil* - Two row hot water or steam heating coil. No valves or valve controls are included with this option. See Table 2

**Note:** AAON ECat will select the correct heating designation option for gas heat or electric heat based on the desired leaving air and entering air temperature conditions. See General Data section for tonnage specific heating information.

Table 2 - Hot Water & Steam Distributing Coil Sizes

| RZ Cabinet Size | Coil Size | Hot Water Coils | | | Steam Distributing Coils | | |
|---|---|---|---|---|---|---|---|
| | | Fin Length x Fin Height | Coil Quantity | Coil Total Face Area ($ft^2$) | Fin Length x Fin Height | Coil Quantity | Coil Total Face Area ($ft^2$) |
| **A (45-75 tons)** | Size A | 59” x 81.25” | 1 | 33.3 | 36” x 60” | 2 | 30.0 |
| | Size B | 59” x 60” | 1 | 24.6 | 57” x 60” | 1 | 23.8 |
| | Size C | 48” x 55” | 1 | 18.3 | 57” x 39” | 1 | 15.4 |
| | Size D | 36” x 45” | 1 | 11.3 | 36” x 42” | 1 | 10.5 |
| **B & C (90-140 tons)** | Size A | 38” x 81.25” | 2 | 42.9 | 36” x 39” | 4 | 39.0 |
| | Size B | 59” x 81.25” | 1 | 33.3 | 36” x 60” | 2 | 30.0 |
| | Size C | 59” x 60” | 1 | 24.6 | 57” x 60” | 1 | 23.8 |
| | Size D | 48” x 55” | 1 | 18.3 | 57” x 39” | 1 | 15.4 |
| **D & E (145-240 tons)** | Size A | 59” x 81.25” | 2 | 66.6 | 57” x 39” | 4 | 61.8 |
| | Size B | 59” x 60” | 2 | 49.2 | 57” x 60” | 2 | 47.5 |
| | Size C | 59” x 81.25” | 1 | 33.3 | 57” x 39” | 2 | 30.9 |
| | Size D | 48” x 65” | 1 | 21.7 | 57” x 60” | 1 | 23.8 |

# Model Option B3 - Heat Designation Continued

Table 3 - Gas Heating Capacities

| RZ Cabinet Size | Model Option B3 | Gas Heat | | Electric Heat | |
|---|---|---|---|---|---|
| | | Input Capacity | Output Capacity | kW (230V, 380V, 460V, 575V) | kW (208V) |
| | | MBH | MBH | kW | kW |
| **A, B, & C (45-140ton)** | **1** = *Heat 1* | 540 | 437 | 80 | 60.1 |
| | **2** = *Heat 2* | 810 | 656 | 120 | 90.1 |
| | **3** = *Heat 3* | 1080 | 875 | 160 | 120.1 |
| | **4** = *Heat 4* | 1350 | 1094 | 200 | 150.2 |
| | **5** = *Heat 5* | 1620 | 1312 | 240 | 180.3 |
| | **6** = *Heat 6* | 2100 | 1701 | | |
| | **7** = *Heat 7* | 2580 | 2090 | | |
| | **8** = *Heat 8* | 3060 | 2479 | | |
| **D & E (145-240ton)** | **1** = *Heat 1* | 800 | 648 | 80 | 60.1 |
| | **2** = *Heat 2* | 1200 | 972 | 120 | 90.1 |
| | **3** = *Heat 3* | 1600 | 1296 | 160 | 120.1 |
| | **4** = *Heat 4* | 2000 | 1620 | 240 | 180.3 |
| | **5** = *Heat 5* | 2400 | 1944 | 320 | 240.4 |
| | **6** = *Heat 6* | 3100 | 2511 | 400 | 300.4 |
| | **7** = *Heat 7* | 3800 | 3078 | 480 | 360.5 |
| | **8** = *Heat 8* | 4500 | 3645 | | |

# Model Option

## Model Option B4 - Heat Staging

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 **0** 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Heating*
**A** = *1 stage* - Single stage heat control.
**B** = *2 stage* - Two stage heat control.
**C** = *3 stage* - Three stage heat control.
**D** = *4 stage* - Four stage heat control.
**E** = *5 stage* - Five stage heat control.
**F** = 6 *stage* - Six stage heat control.
**G** = *7 stage* - Seven stage heat control.
**H** = 8 *stage* - Eight stage heat control.
**V** = 10 *stage* - Ten stage heat control.
**J** = 12 *stage* - Twelve stage heat control.

Table 4 - RZ Series Gas Turndown

| Model (Nominal Tons) | Rated Input | Number of Stages Available | Modulating Gas | High Turndown Modulating Gas |
|---|---|---|---|---|
| 45-140 tons | 540 MBH | 2, 4 | 3:1 | 9:1 |
| | 810 MBH | 3, 6 | 4.5:1 | 13.5:1 |
| | 1080 MBH | 4, 8 | 6:1 | 18:1 |
| | 1350 MBH | 5, 10 | 7.5:1 | 22.5:1 |
| | 1620 MBH | 6, 12 | 9:1 | 27:1 |
| | 2100 MBH | 4, 8 | 11.7:1 | 35:1 |
| | 2580 MBH | 5, 10 | 14.3:1 | 43:1 |
| | 3060 MBH | 6, 12 | 17:1 | 51:1 |
| | | | | |
| 145-240 tons | 800 MBH | 2, 4 | 3:1 | 7.5:1 |
| | 1200 MBH | 3, 6 | 4.5:1 | 11.2:1 |
| | 1600 MBH | 4, 8 | 6:1 | 15:1 |
| | 2000 MBH | 5, 10 | 7.5:1 | 18.7:1 |
| | 2400 MBH | 6, 12 | 9:1 | 22.5:1 |
| | 3100 MBH | 4, 8 | 11.6:1 | 29:1 |
| | 3800 MBH | 5, 10 | 14.2:1 | 35.6:1 |
| | 4500 MBH | 6, 12 | 16.8:1 | 42.1:1 |

## Model Option B4 - Heat Staging Continued

**K**= *Modulating Gas - Temperature Control* - Heater gas valve and the speed of the induced draft fan are modulated by a DDC controller Includes a factory wired supply air temperature sensor which is field installed in the supply ductwork. Controller can be used in standalone applications or connected to a VCC-X controller via modular cable (Feature 16B = A). In standalone application, on a call for heating, the controller will modulate gas valve and speed of induced draft blower to maintain a constant supply air temperature setpoint that is set using a DIP switch on the controller. The supply air temperature can be reset to a supply air temperature reset setpoint using a field provided 0-10 VDC reset input signal and another DIP switch on the controller. When the modulating gas heat controller is connected to a VCC-X controller (Feature 16B = A) supply air temperature setpoint, supply air temperature sensor offset, and supply air high temperature limit setpoint will be set with the unit controller's operator interface. The heat enable signal is provided by the unit controller. Modulating gas heat requires a stainless steel natural gas heat exchanger (Model Option B2 = B or D).
**L** = *High Turndown Modulating Gas Heat* - This option is similar to Option K. This option adds a split manifold on the modulating heater. This provides a lower capacity on the lowest setting. This achieves a higher turndown.
**M** = *Modulating SCR with Temperature Control* - Fully modulating electric heating, controlled by a Silicon Controlled Rectifier (SCR) and DDC controller. Includes a factory wired supply air temperature sensor, which is field installed in the supply ductwork, and a factory wired supply air temperature setpoint adjustment potentiometer, which is field mounted. Potentiometer dial uses variable resistance to provide simple setpoint control.
**N** = *Modulating SCR with External 0-10 VDC* - Fully modulating electric heating, controlled by an SCR and DDC controller. A terminal strip to connect a 0-10 VDC control signal by others is included. Heating elements line voltage is modulated linearly with respect to the control signal.
**R** = *Single Serpentine 10 fpi* - Hot water or steam heating coil with single serpentine circuitry and 10 fins per inch. Standard steam coil option and standard 2 row hot water coil option. No valves or valve controls are included with this option.
**S** = *Half Serpentine 10 fpi* - Hot water heating coil with half serpentine circuitry and 10 fins per inch. Standard 1 row hot water coil option. No valves or valve controls are included with this option.

# Model Option

## Model Option B5 - Heat Pump Aux Heating

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 **0** : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0 =** *No Heat Pump*

# Feature 1
## 1: Unit Orientation

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : **N** 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**E =** *Draw Through Supply Fan, Walk-in Vestibule, Left Side Air Tunnel Access* - The supply fan is in the draw through position with access doors on the left side of the air tunnel. Walk-in service vestibule with electrical cabinet is included.
**F =** *Draw Through Supply Fan, Walk-in Vestibule, Right Side Air Tunnel Access* - The supply fan is in the draw through position with access doors on the right side of the air tunnel. Walk-in service vestibule with electrical cabinet is included.

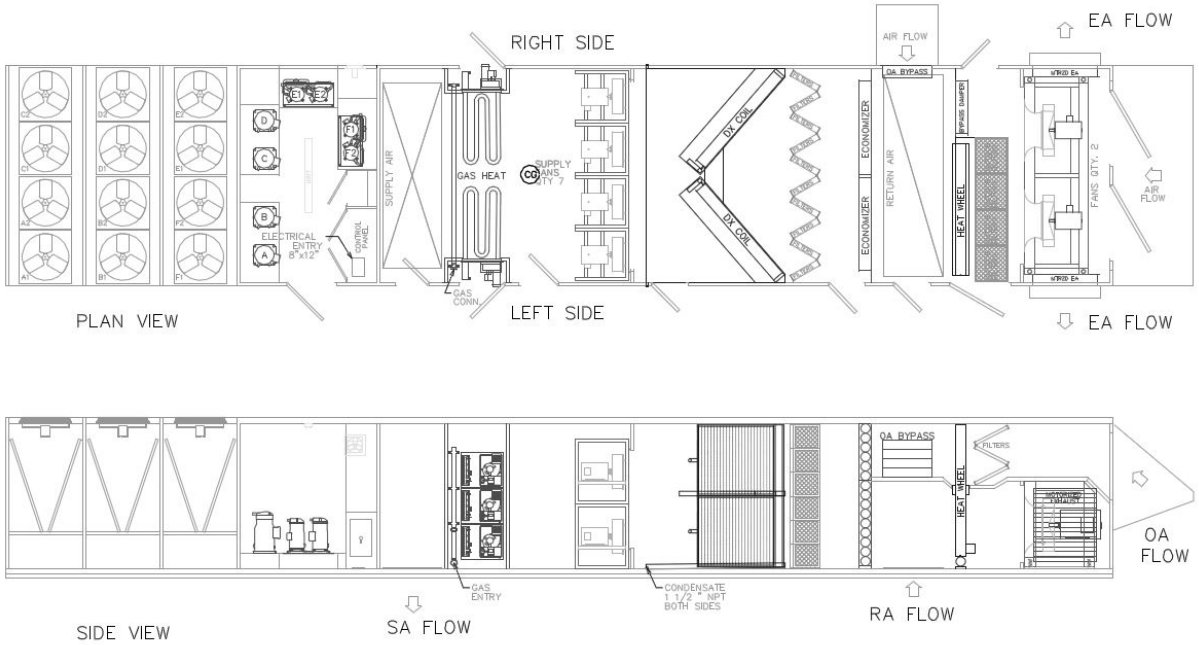



Figure 5 - Draw Through Supply Fan, Walk-in Vestibule, Left Side Access

**G =** *Draw Through Supply Fan, Non-compressorized, End Control Panel, Left Side Air Tunnel Access* - The supply fan is in the draw through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit.
**H =** *Draw Through Supply Fan, Non-compressorized, End Control Panel, Right Side Air Tunnel Access* - The supply fan is in the draw through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit.
**J =** *Draw Through Supply Fan, Non-compressorized, Left Control Panel, Left Access* - The supply fan is in the draw through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the left side of the unit.

# Feature 1 - Unit Orientation Continued

**K** = *Draw Through Supply Fan, Non-compressorized, Right Control Panel, Right Access* - The supply fan is in the draw through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the right side of the unit.
**L** = *Draw Through Supply Fan, Non-compressorized, Walk-in Vestibule, Left Access* - The supply fan is in the draw through position with access doors on the left side of the air tunnel. Walk-in service vestibule with electrical cabinet is included. This selection does not include the compressorized section.
**M** = *Draw Through Supply Fan, Non-compressorized, Walk-in Vestibule, Right Access*- The supply fan is in the draw through position with access doors on the right side of the air tunnel. Walk-in service vestibule with electrical cabinet is included. This selection does not include the compressorized section.
**N** = *Blow Through Supply Fan, Walk-in Vestibule, Left Side Air Tunnel Access*- The supply fan is in the blow through position with access doors on the left side of the air tunnel. Walk-in service vestibule with electrical cabinet is included.
**P** = *Blow Through Supply Fan, Walk-in Vestibule, Right Side Air Tunnel Access* - The supply fan is in the blow through position with access doors on the right side of the air tunnel. Walk-in service vestibule with electrical cabinet is included.
**Q** = *Blow Through Supply Fan, Non-compressorized, End Control Panel, Left Access* - The supply fan is in the blow through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit.
**R** = *Blow Through Supply Fan, Non-compressorized, End Control Panel, Right Access*- The supply fan is in the blow through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit.
**S** = *Blow Through Supply Fan, Non-compressorized, Left Control Panel, Left Access* - The supply fan is in the blow through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the left side of the unit.
**T** = *Blow Through Supply Fan, Non-compressorized, Right Control Panel, Right Access* - The supply fan is in the blow through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the right side of the unit.
**U** = *Blow Through Supply Fan, Non-compressorized, Walk-in Vestibule, Left Access* - The supply fan is in the blow through position with access doors on the left side of the air tunnel. Walk-in service vestibule with electrical cabinet is included. This selection does not include the compressorized section.
**V** = *Blow Through Supply Fan, Non-compressorized, Walk-in Vestibule, Right Access*- The supply fan is in the blow through position with access doors on the right side of the air tunnel. Walk-in service vestibule with electrical cabinet is included. This selection does not include the compressorized section.

# Feature 1 - Unit Orientation Continued

**W =** *Draw Through Supply Fan, End Control Panel, Left Side Air Tunnel Access*- The supply fan is in the draw through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit. Available on sizes 045 through 105 tons.
**Y =** *Draw Through Supply Fan, End Control Panel, Right Side Air Tunnel Access*- The supply fan is in the draw through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit. Available on sizes 045 through 105 tons.

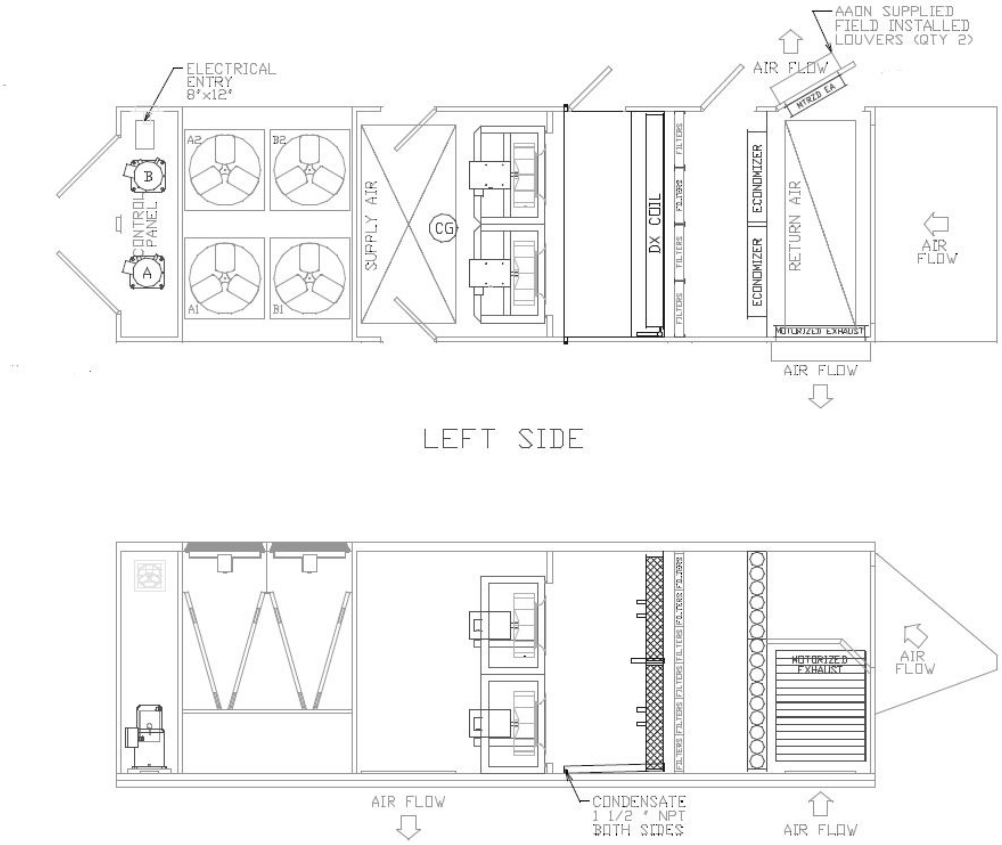



Figure 6 - Draw Through Supply Fan, End Control Panel, Right Side Air Tunnel Access

**Z =** *Blow Through Supply Fan, End Control Panel, Left Side Air Tunnel Access*- The supply fan is in the blow through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit. Available on sizes 045 through 105 tons.

**1 =** *Blow Through Supply Fan, End Control Panel, Right Side Air Tunnel Access*- The supply fan is in the blow through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section. Control panel access is at the end of the unit. Available on sizes 045 through 105 tons.

# Feature 2
## 2: Supply & Return Locations

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N **0** - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Bottom Supply + Bottom Return*
**A** = *Bottom Supply + No Return*
**B** = *Bottom Supply + Left Return*
**C** = *Bottom Supply + Right Return*
**D** = *Bottom Supply + End Return*

**E** = *Left Supply + No Return*
**F** = *Left Supply + Bottom Return*
**G** = *Left Supply + Left Return*
**H** = *Left Supply + Right Return*
**J** = *Left Supply + End Return*

**K** = *Right Supply + No Return*
**L** = *Right Supply + Bottom Return*
**M** = *Right Supply + Left Return*
**N** = *Right Supply + Right Return*
**P** = *Right Supply + End Return*

**Q** = *Top Supply + No Return*
**R** = *Top Supply + Bottom Return*
**S** = *Top Supply + Left Return*
**T** = *Top Supply + Right Return*
**U** = *Top Supply + End Return*

**V** = *End Supply + No Return*
**W** = *End Supply + Bottom Return*
**Y** = *End Supply + Left Return*
**Z** = *End Supply + Right Return*
**1** = *End Supply + End Return*

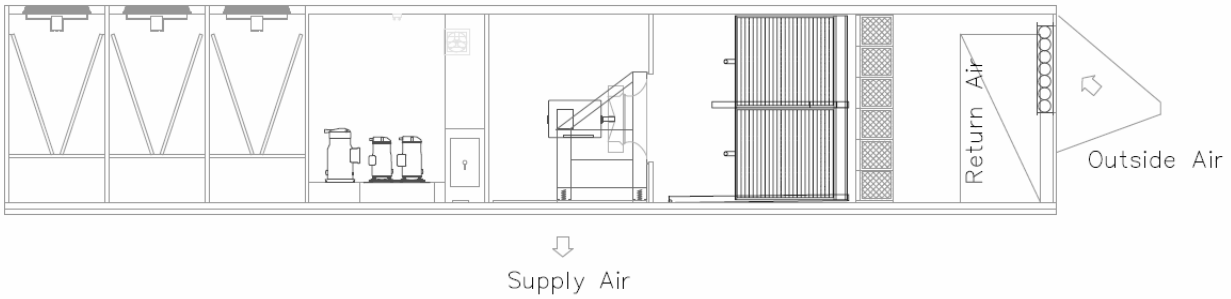



Figure 7 - RZ Series Bottom Supply + Left Return

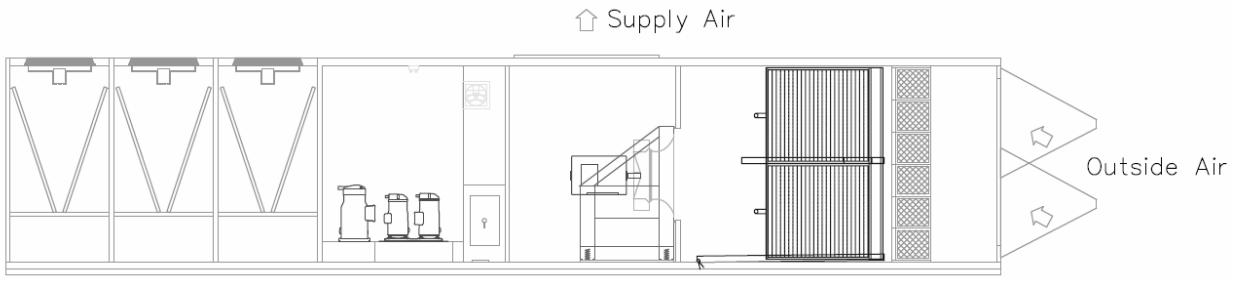



Figure 8 - RZ Series Top Supply + No Return

# Feature 3A

## 3A: Supply Fan Quantity

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - **A** A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *1 Fan*
**A** = *2 Fans*
**B** = *3 Fans*
**C** = *4 Fans*
**D** = *5 Fan*
**E** = *6 Fans*
**F** = *7 Fans*
**G** = *8 Fans*
**H** = *9 Fan*
**J** = *10 Fans*
**K** = *11 Fans*
**L** = *12 Fans*

AAON ECat will select the correct available options for Feature 3A based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 3B

## 3B: Supply Fan Configuration

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A **A** K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No VFDs + Full Width Fan*
**A** = *1 Fan per VFD + Full Width Fan*
**B** = 2 *Fans per VFD + Full Width Fan*
**C** = 3 *Fans per VFD + Full Width Fan*
**D** = 4 *Fans per VFD + Full Width Fan*
**E** = *No VFDs + Narrow Width Fan*
**F** = *1 Fan per VFD + Narrow Width Fan*
**G** = *2 Fans per VFD + Narrow Width Fan*
**H** = *3 Fans per VFD + Narrow Width Fan*
**J** = *4 Fans per VFD + Narrow Width Fan*
**K** = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
**L** = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
**M** = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**N** = *3 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*

# Feature 3B - Supply Fan Configuration Continued

**P** = *4 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**Q** = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
**R** = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**S** = *2 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**T** = *3 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**U** = *4 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

AAON ECat will select the correct available options for Feature 3B based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

Figure 9 - Inlet Backdraft Dampers

# Feature 3C

## 3C: Supply Fan Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A **K** A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**G** = *27" Direct Drive Backward Curved Plenum Aluminum*
**J** = *30" Direct Drive Backward Curved Plenum Steel*
**K** = *33" Direct Drive Backward Curved Plenum Steel*
**L** = *36.5" Direct Drive Backward Curved Plenum Aluminum*
**M** = *42.5" Direct Drive Backward Curved Plenum Aluminum*
**N** = *18.5" Direct Drive Airfoil Plenum Aluminum*
**P** = *22" Direct Drive Airfoil Plenum Aluminum*
**Q** = *24" Direct Drive Airfoil Plenum Aluminum*
**R** = *27" Direct Drive Airfoil Plenum Aluminum*

**Options N-R** (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON ECat will select the correct available options for Feature 3C based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 3D

## 3D: Supply Fan Motor Type

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K **A** Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *High Efficiency Open Motor (1170 nominal rpm)*
**A** = *High Efficiency Open Motor (1760 nominal rpm)*
**K** = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
**L** = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*
**P** = *Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)* - use less power than an induction motor at the same conditions. Permanent magnet motors must include one VFD per motor and VFD bypass is not available; however shaft grounding is standard on these motors.

AAON ECat will select the correct available options for Feature 3D based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 3E

## 3E: Supply Fan Motor Size

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A **Q** - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**G** = *3 hp*
**H** = *5 hp*
**J** = *7.5 hp*
**K** = *10 hp*
**L** = *15 hp*
**M** = *20 hp*
**N** = *25 hp*
**P** = *30 hp*
**Q** = *40 hp*
**R** = *50 hp*

AAON ECat will select the correct available options for Feature 3E based on unit conditions and the input from the fan selection program. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 4A
## 4A: Outside Air Section

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - **J** 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *100% Outside Air, No Return Air* - Outside air opening in the unit which can accommodate 100% of the unit air flow. The outside air opening is not adjustable, and the unit will not have a return air opening. Unit must have a stainless steel heat exchanger if gas heat is specified. Hot gas bypass on all refrigeration circuits without variable speed scroll compressors, is required on the RZ Series with this option.

**A** = *Motorized 100% Outside Air Dampers, No Return Air* - Extruded aluminum, low leakage, gear driven outside air dampers to control the outside air intake. This option is for 100% outside air applications and unit will not have a return air opening. Units must have a stainless steel heat exchanger if gas heat is specified. Hot gas bypass on all refrigeration circuits, without variable speed scroll compressors, is required on the RZ Series with this option. Dampers open on a call for the supply fan. See Feature 7 for outside air damper actuator control options.

**B** = *Manually Adjustable Outside Air Opening with Return Air Opening* - 0-25% manually adjustable outside air opening. Option includes a return air opening in the unit base.

**C** = *Motorized Outside Air Dampers with Return Air* - Extruded aluminum, low leakage, aluminum gear driven outside air dampers to control the outside air intake. Option includes a return air opening in the unit base. Dampers open on a call for the supply fan. See Feature 7 for outside air damper actuator control options.

**D** = *100 % Return Air, No Outside Air* - Return air opening in the unit which can accommodate 100% of the unit air flow. The return air opening is not adjustable, and the unit will not have an outside air opening.

**E** = *Economizer* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with factory installed actuator and barometric relief damper on the return air section. See Feature 7 for actuator control options.

**G** = *Economizer with Power Exhaust* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power exhaust for space pressurization control during the economizer mode of operation. See Feature 7 for actuator control options. Variable flow power exhaust is available with the selection of a VFD in Feature 6B.

**J** = *Economizer with Power Return* - Extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power return for use with high return static pressure applications. See Feature 7 for actuator control options. Variable flow power return is available with the selection of a VFD in Feature 5B.

**Q** = *Economizer with AAONAIRE Energy Recovery with Bypass Damper* - Factory installed energy recovery with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Bypass damper with two position actuator allows air to flow around the wheel. Select when the outside air flow is greater than the maximum air flow rating of the wheel or when additional air flow is needed during economizer operation. Outside air flow through the wheel is limited to the maximum air flow rating of the wheel shown in Table 6. See Feature 7 for economizer actuator control options.

# Feature 4A - Outside Air Section Continued

**R** = *Economizer with Power Return and AAONAIRE Energy Recovery with Bypass Damper* - Factory installed energy recovery with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly with power return for use with high return static pressure applications. Variable flow power return is available with the selection of a VFD in Feature 5B. . Bypass damper with two position actuator allows air to flow around the wheel. Select when the outside air flow is greater than the maximum air flow rating of the wheel or when additional air flow is needed during economizer operation. Outside air flow through the wheel is limited to the maximum air flow rating of the wheel shown in Table 6. See Feature 7 for economizer actuator control options.

Table 5 - Economizer Data

| Model | Cabinet | Cabinet Width (in.) | Economizer | | | |
|---|---|---|---|---|---|---|
| | | | Blade Length (in.) | Number of Banks | Return Area ($ft^2$) | Outside Area ($ft^2$) |
| RZ-045 | A | 100 | 60 | 1 | 20.7 | 13.8 |
| RZ-055 | | | | | | |
| RZ-065 | | | | | | |
| RZ-075 | | | | | | |
| RZ-090 | B | | 38 | 2 | 26.2 | 17.5 |
| RZ-105 | | | | | | |
| RZ-120 | C | | | | | |
| RZ-130 | | | | | | |
| RZ-140 | | | | | | |
| RZ-145 | D | 142 | 60 | | 41.4 | 27.6 |
| RZ-160 | | | | | | |
| RZ-180 | | | | | | |
| RZ-200 | E | | | | | |
| RZ-220 | | | | | | |
| RZ-240 | | | | | | |

# Feature 4B

## 4B: Energy Recovery Type

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J **0** 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Energy Recovery Wheel*

**A** = *Polymer Energy Recovery Wheel* - Factory installed polymer energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. See Feature 7 for economizer actuator control options.

**B** = *Polymer Energy Recovery Wheel+1% Purge* **-** Factory installed polymer energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Option includes an adjustable purge sector, which can reduce carryover to no more than 1%. Used for applications which require limiting cross contamination of the ventilation air with exhaust air. Feature 7 for economizer actuator control options.

Figure 10 - Aluminum Energy Recovery Wheel

**C** = *Aluminum Energy Recovery Wheel* - Factory installed aluminum energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. See Feature 7 for economizer actuator control options.

**D** = *Aluminum Energy Recovery Wheel+1% Purge* **-** Factory installed aluminum energy recovery wheel with factory installed extruded aluminum, low leakage, aluminum gear driven, economizer damper assembly. Option includes an adjustable purge sector, which can reduce carryover to no more than 1%. Used for applications which require limiting cross contamination of the ventilation air with exhaust air. Feature 7 for economizer actuator control options.

# Feature 4C

## 4C: Energy Recovery Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 **0** - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Energy Recovery*

**A** = *Small Enthalpy* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6.

# Feature 4C - Energy Recovery Size Continued

**B** = *Medium Enthalpy* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6.
**C** = *Large Enthalpy* - This option includes two wheels. The wheels' heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6.
**D** = *Extra Large Enthalpy* - This option includes two wheels. The wheels' heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6.
**E** = *Small Sensible* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6.
**F** = *Medium Sensible* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6.
**G** = *Large Sensible* - This option includes two wheels. The wheels do not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6.
**H** = *Extra Large Sensible* - This option includes two wheels. The wheels do not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6.
**J** = *Small Enthalpy + Exhaust Filters* - The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**K** = *Medium Enthalpy + Exhaust Filters*- The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**L** = *Large Enthalpy + Exhaust Filters* - This option includes two wheels. The wheels' styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**M** = *Extra Large Enthalpy + Exhaust Filters* - This option includes two wheels. The wheels' styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. Outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**N** = *Small Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**P** = *Medium Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.

# Feature 4C - Energy Recovery Size Continued

**Q** = *Large Sensible + Exhaust Filters* - This option includes two wheels. The wheels do not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.
**R** = *Extra Large Sensible + Exhaust Filters* - This option includes two wheels. The wheels do not have silica gel desiccant on the substrate. Outside airflow is limited to the maximum air flow rating of the wheel shown in Table 6. Exhaust filters are installed in the exhaust air stream upstream of the wheel.

Table 6 - Energy Recovery Wheel Information

| Cabinet Size | Energy Recovery Size | Energy Recovery Wheel P = Polymer; A = Aluminum | | |
|---|---|---|---|---|
| | | Qty/Diameter/Width | Maximum Air Flow Through the Wheel | Wheel Bypass Maximum Airflow |
| A, B, C Cabinet | Small | P = 1 / 74" /3"<br>A = 1 / 74" /4" | P = 12,000 CFM<br>A = 17,000 CFM | 25,000 CFM |
| | Medium | P = 1 / 81" /3"<br>A = 1 / 81" /4" | P = 15,000 CFM<br>A = 20,000 CFM | 18,000 CFM |
| | Large | P = 2 / 74" /3"<br>A = 2 / 74" /4" | P = 24,000 CFM<br>A = 34,000 CFM | 20,000 CFM |
| D & E Cabinet | Small | P = 1 / 74" /3"<br>A = 1 / 74" /4" | P = 12,000 CFM<br>A = 17,000 CFM | 50,000 CFM |
| | Medium | P = 1 / 81" /3"<br>A = 1 / 81" /4" | P = 15,000 CFM<br>A = 20,000 CFM | 48,000 CFM |
| | Large | P = 2 / 74" /3"<br>A = 2 / 74" /4" | P = 24,000 CFM<br>A = 34,000 CFM | 20,000 CFM |
| | Extra Large | P = 2 / 81" /3"<br>A = 2 / 81" /4" | P = 30,000 CFM<br>A = 40,000 CFM | 24,000 CFM |

# Feature 5A
## 5A: Return Fan Quantity

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - **B** F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Fan*
**A** = *1 Fan*
**B** = *2 Fans*
**C** = *3 Fans*
**D** = *4 Fans*

AAON ECat will select the correct available options for Feature 5A based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs, and motor efficiency. General fan information, fan sound information, and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 5B
## 5B: Return Fan Configuration

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B **F** T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Fan*
**A** = *No VFDs + Full Width Fan*
**B** = *1 Fan per VFD + Full Width Fan*
**C** = *2 Fans per VFD + Full Width Fan*
**D** = *3 Fans per VFD + Full Width Fan*
**E** = *4 Fans per VFD + Full Width Fan*
**F** = *No VFDs + Narrow Width Fan*
**G** = *1 Fan per VFD + Narrow Width Fan*
**H** = *2 Fans per VFD + Narrow Width Fan*
**J** = *3 Fans per VFD + Narrow Width Fan*
**K** = *4 Fans per VFD + Narrow Width Fan*

# Feature 5B - Return Fan Configuration Continued

**L** = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
**M** = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
**N** = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**P** = *3 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**Q** = *4 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**R** = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
**S** = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**T** = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**U** = *3 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**V** = *4 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

*Power return with VFD or Speed Control requires field supplied control signal.

AAON ECat will select the correct available options for Feature 5B based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

# Feature 5C

## 5C: Return Fan Size

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F **T** 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Fan*
**N** = *27" Direct Drive Backward Curved Plenum Aluminum*
**Q** = *30" Direct Drive Backward Curved Plenum Steel*
**R** = *33" Direct Drive Backward Curved Plenum Steel*
**S** = *36.5" Direct Drive Backward Curved Plenum Aluminum*
**T** = *42.5" Direct Drive Backward Curved Plenum Aluminum*
**U** = *18.5" Direct Drive Airfoil Plenum Aluminum*
**V** = *22" Direct Drive Airfoil Plenum Aluminum*
**W** = *24" Direct Drive Airfoil Plenum Aluminum*
**Y** = *27" Direct Drive Airfoil Plenum Aluminum*

**Options U-Y** (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON ECat will select the correct available options for Feature 5C based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 5D

## 5D: Return Fan Motor Type

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T **0** M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Fan*
**A** = *High Efficiency Open Motor (1170 nominal rpm)*
**B** = *High Efficiency Open Motor (1760 nominal rpm)*
**L** = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
**M** = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

## Feature 5D - Return Fan Motor Type Continued

**P** = *Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)* - use less power than an induction motor at the same conditions. Permanent magnet motors must include one VFD per motor and VFD bypass is not available; however shaft grounding is standard on these motors.
**Q** = *Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)* - use less power than an induction motor at the same conditions. Permanent magnet motors must include one VFD per motor and VFD bypass is not available; however shaft grounding is standard on these motors.

AAON ECat will select the correct available options for Feature 5D based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 5E

## 5E: Return Fan Motor Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 **M** - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Fan*
**H** = *3 hp*
**J** = *5 hp*
**K** = *7.5 hp*
**L** = *10 hp*
**M** = *15 hp*
**N** = *20 hp*
**P** = *25 hp*
**Q** = *30 hp*
**R** = *40 hp*

AAON ECat will select the correct available options for Feature 5E based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 6A
## 6A: Exhaust Fan Quantity

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - **0** 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Exhaust Fan*
**A** = *1 Fan*
**B** = *2 Fans*

AAON ECat will select the correct available options for Feature 6A based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs, and motor efficiency. General fan information, fan sound information, and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 6B
## 6B: Exhaust Fan Configuration

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 **0** 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**A** = *No VFDs + Full Width Fan*
**B** = *1 Fan per VFD + Full Width Fan*
**C** = *2 Fans per VFD + Full Width Fan*
**D** = *3 Fans per VFD + Full Width Fan*
**E** = *4 Fans per VFD + Full Width Fan*
**F** = *No VFDs + Narrow Width Fan*
**G** = *1 Fan per VFD + Narrow Width Fan*
**H** = *2 Fans per VFD + Narrow Width Fan*
**J** = *3 Fans per VFD + Narrow Width Fan*
**K** = *4 Fans per VFD + Narrow Width Fan*
**L** = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
**M** = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
**N** = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
**P** = *3 Fans per VFD + Inlet Backdraft Dampers*
**Q** = *4 Fans per VFD + Inlet Backdraft Dampers*
**R** = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
**S** = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**T** = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**U** = *3 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
**V** = *4 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

*Power exhaust with VFD or Speed Control requires field supplied control signal.

AAON ECat will select the correct available options for Feature 6B based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a power return, power exhaust or energy recovery wheel option in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the “Fan Selection” window. In the “Fan Selection” window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the “Fan Selection” window.

# Feature 6C

## 6C: Exhaust Fan Size

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 **0** 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Exhaust Fan*
**N** = *27" Direct Drive Backward Curved Plenum Aluminum*
**Q** = *30" Direct Drive Backward Curved Plenum Steel*
**R** = *33" Direct Drive Backward Curved Plenum Steel*
**S** = *36.5" Direct Drive Backward Curved Plenum Aluminum*
**T** = *42.5" Direct Drive Backward Curved Plenum Aluminum*
**U** = *18.5" Direct Drive Airfoil Plenum Aluminum*
**V** = *22" Direct Drive Airfoil Plenum Aluminum*
**W** = *24" Direct Drive Airfoil Plenum Aluminum*
**Y** = *27" Direct Drive Airfoil Plenum Aluminum*

**Options U-Y** (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON ECat will select the correct available options for Feature 6C based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 6D

## 6D: Exhaust Fan Motor Type

Example:

RZ A -145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 **0** 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Exhaust Fan*
**A** = *High Efficiency Open Motor (1170 nominal rpm)*
**B** = *High Efficiency Open Motor (1760 nominal rpm)*
**L** = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
**M** = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

## Feature 6D - Exhaust Fan Motor Type Continued

**P** = *Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)* - use less power than an induction motor at the same conditions. Permanent magnet motors must include one VFD per motor and VFD bypass is not available; however shaft grounding is standard on these motors.
**Q** = *Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)* - use less power than an induction motor at the same conditions. Permanent magnet motors must include one VFD per motor and VFD bypass is not available; however shaft grounding is standard on these motors.

AAON ECat will select the correct available options for Feature 6D based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 6E

## 6E: Exhaust Fan Motor Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 **0** - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

| | |
|---|---|
| **0** = *No Exhaust Fan* | **M** = *15 hp* |
| **H** = *3 hp* | **N** = *20 hp* |
| **J** = *5 hp* | **P** = *25 hp* |
| **K** = *7.5 hp* | **Q** = *30 hp* |
| **L** = *10 hp* | **R** = *40 hp* |

AAON ECat will select the correct available options for Feature 6E based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat you must first select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, you will be prompted to select supply fans, return or exhaust fans, motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window you will be able to choose the number of fans, VFDs and motor efficiency. General fan information, fan sound information and fan curves will be available for viewing in the "Fan Selection" window.

# Feature 7
## 7: Outside Air Control

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - **Q** F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard - None* - No economizer or motorized outside air dampers.
**C** = *Fully Modulating Actuator with Sensible Limit* - Fully modulating economizer actuator with two positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed.
**D** = *Fully Modulating Actuator with Enthalpy Limit* - Fully modulating economizer actuator with two positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring return closed.
**E** = *DDC Actuator* - Economizer actuator with terminal strip (EC1 and EC2) in the controls compartment for a field supplied outside air control signal. Actuator is factory configured for a 4-20 mA control signal, but can be configured for a 0-10 VDC control signal by removing the resistor between the terminals, EC1 and EC2. Use this option where customer supplied controls are employed for unit and economizer functions. All economizer functions will be by others. AAON provides the damper assembly and actuator only. Part of the D-PAC and PAC control systems. See Feature 13 and Controls section for more D-PAC and PAC information.
**P** = *$CO_2$ Override + Fully Modulating Actuator with Sensible Limit* - Option C + $CO_2$ ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying $CO_2$ setpoint. This option works best with air velocities in the 600 to 1200 fpm range.
**Q** = *$CO_2$ Override + Fully Modulating Actuator with Enthalpy Limit* - Option D + $CO_2$ ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying $CO_2$ setpoint. This option works best with air velocities in the 600 to 1200 fpm range.

# Feature 7 - Outside Air Control Continued

**R** = *$CO_2$ Override + DDC Actuator* - Option E + $CO_2$ ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying $CO_2$ setpoint. This option works best with air velocities in the 600 to 1200 fpm range. The CO2 sensor will be wired back to a set of terminals or customer supplied factory installed DDC controller.
**U** = *2 Position Actuator* - Used with motorized outside air options in Feature 1. Position one is the closed position. Position two is the fully open position, which is activated when there is a call for supply fan operation.
**V** = *Fault Detection and Diagnostics Controller (FDD) Fully Modulating Actuator with Sensible Limit* - Fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.
**W** = *FDD Fully Modulating Actuator with Enthalpy Limit* - Fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for supply fan operation. During the economizer mode actuator modulates between minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring return closed. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.
**Y** = *FDD Fully Modulating Actuator with Sensible Limit + $CO_2$ Override* - Option V + $CO_2$ ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying $CO_2$ setpoint. This option works best with air velocities in the 600 to 1200 fpm range. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

## Feature 7 - Outside Air Control Continued

**Z** = *FDD Fully Modulating Actuator with Enthalpy Limit + $CO_2$ Override* - Option W + $CO_2$ ventilation controller that senses the return air stream through a pitot tube. Used for demand controlled ventilation applications where outside air ventilation is based on actual not assumed demand, for energy savings. The sensor is self-calibrating with a 14-day log that will automatically correct for sensor drift and has onboard push buttons with LCD display for specifying $CO_2$ setpoint. This option works best with air velocities in the 600 to 1200 fpm range. Fault detection and diagnostics that checks feedback to ensure the economizer is still operating. When selected with AAON controls the fault detection and diagnostics is included as part of the controls. When selected without AAON controls a standalone controller will be provided for the FDD. Included economizer comes with 5 year warranty.

# Feature 8

## 8: Return and Exhaust Air Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q **F** - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Return Opening* – Unit configuration must include 100% outside air or 100% outside air with motorized dampers. See Feature 4A Outside Air Section.
**A** = *Standard Return Opening without EA Opening* – Unit configuration must include manual or motorized outside air with return air opening, 100% return air, or an economizer. See Feature 4A Outside Air Section.
**B** = *Large Return Opening without EA Opening* – Unit configuration must include manual or motorized outside air with return air opening, 100% return air, or an economizer. See Feature 4A Outside Air Section. The larger return opening results in lower velocities and lower pressure drop through the return ducts.
**C** = *Standard Return Opening + Barometric Relief EA Dampers* – Unit configuration must include power exhaust, power return, or energy recovery with or without return air bypass.
**D** = *Large Return Opening + Barometric Relief EA Dampers* - Unit configuration must include power exhaust, power return, or energy recovery with or without return air bypass.
**E** = *Standard Return Opening + Motorized EA Dampers* – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.
**F** = *Large Return Opening + Motorized EA Dampers* - Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. The larger return opening results in lower velocities and lower pressure drop through the return ducts.

**G =** *Standard Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* – Unit configuration must include an economizer. This option includes return air bypass dampers.
**H =** *Large Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required) – Unit configuration must include an economizer. This option includes return air bypass dampers.*
**J =** *Standard Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* – Unit configuration must include power exhaust, power return, or energy recovery. This option includes return air bypass dampers.
**K =** *Large Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required) – Unit configuration must include power exhaust, power return, or energy recovery. This option includes return air bypass dampers.*
**L =** *Standard Return Opening + Motorized EA Dampers + RA Bypass* – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. This option includes return air bypass dampers.
**M =** *Large Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. This option includes return air bypass dampers.
**N =** *Standard Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)* – Unit configuration must include an economizer. This option includes return air bypass dampers.
**P =** *Large Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)* – Unit configuration must include an economizer. This option includes return air bypass dampers.
**Q =** *Standard Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required) – Unit configuration must include power exhaust, power return, or energy recovery. This option includes return air bypass dampers.*
**R =** *Large Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required) – Unit configuration must include power exhaust, power return, or energy recovery. This option includes return air bypass dampers.*
**S =** *Standard Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required) – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. This option includes return air bypass dampers.*
**T =** *Large Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required) – Unit configuration must include power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section. Extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. This option includes return air bypass dampers.*

# Feature 9A
## 9A: Unit Filter Type

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - **A** 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *2" Pleated MERV 8* - 2 inch pleated MERV 8 unit filters. See Feature 9B for filter location.
**A** = *4" Pleated MERV 8* - 4 inch pleated MERV 8 unit filters. See Feature 9B for filter location.
**B** = *2" Pleated MERV 8 + 4" Pleated MERV 11* -. 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 11 filters. See Feature 9B for filter location.
**C** = *2" Pleated MERV 8 + 4" Pleated MERV 13* -. 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 13 filters. See Feature 9B for filter location.
**D** = *2" Pleated MERV 8 + 4" Pleated MERV 14* -. 2 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 14 filters. See Feature 9B for filter location.
**E** = *4" Pleated MERV 8 + 4" Pleated MERV 11* -. 4 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 11 filters. See Feature 9B for filter location.
**F** = *4" Pleated MERV 8 + 4" Pleated MERV 13* -. 4 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 13 filters. See Feature 9B for filter location.
**G** = *4" Pleated MERV 8 + 4" Pleated MERV 14* -. 4 inch pleated MERV 8 pre filters mounted upstream of 4 inch pleated MERV 14 filters. See Feature 9B for filter location.
**H** = *2" Pleated MERV 8 + 12" Cartridge MERV 11* -. 2 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 11 filters. See Feature 9B for filter location.
**J** = *2" Pleated MERV 8 + 12" Cartridge MERV 13* -. 2 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 13 filters. See Feature 9B for filter location.
**K** = *2" Pleated MERV 8 + 12" Cartridge MERV 14* -. 2 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 14 filters. See Feature 9B for filter location.
**L** = *4" Pleated MERV 8 + 12" Cartridge MERV 11* -. 4 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 11 filters. See Feature 9B for filter location.
**M** = *4" Pleated MERV 8 + 12" Cartridge MERV 13* -. 4 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 13 filters. See Feature 9B for filter location.
**N** = *4" Pleated MERV 8 + 12" Cartridge MERV 14* -. 4 inch pleated MERV 8 pre filters mounted upstream of 12 inch cartridge MERV 14 filters. See Feature 9B for filter location.
**P** = *2" Pleated MERV 8 + 30" Bag MERV 13* -. 2 inch pleated MERV 8 pre filters mounted upstream of 30 inch bag MERV 13 filters. See Feature 9B for filter location.
**Q** = *2" Pleated MERV 8 + 30" Bag MERV 14* -. 2 inch pleated MERV 8 pre filters mounted upstream of 30 inch bag MERV 14 filters. See Feature 9B for filter location.
**R** = *4" Pleated MERV 8 + 30" Bag MERV 13* -. 4 inch pleated MERV 8 pre filters mounted upstream of 30 inch bag MERV 13 filters. See Feature 9B for filter location.
**S** = *4" Pleated MERV 8 + 30" Bag MERV 14* -. 4 inch pleated MERV 8 pre filters mounted upstream of 30 inch bag MERV 14 filters. See Feature 9B for filter location.
**W** = *4" Pleated MERV 8 + 12" 99.97 HEPA* -. 4 inch pleated MERV 8 pre filters mounted upstream of 12 inch 99.97% efficiency HEPA filters. See Feature 9B for filter location.

# Feature 9B

## 9B: Unit Filter Size & Location

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A **0** A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard Filters in Standard Position*
**A** = *Standard Filters in Pre-position*
**B** = *High Efficiency Filters Box A in Standard Position*
**C** = *High Efficiency Filters Box B in Standard Position*
**D** = *High Efficiency Filters Box C in Standard Position*
**E** = *High Efficiency Filters Box A in Pre-Position*
**F** = *High Efficiency Filters Box B in Pre-Position*
**G** = *High Efficiency Filters Box C in Pre-Position*
**H** = *Dual Angled Filter Racks Box A in Standard Position*
**J** = *Dual Angled Filter Racks Box B in Standard Position*
**K** = *Dual Angled Filter Racks Box A in Pre-Position*
**L** = *Dual Angled Filter Racks Box B in Pre-Position*
**N** = *HEPA Filters Box A in Standard Position*
**P** = *HEPA Filters Box B in Standard Position*
**Q** = *HEPA Filters Box A in Pre-Position*
**R** = *HEPA Filters Box B in Pre-Position*

**Standard Position (0 & B-D & H-J & N-P)**: Located after the blower section in a blow-through unit or before the cooling section in a draw-through unit.
**Pre-Position (A & E-G & K-L & Q-R)**: Pre-position filters available on blow-through units only. Located after the return section, before the blower section.

# Feature 9B - Unit Filter Size & Location Continued

Table 7 - Unit Filter Box Size

| RZ Cabinet Size | Feature 9B | Filter Box | Filter Type | Length (in) | CFM |
|---|---|---|---|---|---|
| 45-75 tons | 0, A | | MERV 8 | 10 | 32,000 |
| 90-140 tons | | | | 28 | 50,000 |
| 145-180 tons | | | | 22 | 66,600 |
| 200-240 tons | | | | | 80,000 |
| 45-140 tons | B, E | A | 4” High Eff | 16 | 30,680* |
| | | | 12” Cartridge | 24 | 30,680* |
| | | | 30” Bag | 44 | 30,660* |
| | C, F | B | 4” High Eff | 44 | 40,000* |
| | | | 12” Cartridge | 60 | 40,000* |
| | | | 30” Bag | 91 | 32,000* |
| | D, G | C | 4” High Eff | 58 | 46,020* |
| | | | 12” Cartridge | 74 | 46,000* |
| | | | 30” Bag | 106 | 40,000* |
| | H,K | A | 4” High Eff | 80 | 50,000** |
| | N,Q | A | 4” MERV 8 + 12” HEPA | 24 | 24,000* |
| | P,R | B | 4” MERV 8 + 12” HEPA | 74 | 34,000* |
| 145-240 tons | B, E | A | 4” High Eff | 16 | 38,350* |
| | | | 12” Cartridge | 24 | 38,350* |
| | | | 30” Bag | 44 | 38,300* |
| | C, F | B | 4” High Eff | 44 | 50,000* |
| | | | 12” Cartridge | 60 | 50,000* |
| | | | 30” Bag | 91 | 40,000* |
| | D, G | C | 4” High Eff | 58 | 61,360* |
| | | | 12” Cartridge | 74 | 61,360* |
| | | | 30” Bag | 106 | 50,000* |
| | H,K | A | 4” High Eff | 68 | 66,600** |
| | J,L | B | 4” High Eff | 68 | 79,920** |
| | N,Q | A | 4” MERV 8 + 12” HEPA | 24 | 35,000* |
| | P,R | B | 4” MERV 8 + 12” HEPA | 74 | 56,000* |

* When used in the final position the unit CFM limit will be the lesser between this value and the MERV 8 Filter Type CFM value.

** Dual Angled Filter rack - the first rack is MERV 8 and the second rack is 4” filters with the higher MERV rating. This option is available to allow for higher CFMs.

CFM values are calculated based on 500 fpm through the filters.

# Feature 9C
## 9C: Final Filter Type

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 **A** A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Final Filters*

## Feature 9C - Final Filter Type Continued

**A** = *12" Cartridge MERV 13 - Filter Box A* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**B** = *12" Cartridge MERV 13 - Filter Box B* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**C** = *12" Cartridge MERV 13 - Filter Box C* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**D** = *12" Cartridge MERV 14 - Filter Box A* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**E** = *12" Cartridge MERV 14 - Filter Box B* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**F** = *12" Cartridge MERV 14 - Filter Box C* - Unit shall include 12 inch thick pleated cartridge filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only.
**G** = *30" Bag MERV 13 - Filter Box A* - Unit shall include 30 inch bag filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.
**H** = *30" Bag MERV 13 - Filter Box B* - Unit shall include 30 inch bag filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.
**J** = *30" Bag MERV 13 - Filter Box C* - Unit shall include 30 inch bag filters with a MERV rating of 13 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.
**K** = *30" Bag MERV 14 - Filter Box A* - Unit shall include 30 inch bag filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.
**L** = *30" Bag MERV 14 - Filter Box B* - Unit shall include 30 inch bag filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.

# Feature 9C - Final Filter Type Continued

**M** = *30" Bag MERV 14 - Filter Box C* - Unit shall include 30 inch bag filters with a MERV rating of 14 in the final filter position down stream of all air stream unit components. Final filters available on draw through units only. Not available on units with gas or electric heat.
**N** = *HEPA Frame (No Filter) - Filter Box A* - Unit shall include a frame for HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters are to be field provided, field installed, and field certified. Final filters available on draw through units only. Not available on units with gas or electric heat.
**P** = *HEPA Frame (No Filter) - Filter Box B* - Unit shall include a frame for HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters are to be field provided, field installed, and field certified. Final filters available on draw through units only. Not available on units with gas or electric heat.
**Q** = *12" 99.97 HEPA - Filter Box A* - Unit shall include a HEPA filter frame and 99.97% HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters require field certification. Final filters available on draw through units only. Not available on units with gas or electric heat.
**R** = *12" 99.97 HEPA - Filter Box B* - Unit shall include a HEPA filter frame and 99.97% HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters require field certification. Final filters available on draw through units only. Not available on units with gas or electric heat.
**S** = *4" MERV 8 + 12" 99.97 HEPA - Filter Box A* - Unit shall include a HEPA filter frame, adapter, 4" MERV 8 filters and 99.97% HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters require field certification. Final filters available on draw through units only. Not available on units with gas or electric heat.
**T** = *4" MERV 8 + 12" 99.97 HEPA - Filter Box B* - Unit shall include a HEPA filter frame, adapter, 4" MERV 8 filters and 99.97% HEPA filters in the final filter position down stream of all air stream unit components. HEPA filters require field certification. Final filters available on draw through units only. Not available on units with gas or electric heat.

Table 8 - Final Filter Box Size

| RZ Cabinet Size | Feature 9C | Filter Box | Filter Type | Length (in) | CFM |
|---|---|---|---|---|---|
| 45-140 tons | A, D | A | 12” Cartridge | 24 | 30,680* |
| | G, K | | 30” Bag | 44 | 30,660* |
| | N, Q, S | | 99.97% HEPA | 24 | 23,000* |
| | B, E | B | 12” Cartridge | 60 | 40,000* |
| | H, L | | 30” Bag | 91 | 32,000* |
| | P, R, T | | 99.97% HEPA | 74 | 33,000* |
| | C, F | C | 12” Cartridge | 74 | 46,000* |
| | J, M | | 30” Bag | 106 | 40,000* |
| 145-240 tons | A, D | A | 12” Cartridge | 24 | 38,350* |
| | G, K | | 30” Bag | 44 | 38,300* |
| | N, Q, S | | 99.97% HEPA | 24 | 33,000* |
| | B, E | B | 12” Cartridge | 60 | 50,000* |
| | H, L | | 30” Bag | 91 | 40,000* |
| | | | | | |
| | P, R, T | | 99.97% HEPA | 74 | 54,000* |
| | C, F | C | 12” Cartridge | 74 | 61,360* |
| | J, M | | 30” Bag | 106 | 50,000* |
| * When used in the final position the unit CFM limit will be the lesser between this value and the MERV 8 Filter Type CFM value. | | | | | |
| CFM values are calculated based on 500 fpm through the filters. | | | | | |

# Feature 9D

## 9D: Filter Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A**A**
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *None*
**A** = *Clogged Filter Switch - Unit Filters* - Includes one clogged filter switch.
**B** = *Clogged Filter Switch - Unit + Energy Recovery Filters* - Includes two clogged filter switches; unless exhaust filters are selected, then three switches will be included.
**C** = *Clogged Filter Switch - Unit + Final Filters* - Includes two clogged filter switches.
**D** = *Clogged Filter Switch - Unit + Energy Recovery + Final Filters* - Includes three clogged filter switches; unless exhaust filters are selected, then four switches will be included.
**E** = *Magnehelic Gauge - Unit Filters* - Includes one magnehelic gauge.
**F** = *Magnehelic Gauge - Unit + Energy Recovery Filters* - Includes two magnehelic gauges; unless exhaust filters are selected, then three gauges will be included.
**G** = *Magnehelic Gauge - Unit + Final Filters* - Includes two magnehelic gauges.
**H** = *Magnehelic Gauge - Unit + Energy Recovery + Final Filters* - Includes three magnehelic gauges; unless exhaust filters are selected, then four gauges will be included.

# Feature 9D - Filter Options Continued

**J** = *CFS + Magnehelic Gauge - Unit Filters* - Includes one clogged filter switch and one magnehelic gauge.
**K** = *CFS + Magnehelic Gauge - Unit + Energy Recovery Filters* - Includes two clogged filter switches and two magnehelic gauges; unless exhaust filters are selected, then three clogged switches and three magnehelic gauges will be included.
**L** = *CFS + Magnehelic Gauge - Unit + Final Filters* - Includes two clogged filter switches and two magnehelic gauges.

**M** = *CFS + Magnehelic Gauge - Unit + Energy Recovery + Final Filters* - Includes three clogged filter switches and three magnehelic gauges; unless exhaust filters are selected, then four clogged filter switches and four magnehelic gauges will be included.

*A Special Pricing Authorization (SPA) is required if the CFS or Magnehelic gauge is to be used to respond to the pressure drop across the energy recovery wheel or only the cooling coil.

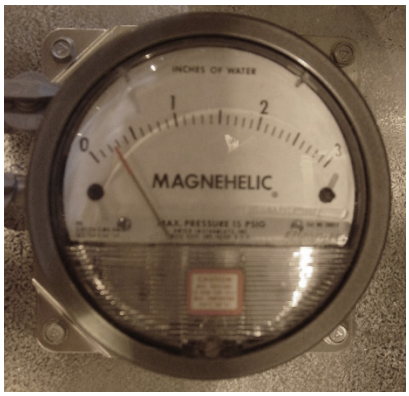



Figure 11 - Magnehelic Gauge

*Clogged Filter Switch (CFS)* - Adjustable differential pressure switch sensing pressure drop across the filter bank and cooling coil; only applies to unit filter selection. The range of adjustment is 0.17 to 5.0 in. W.C. with contact closure on rise. The switch is mounted in the fan compartment with terminal connections in the low voltage control section. Normally open dry contacts (C1 and C2) are provided for clogged filter indication. Note: Factory installed controllers are wired parallel; Field installed controllers are individual set of terminals.

*Magnehelic Gauge* - Magnehelic gauge reading pressure drop across the filter bank and cooling coil. The gauge reads from 0 to 3 in. W.C. in 0.10 in. graduations, and is mounted in the control cabinet.

# Feature 10A

## 10A: Refrigeration Control A

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- **0** 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**E** = *Freeze Stats (each circuit)* - Adjustable temperature sensor (-10 to 70°F) mounted on the tubing of the first cooling circuit and wired to de-energize all cooling circuits if tubing temperature falls below setpoint. Option is used to prevent freezing of evaporator coil.

# Feature 10B

## 10B: Refrigeration Control B

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 **0** - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*

# Feature 11A

## 11A: Refrigeration Options A

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - **M** 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**D** = *Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)* - Field adjustable pressure activated bypass valve on the refrigeration circuits with non-variable compressors. The valve is factory installed to divert hot compressor discharge gas to the evaporator coil if pressure on the evaporator side of the valve drops below 105 psi for R-410A (34°F at sea level). The bypass valve is at full capacity after six degrees of differential (28°F at sea level). This option is used to prevent coil freeze-up during periods of low air flow or cold entering coil conditions without cycling of the compressors on and off. This option is used for refrigeration system protection only and cannot be used for cooling capacity modulation.
**Hot gas bypass is required on all Variable Air Volume (VAV) and Makeup Air (MUA) units without variable speed scroll compressors. Hot gas bypass on the lag circuits is recommended on all VAV and MUA units with variable speed scroll compressors on only the lead circuits.**

**E** = *Modulating Hot Gas Reheat (MHGR)* - Reheat coil mounted downstream of the evaporator and piped to the lag cooling circuit which provides the unit with a dehumidification mode of operation for when the cooling load has been satisfied. A 3-way modulating reheat valve diverts a varying percentage of the hot gas entering the condensing coil to the reheat coil to provide the unit with a dehumidification mode of operation. Receiver tanks are standard with this option. A supply air temperature sensor and DDC controller are used to maintain the supply air temperature during the dehumidification mode of operation. Supply air temperature sensor will ship loose in the unit control cabinet to be installed in the supply air stream. Constant supply air temperature control during dehumidification prevents space temperature swings and is ideal for VAV and makeup air applications.

# Feature 11A: Refrigeration Options A Continued

Depending on the type of controls selected, the unit will be factory wired for either priority dehumidification or priority cooling. Priority dehumidification means if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in dehumidification mode until the humidity setpoint is satisfied. Priority Cooling means if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in cooling mode until the cooling setpoint temperature is satisfied. When there is no longer a call for cooling, but there is a call for dehumidification, the compressors will continue to run and the reheat will be activated.

Field Installed DDC Controls by others: A terminal contact (RH1) and reset terminals (AI1 & COM) are included for connecting to the customer supplied controller. The unit will require a contact closure to RH1 to enable dehumidification mode. The unit is factory wired as priority dehumidification. It is optional to provide a 0-10VDC signal to reset the supply air setpoint. Units with controls by others will need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during dehumidification mode. The customer supplied controller will also need to be able to set cooling or dehumidification as the priority.

*Field provided Factory Installed DDC Controls by others:* The customer supplied DDC controller must provide a digital point to enable dehumidification mode. It is optional to provide a 0-10VDC signal to reset the supply air setpoint. Units with controls by others will need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during dehumidification mode. The customer supplied controller will also need to be able to set cooling or dehumidification as the priority.

*Factory Provided VCC-X Controls*: Priority dehumidification or cooling can be set through the controls in the field.

**M** = *HGBNV + MHGR* - Option D + Option E
**Q** = *Polymer E-Coated Modulating Hot Gas Reheat* - Polymer E-coated modulating hot gas reheat coil. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.
**W** = *HGBNV + Polymer E-Coated MHGR* - Option D + Option Q

# Feature 11B

## 11B: Refrigeration Options B

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M**0** - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*

# Feature 12
## 12: Refrigeration Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - **C** - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**B** = *Compressor Isolation Valves* - Ball type service valves mounted on the refrigeration circuit discharge and suction lines permitting isolation of the compressor for service or replacement. This option can reduce the amount of refrigerant that must be recovered during compressor service or replacement. The valves are located close to the compressors and work through a quarter turn from open to closed. Teflon seals and gaskets are used with a nylon cap gasket to prevent accidental loss.
**C** = *Option B + Sight Glass* - Option B + Moisture indication sight glass attached to the refrigeration circuit liquid lines. A green color indicates a dry condition, a chartreuse color (green with a yellow tint or bright green) indicates caution and a yellow color indicates a wet condition. The sight glass is not a charge indicator.

Table 9 - Sight Glass Moisture Content Indication

| Refrigerant / Indicator Color | 75° F Liquid Line Temperature R-410A (R-454B) |
|---|---|
| Green DRY | Below 75ppm |
| Chartreuse CAUTION | 75-150ppm |
| Yellow WET | Above 150ppm |

Figure 12 - Sight Glasses

**F** = *Option B + Variable Circuits -20°F Low Ambient* - Option B + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for *[Size 075 & Series B, C, D, E]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on each variable circuit. Additional option components for *[Size 045, 055, & 065]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lead circuit. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

# Feature 12 - Refrigeration Accessories Continued

**G =** *Option C + Variable Circuits -20°F Low Ambient* - Option C + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for *[Size 075 & Series B, C, D, E]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on each variable circuit. Additional option components for *[Size 045, 055, & 065]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lead circuit. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

**K =** *Option B + Tandem Circuits -20°F Low Ambient* - Option B + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for *[Size 075 & Series B, C, D, E]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the tandem circuits. Additional option components for *[Size 045, 055, & 065]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lag circuit. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

**L =** *Option C + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]* Option C + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for *[Size 075 & Series B, C, D, E]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the tandem circuits. Additional option components for *[Size 045, 055, & 065]* include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lag circuit. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

## Feature 12 - Refrigeration Accessories Continued

**P** = *Option B + All Circuits -20°F Low Ambient* - Option B + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on all circuits. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

**Q** = *Option C + All Circuits -20°F Low Ambient* - Option C + - Factory installed, flooded condenser, head pressure control option which allows cooling operation down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A 3-way pressure activated valve then allows discharge gas to bypass around the condenser. Mixing of the discharge gas with liquid creates a high pressure at the condenser outlet, reducing the flow and causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on all circuits. It is highly recommended that hot gas bypass be selected with this option. Used for low ambient applications such as computer equipment rooms. Crankcase heater will be provided.

# Feature 13A

## 13A: Unit Disconnect Type

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - **0** 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Single Point Power - Standard Power Block*
**A** = *Single Point Power – Non Fused Disconnect Power Switch*
**B** = *Single Point Power – Circuit Breaker*
**C** = *Dual Point Power – Standard Power Block – Method #1*
**D** = *Dual Point Power – Non-Fused Disconnect Power Switch – Method #1*
**E** = *Dual Point Power – Circuit Breaker – Method #1*
**F** = *Dual Point Power – Standard Power Block – Method #2*
**G** = *Dual Point Power – Non-Fused Disconnect Power Switch – Method #2*
**H** = *Dual Point Power – Circuit Breaker – Method #2*
**J** = *Dual Point Power – Standard Power Block – Method #3*
**K** = *Dual Point Power – Non-Fused Disconnect Power Switch – Method #3*
**L** = *Dual Point Power – Circuit Breaker – Method #3*

# Feature 13A: Unit Disconnect Type

**M** = *Dual Point Power – Standard Power Block– Method #4*
**N** = *Dual Point Power – Non-Fused Disconnect Power Switch – Method #4*
**P** = *Dual Point Power – Circuit Breaker – Method #4*

*Wiring Method #1*: 1st power circuit is wired to power the compressors, condenser fans & (optional) heat wheel, Exhaust or Return Air fans if selected. The 2nd power circuit powers the supply fan, optional heating, controls & phase & brown out option if selected.

*Wiring Method #2:* 1st circuit powers the compressors & condenser fans. 2nd circuit powers the supply fan, controls, (optional) exhaust/return fans, (optional) heat, (optional) heat wheel & phase & brown out protection if selected.

*Wiring Method #3*: 1st circuit powers the compressors, condenser fan(s), (optional) heat wheel(s), (optional) exhaust/return fan(s), (optional) heat. 2nd circuit powers the supply fan(s) and controls

*Wiring Method #4:*1st circuit powers the compressors, condenser fans, supply fan, (optional) heat, and (optional) heat wheel. 2nd circuit powers the exhaust/ return fans and controls only.

Individual components within the controls compartment are fused and/or internally protected. Switch options include molded case, non-fused, and disconnect switch inside the unit controls compartment. The switch is accessible from the exterior of the unit and protected by a cast metal, lockable cover. The switch disconnects high voltage service to the unit. To add a switch, choose any switch and after all options have been selected and the fan program is completed AAON ECat will automatically calculate the minimum allowable ampacity and choose the correct size switch.

# Feature 13B/ 13C

## 13B: Disconnect 1/Disconnect 2 Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 **0** 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

*0 = Power Block*
*A = 15 amps*
*B = 20 amps*
*C = 25 amps*
*D = 30 amps*
*E = 35 amps*
*F = 40 amps*
*G = 45 amps*
*H = 50 amps*
*J = 60 amps*
*K = 70 amps*
*L = 80 amps*
*M = 90 amps*
*N = 100 amps*
*P = 110 amps*
*Q = 125 amps*
*R = 150 amps*
*S = 175 amps*
*T = 200 amps*
*U = 225 amps*
*V = 250 amps*
*W = 300 amps*
*Y = 350 amps*
*Z = 400 amps*
*1 = 450 amps*
*2 = 500 amps*
*3 = 600 amps*
*4 = 700 amps*
*5 = 800 amps*
*6 = 1000 amps*
*7 = 1200 amps*

Individual components within the controls compartment are fused and/or internally protected. Switch options include molded case, non-fused, and disconnect switch inside the unit controls compartment. The switch is accessible from the exterior of the unit and protected by a cast metal, lockable cover. The switch disconnects high voltage service to the unit. To add a switch, choose any switch and after all options have been selected and the fan program is completed AAON ECat will automatically calculate the minimum allowable ampacity and choose the correct size switch

# Feature 14
## 14: Safety Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - **8** 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**A** = *Return and Supply Air Firestat* - Bimetallic snap-action safety switches sensing temperature only, mounted in both the supply and return air streams. The supply air switch is rated to 200°F, the return air switch is rated to 125°F. Both switches manually reset and are wired to shut down the 24 VAC control circuit. Firestats are non-addressable.
**B** = *Return Air Smoke Detector* - Photoelectric type smoke detector factory mounted in the return air section of the unit. Detector is wired to shut down the 24 VAC control circuit upon detector activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector with alarm panels. A test magnet is supplied in the unit controls cabinet. Smoke detectors are non-addressable.
**C** = *Supply Air Smoke Detector* - Photoelectric type smoke detector factory mounted in the filter/economizer section with sensor mounted to the fan/heating compartment, sensing the supply air downstream of the fan. Detector is wired to shut down the 24 VAC control circuit upon detector activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector with alarm panels. A test magnet is supplied in the unit controls cabinet. Smoke detectors are non-addressable.

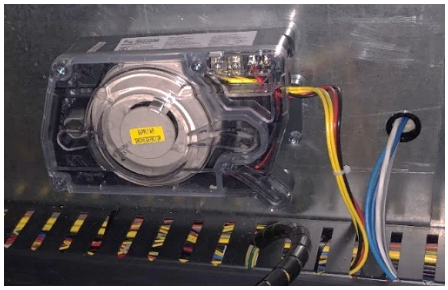


Figure 13 - Supply Air Smoke Detector

**D** = *High Supply Air Static Pressure Switch* - Static pressure switch will switch will shut off the fans and compressors if the static pressure downstream of the supply fans gets too high. This is option is required on systems with VFD bypass.
**E** = *Remote Safety Shutdown Terminals* - Low voltage terminals labeled BI1 and BI2 for wiring to a field installed smoke detector, Firestat, or building safety automatic shutdown system. When contacts are open the unit 24 VAC control circuit is broken and the unit will not operate. Remove the factory supplied jumper before installing.
**F** = *Option A + B - RA and SA Firestat + RA Smoke Detector*
**G** = *Option A + C - RA and SA Firestat + SA Smoke Detector*
**H** = *Option A + D - RA and SA Firestat + High SA Static Pressure Switch*
**J** = *Option A + E - RA and SA Firestat + Remote Safety Shutdown Terminals*
**K** = *Option B + C - RA Smoke Detector + SA Smoke Detector*
**L** = *Option B + D - RA Smoke Detector + High SA Static Pressure Switch*

# Feature 14 - Safety Options Continued

**M** = *Option B + E - RA Smoke Detector + Remote Safety Shutdown Terminals*
**N** = *Option C + E - SA Smoke Detector + High SA Static Pressure Switch*
**P** = *Option C + E - SA Smoke Detector + Remote Safety Shutdown Terminals*
**Q** = *Option D + E - High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**R** = *Option A + B + C - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector*
**S** = *Option A + B + D - RA and SA Firestat + RA Smoke Detector + High SA Static Pressure Switch*
**T** = *Option A + B + E - RA and SA Firestat + RA Smoke Detector + Remote Safety Shutdown Terminals*
**U** = *Option A + B + E - RA and SA Firestat + SA Smoke Detector + High SA Static Pressure Switch*
**V** = *Option A + C + E - RA and SA Firestat + SA Smoke Detector + Remote Safety Shutdown Terminals*
**W** = *Option A + D + E - RA and SA Firestat + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**Y** = *Option B + C + D - RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch*
**Z** = *Option B + C + E - RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*
**1** = *Option B + D + E - RA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**2** = *Option C + D + E - SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**3** = *Option A + B + C + D - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch*
**4** = *Option A + B + C + E - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*
**5** = *Option A + B + D + E - RA and SA Firestat + RA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**6** = *Option A + C + D + E - RA and SA Firestat + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**7** = *Option B + C + D + E - RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*
**8** = *Option A + B + C + D + E - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

# Feature 15
## 15: Electrical Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 **0** - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**B** = *Phase & Brown Out Protection* - Voltage monitor that is used to protect motors and compressors from voltage imbalance, over/under voltage and phase loss. Reset is automatic. When DDC controls by others is ordered, the Phase and Brown Out protection will be wired back to a set of terminals or to customer supplied controller for status.
**C** = *Air Disinfection UV Lights* - Factory provided UV lights for airstream disinfection. UV fixture is installed directly downstream of cooling coil. Door interlock switches are provided with this option. Bulbs are shipped loose for field installation. See Table 10
**E** = *Compressor Sound Blankets* - Factory provided and installed compressor sound dampening blankets on all compressors.
**K** = *Phase & Brown Out Protection + Air Disinfection UV Lights* - Option B + C
**M** = *Phase & Brown Out Protection + Compressor Sound Blankets* - Option B + E
**P** = *Air Disinfection UV Lights + Compressor Sound Blankets* - Option C + E
**Z** = *Phase & Brown Out Protection + Air Disinfection UV Lights + Compressor Sound Blankets* - Option B + C + E

*Notes: Use Part # R68860 for UV Lamp replacement

Table 10 - Air Disinfection UV Information

| RZ Cabinet Size | Cooling Coil Size | Model Option A3 | CFM Max | Lamp Watt/SqFt Coil | Residence Time (Seconds) | Dose µJ/cm2* | Estimated Inactivation Rate (Coronavirus) |
|---|---|---|---|---|---|---|---|
| A, B & C (45-140 tons) | Standard | A,B,E,F,G | 27,300 | 15.47 | 0.474 | 1,037 | 98.00% |
| D (145-180 tons) | | | 46,200 | 18.73 | 0.600 | 1,419 | 99.50% |
| E (200-240 tons) | | | 60,800 | 14.23 | 0.794 | 1,320 | 99.30% |
| A, B & C (90-140 tons) | Large | C,D,H,J,K | 37,500 | 38.67 | 0.394 | 1,348 | 99.40% |
| D (145-180 tons) | | | 53,500 | 16.18 | 0.659 | 1,292 | 99.20% |
| E (200-240 tons) | | | 72,900 | 13.84 | 0.900 | 1,377 | 99.40% |

* All dosage and estimated inactivation rates are at bulb end of life, have a wind chill degradation for 55 degrees factored in, and factor in velocity on the coil. Warmer temperatures or lower airflows will increase the UV effectiveness.

# Feature 16A

## 16A: Control Sequence

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A - 0 0 - M 0 - C - 0 0 0 - 8 0 - **D** A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard Terminal Block for Thermostat* - Terminal strip for use with a thermostat. See Controls section and Thermostat Terminals sheet from AAON ECat for more information.

**A** = *Terminal Block for Thermostat + Isolation Relays* - Standard terminal strip for use with thermostats only, with factory installed isolation relays to prevent voltage drop in the controls circuit. This option is strongly recommended on applications where there is a question about the length of thermostat wiring. See Controls section and Thermostat Terminals sheet from AAON ECat for more information.

**B** = *Single Zone VAV Unit Controller - VAV Cool + CAV Heat* - VAV controls for systems which control the space temperature for only a single zone. During the cooling mode of operation the supply fan modulates based on the space temperature and mechanical cooling modulates based on the supply air temperature. Variable capacity or two-step compressors are required. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Supply air temperature sensor will ship loose in the unit control cabinet to be installed in the supply air stream. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON Controls for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

**C** = *Single Zone VAV Unit Controller - VAV Cool + VAV Heat* - VAV controls for systems which control the space temperature for only a single zone. During the cooling mode of operation the supply fan modulates based on the space temperature and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan will modulate based on the space temperature and the heating will modulate based on the supply air temperature. Variable capacity or two-step compressors are required. With gas heat, modulating gas heating control is required. Supply air temperature sensor will ship loose in the unit control cabinet to be installed in the supply air stream. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON Controls for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

**D** = *VAV Unit Controller - VAV Cool + CAV Heat* - Standard VAV controls for non-heat pump systems and heat pump systems. During the cooling mode of operation the supply fan modulates based on the supply static pressure and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Return and outside air temperature sensors are factory mounted and wired. Supply air static pressure probe and supply air temperature sensor are factory supplied for field installation. Space temperature sensor with setpoint reset and unoccupied override is factory supplied with AAON controller for field installation. A building

# Feature 16A - Control Sequence Continued

static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

**E** = *Constant Air Volume Unit Controller - CAV Cool + CAV Heat* - Standard Constant Volume controls for non-heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor and space temperature sensor with setpoint reset and unoccupied override are factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. Outside air humidity sensor is factory mounted and wired if enthalpy controlled economizer is selected. See Controls section for more information.

**F** = *Makeup Air Unit Controller* - Standard Makeup Air controls for non-heat pump systems. During the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature. Outside air temperature sensor is factory mounted and wired. Supply air temperature sensor is factory supplied for field installation. A building static pressure sensor is factory supplied for field installation if power exhaust with VFD is selected. See Controls section for more information.

**M** = *Field Installed DDC Controls by Others* - Provides an expanded terminal strip to interface with controls by others. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of power exhaust fan, CO2 sensor, and Phase & Brown out. See Controls section and Field controlled Terminal sheet from AAON ECat for more information.

**N** = *Field Installed DDC Controls + Installation Relays* - Provides an expanded terminal strip to interface with controls by others, with factory installed isolation relays to prevent voltage drop in the controls circuit. This option is strongly recommended on applications where there is a question about the length of control wiring. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of power exhaust fan, CO2 sensor, and Phase & Brown out. See Controls section and Field controlled Terminal sheet from AAON ECat for more information.

**P** = *Factory Installed DDC Controls by Others + Installation Relays* - Factory installed controls with factory installed isolation relays to prevent a voltage drop in the controls circuit. Requires a Special Pricing Authorization (SPA) issued by the Applications Department. AAON sales representative must provide a controls parts list, cut sheets, and wiring diagrams before the SPA will be issued. Once the order is entered a completed Special Parts Request Form is sent to the sales rep with control numbers assigned. The sales rep must then forward the form to the controls supplier who must then transfer these numbers to all parts and boxes that are sent to AAON. Proper routing of customer supplied parts to units in production will be delayed if this procedure is not followed. AAON will not deal directly with the controls provider. The AAON sales rep must be the information conduit. See the “Policy Manual for Sales Representatives” for more detailed information on the proper procedure. See Field controlled Terminal sheet from AAON ECat for more information

# Feature 16B

## 16B: Control Supplier

Example:

RZ A -145- D 0-3-CAB0A-000000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA
-00-M0-C-000-80-DA**A**0B-00-000-ABEQ0A-E00000-000000DB

**0** = *Standard*
**A** = *AAON Controls* - Factory installed AAON controller. See Controls section for more information.
**C** = *AAON Controls Supervisory* - This option allows for controls by others, but the controls for the variable speed compressors, electronic expansion valves, and head pressure control of the condenser fans is by AAON controls for proper control and compressor protection.

# Feature 16C

## 16C: Control Supplier Options

Example:

RZ A -145- D 0-3-CAB0A-000000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA
-00-M0-C-000-80-DA**0**B-00-000-ABEQ0A-E00000-000000DB

**0** = *Standard*

# Feature 16D

## 16D: BMS Connection & Diagnostics

Example:

RZ A -145- D 0-3-CAB0A-000000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA
-00-M0-C-000-80-DA0**B**-00-000-ABEQ0A-E00000-000000DB

**0** = *None*
**B** = *BACnet MSTP* - AAON supplied and factory installed controller with Bacnet MSTP license. See Feature 16A for available control configurations. See Controls section and unit specific Controller Components worksheet in AAON ECat for more information.
**K** = *BACnet MSTP with Diagnostics* - Option B + Extra sensors (liquid pressure, liquid temperature, and discharge temperature) that provide more refrigeration diagnostic values.

# Feature 17A
## 17A: Preheat Configuration

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - **0** 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Preheat*
**F** = *Hot Water Preheat Coil in Option Box* - Hot water preheat coil. Units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. No valves or controls are included with this option.
**G** = *Steam Distributing Preheat Coil in Option Box* - Steam distributing preheat coil. Units include a mixed air preheat coil mounted adjacent and upstream of the cooling coil and downstream of the unit filters. The maximum operating pressure for steam coils is 25 psi. No valves or controls are included with this option.
**M** = *Polymer Coated Hot Water Preheat Coil in Option Box* - Polymer e-coating is applied only to the hot water preheat coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.
**N** = *Polymer Coated Steam Distributing Preheat Coil in Option Box* - Polymer e-coating is applied only to the steam distributing preheat coils. Complete coil and casing are coated. Coating capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. Coating includes a 5 year warranty, from the date of original equipment shipment from the factory. Instructions coil cleaning, maintenance, and recording keeping must be followed. Refer to the unit Installation, Operation and Maintenance Manual.
**P** = *Direct Fired Heat 100% OA Nat Gas (CAV)* - Direct fired natural gas pre heater. This option is only available on MUA units.

| Unit Size | Burner Size | Max Temp Rise | Max Supply Temp |
|---|---|---|---|
| RZA-045-140 tons | | 90°F | 140°F |
| RZA-145-240 tons | Shorter than 5’ [F17B = A-G] | 90°F | 140°F |
| | 5’ and Longer [F17B = H-M] | 100°F | 140°F |

# Feature 17B

## 17B: Preheat Sizing

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 **0** - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Preheat*

Hot Water Preheat Coil [17A = F, M]

**A** = *Size A 1 Row Half Serpentine 10 FPI*
**B** = *Size B 1 Row Half Serpentine 10 FPI*
**C** = *Size C 1 Row Half Serpentine 10 FPI*
**D** = *Size D 1 Row Half Serpentine 10 FPI*
**E** = *Size A 1 Row Quarter Serpentine 10 FPI*
**F** = *Size B 1 Row Quarter Serpentine 10 FPI*
**G** = *Size C 1 Row Quarter Serpentine 10 FPI*
**H** = *Size D 1 Row Quarter Serpentine 10 FPI*
**J** = *Size A 2 Row Full Serpentine 10 FPI*
**K** = *Size B 2 Row Full Serpentine 10 FPI*
**L** = *Size C 2 Row Full Serpentine 10 FPI*
**M** = *Size D 2 Row Full Serpentine 10 FPI*
**N** = *Size A 2 Row Half Serpentine 10 FPI*
**P** = *Size B 2 Row Half Serpentine 10 FPI*
**Q** = *Size C 2 Row Half Serpentine 10 FPI*
**R** = *Size D 2 Row Half Serpentine 10 FPI*

Steam Distributing Preheat Coil [17A = G, N]

**A** = *Size A 1 Row Full Serpentine 10 FPI*
**B** = *Size B 1 Row Full Serpentine 10 FPI*
**C** = *Size C 1 Row Full Serpentine 10 FPI*
**D** = *Size D 1 Row Full Serpentine 10 FPI*
**J** = *Size A 2 Row Full Serpentine 10 FPI*
**K** = *Size B 2 Row Full Serpentine 10 FPI*
**L** = *Size C 2 Row Full Serpentine 10 FPI*
**M** = *Size D 2 Row Full Serpentine 10 FPI*

Direct Fired Gas Heat [17A = P]

**A** = *1' Burner*
**B** = *1.5' Burner*
**C** = *2' Burner*
**D** = *2.5' Burner*
**E** = *3' Burner*
**F** = *4' Burner*
**G** = *4.5' Burner*
**H** = *5.5' Burner*
**J** = *6' Burner*
**K** = *7' Burner*
**L** = *7.5' Burner*
**M** = *8.5' Burner*

# Feature 17B - Preheat Sizing Continued

Table 11 - Hot Water Preheat & Steam Distributing Preheat Coil Sizes

| RZ Cabinet Size | Coil Size | Hot Water Preheat Coils | | Steam Distributing Preheat Coils | |
|---|---|---|---|---|---|
| | | Coil Quantity | Coil Total Face Area ($ft^2$) | Coil Quantity | Coil Total Face Area ($ft^2$) |
| **A (45-75 tons)** | Size A | 1 | 33.3 | 2 | 30.0 |
| | Size B | 1 | 24.6 | 1 | 23.8 |
| | Size C | 1 | 18.3 | 1 | 15.4 |
| | Size D | 1 | 11.3 | 1 | 10.5 |
| **B & C (90-140 tons)** | Size A | 2 | 42.9 | 4 | 39.0 |
| | Size B | 1 | 33.3 | 2 | 30.0 |
| | Size C | 1 | 24.6 | 1 | 23.8 |
| | Size D | 1 | 18.3 | 1 | 15.4 |
| **D & E (145-240 tons)** | Size A | 2 | 66.6 | 4 | 61.8 |
| | Size B | 2 | 49.2 | 2 | 47.5 |
| | Size C | 1 | 33.3 | 2 | 30.9 |
| | Size D | 1 | 21.7 | 1 | 23.8 |

# Feature 18A

## 18A: Option Box Location

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - **0** 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Option Box*
**A** = *One Option Box after Return*
**B** = *One Option Box after Pre-Filter*
**C** = *One Option Box after Cooling*
**D** = *One Option Box after Supply Fan*
**E** = *One Option Box after Heat*
**F** = *One Option Box after Return + One after Pre-Filter*
**G** = *One Option Box after Return + One after Cooling*
**H** = *One Option Box after Return + One after Supply Fan*
**J** = *One Option Box after Return + One after Heat*
**K** = *One Option Box after Pre-Filter + One after Cooling*
**L** = *One Option Box after Pre-Filter + One after Supply Fan*
**M** = *One Option Box after Pre-Filter + One after Heat*
**N** = *One Option Box after Cooling + One after Supply Fan*
**P** = *One Option Box after Cooling + One after Heat*
**Q** = *One Option Box after Supply Fan + One after Heat*

# Feature 18A - Option Box Location Continued

**Note:** These are additional cabinet sections for installation of items not currently offered in the RZ equipment. Examples include humidifiers, special filtration systems, air blenders, air monitoring stations, hot water recirculating pumps, or storage compartments. The above options indicate length and location. A Special Pricing Authorization (SPA) is required if the factory is to install customer supplied equipment.

# Feature 18B

## 18B: Option Box Size

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 **0** 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Option Box*
**A** = *2ft First Box*
**B** = *2ft First Box + 2ft Second Box*
**C** = *2ft First Box + 4ft Second Box*
**D** = *2ft First Box + 6ft Second Box*
**E** = *2ft First Box + 8ft Second Box*
**F** = *4ft First Box*
**G** = *4ft First Box + 2ft Second Box*
**H** = *4ft First Box + 4ft Second Box*
**J** = *4ft First Box + 6ft Second Box*
**K** = *4ft First Box + 8ft Second Box*
**L** = *6ft First Box*
**M** = *6ft First Box + 2ft Second Box*
**N** = *6ft First Box + 4ft Second Box*
**P** = *6ft First Box + 6ft Second Box*
**Q** = *6ft First Box + 8ft Second Box*
**R** = *8ft First Box*
**S** = *8ft First Box + 2ft Second Box*
**T** = *8ft First Box + 4ft Second Box*
**U** = *8ft First Box + 6ft Second Box*
**V** = *8ft First Box + 8ft Second Box*

**Note:** The first and second boxes correlate to the boxes selected in Feature 18A. Make sure to select the correct size for each box. The second box from Feature 18A (options F-Q) is the box after the + sign.

# Feature 18C

## 18C: Box Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 **0** - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *None*
**A** = *20" Drain Pan in First Box*
**B** = *20" Drain Pan in First Box + 20" Drain Pan in Second Box*
**C** = *20" Drain Pan in First Box + 44" Drain Pan in Second Box*
**D** = *Option A + Sound Attenuator*
**E** = *44" Drain Pan in First Box*
**F** = *44" Drain Pan in First Box + 20" Drain Pan in Second Box*
**G** = *44" Drain Pan in First Box + 44" Drain Pan in Second Box*
**H** = *Option E + Sound Attenuator*
**J** = *Sound Attenuator in First Box*
**M =** *Sound Attenuator in First Box + Sound Attenuator in Second Box*
**N** = *Empty First Box + 20" Drain Pan in Second Box*
**P** = *Empty First Box + 44" Drain Pan in Second Box*
**Q** =*Empty First Box + Sound Attenuator in Second Box*
**S** = *Air Mixer in First Box*
**T** = *Option S + 20" Drain Pan in Second Box*
**U** =*Option S + 44" Drain Pan in Second Box*
**V** =*Option S + Sound Attenuator in Second Box*

**Note:** The first and second boxes correlate to the boxes selected in Feature 18A. Make sure to select the correct option for each box. The second box from Feature 18A (options F-Q) is the box after the + sign.

# Feature 19

## 19: Outside Air Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - **A** B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Outside Air Hood - 100% Return Air*
**A** = *Outside Air Hood*
**B** = *Outside Air Hood with Metal Mesh Filters* - Washable expanded aluminum mesh filters mounted over the outside air intake. Initial resistance is 0.088 in. w.g. at 520 fpm. Filters are coated for adhesion. Option is used to filter large particles in the outside air and to prevent moisture carryover in humid environments. Filters meet the requirements of UL Class 2

**C** = *Outside Air Hood + Outside Air Flow Measuring Station* - Outside air hood + outside airflow measuring station and airflow signal processor that communicates directly with the factory provided control systems and can also be used with customer provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. Monitoring size is dependent on the cfm.
**G** = *Option B + C - Outside Air Hood with Metal Mesh Filters + Outside Air Flow Measuring Station*

# Feature 20
## 20: Cabinet Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A **B** E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**B** = *SA & RA Burglar Bars* - 1/2 inch diameter welded steel bars crosshatched 6-8 inches apart across the unit supply and return air openings.
**C** = *SA and RA Walkable Safety Grates* – Black painted metal grates over the supply and return air openings for walk-in access.
**D** = *Perforated Liner for SA Fan* - Perforated and insulated metal liners across the supply air plenum to attenuate sound.
**E** = *Perforated Liner for RA Fan* - Perforated and insulated metal liners across the return air plenum to attenuate sound.
**L** = *Option B + D - SA & RA Burglar Bars + Perforated Liner on SA Fan*
**M** = *Option B + E - SA & RA Burglar Bars + Perforated Liner on RA Fan*
***N*** = *Option C + D SA & RA Walkable Safety Grates + Perforated Liner on SA Fan*
***P*** = *Option C + E SA & RA Walkable Safety Grates + Perforated Liner on RA Fan*
**Q** = *Option D + E - Perforated Liner on SA Fan + Perforated Liner on RA Fan*
**1** = *Option B + D + E - SA & RA Burglar Bars + Perforated Liner on SA Fan + Perforated Liner on RA Fan*
***2*** = *Option C + D + E – SA & RA Walkable Safety Grates + Perforated Liner on SA Fan + Perforated Liner on RA Fan*

# Feature 21
## 21: Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B **E** Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *None*
**B** = *Motorized Service Vestibule Fresh Air* - This option includes a ventilation fan in the service vestibule that provides air circulation to the service vestibule when occupied.
**C** = *Supply Fan Air Flow Measuring* - Unit includes a supply fan airflow signal processor that communicates directly with the factory provided control systems or can also be used with customer provided controls with a field selectable 0-5 VDC, 0-10 VDC, or 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are available.
**D** = *Return Fan Air Flow Measuring* - Unit includes a return fan airflow signal processor that communicates directly with the factory provided control systems or can also be used with customer provided controls with a field selectable 0-5 VDC, 0-10 VDC, or 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are available.
**E** = *Access Door Windows* - 12" x 12", wire reinforced glass, double pane windows which permit visual inspection of cabinet interior while the access doors are closed. A window is included on all cabinet access doors of the unit.


Figure 14 - Access Door Windows

**K** = *Option B + C - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring*
**L** = *Option B + D - Motorized Service Vestibule Fresh Air + Return Fan Air Flow Measuring*
**M** = *Option B + E - Motorized Service Vestibule Fresh Air + Access Door Windows*
**N** = *Option C + D - Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring*
**P** = *Option C + E - Supply Fan Air Flow Measuring + Access Door Windows*
**Q** = *Option D + E - Return Fan Air Flow Measuring + Access Door Windows*
**Y** = *Option B + C + D - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring*
**Z** = *Option B + C + E - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Access Door Windows*
**1** = *Option B + D + E - Motorized Service Vestibule Fresh Air + Return Fan Air Flow Measuring + Access Door Windows*
**2** = *Option C + D + E - Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring + Access Door Windows*
**7** = *Option B + C + D + E - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring+ Access Door Windows*

# Feature 22
## 22: Maintenance Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E **Q** 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard* - Standard unit construction with LED service lights included in the controls and compressor compartments. The light circuit is wired to the line side of the unit power block, permitting use of the lights while the power to the unit is shut off.
**A** = *Factory Wired 115V Convenience Outlet* - Factory wired 2x4 inch electrical box with ground fault interrupter receptacle located within the controls vestibule. The circuit is rated at 12 amps maximum and is factory wired to a step-down transformer, fuse block and outlet disconnect. The circuit is wired to the line side of the unit power block or power switch permitting use of the outlet while power to the unit is shut off. **Caution: When the power to the unit is disconnected with the factory installed unit power switch, the convenience outlet will remain live.**

Figure 15 - Factory Wired Convenience Outlet

**B** = *Field Wired 115V Convenience Outlet* - Field wired 2x4 electrical box with ground fault interrupter receptacle, located inside the unit control cabinet. Receptacle is rated for 20 amps. The outlet must be field wired to a 115 VAC power supply.
**C** = *Service Lights* - Factory installed and wired service lights in the walk-in areas.
**D** = *Remote Start/Stop contacts* - Remote start/stop terminals labeled ST1 and ST2. This option is normally used with a remote time clock or space type thermostat with occupied/unoccupied capability. Field supplied contact closure is needed for unit operation. When contacts are open, the low voltage circuit is broken and the unit will not operate.
**E** = *Supply Fan Auxiliary Contacts* - Contacts on the low voltage terminal block that close when the supply fan is energized. This option is used to interface with other devices or to indicate unit operation.
**F** = *Option A + C - Factory Wired 115V Convenience Outlet + Service Lights*
**G** = *Option A + D - Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts*
**H** = *Option A + E - Factory Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts*
**J** = *Option B + C - Field Wired 115V Convenience Outlet + Service Lights*
**K** = *Option B + D - Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts*
**L** = *Option B + E - Field Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts*

# Feature 22 - Maintenance Accessories Continued

**M** = *Option C + D - Service Lights + Remote Start/Stop Contacts*
**N** = *Option C + E - Service Lights + Supply Fan Auxiliary Contacts*
**P** = *Option D + E - Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*
**Q** = *Option A + C + D - Factory Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts*
**R** = *Option A + C + E - Factory Wired 115V Convenience Outlet + Service Lights + Supply Fan Auxiliary Contacts*
**S** = *Option A + D + E - Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*
**T** = *Option B + C + D - Field Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts*
**U** = *Option B + C + E - Field Wired 115V Convenience Outlet + Service Lights + Supply Fan Auxiliary Contacts*
**V** = *Option B + D + E - Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*
**W** = *Option C + D + E - Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*
**Y** = *Option A + C + D + E - Factory Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*
**Z** = *Option B + C + D + E - Field Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

***Notes**: If F22 is selected with **Factory Wired 115V Convenience Outlet** option then an additional vestibule would get a convenience outlet additional to the outlet on the primary vestibule.*

# Feature 23
## 23: Code Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q **0** A - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard - ETL U.S.A. Listing* - All AAON equipment is ETL U.S.A. listed and tested in accordance with the latest revision of UL 1995. If a Special Pricing Authorization (SPA) is applied there may be additional costs incurred to secure the ETL label.
**A** = *Chicago Code* - Chicago code for a unit. Chicago code states that unit wiring to the condenser fan motors must be in flexible conduit and refrigerant pressure relief valves must be supplied.
**B** = *ETL U.S.A. + Canada Listing* - Equipment is ETL U.S.A. and Canada listed and tested in accordance with the latest revision of UL Standard 1995/CSA C22.2 No. 236. The nameplate, safety labels and warnings will be in English and French.

# Feature 24
## 24: Shipping Splits

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 **A** - E 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**A** = *Two Piece Unit*
**D** = *Two Piece Unit (Refrigeration Split)*

# Feature 25
## 25: Air-Cooled Condenser Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - **E** 0 0 0 0 0 - 0 0 0 0 0 D B

**0** = *Standard*
**E** = *VFD Condenser Fan Head Pressure Control* - VFD Controlled Condenser Fans - Variable Speed - Factory provided and factory programmed VFD(s) receives inputs from pressure transducers on each refrigerant circuit and varies the fan speed based on the pressure inputs to maintain a discharge pressure. Standard pressure setpoint is 340 psi for standard air-cooled systems and 400 psi for modulating hot gas reheat air-cooled systems. With AAON unit controls, VFD's will be controlled directly by AAON Control System.
**K** = *Low Sound Condenser Fan (Head Pressure Control)*- Condenser fans are specifically designed for reduced and redirected sound emission. The fans include optimized orifice, guide vanes, and serrated blades. These condenser fans are driven by EC motors which either speed up or slow down to adjust air flow in order to maintain the head pressure setpoint. The head pressure setpoint is field adjustable from 260-400 psi with a default setting of 340 psi with a Head Pressure Control Module. This option includes Low Sound ECM condenser fans, condenser head pressure controller and discharge pressure transducers. Minimum allowable ambient temperature for cooling operation is 35°F.

# Feature 26

## 26: Evaporative Condenser Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E **0** 0 0 0 0 - 0 0 0 0 0 D B

**0** = *No Evaporative Condenser*
**A** = *No Sump or Vestibule Heaters* - Evaporative condensed unit without sump or vestibule heaters
**B** = *Sump and Vestibule Heaters* - Evaporative condensed unit with a 5kW electric immersion sump heater, and a 1kW electric base board heater for the controls vestibule.

# Feature 27

## 27: Water-Cooled Condenser Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 **0** 0 0 0 - 0 0 0 0 0 D B

**0** = *No Water-Cooled Condenser*

# Feature 28

## 28: Energy Recovery Accessories

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 **0** 0 0 - 0 0 0 0 0 D B

**0** = *None*
**A** = *Energy Recovery Wheel Defrost Start/Stop* – Wheel sensor is attached to detect frost buildup on the wheel. When wheel need defrosting, wheel will stop on return side for a period to melt any ice buildup. Then wheel will continue rotating.
**B** = *Energy Recovery Wheel Rotation Detection* - Wheel rotation sensor and speed switch output module mounted in the energy recovery wheel section. The module contains a normally open and a normally closed set of contacts wired to the low voltage terminal block for field indication of wheel rotation.
**E** = *VFD for Heat Wheel Motor (Field Control)* - A VFD will be provided to field control the speed of the Heat Wheel. Speed control will be wired to LVTBs for a 0-10 Volt signal. Run call will still be handled by the controls/ supervisory controls.
**F** = *Option A + B - Energy Recovery Wheel Defrost - Start-Stop + Energy Recovery Wheel Rotation Detection.*
**M** = *Option B + E – Energy Recovery Wheel Rotation Detection + VFD for Heat Wheel Motor (Field Control).*

# Feature 29
## 29: VFD Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 **0** 0 - 0 0 0 0 0 D B

**0** = *Standard*
**A** = *Shaft Grounding on all SA, RA, EA motors* - Shaft grounding on all supply air, return air, and exhaust air motors.
**C** = *BACnet VFD on all motors* - BACnet native VFD on all supply air, return air, and exhaust air motors which allows users to monitor and control drives on a BACnet network using RS-485 technology and MS/TP protocol.
**G** = *Option A + C*

# Feature 30
## 30: Miscellaneous Options

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 **0** - 0 0 0 0 0 D B

**0** = *None*
**A** = *High Condensate Level Switch* - Control switch that shuts down the 24V control circuit when a high water level in the drain pan is detected to prevent overflow.
**S** = *Additional Vestibule Heater* – A 24V heater added to a vestibule for technician while working.
**T** = *Option A + S* – Option A + S

***Note:*** *If F30 is selected with an* ***Additional Vestibule Heater*** *option then an additional vestibule would get a vestibule heater.*

# Feature 31

## Blank

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - **0** 0 0 0 0 D B

**0** = *Standard*

# Feature 32

## Blank

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 **0** 0 0 0 D B

**0** = *Standard*

# Feature 33

## Blank

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 **0** 0 0 D B

**0** = *Standard*

# Feature 34

## Blank

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 **0** 0 D B

**0** = *Standard*

# Feature 35
## 35: Warranty

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 **0** D B

**0** = *Standard Warranty* - RZ Series includes a standard 1 year parts only warranty. RZ Series unit warranty coverage is 12 months from the date of equipment startup or 18 months from the date of original equipment shipment from the factory, whichever is less.
***A*** *= 2 Year Parts Warranty - Unit warranty coverage is for two years from the date of original equipment shipment from the factory.*
***B*** *= 5 Year Parts Warranty - Unit warranty coverage is for five years from the date of original equipment shipment from the factory.*
***C*** *= 10 Year Parts Warranty - Unit warranty coverage is for ten years from the date of original equipment shipment from the factory.*

# Feature 36
## 36: Cabinet Material

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 **D** B

**D** = *Galvanized Cabinet - Double Wall + R-13 Foam Insulation + 6" Base Rail + Double Sloped Roof* - Unit construction consists of double wall closed cell polyurethane foam insulated composite panels. A thermal break between the inside and outside of the cabinet is included in the panels. The wall panels are 2-inch thick with a minimum R-value of 13. The sloped roof of the unit averages 2.5-inch thick with a minimum R-Value of 16. The floor of the unit is 3-inch thick with a minimum R-value of 19. Drain pans are fabricated of 18 gauge 304 stainless steel and are double sloped to meet ASHRAE 62.1, Indoor Air Quality guidelines.

# Feature 37
## 37: Specials & Paint

Example:

RZ A - 145 - D 0 - 3 - C A B 0 A - 0 0 0 0 0 : N 0 - A A K A Q - J 0 0 - B F T 0 M - 0 0 0 0 0 - Q F - A 0 A A
- 0 0 - M 0 - C - 0 0 0 - 8 0 - D A 0 B - 0 0 - 0 0 0 - A B E Q 0 A - E 0 0 0 0 0 - 0 0 0 0 0 D **B**

**B** = *Premium AAON Gray Exterior Paint* - Cabinet exterior is primer washed then spray coated with a two-part polyurethane, heat-baked exterior paint. The paint is gray in color and capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with the ASTM B 117-95 test procedure.

**D** = *Premium AAON Gray Exterior Paint + Interior Corrosion Protection* - Interior ceiling, floor, service doors, fan inlet cone, damper rack, and filter rack in the air stream are spray coated with a two-part polyurethane, heat baked coating. The coils, coil casings, condensate drain pans, damper blades and gears, fan wheel, fan motor, energy recovery wheel casing, and compressor cabinet are not coated. Option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand and wind and is applicable to all corrosive environments where a polyurethane coating is acceptable. Coating withstands at least 2,500 hours when tested under ASTM B 117-95 requirements

**G** = *Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap* - Option D + Unit is heat shrink wrapped to help protect the unit during shipment.

**X** = *SPA + Premium AAON Gray Exterior Paint* - The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

**Z** = *SPA + Premium AAON Gray Exterior Paint + Interior Corrosion Protection* - The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

**3** = *SPA + Premium AAON Gray Exterior Paint + Interior Corrosion Protection + Shrink Wrap* - The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

**4** = *SPA + Special Exterior Paint Color* - If a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

**6** = *SPA + Special Exterior Paint Color + Interior Corrosion Protection* - If a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

**9** = *SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap* - If a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

# General Data

## Unit Information

Table 12 - RZ Series (045-075 tons) DX and CW Cooling Information

| | Model | | | |
|---|---|---|---|---|
| | 045 | 055 | 065 | 075 |
| **Compressors** | | | | |
| *Quantity/Nominal tons* | | | | |
| R-410A Lead Variable Speed Scroll Compressor | 2/22.5 ton VFD | 2/25.1 ton VFD | 2/29.6 ton VFD | 2/17.7 ton VFD, 1/31.5 Tandem |
| Unit Turndown (%) | 17% | 20% | 18% | 15% |
| **R-410A Evaporator Coils** | | | | |
| Number of Circuits | 2, Interlaced | | | 3, Interlaced |
| *Standard DX Coil* | | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | | | |
| Rows/fpi | 4/14 | | | |
| *6 Row DX Coil* | | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | | | |
| Rows/fpi | 6/12 | | | |
| *Standard Large DX Coil* | | | | |
| Quantity/Face Area Coil/ Total Face Area | | | | |
| Rows/fpi | | | | |
| *6 Row Large DX Coil* | | | | |
| Quantity/Face Area Coil/ Total Face Area | | | | |
| Rows/fpi | | | | |
| **Chilled Water Coils** | | | | |
| Number of Connections | 2 inlet, 2 outlet | | | |
| *Standard CW Coil* | Single Serpentine with 10 fpi | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/25.5 $ft^2$/51.0 $ft^2$ | | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | | |
| *Standard Large CW Coil* | | | | |
| Quantity/Face Area Coil/ Total Face Area | | | | |
| Rows/fpi | | | | |

Table 13 - RZ Series (045-075 tons) Gas Heat Information

| | Model | | | |
|---|---|---|---|---|
| | 045 | 055 | 065 | 075 |
| **Gas Heat** | | | | |
| Input Capacity/Output Capacity (MBH) | 540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479 | | | |
| Natural Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>Modulating - 3:1 Turndown or 9:1 High Turndown<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>Modulating - 4.5:1 Turndown or 13.5:1 High Turndown<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>Modulating - 6:1 Turndown or 18:1 High Turndown<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 7.5:1 Turndown or 22.5:1 High Turndown<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 9:1 Turndown or 27:1 High Turndown<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>Modulating - 11.7:1 Turndown or 35:1 High Turndown<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>Modulating - 14.3:1 Turndown or 43:1 High Turndown<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255<br>Modulating - 17:1 Turndown or 51:1 High Turndown | | | |
| LP Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 | | | |

Table 14 - RZ Series (045-075 tons) Electric Heat & Heating Coils Information

| | Model | | | |
|---|---|---|---|---|
| | 045 | 055 | 065 | 075 |
| **Electric Heat** | | | | |
| *Capacity (kW)* | | | | |
| 230/460/575V 3Φ | 80, 120, 160, 200, 240 | | | |
| Stages (kW) | 80 kW - 2, 4 or Fully Modulating with SCR<br>120 kW - 3, 6 or Fully Modulating with SCR<br>160 kW - 4, 8 or Fully Modulating with SCR<br>200 kW - 5, 10 or Fully Modulating with SCR<br>240 kW - 6, 12 or Fully Modulating with SCR | | | |
| **Hot Water Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ | 1/11.3 $ft^2$/ 11.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ | 1/10.5 $ft^2$/ 10.5 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |
| **Hot Water Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ | 1/11.3 $ft^2$/ 11.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ | 1/10.5 $ft^2$/ 10.5 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |

Table 15 - RZ Series (045-075 tons) Fan Information

| | Model | | | |
|---|---|---|---|---|
| | 045 | 055 | 065 | 075 |
| **Supply Fans** | | | | |
| Quantity/Type | 1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum | | | |
| Max CFM for Standard Cooling Coil | 30,075 | | | |
| Max CFM for Large Cooling Coil | | | | |
| **Air-Cooled Condenser Fans** | | | | |
| Quantity | 4 | | | |
| Type/hp | 30” EC or VFD controlled Fans/1.5hp | | | |
| **Power Exhaust Fans** | | | | |
| Quantity/Type | 1, 2, or 3/ Direct Drive Backward Curved Plenum | | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | | |
| **Power Return Fans** | | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | | |

Table 16 - RZ Series (090-105 tons) DX and CW Cooling Information

| | Model | |
|---|---|---|
| | 090 | 105 |
| **Compressors** | | |
| *Quantity/Nominal tons* | | |
| R-410A Lead Variable Speed Scroll Compressor | 2/19.7 ton VFD, 1/49.4 Tandem | 2/22 ton VFD, 1/53.2 Tandem |
| Unit Turndown (%) | 13% | 11% |
| **R-410A Evaporator Coils** | | |
| Number of Circuits | 3, Interlaced | |
| *Standard DX Coil* | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | |
| Rows/fpi | 4/14 | |
| *6 Row DX Coil* | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | |
| Rows/fpi | 6/12 | |
| *Standard Large DX Coil* | | |
| Quantity/Face Area Coil/ Total Face Area | 2/37.5 $ft^2$/ 75.0 $ft^2$ | |
| Rows/fpi | 4/14 | |
| *6 Row Large DX Coil* | | |
| Quantity/Face Area Coil/ Total Face Area | 2/37.5 $ft^2$/ 75.0 $ft^2$ | |
| Rows/fpi | 6/12 | |
| **Chilled Water Coils** | | |
| Number of Connections | 2 inlet, 2 outlet | |
| *Standard CW Coil* | Single Serpentine with 10 fpi | |
| Quantity/Face Area Coil/ Total Face Area | 2/25.5 $ft^2$/51.0 $ft^2$ | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | |
| *Standard Large CW Coil* | Single Serpentine with 10 fpi | |
| Quantity/Face Area Coil/ Total Face Area | 2/35.0 $ft^2$/70.0 $ft^2$ | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | |

Table 17 - RZ Series (090-105 tons) Gas Heat Information

| | Model | |
|---|---|---|
| | 090 | 105 |
| **Gas Heat** | | |
| Input Capacity/Output Capacity (MBH) | 540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479 | |
| Natural Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>Modulating - 3:1 Turndown or 9:1 High Turndown<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>Modulating - 4.5:1 Turndown or 13.5:1 High Turndown<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>Modulating - 6:1 Turndown or 18:1 High Turndown<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 7.5:1 Turndown or 22.5:1 High Turndown<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 9:1 Turndown or 27:1 High Turndown<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>Modulating - 11.7:1 Turndown or 35:1 High Turndown<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>Modulating - 14.3:1 Turndown or 43:1 High Turndown<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255<br>Modulating - 17:1 Turndown or 51:1 High Turndown | |
| LP Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 | |

Table 18 - RZ Series (090-105 tons) Electric Heat & Heating Coils Information

| | Model | | | |
|---|---|---|---|---|
| | 090 | | 105 | |
| **Electric Heat** *Capacity (kW)* | | | | |
| 230/460/575V 3Φ | 80, 120, 160, 200, 240 | | | |
| Stages (kW) | 80 kW - 2, 4 or Fully Modulating with SCR<br>120 kW - 3, 6 or Fully Modulating with SCR<br>160 kW - 4, 8 or Fully Modulating with SCR<br>200 kW - 5, 10 or Fully Modulating with SCR<br>240 kW - 6, 12 or Fully Modulating with SCR | | | |
| **Hot Water Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/21.4 $ft^2$/ 42.9 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 4/9.8 $ft^2$/ 39.0 $ft^2$ | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |
| **Hot Water Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/21.4 $ft^2$/ 42.9 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 4/9.8 $ft^2$/ 39.0 $ft^2$ | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |

Table 19 - RZ Series (090-105 tons) Fan Information

| | Model | |
|---|---|---|
| | 090 | 105 |
| **Supply Fans** | | |
| Quantity/Type | 1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum | |
| Max CFM for Standard Cooling Coil | 30,075 | |
| Max CFM for Large Cooling Coil | 41,250 | |
| **Air-Cooled Condenser Fans** | | |
| Quantity | 8 | |
| Type/hp | 30” EC or VFD controlled Fans/1.5hp | |
| **Power Exhaust Fans** | | |
| Quantity/Type | 1, 2, or 3/ Direct Drive Backward Curved Plenum | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | |
| **Power Return Fans** | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | |

Table 20 - RZ Series (120-140 tons) DX and CW Cooling Information

| | Model | | |
|---|---|---|---|
| | 120 | 130 | 140 |
| **Compressors** | | | |
| *Quantity/Nominal tons* | | | |
| R-410A Lead Variable Speed Scroll Compressor | 2/29.2 ton VFD, 1/56.9 Tandem | 2/30.1 ton VFD, 1/68 Tandem | 2/29.7 ton VFD, 1/71.3 Tandem |
| Unit Turndown (%) | 13% | 12% | 11% |
| **R-410A Evaporator Coils** | | | |
| Number of Circuits | 3, Interlaced | | |
| *Standard DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/27.3 $ft^2$/ 54.7 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| *Standard Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/37.5 $ft^2$/ 75.0 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 2/37.5 $ft^2$/ 75.0 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| **Chilled Water Coils** | | | |
| Number of Connections | 2 inlet, 2 outlet | | |
| *Standard CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 2/25.5 $ft^2$/51.0 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |
| *Standard Large CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 2/35.0 $ft^2$/70.0 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |

Table 21 - RZ Series (120-140 tons) Gas Heat Information

| | Model | | |
|---|---|---|---|
| | 120 | 130 | 140 |
| **Gas Heat** | | | |
| Input Capacity/Output Capacity (MBH) | 540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479 | | |
| Natural Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>Modulating - 3:1 Turndown or 9:1 High Turndown<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>Modulating - 4.5:1 Turndown or 13.5:1 High Turndown<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>Modulating - 6:1 Turndown or 18:1 High Turndown<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 7.5:1 Turndown or 22.5:1 High Turndown<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>Modulating - 9:1 Turndown or 27:1 High Turndown<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>Modulating - 11.7:1 Turndown or 35:1 High Turndown<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>Modulating - 14.3:1 Turndown or 43:1 High Turndown<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255<br>Modulating - 17:1 Turndown or 51:1 High Turndown | | |
| LP Gas Capacity Steps (MBH) | 540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135,<br>810 MBH: 3 stage - 810/540/270,<br>6 stage - 810/ 675/540/405/270/135<br>1080 MBH: 4 stage - 1080/810/540/270,<br>8 stage - 1080/945/810/675/540/405/270/135<br>1350 MBH: 5 stage - 1350/1080/810/540/270,<br>10 stage - 1350/1215/1080/945/810/675/540/405/270/135<br>1620 MBH: 6 stage - 1620/1350/1080/810/540/270,<br>12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135<br>2100 MBH: 4 stage - 2100/1575/1050/525,<br>8 stage - 2100/1837/1575/1312/1050/787/525/262<br>2580 MBH: 5 stage - 2580/2064/1548/1032/516,<br>10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258<br>3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510<br>12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 | | |

Table 22 - RZ Series (120-140 tons) Electric Heat & Heating Coils Information

| | Model | | | |
|---|---|---|---|---|
| | 120 | 130 | 140 | |
| **Electric Heat** | | | | |
| *Capacity (kW)* | | | | |
| 230/460/575V 3Φ | 80, 120, 160, 200, 240 | | | |
| Stages (kW) | 80 kW - 2, 4 or Fully Modulating with SCR<br>120 kW - 3, 6 or Fully Modulating with SCR<br>160 kW - 4, 8 or Fully Modulating with SCR<br>200 kW - 5, 10 or Fully Modulating with SCR<br>240 kW - 6, 12 or Fully Modulating with SCR | | | |
| **Hot Water Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/21.4 $ft^2$/ 42.9 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 4/9.8 $ft^2$/ 39.0 $ft^2$ | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |
| **Hot Water Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/21.4 $ft^2$/ 42.9 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/24.6 $ft^2$/ 24.6 $ft^2$ | 1/18.3 $ft^2$/ 18.3 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 4/9.8 $ft^2$/ 39.0 $ft^2$ | 2/15.0 $ft^2$/ 30.0 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ | 1/15.4 $ft^2$/ 15.4 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |

Table 23 - RZ Series (120-140 tons) Fan Information

| | Model | | |
|---|---|---|---|
| | 120 | 130 | 140 |
| **Supply Fans** | | | |
| Quantity/Type | 1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum | | |
| Max CFM for Standard Cooling Coil | 30,075 | | |
| Max CFM for Large Cooling Coil | 41,250 | | |
| **Air-Cooled Condenser Fans** | | | |
| Quantity | 8 | | |
| Type/hp | 30” EC or VFD controlled Fans/1.5hp | | |
| **Power Exhaust Fans** | | | |
| Quantity/Type | 1, 2, or 3/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |
| **Power Return Fans** | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |

Table 24 - RZ Series (145-180 tons) DX and CW Cooling Information

| | Model | | |
|---|---|---|---|
| | 145 | 160 | 180 |
| **Compressors** | | | |
| *Quantity/Nominal tons* | | | |
| R-410A Lead Variable Speed Scroll Compressor | 4/20.5 ton VFD, 2/30.8 Tandem | 4/23.8 ton VFD, 2/30.8 Tandem | 4/27.2 ton VFD, 2/33.8 Tandem |
| Unit Turndown (%) | 15% | 19% | 16% |
| **R-410A Evaporator Coils** | | | |
| Number of Circuits | 6, Interlaced | | |
| *Standard DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/23.1 $ft^2$/ 92.4 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/23.1 $ft^2$/ 92.4 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| *Standard Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/26.7 $ft^2$/ 106.8 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/26.7 $ft^2$/ 106.8 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| **Chilled Water Coils** | | | |
| Number of Connections | 4 inlet, 4 outlet | | |
| *Standard CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 4/21.6 $ft^2$/ 86.4 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |
| *Standard Large CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 4/25.2 $ft^2$/ 100.8 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |

Table 25 - RZ Series (145-180 tons) Gas Heat Information

| | Model | | |
|---|---|---|---|
| | 145 | 160 | 180 |
| **Gas Heat** | | | |
| Input Capacity/Output Capacity (MBH) | 800/648, 1200/972, 1600/1296, 2000/1620, 2400/1944, 3100/2511, 3800/3078, 4500/3645 | | |
| Natural Gas Capacity Steps (MBH) | 800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200,<br>Modulating - 3:1 Turndown or 7.5:1 High Turndown<br>1200 MBH: 3 stage - 1200/800/400,<br>6 stage - 1200/ 1000/800/600/400/200<br>Modulating - 4.5:1 Turndown or 11.2:1 High Turndown<br>1600 MBH: 4 stage - 1600/1200/800/400,<br>8 stage - 1600/1400/1200/1000/800/600/400/200<br>Modulating - 6:1 Turndown or 15:1 High Turndown<br>2000 MBH: 5 stage - 2000/1600/1200/800/400,<br>10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200<br>Modulating - 7.5:1 Turndown or 18.7:1 High Turndown<br>2400 MBH: 6 stage - 2400/2000/1600/1200/800/400,<br>12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200<br>Modulating - 9:1 Turndown or 22.5:1 High Turndown<br>3100 MBH: 4 stage - 3100/2325/1550/775,<br>8 stage - 3100/2712/2325/1937/1550/1162/775/387<br>Modulating - 11.6:1 Turndown or 29:1 High Turndown<br>3800 MBH: 5 stage - 3800/3040/2280/1520/760,<br>10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380<br>Modulating - 14.2:1 Turndown or 35.6:1 High Turndown<br>4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750<br>12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375<br>Modulating - 16.8:1 Turndown or 42.1:1 High Turndown | | |
| LP Gas Capacity Steps (MBH) | 800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200,<br>1200 MBH: 3 stage - 1200/800/400,<br>6 stage - 1200/ 1000/800/600/400/200<br>1600 MBH: 4 stage - 1600/1200/800/400,<br>8 stage - 1600/1400/1200/1000/800/600/400/200<br>2000 MBH: 5 stage - 2000/1600/1200/800/400,<br>10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200<br>2400 MBH: 6 stage - 2400/2000/1600/1200/800/400,<br>12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200<br>3100 MBH: 4 stage - 3100/2325/1550/775,<br>8 stage - 3100/2712/2325/1937/1550/1162/775/387<br>3800 MBH: 5 stage - 3800/3040/2280/1520/760,<br>10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380<br>4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750<br>12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375 | | |

Table 26 - RZ Series (145-180 tons) Electric Heat & Heating Coils Information

| | Model | | | |
|---|---|---|---|---|
| | 145 | 160 | 180 | |
| **Electric Heat** *Capacity (kW)* | | | | |
| 230/460/575V 3Φ | 80, 120, 160, 240, 320, 400, 480 | | | |
| Stages (kW) | 80 kW - 2, 4 or Fully Modulating with SCR<br>120 kW - 3, 6 or Fully Modulating with SCR<br>160 kW - 4, 8 or Fully Modulating with SCR<br>240 kW - 6, 12 or Fully Modulating with SCR<br>320 kW - 4, 8 or Fully Modulating with SCR<br>400 kW - 5, 10 or Fully Modulating with SCR<br>480 kW - 6, 12 or Fully Modulating with SCR | | | |
| **Hot Water Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/33.3 $ft^2$/ 66.6 $ft^2$ | 2/24.6 $ft^2$/ 49.2 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/21.7 $ft^2$/ 21.7 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/30.9 $ft^2$/ 61.8 $ft^2$ | 2/23.8 $ft^2$/ 47.5 $ft^2$ | 1/30.9 $ft^2$/ 30.9 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |
| **Hot Water Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/33.3 $ft^2$/ 66.6 $ft^2$ | 2/24.6 $ft^2$/ 49.2 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/21.7 $ft^2$/ 21.7 $ft^2$ |
| Rows/fpi | 1 or 2/10 (Single or Half Serpentine) | | | |
| **Steam Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/30.9 $ft^2$/ 61.8 $ft^2$ | 2/23.8 $ft^2$/ 47.5 $ft^2$ | 1/30.9 $ft^2$/ 30.9 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ |
| Rows/fpi | 1 or 2/10 (Single Serpentine) | | | |

Table 27 - RZ Series (145-180 tons) Fan Information

| | Model | | |
|---|---|---|---|
| | 145 | 160 | 180 |
| **Supply Fans** | | | |
| Quantity/Type | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12/Direct Drive Backward Curved Plenum | | |
| Max CFM for Standard Cooling Coil | 50,800 | | |
| Max CFM for Large Cooling Coil | 58,820 | | |
| **Air-Cooled Condenser Fans** | | | |
| Quantity | 12 | | |
| Type/hp | 30” EC or VFD controlled Fans/1.5hp | | |
| **Power Exhaust Fans** | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |
| **Power Return Fans** | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |

Table 28 - RZ Series (200-240 tons) DX and CW Cooling Information

| | Model | | |
|---|---|---|---|
| | 200 | 220 | 240 |
| **Compressors** | | | |
| *Quantity/Nominal tons* | | | |
| R-410A Lead Variable Speed Scroll Compressor | 4/23.1 ton VFD, 2/48.1 Tandem | 4/25.8 ton VFD, 2/51.7 Tandem | 4/26.7 ton VFD, 2/59.6 Tandem |
| Unit Turndown (%) | 16% | 14% | 13% |
| **R-410A Evaporator Coils** | | | |
| Number of Circuits | 6, Interlaced | | |
| *Standard DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/30.4 $ft^2$/ 121.5 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/30.4 $ft^2$/ 121.5 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| *Standard Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/36.5 $ft^2$/ 145.8 $ft^2$ | | |
| Rows/fpi | 4/14 | | |
| *6 Row Large DX Coil* | | | |
| Quantity/Face Area Coil/ Total Face Area | 4/36.5 $ft^2$/ 145.8 $ft^2$ | | |
| Rows/fpi | 6/12 | | |
| **Chilled Water Coils** | | | |
| Number of Connections | 4 inlet, 4 outlet | | |
| *Standard CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 4/28.9 $ft^2$/ 115.5 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |
| *Standard Large CW Coil* | Single Serpentine with 10 fpi | | |
| Quantity/Face Area Coil/ Total Face Area | 4/34.9 $ft^2$/ 139.8 $ft^2$ | | |
| Rows/fpi | 4, 6, or 8 row/8, 10 or 12 fpi (Single or Half Serpentine) | | |

Table 29 - RZ Series (200-240 tons) Gas Heat Information

| | Model | | |
|---|---|---|---|
| | 200 | 220 | 240 |
| **Gas Heat** | | | |
| Input Capacity/Output Capacity (MBH) | 800/648, 1200/972, 1600/1296, 2000/1620, 2400/1944, 3100/2511, 3800/3078, 4500/3645 | | |
| Natural Gas Capacity Steps (MBH) | 800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200,<br>Modulating - 3:1 Turndown or 7.5:1 High Turndown<br>1200 MBH: 3 stage - 1200/800/400,<br>6 stage - 1200/ 1000/800/600/400/200<br>Modulating - 4.5:1 Turndown or 11.2:1 High Turndown<br>1600 MBH: 4 stage - 1600/1200/800/400,<br>8 stage - 1600/1400/1200/1000/800/600/400/200<br>Modulating - 6:1 Turndown or 15:1 High Turndown<br>2000 MBH: 5 stage - 2000/1600/1200/800/400,<br>10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200<br>Modulating - 7.5:1 Turndown or 18.7:1 High Turndown<br>2400 MBH: 6 stage - 2400/2000/1600/1200/800/400,<br>12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200<br>Modulating - 9:1 Turndown or 22.5:1 High Turndown<br>3100 MBH: 4 stage - 3100/2325/1550/775,<br>8 stage - 3100/2712/2325/1937/1550/1162/775/387<br>Modulating - 11.6:1 Turndown or 29:1 High Turndown<br>3800 MBH: 5 stage - 3800/3040/2280/1520/760,<br>10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380<br>Modulating - 14.2:1 Turndown or 35.6:1 High Turndown<br>4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750<br>12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375<br>Modulating - 16.8:1 Turndown or 42.1:1 High Turndown | | |
| LP Gas Capacity Steps (MBH) | 800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200,<br>1200 MBH: 3 stage - 1200/800/400,<br>6 stage - 1200/ 1000/800/600/400/200<br>1600 MBH: 4 stage - 1600/1200/800/400,<br>8 stage - 1600/1400/1200/1000/800/600/400/200<br>2000 MBH: 5 stage - 2000/1600/1200/800/400,<br>10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200<br>2400 MBH: 6 stage - 2400/2000/1600/1200/800/400,<br>12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200<br>3100 MBH: 4 stage - 3100/2325/1550/775,<br>8 stage - 3100/2712/2325/1937/1550/1162/775/387<br>3800 MBH: 5 stage - 3800/3040/2280/1520/760,<br>10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380<br>4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750<br>12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375 | | |

Table 30 - RZ Series (200-240 tons) Electric Heat & Heating Coils Information

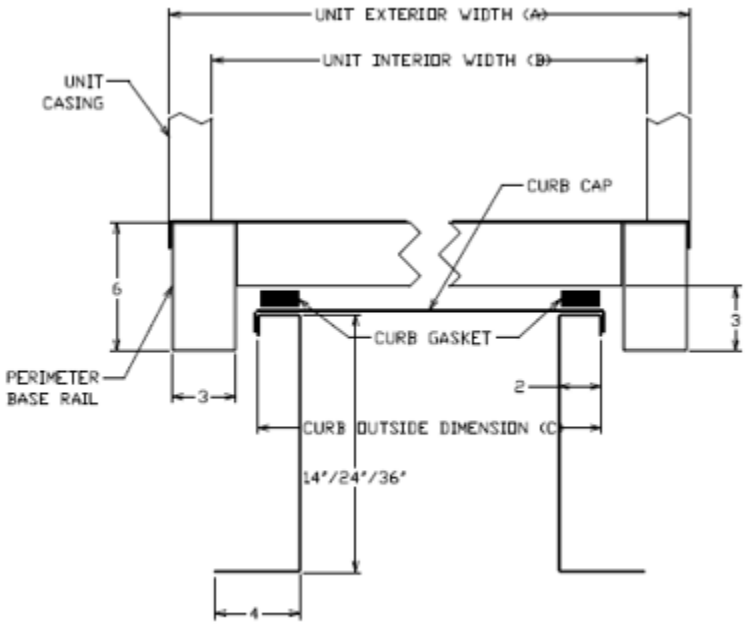
| | Model | | | |
|---|---|---|---|---|
| | 200 | 220 | 240 | |
| **Electric Heat** *Capacity (kW)* | | | | |
| 230/460/575V 3Φ | 80, 120, 160, 240, 320, 400, 480 | | | |
| Stages (kW) | 80 kW - 2, 4 or Fully Modulating with SCR<br>120 kW - 3, 6 or Fully Modulating with SCR<br>160 kW - 4, 8 or Fully Modulating with SCR<br>240 kW - 6, 12 or Fully Modulating with SCR<br>320 kW - 4, 8 or Fully Modulating with SCR<br>400 kW - 5, 10 or Fully Modulating with SCR<br>480 kW - 6, 12 or Fully Modulating with SCR | | | |
| **Hot Water Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/33.3 $ft^2$/ 66.6 $ft^2$ | 2/24.6 $ft^2$/ 49.2 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/21.7 $ft^2$/ 21.7 $ft^2$ |
| Rows/fpi | 1 or 2 row/10 fpi (Single or Half Serpentine) | | | |
| **Steam Heating Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/30.9 $ft^2$/ 61.8 $ft^2$ | 2/23.8 $ft^2$/ 47.5 $ft^2$ | 1/30.9 $ft^2$/ 30.9 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ |
| Rows/fpi | 1 or 2 rows/10 fpi (Single Serpentine) | | | |
| **Hot Water Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/33.3 $ft^2$/ 66.6 $ft^2$ | 2/24.6 $ft^2$/ 49.2 $ft^2$ | 1/33.3 $ft^2$/ 33.3 $ft^2$ | 1/21.7 $ft^2$/ 21.7 $ft^2$ |
| Rows/fpi | 1 or 2/10 (Single or Half Serpentine) | | | |
| **Steam Preheat Coil** | Size A | Size B | Size C | Size D |
| Quantity/Face Area Coil/ Total Face Area | 2/30.9 $ft^2$/ 61.8 $ft^2$ | 2/23.8 $ft^2$/ 47.5 $ft^2$ | 1/30.9 $ft^2$/ 30.9 $ft^2$ | 1/23.8 $ft^2$/ 23.8 $ft^2$ |
| Rows/fpi | 1 or 2/10 (Single Serpentine) | | | |

Table 31 - RZ Series (200-240 tons) Fan Information

| | Model | | |
|---|---|---|---|
| | 200 | 220 | 240 |
| **Supply Fans** | | | |
| Quantity/Type | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12/Direct Drive Backward Curved Plenum | | |
| Max CFM for Standard Cooling Coil | 66,840 | | |
| Max CFM for Large Cooling Coil | 80,200 | | |
| **Air-Cooled Condenser Fans** | | | |
| Quantity | 16 | | |
| Type/hp | 30” EC or VFD controlled Fans/1.5hp | | |
| **Power Exhaust Fans** | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |
| **Power Return Fans** | | | |
| Quantity/Type | 1, 2, 3 or 4/ Direct Drive Backward Curved Plenum | | |
| hp | 3, 5, 7.5, 10, 15, 20, 25, 30, 40 | | |

# Roof Curb

A roof curb is a custom-made frame to provide the HVAC unit a solid structure to hold it in place on the roof. These curbs are made of a set of heavy gauge galvanized steel welded beams.




CURB MOUNTING

| CABINET | A | B | C | D |
|---|---|---|---|---|
| NARROW | 100 | 96 | 92 | 97 |
| WIDE | 142 | 138 | 134 | 139 |

Due to the highly custom nature of this line of HVAC Units, further details on the curb for a specific unit will need to be requested. Further information will be provided through ECat.

# Filter Information

Table 32 - RZ Series (45-140 ton) Pre Filters

| Feature 9B | Feature 9A | Quantity / Size | Type |
|---|---|---|---|
| 0, A | 0, A | No Pre Filters | |
| B, E | B, C, D, H, J, K, P, Q | 12 / 24” x 24” x 2”<br>4 / 20” x 24” x 2” | Pleated MERV 8 |
| | E, F, G, L, M, N, R, S | 12 / 24” x 24” x 4”<br>4 / 20” x 24” x 4” | |
| C, F | B, C, D, H, J, K, P, Q | 20 / 24” x 24” x 2” | |
| | E, F, G, L, M, N, R, S | 20 / 24” x 24” x 4” | |
| D, G | B, C, D, H, J, K, P, Q | 18 / 24” x 24” x 2”<br>6 / 20” x 24” x 2” | |
| | E, F, G, L, M, N, R, S | 18 / 24” x 24” x 4”<br>6 / 20” x 24” x 4” | |
| H, K | B, C, D | 36 / 16” x 25” x 2” | |
| | E, F, G | 36 / 16” x 25” x 4” | |

Table 33 - RZ Series (145-240 ton) Pre Filters

| Feature 9B | Feature 9A | Quantity / Size | Type |
|---|---|---|---|
| 0, A | 0, A | No Pre Filters | |
| B, E | B, C, D, H, J, K, P, Q | 15 / 24” x 24” x 2”<br>5 / 20” x 24” x 2” | Pleated MERV 8 |
| | E, F, G, L, M, N, R, S | 15 / 24” x 24” x 4”<br>5 / 20” x 24” x 4” | |
| C, F | B, C, D, H, J, K, P, Q | 25 / 24” x 24” x 2” | |
| | E, F, G, L, M, N, R, S | 25 / 24” x 24” x 4” | |
| D, G | B, C, D, H, J, K, P, Q | 24 / 24” x 24” x 2”<br>8 / 20” x 24” x 2” | |
| | E, F, G, L, M, N, R, S | 24 / 24” x 24” x 4”<br>8 / 20” x 24” x 4” | |
| H, K | B, C, D | 60 / 16” x 20” x 2” | |
| | E, F, G | 60 / 16” x 20” x 4” | |
| J, L | B, C, D | 72 / 16” x 20” x 2” | |
| | E, F, G | 72 / 16” x 20” x 4” | |

Table 34 - RZ Series (45-140 ton) Metal Mesh Filters

| Feature 4A | Feature 19 | Quantity/ Size | Type |
|---|---|---|---|
| 0, A | BGHJKRSTUV | OA- 32 / 20" x 20" x 1" | Metal Mesh |
| BCEGJKQR | BGHJK | OA- 20 / 20" x 20" x 1" | |
| BCEGJKQR | RSTUV | OA- 32 / 20" x 20" x 1" | |

Table 35 - RZ Series (145-240 ton) Metal Mesh Filters

| Feature 4A | Feature 19 | Quantity/ Size | Type |
|---|---|---|---|
| 0, A | BGHJKRSTUV | OA- 48 / 20" x 20" x 1" | Metal Mesh |
| BCEGJKQR | BGHJK | OA- 28 / 20" x 20" x 1" | |
| BCEGJKQR | RSTUV | OA- 48 / 20" x 20" x 1" | |

Table 36 - RZ Series (45-140 ton) Energy Recovery Wheel Filters

| Feature 4C | Quantity / Size | Type |
|---|---|---|
| A, B, C, D,<br>E, F, G, H | OA - 20 / 24” x 24” x 2” | Pleated MERV 8 |
| J, K, N, P, | OA - 20 / 24” x 24” x 2”<br>EA - 12 / 18” x 24” x 2” | Pleated MERV 8 |
| L, Q | OA - 20 / 24” x 24” x 2”<br>EA - 12 / 18” x 24” x 2” | Pleated MERV 8 |

Table 37 - RZ Series (145-240 ton) Energy Recovery Wheel Filters

| Feature 4C | Quantity / Size | Type |
|---|---|---|
| A, B, C, D | OA - 12 / 24” x 24” x 2” | Pleated MERV 8 |
| E, F, G, H | OA - 28 / 20” x 20” x 2” | Pleated MERV 8 |
| J, K, N, P, | OA - 12 / 24” x 24” x 2”<br>EA - 12 / 24” x 24” x 2” | Pleated MERV 8 |
| L, M, Q, R | OA - 28 / 20” x 20” x 2”<br>EA - 28 / 20” x 20” x 2” | Pleated MERV 8 |

Table 38 - RZ Series (45-240 ton) Unit Filters

| RZ Size | Feature 9B | Feature 9A | Quantity / Size | Type |
|---|---|---|---|---|
| 45-75 tons | 0, A | 0 | 24 / 16” x 24” x 2” | Pleated MERV 8 |
| | | A | 24 / 16” x 24” x 4” | |
| 90-140 tons | | 0 | 36 / 16” x 25” x 2” | Pleated MERV 8 |
| | | A | 36 / 16” x 25” x 4” | |
| 145-180 tons | | 0 | 60 / 16” x 20” x 2” | Pleated MERV 8 |
| | | A | 60 / 16” x 20” x 4” | |
| 200-240 tons | | 0 | 72 / 16” x 20” x 2” | Pleated MERV 8 |
| | | A | 72 / 16” x 20” x 4” | |

Table 39 - RZ Series (45-140 ton) Unit Filters

| Feature 9B | Feature 9A | Quantity / Size | Type |
|---|---|---|---|
| B | B, E | 12 / 24” x 24” x 4”<br>4 / 20” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 12 / 24” x 24” x 12”<br>4 / 20” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 12 / 24” x 24” x 30”<br>4 / 20” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| C | B, E | 20 / 24” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 20 / 24” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 16 / 24” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| D | B, E | 18 / 24” x 24” x 4”<br>6 / 20” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 18 / 24” x 24” x 12”<br>6 / 20” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 20 / 24” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| H | B, E | 36 / 16” x 25” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| N,Q | W | 9 / 24" x 24" x 4"<br>6 / 24" x 12" x 4"<br>9 / 24" x 24" x 12"<br>6 / 24" x 12" x 12" | Pleated 4” MERV 8<br>+<br>99.99 HEPA Frame & Filters |
| P,R | | 12 / 24" x 24" x 4"<br>10 / 24" x 12" x 4"<br>12 / 24" x 24" x 12"<br>10 / 24" x 12" x 12" | |

Table 40 - RZ Series (145-240 ton) Unit Filters

| Feature 9B | Feature 9A | Quantity / Size | Type |
|---|---|---|---|
| B | B, E | 15 / 24” x 24” x 4”<br>5 / 20” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 15 / 24” x 24” x 12”<br>5 / 20” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 15 / 24” x 24” x 30”<br>5 / 20” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| C | B, E | 25 / 24” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 25 / 24” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 20 / 24” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| D | B, E | 24 / 24” x 24” x 4”<br>8 / 20” x 24” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| | H, L | 24 / 24” x 24” x 12”<br>8 / 20” x 24” x 12” | Cartridge MERV 11 |
| | J, M | | Cartridge MERV 13 |
| | K, N | | Cartridge MERV 14 |
| | P, R | 25 / 24” x 24” x 30” | Bag MERV 13 |
| | Q, S | | Bag MERV 14 |
| H | B, E | 60 / 16” x 20” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| J | B, E | 72 / 16” x 20” x 4” | Pleated MERV 11 |
| | C, F | | Pleated MERV 13 |
| | D, G | | Pleated MERV 14 |
| N,Q | W | 15 / 24" x 24" x 4"<br>5 / 24" x 12" x 4"<br>15 / 24" x 24" x 12"<br>5 / 24" x 12" x 12" | Pleated 4” MERV 8<br>+<br>99.99 HEPA Frame<br>& Filters |
| P,R | | 24 / 24" x 24" x 4"<br>8 / 24" x 12" x 4"<br>24 / 24" x 24" x 12"<br>8 / 24" x 12" x 12" | |

Table 41 - RZ Series (45-140 ton) Final Filters

| Feature 9C | Quantity / Size | Type |
|---|---|---|
| 0 | No Final Filters | |
| A | 12 / 24” x 24” x 12”<br>4 / 20” x 24” x 12” | Cartridge MERV 13 |
| B | 20 / 24” x 24” x 12” | |
| C | 18 / 24” x 24” x 12”<br>6 / 20” x 24” x 12” | |
| D | 12 / 24” x 24” x 12”<br>4 / 20” x 24” x 12” | Cartridge MERV 14 |
| E | 20 / 24” x 24” x 12” | |
| F | 18 / 24” x 24” x 12”<br>6 / 20” x 24” x 12” | |
| G | 12 / 24” x 24” x 30”<br>4 / 20” x 24” x 30” | Bag MERV 13 |
| H | 16 / 24” x 24” x 30” | |
| J | 20 / 24” x 24” x 30” | |
| K | 12 / 24” x 24” x 30”<br>4 / 20” x 24” x 30” | Bag MERV 14 |
| L | 16 / 24” x 24” x 30” | |
| M | 20 / 24” x 24” x 30” | |
| N | 9 / 24" x 24" x 12" ***<br>5 / 24" x 12" x 12" *** | 99.99 HEPA Frame<br>(No Filters)*** |
| P | 12 / 24" x 24" x 12" ***<br>9 / 24" x 12" x 12" *** | |
| Q | 9 / 24" x 24" x 12"<br>5 / 24" x 12" x 12" | 99.99 HEPA Frame & Filters |
| R | 12 / 24" x 24" x 12"<br>9 / 24" x 12" x 12" | |
| S | 9 / 24" x 24" x 4"<br>6 / 24" x 12" x 4"<br>9 / 24" x 24" x 12"<br>6 / 24" x 12" x 12" | Pleated 4” MERV 8 +<br>99.99 HEPA Frame & Filters |
| T | 12 / 24" x 24" x 4"<br>10 / 24" x 12" x 4"<br>12 / 24" x 24" x 12"<br>10 / 24" x 12" x 12" | |
| *** This option is for only the frame. Filters will need to be field supplied. | | |

Table 42 - RZ Series (145-240 ton) Final Filters

| Feature 9C | Quantity / Size | Type |
|---|---|---|
| 0 | No Final Filters | |
| A | 15 / 24” x 24” x 12”<br>5 / 20” x 24” x 12” | Cartridge MERV 13 |
| B | 25 / 24” x 24” x 12” | |
| C | 24 / 24” x 24” x 12”<br>8 / 20” x 24” x 12” | |
| D | 15 / 24” x 24” x 12”<br>5 / 20” x 24” x 12” | Cartridge MERV 14 |
| E | 25 / 24” x 24” x 12” | |
| F | 24 / 24” x 24” x 12”<br>8 / 20” x 24” x 12” | |
| G | 15 / 24” x 24” x 30”<br>5 / 20” x 24” x 30” | Bag MERV 13 |
| H | 20 / 24” x 24” x 30” | |
| J | 25 / 24” x 24” x 30” | |
| K | 15 / 24” x 24” x 30”<br>5 / 20” x 24” x 30” | Bag MERV 14 |
| L | 20 / 24” x 24” x 30” | |
| M | 25 / 24” x 24” x 30” | |
| N | 15 / 24" x 24" x 12" ***<br>3 / 24" x 12" x 12" *** | 99.99 HEPA Frame<br>(No Filters)*** |
| P | 24 / 24" x 24" x 12" ***<br>6 / 24" x 12" x 12" *** | |
| Q | 15 / 24" x 24" x 12"<br>3 / 24" x 12" x 12" | 99.99 HEPA Frame & Filters |
| R | 24 / 24" x 24" x 12"<br>6 / 24" x 12" x 12" | |
| S | 15 / 24" x 24" x 4"<br>5 / 24" x 12" x 4"<br>15 / 24" x 24" x 12"<br>5 / 24" x 12" x 12" | Pleated 4” MERV 8 +<br>99.99 HEPA Frame & Filters |
| T | 24 / 24" x 24" x 4"<br>8 / 24" x 12" x 4"<br>24 / 24" x 24" x 12"<br>8 / 24" x 12" x 12" | |
| *** This option is for only the frame. Filters will need to be field supplied | | |

# Control Options

## Terminal Block

Low voltage terminal block for field wiring unit controls

Required Features
Feature 16A - Field Installed DDC Controls by Others
Feature 16A - Field Installed DDC Controls by Others with isolation relays

Standard Terminals Labels
**[R]** - 24VAC control voltage
**[E]** - Common
**[G]** - Fan enable
**[Y1], [Y2], …, [Y8]** - Cooling stage(s) enable(s)
**[W1], [W2], …, [W12]** - Heating stage(s) enable(s) or Aux Heat Stage(s) enable(s)
**[HW]** - Heat Wheel Enable
**[PE]** - Power Exhaust Enable
**[RH1]** - Reheat Enable
**[EH1], [EH2], …, [EH12]** - Emergency Heating stage(s) enable(s)
**[A1], [A2]** - Economizer enable, factory wired together, used to control occupied/unoccupied operation.
**[C1], [C2]**- Clogged filter switch contacts for standard filters, normally open.
**[C3], [C4]**- Clogged filter switch contacts for energy recovery wheel OA filter, normally open.
**[C5], [C6]**- Clogged filter switch contacts for energy recovery wheel EA filter, normally open.
**[C7], [C8]**- Clogged filter switch contacts for final filters, normally open.
**[EC1-], [EC2+]** - Economizer DDC actuator control signal for 0-10 VDC operation.
**[CO2-], [CO2+]** - CO2 Sensor (0-10VDC)
**[+], [-]** - Modulating gas reset control signal, 0-10VDC or SCR supply air temperature control signal 0-10VDC
**[S1-], [S2+]** - Supply fan VFD, 0-10 VDC.
**[PR1-], [PR2+]** - Return fan VFD, 0-10 VDC.
**[B1-], [B2+]** - Exhaust fan VFD, 0-10VDC.
**[AI1] & [COM]** - Reheat Reset Signal (0-10VDC)
**[AM], [AC]** - Fan Current Feedback (0-10VDC = 0-100%)
**[P1], [PC]** - Fan Run Status (5-48VDC, 2-50mA)
**[MA], [MC]** - Fan Fault Status, normally closed.
**[ST1], [ST2]** - Remote start/stop contacts, must be closed for unit to operate.
**[BI1], [BI2]** - Remote Safety Shutdown terminals. Field installed smoke detector or remote Fire Alarm Shutdown contacts, must be closed for unit to operate.
**[NO], [C], [NC]** - Set of normally open and normally closed low voltage heat wheel rotation detection contacts.
**[PBO1], [PBO2]** - Phase & Brown Out status

## Variable Air Volume (VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume Heating
With standard AAON VAV controls, during the cooling mode of operation the supply fan modulates based on the supply air static pressure while mechanical cooling modulates based on the supply air temperature. During the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature.

Factory mounted and tested supply fan VFDs and ECMs are used to vary the speed of the supply fans and thus vary the amount of supply air. Because of the reduced speed, VAV units can be very energy efficient at part load conditions. VAV units can be used to serve multiple spaces with diverse or changing heating and cooling requirements, with only a single unit being required for multiple zones. Space temperature sensor included with AAON controller is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Bypass Non-Variable Compressor Circuits
Feature 16A - VAV Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Supply Air Duct Static Pressure
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B – VFD Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

## Single Zone Variable Air Volume (Single Zone VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume/Variable Air Volume Heating
With standard AAON Single Zone VAV controls, during the cooling mode of operation the supply fan modulates based on the space or return air temperature, while mechanical cooling modulates based on the supply air temperature. For constant volume heating, during the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature. For variable air volume heating, during the heating mode of operation the supply fan modulates based on the space or return air temperature and heating modulates based on the supply air temperature.

Factory mounted and tested supply fan VFDs and ECMs are used to vary the speed of the supply fans and thus vary the amount of supply air. Because of the reduced speed, VAV units can be very energy efficient at part load conditions. AAON Single Zone VAV units should be applied to only a single zone. Space temperature sensor included with AAON controller is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Single Zone VAV Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B - VFD Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

## Constant Volume (CV) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating
With standard AAON Constant Volume controls, during the cooling mode of operation the supply fan provides constant air flow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant air flow and heating modulates based on the controlling temperature.

A Constant Volume unit can be used to serve spaces with uniform heating and cooling requirements. Multiple units may be required for multiple zones allowing for redundancy. Space or supply air temperature sensor can be used as the controlling sensor. If supply air temperature is not used as the controlling sensor it is used as a temperature lockout. If supply air temperature sensor is used as the controlling sensor, space temperature sensor is used for supply air temperature setpoint reset and unoccupied override.

See Control Vendors section following for specifics.

Required Features
Feature 4A - Motorized Outside Air Damper or Economizer
Feature 16A - Constant Volume Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed Scroll Compressor
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

## Makeup Air (MUA) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating
With standard AAON Makeup Air controls, during the cooling mode of operation the supply fan provides constant airflow and mechanical cooling modulates based on the controlling temperature. During the heating mode of operation the supply fan provides constant airflow and heating modulates based on the controlling temperature.

Makeup Air units are designed to provide 100% outside air to the system for ventilation purposes. Makeup Air units can improve indoor air quality (IAQ) and also be used to positively pressurize the space.

See Control Vendors section following for specifics.

Required Features
Model Option B2 - Stainless Steel Heat Exchanger - Units with Gas Heat
Feature 4A - Motorized or Non-Motorized 100% Outside Air
Feature 7 - Two Position Actuator - With Motorized 100% Outside Air
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Makeup Air Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Temperature
Building Pressure Transducer (with Power Exhaust)

Recommended Features
Model Option A1 - Variable Speed Scroll Compressor
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - AAONAIRE Energy Recovery Wheel
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

# Control System

## AAON - Orion™ Controls System

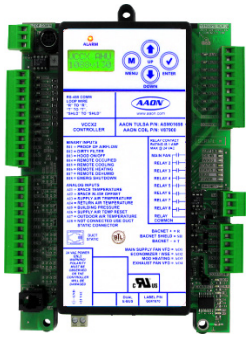


Figure 16 - AAON VCC-X Controller

The AAON VCC-X unit controller, which is part of the Orion Controls System, can be factory provided and factory installed in AAON RZ Series units. It provides advanced control features, without complexity, in an easy to install and setup package. The VCC-X controller can be individually configured, including setpoint adjustment, sensor status viewing, and occupancy scheduling. It can control VAV, CAV, MUA, Single Zone VAV, PAC, and D-PAC units. Additional features and options can be managed by the controller with the addition of modular expansion I/O boards for the controller.

The VCC-X controller can be operated as a Stand Alone System, connected via modular cable to multiple VCC-X controllers in an Interconnected System, or connected via modular cable to multiple VCC-X controllers, VAV/Zone controllers, and Add-On controllers in a Networked System.

Protocol Adaptability™ is available for interfacing to LonWorks®, BACnet® or Johnson Controls N2 controls systems with the addition of specific gateways.

Required Options

To configure the VCC-X controller, an operator interface is needed. Available operator interfaces are the Modular Service Tool, Modular System Manager, System Manager TS, Tactio SI Touch Screen Interface connected via a Commlink5 and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink5. With optional accessories, remote connectivity to the controller via Prism II software can be accomplished.

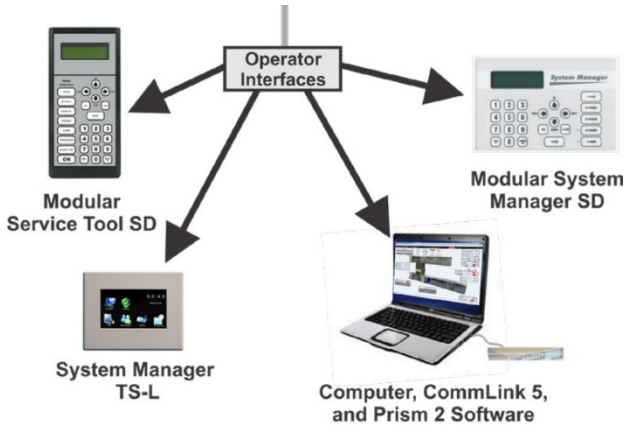



Figure 17 - VCC-X Controller Operator Interface Options

# Electrical Service Sizing Data

Use the following equations to size the electrical service wiring and disconnect switch for the unit. Electrical data for a specific unit configuration can be found with the AAON ECat software. For further assistance in determining the electrical ratings, contact the Applications Department, or consult U.L. 1995.

The Minimum Circuit Ampacity (MCA) and Maximum Overcurrent Protection (MOP) must be calculated for all modes of operation which include the cooling mode of operation, the heating mode of operation, and if the unit is a heat pump the emergency heating mode of operation and auxiliary heating mode of operation. The emergency or backup heating mode of operation is when the secondary heater is in operation and heat pump or compressor heating is not in operation. The auxiliary or supplemental heating mode of operation is when heat pump or compressor heating is in operation and the secondary heater is also in operation.

To calculate the MCA and MOP, the number of motors and other current drawing devices in operation must be known for each mode of operation. The largest MCA and MOP values calculated from all the modes operation are the correct values and are also on the unit nameplate.

For example, during the cooling mode of operation of an air-cooled DX unit or an air-source heat pump the supply fans, compressors, and condenser fans are all in operation. During the heating mode of operation of an air-cooled DX unit or the emergency heating mode of operation of an air-source heat pump only the supply fans and heater are in operation. During the auxiliary heating mode of operation of an air-source heat pump the supply fans, compressors, condenser fans, and secondary heater are all in operation.

Once it is determined what current drawing devices are operating during each mode of operation use the equations shown below to calculate the MCA and MOP.

Use Rated Load Amps (RLA) for compressors and Full Load Amps (FLA) for all other motors and electric heaters. Exhaust fan motor current should only be added to the calculations if the unit is 10 tons and smaller, includes a two position actuator (Feature 7 = U), has no compressors, includes an energy recovery wheel and/or when DDC controls by others factory or field installed is ordered.

Load 1 = Current of the largest motor/compressor in operation
Load 2 = Sum of the currents of the remaining motors/compressors in operation
Load 3 = Current of electric heaters in operation
Load 4 = Any remaining loads greater than or equal to 1 amp

**Electric Heat FLA Calculation**

Single Phase

$$FLA = \frac{(Heating\ Element\ kW)x\ 1000}{Rated\ Voltage}$$

Three Phase

$$FLA = \frac{(Heating\ Element\ kW)x1000}{(Rated\ Voltage)x\sqrt{3}}$$

# Electrical Service Sizing Data Continued

*Cooling Mode Equations*

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

*Heating Mode or Emergency/Backup Heating Mode without Electric Heat Equations*

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

*Heating Mode or Emergency/Backup Heating Mode with Less than 50 kW of Electric Heat Equations*

MCA = 1.25(Load 1 + Load 2 + Load 3 + Load 4)
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

*Heating Mode or Emergency/Backup Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations*

MCA = 1.25(Load 1 + Load 2) + Load 3 + 1.25(Load 4)
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

*Auxiliary/Supplemental Heating Mode without Electric Heat Equations*

MCA = 1.25(Load 1) + Load 2 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 4

*Auxiliary/Supplemental Heating Mode with Less than 50 kW of Electric Heat Equations*

MCA = 1.25(Load 1) + Load 2 + 1.25(Load 3) + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

*Auxiliary/Supplemental Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations*

MCA = 1.25(Load 1) + Load 2 + Load 3 + Load 4
MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

# Electrical Service Sizing Data Continued

Fuse Selection

Select a fuse rating equal to the MOP value. If the MOP does not equal a standard fuse rating select the next lower standard fuse rating. If the MOP is less than the MCA then select the fuse rating equal to or greater than the MCA.

The standard ampere ratings for fuses, from the *NEC Handbook, 240-6*, shall be considered 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800 and 1000 amperes.

Disconnect (Power) Switch Size

DSS $\geq$ MOP

Select the standard switch size equal to the calculated MOP value. If this value is not a standard size, select the next larger size.

**Literature Change History**

**July 2020**
Original version.

**November 2020**
Added information for RZ sizes 45-140 ton.

**December 2020**
Updated the service light description and BACnet VFD description.

**June 2021**
Added evaporative condenser options. Added electric heat options. Revised Feature 29 Option C to clarify BACnet native VFD on fan motors.

**January 2022**
Updated Feature 2 Supply & Return Locations to include End Return options. Updated Feature 9A Unit Filter Type to include pleated final filter options B through G. Updated Feature 9B Unit Filter Size & Location to include Dual Angled Filter Rack options J through L. Updated Feature 9C Final Filter Type to include HEPA frame options N & P and HEPA filter options Q, R, S, T. Added Air Disinfection UV Information table under Feature 15 Electrical Accessories. Updated Feature 19 Outside Air Accessories to include Metal Mesh Filters and Outside Air Flow Measuring Station. Updated Feature 21 Accessories to include options for Supply Fan Air Flow Measuring and Return Fan Air Flow Measuring. Updated Feature 22 Maintenance Accessories to include options for Supply Fan Auxiliary Contacts. Updated the description for Feature 36 Cabinet Material option D. Added shrink wrap options to Feature 37 Specials & Paint.

**December 2022**
Added minor revision A for RZ sizes 045, 055, and 065 making these units 2-circuit refrigerant systems with a variable speed compressor on each circuit. Added the option E=All Variable Capacity Refrigerant Systems to Model Option A5. Revised some hot water coil and steam distributing coil dimensions. Added several unit orientation options to Feature 1. Added end supply options to Feature 2. Added -20°F Low Ambient option in Feature 12. Added hot water preheat, steam distributing preheat, and direct fired preheat to Features 17A and 17B. Added the 4" filter information and the dual angled filter rack filters in the filter information tables. Updated some of the filter CFMs in the Unit Filter Table. Updated supply air temperature sensor wording to consistently say it will ship loose in the unit control cabinet to be installed in the supply air stream.

**December 2023**
Added Option *H=R-454B Variable Speed Scroll compressor* option and *N=DX Air Handling Unit* option to A1. Added option *B=Stainless Steel Cooling Coil Casing* to A4. Added option 3 *Fans per VFD and 4 Fans per VFD* for Feature 6B. This is for *Full Width, Narrow Width, and Inlet Backdraft Dampers.* Added HEPA filter options for Feature 9A and 9B. Added Duel Point Power options for Feature 13A. Added Amp sizes for Disconnect 2 for Feature 13C. Added *Sound Attenuator* box option for Feature 18C. Added SA and RA Walkable Safety Grates

options to Feature 20. Added *Low Sound Condenser Fan Head Pressure Control* option to Feature 25. Added *Energy Recovery Wheel Defrost Start/Stop, VFD for Heat Wheel Motor (Field Control)* options to Feature 28. Added *Additional Vestibule Heater* option for Feature 30. Added *2, 5, and 10 year Parts Warranty* option to Feature 35.

**February 2024**
Added option M to Feature 18C.

May 2024
Added Barometric Relief option to Feature 8.

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