RL Series

Packaged Rooftop Units & Outdoor Air Handling Units

Engineering Catalog

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RL – **1 0 0** – **3** – **0** – **B E** 0 6 – 3 5 2 : B E B E – D 0 0 – Q F Y – P 0 A – 0 D B B 0 0 0 – 0 0 – 0 B B 0 0 A B 0 B

BASE MODEL

SERIES AND GENERATION

RL

UNIT SIZE

045 = 45 Nominal Tons
060 = 60 Nominal Tons
070 = 70 Nominal Tons
075 = 75 Nominal Tons
090 = 90 Nominal Tons
095 = 95 Nominal Tons
100 = 100 Nominal Tons
110 = 110 Nominal Tons
120 = 120 Nominal Tons
125 = 125 Nominal Tons
134 = 134 Nominal Tons
135 = 135 Nominal Tons
150 = 150 Nominal Tons
155 = 155 Nominal Tons
170 = 170 Nominal Tons
180 = 180 Nominal Tons
181 = 181 Nominal Tons
190 = 190 Nominal Tons
210 = 210 Nominal Tons
230 = 230 Nominal Tons
240 = 240 Nominal Tons

VOLTAGE

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

INTERIOR PROTECTION

0 = Standard
A = Interior Corrosion Protection

Model Option A: COOLING

A1: COOLING STYLE

B = Blow-Through, R-410A, Dual Circuited
C = Draw-Through, R-410A, Dual Circuited
D = Blow Through - R-134a Variable Capacity Oil-Free Magnetic Bearing Centrifugal Compressors
E = Draw Through - R-134a Variable Capacity Oil-Free Magnetic Bearing Centrifugal Compressors
F = Blow-Through AHU w/ Vestibule
G = Draw-Through AHU w/ Vestibule
H = Blow-Through AHU w/ Front Control Panel
J = Draw-Through AHU w/ Front Control Panel
M = Blow-Through AHU w/ End Control Panel
N = Draw-Through AHU w/ End Control Panel
R = Blow-Through, R-410A, Independ Circuited
S = Draw-Through, R-410A, Independ Circuited
7 = Blow-Through, R410A VFD Compatible Compressors
8 = Draw-Through, R410A VFD Compatible Compressors

A2: COOLING CONFIGURATION

0 = No Cooling
A = Air-Cooled Cond, 4 Row High CFM Evap
B = Air-Cooled Cond, 6 Row High CFM Evap
C = Air-Cooled Cond, 4 Row Low CFM Evap
D = Air-Cooled Cond, 6 Row Low CFM Evap
E = Evap-Cooled Cond, 4 Row High CFM Evap
F = Evap-Cooled Cond, 6 Row High CFM Evap
G = Evap-Cooled Cond, 4 Row Low CFM Evap
H = Evap-Cooled Cond, 6 Row Low CFM Evap
J = Water-Cooled Cond, 4 Row High CFM Evap
K = Water-Cooled Cond, 6 Row High CFM Evap
L = Water-Cooled Cond, 4 Row Low CFM Evap
M = Water-Cooled Cond, 6 Row Low CFM Evap
U = Chilled Water, 4 Row High CFM
V = Chilled Water, 4 Row Low CFM
W = Chilled Water, 6 Row High CFM
Y = Chilled Water, 6 Row Low CFM
Z = Chilled Water, 8 Row High CFM
1 = Chilled Water, 8 Row Low CFM
2 = Non-Compressorized, 4 Row High CFM Evap
3 = Non-Compressorized, 4 Row Low CFM Evap
4 = Non-Compressorized, 6 Row High CFM Evap
5 = Non-Compressorized, 6 Row Low CFM Evap

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN SIZE VLT CONFIG A1 A2 **A3 A4** **B1 B2 B3** 1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 18 19 20 21 22 23

RL – 1 0 0 – 3 – 0 – B E **0 6 – 3 5 2** : B E B E – D 0 0 – Q F Y – P 0 A – 0 D B B 0 0 0 – 0 0 – 0 B B 0 0 A B 0 B

Model Option A: COOLING

A3: COOLING COATING

0 = Standard
1 = Polymer E-Coated, Cooling Coil Only
2 = SS Coil Casing, Cooling Coil Only
6 = Polymer E-Coated, Evap and Cond
B = Polymer E-Coated, Cond Only

A4: COOLING STAGING

0 = No Cooling
2 = 2 Stage
3 = 3 Stage
4 = 4 Stage
6 = 6 Stage
8 = 8 Stage
A = Single Serp, 8 FPI
B = Half Serp, 8 FPI
H = 2 Stage, Shell & Tube
J = 3 Stage, Shell & Tube
K = 4 Stage, Shell & Tube
L = 6 Stage, Shell & Tube
M = 8 Stage, Shell & Tube
N = Single Serp, 10 FPI
P = Half Serp, 10 FPI
Q = Single Serp, 12 FPI
R = Half Serp, 12 FPI
Z = All Compressors Variable Speed

Model Option B: HEATING

B1: HEATING STYLE

0 = No Heat
1 = Electric Heat
2 = Natural Gas Single Rack
3 = Natural Gas Double Rack
4 = High Altitude Natural Gas Single Rack
5 = High Altitude Natural Gas Double Rack
A = Steam, Standard
B = Steam, Polymer E-coated
C = Steam Distributing, Standard
D = Steam Distributing, Polymer E-Coated
E = Hot Water, Standard
F = Hot Water, Polymer E-Coated

B2: HEATING 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
A = 1 Row Coil A
B = 1 Row Coil B
C = 1 Row Coil C
D = 1 Row Coil D
E = 2 Row Coil A
F = 2 Row Coil B
G = 2 Row Coil C
H = 2 Row Coil D

B3: HEATING STAGING

0 = No Heat
1 = 2 Stage
2 = 4 Stage
3 = 8 Stage
4 = 12 Stage
H = Single Serpentine
J = Half Serpentine

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN	SIZE	VLT	CONFIG	A1	A2	A3	A4	B1	B2	B3	**1A**	**1B**	**1C**	**1D**	2	3	4	5A	5B	5C	6A	6B	6C	7	8	9	10	11	12	13	14A	14B	15	16	17	18	19	20	21	22	23
RL	100	3	0	B	E	0	6	3	5	2	**B**	**E**	**B**	**E**	D	0	0	Q	F	Y	P	0	A	0	D	B	B	0	0	0	0	0	0	B	B	0	0	A	B	0	B

RL – 1 0 0 – 3 – 0 – BE 0 6 – 3 5 2 : **BEBE** – D 0 0 – Q F Y – P 0 A – 0 D B B 0 0 0 – 0 0 – 0 B B 0 0 A B 0 B

Feature 1: RETURN/OUTSIDE AIR

1A: RETURN/OUTSIDE AIR SECTION

0 = Standard, Manual Outside Air
A = Economizer
B = Econ with Power Exhaust
C = Econ with Power Return
D = Energy Recovery Wheel (Total), Small
E = ERW (Total), Medium
F = ERW (Total), Large
G = ERW (Total), Extra Large
H = ERW (Sens), Small
J = ERW (Sens), Medium
K = ERW (Sens), Large
L = ERW (Sens), Extra Large
M = 100% Outside Air (No Return Air)
N = Motorized Outside Air (w/ Return Air)
P = Motorized Outside Air (No Return Air)
Q = Power Return + ERW (Total) Small
R = Power Return + ERW (Total), Medium
S = Power Return + ERW (Total), Large
T = Power Return + ERW (Total), Extra Large
U = Power Return + ERW (Sens), Small
V = Power Return + ERW (Sens), Medium
W = Power Return + ERW (Sens), Large
Y = Power Return + ERW (Sens), Extra Large
Z = Power Return, Plenum

1B: RETURN AIR BLOWER CONFIGURATION

0 = None
C = 1 Blower, Premium Eff
D = 2 Blowers, Premium Eff
E = 1 Blower, Premium Eff, 1 VFD
F = 2 Blowers, Premium Eff, 1 VFD
G = 2 Blowers, Premium Eff, 2 VFDs
H = 1 Blower, Premium Eff, 1 Field Installed VFD
J = 2 Blowers, Premium Eff, 1 Field Installed VFD
K = 2 Blowers, Premium Eff, 2 Field Installed VFDs
L = 1 Blower, Premium Eff, 1 VFD w/ Bypass
M = 2 Blowers, Premium Eff, 1 VFD w/ Bypass
N = 2 Blowers, Premium Eff, 2 VFDs w/ Bypass

1C: RETURN AIR BLOWER

0 = None
A = 36" Axial Flow, 6 Blades
B = 42" Axial Flow, 9 Blades
C = 42" Axial Flow, 12 Blades
D = 48" Axial Flow, 16 Blades
E = 27" Backward Curved
F = 30" Backward Curved
G = 33" Backward Curved
H = 36.5" Backward Curved
J = 42.5" Backward Curved

1D: RETURN AIR MOTOR

0 = None
D = 3 hp, 1170 rpm
E = 5 hp, 1170 rpm
F = 7.5 hp, 1170 rpm
G = 10 hp, 1170 rpm
H = 15 hp, 1170 rpm
J = 20 hp, 1170 rpm
K = 25 hp, 1170 rpm
L = 30 hp, 1170 rpm
M = 40 hp, 1170 rpm
N = 50 hp, 1170 rpm
T = 3 hp, 1760 rpm
U = 5 hp, 1760 rpm
V = 7.5 hp, 1760 rpm
W = 10 hp, 1760 rpm
Y = 15 hp, 1760 rpm
Z = 20 hp, 1760 rpm
1 = 25 hp, 1760 rpm
2 = 30 hp, 1760 rpm
3 = 40 hp, 1760 rpm
4= 50 hp, 1760 rpm

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN	SIZE	VLT	CONFIG	A1	A2	A3	A4	B1	B2	B3	1A	1B	1C	1D	**2**	**3**	**4**	**5A**	5B	5C	6A	6B	6C	7	8	9	10	11	12	13	14A	14B	15	16	17	18	19	20	21	22	23
RL	–	1	0	0	–	3	–	0	–	B	E	0	6	–	3	5	2	:	B	E	B	E	–	**D**	**0**	**0**	–	**Q**	F	Y	–	P	0	A	–	0	D	B	B	0	0	0	–	0	0	–	0	B	B	0	0	A	B	0	B

Feature 2: OUTSIDE AIR CONTROL

0 = None
A = 3 Position Actuator, Sensible
B = 3 Position Actuator, Enthalpy
C = Full Mod Actuator, Sensible
D = Full Mod Actuator, Enthalpy
E = DDC Actuator
F = Constant Volume OA
G = Constant Volume OA, 3 Pos Act, Sensible
H = Constant Volume OA, 3 Pos Act, Enthalpy
J = Constant Volume OA, Full Mod Act, Sensible
K = Constant Volume OA, Full Mod Act, Enthalpy
L = Constant Volume OA, DDC Act
M = CO_2 Override, 3 Pos Actuator, Sensible
N = CO_2 Override, 3 Pos Actuator, Enthalpy
P = CO_2 Override, Full Mod Actuator, Sensible
Q = CO_2 Override, Full Mod Actuator, Enthalpy
R = CO_2 Override, DDC Actuator
S = Dual Min Pos, Full Mod Act, Sensible
T = Dual Min Pos, Full Mod Act, Enthalpy
U = 2 Position Actuator

Feature 3: DISCHARGE LOCATIONS

0 = Bottom Discharge
A = Front Discharge
B = Back Discharge
C = Top Discharge
D = End Discharge

Feature 4: RETURN LOCATIONS

0 = Bottom Return
A = End Return
B = Front Return High CFM w/o ERW or PE
C = Front Return Low CFM w/o ERW or PE
D = Back Return High CFM w/o ERW or PE
E = Back Return Low CFM w/o ERW or PE
F = Front Return High CFM w/ ERW or PE
G = Front Return Low CFM w/ ERW or PE
H = Back Return High CFM w/ ERW or PE
J = Back Return Low CFM w/ ERW or PE
K = Bottom Return w/ RA Bypass, 2' Box
L = Bottom Return w/ RA Bypass, 4' Box
M=Bottom Return High CFM Or w/o RA on 100% OA
N=End Return High CFM w/o ERW or PE

Feature 5: SUPPLY AIR BLOWER

5A: SUPPLY AIR BLOWER CONFIGURATION

0 = 1 Blower, Standard Eff
D = 1 Blower, Prem Eff
E = 2 Blowers, Prem Eff
F = 3 Blowers, Prem Eff
G = 4 Blowers, Prem Eff
H = 1 Blower, Prem Eff, w/ 1 VFD
J = 2 Blowers, Prem Eff, w/ 1 VFD
K = 2 Blowers, Prem Eff, w 2 VFDs
L = 3 Blowers, Prem Eff, w/ 1 VFD
M = 3 Blowers, Prem Eff, w/ 3 VFDs
N = 4 Blowers, Prem Eff, w/ 1 VFD
Q = 4 Blowers, Prem Eff, w/ 4 VFDs
R = 4 Blowers, Prem Eff, w/ 2 VFDs
S = 1 Blower, Prem Eff, w/ 1 Field Installed VFD
T = 2 Blowers, Prem Eff, w/ 1 Field Installed VFD
U = 2 Blowers, Prem Eff, w/ 2 Field Installed VFDs
V = 3 Blowers, Prem Eff, w/ 1 Field Installed VFD
W = 3 Blowers, Prem Eff, w/ 3 Field Installed VFDs
Y = 4 Blowers, Prem Eff, w/ 1 Field Installed VFD
Z = 4 Blowers, Prem Eff, w/ 4 Field Installed VFDs
1 = 4 Blowers, Prem Eff, w/ 2 Field Installed VFDs
2 = 1 Blower, Prem Eff, w/ 1 VFD w/ Bypass
3 = 2 Blowers, Prem Eff, w/ 1 VFD w/ Bypass
4 = 2 Blowers, Prem Eff, w 2 VFDs w/ Bypass
5 = 3 Blowers, Prem Eff, w/ 1 VFD w/ Bypass
6 = 3 Blowers, Prem Eff, w/ 3 VFDs w/ Bypass
7 = 4 Blowers, Prem Eff, w/ 1 VFD w/ Bypass
8 = 4 Blowers, Prem Eff, w/ 4 VFDs w/ Bypass
9 = 4 Blowers, Prem Eff, w/ 2 VFDs w/ Bypass

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN	SIZE	VLT	CONFIG	A1	A2	A3	A4	B1	B2	B3	1A	1B	1C	1D	2	3	4	5A	**5B**	**5C**	**6A**	**6B**	6C	7	8	9	10	11	12	13	14A	14B	15	16	17	18	19	20	21	22	23
RL–	1 0 0 –	3 –	0 –	B	E	0	6 –	3	5	2	: B	E	B	E –	D	0	0 –	Q	**F**	**Y** –	**P**	**0**	A –	0	D	B	B	0	0	0 –	0	0 –	0	B	B	0	0	A	B	0	B

Feature 5: SUPPLY AIR BLOWER

5B: SUPPLY AIR BLOWER

A = 27” Backward Curved
B = 30” Backward Curved
C = 33” Backward Curved
D = 36.5” Backward Curved
E = 42.5” Backward Curved
F = 27” Backward Curved w/ Damper
G = 30” Backward Curved w/ Damper
H = 33” Backward Curved w/ Damper
J = 36.5” Backward Curved w/ Damper
K = 42.5” Backward Curved w/ Damper

5C: SUPPLY AIR MOTOR

D = 3 hp, 1170 rpm
E = 5 hp, 1170 rpm
F = 7.5 hp, 1170 rpm
G = 10 hp, 1170 rpm
H = 15 hp, 1170 rpm
J = 20 hp, 1170 rpm
K = 25 hp, 1170 rpm
L = 30 hp, 1170 rpm
M = 40 hp, 1170 rpm
N = 50 hp, 1170 rpm
T = 3 hp, 1760 rpm
U = 5 hp, 1760 rpm
V = 7.5 hp, 1760 rpm
W = 10 hp, 1760 rpm
Y = 15 hp, 1760 rpm
Z = 20 hp, 1760 rpm
1 = 25 hp, 1760 rpm
2 = 30 hp, 1760 rpm
3 = 40 hp, 1760 rpm
4 = 50 hp, 1760 rpm

Feature 6: FILTERS

6A: PRE FILTER TYPE

0 = 2” Pleated, MERV 8, Std Pos
A = 4” Pleated, MERV 8, Std Pos
B = 2” Perm Filter with Replaceable Media, Std Pos
C = 2” Ple Pre, MERV 8/12” Cart, MERV 11, Std Pos
D = 2” Ple Pre, MERV 8/12” Cart, MERV 13, Std Pos
E = 2” Ple Pre, MERV 8/12” Cart, MERV 14, Std Pos
F = 4” Ple Pre, MERV 8/12” Cart, MERV 11, Std Pos
G = 4” Ple Pre, MERV 8/12” Cart, MERV 13, Std Pos
H = 4” Ple Pre, MERV 8/12” Cart, MERV 14, Std Pos
J = 2” Ple Pre, MERV 8/30” Bag, MERV 13, Std Pos
K = 2” Ple Pre, MERV 8/30” Bag, MERV 14, Std Pos
L = 4” Ple Pre, MERV 8/30” Bag, MERV 13, Std Pos
M = 4” Ple Pre, MERV 8/30” Bag, MERV 14, Std Pos
N = 2” Pleated, MERV 8, Pre Pos
P = 4” Pleated, MERV 8, Pre Pos
Q = 2” Perm Filter with Replaceable Media, Pre Pos
R = 2” Ple Pre, MERV 8/12” Cart, MERV 11, Pre Pos
S = 2” Ple Pre, MERV 8/12” Cart, MERV 13, Pre Pos
T = 2” Ple Pre, MERV 8/12” Cart, MERV 14, Pre Pos
U = 4” Ple Pre, MERV 8/12” Cart, MERV 11, Pre Pos
V = 4” Ple Pre, MERV 8/12” Cart, MERV 13, Pre Pos
W = 4” Ple Pre, MERV 8/12” Cart, MERV 14, Pre Pos
Y = 2” Ple Pre, MERV 830” Bag, MERV 13, Pre Pos
Z = 2” Ple Pre, MERV 8/30” Bag, MERV 14, Pre Pos
1 = 4” Ple Pre, MERV 8/30” Bag, MERV 13, Pre Pos
2 = 4” Ple Pre, MERV 8/30” Bag, MERV 14, Pre Pos

6B: FINAL FILTER TYPE

0 = None
A = 12” Cart, MERV 13, Filter Box A
B = 12” Cart, MERV 13, Filter Box B
C = 12” Cart, MERV 13, Filter Box C
D = 12” Cart, MERV 14, Filter Box A
E = 12” Cart, MERV 14, Filter Box B
F = 12” Cart, 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 = Pre Filter Box A - No Final Filter
P = Pre Filter Box B - No Final Filter
Q = Pre Filter Box C - No Final Filter

RL Series Feature String Nomenclature

	Model Options															:	Unit Feature Options																							
	GEN	SIZE		VLT	CONFIG	A1	A2	A3	A4	B1	B2	B3	1A	1B	1C	1D	2	3	4	5A	5B	5C	6A	6B	**6C**	**7**	**8**	**9**	**10**	**11**	12	13	14A	14B	15	16	17	18	19	20	21	22	23
	RL–	1 0 0	–	3	– 0 –	B	E	0	6	–	3	5	2	:	B	E	B	E	–	D	0	0	–	Q	F	Y	–	P	0	**A**	–	**0**	**D**	**B**	**B**	**0**	0	0	–	0	0	–	0	B	B	0	0	A	B	0	B

Feature 6: FILTERS

6C: FILTER OPTIONS

0 = Standard - None
A = Clogged Filter Switch, Pre Filters
B = Clogged Filter Switch, Final Filters
C = Magnehelic Gauge, Pre Filters
D = Magnehelic Gauge, Final Filters
E = Option A + B
F = Option A + C
G = Option A + D
H = Option B + C
J = Option B + D
K = Option A + B + C
L = Option A + B + D
M = Option A + C + D
N = Option B + C + D
P = Option A + B + C + D

Feature 7: REFRIGERATION CONTROL

0 = Standard
A = 5 Min TDR Off
B = 20 Sec TDR
C = 115V Outlet, Field Wired
D = 115V Outlet, Factory Wired
E = Option A + B
F = Option A + C
G = Option A + D
H = Option A + B + C
J = Option A + B + D
K = Option B + C
L = Option B + D

Feature 8: REFRIGERATION OPTIONS

0 = Standard
A = Hot Gas Bypass Lead Stage
B = Hot Gas Reheat
C = Modulating Hot Gas Reheat
D = Hot Gas Bypass Lead and Lag Stages
E = Option A + B
F = Option A + C
G = Option B + D
H = Option C + D
J = Sub-cooling Coil, Reheat Position
K = Option A + J
L = Option D + J

Feature 9: REFRIGERATION ACCESSORIES

0 = Standard
A = Sight Glass
B = Compressor Isolation Valves
C = Options A + B
D = Condenser Fan VFD's
E = Options A + D
F = Options B + D
G = Options A + B + D

Feature 10: POWER OPTIONS

0 = Standard Power Block
A = Power Switch (225 Amps)
B = Power Switch (400 Amps)
C = Power Switch (600 Amps)
D = Power Switch (800 Amps)
E = Power Switch (1200 Amps)

Feature 11: SAFETY OPTIONS

0 = Standard
A = RA and SA Firestat
B = RA Smoke Detector
C = SA Smoke Detector
D = Options B + C
E = Options A + B
F = Options A + C
G = Options A + D
H = SA High Static Pressure Switch
J = Options A+H
K = Options B+H
L = Options C+H
M = Options B+C+H
N = Options A+B+H
P = Options A+C+H
Q = Options A+B+C+H

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN	SIZE	VLT	CONFIG	A1	A2	A3	A4	B1	B2	B3	1A	1B	1C	1D	2	3	4	5A	5B	5C	6A	6B	6C	7	8	9	10	11	**12**	**13**	**14A**	**14B**	**15**	**16**	**17**	18	19	20	21	22	23
R	L	–	1	0	0	–	3	–	0	–	B	E	0	6	–	3	5	2	:	B	E	B	E	–	D	0	0	–	Q	F	Y	–	P	0	A	–	0	D	B	B	0	**0**	**0**	–	**0**	**0**	–	**0**	**B**	**B**	0	0	A	B	0	B

Feature 12: CONTROLS

0 = Standard, Terminal Block
A = Low Limit Controls
B = Phase and Brown Out Protection
C = ERW Defrost
D = ERW Rotation Detection
F = Option A + B
G = Option A + C
H = Option A + D
K = Option B + C
L = Option B + D
N = Option C + D
Q = Option A + B + C
R = Option A + B + D
T = Option A + C + D
V = Option B + C + D
Y = Option A + B + C + D

Feature 13: SPECIAL CONTROLS

0 = Standard
D = VAV Unit Controller
E = Constant Volume Unit Controller
F = Makeup Air Unit Controller
5 = Field Installed DDC Controls by Furnished by Others w/ iso relays
6 = Factory Installed DDC Controls Furnished by Other w/ iso relays (SPA required)

Feature 14: PREHEAT

14A: PREHEAT CONFIGURATION

0 = No Preheat
C = Hot Water Coil, OA Preheat
D = Steam Distributing Coil, OA Preheat
E = Hot Water Coil, Preheat 4ft Box
F = Steam Distributing Coil, Preheat 4ft Box

14B: PREHEAT SIZING

0 = No Preheat
A = Heat Qty A
B = Heat Qty B
C = Heat Qty C
D = Heat Qty D

Feature 15: OPTION BOXES

0 = Standard
A = 2 ft Box After Heat
B = 2 ft Box After Cooling
C = 2 ft Box After Pre Filter
D = 2 ft Box After Return
E = 4 ft Box After Heat
F = 4 ft Box After Cooling
G = 4 ft Box After Pre Filter
H = 4 ft Box After Return
J = 6 ft Box After Heat
K = 6 ft Box After Cooling
L = 6 ft Box After Pre Filter
M = 6 ft Box After Return
N = 8 ft Box After Heat
P = 8 ft Box After Cooling
Q = 8 ft Box After Pre Filter
R = 8 ft Box After Return
S = 2 ft Box After Preheat Coil
T = 4 ft Box After Preheat Coil
U = 6 ft Box After Preheat Coil
V = 8 ft Box After Preheat Coil

Feature 16: INTERIOR CABINET OPTIONS

0 = Standard
B = Marine Service Lights

Feature 17: CABINET OPTIONS

0 = Standard
A = Access Door Windows
B = Burglar Bars
C = Perf Liner, SA Plenum
D = Perf Liner, RA Plenum
F = Option A + B
G = Option A + C
H = Option A + D
K = Option B + C
L = Option B + D
N = Option C + D
Q = Option A + B + C
R = Option A + B + D
T = Option A + C + D
V = Option B + C + D
Y = Option A + B + C + D

RL Series Feature String Nomenclature

Model Options	:	Unit Feature Options
GEN SIZE VLT CONFIG		A1 A2 A3 A4 B1 B2 B3 1A 1B 1C 1D 2 3 4 5A 5B 5C 6A 6B 6C 7 8 9 10 11 12 13 14A 14B 15 16 17 **18 19 20 21** 22 23
RL – 1 0 0 – 3 – 0 –		BE 0 6 – 3 5 2 : BEBE – D 0 0 – QFY – P 0 A – 0 DBB 0 0 0 – 0 0 – 0 BB **0 0 A B** 0 B

Feature 18: CUSTOMER CODE
0 = None

Feature 19: CODE OPTIONS
0 = Standard ETL USA Listing
A = MEA, New York
B = Chicago Code, Cool and Gas
C = Chicago Code, Cool and Electric
D = Chicago Code, Cool Only
E = Chicago Code, Gas Only
F = Chicago Code, Electric Only
G = Chicago Code, No Cool No Heat
H = ETL USA + Canada Listing

Feature 20: CRATING
0 = Standard, One Piece Unit
A = Two Piece Unit

Feature 21: EVAPORATIVE-COOLED AND WATER-COOLED CONDENSER
0 = None
A = No Sump or Vest Heaters
B = Sump and Vest Heaters
C = Balancing Valves
D = Single Point Water Connection
E = Condenser Vest Heater
F = Motorized Shutoff Valves
G = Head Pressure Control
H = Option C + D
J = Option C + E
K = Option C + F
L = Option C + G
M = Option D + E
N = Option D + F
P = Option D + G
Q = Option E + F
R = Option E + G
S = Option F + G
T = Option C + D + E
U = Option C + D + F
V = Option C + D + G
W = Option D + E + F
Y = Option D + E + G
Z = Option E + F + G
1 = Option C + D + E + F
2 = Option C + D + E + G
3 = Option C + D + F + G
4 = Option C + E + F + G
5 = Option C + D + E + F + G

RL Series Feature String Nomenclature

Model Options : Unit Feature Options

GEN	SIZE	VLT	CONFIG	A1 A2 A3 A4	B1 B2 B3	1A 1B 1C 1D	2 3 4	5A 5B 5C	6A 6B 6C	7 8 9 10 11 12 13	14A 14B	15 16 17 18 19 20 21 **22** **23**
RL –	1 0 0 –	3 –	0 –	B E 0 6 –	3 5 2 :	B E B E –	D 0 0 –	Q F Y –	P 0 A –	0 D B B 0 0 0 –	0 0 –	0 B B 0 0 A B **0** **B**

Feature 22: CONTROL VENDORS

0 = None
E = MCS Controls
F = MCS Controls w/ diagnostics
G = MCS Controls w/ modem
H = MCS Controls w/ diagnostics and modem
J = MCS Controls w/ diagnostics and touchscreen interface
K = MCS Controls w/ diagnostics, touchscreen, modem
L = Option E with BACnet IP, Modbus, N2
M = Option F with BACnet IP, Modbus, N2
N = Option G with BACnet IP, Modbus, N2
P = Option H with BACnet IP, Modbus, N2
Q = Option J with BACnet IP, Modbus, N2
R = Option K with BACnet IP, Modbus, N2
S = Option E with BACnet MSTP
T = Option F with BACnet MSTP
U = Option G with BACnet MSTP
V = Option H with BACnet MSTP
W = Option J with BACnet MSTP
Y = Option K with BACnet MSTP
Z = Option E with Lontalk
1 = Option F with Lontalk
2 = Option G with Lontalk
3 = Option H with Lontalk
4 = Option J with Lontalk
5 = Option K with Lontalk
6 = WattMaster Orion VCC-X Controls System with BACnet MSTP
7 = WattMaster Orion VCC-X Controls System with BACnet MSTP and Specials

Feature 23: TYPE

B = Standard Paint
U = Special Pricing Authorization with Special Paint
X = Special Pricing Authorization with Standard Paint

Unit Size

Example: RL-**100**-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

The first number of the model string designates nominal tons cooling at AHRI conditions for evaporative-cooled condenser units. Actual capacities will vary with conditions. Refer to the AAON ECat software for performance and cooling capacities at all conditions.

Table 1 - Unit Size Information

Model (Tons)	Cabinet	Condenser Configurations Available	Compressors
RL-**045**	A	Air-Cooled, Evaporative-Cooled, or Water-Cooled	Standard Scroll Compressors
RL-**060**			Standard Scroll Compressors or All VFD Controlled Variable Speed Scroll Compressors
RL-**070**			
RL-**075**	B		
RL-**095**			
RL-**100**	C		
RL-**110**			
RL-**125**			
RL-**135**			
RL-**134**	D		
RL-**155**			
RL-**170**			
RL-**190**	E		
RL-**210**			
RL-**230**			
RL-**090**	B	Evaporative-Cooled	Variable Capacity Oil-Free Magnetic Bearing Centrifugal Compressors
RL-**120**	C		
RL-**150**	D		
RL-**180**	E		
RL-**181**			
RL-**240**			

Voltage

Example: RL-100-**3**-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

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

Interior Protection

Example: RL-100-3-**0**-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Standard* - Galvanized G90 sheet metal.
A = *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. See Model Option A3 for coil and coil casing coating options.

Model Option A1 - Cooling Style

Example: RL-100-3-0-**B**E06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

B = *Blow-Through w/ R-410A Dual Circuited Scroll Compressors* - Selects a blow-through supply fan configuration with scroll compressors using R-410A refrigerant.
C = *Draw-Through w/ R-410A Dual Circuited Scroll Compressors* - Selects a draw-through supply fan configuration with scroll compressors using R-410A refrigerant.
D = *Blow-Through R-134a Variable Capacity Oil-Free Magnetic Bearing Centrifugal Compressors* - Selects a blow-through supply fan configuration with R-134a variable capacity oil-free magnetic bearing centrifugal compressors. Option is available on 90, 120, 150, 180, 181, and 240 ton units.
E = *Draw-Through R-134a Variable Capacity Oil-Free Magnetic Bearing Centrifugal Compressors* - Selects a draw-through supply fan configuration with R-134a variable capacity oil-free magnetic bearing centrifugal compressors. Option is available on 90, 120, 150, 180, 181, and 240 ton units.

Model Option A1 - Cooling Style Continued

F = *Air Handling Unit w/ Blow-Though Supply Fans w/ Vestibule* - Selects a blow-through supply fan configuration air handler. Walk-in service vestibule with electrical cabinet is included. Compressors and compressor mount platforms are not included.
G = *Air Handling Unit w/ Draw-Though Supply Fans w/ Vestibule* - Same as option F but with a draw-through supply fan configuration. Walk-in service vestibule with electrical cabinet is included. Compressors and compressor mount platforms are not included.
H = *Air Handling Unit w/ Blow-Through Supply Fans w/ Front Control Panel w/o Vestibule* - Selects a blow-through supply fan configuration air handler without compressors or walk-in service vestibule. The electrical cabinet is located on the front of the unit. Cabinet may be used for end discharge air handler applications.
J = *Air Handling Unit w/ Draw-Through Supply Fans w/ Front Control Panel w/o Vestibule* - Same as H but with a draw-through supply fan configuration. Compressors and walk-in service vestibule are not included. Cabinet may be used for end discharge air handler applications.
M = *Air Handling Unit w/ Blow-Through Supply Fans w/ End Control Panel w/o Vestibule* - Selects a blow-through supply fan configuration air handler without compressors or walk-in service vestibule. The electrical cabinet is located on the end of the unit.
N = *Air Handling Unit w/ Draw-Through Supply Fans w/ End Control Panel w/o Vestibule* - Same as M but with a draw-through supply fan configuration. Compressors and walk-in service vestibule are not included.
R = *Blow-Through Supply Fans w/ R-410A Independently Circuited Scroll Compressors* - Selects a blow-through fan configuration with single circuited scroll compressors using R-410A. Available on 4 compressor units only (45-95 Tons).
S = *Draw-Through Supply Fans w/ R-410A Independently Circuited Scroll Compressors* - Same as R but with a draw-through configuration. Available on 4 compressor units only (45-95 Tons).
7 = *Blow-Through Supply Fans w/ R-410A VFD Compatible Scroll Compressors* - Selects a blow-through supply fan with R-410A scroll compressors which can be factory provided with VFD speed control. Option is available on 60, 70, 75, 95, 100, 110, 125, 134, 135, 155, 170, 190, 210, and 230 ton units. Model option A4 = Z must be selected to receive compressor VFDs.
8 = *Draw-Through Supply Fans w/ R-410A VFD Compatible Scroll Compressors* - Selects a draw-through supply fan with R-410A scroll compressors which can be factory provided with VFD speed control. Option is available on 60, 70, 75, 95, 100, 110, 125, 134, 135, 155, 170, 190, 210, and 230 ton units. Model option A4 = Z must be selected to receive compressor VFDs.

Model Option A2 - Cooling Configuration

Example: RL-100-3-0-B**E**06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *No Cooling* - Heating only or air handler unit.
A = *Air-Cooled Cond w/ 4R High CFM Evap Coil* - Air-cooled condenser with a 4 row, high CFM, DX evaporator coil.
B = *Air-Cooled Cond w/ 6R High CFM Evap Coil* - Same as option A, but with a 6 row, high CFM, DX evaporator coil.

Model Option A2 - Cooling Configuration Continued

C = *Air-Cooled Cond w/ 4R Low CFM Evap Coil* - Air-cooled condenser with a 4 row, low CFM, DX evaporator coil.
D = *Air-Cooled Cond w/ 6R Low CFM Evap Coil*- Same as option C, but with a 6 row, low CFM, DX evaporator coil.
E = *Evaporative-Cooled Cond w/ 4R High CFM Evap Coil* - Evaporative-cooled condenser with a 4 row, high CFM, DX evaporator coil.
F = *Evaporative-Cooled Cond w/ 6R High CFM Evap Coil* - Same as option E, but with a 6 row, high CFM, DX evaporator coil.
G = *Evaporative-Cooled Cond w/ 4R Low CFM Evap Coil* - Evaporative-cooled condenser with a 4 row, low CFM, DX evaporator coil.
H = *Evaporative-Cooled Cond w/ 6R Low CFM Evap Coil* - Same as option G, but with a 6 row, low CFM, DX evaporator coil.
J = *Water-Cooled Cond w/ 4R High CFM Evap Coil* - Water-cooled condenser with a 4 row, high CFM, DX evaporator coil.
K = *Water-Cooled Cond w/ 6R High CFM Evap Coil* - Same as option J, but with a 6 row, high CFM, DX evaporator coil.
L = *Water-Cooled Cond w/ 4R Low CFM Evap Coil* - Water-cooled condenser with a 4 row, low CFM, DX evaporator coil.
M = *Water-Cooled Cond w/ 6R Low CFM Evap Coil* - Same as option L, but with a 6 row, low CFM, DX evaporator coil.
***U** = *Chilled Water 4R High CFM Coil* - 4 row, high CFM, chilled water cooling coil air handler.
***V** = *Chilled Water 4R Low CFM Coil* - 4 row, low CFM, chilled water cooling coil air handler.
***W** = *Chilled Water 6R High CFM Coil* - 6 row, high CFM, chilled water cooling coil air handler.
***Y** = *Chilled Water 6R Low CFM Coil* - 6 row, low CFM, chilled water cooling coil air handler.
***Z** = *Chilled Water 8R High CFM Coil* - 8 row, high CFM, chilled water cooling coil air handler.
***1** = *Chilled Water 8R Low CFM Coil* - 8 row, low CFM, chilled water cooling coil air handler.
2 = Non-Compressorized *4R High CFM DX Evap Coil* - Air handler with non-compressorized 4 row, high CFM, DX evaporator coil. No compressors or condenser coils. Used with remote condensing unit.
3 = Non-Compressorized *4R Low CFM DX Evap Coil* - Same as option 2, but with non-compressorized 4 row, low CFM, DX evaporator coil.
4 = Non-Compressorized *6R High CFM DX Evap Coil* - Air handler with non-compressorized 6 row, high CFM, DX evaporator coil. No compressors or condenser coils. Used with remote condensing unit. Thermal expansion valve and hot gas bypass connection are included.
5 = Non-Compressorized *6R Low CFM Evap Coil* - Same as option 4, but with non-compressorized 6 row, low CFM, DX evaporator coil. Thermal expansion valve and hot gas bypass connection are included.

*No valves or controls are included with these options.

Figure 1 - RL Series Unit with Evaporative-Cooled Condenser

Model Option A3 - Cooling Coating

Example: RL-100-3-0-BE**0**6-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Standard* - No coating
1 = *Polymer E-Coated Cooling Coil* - Polymer e-coating applied to both the condenser and evaporator coils. Complete coil and casing are coated. Coating capable of withstanding at least 6,000 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. The first 12 months from the date of equipment startup, or 18 months from the date of original equipment shipment from the factory, whichever is less, will be covered under the standard AAON limited parts warranty. The remaining period of the warranty will be covered by Luvata Electrofin. The Luvata Electrofin written instructions for installation, operation, coil cleaning, maintenance, and recording keeping must be followed. Refer to the Luvata Electrofin Terms and Conditions of Sale.
2 = *Stainless Steel Cooling Coil Casing* - 18GA 304 stainless steel casing only on the cooling coil(s). Used for improved coil casing corrosion protection.
6 = *Polymer E-Coated (Evap and Cond Coils)* - Polymer e-coating applied to both the evaporator and condenser coils. Available on air-cooled condenser units only.
B = *Polymer E-Coated Condenser Coil* - Polymer e-coating applied only to the condenser coils. Available on air-cooled condenser units only.

Model Option A4 - Cooling Staging

Example: RL-100-3-0-BE0**6**-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *No Cooling* - Heating only or air handler unit
2 = *2 stage* - Available on all air-cooled condenser and evaporative-cooled condenser units with standard scroll compressor. Available on 60-75 ton units with VFD compatible scroll compressor units.
3 = *3 stage* - Available on 100-170 ton standard scroll compressor air-cooled condenser and evaporative-cooled condenser units. Available on 95, 100, and 110 ton VFD compatible scroll compressor units.
4 = *4 stage* - Available on all air-cooled condenser and evaporative-cooled condenser units with standard scroll compressor. Available on 125 and 134 ton VFD compatible scroll compressor units
5 = 5 stage – Available on 135 and 155 ton VFD compatible scroll compressor units.
6 = *6 stage* - Available on 100-170 ton standard scroll compressor air-cooled condenser and evaporative-cooled condenser units. Available on 170 and 190 ton VFD compatible scroll compressor units.
7 = 7 stage - Available on 210 ton VFD compatible scroll compressor units.
8 = *8 stage* - Available on 190-230 ton standard scroll compressor air-cooled condenser and evaporative-cooled condenser units. Available on 230 ton VFD compatible scroll compressor units.
***A** = *Single Serpentine 8 FPI (CHW)* - Chilled water coil(s), 8 fins per inch, single piping inlet/outlet.
***B** = *Half Serpentine 8 FPI (CHW)* - Chilled water coil(s), 8 fins per inch, single piping inlet/outlet.
H = *2 Stage Cooling w/ Shell & Tube Condenser* - Available on all water-cooled condenser units.
J = *3 Stage Cooling w/ Shell & Tube Condenser* - Available on 110-170 ton water-cooled condenser units.
K = *4 Stage Cooling w/ Shell & Tube Condenser* - Available on all water-cooled condenser units.
L = *6 Stage Cooling w/ Shell & Tube Condenser* - Available on 110-170 ton water-cooled condenser units.
M = *8 Stage Cooling w/ Shell & Tube Condenser* - Available on 190-230 ton water-cooled condenser units.
***N** = *Single Serpentine 10 FPI (CHW)* - Chilled water coil(s), 10 fins per inch, single piping inlet/outlet.
***P** = *Half Serpentine 10 FPI (CHW)* - Chilled water coil(s), 10 fins per inch, single piping inlet/outlet.
***Q** = *Single Serpentine 12 FPI (CHW)* - Chilled water coil(s), 12 fins per inch, single piping inlet/outlet.
***R** = *Half Serpentine 12 FPI (CHW)* - Chilled water coil(s), 12 fins per inch, single piping inlet/outlet.

Model Option A4 - Cooling Staging Continued

Z = All Variable Speed/Variable Capacity Compressors - Selects variable speed control for variable refrigerant flow applications. This option selects variable speed control of the integrated VFD of the centrifugal compressor. This option includes a factory provided VFD and controls for the VFD compatible scroll compressors. Factory provided MCS controller is required with this option.

* For cooling performance, refer to the AAON ECat software.

Figure 2 - RL Series Air Handling Unit

Model Option B1 - Heating Type

Example: RL-100-3-0-BE06-**3**52:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *No Heat*
1 = *Electric Heat* - Electric heater with multiple elements.
2 = *Natural Gas Single Rack* - Natural gas heater with a single vertical rack of heat exchangers. One to six heat exchangers are allowed.
3 = *Natural Gas Double Rack* - Natural gas heater with a double vertical rack of heat exchangers. Two to twelve heat exchangers are allowed.
4 = *Natural Gas Single Rack High Altitude* - Same as option 2 but with burner orifices that are chosen based on altitude at or above 2000' as selected in AAON ECat.
5 = *Natural Gas Double Rack High Altitude* - Same as option 3 but with burner orifices that are chosen based on altitude at or above 2000' as selected in AAON ECat.
***A** = *Steam Std* - Steam heating coil with no coating.
***B** = *Steam Polymer E-Coated* - Steam heating coil with a polymer e-coating.
***C** = *Steam Distributing Std* - Steam distributing heating coil with no coating.
***D** = *Steam Distributing Polymer E-Coated* - Steam distributing heating coil with a polymer e-coating.
***E** = *Hot Water Std* - Hot water coil with no coating.
***F** = *Hot Water Polymer E-Coated* - Hot water coil with a polymer e-coating.

*No valves or controls are included with these options

Model Option B2 - Heating Designation

Example: RL-100-3-0-BE06-3**5**2:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *No Heat*

Table 2 - Gas Heating Information* and Electric Heating Capacities

	Gas Heat*		Electric Heat Capacity (kW) 208, 230, 460, 575V	
	Number of Heaters	Stages Available	45-135 Tons	134-240 Tons
1 = *Heat 1*	2	2	40	40
2 = *Heat 2*	4	2, 4	80	80
3 = *Heat 3*	6	2, 4	120	120
4 = *Heat 4*	8	2, 4, 8	160	160
5 = *Heat 5*	10	2, 4, 8	200	240
6 = *Heat 6*	12	2, 4, 8, 12	240	320
7 = *Heat 7*	NA			400
8 = *Heat 8*				480

****A** = *1 Row Coil A* - Single row hot water or steam coil - size A.
****B** = *1 Row Coil B* - Single row hot water or steam coil - size B.
****C** = *1 Row Coil C* - Single row hot water or steam coil - size C.
****D** = *1 Row Coil D* - Single row hot water or steam coil - size D.
****E** = *2 Row Coil A* - Two row hot water or steam coil - size A.
****F** = *2 Row Coil B* - Two row hot water or steam coil - size B.
****G** = *2 Row Coil C* - Two row hot water or steam coil - size C.
****H** = *2 Row Coil D* - Two row hot water or steam coil - size D.

*For heating performance, refer to Gas Heat Information section of this catalog and the AAON ECat software.
**For heating performance, refer to the AAON ECat software. No valves or controls are included with these options. See General Data section for coil size details.
Note: AAON ECat will calculate the heating designation for gas or electric heat and choose the correct heat code, based on the desired leaving air and entering air temperature conditions.

Model Option B3 - Heating Staging

Example: RL-100-3-0-BE06-35**2**:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *No Heat*
1 = *2 Stage* - Two stage heat control. Available on electric and gas heat units.
2 = *4 Stage* - Four stage heat control. Available on electric and gas heat units.
3 = *8 Stage* - Eight stage heat control. Available on electric and gas heat units.
4 = *12 Stage* - Twelve stage heat control. Available on electric and gas heat units.
***H** = *Single Serpentine (Stm or HW)* - Hot water or steam coil(s), single piping inlet/outlet
***J** = *Half Serpentine (HW)* - Hot water coil(s), single piping inlet/outlet.

*For heating performance, refer to the AAON ECat software. No valves or controls are included with these options.

Unit Feature Option 1A - Return/Outside Air Section

Example: RL-100-3-0-BE06-352:**B**EBE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Std - Manual Outside Air* - Manual outside air with sliding damper (0 to 25%) with an adjustable compressor lock out. Includes a return air opening.
A = *Economizer* - Economizer damper assembly with controls. Choose the control options in Feature 2.
B = *Power Exhaust* - Economizer damper assembly and on/off type axial flow power exhaust fans to control space pressurization during economizer function. Choose the control options in Feature 2. Modulating power exhaust is available with the addition of a VFD in Feature 1B.
C = *Power Return (Axial Flow)* - Economizer damper assembly and axial flow power return fans for use with high return static pressure. Choose the control options in Feature 2. Modulating power return is available with the addition of a VFD in Feature 1B.
***D** = *AAONAIRE® Energy Recovery Wheel, Total, Small (1-74 Inch Wheel)* - This selects one 74" total energy recovery wheel with a maximum CFM of 12,000, factory mounted in the outside air intake and exhaust airstreams. The wheel's styrene heat transfer material is treated with silica gel for sensible and latent energy recovery.
***E** = *AAONAIRE® Energy Recovery Wheel, Total, Medium (1-81 Inch Wheel)* - Same as option D but uses one 81" wheel with a maximum CFM of 15,000.
***F** = *AAONAIRE® Energy Recovery Wheel, Total, Large (2-74 Inch Wheels)* - Same as option D but uses two 74" wheels with a maximum CFM of 24,000.

Unit Feature 1A - Return/Outside Air Section Continued

***G** = *AAONAIRE® Energy Recovery Wheel, Total, Extra Large (2-81 Inch Wheels)* - Same as option D but uses two 81" wheels with a maximum CFM of 30,000. Available on 134-230 Ton units only.
***H** = *AAONAIRE® Energy Recovery Wheel, Sensible, Small (1-74 Inch Wheel)* - This selects one 74" energy recovery wheel with no desiccant on substrate and a maximum CFM of 12,000.
***J** = *AAONAIRE® Energy Recovery Wheel, Sensible, Medium (1-81 Inch Wheel)* - Same as option H but uses one 81" wheel with a maximum CFM of 15,000.
***K** = *AAONAIRE® Energy Recovery Wheel, Sensible, Large (2-74 Inch Wheels)* - Same as option H but uses two 74" wheels with maximum CFM of 24,000.
***L** = *AAONAIRE® Energy Recovery Wheel, Sensible, Extra Large (2-81 Inch Wheels)* - Same as option H but uses two 81" wheels, with a maximum CFM of 30,000. Available on 134-230 units only.
M = *100% Outside Air (Non-Motorized - No R/A)* - Outside air opening in the unit which can accommodate 100% of the unit airflow. The outside air opening is not adjustable, and the unit will not have a return air opening in the base of the unit. Hot gas bypass on the lead and lag stages is required for this option.
N = *Motorized Outside Air (Dampers, Return Air)* - Selects extruded aluminum, low leakage, gear-driven airfoil dampers to control the outside air intake. The unit will have a return air opening in the base of the unit. Dampers will open on a call for the supply fan.
P = *Motorized Outside Air (Dampers, No Return Air)* - Selects extruded aluminum, low leakage, gear-driven airfoil dampers to control the outside air intake. The unit will not have a return air opening in the base of the unit. Use this option for 100% outside air applications. Hot gas bypass on the lead and lag stages is required for this option. Dampers will open on a call for the supply fan.
***Q** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Total, Small (1-74 Inch Wheel)* - Economizer damper assembly with power return plenum fans, power exhaust axial flow fans and one 74" total energy recovery wheel for both sensible and latent energy recovery. Maximum CFM is 12,000.
***R** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Total, Medium (1-81 Inch Wheel)* - Same as option Q but uses one 81" wheel with a maximum CFM of 15,000.
***S** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Total, Large (2-74 Inch Wheels)* - Same as option Q but uses two 74" wheels with a maximum CFM of 24,000.
***T** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Total, Extra Large (2-81 Inch Wheels)* - Same as option Q but uses two 81" wheels with a maximum CFM of 30,000. Available on 134-230 Ton units only.
***U** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Sensible, Small (1-74 Inch Wheel)* - Economizer damper assembly with power return plenum fans, power exhaust axial flow fans and one 74" sensible energy recovery wheel with no desiccant on substrate. Maximum CFM is 12,000.
***V** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Sensible, Medium (1-81 Inch Wheel)* - Same as option U but uses one 81" wheel with a maximum CFM of 15,000.

Unit Feature 1A - Return/Outside Air Section Continued

***W** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Sensible, Large (2-74 Inch Wheels)* - Same as option U but uses two 74" wheels with a maximum CFM of 24,000.
***Y** = *Power Return w/ AAONAIRE® Energy Recovery Wheel, Sensible, Extra Large (2-81 Inch Wheels)* - Same as option U but uses two 81" wheels with a maximum CFM of 30,000. Available on 134-230 Ton units only.
Z = *Power Return (Plenum)* - Economizer damper assembly and a plenum power return fans for use with high return static pressure. Choose the control options in Feature 2. Modulating power return is available with the addition of a VFD in Feature 1B.

*All energy recovery wheel options include an economizer

Table 3 - Economizer Data

Model	Cabinet	Cabinet Width (in.)	Economizer			
			Blade Length (in.)	Number of Banks	Return Area (ft^2)	Outside Area (ft^2)
RL-045	A	100	47.5	1	17.8	11.9
RL-060						
RL-070						
RL-075	B					
RL-090						
RL-095						
RL-100	C		38.0	2	28.5	19.0
RL-110						
RL-120						
RL-125						
RL-135						
RL-134	D	142	47.5		35.6	23.8
RL-150						
RL-155						
RL-170						
RL-180	E		60.0		45.0	30.0
RL-181						
RL-190						
RL-210						
RL-230						
RL-240						

Unit Feature Option 1B - Return/Outside Air Blower Configuration

Example: RL-100-3-0-BE06-352:B**E**BE-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Std (No return or exhaust blower)*
C = *1 Blower (Prem eff mtr)*
D = *2 Blowers (Prem eff mtr)*
E = *1 Blower (Prem eff mtr) w/ VFD*
F = *2 Blowers (Prem eff mtr) w/ 2-motors 1-VFD*
G = *2 Blowers (Prem eff mtr) w/ 2-motors 2-VFD*
H = *1 Blowers (Prem eff mtr) w/ Field Installed VFD*
J = *2 Blowers (Prem eff mtr) w/ two motors on one Field Installed VFD*
K = *2 Blowers (Prem eff mtr) w/two motors on two Field Installed VFD's*
L = *1 Blower w/ VFD and Bypass*
M = *2 Blowers w/ two motors on one VFD and Bypass*
N = *2 Blowers w/ two motors on two VFD's and Bypass*

AAON ECat will select the correct option for Feature 1B based on unit conditions and the input from the fan selection program. When creating a blower configuration with AAON ECat you must first select a return/exhaust blower or energy recovery wheel in Feature 1A. When all of the other features have been selected, you will be prompted to select supply fans, return and/or exhaust fans, motors, and VFDs in the "Fan Selection" window. In the "Fan Selection" window you will be able to select the number and size of fans, motor efficiency, number of VFDs, and view the fan curves.

Unit Feature Option 1C - Return/Outside Air Blower

Example: RL-100-3-0-BE06-352:BE**B**E-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Std (No return or exhaust blower)*
A = *Blower A (36" Dia 6 Blade)*
B = *Blower B (42" Dia 9 Blade)*
C = *Blower C (42" Dia 12 Blade)*
D = *Blower D (48" Dia 16 Blade)*
E = *Blower A (27" Dia - Plenum)*
F = *Blower B (30" Dia - Plenum)*
G = *Blower C (33" Dia – Plenum)*
H = *Blower D (36.5" Dia - Plenum)*
J = *Blower E (42.5" Dia - Plenum)*

Unit Feature 1C - Return/Outside Air Blower Continued

AAON ECat will select the correct option for Feature 1C based on unit conditions and the input from the fan selection program. When building a blower configuration with AAON ECat you must first select a return/exhaust blower or heat wheel in Feature 1A. When all of the other features have been selected, you will be prompted to select supply fans, return and/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. Fan curves will also be available for viewing.

Unit Feature Option 1D - Return/Outside Air Motor

Example: RL-100-3-0-BE06-352:BEB**E**-D00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Std (No Motor)*
D = *3.0 hp (1170 rpm)*
E = *5.0 hp (1170 rpm)*
F = *7.5 hp (1170 rpm)*
G = *10 hp (1170 rpm)*
H = *15 hp (1170 rpm)*
J = *20 hp (1170 rpm)*
K = *25 hp (1170 rpm)*
L = *30 hp (1170 rpm)*
M = *40 hp (1170 rpm)*
N = *50 hp (1170 rpm)*
T = *3.0 hp (1760 rpm)*
U = *5.0 hp (1760 rpm)*
V = *7.5 hp (1760 rpm)*
W = *10 hp (1760 rpm)*
Y = *15 hp (1760 rpm)*
Z = *20.0 hp (1760 rpm)*
1 = *25.0 hp (1760 rpm)*
2 = *30.0 hp (1760 rpm)*
3 = *40.0 hp (1760 rpm)*
4 = *50.0 hp (1760 rpm)*

AAON ECat will select the correct option for Feature 1D based on unit conditions and the input from the fan selection program. When building a blower configuration with AAON ECat you must first select a return/exhaust blower or heat wheel in Feature 1A. When all of the other features have been selected, you will be prompted to select supply fans, return and/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. Fan curves will also be available for viewing.

Unit Feature Option 2 - Outside Air Control

Example: RL-100-3-0-BE06-352:BEBE-**D**00-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Std (No Actuator)* - No actuator
A = *3 Position Actuator with Sensible Limit* - Economizer actuator with 3 positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for fan operation. Position three is economizer mode position with dampers fully open. The minimum outside air position can be field adjusted for the desired amount of outside air. The range of adjustment for the changeover is 45°F to 95°F and responds to sensible temperature only. The actuator is spring return closed. During economizer mode supply air temperature will vary with outside air temperature.
B = *3 Position Actuator with Enthalpy Limit* - Same as option A but the economizer changeover control responds to sensible and latent heat of the ambient air. See Figure 1, Enthalpy Changeover Dial, and Table 4, Enthalpy Changeover Adjustment.
C = *Fully Mod Actuator with Sensible Limit* - Fully modulating economizer actuator with 2 positions. Position one is the closed position. Position two is the minimum outside air position, which is activated when there is a call for fan operation. During economizer mode actuator modulates between minimum outside air position and fully open to maintain a discharge temperature of 55°F. 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 Mod Actuator with Enthalpy Limit* - Same as option C but the changeover control responds to sensible and latent heat of the ambient air. See Figure 1, Enthalpy Changeover Dial, and Table 4, Enthalpy Changeover Adjustment.
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 4-20mA control signal, but can be configured for a 0-10VDC 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 supplies the damper assembly and actuator only.
F = *Constant Volume Outside Air* - Maintains a minimum amount of outside air in VAV units. Velocity pressure of the air entering the unit is measured and the dampers are adjusted to maintain constant pressure, and thus a constant volume, of fresh air regardless of the supply air volume. Minimum supply air setting on the VFD control should be greater than or equal to outside air requirement. If economizer mode is desired, select from options G, H, J, K, L.
G = *Constant Volume Outside Air + 3 Position Actuator with Sensible Limit* - Options F + A
H = *Constant Volume Outside Air + 3 Position Actuator with Enthalpy Limit* - Options F + B
J = *Constant Volume Outside Air + Fully Mod Actuator with Sensible Limit* - Options F + C
K = *Constant Volume Outside Air + Fully Mod Actuator with Enthalpy Limit* - Options F + D
L = *Constant Volume Outside Air + DDC Actuator* - Options F + E

Unit Feature 2 - Outside Air Control Continued

M = *CO_2 Override (RA Sensor) + 3 Position Actuator with Sensible Limit* - Option A + 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.
N = *CO_2 Override (RA Sensor) + 3 Position Actuator with Enthalpy Limit* - Option B + CO_2 sensor.
P = *CO_2 Override (RA Sensor) + Fully Mod Actuator with Sensible Limit* - Option C + CO_2 sensor.
Q = *CO_2 Override (RA Sensor) + Fully Mod Actuator with Enthalpy Limit* - Option D + CO_2 sensor.
R = *CO_2 Override (RA Sensor) + DDC Actuator* - Option E + CO_2 sensor.
S = Dual Min Pos Pots with *Fully Mod Actuator with Sensible Limit* - Fully modulating economizer with sensible limit actuator with two minimum position potentiometers. Remote contact closure will allow the outside air to open the second minimum setting.
T = Dual Min Pos Pots with Fully Mod Actuator with Enthalpy Limit - Fully modulating economizer with enthalpy limit actuator with two minimum position potentiometers. Remote contact closure will allow the outside air to open the second minimum setting.
U = *2 Position Actuator* - Selected for motorized outside air options in Feature 1.

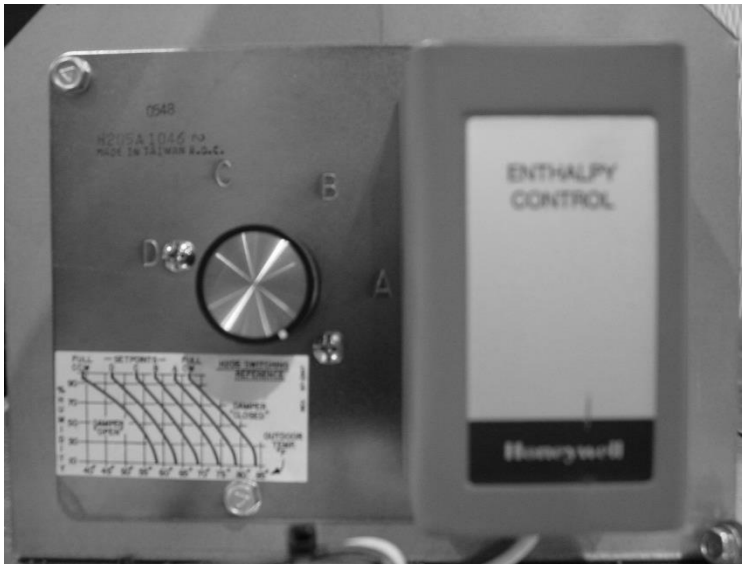

Figure 3 - Enthalpy Changeover Dial

Unit Feature 2 - Outside Air Control Continued

Table 4 - Enthalpy Changeover Adjustment

Dial Setting	20% RH		50% RH		80% RH	
	°F	°C	°F	°C	°F	°C
A (Max)	78	26	73	23	68	20
B	73	23	68	20	63	17
C	68	20	63	17	59	15
D (Min)	62	17	58	14	53	12

Unit Feature Option 3 - Discharge Locations

Example: RL-100-3-0-BE06-352:BEBE-D**0**0-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Bottom Discharge* - Discharge located on the bottom of the unit.
A = *Front Discharge* - Discharge located at the front of the unit.
B = *Back Discharge* - Discharge located at the back of the unit.
C = *Top Discharge* - Discharge located on the top of the unit.
D = *End Discharge - Air Handler w/o Vestibule* - Discharge located at the end of the unit. Available on air handler units without a vestibule and with a front control panel (Model Option A1).

Figure 4 - RL Series Orientation

Unit Feature Option 4 - Return Locations

Example: RL-100-3-0-BE06-352:BEBE-D0**0**-QFY-P0A-0DBB000-00-0BB00AB0B

0 = *Bottom Return* - Return air located at the bottom of the unit or no return air opening on 100% outside air units.
A = *End Return (No Energy Recovery or Power Exhaust)* - Return air located at the end of the unit. Not available on heat wheel or power exhaust units.
B = *Front Return High CFM (No Energy Recovery or Power Exhaust)* - Return air located at the front of the unit. Not available on heat wheel or power exhaust units.
C = *Front Return Low CFM (No Energy Recovery or Power Exhaust)* - Return air located at the front of the unit. Not available on heat wheel or power exhaust units.
D = *Back Return High CFM (No Energy Recovery or Power Exhaust)* - Return air located at the back of the unit. Not available on heat wheel or power exhaust units.
E = *Back Return Low CFM (No Energy Recovery or Power Exhaust)* - Return air located at the back of the unit. Not available on heat wheel or power exhaust units.
F = *Front Return High CFM (With Energy Recovery or Power Exhaust)* - Return air located at the front of the unit.
G = *Front Return Low CFM (With Energy Recovery or Power Exhaust)* - Return air located at the front of the unit.
H = *Back Return High CFM (With Energy Recovery or Power Exhaust)* - Return air located at the back of the unit.
J = *Back Return Low CFM (With Energy Recovery or Power Exhaust)* - Return air located at the back of the unit.
K = *Bottom Return w/ Return Air Bypass (2' Box)* - Return air bypass is selected for greater dehumidification. A portion of the return air, which typically has a lower humidity than outside air, is bypassed around the cooling coil. This reduces the airflow over the cooling coil, which drives the temperature of the coil lower, condensing more moisture out of the air stream. An option box with an opening in the base and a control damper over that opening is installed between the cooling section and the supply blower. The control damper is supplied with a 0-10 VDC actuator, which is controlled by others. Return air is bypassed through the solid bottom curb and around the cooling coil. The curb should be sized for no more than 1,500 feet per minute velocity of return air bypass. On units with power return, all return air is brought back to the unit by the power return fan and then bypass air goes back into the curb through an opening in the base in the return section. A curb divider must be installed between these openings. This feature selects a smaller option box for lower bypass CFM. Available on draw-through units only.
L = *Bottom Return w/ Return Air Bypass (4' Box)* - Same as option K except with a 4' option box for higher bypass CFM. Available on draw-through units only.
M = *Bottom Return High CFM* - Return air located at the bottom of the unit.
N = *End Return High CFM* - Return air located at the end of the unit.

Unit Feature 4 - Return Locations Continued

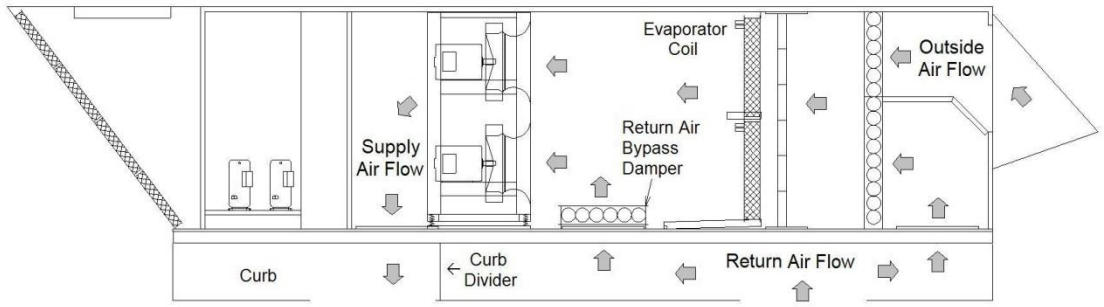

Figure 5 - RL Series Bottom Return Air Bypass (4’ Box)

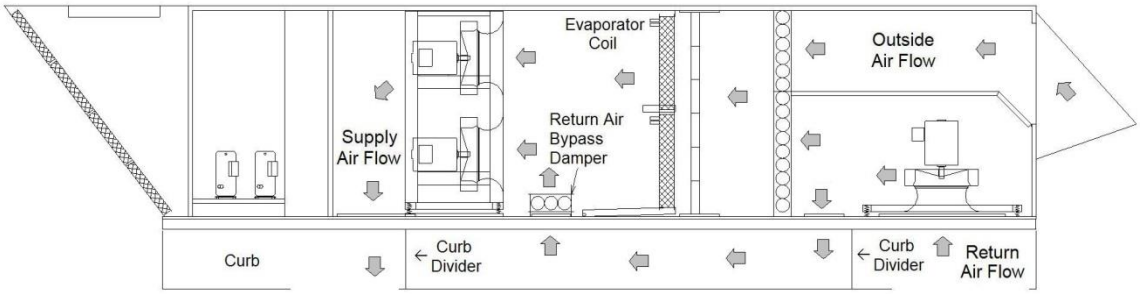

Figure 6 - RL Series Bottom Return Air Bypass (2’ Box) with Plenum Power Return

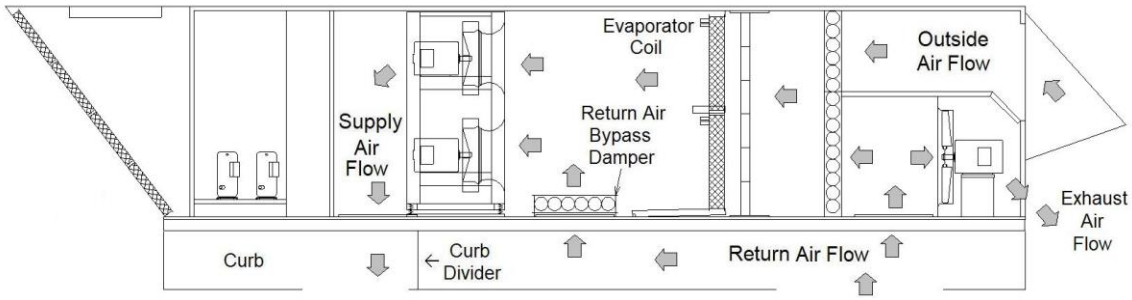

Figure 7 - RL Series Bottom Return Air Bypass (4’ Box) with Power Exhaust

Unit Feature Option 5A - Supply Air Blower Configuration

Example: RL-100-3-0-BE06-352:BEBE-D00-**Q**FY-P0A-0DBB000-00-0BB00AB0B

D = *1 Blower w/ (Prem eff mtr)*
E = *2 Blowers w/ (Prem eff mtr)*
F = *3 Blowers w/ (Prem eff mtr)*

Unit Feature 5A - Supply Air Blower Configuration Continued

G = *4 Blowers w/ (Prem eff mtr)*
H = *1 Blower w/ (Prem eff mtr) w/ VFD*
J = *2 Blowers w/ (Prem eff mtr) w/ 1-VFD*
K = *2 Blowers w/ (Prem eff mtr) w/ 2-VFD's*
L = *3 Blowers w/ (Prem eff mtr) w/ 1-VFD*
M = *3 Blowers w/ (Prem eff mtr) w/ 3-VFD's*
N = *4 Blowers w/ (Prem eff mtr) w/ 1-VFD*
Q = *4 Blowers w/ (Prem eff mtr) w/ 4-VFD's*
R = *4 Blowers w/ (Prem eff mtr) w/ 2-VFD's*
S = *1 Blower w/ (Prem eff mtr) w/ Field Installed VFD*
T = *2 Blowers w/ (Prem eff mtr) w/ 1 Field Installed VFD*
U = *2 Blowers w/ (Prem eff mtr) w/ 2 Field Installed VFD's*
V = *3 Blowers w/ (Prem eff mtr) w/ 1 Field Installed VFD*
W = *3 Blowers w/ (Prem eff mtr) w/ 3 Field Installed VFD's*
Y = *4 Blowers w/ (Prem eff mtr) w/ 1 Field Installed VFD*
Z = *4 Blowers w/ (Prem eff mtr) w/ 4 Field Installed VFD's*
1 = *4 Blowers w/ (Prem eff mtr) w/ 2 Field Installed VFD's*
2 = *1 Blower w/ (Prem eff mtr) w/ VFD and Bypass*
3 = *2 Blowers w/ (Prem eff mtr) w/ 1-VFD and Bypass*
4 = *2 Blowers w/ (Prem eff mtr) w/ 2-VFD's and Bypass*
5 = *3 Blowers w/ (Prem eff mtr) w/ 1-VFD and Bypass*
6 = *3 Blowers w/ (Prem eff mtr) w/ 3-VFD's and Bypass*
7 = *4 Blowers w/ (Prem eff mtr) w/ 1-VFD and Bypass*
8 = *4 Blowers w/ (Prem eff mtr) w/ 4-VFD's and Bypass*
9 = *4 Blowers w/ (Prem eff mtr) w/ 2-VFD's and Bypass*

AAON ECat will select the correct option for Feature 5A 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 and/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. Fan curves will also be available for viewing.

Unit Feature Option 5B - Supply Air Blower

Example: RL-100-3-0-BE06-352:BEBE-D00-Q**F**Y-P0A-0DBB000-00-0BB00AB0B

A = *Blower A (27" Dia)*
B = *Blower B (30" Dia)*
C = *Blower C (33" Dia)*
D = *Blower D (36.5" Dia)*
E = *Blower E (42.5" Dia)*
F = *Blower A (27" Dia) w/ Damper*
G = *Blower B (30" Dia) w/ Damper*
H = *Blower C (33" Dia) w/ Damper*
J = *Blower D (36.5" Dia) w/ Damper*
K = *Blower E (42.5" Dia) w/ Damper*

AAON ECat will select the correct option for Feature 5B 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 and/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. Fan curves will also be available for viewing.

Unit Feature Option 5C - Supply Air Motor

Example: RL-100-3-0-BE06-352:BEBE-D00-QF**Y**-P0A-0DBB000-00-0BB00AB0B

D = *3.0 hp (1170 rpm)*
E = *5.0 hp (1170 rpm)*
F = *7.5 hp (1170 rpm)*
G = *10 hp (1170 rpm)*
H = *15 hp (1170 rpm)*
J = *20 hp (1170 rpm)*
K = *25 hp (1170 rpm)*
L = *30 hp (1170 rpm)*
M = *40 hp (1170 rpm)*
N = *50 hp (1170 rpm)*
T = *3.0 hp (1760 rpm)*
U = *5.0 hp (1760 rpm)*
V = *7.5 hp (1760 rpm)*
W = *10 hp (1760 rpm)*
Y = *15 hp (1760 rpm)*
Z = *20.0 hp (1760 rpm)*
1 = *25.0 hp (1760 rpm)*
2 = *30.0 hp (1760 rpm)*
3 = *40.0 hp (1760 rpm)*
4 = *50.0 hp (1760 rpm)*

AAON ECat will select the correct option for Feature 5C 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 and/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. Fan curves will also be available for viewing.

Unit Feature Option 6A - Pre Filter Type

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-**P**0A-0DBB000-00-0BB00AB0B

0 = *2" Pleated (Std Position)* - 2", MERV 8
A = *4" Pleated (Std Position)* - 4", MERV 8
B = *2" Permanent Frame (Std Position)* - 2" metal frame replaceable media filters.
C = *2" Pre/12" Cartridge MERV 11 (Std Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 11 filters. Requires Feature 6B to be either N, P or Q.
D = *2" Pre/12" Cartridge MERV 13 (Std Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
E = *2" Pre/12" Cartridge MERV 14 (Std Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
F = *4" Pre/12" Cartridge MERV 11 (Std Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 11 filters. Requires Feature 6B to be either N, P or Q.
G = *4" Pre/12" Cartridge MERV 13 (Std Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
H = *4" Pre/12" Cartridge MERV 14 (Std Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
J = *2" Pre/30" Bag MERV 13 (Std Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
K = *2" Pre/30" Bag MERV 14 (Std Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
L = *4" Pre/30" Bag MERV 13 (Std Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
M = *4" Pre/30" Bag MERV 14 (Std Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
N = *2" Pleated (Pre Position)* - 2", MERV 8
P = *4" Pleated (Pre Position)* - 4", MERV 8
Q = *2" Permanent Frame (Pre Position)* - 2" metal frame replaceable media filters.
R = *2" Pre/12" Cartridge MERV 11 (Pre Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 11 filters. Requires Feature 6B to be either N, P or Q.
S = *2" Pre/12" Cartridge MERV 13 (Pre Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
T = *2" Pre/12" Cartridge MERV 14 (Pre Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
U = *4" Pre/12" Cartridge MERV 11 (Pre Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 11 filters. Requires Feature 6B to be either N, P or Q.
V = *4" Pre/12" Cartridge MERV 13 (Pre Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
W = *4" Pre/12" Cartridge MERV 14 (Pre Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 12" cartridge, , MERV 14 filters. Requires Feature 6B to be either N, P or Q.
Y = *2" Pre/30" Bag MERV 13 (Pre Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 13 filters. Requires Feature 6B to be either N, P or Q.

Unit Feature 6A - Pre Filter Type Continued

Z = *2" Pre/30" Bag MERV 14 (Pre Position)* - 2" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 14 filters. Requires Feature 6B to be either N, P or Q.
1 = *4" Pre/30" Bag MERV 13 (Pre Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 13 filters. Requires Feature 6B to be either N, P or Q.
2 = *4" Pre/30" Bag MERV 14 (Pre Position)* - 4" pleated, MERV 8 pre filters mounted upstream of 30" bag, MERV 14 filters. Requires Feature 6B to be either N, P or Q.

Standard Position: Located after the blower section in a blow-through unit or before the cooling section in a draw-through unit.
Pre Position: Pre-position filters available on blow-through units only. Located after the return section, before the blower section.

Unit Feature Option 6B - Final Filter Type

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P**0**A-0DBB000-00-0BB00AB0B

***0 =** *Standard* - None
***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** = *Pre Filter Box A (Hi-E filters) - No Final Filter*
***P** = *Pre Filter Box B (Hi-E filters) - No Final Filter*
***Q** = *Pre Filter Box C (Hi-E filters) - No Final Filter*

Final Filter Position: Located downstream of all air stream components in the unit.
*Available only on draw-through units without gas heat.

Unit Feature Option 6C - Filter Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0**A**-0DBB000-00-0BB00AB0B

0 = *Standard* - No CFS or Magnehelic gauge.
***A** = *CFS Pre Filters* - Pre filter bank clogged filter switch (CFS). Adjustable differential pressure switch sensing pressure drop across the pre filter bank. The range of adjustment is 0.17" to 5.0" W.C. with contact closure on rise. The switch is mounted in the filter compartment with terminal connections in the low voltage control section. Normally open dry contacts (C1 and C2) are provided for clogged filter indication.
***B** = *CFS Final Filters* - Same as option A except the CFS senses the pressure drop across the final filter bank.
***C** = *Magnehelic Gauge Pre Filter* - Magnehelic gauge reading pressure drop across the pre filter bank. The gauge reads from 0 to 3" W.C. in 0.10" graduations, and is mounted in the control cabinet.
***D** = *Magnehelic Gauge Final Filter* - Same as option C except the gauge reads the pressure drop across the final filter bank.
***E** = *CFS Pre Filter + CFS Final Filter* - Options A + B
***F** = *CFS Pre Filter + Magnehelic Gauge Pre Filter* - Options A + C
***G** = *CFS Pre Filter + Magnehelic Gauge Final Filter* - Options A + D
***H** = *CFS Final Filter + Magnehelic Gauge Pre Filter* - Options B + C
***J** = *CFS Final Filter + Magnehelic Gauge Final Filter* - Option B + D
***K** = *CFS Pre Filter + CFS Final Filter + Magnehelic Gauge Pre Filter* - Option A + B + C
***L** = *CFS Pre Filter + CFS Final Filter + Magnehelic Gauge Final Filter* - Option A + B + D
***M** = *CFS Pre Filter + Magnehelic Gauge Pre Filter + Magnehelic Gauge Final Filter* - Option A + C + D
***N** = *CFS Final Filter + Magnehelic Gauge Pre Filter + Magnehelic Gauge Final Filter* - Option B + C + D
***P** = *CFS Pre Filter + CFS Final Filter + Magnehelic Gauge Pre Filter + Magnehelic Gauge Final Filter* - Option A + B + C + D

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

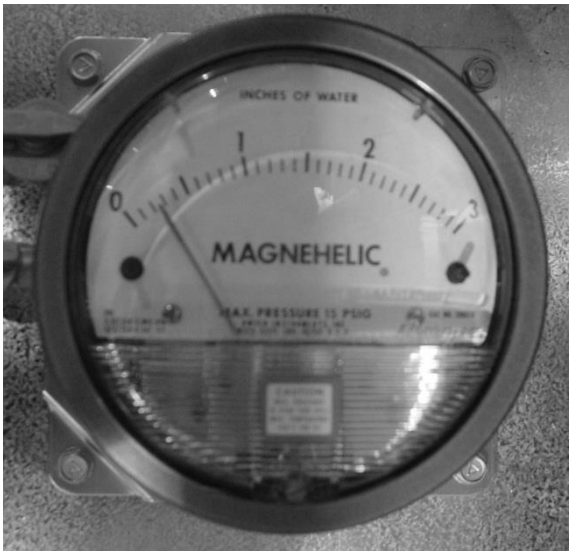

Figure 8 - Magnehelic Gauge

Unit Feature Option 7 - Refrigeration Control

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-**0**DBB000-00-0BB00AB0B

0 = *Standard* - 55°F fixed compressor lockout.
A = *5 MTDR Off* - 5 minute time delay relay for minimum 5 minute compressor "off time". The delay timers are located in the low voltage section of the controls cabinet. There are no user adjustments. The timers prevent short cycling of the compressors, preventing undue stress and wear. Recommended where electromechanical thermostats are used. Use with some programmable thermostats or DDC controllers may cause excessive time delay.
B = *20 STDR* - The 20 second time delay relay is a delay timer that prevents multiple cooling stages from starting simultaneously. The delay timers are located in the low voltage section of the controls cabinet. The range of adjustment is 6 to 300 seconds. The timers limit current draw during cooling cycle start up.
C = *115V Convenience Outlet, Field Wired* - Field wired 2x4 electrical box with ground fault interrupter receptacle, located inside the unit controls cabinet. Receptacle is rated for 20 amps. The outlet must be field wired with an 115VAC power supply.
D = *115V Convenience Outlet, Factory Wired* - Factory wired 2x4 electrical box with ground fault interrupter receptacle, located inside the unit controls cabinet. The circuit is rated at 12 amps 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, permitting use of the outlet while power to the unit is shut off. **Caution: When the power to the unit is disconnected at the factory installed unit power switch, the convenience outlet will remain live.**
E = *5 MTDR + 20 STDR* - Options A + B

Unit Feature 7 - Refrigeration Control Continued

F = *5 MTDR + 115V Outlet Field Wired* - Options A + C
G = *5 MTDR + 115V Outlet Factory Wired* - Options A + D
H = *5 MTDR + 20 STDR + 115V Outlet Field Wired* - Options A + B + C
J = *5 MTDR + 20 STDR + 115V Outlet Factory Wired* - Options A + B + D
K = *20 STDR + 115V Outlet Field Wired* - Options B + C
L = *20 STDR + 115V Outlet Factory Wired* - Options B + D

Figure 9 - Factory Wired Convenience Outlet

Unit Feature Option 8 - Refrigeration Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0**D**BB000-00-0BB00AB0B

0 = *Standard* - Manual reset high pressure cutouts, automatic reset low pressure cutouts, internal overload protection on compressors, thermal expansion valves, and adjustable fan cycling.
A = *Hot Gas Bypass Lead Stage (HGB)* - Field adjustable pressure activated bypass valve on the lead cooling circuit(s) factory setup to divert hot compressor discharge gas to the evaporator coil if pressure on the evaporator side of the valve drops below 60 psi for R-22 or 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 prevents coil freeze-up during periods of low airflow or cold entering coil conditions. Lead and lag hot gas bypass (Option D) are required on all VAV and Makeup Air units. This option is used for refrigerant system protection only and cannot be used for cooling capacity modulation.
B = *Hot Gas Reheat Coil (HGRC)* - Reheat coil mounted downstream of the evaporator and piped to the lead cooling circuit(s) for dehumidification. A terminal contact (RH1) is included for connecting a humidistat. Upon a dry contact closure signal from the humidistat and no call for cooling from the thermostat, the lead compressor(s) are activated. After 3 minutes, the reheat coil is energized along with the lag compressor(s).

Unit Feature 8 - Refrigeration Options Continued

A call for cooling or heating will deactivate the reheat coil, returning all refrigerant to the condenser coil(s). A wall mount humidistat is available as an accessory. Receiver tank(s) are standard with this option. This option is used when dehumidification is needed when the cooling setpoint has been satisfied.

C = *Modulating Hot Gas Reheat Coil (MHGRC)* - Same as option B except with modulating condenser control valve, modulating reheat control valve, supply air temperature sensor, and digital controller to maintain supply air temperature and space humidity. A terminal contact (RH1) is included for connecting a humidistat. A wall mount humidistat is available as an accessory. Receiver tanks are standard with this option. Use this option when tighter humidity control is needed or when constant supply air temperature is needed, such as in VAV applications.

D = *HGB Lead + HGB Lag* - Field adjustable pressure activated bypass valves on the lead and lag cooling circuit(s) factory setup to divert hot compressor discharge gas to the evaporator coil if the pressure on the evaporator side of the valve drops below 60 psi for R-22 or 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 prevents coil freeze-up during periods of low airflow or cold entering coil conditions. Required on all VAV and Makeup Air units. This option is used for refrigerant system protection only and cannot be used for cooling capacity modulation.

E = *HGB Lead + HGRC* - Options A + B

F = *HGB Lead + MHGR* - Options A + C

G = *HGB Lead + HGB Lag + HGRC* - Options B + D

H = *HGB Lead + HGB Lag + MHGR* - Options C + D

J = *Subcooling Coil (Reheat Position)* - Subcooling coil downstream of the evaporator coil that provides additional latent capacity to the unit. Refrigerant leaves the condenser coil and enters the subcooling coil where it is heats up the air, thus subcooling the refrigerant further. From there the subcooled refrigerant enters the evaporator coil

increasing its capacity. The net effect is there is no change in enthalpy of the air-stream; however, there is a change in the sensible heat ratio, thereby increasing the latent capacity of the system and decreasing the sensible capacity of the system. This option also allows final filters to be selected on blow-through units.

K = *Subcooling Coil + HGB Lead* - Options A + J

L = *Subcooling Coil + HGB Lead + HGB Lag* - Options D + J

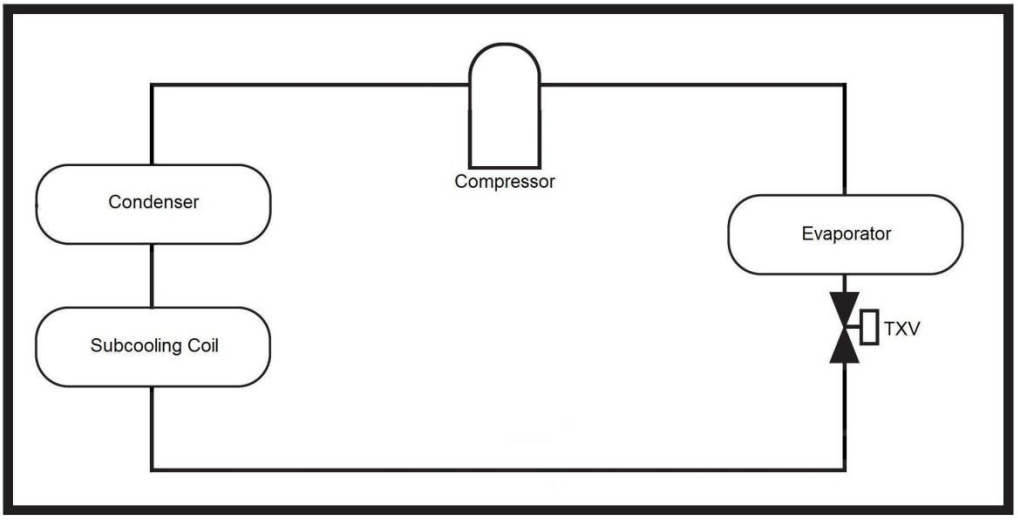

Figure 10 - Subcooling Coil Piping

Unit Feature Option 9 - Refrigeration Accessories

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0D**B**B000-00-0BB00AB0B

0 = *Standard* - All compressors are mounted in the service vestibule on raised, vibration reducing platforms for quiet operation and convenient access.
A = *Sight Glass* - Moisture indication sight glass attached to the cooling circuit liquid line(s). A green color refrigerant indicates a dry condition, a chartreuse (green with a yellow tint or bright green) color indicates caution and a yellow color indicates a wet condition. The sight glass is not a charge indicator.

Table 5 - Moisture Content Indication

Refrigerant / Indicator Color	75° F Liquid Line Temperature	
	R-22	R-410A
Green DRY	Below 30ppm	Below 75ppm
Chartreuse CAUTION	30 - 90ppm	75-150ppm
Yellow WET	Above 90ppm	Above 150ppm

Unit Feature 9 - Refrigeration Accessories Continued

B = *Compressor Isolation Valves* - Ball type service valves mounted on the cooling circuit discharge and suction lines permitting isolation of the compressor for service or replacement. The valves are located close to the compressors. The valve works through a quarter turn from open to closed. Teflon seals and gaskets are used with a nylon cap gasket to prevent accidental loss. This option reduces the amount of refrigerant that must be recovered during compressor service or replacement since closing these valves isolates the compressor.
C = *Sight Glass + Compressor Isolation Valves* - Options A + B
D = *VFD Controlled Condenser Fans (Air-Cooled)* - VFD controlled variable speed air-cooled condenser fans. This option is only available on air-cooled condenser units. VFD controlled variable speed condenser fans are standard on evaporative-cooled condenser units.
E = *Sight Glass + VFD Controlled Condenser Fans (Air-Cooled)* - Options A + D
F = *Compressor Isolation Valves + VFD Controlled Condenser Fans (Air-Cooled)* - Options B + D
G = *Sight Glass + Compressor Isolation Valves + VFD Controlled Condenser Fans (Air-Cooled)* - Options A + B + D

Unit Feature Option 10 - Power Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DB**B**000-00-0BB00AB0B

0 = *Std Power Block*

A = *Power Switch (225 Amps)*

B = *Power Switch (400 Amps)*

C = *Power Switch (600 Amps)*

D = *Power Switch (800 Amps)*

E = *Power Switch (1,200 Amps)*

Individual components within the control cabinet are fused. Switch options include molded case, non-fused, disconnect switch externally mounted. The switch is accessible from the exterior of the unit. 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.

Unit Feature Option 11 - Safety Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB**0**00-00-0BB00AB0B

0 = *Standard* - No firestats or smoke detectors.
A = *R/A & S/A Firestat* - Bimetallic snap-action safety switches sensing temperature only, mounted in both the supply and return airstreams. 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 115V control circuit.
B = *R/A Smoke Detector* - Photoelectric type smoke detector is factory mounted in the return air section of the unit. It is wired to shut down the 115V 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 control cabinet.
C = *S/A Smoke Detector* - Same as option B but mounted in the control vestibule with sensor mounted to the discharge compartment, sensing the supply air downstream of the filters and blower.
D = *R/A & S/A Smoke Detectors* - Options B + C
E = *R/A & S/A Firestat + R/A Smoke Detector* - Options A + B
F = *R/A & S/A Firestat + S/A Smoke Detector* - Options A + C
G = *R/A & S/A FS + R/A & S/A Smoke Detectors* - Options A + B + C
H = *S/A High Static Pressure Switch* - This will switch will shut off the fans if the static pressure downstream of the supply fans gets too high. This is option is required on systems with VFD bypass.
J = *R/A & S/A Firestat + S/A High Static Pressure Switch* - Options A+H
K = *R/A Smoke Detector + S/A High Static Pressure Switch* - Options B+H
L = *S/A Smoke Detector + S/A High Static Pressure Switch* - Options C+H
M = *R/A & S/A Smoke Detectors + S/A High Static Pressure Switch* - Options B + C + H
N = *R/A & S/A Firestat + R/A Smoke Detector + S/A High Static Pressure Switch* - Options A + B + H
P = *R/A & S/A Firestat + S/A Smoke Detector + S/A High Static Pressure Switch* - Options A + C + H
Q = *R/A & S/A FS + R/A & S/A Smoke Detectors + S/A High Static Pressure Switch* - Options A + B + C + H

Unit Feature Option 12 - Controls

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB0**0**0-00-0BB00AB0B

0 = *Standard* - Terminal Block for wiring standard controls.

Unit Feature 12 - Controls Continued

A = *Low Limit Controls* - Temperature limit switch factory mounted in the unit supply air to shut off the unit when discharge temperature reaches setpoint. The switch is adjustable from -10°F to 70°F, and is manually reset by disconnecting power to the unit.
B = *Phase & Brown Out Protection* - This selects a three phase power monitor that shuts down the unit if the supplied power phases are out of balance, or over/under voltage, or in case of a phase loss. Option is used to protect motors and compressors from electrical phase loss or low voltage brownout. Reset is automatic.
C = *Heat Wheel Defrost Control* - Adjustable temperature sensor and timer wired to periodically stop the heat wheel rotation and allow warm exhaust air to defrost the wheel.
D = *Heat Wheel Rotation Detection* - Heat wheel rotation sensor and speed switch output module mounted in the heat 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.
F = *Low Limit Controls + Phase & Brown Out Protection* - Options A + B
G = *Low Limit Controls + Heat Wheel Defrost Control* - Options A + C
H = *Low Limit Controls + Heat Wheel Rotation Detection* - Options A + D
K = *Phase & Brown Out Protection + Heat Wheel Defrost Control* - Options B + C
L = *Phase & Brown Out Protection + Heat Wheel Rotation Detection* - Options B + D
N = *Heat Wheel Defrost Control + Heat Wheel Rotation Detection* - Options C + D
Q = *Low Limit Controls + Phase & Brown Out Protection + Heat Wheel Defrost Control* - Options A + B + C
R = *Low Limit Controls + Phase & Brown Out Protection + Heat Wheel Rotation Detection* - Options A + B + D
T = *Low Limit Controls + Heat Wheel Defrost Control + Heat Wheel Rotation Detection* - Options A + C + D
V = *Phase & Brown Out Protection + Heat Wheel Defrost Control + Heat Wheel Rotation Detection* - Options B + C + D
Y = *Low Limit Controls + Phase & Brown Out Protection + Heat Wheel Defrost Control + HW Rotation Detection* - Options A + B + C + D

Unit Feature Option 13 - Special Controls

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB00**0**-00-0BB00AB0B

0 = *Standard* - Terminal block for wiring standard controls
***D** = *VAV Unit Controller* - Variable Air Volume unit controller. Return and outside air temperature sensors are factory mounted and wired. Supply air static pressure probe and the space temperature sensor are supplied for field installation. Supply air duct temperature sensor is temporarily mounted in the unit for field installation. A building static pressure sensor is also supplied if power exhaust with a VFD is selected.
***E** = *Constant Volume Unit Controller* - Outside air temperature sensor is factory mounted and wired. Supply duct temperature sensor is temporarily mounted in the unit for field installation. Space temperature sensor is supplied for field installation. A building static pressure sensor is also supplied if power exhaust with VFD is provided by the factory.

Unit Feature 13 - Special Controls Continued

***F =** *Makeup Air Unit Controller* - Outside air temperature sensor is factory mounted and wired. Supply duct temperature sensor is temporarily mounted in the unit for field installation.
5 = *Field Installed DDC Controls Furnished by Others with Isolation Relays* - Provides an expanded terminal strip to interface with controls, 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.
6 = *Factory Installed DDC Controls Furnished by Others with Isolation Relays (SPA Required)*- Factory installed controls furnished by others 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. The AAON rep must provide a controls parts list, cut sheets and wiring diagrams before the SPA will be issued. Also requires a Special Parts Request Form. Once the order is entered a completed Special Parts Request Form is sent to the AAON rep with control numbers assigned. The AAON 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 rep must be the information conduit! See the "Policy Manual for Sales Representatives" for more detailed information on the proper procedure.
*See Controls section for more information about control options

Unit Feature Option 14A - Preheat Configuration

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-**0**0-0BB00AB0B

0 = *Standard* - No Preheat
***C** = *Hot Water Coil Preheat O/A*- Hot water coil mounted in the preheat position before the cooling section. Economizer, Power Exhaust, or Power Return (Axial Flow) is required for this option (Feature 1A = A, B, C).
***D** = *Steam Distributing Coil Preheat O/A* - Same as option C except with a steam coil. Economizer, Power Exhaust, or Power Return (Axial Flow) is required for this option (Feature 1A = A, B, C).
***E** = *Hot Water Coil Preheat (4ft Box)* - Hot water coil mounted in the preheat position in a 4' long accessible cabinet.
***F** = *Steam Distributing Coil Preheat (4ft Box)* - Same as option E except with a steam coil.

*Entering temperatures must be above 32°F. Refer to AAON ECat for performance data. No valves or controls are included with these options.

Unit Feature Option 14B - Preheat Sizing

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-0**0**-0BB00AB0B

0 = *Standard* - No Preheat
***A** = *Heat Qty A*
***B** = *Heat Qty B*
***C** = *Heat Qty C*
***D** = *Heat Qty D*

*See General Data section for coil size details. No valves or controls are included with these options.

Unit Feature Option 15 - Option Boxes

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-**0**BB00AB0B

0 = *Standard* - No option box
A = *2ft Box After Heat*
B = *2ft Box After Cooling*
C = *2ft Box After Pre Filter*
D = *2ft Box After Return*
E = *4ft Box After Heat*
F = *4ft Box After Cooling*
G = *4ft Box After Pre Filter*
H = *4ft Box After Return*
J = *6ft Box After Heat*
K = *6ft Box After Cooling*
L = *6ft Box After Pre Filter*
M = *6ft Box After Return*
N = *8ft Box After Heat*
P = *8ft Box After Cooling*
Q = *8ft Box After Pre Filter*
R = *8ft Box After Return*
S = *2ft Box After Preheat Coil*
T = *4ft Box After Preheat Coil*
U = *6ft Box After Preheat Coil*
V = *8ft Box After Preheat Coil*
Note: These are additional cabinet sections for installation of items not currently offered in the RL 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.

Unit Feature Option 16 - Interior Cabinet Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0**B**B00AB0B

0 = *Standard* - The RL series has rigid, closed cell polyurethane foam double wall construction with a thermal break. The walls of the air tunnel and access doors are 2" thick with and R value of 13, the sloped roof of the unit averages 2.5" thick with and R value of 16, and the floor of the unit is 3" thick with an R value of 19. Evaporator coil drain pan is fabricated of 18GA 304 stainless steel.
B = *Marine Service Lights* - Marine type protected service lights located in the control and blower compartments.

Unit Feature Option 17 - Exterior Cabinet Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0B**B**00AB0B

0 = *Standard*
A = *Access Door Windows* - 12"x12" wire reinforced glass double pane windows permit visual inspection of cabinet interior while the access doors are closed. If this option is selected, windows are placed in all access doors of the unit.
B = *Burglar Bars (BB)* - 1/2" diameter welded steel bars crosshatched 6" apart across the unit base pan supply and return air openings.
C = *Perf Liner S/A Plenum* - Perforated and insulated metal liners across the supply air plenum to attenuate sound.
D = *Perf Liner R/A Plenum* - Same as option C but installed across the return air plenum.
F = *Access Door Windows + Burglar Bars* - Options A + B
G = *Access Door Windows + Perf Liner S/A Plenum* - Options A + C
H = *Access Door Windows + Perf Liner R/A Plenum* - Options A + D
K = *Burglar Bars + Perf Liner S/A Plenum* - Options B + C
L = *Burglar Bars + Perf Liner R/A Plenum* - Options B + D
N = *Perf Liner S/A Plenum + Perf Liner R/A Plenum* - Options C + D
Q = *Access Door Windows + Burglar Bars + Perf Liner S/A Plenum* - Options A + B + C
R = *Access Door Windows + Burglar Bars + Perf Liner R/A Plenum* - Options A + B + D
T = *Access Door Windows + Perf Liner S/A Plenum + Perf Liner R/A Plenum* - Options A + C + D
V = *Burglar Bars + Perf Liner S/A Plenum + Perf Liner R/A Plenum* - Options B + C + D
Y = *Access Door Windows + Burglar Bars + Perf Liner S/A Plenum + Perf Liner R/A Plenum* - Options A + B + C + D

Unit Feature Option 18 - Customer Code

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB**0**0AB0B

0 = *Standard*

Used for groups of special features and options for national account customers only.

Unit Feature Option 19 - Code Options

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB0**0**AB0B

0 = *Std ETL USA Listing* - AAON units are ETL 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 = *M.E.A. (New York) - MEA 369-03-E* - Approval tag attached to the unit exterior, designating AAON units comply with the Material & Equipment Acceptance requirements for the City of New York.
B = *Chicago Cool & Gas* - Chicago code for a unit with cooling and gas heat. Chicago code states that unit wiring to the condenser fan motors must be in flexible conduit and refrigerant pressure relief valves must be supplied.
C = *Chicago - Cool & Electric* - Chicago code for a unit with cooling and electric heat.
D = *Chicago - Cool Only* - Chicago code for a cooling only unit.
E = *Chicago - Gas Only* - Chicago code for a gas heat only unit.
F = *Chicago - Electric Only* - Chicago code for an electric heat only unit.
G = *Chicago - No Cool No Heat* - Chicago code for a unit with no cooling and no heat.
H = *ETL USA + Canada Listing* - Canadian and USA listings for export. The nameplate, safety labels, drain, and blower warnings will be in English and French.
J = *No ETL*

Unit Feature Option 20 - Crating

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00**A**B0B

0 = *Standard* - One piece unit.
A = *Two Piece Unit (Split After Evap Coil)* - Unit is split into two pieces, after the evaporator coil.

Unit Feature Option 21 - Evaporative and Water-Cooled Condenser

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00A**B**0B

0 = *Standard* - No evaporative-cooled or water-cooled condenser.
A = *No Sump or Vestibule Heaters* - Evaporative-cooled or water-cooled condenser without sump or vestibule heaters.
B = *Sump and Vestibule Heaters (Evap Cond)* - Provides a 5kW electric immersion sump heater, and a 1kW electric base board heater for the controls vestibule.
C = *Balancing Valves (Water Cond)* - Combination flow regulating, isolation, and check valve in the condenser plumbing with pressure taps on either side of the valve. Available on water-cooled condenser units only.
D = *Single Point Water Connection (Water Cond)* - Available on water-cooled condenser units only.
E = *Condenser Vestibule Electric Heater (Water Cond)* - Available on water-cooled condenser units with electric heater only.
F = *Motorized Shutoff Valve (Water Cond)* - Motorized valve to shut off water flow to the condenser when the unit is shut down. Available on water-cooled condenser units only.
G = *Head Pressure Control (Water Cond)* - Modulating condenser valve for operation below 65°F condenser water temperature. Available on water-cooled condenser units only.
H = *Balancing Valves + Single Point Water Connection (WC)* - Options C + D
J = *Balancing Valves + Condenser Vestibule Elec Heater (WC)* - Options C + E
K = *Balancing Valves + Motorized Shutoff Valve (WC)* - Options C + F
L = *Balancing Valves + Head Pressure Control (WC)* - Options C + G
M = *Single Point Water Conn + Condenser Vestibule Elec Heater (WC)* - Options D + E
N = *Single Point Water Conn + Motorized Shutoff Valve (WC)* - Options D + F
P = *Single Point Water Conn + Head Pressure Control (WC)* - Options D + G
Q = *Condenser Vestibule Elec Heater + Motorized Shutoff Valve (WC)* - Options E + F
R = *Condenser Vestibule Elec Heater + Head Pressure Control (WC)* - Options E + G
S = *Motorized Shutoff Valve + Head Pressure Control (WC)* - Options F + G
T = *Bal Valves + Single Point Water Conn + Condenser Vestibule Elec Heater (WC)* - Options C + D + E
U = *Bal Valves + Single Point Water Conn + Motorized Shutoff Valve (WC)* - Options C + D + F
V = *Bal Valves + Single Point Water Conn + Head Press Ctrl (WC)* - Options C + D + G
W = *SP Water Conn + Condenser Vestibule Elec Heater + Mtr Shutoff Valve (WC)* - Options D + E + F
Y = *SP Water Conn + Condenser Vestibule Elec Heater + Head Pressure Ctrl (WC)* - Options D + E + G
Z = *Condenser Vestibule Elec Heater + Mtr Shutoff Valve + Head Pressure Ctrl (WC)* - Options E + F + G
1 = *Bal Valves + SP Water Conn + Condenser Vestibule Elec Heater + Mtr Shutoff Valve (WC)* - Options C + D + E + F

Unit Feature 21 - Evap and Water-Cooled Condenser Continued

2 =*Bal Valves + SP Water Conn + Condenser Vestibule Elec Heater + Head Press Ctrl (WC)* - Options C + D + E + G
3 = *Bal Valves + SP Water Conn + Mtr Shutoff Valve + Head Press Ctrl (WC)* - Options C + D + F + G
4 = *Bal Valves + Condenser Vestibule Elec Heater + Mtr Shutoff Valve + Head Press Ctrl (WC)* - Options C + E + F + G
5 = *Bal Valves + SP Wtr Conn + Condenser Vestibule Elec Heater + Mtr Shutoff Valve + Head Press Ctrl (WC)* - Options C + D + E + F + G

Unit Feature Option 22 - Control Vendors

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB**0**B

***0 =** *Standard* - No controls or controls by others
***A** = *WattMaster* - AAON supplied controller (Feature 13) manufacturer standard controller. Option requires selection of operator interface in AAON ECat to set up controller. See Controls section and unit specific Controller Components worksheet in AAONEcat32 for more information.
***C** = *WattMaster w/ Specials* - AAON supplied controller (Feature 13) manufacturer standard controller with additional features for controller. Use AAON ECat to select these features. Option requires selection of operator interface in AAON ECat to set up controller. See Controls section and unit specific Controller Components worksheet in AAONEcat32 for more information.
E = *MCS Controls* - Micro Control Systems (MCS) Magnum controller which maintains the temperature setpoint. PC with MCS-Connect software connected to the controller via RS-232 or Ethernet can also be used for unit configuration, setpoint adjustment, sensor status viewing, unit alarm view, and occupancy scheduling. See Controls section and unit specific Controller Components worksheet in AAONEcat32 for more information.
F = *MCS Controls w/diagnostics* - MCS Magnum controller with a diagnostics package of suction, discharge and liquid pressure transducers, temperature sensors that monitor compressor performance and current sensors that confirm mode of operation.
G = *MCS Controls w/modem* - MCS Magnum controller with a 56K modem which can allow MCS, AAON or customer to remotely communicate with the unit. This option can reduce field diagnostic time and allow field update of the unit program.
H = *MCS Controls w/diagnostics and modem* - MCS Magnum controller with a diagnostics package of suction, discharge and liquid pressure transducers, temperature sensors that monitor compressor performance and current sensors that confirm mode of operation. This option also includes a 56K modem which can allow MCS, AAON or customer to remotely communicate with the unit. This option can reduce field diagnostic time and allow field update of the unit program.

Unit Feature 22 – Control Vendors Continued

J = *MCS Controls w/diagnostics and touchscreen* - Option F + Full color 15" 1024x768 pixel touchscreen interface included within the control compartment for unit configuration, setpoint adjustment, sensor status viewing, unit alarm view and occupancy scheduling. Graphical user interface allows for easy monitoring and troubleshooting of the rooftop unit. Unit, controls, compressor and VFD literature can be viewed from the touchscreen.
K = *MCS Controls w/diagnostics, touchscreen, modem* - Option H + Full color 15" 1024x768 pixel touchscreen interface included within the control compartment for unit configuration, setpoint adjustment, sensor status viewing, unit alarm view and occupancy scheduling. Graphical user interface allows for easy monitoring and troubleshooting of the rooftop unit. Unit, controls, compressor and VFD literature can be viewed from the touchscreen.
L = *MCS Controls w/BACnet IP,Modbus, N2* - Option E + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
M = *MCS w/BACnet IP, Modbus, N2, diagnostics* - Option F + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
N = *MCS w/BACnet IP, Modbus, N2, modem* - Option G + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
P = *MCS w/BACnet IP, Modbus, N2, diagnostics, modem* - Option H + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
Q = *MCS w/BACnet IP, Modbus, N2, diagnostics, touchscreen* - Option J + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
R = *MCS w/BACnet IP, Modbus, N2, diagnostics, touchscreen, modem* - Option K + Ethernet communications port for end user interfacing via the BACnet IP and Modbus IP protocols and EIA-485 communications port for end user interfacing via the Modbus RTU and N2 protocols.
S = *MCS w/BACnet MSTP* - Option E + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
T = *MCS w/BACnet MSTP, diagnostics* - Option F + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
U = *MCS w/BACnet MSTP, modem* - Option G + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
V = *MCS w/BACnet MSTP, diagnostics, modem* - Option H + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
W = *MCS w/BACnet MSTP, diagnostics, touchscreen* - Option J + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
Y = *MCS w/BACnet MSTP, diagnostics, touchscreen, modem* - Option K + Adapter EIA-485 communications port for end user interfacing via the BACnet MS/TP protocol.
Z = *MCS w/Lontalk* - Option E + Adapter communications port for end user interfacing via the LonTalk protocol.
1 = *MCS w/Lontalk, diagnostics* - Option F + Adapter communications port for end user interfacing via the LonTalk protocol.

Unit Feature 22 – Control Vendors Continued

2 = *MCS w/Lontalk, modem* - Option G + Adapter communications port for end user interfacing via the LonTalk protocol.
3 = *MCS w/Lontalk, diagnostics, modem* - Option H + Adapter communications port for end user interfacing via the LonTalk protocol.
4 = *MCS w/Lontalk, diagnostics, touchscreen* - Option J + Adapter communications port for end user interfacing via the LonTalk protocol.
5 = *MCS w/Lontalk, diagnostics, touchscreen, modem* - Option K + Adapter communications port for end user interfacing via the LonTalk protocol.

Unit Feature Option 23 - Type

Example: RL-100-3-0-BE06-352:BEBE-D00-QFY-P0A-0DBB000-00-0BB00AB0**B**

B = *Standard (Gray Paint)* - Cabinet exterior is primer washed then spray coated with a two-part polyurethane, heat-baked coating. Polyurethane coating exceeds 2500 hours when tested under ASTM B 117-95 requirements.
U = *Special Price Authorization + Special Paint* - When a special paint color is specified, a set-up charge and price add per unit is required. Also use this designation if other special paint options are necessary. The Special Pricing Authorization worksheet with comprehensive explanation of requirements must accompany the order documents.
X = *Special Price Authorization + Gray Paint* - The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

General Data
Unit Information

Table 6 - A Cabinet Cooling

	Unit Size (Tons)				
	45	60		70	
Compressors					
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=B, C, R, S**	**A1=7, 8**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	4/9	4/11	2/25	2/11 & 2/15	1/25 & 1/32
Unit Capacity Steps (%)	100/50 or 100/75/50/25	100/50 or 100/75/50/25	100/50 or Variable	100/50 or 100/71/50/21	100/56 or Variable
Number of Circuits	2 or 4				
Low CFM DX Evaporator Coil					
Number/Size	1/47.5" x 89.5"	1/47.5" x 89.5"		1/20" x 90" and 1/27.5" x 90.0"	
Coil Face Area (ft^2)	29.69				
Rows/FPI	4 or 6/12				
High CFM DX Evaporator Coil					
Number/Size	2/30" x 90"	2/40" x 90"		1/35" x 90" and 1/45" x 90"	
Coil Face Area (ft^2)	37.50	50.00		50.00	
Rows/FPI	4 or 6/12				
Low CFM Chilled Water Coil					
Number/Size	1/50.0" x 84.5"				
Coil Face Area (ft^2)	29.34				
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				
High CFM Chilled Water Coil					
Number/Size	2/31.3" x 84.5"	2/41.3" x 84.5"			
Coil Face Area (ft^2)	36.68	48.41			
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				

Table 7 - A Cabinet Condenser

	Unit Size (Tons)		
	45	60	70
Evaporative-Cooled Condenser Pump			
Number/Motor hp	1/1		
Water-Cooled Condenser			
Min/Max GPM (4R/Low CFM Evap)	57.0/228.0	70.5/282.0	90.5/362.0
Min/Max GPM (6R/Low CFM Evap)	62.0/248.0	76.0/304.0	76.0/304.0
Min/Max GPM (4R/High CFM Evap)	64.0/256.0	86.5/346.0	99.0/396.0
Min/Max GPM (6R/High CFM Evap)	69.0/276.0	91.0/364.0	104.0/416.0

Table 8 - A Cabinet Heating

	Unit Size (Tons)		
	45	60	70
Electric Heat			
kW Capacity	40, 80, 120, 160, 200, 240		
Stages	2, 4, 8, 12		
Hot Water Coil			
Number/Size	Heat A - 1/60" x 75" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42.5"		
Rows/FPI	1 or 2/10 (Single or Half Serpentine)		
Steam Coil			
Number/Size	Heat A - 1/60" x 75" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42.5"		
Rows/FPI	1 or 2/10 (Single Serpentine)		
Steam Distributing Coil			
Number/Size	Heat A - 2/60" x 37.5" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42"		
Rows/FPI	1 or 2/10 (Single Serpentine)		
Outside Air Hot Water Preheat Coil			
Number/Size	Heat A, B, C, D - 1/32.5" x 88"		
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10		
Outside Air Steam Distributing Preheat Coil			
Size	Heat A, B, C, D - 1/31.5" x 88"		
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10		
4 ft Box Hot Water Preheat Coil			
Size	Heat A, B - 1/52.5" x 48" Heat B, C - 1/82.5" x 68"		
Rows/FPI	A, C - 1/10 B, D - 2/10		
4 ft Box Steam Distributing Preheat Coil			
Size	Heat A, B - 1/52.5" x 48" Heat B, C - 2/42" x 68"		
Rows/FPI	A, C - 1/10 B, D - 2/10		

Table 9 - A Cabinet Fans

	Unit Size (Tons)		
	45	60	70
Supply Fans			
Number/Type	1, 2, 3, or 4/Backward Curved (BC)		
CFM Range			
**High CFM Range*	7500-24300	10000-32500	11300-32500
**Low CFM Range*	7600-19300	12000-19300	16000-19300
Condenser Fans			
Air-Cooled			
Number/Size/Type	2/36”/Axial Flow		
hp (each fan)	2	3	
Evaporative-Cooled			
Number/Size	1/36”/Axial Flow		2/36”/Axial Flow
hp (each fan)	2		
Exhaust Fans			
Number/Size/Type	1 or 2/36”, 42” or 48”/Axial Flow		
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50		
CFM Range	2000-70100		
Return Fans			
Number/Size/Type	1 or 2/36”, 42”, or 48”/Axial Flow or 1 or 2/30”, 33”, 36.5”, or 42.5”/BC		
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50		
CFM Range	2000-70400		

*CFM values may be attainable outside this range, check AAON ECat for availability

Table 10 - B Cabinet Cooling

	Unit Size (Tons)				
	75		90	95	
Compressor(s)					
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=D, E**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	4/15	2/32	1/90	2/15 & 2/24	2/25 & 1/32
Unit Capacity Steps (%)	100/50 or 100/75/50/25	100/50 or Variable	Variable	100/50 or 100/75/50/25	100/70/39 or Variable
Number of Circuits	2 or 4				
Low CFM DX Evaporator Coil					
Number/Size	2/27.5" x 90.0"		1/30" x 90" and 1/40" x 90"		
Coil Face Area (ft^2)	34.38		43.75		
Rows/FPI	4 or 6/12				
High CFM DX Evaporator Coil					
Number/Size	2/42.5" x 90.0"		1/47.5" x 89.8" and 1/37.5" x 90.0"		
Coil Face Area (ft^2)	53.13				
Rows/FPI	4 or 6/12				
Low CFM Chilled Water Coil					
Number/Size	1/57.5" x 84.5"		2/36.3" x 84.5"		
Coil Face Area (ft^2)	33.74		42.54		
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				
High CFM Chilled Water Coil					
Number/Size	2/42.5" x 84.5"				
Coil Face Area (ft^2)	49.88				
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				

Table 11 - B Cabinet Condenser

	Unit Size (Tons)		
	75	90	95
Evaporative-Cooled Condenser Pump			
Number/Motor hp	1/1.5		
Water-Cooled Condenser			
Min/Max GPM (4R/Low CFM Evap)	95/380	135/538	
Min/Max GPM (6R/Low CFM Evap)	102/408	134/534	
Min/Max GPM (4R/High CFM Evap)	107/426	141/564	
Min/Max GPM (6R/High CFM Evap)	114/456	125/500	

Table 12 - B Cabinet Heating

	Unit Size (Tons)		
	75	90	95
Electric Heat			
kW Capacity	40, 80, 120, 160, 200, 240		
Stages	2, 4, 8, 12		
Hot Water Coil			
Number/Size	Heat A - 1/60" x 75" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42.5"		
Rows/FPI	1 or 2/10 (Single or Half Serpentine)		
Steam Coil			
Number/Size	Heat A - 1/60" x 75" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42.5"		
Rows/FPI	1 or 2/10 (Single Serpentine)		
Steam Distributing Coil			
Number/Size	Heat A - 2/60" x 37.5" Heat B - 1/60" x 60" Heat C - 1/48" x 52.5" Heat D - 1/36" x 42"		
Rows/FPI	1 or 2/10 (Single Serpentine)		
Outside Air Hot Water Preheat Coil			
Number/Size	Heat A, B, C, D - 1/32.5" x 88"		
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10		
Outside Air Steam Distributing Preheat Coil			
Size	Heat A, B, C, D - 31.5" x 88"		
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10		
4 ft Box Hot Water Preheat Coil			
Size	Heat A, B - 1/52.5" x 48" Heat C, D - 1/82.5" x 68"		
Rows/FPI	A, C - 1/10 B, D - 2/10		
4 ft Box Steam Distributing Preheat Coil			
Size	Heat A, B - 1/52.5" x 48" Heat C, D - 2/42" x 68"		
Rows/FPI	A, C - 1/10 B, D - 2/10		

Table 13 - B Cabinet Fans

	Unit Size (Tons)		
	75	90	95
Supply Fans			
Number/Type	1, 2, 3, or 4/ Backward Curved (BC)		
CFM Range			
**High CFM Range*	12700-34500	20400-34500	
**Low CFM Range*	16100-22700	22300-22700	
Condenser Fans			
Air-Cooled			
Number/Size/Type	3/36”/Axial Flow	4/36”/Axial Flow	
hp (each fan)	3		
Evaporative-Cooled			
Number/Size	2/36”/Axial Flow		
hp (each fan)	2	3	
Exhaust Fans			
Number/Size/Type	1 or 2/36”, 42” or 48”/Axial Flow		
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50		
CFM Range	2000-70100		
Return Fans			
Number/Size/Type	1 or 2/36”, 42”, or 48”/Axial Flow or 1 or 2/30”, 33”, 36.5”, or 42.5”/BC		
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50		
CFM Range	2000-70400		

*CFM values may be attainable outside this range, check AAON ECat for availability

Table 14 - C Cabinet Cooling

	Unit Size (Tons)			
	100		110	
Compressor(s)				
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	2/11 & 4/15	1/25 & 2/32	6/15	3/32
Unit Capacity Steps (%)	100/50, 100/63/32, 100/82/63/32, or 100/82/63/50/32/13	100/64/28 or Variable	100/50, 100/67/33, 100/83/67/33, or 100/83/67/50/33/17	100/67/33, or Variable
Number of Circuits	3			
Low CFM DX Evaporator Coil				
Number/Size	3/27.5" x 90.0"			
Coil Face Area (ft^2)	51.56			
Rows/FPI	4 or 6/12			
High CFM DX Evaporator Coil				
Number/Size	3/35.0" x 90.0"			
Coil Face Area (ft^2)	65.63			
Rows/FPI	4 or 6/12			
Low CFM Chilled Water Coil				
Number/Size	2/42.5" x 84.5"			
Coil Face Area (ft^2)	49.88			
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			
High CFM Chilled Water Coil				
Number/Size	3/36.3" x 84.5"			
Coil Face Area (ft^2)	63.82			
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			

Table 15 - C Cabinet Cooling Continued

	Unit Size (Tons)				
	120	125		135	
Compressor(s)					
Available Cooling Style Designations	**A1=D, E**	**A1=B, C, R, S**	**A1=7, 8**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	1/120	4/15 & 2/24	2/32 & 2/25	2/11 & 4/24	5/25
Unit Capacity Steps (%)					
Dual Circuited	Variable	100/50, 100/64/28, 100/78/64/28, or 100/78/64/ 50/28/14	100/78/56/ 28, or Variable	100/50, 100/59/30, 100/80/59/30, or 100/80/59/ 50/30/9	100/80/60/ 40/20
Number of Circuits	3				
Low CFM DX Evaporator Coil					
Number/Size	2/25.0" x 90.0" and 1/32.5" x 90.0"			2/32.5" x 90.0" and 1/17.5" x 90.0"	
Coil Face Area (ft^2)	51.56				
Rows/FPI	4 or 6/12				
High CFM DX Evaporator Coil					
Number/Size	2/35.0" x 90.0" and 1/45.0" x 90.0"			2/45".0 x 90.0" and 1/25.0" x 90.0"	
Coil Face Area (ft^2)	71.88				
Rows/FPI	4 or 6/12				
Low CFM Chilled Water Coil					
Number/Size	2/42.5" x 84.5"				
Coil Face Area (ft^2)	49.88				
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				
High CFM Chilled Water Coil					
Number/Size	2/36.3" x 84.5" or 1/42.5" x 84.5"				
Coil Face Area (ft^2)	66.02				
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)				

Table 16 - C Cabinet Condenser

	Unit Size (Tons)				
	100	110	120	125	135
Evaporative-Cooled Condenser Pump					
Number/Motor hp	1/3				
Water-Cooled Condenser					
Min/Max GPM (4R/Low CFM Evap)	135/538	141/564	166/662		184/734
Min/Max GPM (6R/Low CFM Evap)	144/576	152/608	179/716		198/792
Min/Max GPM (4R/High CFM Evap)	144/576	151/604	175/698		188/752
Min/Max GPM (6R/High CFM Evap)	154/614	163/650	188/750		203/812

Table 17 - C Cabinet Heating

	Unit Size (Tons)				
	100	110	120	125	135
Electric Heat					
kW Capacity	40, 80, 120, 160, 200, 240				
Stages	2, 4, 8, 12				
Hot Water Coil					
Number/Size	Heat A - 1/68" x 82.5" Heat B - 1/60" x 82" Heat C - 1/60" x 60" Heat D - 1/48" x 52.5"				
Rows/FPI	1 or 2/10 (Single or Half Serpentine)				
Steam Coil					
Number/Size	Heat A - 1/68" x 82.5" Heat B - 1/60" x 82" Heat C - 1/60" x 60" Heat D - 1/48" x 52.5"				
Rows/FPI	1 or 2/10 (Single Serpentine)				
Steam Distributing Coil					
Number/Size	Heat A - 2/68" x 42" Heat B - 2/60" x 42" Heat C - 1/60" x 60" Heat D - 1/48" x 52.5"				
Rows/FPI	1 or 2/10 (Single Serpentine)				
Outside Air Hot Water Preheat Coil					
Number/Size	Heat A, B, C, D - 1/32.5 x 88.0"				
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10				
Outside Air Steam Distributing Preheat Coil					
Size	Heat A, B, C, D - 1/31.5" x 88.0"				
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10				
4 ft Box Hot Water Preheat Coil					
Size	Heat A, B - 1/52.5" x 48" Heat C, D - 1/82.5" x 68"				
Rows/FPI	A, C - 1/10 B, D - 2/10				
4 ft Box Steam Distributing Preheat Coil					
Size	Heat A, B - 1/52.5" x 48" Heat C, D - 2/42" x 68"				
Rows/FPI	A, C - 1/10 B, D - 2/10				

Table 18 - C Cabinet Fans

	Unit Size (Tons)				
	100	110	120	125	135
Supply Fans					
Number/Type	1, 2, 3, or 4/Backward Curved (BC)				
CFM Range					
**High CFM Range*	20600-42600	20500-42600	29600-46700		29500-44200
**Low CFM Range*	23800-33500	23500-33500	33500-36500		33100-33500
Condenser Fans					
Air-Cooled					
Number/Size/Type	4/36”/Axial Flow		4/42”/Axial Flow		
hp (each fan)	3		5		
Evaporative-Cooled					
Number/Size	2/36”/Axial Flow				
hp (each fan)	3				
Exhaust Fans					
Number/Size/Type	1 or 2/36”, 42” or 48”/Axial Flow				
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50				
CFM Range	2000-70100				
Return Fans					
Number/Size/Type	1 or 2/36”, 42”, or 48”/Axial Flow or 1 or 2/30”, 33”, 36.5”, or 42.5”/BC				
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50				
CFM Range	2000-70400				

*CFM values may be attainable outside this range, check AAON ECat for availability

Table 19 - D Cabinet Cooling

	Unit Size (Tons)		
	134		150
Compressor(s)			
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=D, E**
Number/Nominal Tons	4/15 and 2/24	2/32 & 2/25	1/150
Unit Capacity Steps (%)			
Dual Circuited	100/50, 100/64/28, 100/78/64/28, or 100/78/64/ 50/28/14	100/78/56/28, or Variable	Variable
Number of Circuits	3		
Low CFM DX Evaporator Coil			
Number/Size	4/20" x 62.5" and 2/27.5" x 62.5"		
Coil Face Area (ft^2)	58.59		65.10
Rows/FPI	4 or 6/12		
High CFM DX Evaporator Coil			
Number/Size	4/22.5" x 80" and 2/28.75" x 80"		
Coil Face Area (ft^2)	81.94		88.89
Rows/FPI	4 or 6/12		
Low CFM Chilled Water Coil			
Number/Size	4/36.25" x 57"		4/40" x 57"
Coil Face Area (ft^2)	59.41		65.56
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)		
High CFM Chilled Water Coil			
Number/Size	4/40" x 73"		4/42.5" x 73"
Coil Face Area (ft^2)	81.11		86.18
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)		

Table 20 - D Cabinet Cooling Continued

	Unit Size (Tons)			
	155		170	
Compressor(s)				
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	2/15 and 4/24	1/32 & 4/25	6/24	6/25
Unit Capacity Steps (%)	100/50, 100/62/31, 100/81/62/31, or 100/81/62/ 50/31/12	100/81/62/43/24 or Variable	100/50, 100/67/33, 100/83/67/33, or 100/83/67/ 50/33/17	100/83/67/ 50/33/17 or Variable
Number of Circuits	3			
Low CFM DX Evaporator Coil				
Number/Size	4/20” x 62.5” and 2/27.5” x 62.5”		6/27.5” x 62.5”	
Coil Face Area (ft^2)	65.10		71.61	
Rows/FPI	4 or 6/12			
High CFM DX Evaporator Coil				
Number/Size	4/22.5” x 80” and 2/28.75” x 80”		6/28.75” x 80”	
Coil Face Area (ft^2)	88.89		95.83	
Rows/FPI	4 or 6/12			
Low CFM Chilled Water Coil				
Number/Size	4/40” x 57”		4/42.5” x 57”	
Coil Face Area (ft^2)	65.56		71.70	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			
High CFM Chilled Water Coil				
Number/Size	4/42.5” x 73”		4/43.8” x 73”	
Coil Face Area (ft^2)	86.18		88.72	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			

Table 21 - D Cabinet Condenser

	Unit Size (Tons)			
	134	150	155	170
Evaporative-Cooled Condenser Pump				
Number/Motor hp	1/5			
Water-Cooled Condenser				
Min/Max GPM (4R/Low CFM Evap)	169/674	193/770		216/862
Min/Max GPM (6R/Low CFM Evap)	181/722	208/832		235/938
Min/Max GPM (4R/High CFM Evap)	187/746	215/858		242/966
Min/Max GPM (6R/High CFM Evap)	199/796	228/910		256/1024

Table 22 - D Cabinet Heating

	Unit Size (Tons)			
	134	150	155	170
Electric Heat				
kW Capacity	40, 80, 120, 160, 240, 320, 400, 480			
Stages	2, 4, 8, 12			
Hot Water Coil				
Number/Size	Heat A - 2/56" x 75" Heat B - 2/48" x 65" Heat C - 1/56" x 75" Heat D - 1/48" x 52.5"			
Rows/FPI	1 or 2/10 (Single or Half Serpentine)			
Steam Coil				
Number/Size	Heat A - 2/56" x 75" Heat B - 2/48" x 65" Heat C - 1/56" x 75" Heat D - 1/48" x 52.5"			
Rows/FPI	1 or 2/10 (Single Serpentine)			
Steam Distributing Coil				
Number/Size	Heat A - 4/56" x 37.5" Heat B - 2/48" x 66" Heat C - 2/56" x 37.5" Heat D - 1/48" x 52.5"			
Rows/FPI	1 or 2/10 (Single Serpentine)			
Outside Air Hot Water Preheat Coil				
Number/Size	Heat A, B, C, D - 2/32" x 63"			
Rows/FPI	A -1/6, B - 1/10, C - 2/6, D - 2/10			
Outside Air Steam Distributing Preheat Coil				
Size	Heat A, B, C, D - 2/32" x 63"			
Rows/FPI	A -1/6, B - 1/10, C - 2/6, D - 2/10			
4 ft Box Hot Water Preheat Coil				
Size	Heat A, B - 2/65" x 48" Heat C - 1/75" x 56" Heat D - 82.5" x 68"			
Rows/FPI	A, C - 1/10 B, D - 2/10			
4 ft Box Steam Distributing Preheat Coil				
Size	Heat A, B - 2/66" x 48" Heat C, D - 1/37.5" x 56"			
Rows/FPI	A, C - 1/10 B, D - 2/10			

Table 23 - D Cabinet Fans

	Unit Size (Tons)			
	134	150	155	170
Supply Fans				
Number/Type	1, 2, 3, or 4/Backward Curved (BC)			
CFM Range				
**High CFM Range*	27300-51400	30200-56400		32400-61300
**Low CFM Range*	31800-38000	36300-42300		39600-46500
Condenser Fans				
Air-Cooled				
Number/Size/Type	5/36”/Axial Flow	4/42”/Axial Flow and 1/36”/Axial Flow		4/42”/Axial Flow and 2/36”/Axial Flow
hp (each fan)	3	36” - 3, 42” - 5		
Evaporative-Cooled				
Number/Size	2/36”/Axial Flow	3/36”/Axial Flow		
hp (each fan)	3			
Exhaust Fans				
Number/Size/Type	1 or 2/36”, 42” or 48”/Axial Flow			
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50			
CFM Range	2000-70100			
Return Fans				
Number/Size/Type	1 or 2/36”, 42”, or 48”/Axial Flow or 1 or 2/30”, 33”, 36.5”, or 42.5”/BC			
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50			
CFM Range	2000-70400			

*CFM values may be attainable outside this range, check AAON ECat for availability

Table 24 - E Cabinet Cooling Continued

	Unit Size (Tons)	
	180	181
Compressor(s)		
Available Cooling Style Designations	**A1=D, E**	**A1=D, E**
Number/Nominal Tons	1/180	2/90
Unit Capacity Steps (%)	Variable	Variable
Number of Circuits	4	
Low CFM DX Evaporator Coil		
Number/Size	2/35” x 79.5” and 2/43.75” x 79.5”	
Coil Face Area (ft^2)	86.95	
Rows/FPI	4 or 6/12	
High CFM DX Evaporator Coil		
Number/Size	2/35” x 100” and 2/43.74” x 100”	
Coil Face Area (ft^2)	109.38	
Rows/FPI	4 or 6/12	
Low CFM Chilled Water Coil		
Number/Size	4/40.0” x 73.0”	
Coil Face Area (ft^2)	81.11	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)	
High CFM Chilled Water Coil		
Number/Size	4/40.0” x 92.0”	
Coil Face Area (ft^2)	102.22	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)	

Table 25 - E Cabinet Condenser

	Unit Size (Tons)	
	180	181
Evaporative-Cooled Condenser Pump		
Number/Motor hp	1/5	
Water Cooled Condenser		
Min/Max GPM (4R/Low CFM Evap)	242/966	
Min/Max GPM (6R/Low CFM Evap)	261/1044	
Min/Max GPM (4R/High CFM Evap)	270/1078	
Min/Max GPM (6R/High CFM Evap)	285/1138	

Table 26 - E Cabinet Heating

	Unit Size (Tons)	
	180	181
Electric Heat		
kW Capacity	40, 80, 120, 160, 240, 320, 400, 480	
Stages	2, 4, 8, 12	
Hot Water Coil		
Number/Size	Heat A - 2/56” x 85” Heat B - 2/56” x 75” Heat C - 2/48” x 65” Heat D - 1/60” x 60”	
Rows/FPI	1 or 2/10 (Single or Half Serpentine)	
Steam Coil		
Number/Size	Heat A - 2/56” x 85” Heat B - 2/56” x 75” Heat C - 2/48” x 65” Heat D - 1/60” x 60”	
Rows/FPI	1 or 2/10 (Single Serpentine)	
Steam Distributing Coil		
Number/Size	Heat A - 4/56” x 42” Heat B - 4/56” x 37.5” Heat C - 2/48” x 66” Heat D - 1/60” x 60”	
Rows/FPI	1 or 2/10 (Single Serpentine)	
Outside Air Hot Water Preheat Coil		
Number/Size	Heat A, B, C, D - 2/32.5” x 63”	
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10	
Outside Air Steam Distributing Preheat Coil		
Size	Heat A, B, C, D - 2/31.5” x 63”	
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10	
4 ft Box Hot Water Preheat Coil		
Size	Heat A, B - 2/65” x 48” Heat C - 2/75” x 56” Heat D - 1/82.5” x 68”	
Rows/FPI	A, C - 1/10 B, D - 2/10	
4 ft Box Steam Distributing Preheat Coil		
Size	Heat A, B - 2/66” x 48” Heat C, D - 4/37.5” x 56”	
Rows/FPI	A, C - 1/10 B, D - 2/10	

Table 27 - E Cabinet Fans

	Unit Size (Tons)	
	180	181
Supply Fans		
Number/Type	1, 2, 3, or 4/Backward Curved (BC)	
CFM Range		
**High CFM Range*	41400-71900	
**Low CFM Range*	48800-53600	
Condenser Fans		
Air-Cooled		
Number/Size/Type	4/36”/Axial Flow and 2/42”/Axial Flow	
hp (each fan)	36”- 3, 42” - 7.5	
Evaporative-Cooled		
Number/Size	4/36”/Axial Flow	
hp (each fan)	3	
Exhaust Fans		
Number/Size/Type	1 or 2/36”, 42” or 48”/Axial Flow	
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50	
CFM Range	2000-70100	
Return Fans		
Number/Size/Type	1 or 2/36”, 42”, or 48”/Axial Flow or 1 or 2/30”, 33”, 36.5”, or 42.5”/BC	
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50	
CFM Range	2000-70400	

*CFM values may be attainable outside this range, check AAON ECat for availability

Table 28 - E Cabinet Cooling Continued

	Unit Size (Tons)			
	190		210	
Compressor(s)				
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=B, C, R, S**	**A1=7, 8**
Number/Nominal Tons	4/15 and 4/24	2/32 and 4/25	2/15 and 6/24	1/32 and 6/25
Unit Capacity Steps (%)	100/50, 100/69/50/19, or 100/85/69/60/ 50/35/19/10	100/85/70/54/39/20 or Variable	100/50, 100/72/50/22, or 100/86/72/59/ 50/36/22/9	100/86/73/59/45/31/18 or Variable
Number of Circuits	4			
Low CFM DX Evaporator Coil				
Number/Size	2/35” x 79.5” and 2/43.75” x 79.5”		1/35” x 79.5” and 3/43.75 x 79.5”	
Coil Face Area (ft^2)	88.67		91.11	
Rows/FPI	4 or 6/12			
High CFM DX Evaporator Coil				
Number/Size	2/35” x 100” and 2/43.74” x 100”		1/35.0” x 100.0” and 3/43.8” x 100.0”	
Coil Face Area (ft^2)	107.64		112.85	
Rows/FPI	4 or 6/12			
Low CFM Chilled Water Coil				
Number/Size	4/40.0” x 73.0”		4/42.5” x 73.0”	
Coil Face Area (ft^2)	81.11		86.18	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			
High CFM Chilled Water Coil				
Number/Size	4/40.0” x 92.0”		4/42.5” x 92.0”	
Coil Face Area (ft^2)	102.22		108.61	
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)			

Table 29 - E Cabinet Cooling

	Unit Size (Tons)		
	230		240
Compressor(s)			
Available Cooling Style Designations	**A1=B, C, R, S**	**A1=7, 8**	**A1=D, E**
Number/Nominal Tons	8/24	8/25	2/120
Unit Capacity Steps (%)	100/50, 100/75/50/25, or 100/88/75/63/ 50/38/25/13	100/88/75/63/ 50/38/25/13 or Variable	Variable
Number of Circuits	4		
Low CFM DX Evaporator Coil			
Number/Size	4/43.75" x 79.5"		
Coil Face Area (ft^2)	95.56		
Rows/FPI	4 or 6/12		
High CFM DX Evaporator Coil			
Number/Size	4/43.75" x 100"		
Coil Face Area (ft^2)	118.06		
Rows/FPI	4 or 6/12		
Low CFM Chilled Water Coil			
Number/Size	4/43.8" x 73"		
Coil Face Area (ft^2)	88.72		
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)		
High CFM Chilled Water Coil			
Number/Size	4/43.8" x 92"		
Coil Face Area (ft^2)	111.81		
Rows/FPI	4, 6, or 8/10 or 12 (Single or Half Serpentine)		

Table 30 - E Cabinet Condenser

	Unit Size (Tons)			
	190	210	230	240
Evaporative-Cooled Condenser Pump				
Number/Motor hp	1/5			
Water Cooled Condenser				
Min/Max GPM (4R/Low CFM Evap)	242/966	264/1056	288/1150	
Min/Max GPM (6R/Low CFM Evap)	261/1044	286/1144	313/1252	
Min/Max GPM (4R/High CFM Evap)	270/1078	295/1180	322/1286	
Min/Max GPM (6R/High CFM Evap)	285/1138	313/1252	342/1366	

Table 31 - E Cabinet Heating

	Unit Size (Tons)			
	190	210	230	240
Electric Heat				
kW Capacity	40, 80, 120, 160, 240, 320, 400, 480			
Stages	2, 4, 8, 12			
Hot Water Coil				
Number/Size	Heat A - 2/56" x 85" Heat B - 2/56" x 75" Heat C - 2/48" x 65" Heat D - 1/60" x 60"			
Rows/FPI	1 or 2/10 (Single or Half Serpentine)			
Steam Coil				
Number/Size	Heat A - 2/56" x 85" Heat B - 2/56" x 75" Heat C - 2/48" x 65" Heat D - 1/60" x 60"			
Rows/FPI	1 or 2/10 (Single Serpentine)			
Steam Distributing Coil				
Number/Size	Heat A - 4/56" x 42" Heat B - 4/56" x 37.5" Heat C - 2/48" x 66" Heat D - 1/60" x 60"			
Rows/FPI	1 or 2/10 (Single Serpentine)			
Outside Air Hot Water Preheat Coil				
Number/Size	Heat A, B, C, D - 2/32.5" x 63"			
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10			
Outside Air Steam Distributing Preheat Coil				
Size	Heat A, B, C, D - 2/31.5" x 63"			
Rows/FPI	A - 1/6, B - 1/10, C - 2/6, D - 2/10			
4 ft Box Hot Water Preheat Coil				
Size	Heat A, B - 2/65" x 48" Heat C - 2/75" x 56" Heat D - 1/82.5" x 68"			
Rows/FPI	A, C - 1/10 B, D - 2/10			
4 ft Box Steam Distributing Preheat Coil				
Size	Heat A, B - 2/66" x 48" Heat C, D - 4/37.5" x 56"			
Rows/FPI	A, C - 1/10 B, D - 2/10			

Table 32 - E Cabinet Fans

	Unit Size (Tons)			
	190	210	230	240
Supply Fans				
Number/Type	1, 2, 3, or 4/Backward Curved (BC)			
CFM Range				
**High CFM Range*	41400-71900	43300-76800	45100-81800	
**Low CFM Range*	48800-53600	51000-57800	53100-62000	
Condenser Fans				
Air-Cooled				
Number/Size/Type	4/36"/Axial Flow and 2/42"/Axial Flow		2/36"/Axial Flow and 4/42"/Axial Flow	
hp (each fan)	36"- 3, 42" - 7.5			
Evaporative-Cooled				
Number/Size	4/36"/Axial Flow			
hp (each fan)	3			
Exhaust Fans				
Number/Size/Type	1 or 2/36", 42" or 48"/Axial Flow			
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50			
CFM Range	2000-70100			
Return Fans				
Number/Size/Type	1 or 2/36", 42", or 48"/Axial Flow or 1 or 2/30", 33", 36.5", or 42.5"/BC			
hp Range	3.0, 5.0, 7.5, 10, 15, 20, 25, 30 40, 50			
CFM Range	2000-70400			

*CFM values may be attainable outside this range, check AAON ECat for availability

Gas Heat Information

For unit specific heating performance, refer to the AAON ECat software.

Table 33 - 45-125 and 135 Tons (0-100°F Temp Rise), Natural Gas Heating Type

Model Option B2	Number of		Minimum Heat Available		Maximum Heat Available		Turndown Ratio (Up to)
	Heaters	Stages	Input (Btu)	Output (Btu)	Input (Btu)	Output (Btu)	
1 = *Heat 1*	2	2	301000	255850	430000	352600	2.4:1
2 = *Heat 2*	4	2, 4	602000	511700	860000	705200	5.1:1
3 = *Heat 3*	6	2, 4	903000	767550	1290000	1057800	7.9:1
4 = *Heat 4*	8	2, 4, 8	1204000	1023400	1720000	1410400	10.7:1
5 = *Heat 5*	10	2, 4, 8	1505000	1279250	2150000	1763000	13.4:1
6 = *Heat 6*	12	2, 4, 8, 12	1806000	1535100	2580000	2115600	16.2:1

Table 34 - 134 and 150-240 Tons (0-50°F Temp Rise), Natural Gas Heating Type

Model Option B2	Number of		Minimum Heat Available		Maximum Heat Available		Turndown Ratio (Up to)
	Heaters	Stages	Input (Btu)	Output (Btu)	Input (Btu)	Output (Btu)	
1 = *Heat 1*	2	2	399000	339150	570000	467400	2.4:1
2 = *Heat 2*	4	2, 4	798000	678300	1140000	934800	5.1:1
3 = *Heat 3*	6	2, 4	1197000	1017450	1710000	1402200	7.9:1
4 = *Heat 4*	8	2, 4, 8	1596000	1356600	2280000	1869600	10.7:1
5 = *Heat 5*	10	2, 4, 8	1995000	1695750	2850000	2337000	13.4:1
6 = *Heat 6*	12	2, 4, 8, 12	2394000	2034900	3420000	2804400	16.2:1

Table 35 - 134 and 150-240 Tons (51-68°F Temp Rise), Natural Gas Heating Type

Model Option B2	Number of		Minimum Heat Available		Maximum Heat Available		Turndown Ratio (Up to)
	Heaters	Stages	Input (Btu)	Output (Btu)	Input (Btu)	Output (Btu)	
1 = *Heat 1*	2	2	371000	315350	530000	434600	2.4:1
2 = *Heat 2*	4	2, 4	742000	630700	1060000	869200	5.1:1
3 = *Heat 3*	6	2, 4	1113000	946050	1590000	1303800	7.9:1
4 = *Heat 4*	8	2, 4, 8	1484000	1261400	2120000	1738400	10.7:1
5 = *Heat 5*	10	2, 4, 8	1855000	1576750	2650000	2173000	13.4:1
6 = *Heat 6*	12	2, 4, 8, 12	2226000	1892100	3180000	2607600	16.2:1

Table 36 - 134 and 150-240 Tons (69-86°F Temp Rise), Natural Gas Heating Type

Model Option B2	Number of		Minimum Heat Available		Maximum Heat Available		Turndown Ratio (Up to)
	Heaters	Stages	Input (Btu)	Output (Btu)	Input (Btu)	Output (Btu)	
1 = *Heat 1*	2	2	312200	265370	446000	365720	2.4:1
2 = *Heat 2*	4	2, 4	624400	530740	892000	731440	5.1:1
3 = *Heat 3*	6	2, 4	936600	796110	1338000	1097160	7.9:1
4 = *Heat 4*	8	2, 4, 8	1248800	1061480	1784000	1462880	10.7:1
5 = *Heat 5*	10	2, 4, 8	1561000	1326850	2230000	1828600	13.4:1
6 = *Heat 6*	12	2, 4, 8, 12	1873200	1592220	2676000	2194320	16.2:1

Table 37 - 134 and 150-240 Tons (87-100°F Temp Rise), Natural Gas Heating Type

Model Option B2	Number of		Minimum Heat Available		Maximum Heat Available		Turndown Ratio (Up to)
	Heaters	Stages	Input (Btu)	Output (Btu)	Input (Btu)	Output (Btu)	
1 = *Heat 1*	2	2	301000	255850	430000	352600	2.4:1
2 = *Heat 2*	4	2, 4	602000	511700	860000	705200	5.1:1
3 = *Heat 3*	6	2, 4	903000	767550	1290000	1057800	7.9:1
4 = *Heat 4*	8	2, 4, 8	1204000	1023400	1720000	1410400	10.7:1
5 = *Heat 5*	10	2, 4, 8	1505000	1279250	2150000	1763000	13.4:1
6 = *Heat 6*	12	2, 4, 8, 12	1806000	1535100	2580000	2115600	16.2:1

Filter Specifications

Table 38 - RL-045, RL-060, and RL-070 Standard Filters
Standard Position (Upstream of the Cooling Coils)

Feature 6A	Quantity / Size	Type Pre Filter
0	18 / 16” x 25”	2” Pleated, MERV 8
A	18 / 16” x 25”	4” Pleated, MERV 8
B	18 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 39 - RL-045, RL-060, and RL-070 Standard Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature 6A	Quantity / Size	Type Pre Filter
N	18 / 16” x 25”	2” Pleated, MERV 8
P	18 / 16” x 25”	4” Pleated, MERV 8
Q	18 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 40 - RL-075, RL-090, and RL-095 Standard Filters
Standard Position (Upstream of the Cooling Coils)

Feature 6A	Quantity / Size	Type Pre Filter
0	24 / 16” x 25”	2” Pleated, MERV 8
A	24 / 16” x 25”	4” Pleated, MERV 8
B	24 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 41 - RL-075, RL-090, and RL-095 Standard Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature 6A	Quantity / Size	Type Pre Filter
N	24 / 16” x 25”	2” Pleated, MERV 8
P	24 / 16” x 25”	4” Pleated, MERV 8
Q	24 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 42 - RL-100, RL-110, RL-120, RL-125, and RL-135 Standard Filters
Standard Position (Upstream of the Cooling Coils)

Feature 6A	Quantity / Size	Type Pre Filter
0	36 / 16” x 25”	2” Pleated, MERV 8
A	36 / 16” x 25”	4” Pleated, MERV 8
B	36 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 43 - RL-100, RL-110, RL-120, RL-125, and RL-135 Standard Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature 6A	Quantity / Size	Type Pre Filter
N	36 / 16” x 25”	2” Pleated, MERV 8
P	36 / 16” x 25”	4” Pleated, MERV 8
Q	36 / 16” x 25”	2” Permanent Filter Frame, Replaceable Media

Table 44 - RL-134, RL-150, RL-155, and RL-170 Standard Filters
Standard Position (Upstream of the Cooling Coils)

Feature 6A	Quantity / Size	Type Pre Filter
0	48 / 16” x 20”	2” Pleated, MERV 8
A	48 / 16” x 20”	4” Pleated, MERV 8
B	48 / 16” x 20”	2” Permanent Filter Frame, Replaceable Media

Table 45 - RL-134, RL-150, RL-155, and RL-170 Standard Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature 6A	Quantity / Size	Type Pre Filter
N	48 / 16” x 20”	2” Pleated, MERV 8
P	48 / 16” x 20”	4” Pleated, MERV 8
Q	48 / 16” x 20”	2” Permanent Filter Frame, Replaceable Media

Table 46 - RL-180, RL-181, RL-190, RL-210, RL-230, and RL-240 Standard Filters
Standard Position (Upstream of the Cooling Coils)

Feature 6A	Quantity / Size	Type Pre Filter
0	72 / 16” x 20”	2” Pleated, MERV 8
A	72 / 16” x 20”	4” Pleated, MERV 8
B	72 / 16” x 20”	2” Permanent Filter Frame, Replaceable Media

Table 47 - RL-180, RL-181, RL-190, RL-210, RL-230, and RL-240 Standard Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature 6A	Quantity / Size	Type Pre Filter
N	72 / 16” x 20”	2” Pleated, MERV 8
P	72 / 16” x 20”	4” Pleated, MERV 8
Q	72 / 16” x 20”	2” Permanent Filter Frame, Replaceable Media

Table 48 - RL-045 to RL-125 and RL-135 High Efficiency Cartridge Filters
Standard Position (Upstream of the Cooling Coils)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
C	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
D	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
C	P	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 11
D	P	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E	P	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14
F	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
G	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
H	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14
F	P	20 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 11
G	P	20 / 24” x 24”	4” Pleated, MERV 8	12”Cartridge, MERV 13
H	P	20 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 14

Table 49 - RL-045 to RL-125 and RL-135 High Efficiency Cartridge Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
R	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
S		12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
T		12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
R	P	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 11
S		20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
T		20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14
U	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
V		12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
W		12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14
U	P	20 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 11
V		20 / 24” x 24”	4” Pleated, MERV 8	12”Cartridge, MERV 13
W		20 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 14

Table 50 - RL-045 to RL-125 and RL-135 High Efficiency Bag Filters
Standard Position (Upstream of the Cooling Coils)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
J	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
K		12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
J	P	16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
K		16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
L	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 13
M		12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 14
L	P	16 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
M		16 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14

Table 51 - RL-045 to RL-125 and RL-135 High Efficiency Bag Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
Y	N	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
Z		12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
Y	P	16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
Z		16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
1	N	12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 13
2		12 / 24” x 24” 4 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 14
1	P	16 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
2		16 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14

Table 52 - RL-134 and RL-150 to RL-240 High Efficiency Cartridge Filters
Standard Position (Upstream of the Cooling Coils)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
C	N	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
D		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
C	P	25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 11
D		25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E		25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14
C	Q	24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
D		24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E		24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
F	N	15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
G		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
H		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14
F	P	25 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 11
G		25 / 24” x 24”	4” Pleated, MERV 8	12”Cartridge, MERV 13
H		25 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 14
F	Q	24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
G		24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
H		24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14

Table 53 - RL-134 and RL-150 to RL-240 High Efficiency Cartridge Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
R	N	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
S		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
T		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
R	P	25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 11
S		25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
T		25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14
R	Q	24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 11
S		24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
T		24 / 24” x 24” 8 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
U	N	15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
V		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
W		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14
U	P	25 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 11
V		25 / 24” x 24”	4” Pleated, MERV 8	12”Cartridge, MERV 13
W		25 / 24” x 24”	4” Pleated, MERV 8	12” Cartridge, MERV 14
U	Q	24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 11
V		24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
W		24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14

Table 54 - RL-134 and RL-150 to RL-240 High Efficiency Bag Filters
Standard Position (Upstream of the Cooling Coils)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
J	N	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
K		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
J	P	20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
K		20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
J	Q	25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
K		25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
L	N	15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 13
M		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 14
L	P	20 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
M		20 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14
L	Q	25 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
M		25 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14

Table 55 - RL-134 and RL-150 to RL-240 High Efficiency Bag Filters
Pre Position (Upstream of the Blow-Through Fans)

Feature		Quantity / Size	Type	
6A	6B		Pre Filter	High Efficiency Filter
Y	N	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
Z		15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
Y	P	20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
Z		20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
Y	Q	25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
Z		25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
1	N	15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 13
2		15 / 24” x 24” 5 / 24” x 20”	4” Pleated, MERV 8	30” Bag, MERV 14
1	P	20 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
2		20 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14
1	Q	25 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 13
2		25 / 24” x 24”	4” Pleated, MERV 8	30” Bag, MERV 14

Table 56 - RL-045 to RL-125 and RL-135 High Efficiency Cartridge Filters
Final Filter Position

Feature 6B	Quantity / Size	Type	
		Pre Filter	High Efficiency Filter
A	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
D	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
B	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E	20 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14

Table 57 - RL-045 to RL-125 and RL-135 High Efficiency Bag Filters
Final Filter Position

Feature 6B	Quantity / Size	Type	
		Pre Filter	High Efficiency Filter
G	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
K	12 / 24” x 24” 4 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
H	16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
L	16 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14

Table 58 - RL-134 and RL-150 to RL-240 High Efficiency Cartridge Filters
Final Filter Position

Feature 6B	Quantity / Size	Type	
		Pre Filter	High Efficiency Filter
A	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 13
D	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	12” Cartridge, MERV 14
B	25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 13
E	25 / 24” x 24”	2” Pleated, MERV 8	12” Cartridge, MERV 14
C	24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 13
F	24 / 24” x 24” 8 / 24” x 20”	4” Pleated, MERV 8	12” Cartridge, MERV 14

Table 59 - RL-134 and RL-150 to RL-240 High Efficiency Bag Filters
Final Filter Position

Feature 6B	Quantity / Size	Type	
		Pre Filter	High Efficiency Filter
G	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 13
K	15 / 24” x 24” 5 / 24” x 20”	2” Pleated, MERV 8	30” Bag, MERV 14
H	20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
L	20 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14
J	25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 13
M	25 / 24” x 24”	2” Pleated, MERV 8	30” Bag, MERV 14

Table 60 - RL-045 to RL-125 and RL-135 Energy Recovery Wheel Filters

Feature 1A	Quantity / Size	Type Pre Filter
D, H, Q, U	8 / 18” x 24”	4” Pleated, MERV 8
E, J, R, V	8 / 18” x 24”	
F, K, S, W	16 / 16” x 20”	

Table 61 - RL-134 and RL-150 to RL-240 Energy Recovery Wheel Filters

Feature 1A	Quantity / Size	Type Pre Filter
D, H, Q, U	6 / 20” x 25”	4” Pleated, MERV 8
E, J, R, V	8 / 20” x 25”	
F, K, S, W	14 / 20” x 24”	
G, L, T, Y	18 / 18” x 24”	

Component Static Pressure Drops

At Minimum, Median, and Maximum CFM

Table 62 - A Cabinet Cooling Static Pressure Drops
*95°F Ambient, 80°F EDB, 67°F EWB

Tonnage	CFM Range	CFM	4 Row Low CFM (in. w.g.)	6 Row Low CFM (in. w.g.)	4 Row High CFM (in. w.g.)	6 Row High CFM (in. w.g.)
45	Low CFM	7600	0.13	0.20	NA	
		13450	0.37	0.54		
		19300	0.69	1.03		
	High CFM	7500	NA		0.09	0.13
		15900			0.33	0.48
		24300			0.69	1.03
60	Low CFM	12000	0.31	0.46	NA	
		15650	0.49	0.73		
		19300	0.71	1.06		
	High CFM	10000	NA		0.09	0.13
		21250			0.33	0.50
		32500			0.71	1.06
70	Low CFM	16000	0.52	0.77	NA	
		17650	0.62	0.92		
		19300	0.72	1.07		
	High CFM	11300	NA		0.11	0.16
		21900			0.36	0.53
		32500			0.72	1.07

*Default outside air and entering air conditions, refer to the AAON ECat software for static pressure drops across the evaporator coil at specific unit conditions.

Table 63 - A Cabinet Gas Heating Static Pressure Drops

Tonnage	CFM	Gas Heat [MBH] (in. w.g.)					
		Heat 1 283.1	Heat 2 566.1	Heat 3 908.1	Heat 4 1308.5	Heat 5 1767.8	Heat 6 2403.3
45	7500	0.09	0.05	0.12			
	15900	0.19	0.10	0.07	0.19	0.16	
	24300	0.30	0.15	0.10	0.30	0.24	0.20
60	10000	0.12	0.06	0.04			
	21250	0.26	0.13	0.09	0.26	0.21	0.17
	32500	0.40	0.20	0.13	0.40	0.32	0.27
70	11300	0.14	0.07	0.05	0.14		
	21900	0.27	0.13	0.09	0.27	0.21	0.18
	32500	0.40	0.20	0.13	0.40	0.32	0.27

Table 64 - A Cabinet Electric Heating Static Pressure Drops

Tonnage	CFM	Electric Heat [kW] (in. w.g.)					
		Heat 1 40	Heat 2 80	Heat 3 120	Heat 4 160	Heat 5 200	Heat 6 240
45	7500	0.05	0.01	0.02	0.03	0.03	0.04
	15900	0.24	0.06	0.08	0.12	0.14	0.18
	24300	0.40	0.14	0.19	0.28	0.33	0.41
60	10000	0.09	0.02	0.03	0.05	0.06	0.07
	21250	0.40	0.11	0.15	0.21	0.26	0.32
	32500	0.40	0.25	0.34	0.49	0.60	0.74
70	11300	0.12	0.03	0.04	0.06	0.07	0.09
	21900	0.40	0.11	0.15	0.22	0.27	0.34
	32500	0.40	0.25	0.34	0.49	0.60	0.74

Table 65 - A Cabinet Medium Efficiency Filter Static Pressure Drops

Tonnage	CFM	2” Pleated (in. w.g.)	4” Pleated (in. w.g.)	2” Permanent (in. w.g.)
45	7500	0.04	0.04	0.03
	15900	0.12	0.10	0.09
	24300	0.27	0.23	0.19
60	10000	0.06	0.05	0.04
	21250	0.21	0.18	0.14
	32500	0.50	0.44	0.35
70	11300	0.07	0.06	0.05
	21900	0.22	0.19	0.15
	32500	0.50	0.44	0.35

Table 66 - A Cabinet High Efficiency Filter Static Pressure Drops

Tonnage	CFM	12” MERV 11 Cartridge (in. w.g.)	12” MERV 13 Cartridge (in. w.g.)	12” MERV 14 Cartridge (in. w.g.)	30” MERV 13 Bag (in. w.g.)	30” MERV 14 Bag (in. w.g.)
45	7500	0.02	0.07	0.12	0.06	0.07
	15900	0.05	0.21	0.22	0.12	0.23
	24300	0.08	0.29	0.38	0.16	0.24
60	10000	0.03	0.14	0.15	0.06	0.09
	21250	0.06	0.25	0.33	0.14	0.20
	32500	0.11	0.34	0.54	0.21	0.34
70	11300	0.03	0.16	0.17	0.09	0.10
	21900	0.07	0.25	0.34	0.15	0.11
	32500	0.22	0.34	0.54	0.21	0.34

Table 67 - B Cabinet Cooling Static Pressure Drops
*95°F Ambient, 80°F EDB, 67°F EWB

Tonnage	CFM Range	CFM	4 Row Low CFM (in. w.g.)	6 Row Low CFM (in. w.g.)	4 Row High CFM (in. w.g.)	6 Row High CFM (in. w.g.)
75	Low CFM	16100	0.41	0.60	NA	
		19400	0.57	0.84		
		22700	0.75	1.11		
	High CFM	12700	NA		0.12	0.18
		23600			0.37	0.55
		34500			0.73	1.08
90 & 95	Low CFM	22300	0.48	0.72	NA	
		22500	0.49	0.73		
		22700	0.50	0.74		
	High CFM	20400	NA		0.29	0.44
		27450			0.50	0.74
		34500			0.74	1.11

*Default outside air and entering air conditions, refer to the AAON ECat software for static pressure drops across the evaporator coil at specific unit conditions.

Table 68 - B Cabinet Gas Heating Static Pressure Drops

Tonnage	CFM	Gas Heat [MBH] (in. w.g.)					
		Heat 1 283.1	Heat 2 566.1	Heat 3 908.1	Heat 4 1308.5	Heat 5 1767.8	Heat 6 2403.3
75	12700	0.16	0.08	0.05	0.16		
	23600	0.29	0.14	0.10	0.29	0.23	0.19
	34500	0.42	0.21	0.14	0.42	0.34	0.28
90 & 95	20400	0.25	0.13	0.08	0.25	0.20	0.17
	27450	0.34	0.17	0.11	0.34	0.27	0.22
	34500	0.42	0.21	0.14	0.42	0.34	0.28

Table 69 - B Cabinet Electric Heating Static Pressure Drops

Tonnage	CFM	Electric Heat [kW] (in. w.g.)					
		Heat 1 40	Heat 2 80	Heat 3 120	Heat 4 160	Heat 5 200	Heat 6 240
75	12700	0.15	0.04	0.05	0.08	0.09	0.11
	23600	0.40	0.13	0.18	0.26	0.32	0.39
	34500	0.40	0.28	0.38	0.56	0.67	0.83
90 & 95	20400	0.39	0.10	0.13	0.19	0.24	0.29
	27450	0.40	0.18	0.24	0.35	0.43	0.53
	34500	0.40	0.28	0.38	0.56	0.67	0.83

Table 70 - B Cabinet Medium Efficiency Filter Static Pressure Drops

Tonnage	CFM	2” Pleated (in. w.g.)	4” Pleated (in. w.g.)	2” Permanent (in. w.g.)
75	12700	0.06	0.05	0.04
	23600	0.15	0.13	0.10
	34500	0.31	0.26	0.21
90 & 95	20400	0.12	0.10	0.08
	27450	0.20	0.17	0.14
	34500	0.31	0.26	0.21

Table 71 - B Cabinet High Efficiency Filter Static Pressure Drops

Tonnage	CFM	12” MERV 11 Cartridge (in. w.g.)	12” MERV 13 Cartridge (in. w.g.)	12” MERV 14 Cartridge (in. w.g.)	30” MERV 13 Bag (in. w.g.)	30” MERV 14 Bag (in. w.g.)
75	12700	0.06	0.20	0.22	0.12	0.14
	23600	0.18	0.38	0.48	0.26	0.33
	34500	0.39	0.62	0.85	0.48	0.60
90 & 95	20400	0.13	0.33	0.41	0.21	0.27
	27450	0.24	0.46	0.62	0.32	0.42
	34500	0.39	0.62	0.85	0.48	0.63

Table 72 - C Cabinet Cooling Static Pressure Drops
*95°F Ambient, 80°F EDB, 67°F EWB

Tonnage	CFM Range	CFM	4 Row Low CFM (in. w.g.)	6 Row Low CFM (in. w.g.)	4 Row High CFM (in. w.g.)	6 Row High CFM (in. w.g.)
100	Low CFM	23800	0.41	0.61	NA	
		28650	0.57	0.85		
		33500	0.75	1.12		
	High CFM	20600	NA		0.21	0.31
		31600			0.44	0.66
		42600			0.75	1.11
110	Low CFM	23500	0.40	0.60	NA	
		28500	0.57	0.85		
		33500	0.76	1.13		
	High CFM	20500	NA		0.21	0.31
		31550			0.45	0.66
		42600			0.76	1.13
120 & 125	Low CFM	33500	0.77	1.15	NA	
		35000	0.83	1.24		
		36500	0.90	1.34		
	High CFM	29600	NA		0.34	0.51
		38150			0.54	0.80
		46700			0.77	1.15
135	Low CFM	33100	0.76	1.14	NA	
		33300	0.77	1.15		
		33500	0.78	1.16		
	High CFM	29500	NA		0.35	0.51
		36850			0.51	0.76
		44200			0.71	1.05

*Default outside air and entering air conditions, refer to the AAON ECat software for static pressure drops across the evaporator coil at specific unit conditions.

Table 73 - C Cabinet Gas Heating Static Pressure Drops

Tonnage	CFM	Gas Heat [MBH] (in. w.g.)					
		Heat 1 283.1	Heat 2 566.1	Heat 3 908.1	Heat 4 1308.5	Heat 5 1767.8	Heat 6 2403.3
100	20600	0.25	0.13	0.08	0.25	0.20	0.17
	31600	0.39	0.19	0.13	0.39	0.31	0.26
	42600	0.52	0.26	0.17	0.52	0.42	0.35
110	20500	0.25	0.13	0.08	0.25	0.20	0.17
	31550	0.39	0.19	0.13	0.39	0.31	0.26
	42600	0.52	0.26	0.17	0.52	0.42	0.35
120 & 125	29600	0.36	0.18	0.12	0.36	0.29	0.24
	38150	0.47	0.23	0.16	0.47	0.37	0.31
	46700	0.57	0.29	0.19	0.57	0.46	0.38
135	29500	0.36	0.18	0.12	0.36	0.29	0.24
	36850	0.45	0.23	0.15	0.45	0.36	0.30
	44200	0.54	0.27	0.18	0.54	0.43	0.36

Table 74 - C Cabinet Electric Heating Static Pressure Drops

Tonnage	CFM	Electric Heat [kW] (in. w.g.)					
		Heat 1 40	Heat 2 80	Heat 3 120	Heat 4 160	Heat 5 200	Heat 6 240
100	20600	0.40	0.10	0.14	0.20	0.24	0.30
	31600	0.40	0.23	0.32	0.47	0.57	0.70
	42600	0.40	0.40	0.67	0.80	0.80	1.09
110	20500	0.39	0.10	0.14	0.20	0.24	0.29
	31550	0.40	0.23	0.32	0.47	0.56	0.70
	42600	0.40	0.40	0.40	0.80	0.80	1.00
120 & 125	29600	0.40	0.20	0.28	0.41	0.50	0.61
	38150	0.40	0.34	0.40	0.68	0.80	1.00
	46700	0.40	0.40	0.40	0.80	0.80	1.00
135	29500	0.40	0.20	0.28	0.41	0.49	0.61
	36850	0.40	0.32	0.40	0.63	0.77	0.95
	44200	0.40	0.40	0.40	0.80	0.80	1.00

Table 75 - C Cabinet Medium Efficiency Filter Static Pressure Drops

Tonnage	CFM	2" Pleated (in. w.g.)	4" Pleated (in. w.g.)	2" Permanent (in. w.g.)
100	20600	0.07	0.06	0.05
	31600	0.12	0.10	0.09
	42600	0.21	0.18	0.14
110	20500	0.06	0.05	0.05
	31550	0.12	0.10	0.09
	42600	0.21	0.18	0.14
120 & 125	29600	0.11	0.09	0.08
	38150	0.17	0.14	0.12
	46700	0.25	0.21	0.17
135	29500	0.11	0.09	0.08
	36850	0.16	0.13	0.11
	44200	0.22	0.19	0.16

Table 76 - C Cabinet High Efficiency Filter Static Pressure Drops

Tonnage	CFM	12" MERV 11 Cartridge (in. w.g.)	12" MERV 13 Cartridge (in. w.g.)	12" MERV 14 Cartridge (in. w.g.)	30" MERV 13 Bag (in. w.g.)	30" MERV 14 Bag (in. w.g.)
100	20600	0.19	0.38	0.45	0.27	0.32
	31600	0.46	0.69	0.87	0.55	0.68
	42600	0.90	1.13	1.51	1.01	1.20
110	20500	0.20	0.39	0.45	0.27	0.33
	31550	0.46	0.23	0.87	0.61	0.67
	42600	0.90	1.13	1.51	1.01	1.20
120 & 125	29600	0.40	0.62	0.78	0.49	0.71
	38150	0.70	0.93	1.22	0.80	1.13
	46700	0.51	0.73	0.99	1.11	1.31
135	29500	0.19	0.40	0.48	0.44	0.54
	36850	0.30	0.52	0.67	0.67	0.83
	44200	0.13	0.68	0.90	0.98	1.18

Table 77 - D Cabinet Cooling Static Pressure Drops
*95°F Ambient, 80°F EDB, 67°F EWB

Tonnage	CFM Range	CFM	4 Row Low CFM (in. w.g.)	6 Row Low CFM (in. w.g.)	4 Row High CFM (in. w.g.)	6 Row High CFM (in. w.g.)
134	Low CFM	31800	0.57	0.84	NA	
		34900	0.67	0.99		
		38000	0.78	1.16		
	High CFM	27300	NA		0.24	0.36
		39350			0.46	0.68
		51400			0.58	1.09
150 & 155	Low CFM	36300	0.61	0.90	NA	
		39300	0.70	1.04		
		42300	0.80	1.19		
	High CFM	30200	NA		0.25	0.38
		43300			0.48	0.71
		56400			0.77	1.14
170	Low CFM	39600	0.61	0.91	NA	
		43050	0.71	1.05		
		46500	0.81	1.20		
	High CFM	32400	NA		0.25	0.38
		46850			0.48	0.73
		61300			0.79	1.17

*Default outside air and entering air conditions, refer to the AAON ECat software for static pressure drops across the evaporator coil at specific unit conditions.

Table 78 - D Cabinet Gas Heating Static Pressure Drops

Tonnage	CFM	Gas Heat [MBH] (in. w.g.)					
		Heat 1 531.0	Heat 2 1061.9	Heat 3 1306.2	Heat 4 1741.6	Heat 5 2177.0	Heat 6 3055.4
134	27300	0.20	0.10	0.07	0.20	0.16	0.14
	39350	0.29	0.15	0.10	0.29	0.23	0.20
	51400	0.38	0.19	0.13	0.38	0.31	0.26
150 & 155	30200	0.23	0.11	0.08	0.23	0.18	0.15
	43300	0.32	0.18	0.11	0.32	0.26	0.22
	56400	0.42	0.21	0.14	0.42	0.34	0.28
170	32400	0.24	0.12	0.08	0.24	0.19	0.16
	46850	0.35	0.17	0.12	0.35	0.28	0.23
	61300	0.46	0.23	0.15	0.46	0.37	0.30

Table 79 - D Cabinet Electric Heating Static Pressure Drops

Tonnage	CFM	Electric Heat [kW] (in. w.g.)							
		Heat 1 40	Heat 2 80	Heat 3 120	Heat 4 160	Heat 5 240	Heat 6 320	Heat 7 400	Heat 8 480
134	27300	0.40	0.17	0.08	0.04	0.16	0.09	0.11	0.13
	39350	0.40	0.36	0.16	0.09	0.32	0.18	0.22	0.27
	51400	0.40	0.40	0.27	0.15	0.55	0.31	0.37	0.46
150 & 155	30200	0.40	0.21	0.10	0.05	0.19	0.11	0.13	0.16
	43300	0.40	0.40	0.19	0.11	0.39	0.22	0.27	0.33
	56400	0.40	0.40	0.33	0.19	0.66	0.37	0.45	0.56
170	32400	0.40	0.25	0.11	0.06	0.22	0.12	0.15	0.18
	46850	0.40	0.40	0.23	0.13	0.46	0.26	0.31	0.38
	61300	0.40	0.40	0.39	0.22	0.78	0.44	0.53	0.66

Table 80 - D Cabinet Medium Efficiency Filter Static Pressure Drops

Tonnage	CFM	2" Pleated (in. w.g.)	4" Pleated (in. w.g.)	2" Permanent (in. w.g.)
134	27300	0.06	0.05	0.05
	39350	0.11	0.09	0.08
	51400	0.17	0.15	0.12
150 & 155	30200	0.07	0.06	0.05
	43300	0.13	0.11	0.09
	56400	0.21	0.17	0.14
170	32400	0.08	0.07	0.06
	46850	0.15	0.12	0.10
	61300	0.24	0.21	0.17

Table 81 - D Cabinet High Efficiency Filter Static Pressure Drops

Tonnage	CFM	12" MERV 11 Cartridge (in. w.g.)	12" MERV 13 Cartridge (in. w.g.)	12" MERV 14 Cartridge (in. w.g.)	30" MERV 13 Bag (in. w.g.)	30" MERV 14 Bag (in. w.g.)
134	27300	0.12	0.30	0.33	0.28	0.34
	39350	0.23	0.44	0.54	0.51	0.62
	51400	0.41	0.63	0.82	0.86	1.04
150 & 155	30200	0.15	0.33	0.38	0.33	0.40
	43300	0.28	0.50	0.62	0.52	0.74
	56400	0.49	0.72	0.95	1.05	1.25
170	32400	0.16	0.35	0.41	0.36	0.45
	46850	0.33	0.55	0.70	0.71	0.86
	61300	0.33	0.56	0.74	0.70	0.86

Table 82 - E Cabinet Cooling Static Pressure Drops
*95°F Ambient, 80°F EDB, 67°F EWB

Tonnage	CFM Range	CFM	4 Row Low CFM (in. w.g.)	6 Row Low CFM (in. w.g.)	4 Row High CFM (in. w.g.)	6 Row High CFM (in. w.g.)
180, 181 & 190	Low CFM	48800	0.64	0.95	NA	
		51200	0.40	1.04		
		53600	0.76	1.12		
	High CFM	41400	NA		0.33	0.48
		56650			0.57	0.85
		71900			0.87	1.29
210	Low CFM	51000	0.65	0.96	NA	
		54400	0.72	1.08		
		57800	0.81	1.20		
	High CFM	43300	NA		0.33	0.49
		60050			0.59	0.55
		76800			0.91	0.93
230 & 240	Low CFM	53100	0.65	0.96	NA	
		57550	0.75	1.11		
		62000	0.85	1.27		
	High CFM	45100	NA		0.33	0.50
		63450			0.61	0.91
		81800			0.96	1.42

*Default outside air and entering air conditions, refer to the AAON ECat software for static pressure drops across the evaporator coil at specific unit conditions.

Table 83 - E Cabinet Gas Heating Static Pressure Drops

Tonnage	CFM	Gas Heat [MBH] (in. w.g.)					
		Heat 1 531.0	Heat 2 1061.9	Heat 3 1306.2	Heat 4 1741.6	Heat 5 2177.0	Heat 6 3055.4
180, 181 & 190	41400	0.31	0.15	0.10	0.31	0.25	0.21
	56650	0.42	0.21	0.14	0.42	0.34	0.28
	71900	0.54	0.27	0.18	0.54	0.43	0.36
210	43300	0.32	0.16	0.11	0.32	0.26	0.22
	60050	0.45	0.22	0.15	0.45	0.36	0.30
	76800	0.57	0.29	0.19	0.57	0.46	0.38
230 & 240	45100	0.34	0.17	0.11	0.34	0.27	0.22
	63450	0.47	0.24	0.16	0.47	0.38	0.32
	81800	0.61	0.30	0.20	0.61	0.49	0.41

Table 84 - E Cabinet Electric Heating Static Pressure Drops

Tonnage	CFM	Electric Heat [kW] (in. w.g.)							
		Heat 1 40	Heat 2 80	Heat 3 120	Heat 4 160	Heat 5 240	Heat 6 320	Heat 7 400	Heat 8 480
180, 181 & 190	41400	0.40	0.40	0.18	0.10	0.36	0.20	0.24	0.30
	56650	0.40	0.40	0.33	0.19	0.67	0.37	0.45	0.56
	71900	0.40	0.40	0.40	0.30	0.80	0.60	0.73	0.91
210	43300	0.40	0.40	0.27	0.21	0.75	0.42	0.51	0.63
	60050	0.40	0.40	0.37	0.21	0.75	0.42	0.51	0.63
	76800	0.40	0.40	0.40	0.34	0.80	0.69	0.80	1.00
230 & 240	45100	0.40	0.40	0.21	0.12	0.42	0.24	0.29	0.36
	63450	0.40	0.40	0.40	0.24	0.80	0.47	0.57	0.71
	81800	0.40	0.40	0.40	0.39	0.80	0.78	0.80	1.00

Table 85 - E Cabinet Medium Efficiency Filter Static Pressure Drops

Tonnage	CFM	2" Pleated (in. w.g.)	4" Pleated (in. w.g.)	2" Permanent (in. w.g.)
180, 181 & 190	41400	0.08	0.07	0.06
	56650	0.14	0.12	0.10
	71900	0.21	0.18	0.15
210	43300	0.09	0.08	0.06
	60050	0.15	0.13	0.11
	76800	0.24	0.21	0.17
230 & 240	45100	0.10	0.08	0.07
	63450	0.17	0.14	0.12
	81800	0.27	0.24	0.19

Table 86 - E Cabinet High Efficiency Filter Static Pressure Drops

Tonnage	CFM	12" MERV 11 Cartridge (in. w.g.)	12" MERV 13 Cartridge (in. w.g.)	12" MERV 14 Cartridge (in. w.g.)	30" MERV 13 Bag (in. w.g.)	30" MERV 14 Bag (in. w.g.)
180, 181 & 190	41400	0.19	0.39	0.46	0.38	0.47
	56650	0.35	0.57	0.7	0.66	0.81
	71900	0.59	0.82	1.09	1.10	1.31
210	43300	0.20	0.40	0.48	0.41	0.50
	60050	0.30	0.62	0.80	0.75	0.91
	76800	0.61	0.84	1.26	1.16	1.37
230 & 240	45100	0.21	0.42	0.5	0.43	0.53
	63450	0.4	0.67	0.87	0.84	1.01
	81800	0.80	1.03	1.38	1.18	1.38

Controls
Control Options

Terminal Block

Low voltage terminal block for field wiring controls

Required Features

Feature 13 - Field Installed DDC Controls by Others

Standard Terminals Labels

[R] - 24 VAC or 120VAC control voltage
[E] - Common
[G] - Fan enable
[Y1], [Y2], … , [Y8] - Cooling stages' control signals
[W1], [W2], … , [W12] - Heating stages' control signals
[A1], [A2] - Economizer override contacts, factory wired together, used to control occupied/unoccupied operation.
[EC1], [EC2] - Economizer DDC actuator control signal, 4-20mA. Remove resistor for 0-10VDC operation.
[ST1], [ST2] - Remote start/stop contacts, must be closed for unit to operate.
[RH1] - Humidistat control signal, used with reheat coil.
[BI1], [BI2] - Field installed smoke detector 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.
[C1], [C2] - Clogged filter switch contacts, normally open.
[C6], [C7] - Supply air temperature sensor control signal, 0-10VDC.
[1], [2] - SCR supply air temperature control signal, 0-10VDC
[B1], [B2], [B3], [B4] - Exhaust fan VFD control contacts, 0-10VDC.
[S1], [S2], … , [S6] - Supply fan VFD control contacts, 0-10VDC or 4-20mA.

Figure 11 - Example Low Voltage Terminal Block

VAV
Variable Air Volume Unit

Operation
AAON® VAV units provide constant temperature supply air to the system while varying the amount of air supplied. Factory mounted and tested supply fan VFDs are used to vary the speed of the supply fans, thus varying the amount of supply air. Because of the reduced speed, VAV units are more efficient at part load conditions. VAV units generally are used when serving spaces with diverse or changing heating and cooling requirements. Thus, only a single unit may be required for multiple zones. Space temperature sensor is used for supply air temperature setpoint reset and unoccupied override.

See Control Venders section following for WattMaster and MCS specifics.

Required Features
Feature 13 - VAV Unit Controller

Standard Supplied Sensors
Outside Air Temperature
Supply Air Temperature
Supply Air Static Pressure
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override

Recommended Features
Feature 1 - Economizer
Feature 1 - AAONAIRE® Energy Recovery Wheel
Feature 2 - Fully Modulating Actuator
Feature 2 - Constant Volume Outside Air - To maintain a minimum volume of outside air for ventilation.
Feature 5 - Supply Blower(s) with VFD(s)
Feature 8 - Modulating Hot Gas Reheat Coil

CAV

Constant Air Volume Unit

Operation

AAON® CAV units provide a constant amount of tempered air to the system to maintain a temperature setpoint. CAV units work best when serving spaces with uniform heating and cooling requirements. Thus, 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 Venders section following for WattMaster and MCS specifics.

Required Features

Feature 13 - Constant Volume Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override

Recommended Features

Feature 4 - Return Air Bypass
Feature 1 - Economizer
Feature 1 - AAONAIRE® Energy Recovery Wheel
Feature 2 - Fully Modulating Actuator
Feature 8 - Modulating Hot Gas Reheat Coil

MUA

Makeup Air Unit

Operation

AAON® MUA units are designed to provide 100% outside air to the system for ventilation purposes. MUA units improve indoor air quality (IAQ) and add positive pressure to the space.

See Control Venders section following for WattMaster and MCS specifics.

Required Features

Feature 1A - Motorized or Non-Motorized 100% Outside Air
Feature 2 - Two Position Actuator (Only with Motorized 100% Outside Air)
Feature 8 - Hot Gas Bypass Lead and Lag Stage
Feature 13 - Makeup Air Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Temperature

Recommended Features

Feature 1 - AAONAIRE® Energy Recovery Wheel
Feature 8 - Modulating Hot Gas Reheat Coil

Control Vendors

WattMaster - Orion™ Controls System

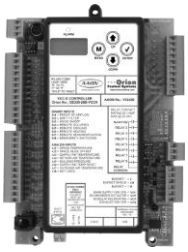

Figure 12- WattMaster VCC-X Controller

The WattMaster VCC-X unit controller, which is part of the Orion Controls System, can be factory provided and factory installed in AAON RN and RQ 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, CV, 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 from WattMaster 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 Commlink II and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink II. With optional accessories, remote connectivity to the controller via Prism II software can be accomplished.

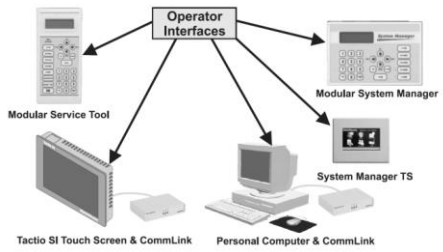

Figure 13- VCC-X Controller Operator Interfaces

Micro Control Systems (MCS) Magnum Control System

Figure 14 - LCD Interface, MCS Magnum Controller, and Touchscreen Interface

The MCS Magnum controller efficiently varies the capacity of the compressors to maintain a temperature setpoint over a wide variety of operating conditions for VAV, Constant Volume, or Makeup Air applications.

Configuration
Standard LCD interface is included within the controls compartment for unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling. PC with free MCS-Connect software can be connected to the controller via RS-232 or Ethernet for unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling. Optional full color 15" 1024x768 pixel touchscreen interface is available, and includes graphical user interface that allows for easy monitoring and troubleshooting of the unit. Unit, controls, compressor, and VFD literature can be viewed from the touchscreen.

Diagnostics
Optional diagnostic sensors are available to provide each refrigerant circuit's suction, discharge and liquid temperature and pressure and also monitor each compressor's current. These sensors can be monitored from the MCS-Connect software.

Network Capability
The MCS Magnum controller can be directly integrated with BACnet IP or Modbus IP protocols via Ethernet port and Modbus RTU or Johnson N2 protocols via EIA-485 port. With adapter, the controller can be integrated with BACnet MS/TP or LonTalk protocols. Optional 56K modem allows remote communication to the unit from MCS, AAON, or the customer to assist with service, diagnosis, and program updates.

Electrical Service Sizing Data

Use the following equations to correctly size the electrical service wiring and disconnect switch for the unit.

To correctly calculate the Minimum Circuit Ampacity (MCA) and Maximum Overcurrent Protection (MOP), the number of motors and other current drawing devices must be known for each mode of operation. For example, in heating mode the compressor(s) and condenser fan(s) do not operate, while the supply fan(s) do operate. In cooling mode, however, the compressor(s), condenser fan(s), and supply fan(s) all operate. Once it is determined what current drawing devices are operating during each mode of operation use the following equations to calculate the MCA and MOP.

To calculate the correct MCA and MOP values for units **without electric heating** use the *Cooling Mode* and *Heating Mode without Electric Heat* equations. To calculate the correct MCA and MOP values for units **with electric heating** calculate the MCA and MOP with the *Cooling Mode* equations and with the *Heating Mode with Electric Heat* equations. The larger of MCA and MOP values calculated are the correct values.

Load 1 = Current of the largest motor/compressor
Load 2 = Sum of the currents of the remaining motors/compressors
Load 3 = Current of electric heaters

Use Rated Load Amps (RLA) for compressors and Full Load Amps (FLA) for all other motors and electric heaters.

The electrical data for a given 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

Electric Heat FLA Calculation
Three Phase

$$\text{FLA} = \frac{(\textit{Heating Element kW})\,x\,1000}{(\textit{Rated Voltage})\,x\,\sqrt{3}}$$

Cooling Mode / Heating Mode **without Electric Heat**

MCA = 1.25(Load 1) + Load 2

MOP = 2.25(Load 1) + Load 2

Electrical Service Sizing Data Continued

Heating Mode **with Electric Heat**

For electric heat capacity **less than** 50kW
MCA = 1.25(Load 1 + Load 2 + Load 3)

For electric heat capacity **greater than or equal to** 50kW
MCA = 1.25(Load 1 + Load 2) + Load 3

MOP = 2.25(Load 1) + Load 2 + Load 3

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.

Standard Ampere Ratings for Fuses (From NEC Handbook, 240-6)
The standard ratings for fuses 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 = MOP

Select the standard switch size equal to the calculated Disconnect Switch Size value. If this value is not a standard size, select the next LARGER size.

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

Evaporative-Cooled Condenser Features and Water Treatment

The AAON evaporative-cooled condenser is the only evaporative-cooled condenser sold in the HVAC business with an integral de-superheater coil located above moisture eliminators. The de-superheater coil reduces the refrigerant temperature by 50° to 70° before the refrigerant reaches the condensing coil. This creates several advantages:

1. A minimum of 22% of the heat of rejection is accomplished with the de-superheater as sensible heat transfer; therefore the evaporative-cooled condenser uses over 22% less water.

2. A minimum of 22% less water usage reduces water and water treatment costs.

3. Scale formation is reduced in the wetted section of the condenser because the surface temperature of the tubes is lower. This reduced scale potential allows the condenser tubes to withstand recirculating water with greater mineral content, and as a result, requires less makeup water, less water treatment, and lower operating costs.

4. The de-superheater has the effect of increasing the temperature of the air leaving the wetted section therefore the air passing over the fan motor is not 100% relative humidity as with other draw-through designs but is closer to 70%. With the motor in a non-condensing environment there are fewer tendencies for any water to infiltrate the motor.

5. All motors draw in surrounding air during the off cycle when using on/off control. AAON uses VFD control of the fan motors to keep the motors turning at reduced loads. Energized motors stay warm and prevent water from being drawn into the condenser.

6. AAON incorporates VFD control of the condenser fans for reduce energy consumption when compared with on-off control. Additional benefits of VFD control include: Energized motors stay warm and prevent water from being drawn into the condenser, and keep from spinning backwards and resulting in nuisance power trips.

7. Condenser fans are adjustable pitch, cast aluminum air foil with a cast aluminum hub.

8. The sub-cooling circuit is integral to the wetted coil section.

9. The AAON evaporative-cooled condenser cabinet is all 304 stainless steel. This includes the sump, all structural members, and all interior.

10. The AAON condenser tube bundles are built such that each independent refrigerant circuit can be removed separately for repair or replacement.

Evaporative-Cooled Condenser Features and Water Treatment Continued

11. ABS tube sheet isolators are used to prevent contact between the copper tube bundle and the stainless steel tube sheet.

12. Water treatment feed and control systems include 2 Biocide systems (feed) and 1 Corrosion system (control) are factory installed standard.

Water Treatment and Evaporative-Cooled Condensing

Langelier Saturation Index (LSI)
The Langelier saturation index (LSI) is an equilibrium model derived from the theoretical concept of saturation and provides an indicator of the degree of saturation of water with respect to calcium carbonate. It can be shown that the Langelier saturation index (LSI) approximates the base 10 logarithm of the calcite saturation level. The Langelier saturation level approaches the concept of saturation using pH as a main variable. The LSI can be interpreted, as the pH change required returning water to equilibrium.

Water with a Langelier saturation index of 1.0 is one pH unit above saturation. Reducing the pH by 1 unit will bring the water into equilibrium. This occurs because the portion of total alkalinity present as $CO3^{2-}$ decreases as the pH decreases, according to the equilibriums describing the dissociation of carbonic acid:

$$H_2CO_3 \rightleftarrows HCO_3^- + H^+$$
$$HCO_3^- \rightleftarrows CO_3^{2-} + H^+$$

If LSI is negative: No potential to scale, the water will dissolve $CaCO_3$
If LSI is positive: Scale can form and CaCO3 precipitation may occur
If LSI is close to zero: Borderline scale potential. Water quality or changes in temperature, or evaporation could change the index.

The LSI is probably the most widely used indicator of cooling water scale potential. It is purely an equilibrium index and deals only with the thermodynamic driving force for calcium carbonate scale formation and growth. It provides no indication of how much scale or calcium carbonate will actually precipitate to bring water to equilibrium. It simply indicates the driving force for scale formation and growth in terms of pH as a master variable.

Evaporative-Cooled Condenser Features and Water Treatment Continued

In order to calculate the LSI, it is necessary to know the alkalinity (mg/l as CaCO3), the calcium hardness (mg/l Ca2+ as CaCO3), the total dissolved solids (mg/l TDS), the actual pH, and the temperature of the water (°C). If TDS is unknown, but conductivity is, one can estimate mg/L TDS using a conversion table such as the one presented here. LSI is defined as:

LSI = pH - pHs

Where:
pH is the measured water pH
pHs is the pH at saturation in calcite or calcium carbonate and is defined as:
pHs = (9.3 + A + B) - (C + D)
Where:
A = (Log_{10} [TDS] - 1) / 10
B = -13.12 x Log10 (°C + 273) + 34.55
C = Log_{10} [Ca^{2+} as $CaCO_3$] - 0.4
D = Log_{10} [alkalinity as $CaCO_3$]

AAON ECat allows calculation of the LSI and can be used as a reference for understanding the impact of water treatment on the performance of the evaporative-cooled condensing system.

Evaporative-Cooled Condenser Features and Water Treatment Continued

As an example, the LSI is computed for a system using 3 cycles of concentration (mineral content of the refrigerant water is 3 times that of the makeup water) of Niagara River water. In the AAON evaporative-cooled condenser, refrigerant exits the de-superheater at 90% quality (90% gas, 10% liquid) in the example following the refrigerant enters the wetted section of the condenser at 101.7°F.

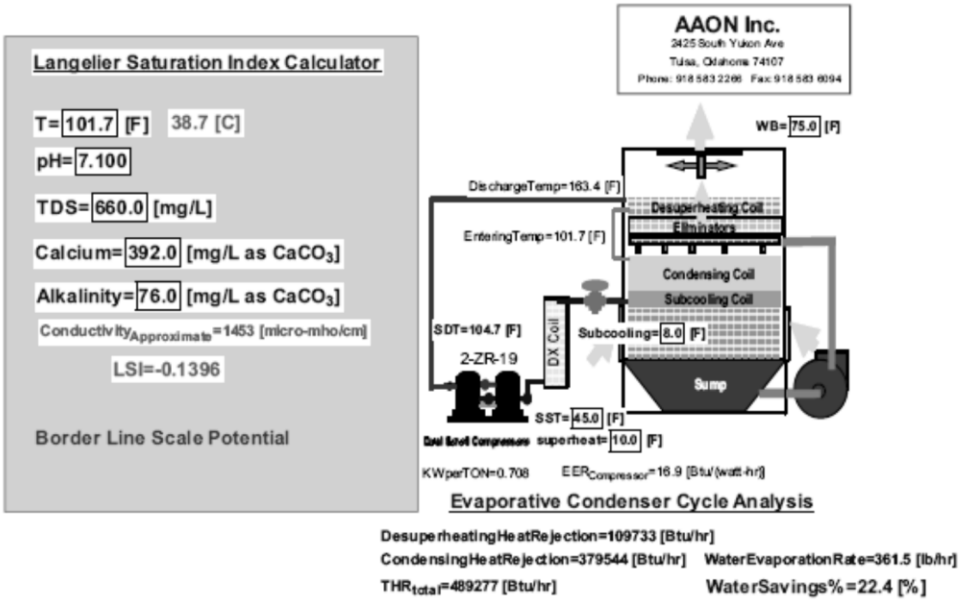

Figure 15 - Example Evaporative-Cooled Condenser with De-superheater

Let's assume that the de-superheater is not in the system, and then 163.4° F refrigerant would enter the coil in the wetted section of the condenser. The LSI can be computed, resulting in definite scale potential:

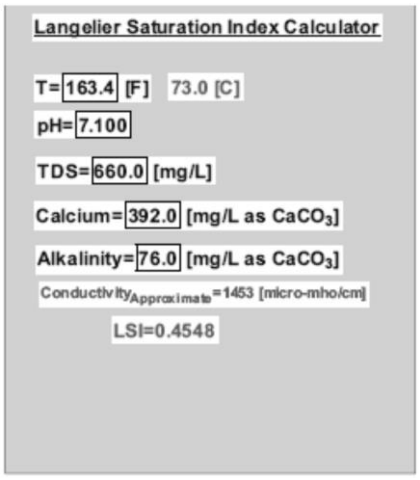

Figure 16 - Example Evaporative-Cooled Condenser without De-superheater

Literature Change History

June 2007
Update of the catalog for correction of the Electrical Service Sizing Data Section "For electric heat capacity greater than or equal to 50kW" MCA equation to
MCA = 1.25 (Load 1 + Load 2) + Load 3.

February 2008
Update of catalog for correction of gas heating information, adding the Gas Heat Information section, and correcting the description of hot gas bypass in Feature 8.

September 2010
Update of catalog for removal of R-22 refrigerant options and update of control vendor options.

December 2010
Removal of standard efficiency motor options.

November 2011
Update of catalog to include variable speed scroll compressors and variable speed centrifugal compressors, condenser fan VFDs, MCS controls with selectable options, and JENEsys Controls.

July 2012
Update of table of contents.

July 2013
Update of feature options and table of contents. Added 180 and 181 ton unit information to General Data section. Added an Index of Tables and Figures.

March 2015
Updated the *Interior Corrosion Protection* coverage for all applicable options.

May 2016
Updated *Feature Option 8*.

November 2016
Updated Feature *115V Convenience Outlet, Factory Wired* amp rating*;* from 13 amps to 12 amps.

July 2017
Removed JENEsys; Feature 22. Updated *Control Vendors* section. Updated *Filter Specifications.* Updated *Polymer E-Coated* description; Model Option A3. Updated *Interior Corrosion Protection* description.

October 2017
Updated Features 6A and 6B feature string nomenclature descriptions. Updated filter descriptions in the *Filter Specification* section.

November 2017
Updated *Feature 22* options.

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