Johnson Controls Premier 25 Ton to 80 Ton Rooftop Units Installation and Maintenance Guide



Installation Guide

Issue Date: 2024-05-15

Form Number: 5881418-JIM-E-0524

Supersedes: 5881418-JIM-D-0224

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Changeability of this document

In complying with the manufacturer's policy for continuous product improvement, the information contained in this document is subject to change without notice. There is no commitment to update or provide current information automatically to the manual or product owner. Updated manuals, if applicable, can be obtained by contacting the nearest service office.

It is the responsibility of rigging, lifting, and operating or service personnel to verify the applicability of these documents to the equipment. If there is any question regarding the applicability of these documents, rigging, lifting, and operating or service personnel must verify whether the equipment has been modified and if current literature is available from the owner of the equipment prior to performing any work on the equipment.

Associated literature

Manual Description	Form Number
Premier™ 25 ton to 80 ton Rooftop Units Technical Guide	5513350-JTG-B
Premier™ 25 ton to 80 ton Rooftop Units R-410A Start-Up and Operation Guide	5881421-JSG-B
Premier™ 60 ton to 80 ton Rooftop Units Split Ship Assembly Installation Manual	5881415-JIM
Premier™ 25 ton to 80 ton Rooftop Units Advanced Graphic Touchscreen Display	5948727-UIM
Mobile Access Portal Gateway (MAP) Technical Guide	1154578-UTG

Note: Unit-specific documents such as unit drawings, curb information, performance summary, weights, center of gravity, electrical data, rigging and shipping instructions, sequence of operation, BAS controls points, and hydronic valve specifications are available in the Selection Navigator program. Contact your local sales office or representative for additional unit-specific information.

WARNING

Cancer and Reproductive Harm — www.P65Warnings.ca.gov.

Nomenclature 25 ton to 80 ton model number

1	2	3	4	5		6	7	8	9	10		11	12	13	14	15		16	17	18	19	20		21	22	23	24	25		26	27	28	29	30		31	32	33	34	35		36	37	38	39	40		41	42	43	44	45		46	47	48	49
G	V	A	1	M	–	1	B	1	A	A	–	1	A	6	0	A	–	A	2	4	1	B	–	F	2	B	B	H	–	5	C	1	A	1	–	B	K	A	G	1	–	0	1	0	1	C	–	0	1	0	B	C	–	0	0	0	1

Digits 1–2: Product brand name

GV

Digit 3: Capacity

A: 25 ton

B: 30 ton

C: 40 ton

D: 50 ton

F: 60 ton

H: 70 ton

J: 80 ton

Digit 4: Efficiency

1: Standard capacity, standard efficiency, staged control

2: Standard capacity, high efficiency, modulating control

3: High capacity, standard efficiency, staged control

4: Standard capacity, standard efficiency, low sound, staged control

5: Standard capacity, high efficiency, low sound, modulating control

6: High capacity, standard efficiency, low sound, staged control

J: Standard capacity, standard efficiency, staged control with R410A refrigerant - enhanced condenser

K: Standard capacity, high efficiency, modulating control with R410A refrigerant - enhanced condenser

L: High capacity, standard efficiency, staged control with R410A refrigerant - enhanced condenser

M: Standard capacity, standard efficiency, low sound, staged control with R410A refrigerant - enhanced condenser

N: Standard capacity, high efficiency, low sound, modulating control with R410A refrigerant - enhanced condenser

P: High capacity, standard efficiency, low sound, modulating control with R410A refrigerant - enhanced condenser

Digit 5: Heat source

A: Cooling only

B: Staged gas aluminized burner

C: Staged gas stainless steel (SST)

G: Modulating gas stainless steel

K: Steam coil

L: Hot water coil

M: Electric heat

Digit 6A: Electric heat capacity

0: None

1: Low heat

3: High heat

4: Low heat with silicon controlled rectifier (SCR)

6: High heat with SCR

Digit 6B: Natural gas heat capacity

0: None

1: 250 MBH

2: 500 MBH

3: 750 MBH

4: 1,000 MBH

5: 1,250 MBH

6: 1,500 MBH

Digit 6C: Hot water or steam heating coil option

0: None

1: Low heat without valves

2: Low heat with valves

3: High heat without valves

4: High heat with valves

Digit 7: Unit type

A: Single zone VAV (SZVAV) (no duct pressure transducer)

B: Variable air volume (VAV) (duct pressure transducer)

Digit 8: Motor control options

1: Supply fan variable frequency drive (VFD)

2: Supply fan VFD with line reactor

3: Supply fan VFD with bypass (redundant VFD) / Supply fan with dual VFD

4: Supply fan VFD with line reactor and bypass (redundant VFD) / Supply fan with dual VFD with line reactor

5: Supply fan VFD and return/exhaust fan VFD / (60-80 Ton with ERW) - supply fan VFD and dual exhaust fan option with individual VFD on each exhaust fan

6: Supply fan VFD with line reactor and return/exhaust fan VFD with line reactors / (60-80 Ton with ERW) - supply fan VFDs with line reactor and dual exhaust fan option with individual VFD and line reactor on each exhaust fan

7: Supply fan VFD and return/exhaust fan VFD with bypass (redundant VFD for supply fan and bypass for return/exhaust fan) / Supply fan with dual VFD and redundant VFD for return fan / manual bypass for exhaust fan / (60-80 Ton with ERW) - supply fan with dual VFD and dual exhaust fan option with individual VFD on each exhaust fan

8: Supply fan VFD with line reactor and return/exhaust fan VFD with line reactor with bypass (redundant VFD for supply fan and bypass for return or exhaust fan / Supply fan with dual VFD and redundant VFD for return fan / manual bypass for exhaust fan, and line reactors (for all fans) / (60-80 Ton with ERW) - supply fan with dual VFD with line reactors and dual exhaust fan option with individual VFD and line reactor on each exhaust fan

Digit 9: Voltage

A: 208-230 V 3Ph 60 Hz, single point terminal block

B: 208-230 V 3Ph 60 Hz, dual point terminal block

C: 208-230 V 3Ph 60 Hz, single point non-fused DISC

D: 208-230 V 3Ph 60 Hz, single point terminal block, 65KA short-circuit current rating (SCCR)

E: 208-230 V 3Ph 60 Hz, dual point terminal block, 65KA SCCR

F: 208-230 V 3Ph 60 Hz, single point fused DISC, 65KA SCCR

G: 460 V 3Ph 60 Hz, single point terminal block

H: 460 V 3Ph 60 Hz, dual point terminal block

J: 460 V 3Ph 60 Hz, single point non-fused DISC

K: 460 V 3Ph 60 Hz, single point terminal block, 65KA SCCR

L: 460 V 3Ph 60 Hz, dual point terminal block, 65KA SCCR

M: 460 V 3Ph 60 Hz, single point fused DISC, 65KA SCCR

N: 575 V 3Ph 60 Hz, single point terminal block

P: 575 V 3Ph 60 Hz, dual point terminal block

Q: 575 V 3Ph 60 Hz, single point non-fused DISC

R: 575 V 3Ph 60 Hz, single point terminal block, 65KA SCCR

S: 575 V 3Ph 60 Hz, dual point terminal block, 65KA SCCR

T: 575 V 3Ph 60 Hz, single point fused DISC, 65KA SCCR

Digit 10: Return configuration

A: Bottom return, right outside air (OA), side exhaust

B: Bottom return, right OA, front exhaust

C: Bottom return, left OA, side exhaust

D: Bottom return, left OA, front exhaust

E: Top return, right OA, side exhaust (no return fan available)

F: Top return, right OA, front exhaust (no return fan available)

G: Top return, left OA, side exhaust (no return fan available)

H: Top return, left OA, front exhaust (no return fan available)

J: Left return, right OA, front exhaust

K: Right return, left OA, front exhaust

L: Front return, left OA, right exhaust

M: Front return, right OA, left exhaust

N: Bottom return, no OA, no exhaust air (EA) (no return fan available)

P: Top return, no OA, no EA (no return fan available)

Q: Left return, no OA, no EA (no return fan available)

R: Right return, no OA, no EA (no return fan available)

S: Front return, no OA, no EA (no return fan available)

Digit 11: Discharge locations

1: Bottom discharge, from discharge plenum

2: Bottom discharge, discharge through heat section

3: Top discharge, from discharge plenum

4: Right discharge, from discharge plenum

5: Left discharge, from discharge plenum

6: Left discharge, discharge through heat section

Digit 12: Supply configuration

A: None

B: Small blank

C, D: Large blank

E, G: Large blank with final filter

F: Small blank with humidifier and SST drain pan

H, K: Large blank with humidifier and SST drain pan

L: Small blank sound attenuator

M, N: Large blank sound attenuator

P: Small blank final filter

Q, T: Large blank with sound attenuator and final filter

S, V: Large blank with sound attenuator and humidifier and SST drain pan

Digit 13: Final filter options

1: MERV 15 bag final filters with 2 in. MERV 8 filters

2: MERV 14 rigid final filters with 2 in. MERV 8 filters

3: MERV 17 high efficiency particulate air (HEPA) final filters with 2 in. MERV 8 filters

4: MERV 14/15 filter rack (no filters)

5: HEPA filter rack (no filters)

6: None

Digit 14: Final filter control options

0: None

1: Combined pre- and post- filter transducer

2: Separate pre- and post- filter transducer

3: Combined pre- and post- filter transducer and combined magnehelic gauge

4: Separate pre- and post- filter transducer and magnehelic gauge

5: Combined pre- and post- filter magnehelic gauge

6: Separate pre- and post- filter magnehelic gauge

7: Combined pre- and post- filter transducer, separate pre- and post- filter magnehelic gauge

Digit 15: Supply fan

A: Direct drive plenum (DDP) supply fan with 1 in. spring isolation

B: DDP supply fan with 2 in. spring isolation

C: DDP supply fan with 2 in. spring isolation and seismic restraint

D: Dual direct drive plenum supply fans with 1 in. spring isolation

E: Dual direct drive plenum supply fans with 2 in. spring isolation

F: Dual direct drive plenum supply fans with 2 in. spring isolation and seismic restraint

Digit 16: Supply fan motor horsepower

A: 5 HP / 5 HP x 2

B: 7.5 HP / 7.5 HP x 2

C: 10 HP / 10 HP x 2

D: 15 HP / 15 HP x 2

E: 20 HP / 20 HP x 2

F: 25 HP / 25 HP x 2

G: 30 HP / 30 HP x 2

H: 40 HP / 40 HP x 2

J: 50 HP

Digit 17: Supply fan motor type

2: ODP premium efficiency 1,800 RPM

4: TEFC premium efficiency 1,800 RPM

Digit 18: Supply fan options

0: None

1: Inlet guard

2: Airflow measurement station

3: Shaft grounding ring

4: Inlet guard and airflow measurement station

5: Inlet guard and shaft grounding ring

6: Airflow measurement station and shaft grounding ring

7: Shaft Grounding Ring, Inlet Guard and Airflow Measurement Station

Digits 19: Building pressure control

0: None

1: Barometric damper

2: Exhaust with VFD and backdraft damper

3: Modulating damper (on/off exhaust fan only without VFD)

4: Modulating damper (return fan only with VFD)

Digit 20: Return/exhaust fan

A: None

B: Exhaust fan with 1 in. spring isolation

C: Exhaust fan with 2 in. spring isolation

D: Exhaust fan with 2 in. spring isolation and seismic restraint

E: Return fan with 1 in. spring isolation

F: Return fan with 2 in. spring isolation

G: Return fan with 2 in. spring isolation and seismic restraint

H: DDP return fan with 1 in. spring isolation

J: DDP return fan with 2 in. spring isolation

K: DDP return fan, fan with 2 in. spring isolation and seismic restraint

L: Dual forward curved exhaust fan with 1 in. spring isolation

M: Dual forward curved exhaust fan with 2 in. spring isolation

N: Dual forward curved exhaust fan with 2 in. spring isolation and seismic restraint

Digit 21: Return/exhaust fan motor horsepower

A: No return/exhaust fan

E: 3 HP

F: 5 HP

G: 7.5 HP

H: 10 HP

J: 15 HP

K: 20 HP

L: 25 HP

M: 30 HP

N: 40 HP

1: 5 HP x 2

2: 7.5 HP x 2

3: 10 HP x 2

4: 15 HP x 2

5: 20 HP x 2

Digit 22: Return/exhaust fan motor type

0: None

1: ODP premium efficiency 1,200 RPM

2: ODP premium efficiency 1,800 RPM

3: TEFC premium efficiency 1,200 RPM

4: TEFC premium efficiency 1,800 RPM

Digit 23: Return/exhaust fan options

A: None

B: Shaft grounding ring

C: Extended grease lines

D: Extended grease lines and shaft grounding ring

E: Belt guards

F: Belt guards and shaft grounding ring

G: Return fan airflow measurement station

H: Return fan airflow measurement station and shaft grounding ring

J: Extended grease lines and belt guards

K: Extended grease lines and belt guards and shaft grounding ring

L: Extended grease lines and return fan airflow measurement station

M: Extended grease lines and return fan airflow measurement station and shaft grounding

N: Belt guards and return fan airflow measurement station

P: Belt guards and return fan airflow measurement station and shaft grounding ring

Q: Extended grease lines and belt guards and return fan airflow measurement station

R: Extended grease lines and belt guards and return fan airflow measurement station and shaft grounding ring

R: Extended Grease Lines and Belt Guards and Return Fan Airflow Measurement Station and Shaft Grounding Ring

Digits 24: Return/exhaust fan drive

A: None (25-50 ton)

0: None (60-80 ton)

1-9: RPM

A-Z: RPM

Digit 25: Evaporator options

G: Aluminum fin evaporator with SST drain pan

H: Aluminum fin evaporator with SST drain pan with condensate overflow switch

J: E-Coat aluminum fin evaporator with SST drain pan

K: E-Coat aluminum fin evaporator with SST drain pan with condensate overflow switch

L: Copper fin evaporator with sst drain pan

M: Copper fin evaporator with SST drain pan with condensate overflow switch

Digit 26: Condenser coil options

2: With wire guards

3: Full louvered panels

4: Partial louvered panels with wire guards

6: E-Coat condenser with wire guards

7: E-Coat condenser, full louvered panels

8: E-Coat condenser, partial louvered panels with wire guards

Digit 27: Draw-through filter options

A: Angled filter rack, no filters

B: Angled filter rack, 2 in. throwaway filters

C: Angled filter rack, 2 in. MERV 8 filters

D: Rigid filter rack, no filters

E: Rigid filter rack, MERV 15 bag filters with 2 in. MERV 8 pre-filters

F: Rigid filter rack, MERV 14 rigid filters with 2 in. MERV 8 pre-filters

G: Vertical filter rack, no filters

H: Vertical filter rack, 4 in. MERV 8 filters

Digit 28: Draw-through filter control options

0: None

1: Combined pre- and post- filter transducer

2: Separate pre- and post- filter transducer

3: Combined pre- and post- filter transducer and combined magnehelic gauge

4: Separate pre- and post- filter transducer and magnehelic gauge

5: Combined pre- and post- filter magnehelic gauge

6: Separate pre- and post- filter magnehelic gauge

7: Combined pre- and post- filter transducer, separate pre- and post- filter magnehelic gauge

Digit 29: Economizer options

A: None

C: Dry bulb economizer, low leak dampers

D: Single enthalpy economizer, low leak dampers

E: Dual enthalpy economizer, low leak dampers

F: Dry bulb economizer, low leak dampers with airflow measurement station

G: Single enthalpy economizer, low leak dampers with airflow measurement station

H: Dual enthalpy economizer, low leak dampers with airflow measurement station

K: Dry bulb economizer, ultra low leak dampers

L: Single enthalpy economizer, ultra low leak dampers

S: Dual enthalpy economizer, ultra low leak dampers

T: Dry bulb economizer, ultra low leak dampers with airflow measurement station

U: Single enthalpy economizer, ultra low leak dampers with airflow measurement station

V: Dual enthalpy economizer, ultra low leak dampers with airflow measurement station

Digit 30: Energy recovery options

0: None

1: Low cubic feet per minute (CFM) energy recovery wheel (ERW) without VFD

2: Low CFM ERW with VFD

3: High CFM ERW without VFD

4: High CFM ERW with VFD

Digit 31: Refrigeration system piping options

A: None

B: Suction and discharge valves

C: Suction, discharge, and liquid valves

D: Suction, discharge, and liquid valves with replaceable core filter driers

E: Hot gas reheat (HGRH)

F: Suction and discharge valves with HGRH

G: Suction, discharge, and liquid valves with HGRH

H: Suction, discharge, and liquid valves with replaceable core filter driers with HGRH

N: E-Coat HGRH

P: Suction and discharge valves with E-Coat HGRH

Q: Suction, discharge, and liquid valves with E-Coat HGRH

R: Suction, discharge, and liquid valves with replaceable core filter driers with E-Coat HGRH

Digit 32: Lights/detectors/ convenience options

A: None

B: Convenience outlet

C: Convenience outlet and internal lights

D: Supply smoke detector

E: Return smoke detector

F: Supply and return smoke detector

G: Convenience outlet with supply smoke detector

H: Convenience outlet with return smoke detector

J: Convenience outlet with supply and return smoke detectors

K: Convenience outlet and internal lights with supply smoke detector

L: Convenience outlet and internal lights with return smoke detector

M: Convenience outlet and internal lights with supply and return smoke detectors

Digit 33: Controls options

A: None

B: Low ambient

D: Subcool and superheat measurement

E: Low ambient with subcool and superheat measurement

F: With Verasys

G: Low ambient with Verasys

H: Subcool and superheat measurement with Verasys

I: Low ambient with subcool and superheat measurement with Verasys

Digit 34: Interface options

A: BACnet® MS/TP, Modbus™, N2

B: BACnet IP

G: BACnet MS/TP, Modbus, N2 with mobile access portal (MAP)

H: MAP with BACnet IP

K: BACnet MS/TP, Modbus, N2 with MAP and touchscreen

L: Touchscreen with MAP with BACnet IP

N: BACnet MS/TP, Modbus, N2 with customer terminal board

P: BACnet IP with customer terminal board

U: BACnet MS/TP, Modbus, N2 with MAP and customer terminal board

V: MAP with BACnet IP and customer terminal board

X: BACnet MS/TP, Modbus, N2 with touchscreen and MAP and customer terminal board

Y: Touchscreen with MAP with BACnet IP and customer terminal board

Digit 35: Indoor air quality (IAQ) options

0: None

1: Ultraviolet (UV) lights

2: Carbon Dioxide (CO_2) sensors, demand controlled ventilation

3: UV lights, CO_2 sensors, demand controlled ventilation

Digit 36: Gas heat shipped loose kits

0: None

1: Gas heat, side penetration

2: Gas heat, bottom penetration

3: Gas heat, high altitude kit natural gas (NG), side penetration

4: Gas heat, high altitude kit NG, bottom penetration

5: Gas heat, high altitude kit liquid propane (LP), side penetration

6: Gas heat, high altitude kit LP, bottom penetration

7: Gas heat, LP conversion kit, side penetration

8: Gas heat, LP conversion kit, bottom penetration

Digit 37: Security options

0: None

1: Supply and return opening burglar bars

2: Supply opening burglar bars

3: Return opening burglar bars

Digit 38: Door options

0: None

1: Viewport

2: Single handle with padlock

3: Single handle with padlock and viewport

Digit 39: Cabinet shipping options

1: Single piece construction

2: Two piece construction

Digit 40: Curb options

A: No roof curb

B: Full perimeter roof curb

C: Pedestal curb

Digit 41: Pre-evap options

0: None

1, 2: Blank pre-evap extension, no air blender

3, 4: Blank pre-evap extension, with air blender

Digit 42: Shipped loose options

0: None

1: Spare belts for return/exhaust

Digit 43: Construction standard

0: None

Digit 44: Supply fan VFD frequency

1: 68 Hz

2: 70 Hz

3: 72 Hz

A: 66 Hz

B: 64 Hz

C: 62 Hz

D: 60 Hz

E: 58 Hz

F: 56 Hz

G: 54 Hz

H: 52 Hz

J: 50 Hz

K: 48 Hz

L: 46 Hz

M: 44 Hz

N: 42 Hz

P: 40 Hz

Q: 38 Hz

R: 36 Hz

S: 34 Hz

T: 32 Hz

U: 30 Hz

V: 28 Hz

W: 26 Hz

X: 24 Hz

Y: 22 Hz

Z: 20 Hz

Digit 45: Supply fan brake horsepower (each motor)

A: 2 HP

B: 3 HP

C: 5 HP

D: 7.5 HP

E: 10 HP

F: 15 HP

G: 20 HP

H: 25 HP

J: 30 HP

K: 40 HP

L: 50 HP

M: 60 HP

N: 75 HP

Digit 46: Return fan brake horsepower

B-L : Internal use only

Digit 47: Future 4

0: None

Digit 48: Testing and special quotation (SQ)

0, Y, Z: None

T: Record test report

M: Mechanical special

1: Mechanical special and record test report

S: Software special

3: Software special and record test report

B: Mechanical and software special

5: Mechanical and software special and record test report

Digit 49: Generation/revision level

1: First generation

2: Second generation

General

Table 1: Physical data

Unit size	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Compressor data - standard capacity, standard efficiency							
Quantity/size (nominal HP)	1/4.5, 1/7, 1/10	1/5.5, 1/7, 1/7, 1/7.5	1/5.5, 1/8.5, 1/10, 1/11.5	1/7.5, 1/10, 1/11.5, 1/15	1/12, 1/12, 1/15, 1/15	1/10, 1/15, 1/15, 1/20	1/15, 1/15, 1/15, 1/20
Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Capacity steps	7	11	15	15	8	9	7
Number of circuits	2	2	2	2	2	2	2
Compressor data - high capacity, standard efficiency							
Quantity/size (nominal HP)	1/5, 1/7.5, 1/10	1/5.5, 1/7, 1/7, 1/ 8.5	1/7, 1/13, 1/8.5, 1/10	1/8.5, 1/15, 1/7.5, 1/15	1/13, 1/13, 1/15, 1/15	1/15, 1/15, 1/15, 1/20	1/15, 1/15, 1/20, 1/20
Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Capacity steps	7	11	15	11	8	7	8
Number of circuits	2	2	2	2	2	2	2
Compressor data - standard capacity, high efficiency							
Quantity/size (nominal HP)	1/5, 1/7.5, 1/13	1/7, 1/7, 1/18.5	1/7.5, 1/7.5, 1/10, 1/13	1/10, 1/10, 1/12, 1/17.5	1/10, 1/15, 1/15, 1/17.5	1/13, 1/15, 1/15, 1/27	1/15, 1/15, 1/15, 1/27
Type	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Capacity steps	15–100%	15–100%	15–100%	15–100%	15–100%	15–100%	15–100%
Number of circuits	2	2	2	2	2	2	2
Supply fan							
Quantity of fans/motors	1/1	1/1	1/1	1/1	2/2	2/2	2/2
Type	Direct-drive plenum	Direct-drive plenum	Direct-drive plenum	Direct-drive plenum	Direct-driven plenum	Direct-driven plenum	Direct-driven plenum
Size (in.)	27	27	33	33	27	27	27
Motor size range each fan (min to max HP)	5–25	5–25	10–50	10–50	5-40	5-40	5-40
Airflow range (min to max CFM)	5,000–12,000	5,000–12,000	8,000–20,000	8,000–20,000	12,000-24,000	14,000-32,000	14,000-32,000
Total static pressure range (min to max iwg)	1.0–8.0	1.0–8.0	1.0–8.0	1.0–8.0	1-8.3	1-8.3	1-8.3
Return fan							
Quantity of fans/motors	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Type	Belt-driven plenum	Belt-driven plenum	Belt-driven plenum	Belt-driven plenum	Direct-driven plenum	Direct-driven plenum	Direct-driven plenum
Size (in.)	27	27	30	30	33	33	33
Motor size range (min to max HP)	5–10	5–10	5–20	5–20	7.5-40	7.5-40	7.5-40
Airflow range (min to max CFM)	5,000–12,000	5,000–12,000	8,000–20,000	8,000–20,000	12,000-24,000	14,000-32,000	14,000-32,000
Total static pressure range (min to max iwg)	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0
Exhaust fan							
Quantity of fans/motors	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Type	Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved
Size (in.)	18–18	18–18	25–25	25–25	30-30	30-30	30-30
Motor size range (min to max HP)	3–15	3–15	5–20	5–20	5-25	5-40	5-40
Airflow range (min to max CFM)	5,000–12,000	5,000–12,000	8,000–20,000	8,000–20,000	12,000-24,000	14,000-32,000	14,000-32,000

Table 1: Physical data

Unit size	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Total static pressure range (min to max iwg)	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0	0.5–3.0
ERW dual exhaust fan							
Quantity of fans/motors					2/2	2/2	2/2
Type					Belt-driven forward curved	Belt-driven forward curved	Belt-driven forward curved
Size (in.)					20-18	22-20	22-20
Motor size range each fan (min to max HP)					5-15	5-20	5-20
Airflow range (min to max CFM)					6,000-24,000	7,000-28,000	7,000-32,000
Total static pressure range (min to max iwg)					0.5-3	0.5-3	0.5-3
Condenser fan							
Quantity	2		4			6	
Type	Propeller						
Size (diameter in in.)	30						
Power (HP)	2						
Evaporator coil - standard capacity, standard efficiency							
Size (sq. ft.)	24		36		49.5	66	66
Number of rows/fins per in.	3/17	5/17	4/17	4/17	5/17	5/17	6/17
Size (tube diameter in in.)	3/8						
Evaporator coil - high capacity, standard efficiency							
Size (sq. ft.)	24		36		49.5	66	66
Number of rows/fins per in.	4/17	6/17	4/17	6/17	6/17	6/17	6/17
Size (tube diameter in in.)	3/8						
Evaporator coil - standard capacity, high efficiency							
Size (sq. ft.)	24		36		49.5	66	66
Number of rows/fins per in.	4/17	6/17	4/17	6/17	6/17	6/17	6/17
Size (tube diameter in in.)	3/8						
Hot gas reheat (HGRH) coil							
Coil type	Microchannel						
Control type	Modulating						
Size (area in sq. ft./thickness in in.)	19.5/0.8		19.5/1		28/1	33.4/1	33.4/1
Number of rows/fins per in.	1/23						
Minimum outside air (OA) temperature for mechanical cooling	45.0°F						
Low ambient option minimum OA temperature for mechanical cooling	-10.0°F						
Condenser coil - standard capacity, standard efficiency							
Size (sq. ft.)	61	61	98	98	153	191	191
Number of rows/fins per in.	1/23	1/23	1/23	1/23	1/23	1/23	1/23
Size (thickness in in.)	0.8	0.8	0.8	1	1	1	1
Type	Microchannel						
Condenser coil - high capacity, standard efficiency							
Size (sq. ft.)	61	61	98	98	153	191	191
Number of rows/fins per in.	1/23						
Size (thickness in in.)	0.8	0.8	0.8	1	1	1	1
Type	Microchannel						
Condenser coil - standard capacity, high efficiency							

Table 1: Physical data

Unit size	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Size (sq. ft.)	61	61	98	98	153	191	191
Number of rows/fins per in.	1/23						
Size (thickness in in.)	1						
Type	Microchannel						
ERW - High CFM							
Cassette dimensions (L x W x H in in.)	50 x 4.36 x 50	50 x 4.36 x 50	62.42 x 6.07 x 62.42	62.42 x 6.07 x 62.42	78 x 7.07 x 78	85 x 7.07 x 85	85 x 7.07 x 85
Wheel segments	6	6	8	8	8	8	8
Motor (V, ph, Hz)	208-230/3/60, 460/3/60, 575/3/60						
Horsepower (HP)	1/6	1/6	1/4	1/4	1/3	1/3	1/3
Filter type	2 in. MERV 8 pleated						
RA filters - size (number)	25 x 25 (2)	25 x 25 (2)	15 x 20 (6)	15 x 20 (6)	18 x 25 (3) and 20 x 25 (3)	20 x 24 (6) and 20 x 10 (2)	20 x 24 (6) and 20 x 10 (2)
OA filters - size (number)	25 x 25 (2)	25 x 25 (2)	15 x 20 (6)	15 x 20 (6)	18 x 25 (3) and 20 x 25 (3)	20 x 24 (6) and 20 x 10 (2)	20 x 24 (6) and 20 x 10 (2)
ERW - low CFM							
Cassette dimensions (L x W x H in in.)	44 x 4.36 x 44	44 x 4.36 x 44	56.19 x 4.36 x 56.19	56.19 x 4.36 x 56.19	68 x 6.07 x 68	72 x 7.07 x 72	72 x 7.07 x 72
Wheel segments	6	6	6	6	8	8	8
Motor (V, ph, Hz)	208-230/3/60, 460/3/60, 575/3/60						
Horsepower (HP)	1/6	1/6	1/6	1/6	1/4	1/4	1/4
Filter type	2 in. MERV 8 pleated						
RA filters - size (number)	25 x 25 (2)	25 x 25 (2)	15 x 20 (6)	15 x 20 (6)	16 x 24 (6)	18 x 24 (6)	18 x 24 (6)
OA filters - size (number)	25 x 25 (2)	25 x 25 (2)	15 x 20 (6)	15 x 20 (6)	16 x 24 (6)	18 x 24 (6)	18 x 24 (6)
Electric heat (208 V/230 V)							
Size range - low/high (kW)	50/100		60/120		90/120		
Heating steps - low/high	3/6		4/8		6/8		
SCR (modulating heat)	Available						
Electric heat (460 V/575 V)							
Size range - low/high (kW)	60/120		80/160		120/200		
Heating steps - low/high	3/6		4/8		6/10		
SCR (modulating heat)	Available						
Gas furnace							
Staged furnace sizes (input/output/stages)	250/202.5/2		500/405/2		500/405/2		
	500/405/2		750/607.5/4		1000/810/4		
	750/607.5/4		1,250/1012.5/6		1500/1215/6		
Airflow range (min to max CFM)	5,000–12,000		8,000–20,000		12,000-24,000	14,000-32,000	14,000-32,000
Gas heat steady state efficiency (SSE)	81%						
Modulating furnace sizes (input/output/turndown)	250/202.5/10:1		500/405/20:1		500/405/10:1		
	500/405/20:1		750/607.5/30:1		1000/810/20:1		
	750/607.5/30:1		1,250/1012.5/50:1		1500/1215/30:1		
Airflow range (min to max CFM)	5,000–12,000		8,000–20,000		12,000-24,000	14,000-32,000	14,000-32,000
Hot water coil							
Coil tube diameter (in.)	1/2						
Material	Copper tube/aluminum fin						
Fins per in. - low/high	13/10		13/10		14/10		
Size (H x L in in.)/rows low	25 x 70/1		42.5 x 70/1		52.5 x 84/1		
Size (H x L in in.)/rows high	25 x 70/2		42.5 x 70/2		52.5 x 84/2		
Steam coil							
Coil tube diameter (in.)	1						
Material	Copper tube/aluminum fin						

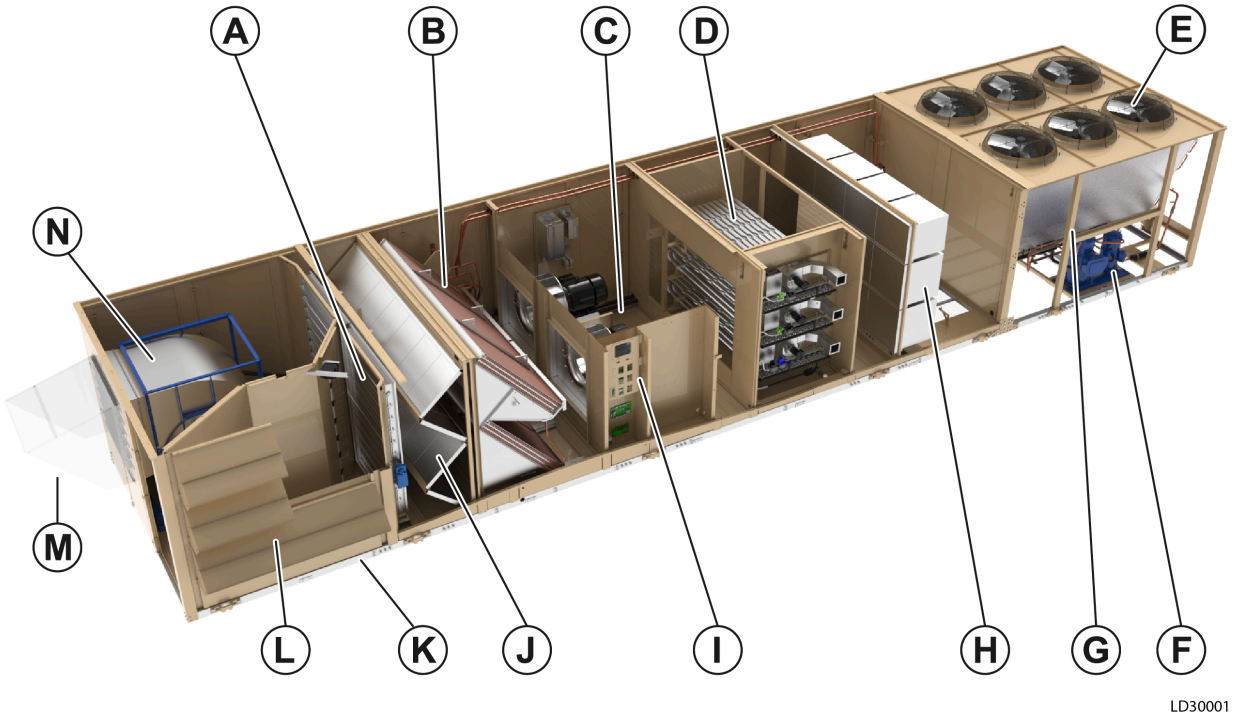
Table 1: Physical data

Unit size		25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Fins per in. - low/high		8/14		8/14		8/14	8/14	10/14
Size (H x L in in.)/rows low		24 x 68/1		42 x 68/1		48 x 84/1		
Size (H x L in in.)/rows high		24 x 68/1		42 x 68/1		48 x 84/1		
Draw-through - 2 in. throwaway angled filters								
Quantity		18		24		28		
Size (L x W in in.)		16 x 20		16 x 20		16 x 24		
Total filter face area (sq. ft.)		40		53.33		70.83		
Draw-through - 2 in. MERV 8 angled filters								
Quantity		18		24		28		
Size (L x W in in.)		16 x 20		16 x 20		16 x 24		
Total filter face area (sq. ft.)		40		53.33		70.83		
Draw-through - MERV 15 bag filters with 2 in. MERV 8 pre-filters								
Pre-filters	Quantity	6/6		12/3		9/6		
	Size (L x W in in.)	16 x 24/16 x 20		16 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	29.33		38		53.61		
Bag filters	Quantity	3/3/2/2		6/7/2		9/6		
	Size (L x W in in.)	24x24/24x20/12x20/12x24		24x24/12x24/12x12		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	29.33		40		53.02		
Draw-through - MERV 14 rigid filters with 2 in. MERV 8 pre-filters								
Pre-filters	Quantity	6/6		12/3		9/6		
	Size (L x W in in.)	16 x 24/16 x 20		16 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	29.33		38		53.61		
Rigid filters	Quantity	3/4/1		6/3/2/1		9/6		
	Size (L x W in in.)	24 x 24/24 x 20/20 x 20		24 x 12/12 x 24/20 x 24/12 x 20		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	28.11		38.33		53.02		
Draw-through - vertical 4 in. MERV 8 filters								
Quantity		6/6		18		9/6		
Size (L x W in in.)		16 x 25/16 x 20		16 x 20		24 x 24/20 x 24		
Total filter face area (sq. ft.)		30		40		53.02		

Unit size		25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Final filters - MERV 15 bag filters with 2 in. pre-filters								
Pre-filters	Quantity	6/4		12/3		6/8		
	Size (L x W in in.)	16 x 24/20 x 20		16 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	27.11		38		48.47		

Unit size		25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Bag filters	Quantity	3/4/2		6/7		6/4/4		
	Size (L x W in in.)	24 x 24/20 x 20/12 x 24		24 x 24/12 x 24		24 x 24/24 x 20/20 x 24		
	Total filter face area (sq. ft.)	27.11		38		47.93		
Final filters - MERV 14 rigid filters with 2 in. pre-filters								
Pre-filters	Quantity	6/4		12/3		6/8		
	Size (L x W in in.)	16 x 24/20 x 20		16 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	27.11		38		48.47		
Rigid filters	Quantity	3/4/2		6/7		9/6		
	Size (L x W in in.)	24 x 24/20 x 20/12 x 24		24 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	27.11		38		53.02		
Final filters - MERV 17 HEPA® filters with 2 in. pre-filters								
Pre-filters	Quantity	6/4		12/3		6/8		
	Size (L x W in in.)	16 x 24/20 x 20		16 x 24/12 x 24		24 x 24/20 x 24		
	Total filter face area (sq. ft.)	27.11		38		48.47		
HEPA® filters	Quantity	6		15/3		8/8/2		
	Size (L x W in in.)	24 x 24		12 x 24/12 x 17		23 3/8 x 23 3/8/24 x 12/12 x 12		
	Total filter face area (sq. ft.)	24		34.26		48.36		

Figure 1: 25 ton to 80 ton packaged rooftop unit cabinet assembly



Note: Some components listed are optional.

A	Economizer	H	Final filter
B	Evaporator coil	I	Unit controller and power
C	Direct drive plenum (DDP) supply fan	J	Filter section
D	Modulating or staged gas heat	K	Outside air (right side)
E	Condenser fans	L	Collapsible rain hoods
F	Scroll compressors	M	Exhaust air (front)
G	Condenser coil cleaning hatch (not shown)	N	Exhaust and return fan

Introduction

The Johnson Controls® Premier™ rooftop units are a single package with cooling only or cooling with gas, electric, hot water, or steam heat. The units can be ordered with a variety of factory-installed options.

The units are designed to be installed on a factory provided roof curb, a field manufactured roof curb, a field provided dunnage steel metal frame, or at grade level on a concrete pad. The units are intended for outdoor installations only.

The units are completely assembled on rigid, permanently attached base rails. All internal piping, electrical wiring, and the proper refrigerant charge is completed at the factory, as well as factory testing. The units require field electrical wiring for power and controls, field connected ductwork, field connected gas piping (if applicable), field connected hot water or steam piping (if applicable), and condensate drain(s). Units with gas heat also require the installation of a factory provided flue gas outlet hood.

The Premier rooftop unit is designed for serviceability with an optional single handle latching mechanism for doors.

Options to make the unit serviceable include a convenience outlet to power lights and tools: internal lights in the air handler section; viewports in doors of serviceable compartments to enable easier unit inspection; and extended grease lines to simplify fan bearing lubrication for belt-driven return and exhaust fans. Standard DDP supply fans do not require lubricating the fan bearings or changing belts.

Numerous refrigeration options are also available, including replaceable core filter driers, liquid and suction isolation valves, as well as high and low pressure transducers in each circuit that enable easier sub-cooling and superheat measurements.

Compare the model number on the unit you are installing or maintaining to the Nomenclature 25 ton to 80 ton model number included in this manual to find the options that were selected for your unit.

Ecological and economical design

The Premier rooftop units feature a capacity range from 25 ton to 80 ton. The units are configured to order with a wide selection of factory installed options. A complete range of heating and cooling options are provided to meet today's customers' requirements. The unit has also been thoughtfully designed to include several features that reduce service and installation time.

Johnson Controls provides a product offering that meets or exceeds the following regulations:

- ASHRAE 90.1-2019 EER/IEER requirements
- Department of Energy 2023 IEER requirements
- ASHRAE 189.1-2014 IEER requirements
- Consortium of Energy Efficiency (CEE) 2019 highest tier efficiency ratings
- California Title 24-2016 standards
- ASHRAE 62 requirements for indoor air quality (IAQ)
- All units are rated in accordance with the AHRI Standard 340/360

All units with gas heat meet the requirements of AHRI CFRN Certification Program and Code of Federal Regulations, 10 CFR Part 431. This references efficiency test method in standard ANSI Z21.47.

Condensing section

Scroll compressors

Reliable, efficient, trouble-free operation is the true measure of a rooftop unit's value. That's why Premier™ air conditioners use established scroll-compressor technology to deliver dependable, economical performance in a wide range of applications.

Premier™ units offer the latest generation of compressor enhancements added to the scroll's inherent strengths. The simplicity of a hermetic scroll compressor allows the use of fewer moving parts to minimize breakdown.

Multiple compressor staging

Through the use of the standard fixed speed or optional variable speed drive scroll compressors, the unit has the capability to stage its cooling by enabling and disabling compressors on multiple circuits. Smaller steps of cooling capacity provide tighter control of the building environment and occupant comfort while optimizing energy efficiency.

The unit provides a best in class, number of cooling capacity steps, providing seven or more steps of capacity control, on fixed speed compressors. Variable speed drive compressors provide a modulating cooling capacity range of 15–100%.

Compressor circuiting

The Premier unit is designed to achieve efficient system capacity by using multiple compressors and refrigeration circuits. With multiple circuits, if a compressor fails on one circuit, the other circuit remains operational to work to maintain occupied loads. This means a more reliable unit and less equipment downtime.

Compressor sound blankets

Optional factory installed compressor sound blankets can help to further reduce sound radiated from the compressor. In applications such as downtown areas, where acoustics are important, sound blankets are especially helpful with reducing outdoor unit sound.

Replaceable core filter driers

The optional replaceable core filter driers remove moisture, dirt, and debris from the refrigeration circuit in the event it is opened. Additionally, the optional replaceable core filter drier helps to maintain and optimize the unit's refrigeration system.

Low ambient operation

Head pressure control is accomplished via a variable frequency drive (VFD) motor controller rather than an inefficient and noisy condenser fan damper. By varying the speed of the condenser fan, better control and quieter operation is obtained during the colder months.

In low ambient mode, compressors have the capability to operate down to -10.0°F and resume cooling at -7.0°F, thereby giving customers an improved envelope control.

Condenser fan motors

The condenser fan motors used on the units are permanently lubricated open drip proof (ODP) type

to provide maximum durability through any season. The roof above the condensers includes a drain location to prevent pooling of water.

Condenser coils

Condenser coils are available to suit almost any type of application. Post-coated aluminum fins are available.

The use of an epoxy coated coil is recommended for units installed in a corrosive environment.

Condenser coil protection

The unit is available with a wire mesh guard or louvered hail guard for optimum coil protection.

Sound attenuator, humidifer, and air blender section

Sound attenuator

To meet customer specific requirements in sound-sensitive applications such as theaters, libraries, or hospitals, a sound attenuator is provided as an option in the downstream section of the cooling coil. Sound travels through the supply air duct path, hence it needs particular attention. Contact Johnson Controls Application Engineering for application specific requirements.

Humidifier

Consider a humidifier option for applications that have dry air and need humidification in the occupied space. The unit ships with a steam control valve, cast iron steam traps, and an iron wye strainer and can be easily connected on the bottom right-hand side of the unit. An additional drain pan is provided in the humidifier section for condensate removal.

Note: Steam must be field provided.

Air blender

The unit has an option to install an air blender in the pre-evaporator section to help improve temperature control accuracy, mixing of outdoor air, and evening of the air velocity profile.

Evaporator section

Evaporator coils

Interlaced, circuited evaporator coils are a standard feature on all units. Copper tubes are internally enhanced and expanded to bond with either aluminum or copper fins. All coils are pressure tested at the factory to meet the established quality standards. Epoxy coated coils are optionally provided as an enhanced feature to provide substantial resistance to corrosion.

Modulating hot gas reheat

The unit has an option for modulating hot gas reheat (HGRH). The HGRH system is an efficient approach for moisture removal and dehumidification of the space. Temperature and humidity are efficiently maintained in the space, reducing energy costs and improving customer comfort.

Double sloped stainless steel drain pan

The unit is offered with a standard stainless steel drain pan that meets ASHRAE 62 requirements for condensate drainage removal, thus improving IAQ. An intermediate drain pan is offered on 40 ton to 80 ton units that has drip tubes to guide condensate to the main drain pan.

To monitor condensate accumulation and notify the customer of a possible overflow concern, a condensate overflow switch option is provided for all units.

Heating section

Gas heat

For gas heat, the gas utilizes an induced-draft gas furnace designed for high efficiency and reliability. The furnace uses an aluminized steel tubular heat exchanger and operates at temperatures sufficient to prevent acidic exhaust gases from condensing in the heat exchanger at low fire rates, unlike drum and tube style furnaces that generate condensation formation. An optional stainless steel heat exchanger is also available.

Fully modulating gas heat and greater steps of capacity control offer superior design performance while maintaining optimum occupant comfort. The gas heat option allows up to 50:1 turndown for modulating gas furnace and up to six stages for staged heating control. Refer to the gas furnace section in Table 1.

Electric heat

Electric heat is available either with staged or modulating, silicon controlled rectifier (SCR), control from 50 kW up to 200 kW, applicable to 25 ton to 80 ton.

Depending on the size of the heat required, the unit can have multiple steps of control helping to provide tighter control of the supply and zone conditioned air. With the utilization of this multi-step function, the unit can effectively reduce energy

consumption by bringing on smaller stages of heat while maintaining the maximum level of comfort.

Hydronic heat

The unit has a hydronic low or high heat option. The unit ships to the site with a completed coil, including headers and connections that are tested to ensure leak-free operation.

Customers can opt to have valves shipped with the unit. For ease of installation, the unit has hole markings for the field to drill holes either through the base or side of the unit.

Air management

Fans

High efficiency fans are used to improve application flexibility and address sound and application concerns. The fan section is equipped with a single width, single inlet (SWSI) airfoil plenum wheel on 25 ton to 50 ton and dual SWSI airfoil plenum wheels on 60 ton to 80 ton as a standard feature. Plenum fans are direct drive. An exhaust fan is provided with a double width, double inlet (DWDI) forward curved centrifugal type fan, while the return fan has a SWSI airfoil plenum wheel on 25 ton to 50 ton. On 60 ton to 80 ton units with return fan, a SWSI airfoil direct driven plenum wheel is available. On 60 ton to 80 ton unit with and ERW, dual DWDI forward curved centrifugal type fans are supplied.

Premium efficiency motors

Premium efficiency motors are available for optimum energy efficiency. All motors used on the rooftop air conditioner meet U.S. EPACT 1992 minimum requirements. High efficiency motors are standard. Motors are available in ODP or totally enclosed fan-cooled (TEFC) construction.

Building pressure control

Return fan, exhaust fan, and barometric relief damper are available to meet building pressure control requirements. Fan tracking is offered as an option with supply and return fan airflows. The return fan capacity can be controlled to maintain a constant difference between supply and return airflow. A fan bypass option is provided on return, 25 ton to 50 ton, and exhaust, 25 ton to 80 ton, fans that enables the fan to continue operation, in case of failure in the primary drive. On 60 ton to 80 ton unit with an ERW, dual DWDI forward curved centrifugal type fans are supplied. A redundant VFD option is available for DDP return fan, 60 ton to 80 ton, to ensure continuous operation. Extended grease lines are an option for return/exhaust fan shaft bearings to simplify bearing lubrication.

Variable frequency drives

The unit is provided with a standard VFD for all supply and return fan applications. An exhaust fan with VFD is available as an option. The VFD can optimize system performance by modulating the fan motor speed to reduce energy consumption and provide precise airflow control.

WARNING

Never operate the unit without a VFD controlling the DDP supply and return fan. Bypassing the VFD will cause a catastrophic failure of the DDP supply and return fan.

Line reactors are provided as an option for fans with a VFD that help reduce harmonic distortion. On 25 ton to 50 ton units to ensure continuous operation, the supply fan has an option for a redundant VFD. This VFD is enabled in case of failure of the primary VFD. On 60 ton to 80 ton units, to ensure continuous operation dual supply fans have an option for dual VFDs. These VFDs are supplied to independently operate the two supply fan motors. A shaft grounding ring is an option available with the unit to protect motor bearings by diverting motor bearing currents safely to the ground.

Fan spring isolation

1 in. spring, 2 in. spring, and seismic spring fan isolation are available as an option to prevent vibration transmission from the unit's fans to the building.

Energy recovery wheel

The unit is provided with a single speed and variable speed energy recovery wheel (ERW) option. Operating costs are reduced significantly by transferring energy from the exiting exhaust air to the entering outside air, thereby reducing the cooling load of the unit. Freeze protection is available as standard for all ERWs. The wheel is specially designed to slide out of the unit for easy maintenance of wheel segments.

Controls

Rooftop unit controller

The unit is supplied with a factory commissioned, configured, and run tested Applied Smart Equipment controller. The unit controller is easily compatible with all Smart Equipment platforms.

The software and user programmed setpoints are stored in nonvolatile memory for the 20-year expected life of the microprocessor. The real time clock (RTC) information is retained for a minimum of 72 hours during power loss with a super capacitor-backed circuit.

The unit ships with a USB drive installed in the port on the main control board, which is used to capture all trend data and start-up wizard results. This USB drive must remain in the main control board.

The unit controller is accompanied with an organic light-emitting diode (OLED) display that provides a 5 row × 35 character display. The display is a simplified design, making it easy to understand. Specific keys are individually assigned for quick selections. An optional color wide screen, thin film transistor (TFT) with multitouch capacitive touchscreen and 1280 × 800 resolution is also available to order factory installed or to field install.

The user interface display along with all VFD displays are located in the control cabinet section. When cabinet and control panel sizes allow, the display mounted panel can be adjusted according to the height preference of the operator.

BACnet®/Modbus™/N2/Customer terminal board

Using the standard Applied Smart Equipment controller, the unit can be adapted to operate with any building automation system (BAS) that is BACnet, Modbus, or N2 compatible, making it the most flexible commercial rooftop unit on the market.

For BACnet IP integration, an optional BACnet IP interface board is available during unit selection.

Indoor air quality

Indoor air quality

Outside air economizers provide energy savings in free cooling mode and can provide a healthier and more comfortable building environment by introducing fresh outside air into the building as needed. Dry bulb, single, or dual enthalpy economizer options are provided with the unit. Fault detection and diagnostics (FDD) monitoring and alarms are a standard feature with the economizer to meet ASHRAE 90.1-2019 and California Title 24-2016 standards.

Optional airflow measurement is provided for accurate tracking of air quantity and alerting the occupants or building owner to unhealthy situations. Low and ultra-low leak dampers are provided as an option to meet application specific requirements.

Double wall construction

The unit incorporates foam-injected double wall construction for maximum rigidity as standard on all units. Double wall construction of the roof, floor, doors, and walls prevents insulation from entering the conditioned air. The inner liner also facilitates periodic cleaning of the unit to prevent harmful buildup of bacteria or contaminants.

Demand control ventilation

To improve IAQ and help manage indoor pollutants,such as carbon dioxide (CO_2) or other harmful airborne contaminates, out of the occupied spaces for maximum comfort and safety, the unit is provided with built-in sequences for demand control ventilation (DCV).

The unit has adaptive controls to monitor indoor CO_2 or comparative CO_2 requirements. This helps the unit to introduce a variable amount of fresh air into the building, maintain IAQ, and improve customer comfort while reducing energy costs.

Smoke control

The unit is offered with factory installed supply and return smoke detector options. Auxiliary smoke control points are also available for smoke purge, pressurization, and de-pressurization sequences using the optional customer terminal board. These sequences are assigned higher priorities to ensure customer safety.

Filtration

The unit is configured for various types of draw-through and final filtration options to meet the different needs and requirements of today's rooftop applications. This includes throwaway, pleated, cleanable, and high efficiency filters. Filter transducers and magnehelic gauges are available to monitor contamination in filters.

Ultraviolet lights

UV lights are offered as an option and are installed in the downstream side of evaporator coil. The UV lights help improve system efficiency, indoor environmental quality, and occupant comfort. Growth of mold and bacteria is inhibited when UV lights are ON. To ensure operator safety, all doors that have access to UV lights are interlocked with a switch that disables UV light operation when a door is opened.

Electrical

Single point power

The unit comes standard with single point power connections to make installation quick and easy.

Dual point power

Applications that require the mechanical heating and cooling functions to be separated from the air handling functions come equipped with dual point power. The air handling function includes the ability to operate gas and hydronic heat. This enables the unit to be operated in an emergency condition while minimizing power consumption.

Power phase monitor

A power phase monitor is offered as standard for all products. On dual point power, the phase monitor is provided on both electrical circuits. The power phase monitor helps protect the unit from certain electrical issues, such as phase loss, phase imbalance, and high and low voltage. To ensure operator safety, high and low voltage connections are separated in the controls cabinet.

Unit-mounted disconnect, 65 kA SCCR

Factory provided disconnect is available as an option to minimize time during installation of equipment and to reduce necessary field installed items. 65 kA short circuit current rating (SCCR) is available as an option to safely withstand the short circuit current.

Service and Installation

Split ship

Premier™ 60 ton to 80 ton units are provided with a split ship option, to meet specific applications. Split ship units are factory tested, pre-charged with refrigerant and delivered to the job site split in two segments, air handling and condenser section, for an easy lift and seamless integration between power and refrigeration connections. Units which are shipped split are intended to be reconnected into one on a common curb.

See the installation instructions, found in the *Johnson Controls Premier™ Split Ship Assembly Installation Manual (6011413-JIM)* shipped with the unit.

Internal lights

Marine LED lights are offered as a factory installed option. Servicing or troubleshooting the unit is simplified by the presence of lights that improve cabinet visibility. Depending on the options selected, lights are installed in the pre and post evaporator, economizer, evaporator coil, and supply fan sections. The internal lights switch is located in the low voltage side of control panel.

Access doors, padlocks, viewports, safety latch and door tiebacks

Full-sized access doors provide easy access into the unit for routine maintenance and inspection. Doors are provided with a padlock option to secure them from unauthorized access and improve site safety. Specially designed viewports are offered as an option on access doors that help with inspection of the unit under operation. A safety latch that requires a 5/16 in. Allen wrench is standard on all positive pressure doors, and door tiebacks are standard on all doors to secure them for operator safety during servicing. Refer to the technical supplement, Installing door tie-back brackets (5881370-UTS-A-0420) for installation instructions of door tie-back brackets that are shipped along with the unit.

Service valves and sight glasses

Suction, discharge, and liquid line valves are provided as an option for isolation, monitoring pressures, reclamation, and charging of refrigerant to minimize downtime and simplify service and repair. A sight glass is a standard feature on all units and is located in an easy access area for quick inspection of refrigerant in the unit. Units with replaceable core filter driers include liquid line valves in the upstream and downstream section to allow for ease of maintenance.

Convenience outlet

For maintenance tasks requiring power tools, an optional 115 V, 15 amp GFCI continuous duty outlet can power lights, drills, or any other power hand tools needed.

Condenser cleaning hatch

Periodic cleaning of condenser coils has never been easier. The 25 ton to 60 ton units are provided with hatches on both sides of the condenser frame, see Figure 61 and Figure 62. On 70 ton to 80 ton units, the dual hatches are provided on the accessible section of the condenser, see Figure 63.

Burglar bars

The units are designed to provide the customer peace of mind. Intrusion through the ductwork is prevented by installing burglar bars in the accessible sections with a bottom opening.

Inlet, belt guard and spare belts

To ensure operator safety, optional inlet guards are provided on the supply fan inlet, and optional belt guards are provided to enclose the drive and sheave package on the return, 25 ton to 50 ton, and exhaust, 25 ton to 80 ton, fan. A spare set of belts for the return, 25 ton to 50 ton, and exhaust, 25 ton to 80 ton, fan are available as a ship loose option.

Start-up and air balancing wizard

One of the most critical phases of the unit's life is during installation and start-up. Proper start-up ensures the unit operates without any trouble. The unit controller has a start-up wizard, which ensures field technicians follow all start-up procedures as mandated by the start-up documentation. All testing data is stored and can be downloaded to a USB.

For any unit that has dampers, fans, or airflow measurement stations, air balancing is critical. The unit controller has an air balancing wizard that assists both technicians and commissioning agents to test and calibrate airflow.

Factory run-tested

Each unit is subjected to a series of quality assurance checks as well as an automated quality control process before being run-tested. Fans and drives are checked for proper balancing at the factory during testing. The factory run-test ensures safe, proper operation when the unit is installed and reduces installation and commissioning time.

RTUToolKit app and QR code

Johnson Controls believes in empowering our customers with all unit-specific information at all times, even on the roof. Download the *RTUToolKit* app, available through the Apple® App Store® and the Google Play™ store.

In the app, using the included QR code scanner, users have the ability to scan the QR code on a unit. The QR code is unique to each manufactured unit and provides information specific to the unit installed.

Figure 2: RTUToolKit app

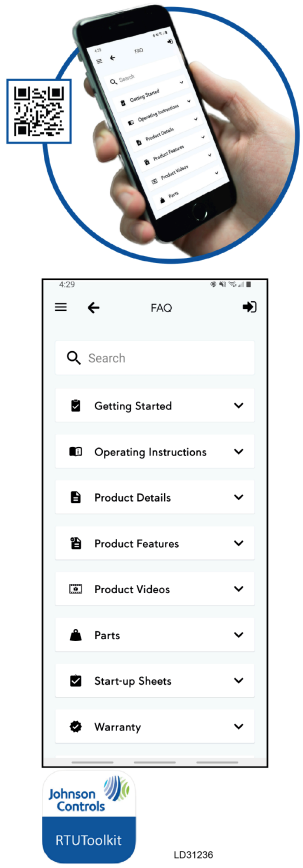


Figure 3: Sensor locations on the rooftop unit

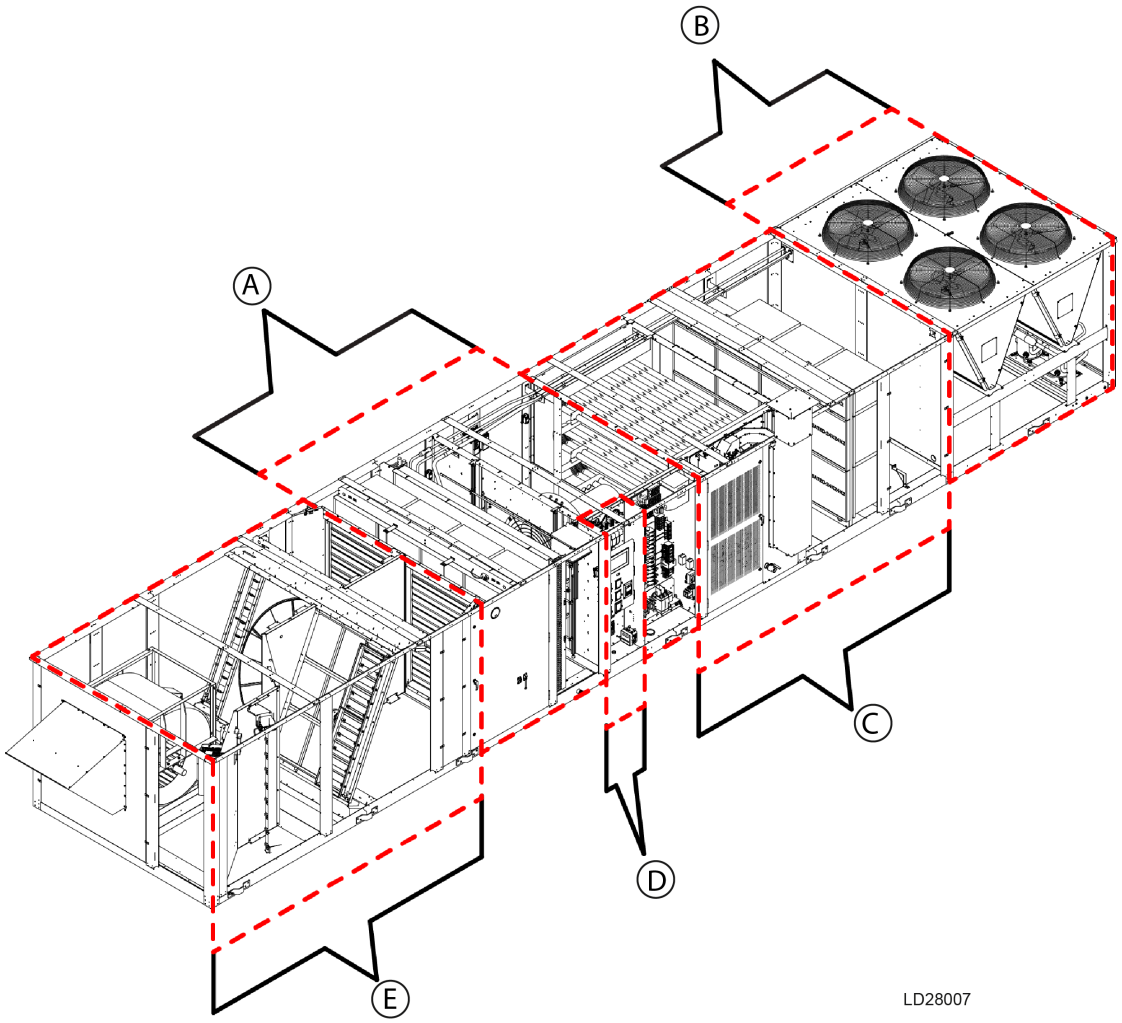


Table 2: Sensor locations on the rooftop unit

Item	Description
A	Discharge air velocity pressure (DA-VP) Heat entering temperature (HE-T) *Supply fan status (SF1-S)* *Supply fan status (SF2-S)* - 60 ton to 80 ton Evaporator temperature (EVAP-T) *Mixed air temperature (MA-T)* Pre-filter differential pressure (PFILT-DP) Outdoor air damper output (OAD-O) Condensate overflow switch (COND-A)
B	Discharge line pressure (DL-P) Discharge line temperature (DL-T) *Liquid line pressure (LL-P)* Liquid line temperature (LL-T) Suction pressure (SUCTION-P) Suction temperature (SUCTION-T) Oil level switch (OIL-A) *High pressure safety (HPS-A)* *Low pressure safety (LPS-A)*

Table 2: Sensor locations on the rooftop unit

Item	Description
C	Low temp alarm (LT-A) Final filter differential pressure (FFILT-DP) Supply air smoke detector (SA-SD) *Discharge air temperature (DA-T)* Discharge air humidity (DA-H)
D	Outdoor airflow sensor display (OA-F) Discharge air high duct pressure (DAPHI-A) Discharge air static pressure (DA-P)
E	Return air smoke detector (RA-SD) Return air quality (RA-Q) Return air humidity (RA-H) *Return air temperature (RA-T)* Return air velocity pressure (RA-VP) Return air damper output (RAD-O) Return fan status (RF-S) Return fan pressure (RA-P) Building static pressure (BLDG-P) exhaust Exhaust fan status (EF-S) Exhaust fan 2 status (EF-S) - 60 ton to 80 ton Exhaust air damper output (EAD-O) Outside air quality (OA-Q) Outside airflow (OA-F) *Outside air temperature (OA-T)* Outside air humidity (OA-H) Heat recovery OA face bypass damper command (HROAFBD-C) Heat recovery EA face bypass damper command (HREAFBD-C) Exhaust air heat recovery temperature (EAHR-T)

Note:

* Standard sensors and transducers. All other sensors and transducers listed are optional.

Actual sensor locations and availability may vary based on the unit configuration and options ordered.

Safety considerations

For installation and maintenance, understand and pay particular attention to the words: **NOTE**, **CAUTION**, **WARNING**, or **DANGER**.

Note: NOTES are intended to clarify or make the installation or maintenance easier.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.

WARNING

Indicates a potentially hazardous situation that, if not avoided, can result in death or serious injury.

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

DANGER

If the information in this manual is not followed exactly, a fire or explosion can result and cause property damage, personal injury, or loss of life.Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS: 1. Do not try to light any appliance. 2. Do not touch any electrical switch, and do not use any phone in your building. 3. Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. 4. If you cannot reach your gas supplier, call the fire department.Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage. Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer or service agency.

WARNING

Before performing service or maintenance operations on this unit, turn off the main power switch to the unit. Electrical shock could cause personal injury. Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer, service agency, or the gas supplier.

WARNING

ELECTRICAL SHOCK, FIRE, OR EXPLOSION HAZARD Failure to follow safety warnings exactly, as well as improper servicing, can result in dangerous operation, serious injury, death, or property damage.• Before servicing, disconnect all electrical power to furnace.• When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.• Verify proper operation after servicing.

CAUTION

This product must be installed in strict compliance with the installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

CAUTION

This system uses R-410A refrigerant that operates at higher pressures than R-22. No other refrigerant may be used in this system. Gauge sets, hoses, refrigerant containers, and recovery systems must be designed to handle R-410A. If you are unsure, consult the equipment manufacturer. Failure to use R-410A compatible servicing equipment can result in property damage or injury.

CAUTION

The furnace and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 0.5 psig or 13.5 iwg. Pressures greater than 0.5 psig or 13.5 iwg cause gas valve damage resulting in a hazardous condition. If the gas valve is subjected to a pressure greater than 0.5 psig or 13.5 iwg, it must be replaced. The furnace must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of that system at test pressures in excess of 0.5 psig or 13.5 iwg.

WARNING

This unit is not to be used for temporary heating or cooling of buildings or structures under construction.

Due to system pressure, moving parts, and electrical components, installation and servicing of air conditioning equipment can be hazardous. The installation, repair, or service of this equipment must only be performed by qualified, trained service personnel.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations must be performed by trained service personnel.

Observe all precautions in the literature, tags and labels attached to the unit, and other safey precautions that apply whenever working on air conditioning equipment. Wear safety glasses and work gloves; use quenching cloth for unbrazing operations; and have a fire extinguisher available for all brazing operations.

Limitations

The installation of this unit must conform with local building codes, or in the absence of local codes, with the National Fuel Gas Code ANSI Z223.1/NFPA 54 and/or the National Gas and Propane Installation Code CAN/CGA B149.1.

In the US:

1. National Electrical Code ANSI/NFPA 70, latest edition.
2. National Fuel Gas Code ANSI Z223.1, latest edition.
3. Gas-Fired Central Furnace Standard ANSI Z83.8, latest edition.
4. Local gas utility requirements.

Reference

Additional information is available in the following documents:

- Variable Air Volume for *Johnson Controls Premier™ Rooftop Units Application Guide (5515844-JAD)*
- Roof Curbs for *Johnson Controls Premier™ Rooftop Units Application Guide (5553807-JAD)*
- Sound from *Johnson Controls Premier™ Rooftop Units Application Guide (5515909-JAD)*
- California Title 24 Impact on *Johnson Controls Premier™ Rooftop Units (5553817-JAD)*

Approvals

The Premier rooftop units were certified by CSA as follows:

1. For use as a forced air furnace with cooling unit (gas heat models).
2. For outdoor installation only.
3. For installation on combustible material and may be installed directly on combustible flooring or Class A, Class B, or Class C roof cover materials.
4. For use with natural gas (convertible to liquid propane (LP) with kit).

These units are not suitable for use with conventional venting systems.

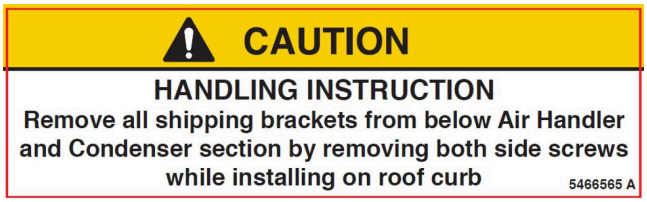
Installation

Unit inspection

Immediately upon receiving the unit, it must be inspected for possible damage that may have occurred during transit. If damage is evident, it must be noted in the carrier's freight bill. A separate written request for inspection by the carrier's agent must be made.

ⓘ **Note:** All shipping brackets must be removed prior to placing on the roof curb.

Figure 4: Shipping bracket warning label



CAUTION

To ensure warranty coverage, this equipment must be commissioned and serviced by an authorized/certified Johnson Controls service mechanic or qualified service person experienced in rooftop installation. Installation must comply with all applicable codes, particularly in regard to electrical wiring and other safety elements such as relief valves, horsepower cut-out settings, design working pressures, and ventilation requirements consistent with the amount and type of refrigerant charge.

WARNING

Lethal voltages exist within the control panels. Before servicing, open and lockout-tag out all disconnect switches.

Long term storage

When a unit(s) is stored for an extended period of time, conduct a visual inspection of the entire unit prior to start-up to ensure there are no signs of damage, visible leaks, or obstructions.

Unit placement

If the unit installation is elevated, consider the following points:

- Elevated roof curbs or dunnage steel can be used to support the unit in order to raise it to a specific height.
- Catwalks or other forms of unit access may be required to allow for ease of service.
- Service clearances must be maintained at all times.
- Check with local officials to ensure the application conforms to local codes and regulations.

If the unit installation is at ground level, consider the following points:

- Install the unit on a substantial base that does not settle. Settling causes undue stress and strain on refrigerant lines, which could cause costly leaks in the refrigeration systems.
- A one-piece concrete slab with footers that extend below the frost line is highly recommended.
- The slab must be isolated from the main building foundation. This helps to minimize noise and vibration transmission into the building.
- The unit must be raised off the slab when installing. This allows for the proper drainage of condensate from the unit. The unit can be permanently installed on top of the slab, if the drain connection to the unit is connected appropriately. No curb is required for slab installation.
- Service clearances must be maintained at all times.
- Check with local officials to ensure the application conforms to local codes and regulations.

Roof curb

Clearances and locations

- Johnson Controls offers an optional roof curb that is specially designed for the Premier unit footprint.
- If selected during the ordering process, the roof curb is shipped to the site before the unit. This allows time for curb assembly and installation.
- The curb must be properly sealed to prevent air and water leakage.

- Flexible collars must be used when connecting the ductwork to the unit to prevent noise and vibration being transmitted into the building.
- The roof curb drawings contained in the Johnson Controls Premier™ literature are not intended as construction documents for field fabricated curbs. Construction documents for field fabricated curbs are available upon request.
- Johnson Controls is not responsible for the unit fit-up, leak integrity, or sound level with field fabricated curbs.
- For additional information on roof curbs, refer to the Roof Curbs for *Johnson Controls® Premier™ Units Application Guide (55515909-JAD)*.

The rooftop units are designed for outdoor installation only. When selecting a site for installation, please use the following guidelines:

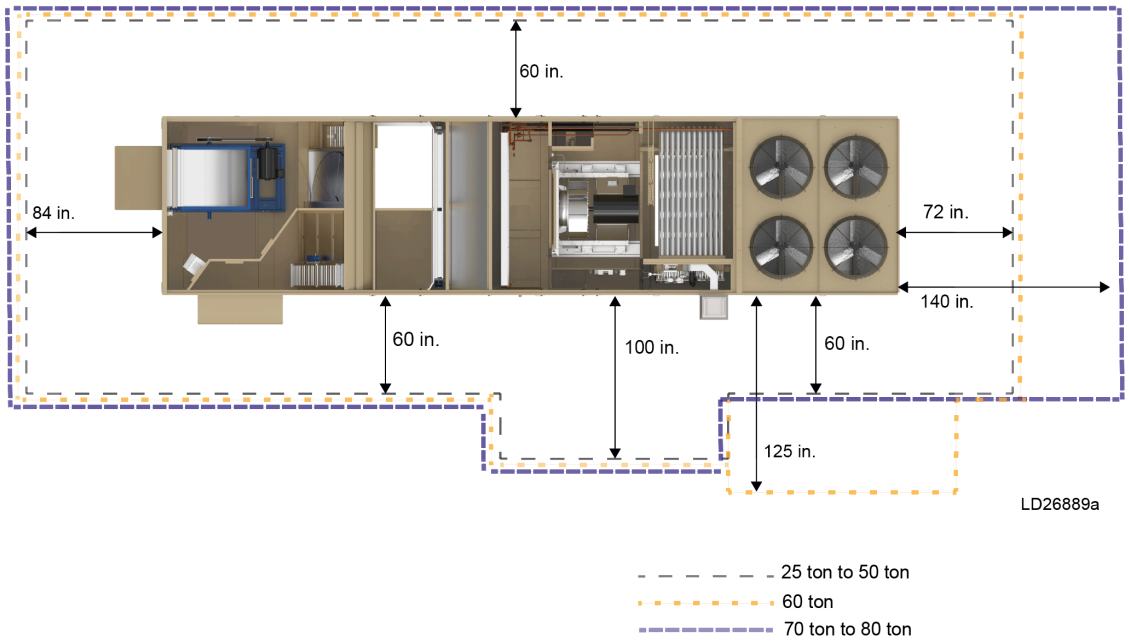
- Unit must be installed on a level surface.
- Unit must have an unlimited supply of outdoor air for the proper operation of the condenser coil, and for combustion air used on unit with gas heat.
- Avoid locations beneath windows, or between structures.
- The unit must be installed on a roof that is structurally strong enough to the support the weight of the unit with a minimum of deflection.
- It is recommended the unit(s) be installed not more than 15 ft from a main support beam. This helps to minimize the transmission of sound and vibration.
- Ideally, the center of gravity must be located over a structural support.
- Unit must not be installed near other flue stacks or exhaust fan outlets from the building, to prevent possible reintroduction of contaminated air through the outside air intakes.

Proper service clearances must be maintained around the perimeter of the unit. This allows for proper servicing of the unit as well as adequate air flow for condenser coils and combustion air for gas fired furnaces.

ⓘ **Note:** The clearances shown are to provide adequate condenser airflow and service access to inside the unit. Additional clearance must be considered for component replacement such as compressors, evaporator coils, and supply or exhaust fans.

While it is a common practice to operate the fan as soon as possible, air movement during construction, on the job site, the incomplete ductwork and missing diffuser grilles greatly reduces air resistance and allows the fan to operate beyond design parameters. This practice may result in water carryover and flooding of the unit. Also, the supply fan motor may over-amp and become damaged. The factory does not recommend running units while the building is under construction.

Figure 5: Unit clearances



Note:

1. 10 ft clearance minimum over the top of the condensing unit.
2. Only one adjacent wall can exceed unit height.
3. 12 ft clearance required to adjacent units.
4. Condenser clearance varies based on unit tonnage and coil arrangements.

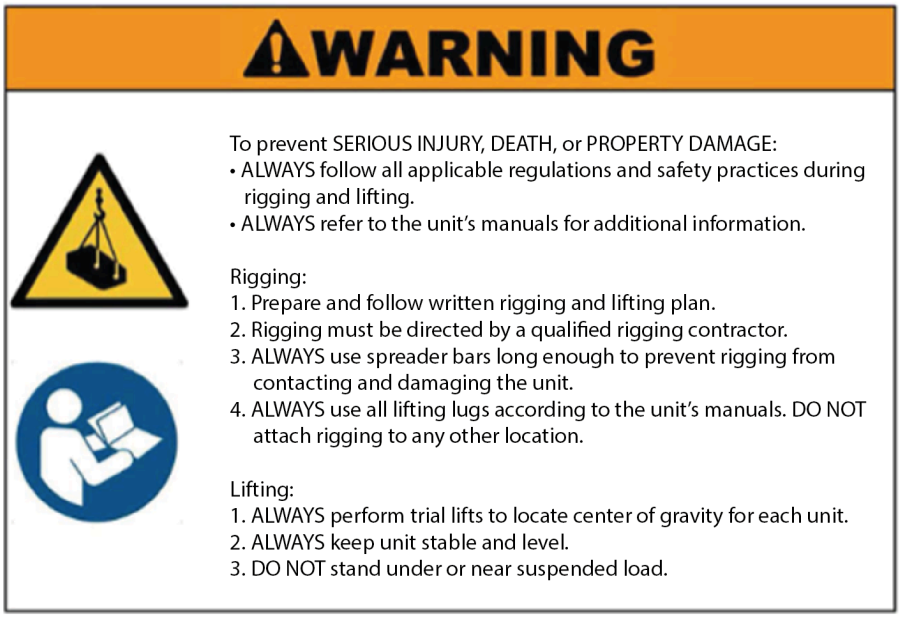
Rigging and handling

- The rooftop unit is not designed to be handled by a fork-truck. Never use a fork-truck to unload, move or lift a unit.
- Proper rigging and handling of the unit is mandatory during unloading and setting into position for safety and to retain warranty status.
- Handle the unit in an upright position to avoid damage of internal components while handling the unit.
- Exercise care when moving the unit. Do not remove any packaging until the unit is near the place of installation.
- All rigging and handling must be performed by a qualified rigging contractor.
- Refer to the unit's *Submittal Data* for the exact unit weight, corner loads, and center of gravity. As part of the submittal data a unit specific rigging and handling instructions document with lifting lug drawing is available.
- Proper spreader bar(s) and cables that are appropriate for the configuration and size of the unit must be used during rigging.
- See Figure 7 and Figure 8 for the lifting lug angles and examples. For exact lifting lug locations, contact your local sales representative or use the RTU Toolkit rigging and shipping document. All lifting lugs must be used to prevent twisting of the equipment structure.
- Always use lifting straps with safe working load limits above the weight of the unit. Use either a 3/4 in. round pin anchor shackle or a 3/4 in. round pin chain shackle for each lifting lug.
- When blocks are used under the base rail during transportation or storage, ensure a block is located under each and every lifting lug on both sides of the unit.

CAUTION

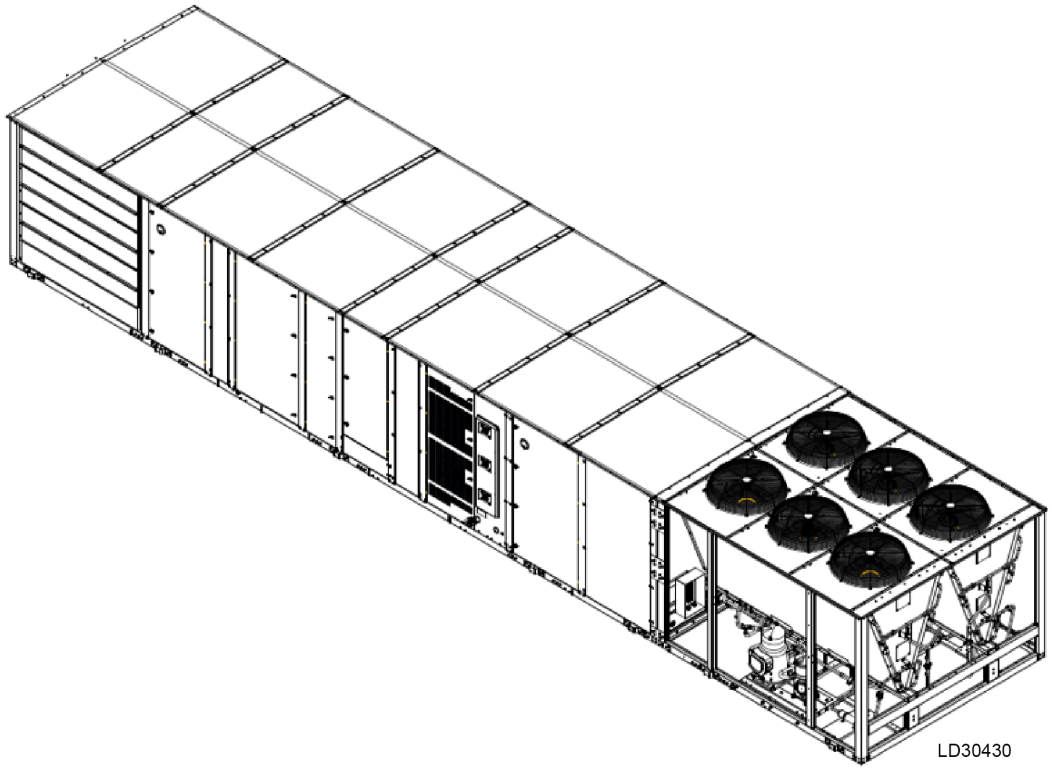
The rigging contractor MUST utilize spreader bars and all lifting lugs whenever the unit is lifted. Failure to do so could result in damage to the unit or injury to personnel.

Figure 6: Warning label on the unit



LD30674

Figure 7: Spreader bars and lifting lugs example, not applicable to all configurations and sizes



Note:

- All lifting lugs must be used for lifting the unit.

- The above rigging pictorial is for general information purposes only and is not intended to be a substitute to a rigging or lifting plan from a trained professional rigger. The most appropriate rigging and lifting method depends on job specific factors, such as the rigging equipment available and site needs. Therefore a professional rigger must determine the rigging and lifting method to be used, and it is beyond the scope of this drawing to specify rigging and lifting details for all applications.

Figure 8: Permissable lifting load direction and corresponding range of angles

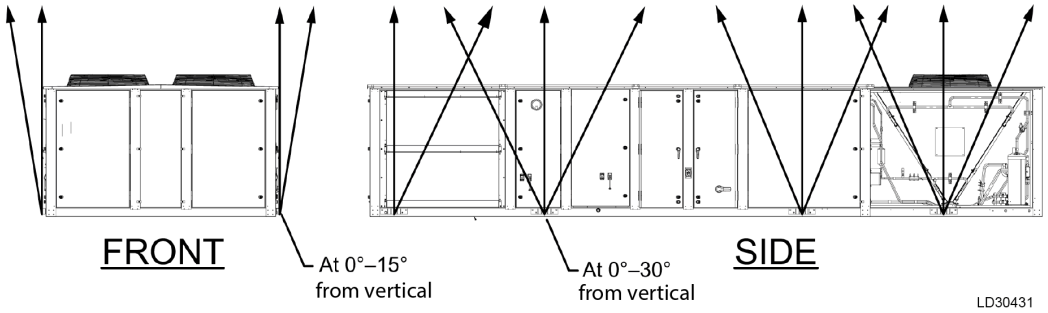
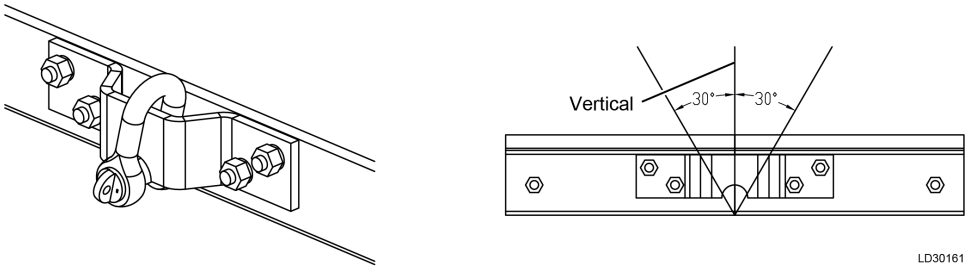


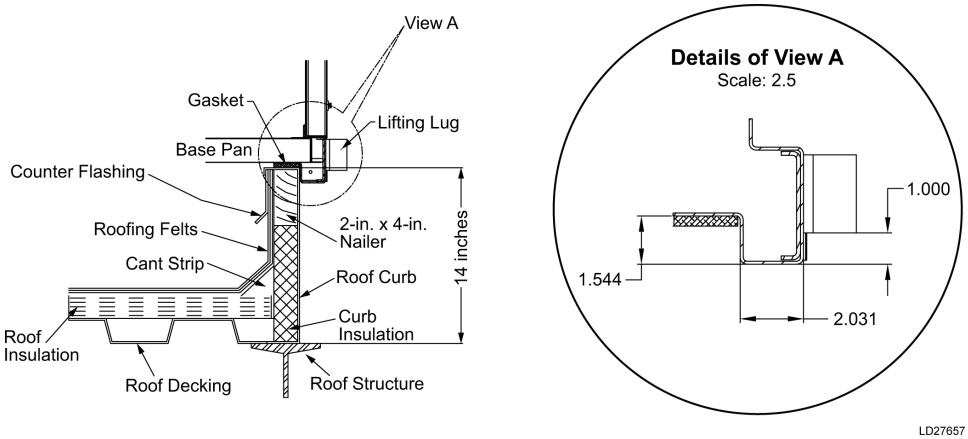
Figure 9: Lifting lugs



Note:

- Safe working load of 3.500 (3,500) lb each.
- Ensure that loading is within 30° of vertical.
- Always use lifting straps with safe working load limits above the weight of the unit. Use either a 3/4 in. round pin anchor shackle or a 3/4 in. round pin chain shackle for each lifting lug.

Figure 10: Unit base rail to curb fitup



Note: The roof curb, wood nailer, and gasket are factory provided. All other illustrated items must be field supplied.

Weights and unit dimensions

Weights

Figure 11: Standard cabinet unit sections

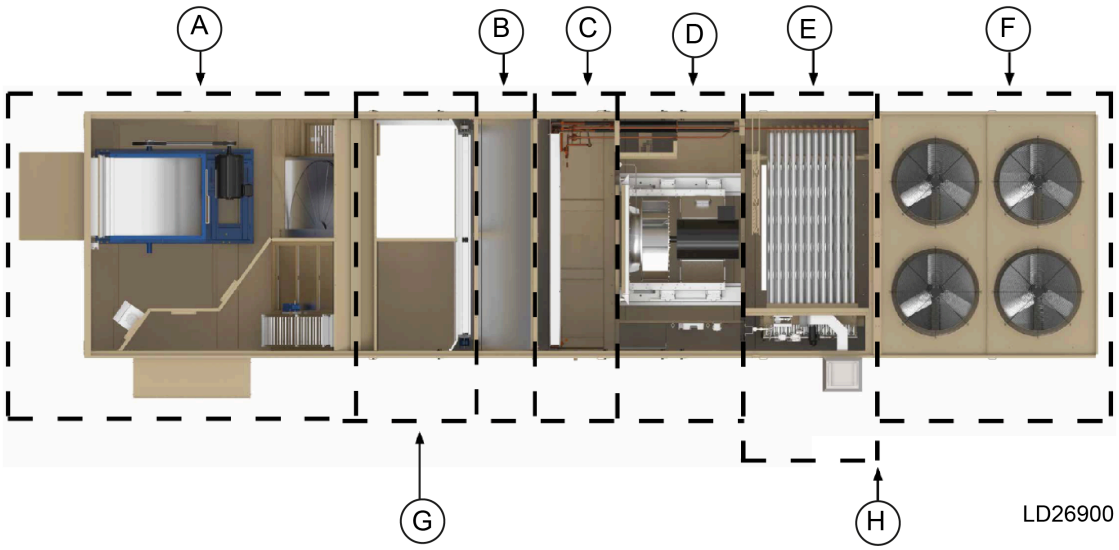


Table 3: Standard cabinet unit sections

Item	Description
A	Economizer cabinet with or without ERW cabinet
B	Draw-through filter cabinet
C	Evaporator cabinet
D	Supply fan cabinet
E	Heat and discharge cabinet[4]
F	Condenser fan cabinet with compressors
G	Pre-evaporator blank cabinet, air blender cabinet: between economizer and draw-through filter
H	Small post-evaporator blank cabinet, large post-evaporator blank cabinet, discharge plenum cabinet: upstream of condenser section

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Base unit section weights - standard cabinet, see Figure 11							
Economizer cabinet [1]	830	830	906	906	919	919	919
Energy recovery wheel cabinet	748	748	800	800	1869	2047	2047
Pre-evaporator blank cabinet [2]	548	548	587	587	461	461	461
Draw-through filter cabinet - vertical filter, 4 in.	98	98	105	105	203	203	203
Draw-through filter cabinet - angle, rigid, bag	264	264	282	282	386	386	386
Evaporator cabinet	303	303	324	324	487	1021	1021
Supply fan cabinet	440	440	471	471	-	-	-
Supply fan cabinet (55 in. section) [16]	-	-	-	-	1368	1368	1368
Supply fan cabinet (74 in. section) [16]	-	-	-	-	1579	1579	1579
Heat section cabinet (requires discharge plenum) [3]	522	522	559	559	1113	1113	1113
Heat with discharge through heat section [4]	668	668	732	732	955	955	955
Small post-evaporator blank cabinet [5]	440	440	471	471	423	423	423
Large post-evaporator blank cabinet [6]	914	914	978	978	651	651	651
Discharge plenum cabinet [7]	501	501	554	554	606	686	686
Direct drive plenum (DDP) supply fan components [8]							
Supply fan and 5 HP 200-208 V ODP	415	415	-	-	598	598	598
Supply fan and 7.5 HP 200-208 V ODP	463	463	-	-	725	725	725
Supply fan and 10 HP 200-208 V ODP	464	464	600	600	757	757	757
Supply fan and 15 HP 200-208 V ODP	563	563	699	699	968	968	968
Supply fan and 20 HP 200-208 V ODP	585	585	721	721	1076	1076	1076
Supply fan and 25 HP 200-208 V ODP	688	688	823	823	1294	1294	1294

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Supply fan and 30 HP 200-208 V ODP	-	-	869	869	1436	1436	1436
Supply fan and 40 HP 200-208 V ODP	-	-	876	876	1463	1463	1463
Supply fan and 50 HP 200-208 V ODP	-	-	979	979	-	-	-
Supply fan and 5 HP 200-208 V TEFC	417	417	-	-	620	620	620
Supply fan and 7.5 HP 200-208 V TEFC	474	474	-	-	767	767	767
Supply fan and 10 HP 200-208 V TEFC	506	506	641	641	831	831	831
Supply fan and 15 HP 200-208 V TEFC	605	605	740	740	1044	1044	1044
Supply fan and 20 HP 200-208 V TEFC	639	639	775	775	1174	1174	1174
Supply fan and 25 HP 200-208 V TEFC	741	741	877	877	1392	1392	1392
Supply fan and 30 HP 200-208 V TEFC	-	-	941	941	1566	1566	1566
Supply fan and 40 HP 200-208 V TEFC	-	-	1096	1096	1736	1736	1736
Supply fan and 50 HP 200-208 V TEFC	-	-	1230	1230	-	-	-
Supply fan and 5 HP 230/460 V ODP	415	415	-	-	598	598	598
Supply fan and 7.5 HP 230/460 V ODP	463	463	-	-	725	725	725
Supply fan and 10 HP 230/460 V ODP	464	464	600	600	757	757	757
Supply fan and 15 HP 230/460 V ODP	563	563	699	699	968	968	968
Supply fan and 20 HP 230/460 V ODP	585	585	721	721	1076	1076	1076
Supply fan and 25 HP 230/460 V ODP	688	688	823	823	1294	1294	1294
Supply fan and 30 HP 230/460 V ODP	-	-	869	869	1436	1436	1436
Supply fan and 40 HP 230/460 V ODP	-	-	876	876	1463	1463	1463
Supply fan and 50 HP 230/460 V ODP	-	-	979	979	-	-	-
Supply fan and 5 HP 230/460 V TEFC	417	417	-	-	620	620	620
Supply fan and 7.5 HP 230/460 V TEFC	474	474	-	-	767	767	767
Supply fan and 10 HP 230/460 V TEFC	506	506	641	641	831	831	831
Supply fan and 15 HP 230/460 V TEFC	605	605	740	740	1044	1044	1044
Supply fan and 20 HP 230/460 V TEFC	639	639	775	775	1174	1174	1174
Supply fan and 25 HP 230/460 V TEFC	741	741	877	877	1392	1392	1392
Supply fan and 30 HP 230/460 V TEFC	-	-	941	941	1566	1566	1566
Supply fan and 40 HP 230/460 V TEFC	-	-	1096	1096	1736	1736	1736
Supply fan and 50 HP 230/460 V TEFC	-	-	1230	1230	-	-	-
Supply fan and 5 HP 575 V ODP	426	426	-	-	611	611	611
Supply fan and 7.5 HP 575 V ODP	457	457	-	-	717	717	717
Supply fan and 10 HP 575 V ODP	474	474	610	610	743	743	743
Supply fan and 15 HP 575 V ODP	582	582	717	717	957	957	957
Supply fan and 20 HP 575 V ODP	585	585	721	721	1001	1001	1001
Supply fan and 25 HP 575 V ODP	688	688	823	823	1272	1272	1272
Supply fan and 30 HP 575 V ODP	-	-	852	852	1360	1360	1360
Supply fan and 40 HP 575 V ODP	-	-	876	876	1463	1463	1463
Supply fan and 50 HP 575 V ODP	-	-	949	949	-	-	-
Supply fan and 5 HP 575 V TEFC	427	427	-	-	633	633	633
Supply fan and 7.5 HP 575 V TEFC	475	475	-	-	759	759	759
Supply fan and 10 HP 575 V TEFC	506	506	641	641	817	817	817
Supply fan and 15 HP 575 V TEFC	605	605	740	740	1033	1033	1033
Supply fan and 20 HP 575 V TEFC	658	658	793	793	1099	1099	1099
Supply fan and 25 HP 575 V TEFC	762	762	898	898	1370	1370	1370
Supply fan and 30 HP 575 V TEFC	-	-	941	941	1490	1490	1490
Supply fan and 40 HP 575 V TEFC	-	-	1096	1096	1736	1736	1736
Supply fan and 50 HP 575 V TEFC	-	-	1155	1155	-	-	-
Energy recovery wheel (ERW)							
Low CFM	929	929	1181	1181	653	681	681
High CFM	965	965	1228	1228	868	1013	1013
Exhaust, return, and outside air economizer section [9]							
Economizer - no fan	378	378	494	494	612	628	628
Economizer with exhaust fan	883	883	1050	1050	1661	1678	1678
Economizer with return fan	1055	1055	1289	1289	692	708	708
Motor for exhaust and return fan[10]							
Vertical direct driven return fan and 7.5 HP motor 208-230/460 V ODP	-	-	-	-	1382	1406	1406
Vertical direct driven return fan and 10 HP motor 208-230/460 V ODP	-	-	-	-	1451	1475	1475
Vertical direct driven return fan and 15 HP motor 208-230/460 V ODP	-	-	-	-	1493	1517	1517
Vertical direct driven return fan and 20 HP motor 208-230/460 V ODP	-	-	-	-	1551	1575	1575

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Vertical direct driven return fan and 25 HP motor 208-230/460 V ODP	-	-	-	-	1511	1535	1535
Vertical direct driven return fan and 30 HP motor 208-230/460 V ODP	-	-	-	-	1613	1637	1637
Vertical direct driven return fan and 40 HP motor 208-230/460 V ODP	-	-	-	-	1792	1816	1816
Vertical direct driven return fan and 7.5 HP motor 208-230/460 V TEFC	-	-	-	-	1437	1461	1461
Vertical direct driven return fan and 10 HP motor 208-230/460 V TEFC	-	-	-	-	1462	1486	1486
Vertical direct driven return fan and 15 HP motor 208-230/460 V TEFC	-	-	-	-	1656	1680	1680
Vertical direct driven return fan and 20 HP motor 208-230/460 V TEFC	-	-	-	-	1679	1703	1703
Vertical direct driven return fan and 25 HP motor 208-230/460 V TEFC	-	-	-	-	1669	1693	1693
Vertical direct driven return fan and 30 HP motor 208-230/460 V TEFC	-	-	-	-	1729	1753	1753
Vertical direct driven return fan and 40 HP motor 208-230/460 V TEFC	-	-	-	-	1894	1918	1918
Vertical direct driven return fan and 7.5 HP motor 575 V ODP	-	-	-	-	1379	1403	1403
Vertical direct driven return fan and 10 HP motor 575 V ODP	-	-	-	-	1448	1472	1472
Vertical direct driven return fan and 15 HP motor 575 V ODP	-	-	-	-	1498	1522	1522
Vertical direct driven return fan and 20 HP motor 575 V ODP	-	-	-	-	1523	1547	1547
Vertical direct driven return fan and 25 HP motor 575 V ODP	-	-	-	-	1511	1535	1535
Vertical direct driven return fan and 30 HP motor 575 V ODP	-	-	-	-	1588	1612	1612
Vertical direct driven return fan and 40 HP motor 575 V ODP	-	-	-	-	1767	1791	1791
Vertical direct driven return fan and 7.5 HP motor 575 V TEFC	-	-	-	-	1444	1468	1468
Vertical direct driven return fan and 10 HP motor 575 V TEFC	-	-	-	-	1499	1523	1523
Vertical direct driven return fan and 15 HP motor 575 V TEFC	-	-	-	-	1591	1615	1615
Vertical direct driven return fan and 20 HP motor 575 V TEFC	-	-	-	-	1681	1705	1705
Vertical direct driven return fan and 25 HP motor 575 V TEFC	-	-	-	-	1679	1702	1702
Vertical direct driven return fan and 30 HP motor 575 V TEFC	-	-	-	-	1717	1741	1741
Vertical direct driven return fan and 40 HP motor 575 V TEFC	-	-	-	-	1909	1933	1933
Horizontal direct driven return fan and 7.5 HP motor 208-230/460 V ODP	-	-	-	-	1452	1476	1476
Horizontal direct driven return fan and 10 HP motor 208-230/460 V ODP	-	-	-	-	1521	1545	1545
Horizontal direct driven return fan and 15 HP motor 208-230/460 V ODP	-	-	-	-	1563	1587	1587
Horizontal direct driven return fan and 20 HP motor 208-230/460 V ODP	-	-	-	-	1621	1645	1645
Horizontal direct driven return fan and 25 HP motor 208-230/460 V ODP	-	-	-	-	1581	1605	1605
Horizontal direct driven return fan and 30 HP motor 208-230/460 V ODP	-	-	-	-	1681	1707	1707
Horizontal direct driven return fan and 40 HP motor 208-230/460 V ODP	-	-	-	-	1862	1886	1886
Horizontal direct driven return fan and 7.5 HP motor 208-230/460 V TEFC	-	-	-	-	1507	1531	1531
Horizontal direct driven return fan and 10 HP motor 208-230/460 V TEFC	-	-	-	-	1532	1556	1556
Horizontal direct driven return fan and 15 HP motor 208-230/460 V TEFC	-	-	-	-	1726	1750	1750
Horizontal direct driven return fan and 20 HP motor 208-230/460 V TEFC	-	-	-	-	1749	1773	1773
Horizontal direct driven return fan and 25 HP motor 208-230/460 V TEFC	-	-	-	-	1739	1763	1763
Horizontal direct driven return fan and 30 HP motor 208-230/460 V TEFC	-	-	-	-	1799	1823	1823
Horizontal direct driven return fan and 40 HP motor 208-230/460 V TEFC	-	-	-	-	1964	1988	1988
Horizontal direct driven return fan and 7.5 HP motor 575 V ODP	-	-	-	-	1449	1473	1473
Horizontal direct driven return fan and 10 HP motor 575 V ODP	-	-	-	-	1514	1538	1538
Horizontal direct driven return fan and 15 HP motor 575 V ODP	-	-	-	-	1568	1592	1592
Horizontal direct driven return fan and 20 HP motor 575 V ODP	-	-	-	-	1593	1617	1617

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Horizontal direct driven return fan and 25 HP motor 575 V ODP	-	-	-	-	1581	1605	1605
Horizontal direct driven return fan and 30 HP motor 575 V ODP	-	-	-	-	1658	1682	1682
Horizontal direct driven return fan and 40 HP motor 575 V ODP	-	-	-	-	1837	1861	1861
Horizontal direct driven return fan and 7.5 HP motor 575 V TEFC	-	-	-	-	1514	1538	1538
Horizontal direct driven return fan and 10 HP motor 575 V TEFC	-	-	-	-	1569	1593	1593
Horizontal direct driven return fan and 15 HP motor 575 V TEFC	-	-	-	-	1661	1685	1685
Horizontal direct driven return fan and 20 HP motor 575 V TEFC	-	-	-	-	1751	1775	1775
Horizontal direct driven return fan and 25 HP motor 575 V TEFC	-	-	-	-	1749	1773	1773
Horizontal direct driven return fan and 30 HP motor 575 V TEFC	-	-	-	-	1787	1811	1811
Horizontal direct driven return fan and 40 HP motor 575 V TEFC	-	-	-	-	1979	2003	2003
Belt driven exhaust and return fan 3 HP motor 200-208 V ODP	82	82	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 200-208 V ODP	88	88	92	92	104	104	104
Belt driven exhaust and return fan 7.5 HP motor 200-208 V ODP	132	132	136	136	142	142	142
Belt driven exhaust and return fan 10 HP motor 200-208 V ODP	133	133	137	137	155	155	155
Belt driven exhaust and return fan 15 HP motor 200-208 V ODP	223	223	227	227	281	281	281
Belt driven exhaust and return fan 20 HP motor 200-208 V ODP	-	-	247	247	314	314	314
Belt driven exhaust and return fan 25 HP motor 200-208 V ODP	-	-	-	-	414	414	414
Belt driven exhaust and return fan 30 HP motor 200-208 V ODP	-	-	-	-	-	467	467
Belt driven exhaust and return fan 40 HP motor 200-208 V ODP	-	-	-	-	-	485	485
Belt driven exhaust and return fan 3 HP motor 200-208 V TEFC	84	84	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 200-208 V TEFC	90	90	94	94	113	113	113
Belt driven exhaust and return fan 7.5 HP motor 200-208 V TEFC	142	142	146	146	178	178	178
Belt driven exhaust and return fan 10 HP motor 200-208 V TEFC	171	171	175	175	189	189	189
Belt driven exhaust and return fan 15 HP motor 200-208 V TEFC	261	261	265	265	301	301	301
Belt driven exhaust and return fan 20 HP motor 200-208 V TEFC	-	-	296	296	373	373	373
Belt driven exhaust and return fan 25 HP motor 200-208 V TEFC	-	-	-	-	501	501	501
Belt driven exhaust and return fan 30 HP motor 200-208 V TEFC	-	-	-	-	-	526	526
Belt driven exhaust and return fan 40 HP motor 200-208 V TEFC	-	-	-	-	-	685	685
Belt driven exhaust and return fan 3 HP motor 230/460 V ODP	82	82	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 230/460 V ODP	88	88	92	92	104	104	104
Belt driven exhaust and return fan 7.5 HP motor 230/460 V ODP	132	132	136	136	142	142	142
Belt driven exhaust and return fan 10 HP motor 230/460 V ODP	133	133	137	137	155	155	155
Belt driven exhaust and return fan 15 HP motor 230/460 V ODP	223	223	227	227	281	281	281
Belt driven exhaust and return fan 20 HP motor 230/460 V ODP	-	-	247	247	314	314	314
Belt driven exhaust and return fan 25 HP motor 230/460 V ODP	-	-	-	-	414	414	414
Belt driven exhaust and return fan 30 HP motor 230/460 V ODP	-	-	-	-	-	467	467
Belt driven exhaust and return fan 40 HP motor 230/460 V ODP	-	-	-	-	-	485	485
Belt driven exhaust and return fan 3 HP motor 230/460 V TEFC	84	84	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 230/460 V TEFC	90	90	94	94	113	113	113
Belt driven exhaust and return fan 7.5 HP motor 230/460 V TEFC	142	142	146	146	178	178	178
Belt driven exhaust and return fan 10 HP motor 230/460 V TEFC	171	171	175	175	189	189	189
Belt driven exhaust and return fan 15 HP motor 230/460 V TEFC	261	261	265	265	301	301	301
Belt driven exhaust and return fan 20 HP motor 230/460 V TEFC	-	-	296	296	373	373	373
Belt driven exhaust and return fan 25 HP motor 230/460 V TEFC	-	-	-	-	501	501	501
Belt driven exhaust and return fan 30 HP motor 230/460 V TEFC	-	-	-	-	-	526	526
Belt driven exhaust and return fan 40 HP motor 230/460 V TEFC	-	-	-	-	-	685	685
Belt driven exhaust and return fan 3 HP motor 575 V ODP	89	89	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 575 V ODP	98	98	102	102	117	117	117
Belt driven exhaust and return fan 7.5 HP motor 575 V ODP	126	126	130	130	155	155	155
Belt driven exhaust and return fan 10 HP motor 575 V ODP	142	142	146	146	157	157	157
Belt driven exhaust and return fan 15 HP motor 575 V ODP	240	240	244	244	249	249	249
Belt driven exhaust and return fan 20 HP motor 575 V ODP	-	-	247	247	287	287	287
Belt driven exhaust and return fan 25 HP motor 575 V ODP	-	-	-	-	394	394	394
Belt driven exhaust and return fan 30 HP motor 575 V ODP	-	-	-	-	-	442	442
Belt driven exhaust and return fan 40 HP motor 575 V ODP	-	-	-	-	-	464	464
Belt driven exhaust and return fan 3 HP motor 575 V TEFC	90	90	-	-	-	-	-
Belt driven exhaust and return fan 5 HP motor 575 V TEFC	99	99	103	103	114	114	114
Belt driven exhaust and return fan 7.5 HP motor 575 V TEFC	143	143	147	147	176	176	176
Belt driven exhaust and return fan 10 HP motor 575 V TEFC	171	171	175	175	190	190	190
Belt driven exhaust and return fan 15 HP motor 575 V TEFC	261	261	265	265	295	295	295
Belt driven exhaust and return fan 20 HP motor 575 V TEFC	-	-	313	313	330	330	330
Belt driven exhaust and return fan 25 HP motor 575 V TEFC	-	-	-	-	499	499	499
Belt driven exhaust and return fan 30 HP motor 575 V TEFC	-	-	-	-		487	487
Belt driven exhaust and return fan 40 HP motor 575 V TEFC	-	-	-	-	-	639	639

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Dual ERW fan							
Dual ERW fan and dual 5 HP motor 208-230/460 V ODP	-	-	-	-	1074	1399	1399
Dual ERW fan and dual 7.5 HP motor 208-230/460 V ODP	-	-	-	-	1143	1340	1340
Dual ERW fan and dual 10 HP motor 208-230/460 V ODP	-	-	-	-	1189	1389	1389
Dual ERW fan and dual 15 HP motor 208-230/460 V ODP	-	-	-	-	1406	1694	1694
Dual ERW fan and dual 20 HP motor 208-230/460 V ODP	-	-	-	-	1470	1758	1758
Dual ERW fan and dual 5 HP motor 208-230/460 V TEFC	-	-	-	-	1092	1269	1269
Dual ERW fan and dual 7.5 HP motor 208-230/460 V TEFC	-	-	-	-	1188	1385	1385
Dual ERW fan and dual 10 HP motor 208-230/460 V TEFC	-	-	-	-	1230	1430	1430
Dual ERW fan and dual 15 HP motor 208-230/460 V TEFC	-	-	-	-	1448	1648	1648
Dual ERW fan and dual 20 HP motor 208-230/460 V TEFC	-	-	-	-	1524	1724	1724
Dual ERW fan and dual 5 HP motor 575 V ODP	-	-	-	-	1050	1247	1247
Dual ERW fan and dual 7.5 HP motor 575 V ODP	-	-	-	-	1146	1343	1343
Dual ERW fan and dual 10 HP motor 575 V ODP	-	-	-	-	1152	1352	1352
Dual ERW fan and dual 15 HP motor 575 V ODP	-	-	-	-	1330	1530	1530
Dual ERW fan and dual 20 HP motor 575 V ODP	-	-	-	-	1406	1606	1606
Dual ERW fan and dual 5 HP motor 575 V TEFC	-	-	-	-	1064	1261	1261
Dual ERW fan and dual 7.5 HP motor 575 V TEFC	-	-	-	-	1188	1385	1385
Dual ERW fan and dual 10 HP motor 575 V TEFC	-	-	-	-	1236	1436	1436
Dual ERW fan and dual 15 HP motor 575 V TEFC	-	-	-	-	1422	1622	1622
Dual ERW fan and dual 20 HP motor 575 V TEFC	-	-	-	-	1488	1688	1688
Motor weights							
3 HP Motor 208-230/460V ODP	82	82	-	-	-	-	-
5 HP Motor 208-230/460V ODP	88	88	92	92	104	104	104
7.5 HP Motor 208-230/460V ODP	132	132	136	136	142	142	142
10 HP Motor 208-230/460V ODP	133	133	137	137	155	155	155
15 HP Motor 208-230/460V ODP	223	223	227	227	281	281	281
20 HP Motor 208-230/460V ODP	-	-	247	247	314	314	314
25 HP Motor 208-230/460V ODP	-	-	-	-	414	414	414
30 HP Motor 208-230/460V ODP	-	-	-	-	-	467	467
40 HP Motor 208-230/460V ODP	-	-	-	-	-	485	485
50 HP Motor 208-230/460V ODP	-	-	-	-	-	-	-
3 HP Motor 208-230/460V TEFC	84	84	-	-	-	-	-
5 HP Motor 208-230/460V TEFC	90	90	94	94	113	113	113
7.5 HP Motor 208-230/460V TEFC	142	142	146	146	178	178	178
10 HP Motor 208-230/460V TEFC	171	171	175	175	189	189	189
15 HP Motor 208-230/460V TEFC	261	261	265	265	301	301	301
20 HP Motor 208-230/460V TEFC	-	-	296	296	373	373	373
25 HP Motor 208-230/460V TEFC	-	-	-	-	501	501	501
30 HP Motor 208-230/460V TEFC	-	-	-	-	-	526	526
40 HP Motor 208-230/460V TEFC	-	-	-	-	-	685	685
50 HP Motor 208-230/460V TEFC	-	-	-	-	-	-	-
3 HP Motor 575V ODP	89	89	-	-	-	-	-
5 HP Motor 575V ODP	98	98	102	102	116.6	116.6	116.6
7.5 HP Motor 575V ODP	126	126	130	130	154.6	154.6	154.6
10 HP Motor 575V ODP	142	142	146	146	156.6	156.6	156.6
15 HP Motor 575V ODP	240	240	244	244	248.5	248.4	248.4
20 HP Motor 575V ODP	-	-	247	247	286.5	286.5	286.5
25 HP Motor 575V ODP	-	-	-	-	394	394	394
30 HP Motor 575V ODP	-	-	-	-	-	442	442
40 HP Motor 575V ODP	-	-	-	-	-	464	464
50 HP Motor 575V ODP	-	-	-	-	-	-	-
3 HP Motor 575V TEFC	90	90	-	-	-	-	-
5 HP Motor 575V TEFC	99	99	103	103	114	114	114
7.5 HP Motor 575V TEFC	143	143	147	147	176	176	176
10 HP Motor 575V TEFC	171	171	175	175	190	190	190
15 HP Motor 575V TEFC	261	261	265	265	295	295	295
20 HP Motor 575V TEFC	-	-	313	313	330	330	330
25 HP Motor 575V TEFC	-	-	-	-	499	499	499
30 HP Motor 575V TEFC	-	-	-	-	-	487	487
40 HP Motor 575V TEFC	-	-	-	-	-	639	639
50 HP Motor 575V TEFC	-	-	-	-	-	-	-
Draw-through filters							
Angled filter rack - 2 in. throwaway filters	112	112	136	136	142	142	142

Table 4: Weight data (lb)

Model	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Angled filter rack - 2 in. MERV 8 filters	118	118	144	144	160	160	160
MERV 15 bag filters with 2 in. pre filters	126	126	167	167	199	199	199
MERV 14 rigid filters with 2 in. pre filters	212	212	303	303	447	447	447
Vertical filter rack - 4 in. MERV 8 filters	73	73	90	90	141	141	141
Final filters - post-evaporator coil							
MERV 15 bag filters with 2 in. pre filters	126	126	167	167	209	209	209
MERV 14 rigid filters with 2 in. pre filters	212	212	303	303	426	426	426
MERV 17 HEPA filters with 2 in. pre filters	405	405	506	506	996	996	996
Gas heat, stage or modulating - aluminized or stainless steel							
250 MBH	233	233	-	-	-	-	-
500 MBH	348	348	361	361	358	358	358
750 MBH	530	530	542	542	-	-	-
1000 MBH	-	-	-	-	610	610	610
1250 MBH	-	-	839	839	-	-	-
1500 MBH	-	-	-	-	860	860	860
Electric heat [11]							
Low heat	315	315	420	420	270	270	270
High heat	346	346	462	462	315	315	315
Hot water heat							
Low heat with valves	202	202	224	224	192	192	192
High heat with valves	341	341	267	267	245	245	245
Steam heat							
Low heat with valves	223	223	234	234	185	185	185
High heat with valves	238	238	250	250	241	241	241
Refrigeration system							
Standard efficiency cooling system	1556	1780	2350	2487	2815	4313	4427
High capacity cooling system	1611	1871	2368	2695	2910	4379	4508
High efficiency cooling system	1647	1829	2581	2853	2917	4405	4412
Hot gas reheat (HGRH) coil	35	35	44	44	73	87	87
Louver hail guard	131	131	166	166	249	286	286
Miscellaneous options							
Humidifier	121	121	185	185	112	161	161
Air blender	84	84	132	132	166	185	185
Ultraviolet (UV) lights	45	45	45	45	115	115	115
Sound attenuator	532	532	661	661	1001	1001	1001
Internal lights	35	35	35	35	35	35	35
Smoke detector	2	2	2	2	7	7	7
Transformer [12]	60	60	60	60	60	60	60
Split unit	-	-	-	-	109	47	47
Redundant return fan VFD 7.5-15 HP	-	-	-	-	21	21	21
Redundant return fan VFD 20-25 HP	-	-	-	-	54	54	54
Redundant return fan VFD 30-40 HP	-	-	-	-	79	79	79
Belt guard	6	6	7	7	83	83	83

Notes:

1. Economizer cabinet weight must be included in all 25 ton to 80 ton units.
2. Pre-evaporator blank can be a blank section or include an air blender.
3. Heat section cabinet option for any of the following:
   - Top or right discharge
   - Discharge filters, humidifier or sound attenuator, or blank post-evaporator section
   - Requires discharge plenum. Discharge can be bottom, left, right, or top
4. Heat and discharge through heat option is used unless any of the following are included:
   - Discharge filters
   - Humidifier, sound attenuator, or blank post-evaporator section
   - Top or right discharge
   - Discharge plenum
5. Small post-evaporator blank can contain blank or final filter or humidifier or sound attenuator.
6. Large post-evaporator blank can contain blank or sound attenuator and final filter or sound attenuator and humidifier or humidifier or sound attenuator.
7. Discharge plenum is required with all units that are cooling only. Discharge plenum is required on all units with heat section cabinet.
8. Supply fan weights include the supply fan, motor, isolators, inlet guards, shaft grounding ring, variable frequency drive (VFD), line reactor, disconnect, and VFD bypass. On 60 ton to 80 ton units, supply fan weights are for both fans and motors.
9. Economizer with belt driven exhaust or return fan includes the weight of the fan, isolator, shaft grounding rings, extended lube lines, and inlet guards.
10. For belt driven exhaust or return fan motor includes the weight of the motor, VFD, line reactor, and VFD bypass. For direct driven return fan, weight includes return fan and motor, isolators, inlet guards, shaft grounding ring, VFD, line reactor. Return fan redundant VFD weight included under miscellaneous options.

11. All sizes of electric heat.

12. A transformer is required if convenience outlet, gas heat, lights, or high end display are selected.

13. Roof curb weight is not included with this table.

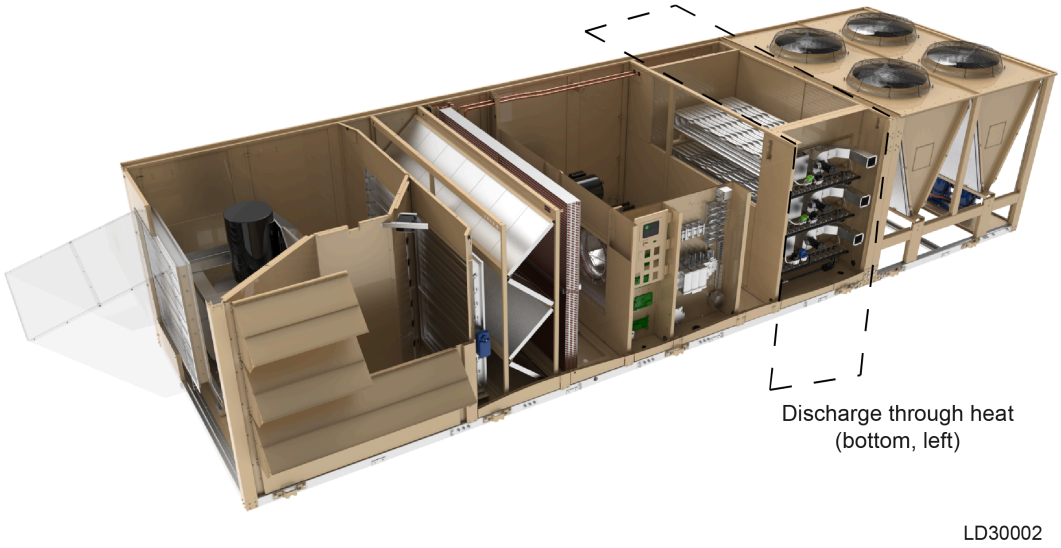
14. Considering standard cooling unit configuration the Refrigeration system weight includes condenser fan, compressor, piping, condenser coil, refrigerant, wire guards, condenser sheetmetal and evaporator coil.

15. For units that are shipped split please contact your local sales office or use Selection Navigator to get the individual air handler and condenser unit weights.

16. Cooling only units with a no post evaporator blank, a small empty post evaporator blank, a large empty post evaporator blank or a large post evaporator blank equipped with a humidifier or final filter have a 55 in. fan section length, all other units have a 74 in. fan section length..

Dimensions

Figure 12: Rooftop unit component locations



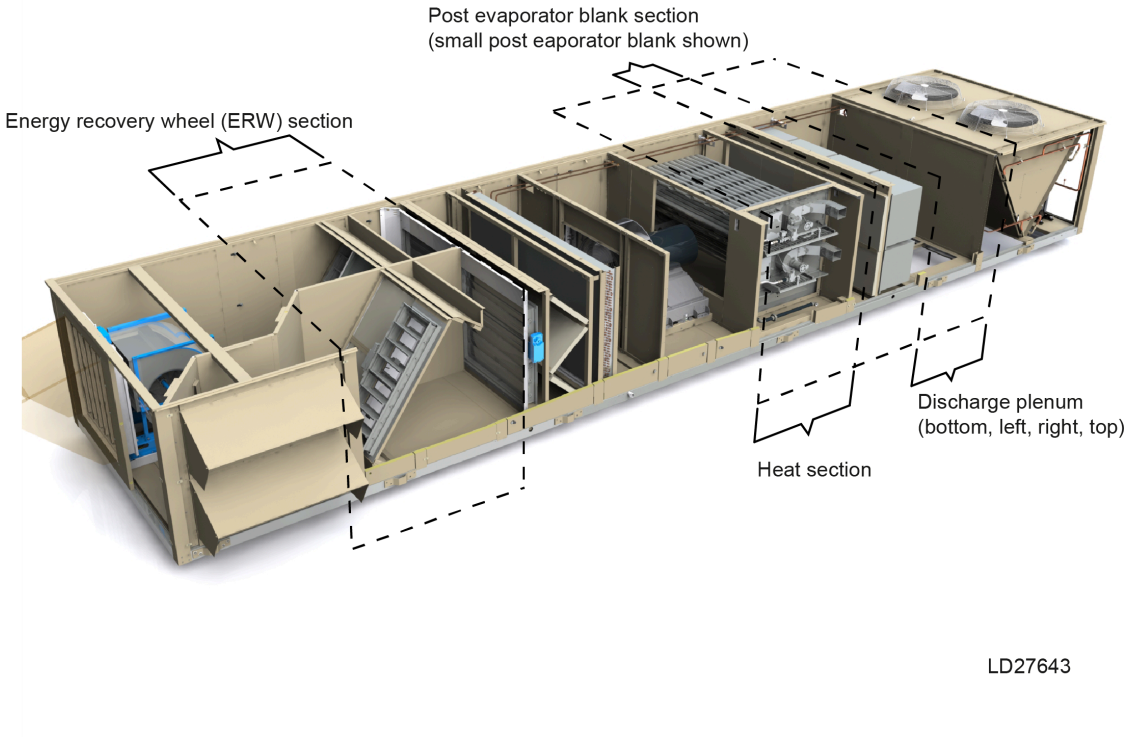


Figure 13: 25 ton to 30 ton dimensional drawing

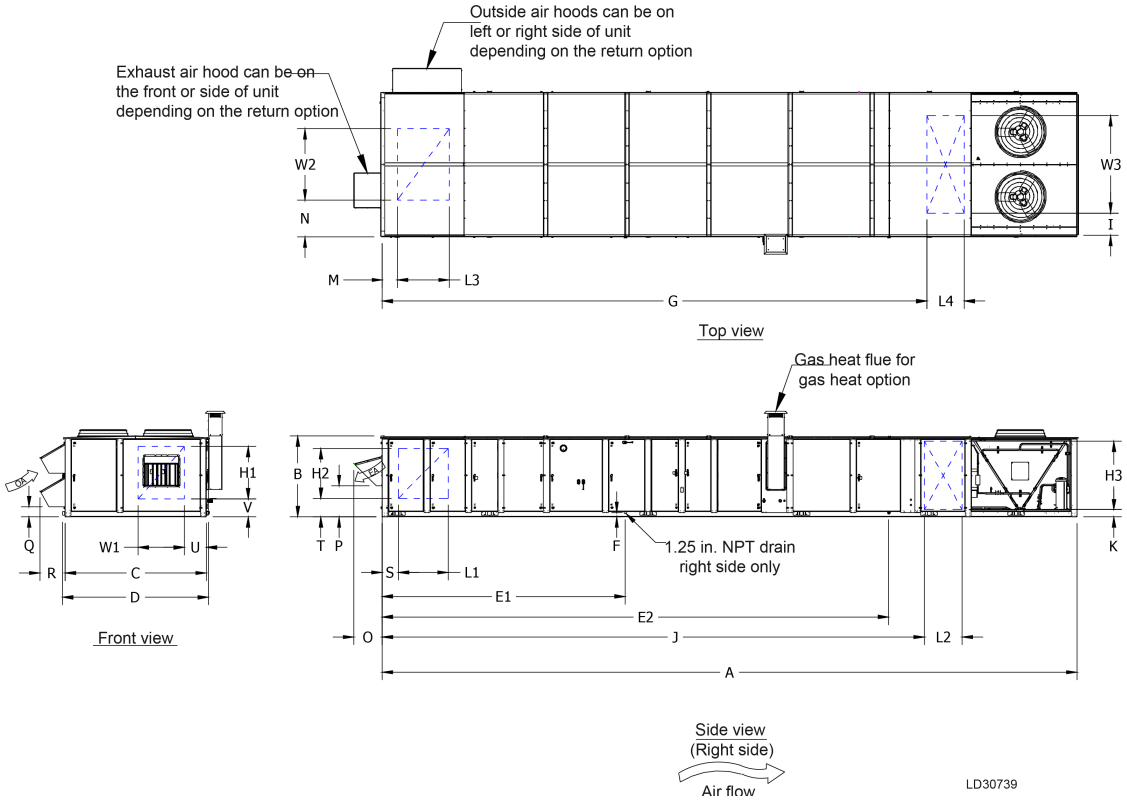


Table 5: 25 ton to 30 ton unit dimensions (in.) for return options with an ERW

Unit configuration	If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	86.63	51.36	31.94	59.92	19.26	21.00	7.00	17.17
Bottom return, right OA, front exhaust	86.63	51.36	31.94	59.92	19.26	21.00	7.00	17.17

Table 6: 25 ton to 30 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has a return fan with modulating damper								If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	13.76	33.73	37.61	44.37	35.45	10.22	7.00	17.17	13.76	33.73	51.00	33.45	19.26	21.00	7.00	17.17
Bottom return, right OA, front exhaust	13.76	33.73	37.61	44.37	35.45	10.22	7.00	17.17	13.76	33.73	51.00	33.45	19.26	21.00	7.00	17.17
Bottom return, left OA, side exhaust	13.76	33.73	37.61	14.07	35.45	10.22	7.00	17.17	13.76	33.73	51.00	11.70	19.26	21.00	7.00	17.17
Bottom return, left OA, front exhaust	13.76	33.73	37.61	14.07	35.45	10.22	7.00	17.17	13.76	33.73	51.00	11.70	19.26	21.00	7.00	17.17
Top return, right OA, side exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.98	38.00	45.26	25.50	19.26	21.00	7.00	17.17
Top return, right OA, front exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.98	38.00	45.26	25.50	19.26	21.00	7.00	17.17
Top return, left OA, side exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.98	38.00	45.26	25.50	19.26	21.00	7.00	17.17
Top return, left OA, front exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.98	38.00	45.26	25.50	19.26	21.00	7.00	17.17
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	11.01	39.00	39.00	10.34	35.45	10.22	7.00	17.17	10.51	40.00	40.00	8.19	19.26	21.00	7.00	17.17
Right return, left OA, front exhaust	11.01	39.00	39.00	10.34	35.45	10.22	7.00	17.17	10.51	40.00	40.00	8.19	19.26	21.00	7.00	17.17
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	11.01	39.00	39.00	10.34	35.45	10.22	7.00	17.17	10.51	40.00	40.00	8.19	19.26	21.00	7.00	17.17
Front return, right OA, left exhaust	46.24	39.00	39.00	10.34	35.45	10.22	7.00	17.17	45.74	40.00	40.00	8.19	19.26	21.00	7.00	17.17

Unit configuration	If unit has no fan and barometric damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	13.76	33.73	51.00	33.45	22.45	16.55	7.00	17.17
Bottom return, right OA, front exhaust	13.76	33.73	51.00	33.45	22.45	16.55	7.00	17.17
Bottom return, left OA, side exhaust	13.76	33.73	51.00	11.70	22.45	16.55	7.00	17.17
Bottom return, left OA, front exhaust	13.76	33.73	51.00	11.70	22.45	16.55	7.00	17.17
Bottom return, no OA, no EA	13.76	33.73	51.00	33.45	N/A	N/A	N/A	N/A
Top return, right OA, side exhaust	8.98	38.00	45.26	25.50	22.45	16.55	7.00	17.17
Top return, right OA, front exhaust	8.98	38.00	45.26	25.50	22.45	16.55	7.00	17.17
Top return, left OA, side exhaust	8.98	38.00	45.26	25.50	22.45	16.55	7.00	17.17
Top return, left OA, front exhaust	8.98	38.00	45.26	25.50	22.45	16.55	7.00	17.17
Top return, no OA, no EA	8.98	38.00	45.26	25.50	N/A	N/A	N/A	N/A
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	10.51	40.00	40.00	8.19	22.45	16.55	7.00	17.17
Left return, no OA, no EA	10.51	40.00	40.00	8.19	N/A	N/A	N/A	N/A
Right return, left OA, front exhaust	10.51	40.00	40.00	8.19	22.45	16.55	7.00	17.17
Right return, no OA, no EA	10.51	40.00	40.00	8.19	N/A	N/A	N/A	N/A
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	10.51	40.00	40.00	8.19	22.45	16.55	7.00	17.17
Front return, right OA, left exhaust	45.74	40.00	40.00	8.19	22.45	16.55	7.00	17.17
Front return, no OA, no EA	10.51	40.00	40.00	8.19	N/A	N/A	N/A	N/A

Table 7: 25 ton to 30 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E1)	Evaporator drain height (F)
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	264.40	55.00	96.05	100.00	95.50	2.50
		SU with DP (B, L, R, T)	281.40	55.00	96.05	100.00	112.50	2.50
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	379.40	55.00	96.05	100.00	165.50	2.50
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	421.40	55.00	96.05	100.00	165.50	2.50
		SU with small post-evap blank, DP (B, L, R, T)	326.40	55.00	96.05	100.00	112.50	2.50
		SU with large post-evap blank, DP (B, L, R, T)	374.90	55.00	96.05	100.00	112.50	2.50
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	281.40	55.00	96.05	100.00	95.50	2.50
		SU with discharge through heat section (B, L)	298.40	55.00	96.05	100.00	112.50	2.50
		SU with heat, DP (B, L, R, T)	333.00	55.00	96.05	100.00	112.50	2.50
		SU with pre-evap blank, discharge through heat section (B, L)	351.40	55.00	96.05	100.00	165.50	2.50
		SU with pre-evap blank, heat, DP (B, L, R, T)	386.00	55.00	96.05	100.00	165.50	2.50
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	431.00	55.00	96.05	100.00	165.50	2.50
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	473.00	55.00	96.05	100.00	165.50	2.50
		SU with heat, small post-evap blank, DP (B, L, R, T)	379.40	55.00	96.05	100.00	112.50	2.50
		SU with heat, large post-evap blank, DP (B, L, R, T)	421.40	55.00	96.05	100.00	112.50	2.50
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	455.90	55.00	96.05	100.00	242.00	2.50
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	497.90	55.00	96.05	100.00	242.00	2.50
		SU with small post-evap blank, DP (B, L, R, T)	402.90	55.00	96.05	100.00	189.00	2.50
		SU with large post-evap blank, DP (B, L, R, T)	444.90	55.00	96.05	100.00	189.00	2.50
	Heat	SU with discharge through heat section (B, L)	374.90	55.00	96.05	100.00	189.00	2.50
		SU with heat, DP (B, L, R, T)	409.50	55.00	96.05	100.00	189.00	2.50
		SU with pre-evap blank, discharge through heat section (B, L)	431.00	55.00	96.05	100.00	245.10	2.50
		SU with pre-evap blank, heat, DP (B, L, R, T)	462.50	55.00	96.05	100.00	242.00	2.50
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	507.50	55.00	96.05	100.00	242.00	2.50
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	549.50	55.00	96.05	100.00	242.00	2.50
		SU with heat, small post-evap blank, DP (B, L, R, T)	455.90	55.00	96.05	100.00	189.00	2.50
		SU with heat, large post-evap blank, DP (B, L, R, T)	497.90	55.00	96.05	100.00	189.00	2.50

Table 8: 25 ton to 30 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	158.09	30.13	9.53	77.00	158.09	30.13	9.53	77.00
		SU with DP (B, L, R, T)	175.09	30.13	9.53	77.00	175.09	30.13	9.53	77.00
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	273.09	30.13	9.53	77.00	273.09	30.13	9.53	77.00
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	315.09	30.13	9.53	77.00	315.09	30.13	9.53	77.00
		SU with small post-evap blank, DP (B, L, R, T)	220.09	30.13	9.53	77.00	220.09	30.13	9.53	77.00
		SU with large post-evap blank, DP (B, L, R, T)	268.59	30.13	9.53	77.00	268.59	30.13	9.53	77.00
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	162.75	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with discharge through heat section (B, L)	179.75	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	226.69	30.13	9.53	77.00	226.69	30.13	9.53	77.00
		SU with pre-evap blank, discharge through heat section (B, L)	232.75	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	279.69	30.13	9.53	77.00	279.69	30.13	9.53	77.00
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	324.69	30.13	9.53	77.00	324.69	30.13	9.53	77.00
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	366.69	30.13	9.53	77.00	366.69	30.13	9.53	77.00
		SU with heat, small post-evap blank, DP (B, L, R, T)	273.09	30.13	9.53	77.00	273.09	30.13	9.53	77.00
		SU with heat, large post-evap blank, DP (B, L, R, T)	315.09	30.13	9.53	77.00	315.09	30.13	9.53	77.00

Table 8: 25 ton to 30 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	349.59	30.13	9.53	77.00	349.59	30.13	9.53	77.00
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	391.59	30.13	9.53	77.00	391.59	30.13	9.53	77.00
		SU with small post-evap blank, DP (B, L, R, T)	296.59	30.13	9.53	77.00	296.59	30.13	9.53	77.00
		SU with large post-evap blank, DP (B, L, R, T)	338.59	30.13	9.53	77.00	338.59	30.13	9.53	77.00
	Heat	SU with discharge through heat section (B, L)	256.25	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	303.19	30.13	9.53	77.00	303.19	30.13	9.53	77.00
		SU with pre-evap blank, discharge through heat section (B, L)	312.35	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	356.19	30.13	9.53	77.00	356.19	30.13	9.53	77.00
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	401.19	30.13	9.53	77.00	401.19	30.13	9.53	77.00
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	443.19	30.13	9.53	77.00	443.19	30.13	9.53	77.00
		SU with heat, small post-evap blank, DP (B, L, R, T)	349.59	30.13	9.53	77.00	349.59	30.13	9.53	77.00
		SU with heat, large post-evap blank, DP (B, L, R, T)	391.59	30.13	9.53	77.00	391.59	30.13	9.53	77.00

Table 9: 25 ton to 30 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	159.06	28.21	4.65	47.04	159.06	28.21	4.65	47.04
		SU with DP (B, L, R, T)	176.06	28.21	4.65	47.04	176.06	28.21	4.65	47.04
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	274.06	28.21	4.65	47.04	274.06	28.21	4.65	47.04
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	316.06	28.21	4.65	47.04	316.06	28.21	4.65	47.04
		SU with small post-evap blank, DP (B, L, R, T)	221.06	28.21	4.65	47.04	221.06	28.21	4.65	47.04
		SU with large post-evap blank, DP (B, L, R, T)	269.56	28.21	4.65	47.04	269.56	28.21	4.65	47.04
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	160.75	43.00	15.09	34.00	N/A	N/A	N/A	N/A
		SU with discharge through heat section (B, L)	177.75	43.00	15.09	34.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	227.66	28.21	4.65	47.04	227.66	28.21	4.65	47.04
		SU with pre-evap blank, discharge through heat section (B, L)	230.75	43.00	15.09	34.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	280.66	28.21	4.65	47.04	280.66	28.21	4.65	47.04
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	325.66	28.21	4.65	47.04	325.66	28.21	4.65	47.04
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	367.66	28.21	4.65	47.04	367.66	28.21	4.65	47.04
		SU with heat, small post-evap blank, DP (B, L, R, T)	274.06	28.21	4.65	47.04	274.06	28.21	4.65	47.04
		SU with heat, large post-evap blank, DP (B, L, R, T)	316.06	28.21	4.65	47.04	316.06	28.21	4.65	47.04
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	350.56	28.21	4.65	47.04	350.56	28.21	4.65	47.04
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	392.56	28.21	4.65	47.04	392.56	28.21	4.65	47.04
		SU with small post-evap blank, DP (B, L, R, T)	297.56	28.21	4.65	47.04	297.56	28.21	4.65	47.04
		SU with large post-evap blank, DP (B, L, R, T)	339.56	28.21	4.65	47.04	339.56	28.21	4.65	47.04
	Heat	SU with discharge through heat section (B, L)	254.25	43.00	15.09	34.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	304.16	28.21	4.65	47.04	304.16	28.21	4.65	47.04
		SU with pre-evap blank, discharge through heat section (B, L)	310.35	43.00	15.09	34.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	357.16	28.21	4.65	47.04	357.16	28.21	4.65	47.04
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	402.16	28.21	4.65	47.04	402.16	28.21	4.65	47.04
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	444.16	28.21	4.65	47.04	444.16	28.21	4.65	47.04
		SU with heat, small post-evap blank, DP (B, L, R, T)	350.56	28.21	4.65	47.04	350.56	28.21	4.65	47.04
		SU with heat, large post-evap blank, DP (B, L, R, T)	392.56	28.21	4.65	47.04	392.56	28.21	4.65	47.04

Note:

1. A SU includes length for economizer, draw-through filter, cooling coil, supply fan, and condenser. A SU includes a draw-through (pre-evaporator) filter with 2 in. angle filter or 2 in. + 12 in. (or 18 in.) filter. Units with a vertical 4 in. draw-through filter in place of the standard 2 in. angle or 2 in. + 12 in. (or 18 in.) filter are listed as *SU with Vertical Filter 4 in.*
2. The heat section includes either gas, hot water, steam, or electric.
3. SU = Standard Unit, DP = Discharge Plenum, B = Bottom Discharge, L = Left Discharge, R = Right Discharge, T = Top Discharge
4. Dimensions are ± 1 in.

Figure 14: 40 ton to 50 ton dimensional drawing

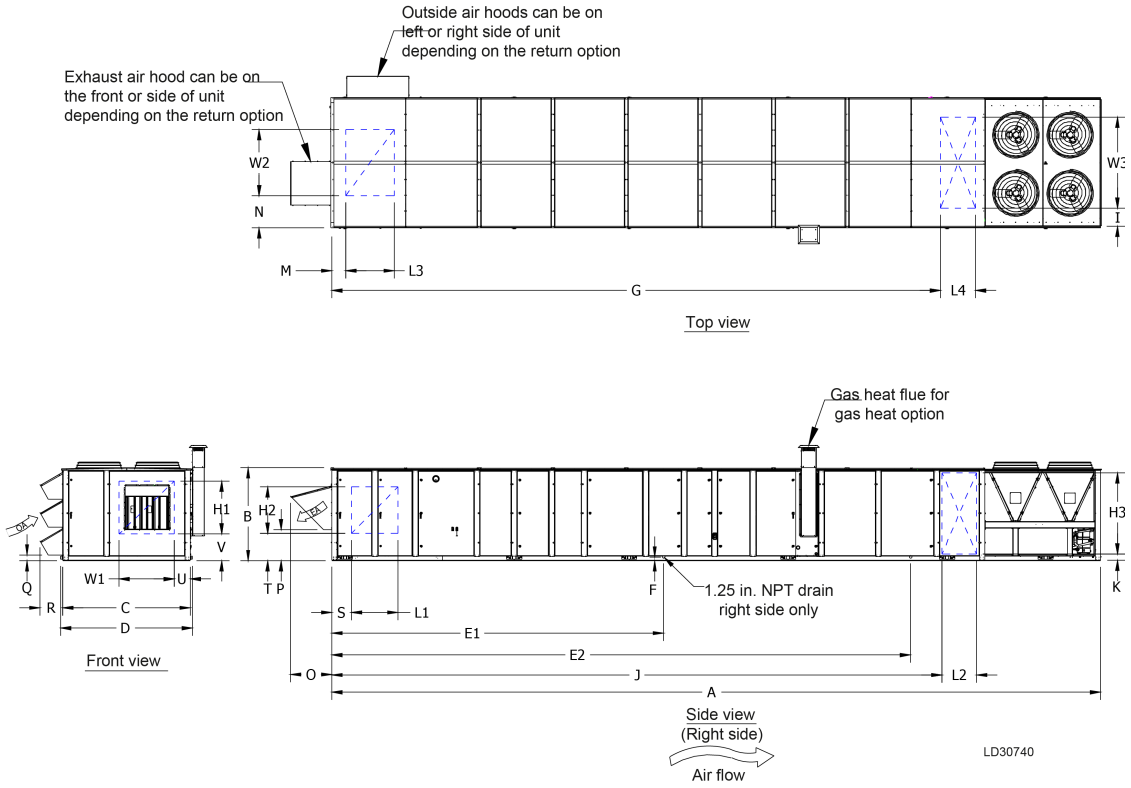


Table 10: 40 ton to 50 ton unit dimensions (in.) for return options with an ERW

Unit configuration	ERW only available with an exhaust fan with backdraft damper or modulating damper							
Dimension set	M	L3	W2	N	O	P	Q	R
Bottom return, right OA, side exhaust	93.57	52.86	45.00	46.86	31.13	23.40	4.10	17.17
Bottom return, right OA, front exhaust	93.57	52.86	45.00	46.86	31.13	23.40	4.10	17.17

Table 11: 40 to to 50 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has a return fan with modulating damper								If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	M	L3	W2	N	O	P	Q	R	M	L3	W2	N	O	P	Q	R
Bottom return, right OA, side exhaust	13.76	37.63	41.51	42.82	46.77	14.46	4.10	17.17	13.76	37.63	72.99	18.88	31.13	23.40	4.10	17.17
Bottom return, right OA, front exhaust	13.76	37.63	41.51	42.82	46.77	14.46	4.10	17.17	13.76	37.63	72.99	18.88	31.13	23.40	4.10	17.17
Bottom return, left OA, side exhaust	13.76	37.63	41.51	11.71	46.77	14.46	4.10	17.17	13.76	37.63	72.99	4.18	31.13	23.40	4.10	17.17
Bottom return, left OA, front exhaust	13.76	37.63	41.51	11.71	46.77	14.46	4.10	17.17	13.76	37.63	72.99	4.18	31.13	23.40	4.10	17.17
Top return, right OA, side exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.31	47.34	58.04	19.10	31.13	23.40	4.10	17.17

Table 11: 40 to to 50 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has a return fan with modulating damper								If unit has an exhaust fan with backdraft damper or modulating damper							
Top return, right OA, front exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.31	47.34	58.04	19.10	31.13	23.40	4.10	17.17
Top return, left OA, side exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.31	47.34	58.04	19.10	31.13	23.40	4.10	17.17
Top return, left OA, front exhaust	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.31	47.34	58.04	19.10	31.13	23.40	4.10	17.17
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	11.13	43.00	43.00	10.34	46.77	14.46	4.10	17.17	7.63	50.00	55.00	8.19	31.13	23.40	4.10	17.17
Right return, left OA, front exhaust	11.13	43.00	43.00	10.34	46.77	14.46	4.10	17.17	7.63	50.00	55.00	8.19	31.13	23.40	4.10	17.17
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	11.13	43.00	43.00	10.34	46.77	14.46	4.10	17.17	7.63	50.00	55.00	8.19	31.13	23.40	4.10	17.17
Front return, right OA, left exhaust	42.12	43.00	43.00	10.34	46.77	14.46	4.10	17.17	38.62	50.00	55.00	8.19	31.13	23.40	4.10	17.17

Unit configuration	If unit has no fan and barometric damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	13.76	37.63	72.99	18.88	29.16	20.18	4.10	17.17
Bottom return, right OA, front exhaust	13.76	37.63	72.99	18.88	29.16	20.18	4.10	17.17
Bottom return, left OA, side exhaust	13.76	37.63	72.99	4.18	29.16	20.18	4.10	17.17
Bottom return, left OA, front exhaust	13.76	37.63	72.99	4.18	29.16	20.18	4.10	17.17
Bottom return, no OA, no EA	13.76	37.63	72.99	18.88	N/A	N/A	N/A	N/A
Top return, right OA, side exhaust	4.31	47.34	58.04	19.10	29.16	20.18	4.10	17.17
Top return, right OA, front exhaust	4.31	47.34	58.04	19.10	29.16	20.18	4.10	17.17
Top return, left OA, side exhaust	4.31	47.34	58.04	19.10	29.16	20.18	4.10	17.17
Top return, left OA, front exhaust	4.31	47.34	58.04	19.10	29.16	20.18	4.10	17.17
Top return, no OA, no EA	4.31	47.34	58.04	19.10	N/A	N/A	N/A	N/A
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	7.63	50.00	55.00	8.19	29.16	20.18	4.10	17.17
Left return, no OA, no EA	7.63	50.00	55.00	8.19	N/A	N/A	N/A	N/A
Right return, left OA, front exhaust	7.63	50.00	55.00	8.19	29.16	20.18	4.10	17.17
Right return, no OA, no EA	7.63	50.00	55.00	8.19	N/A	N/A	N/A	N/A
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	7.63	50.00	55.00	8.19	29.16	20.18	4.10	17.17
Front return, right OA, left exhaust	38.62	50.00	55.00	8.19	29.16	20.18	4.10	17.17
Front return, no OA, no EA	7.63	50.00	55.00	8.19	N/A	N/A	N/A	N/A

Table 12: 40 ton to 50 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	297.20	70.00	96.05	100.00	106.00	2.50
		SU with DP (B, L, R, T)	314.20	70.00	96.05	100.00	123.00	2.50
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	412.20	70.00	96.05	100.00	176.00	2.50
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	454.20	70.00	96.05	100.00	176.00	2.50
		SU with small post-evap blank, DP (B, L, R, T)	359.20	70.00	96.05	100.00	123.00	2.50
		SU with large post-evap blank, DP (B, L, R, T)	405.70	70.00	96.05	100.00	123.00	2.50
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	314.20	70.00	96.05	100.00	106.00	2.50
		SU with discharge through heat section (B, L)	331.20	70.00	96.05	100.00	123.00	2.50
		SU with heat, DP (B, L, R, T)	365.80	70.00	96.05	100.00	123.00	2.50
		SU with pre-evap blank, discharge through heat section (B, L)	384.20	70.00	96.05	100.00	176.00	2.50
		SU with pre-evap blank, heat, DP (B, L, R, T)	418.80	70.00	96.05	100.00	176.00	2.50
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	463.80	70.00	96.05	100.00	176.00	2.50
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	505.80	70.00	96.05	100.00	176.00	2.50
		SU with heat, small post-evap blank, DP (B, L, R, T)	412.20	70.00	96.05	100.00	123.00	2.50
		SU with heat, large post-evap blank, DP (B, L, R, T)	454.20	70.00	96.05	100.00	123.00	2.50

Table 12: 40 ton to 50 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	486.70	70.00	96.05	100.00	250.50	2.50
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	528.70	70.00	96.05	100.00	250.50	2.50
		SU with small post-evap blank, DP (B, L, R, T)	433.70	70.00	96.05	100.00	197.50	2.50
		SU with large post-evap blank, DP (B, L, R, T)	475.70	70.00	96.05	100.00	197.50	2.50
	Heat	SU with discharge through heat section (B, L)	405.70	70.00	96.05	100.00	197.50	2.50
		SU with heat, DP (B, L, R, T)	440.30	70.00	96.05	100.00	197.50	2.50
		SU with pre-evap blank, discharge through heat section (B, L)	463.80	70.00	96.05	100.00	255.60	2.50
		SU with pre-evap blank, heat, DP (B, L, R, T)	493.30	70.00	96.05	100.00	250.50	2.50
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	538.30	70.00	96.05	100.00	250.50	2.50
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	580.30	70.00	96.05	100.00	250.50	2.50
		SU with heat, small post-evap blank, DP (B, L, R, T)	486.70	70.00	96.05	100.00	197.50	2.50
		SU with heat, large post-evap blank, DP (B, L, R, T)	528.70	70.00	96.05	100.00	197.50	2.50

Table 13: 40 ton to 50 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	175.59	30.13	9.53	77.00	175.59	30.13	9.53	77.00
		SU with DP (B, L, R, T)	192.59	30.13	9.53	77.00	192.59	30.13	9.53	77.00
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	290.59	30.13	9.53	77.00	290.59	30.13	9.53	77.00
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	332.59	30.13	9.53	77.00	332.59	30.13	9.53	77.00
		SU with small post-evap blank, DP (B, L, R, T)	237.59	30.13	9.53	77.00	237.59	30.13	9.53	77.00
		SU with large post-evap blank, DP (B, L, R, T)	284.09	30.13	9.53	77.00	284.09	30.13	9.53	77.00
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	180.25	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with discharge through heat section (B, L)	197.25	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	244.19	30.13	9.53	77.00	244.19	30.13	9.53	77.00
		SU with pre-evap blank, discharge through heat section (B, L)	250.25	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	297.19	30.13	9.53	77.00	297.19	30.13	9.53	77.00
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	342.19	30.13	9.53	77.00	342.19	30.13	9.53	77.00
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	384.19	30.13	9.53	77.00	384.19	30.13	9.53	77.00
		SU with heat, small post-evap blank, DP (B, L, R, T)	290.59	30.13	9.53	77.00	290.59	30.13	9.53	77.00
		SU with heat, large post-evap blank, DP (B, L, R, T)	332.59	30.13	9.53	77.00	332.59	30.13	9.53	77.00
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	365.09	30.13	9.53	77.00	365.09	30.13	9.53	77.00
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	407.09	30.13	9.53	77.00	407.09	30.13	9.53	77.00
		SU with small post-evap blank, DP (B, L, R, T)	312.09	30.13	9.53	77.00	312.09	30.13	9.53	77.00
		SU with large post-evap blank, DP (B, L, R, T)	354.09	30.13	9.53	77.00	354.09	30.13	9.53	77.00
	Heat	SU with discharge through heat section (B, L)	271.75	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	318.69	30.13	9.53	77.00	318.69	30.13	9.53	77.00
		SU with pre-evap blank, discharge through heat section (B, L)	329.85	40.00	25.89	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	371.69	30.13	9.53	77.00	371.69	30.13	9.53	77.00
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	416.69	30.13	9.53	77.00	416.69	30.13	9.53	77.00
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	458.69	30.13	9.53	77.00	458.69	30.13	9.53	77.00
		SU with heat, small post-evap blank, DP (B, L, R, T)	365.09	30.13	9.53	77.00	365.09	30.13	9.53	77.00
		SU with heat, large post-evap blank, DP (B, L, R, T)	407.09	30.13	9.53	77.00	407.09	30.13	9.53	77.00

Table 14: 40 ton to 50 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
No ERW	No heat	SU with vertical filter 4 in., DP (B, L, R, T)	176.56	28.21	4.65	62.04	176.56	28.21	4.65	62.04
		SU with DP (B, L, R, T)	193.56	28.21	4.65	62.04	193.56	28.21	4.65	62.04
		SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	291.56	28.21	4.65	62.04	291.56	28.21	4.65	62.04
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	333.56	28.21	4.65	62.04	333.56	28.21	4.65	62.04
		SU with small post-evap blank, DP (B, L, R, T)	238.56	28.21	4.65	62.04	238.56	28.21	4.65	62.04
		SU with large post-evap blank, DP (B, L, R, T)	285.06	28.21	4.65	62.04	285.06	28.21	4.65	62.04
	Heat	SU with vertical filter 4 in., discharge through heat section (B, L)	180.25	40.00	14.09	50.00	N/A	N/A	N/A	N/A
		SU with discharge through heat section (B, L)	197.25	40.00	14.09	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	245.16	28.21	4.65	62.04	245.16	28.21	4.65	62.04
		SU with pre-evap blank, discharge through heat section (B, L)	250.25	40.00	14.09	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	298.16	28.21	4.65	62.04	298.16	28.21	4.65	62.04
		SU with pre-evap blank, heat, small post-evap blank, DP (B,L,R,T)	343.16	28.21	4.65	62.04	343.16	28.21	4.65	62.04
		SU with pre-evap blank, heat, large post-evap blank, DP (B,L,R,T)	385.16	28.21	4.65	62.04	385.16	28.21	4.65	62.04
		SU with heat, small post-evap blank, DP (B, L, R, T)	291.56	28.21	4.65	62.04	291.56	28.21	4.65	62.04
		SU with heat, large post-evap blank, DP (B, L, R, T)	333.56	28.21	4.65	62.04	333.56	28.21	4.65	62.04
ERW	No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	366.06	28.21	4.65	62.04	366.06	28.21	4.65	62.04
		SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	408.06	28.21	4.65	62.04	408.06	28.21	4.65	62.04
		SU with small post-evap blank, DP (B, L, R, T)	313.06	28.21	4.65	62.04	313.06	28.21	4.65	62.04
		SU with large post-evap blank, DP (B, L, R, T)	355.06	28.21	4.65	62.04	355.06	28.21	4.65	62.04
	Heat	SU with discharge through heat section (B, L)	271.75	40.00	14.09	50.00	N/A	N/A	N/A	N/A
		SU with heat, DP (B, L, R, T)	319.66	28.21	4.65	62.04	319.66	28.21	4.65	62.04
		SU with pre-evap blank, discharge through heat section (B, L)	329.85	40.00	14.09	50.00	N/A	N/A	N/A	N/A
		SU with pre-evap blank, heat, DP (B, L, R, T)	372.66	28.21	4.65	62.04	372.66	28.21	4.65	62.04
		SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	417.66	28.21	4.65	62.04	417.66	28.21	4.65	62.04
		SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	459.66	28.21	4.65	62.04	459.66	28.21	4.65	62.04
		SU with heat, small post-evap blank, DP (B, L, R, T)	366.06	28.21	4.65	62.04	366.06	28.21	4.65	62.04
		SU with heat, large post-evap blank, DP (B, L, R, T)	408.06	28.21	4.65	62.04	408.06	28.21	4.65	62.04

Note:

1. A SU includes length for economizer, draw-through filter, cooling coil, supply fan, and condenser. A SU includes a draw-through (pre-evaporator) filter with 2 in. angle filter or 2 in. + 12 in. (or 18 in.) filter. Units with a vertical 4 in. draw-through filter in place of the standard 2 in. angle or 2 in. + 12 in. (or 18 in.) filter are listed as *SU with Vertical Filter 4 in.*
2. Basic economizer unit does not include an exhaust fan or return fan option.
3. The heat section includes either gas, hot water, steam, or electric.
4. SU = Standard Unit, DP = Discharge Plenum, B = Bottom Discharge, L = Left Discharge, R = Right Discharge, T = Top Discharge.
5. Dimensions are ± 1 in.

Figure 15: 60 ton dimensional drawing

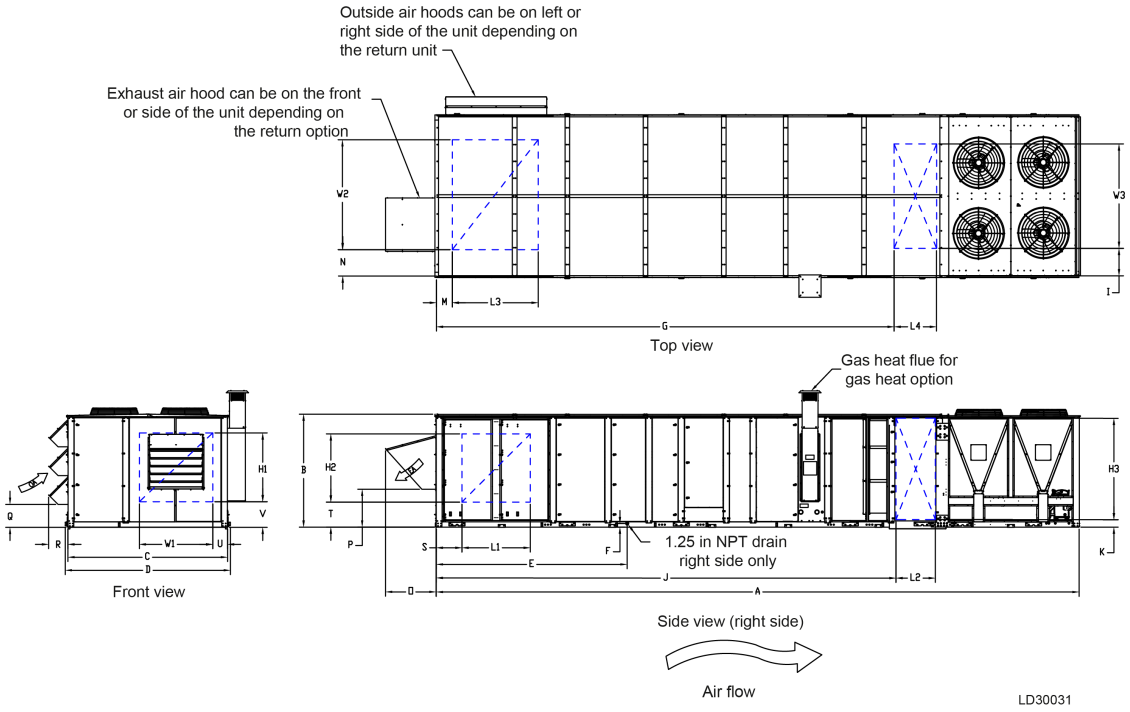


Table 15: 60 ton unit dimensions (in.) for return options with an ERW

Unit configuration	If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	111.48	53.92	54.48	54.39	24.29	21.48	16.17	13.93
Bottom return, right OA, front exhaust	111.48	53.92	54.48	54.39	24.29	21.48	16.17	13.93

Table 16: 60 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has a return fan with modulating damper								If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	13.66	41.63	45.51	54.71	47.06	15.98	16.17	13.93	13.66	56.91	71.31	31.05	35.95	26.92	16.17	13.93
Bottom return, right OA, front exhaust	13.66	41.63	45.51	54.71	47.06	15.98	16.17	13.93	13.66	56.91	77.87	31.05	35.95	26.92	16.17	13.93
Bottom return, left OA, side exhaust	13.66	41.63	45.51	12.83	47.06	15.98	16.17	13.93	13.66	56.91	71.31	10.69	35.95	26.92	16.17	13.93
Bottom return, left OA, front exhaust	13.66	41.63	45.51	12.83	47.06	15.98	16.17	13.93	13.66	56.91	77.87	4.13	35.95	26.92	16.17	13.93
Top return, right OA, side exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	28.69	35.95	26.92	16.17	13.93
Top return, right OA, front exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	28.69	35.95	26.92	16.17	13.93
Top return, left OA, side exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	1.8	35.95	26.92	16.17	13.93
Top return, left OA, front exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	1.8	35.95	26.92	16.17	13.93
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	18.99	47	47	10.34	47.06	15.98	16.17	13.93	5.09	74.78	66.11	7.64	35.95	26.92	16.17	13.93
Right return, left OA, front exhaust	18.99	47	47	10.34	47.06	15.98	16.17	13.93	5.09	74.78	66.11	7.64	35.95	26.92	16.17	13.93
Dimension set	**S**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**	**S**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front Return, left OA, right exhaust	12.79	47	47	10.34	47.06	15.98	16.17	13.93	5.09	62.40	66.11	7.64	35.95	26.92	16.17	13.93
Front return, right OA, left exhaust	53.25	47	47	10.34	47.06	15.98	16.17	13.93	45.56	62.40	66.11	7.64	35.95	26.92	16.17	13.93

Table 17: 60 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has no fan and barometric damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	6.13	54.28	65.00	43.92	33.23	23.08	11.27	13.93
Bottom return, right OA, front exhaust	6.13	54.28	65.00	43.92	33.23	23.08	11.27	13.93
Bottom return, left OA, side exhaust	6.13	54.28	65.00	4.13	33.23	23.08	11.27	13.93

Table 17: 60 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has no fan and barometric damper							
Bottom return, left OA, front exhaust	6.13	54.28	65.00	4.13	33.23	23.08	11.27	13.93
Bottom return, no OA, no EA	6.13	54.28	65.00	43.92	-	-	-	-
Top return, right OA, side exhaust	3.23	49.30	71.29	40.01	33.23	23.08	11.27	17.46
Top return, right OA, front exhaust	3.23	49.30	71.29	40.01	33.23	23.08	11.27	17.46
Top return, left OA, side exhaust	3.23	49.30	71.29	1.76	33.23	23.08	11.27	17.46
Top return, left OA, front exhaust	3.23	49.30	71.29	1.76	33.23	23.08	11.27	17.46
Top return, no OA, no EA	3.23	49.30	71.29	40.01	-	-	-	-
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	5.09	50.78	66.05	7.67	33.23	23.08	11.27	13.93
Left return, no OA, no EA	5.09	50.78	66.05	7.67	-	-	-	-
Right return, left OA, front exhaust	5.09	50.78	66.05	7.67	33.23	23.08	11.27	17.46
Right return, no OA, no EA	5.09	50.78	66.05	7.67	-	-	-	-
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	5.09	62.40	66.10	7.64	33.23	23.08	11.27	17.46
Front return, right OA, left exhaust	45.56	62.40	66.10	7.64	33.23	23.08	11.27	17.46
Front return, no OA, no EA	45.56	62.40	66.10	7.64	-	-	-	-

Table 18: 60 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
Basic economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	298.54	80.00	113.36	117.00	94.50	2.50
		SU with discharge plenum (B,L,R,T)	315.54	80.00	113.36	117.00	111.50	2.50
		SU with small post-evap blank, discharge plenum (B,L,R,T)	360.54	80.00	113.36	117.06	111.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T,)	413.54	80.00	113.36	117.06	164.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	402.54	80.00	113.36	117.06	111.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	455.54	80.00	113.36	117.06	164.50	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	379.54	80.00	113.36	117.00	111.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	432.54	80.00	113.36	117.06	164.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	421.54	80.00	113.36	117.06	111.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	474.54	80.00	113.36	117.06	164.50	2.50
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	334.54	80.00	113.36	117.00	94.50	2.50
		SU, discharge through heat section (B,L)	351.54	80.00	113.36	117.00	111.50	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	404.54	80.00	113.36	117.06	164.50	2.50
		SU with heat, discharge plenum (B,L,R,T)	387.54	80.00	113.36	117.00	111.50	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	440.54	80.00	113.36	117.06	164.50	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	432.54	80.00	113.36	117.00	111.50	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	485.54	80.00	113.36	117.06	164.50	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	474.54	80.00	113.36	117.06	111.50	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	527.54	80.00	113.36	117.06	164.50	2.50

Table 18: 60 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	322.54	80.00	113.36	117.00	118.50	2.50
		SU with discharge plenum (B,L,R,T)	339.54	80.00	113.36	117.00	135.50	2.50
		SU with small post-evap blank, discharge plenum (B,L,R,T)	384.54	80.00	113.36	117.06	135.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	437.54	80.00	113.36	117.06	188.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	426.54	80.00	113.36	117.06	135.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	479.54	80.00	113.36	117.06	188.50	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	403.54	80.00	113.36	117.00	135.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	456.54	80.00	113.36	117.06	188.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	445.54	80.00	113.36	117.06	135.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	498.54	80.00	113.36	117.06	188.50	2.50
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	358.54	80.00	113.36	117.00	118.50	2.50
		SU, discharge through heat section (B,L)	375.54	80.00	113.36	117.00	135.50	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	428.54	80.00	113.36	117.06	188.50	2.50
		SU with heat, discharge plenum (B,L,R,T)	411.54	80.00	113.36	117.00	135.50	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	464.54	80.00	113.36	117.06	188.50	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	456.54	80.00	113.36	117.00	135.50	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	509.54	80.00	113.36	117.06	188.50	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	498.54	80.00	113.36	117.06	135.50	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	551.54	80.00	113.36	117.06	188.50	2.50
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	465.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	518.54	80.00	113.36	117.06	269.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	507.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	560.54	80.00	113.36	117.06	269.50	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	484.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	537.54	80.00	113.36	117.06	269.50	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	526.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	579.54	80.00	113.36	117.06	269.50	2.50
	Heat	SU, discharge through heat section (B,L)	456.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	509.54	80.00	113.36	117.06	269.50	2.50
		SU with heat, discharge plenum (B,L,R,T)	492.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	545.54	80.00	113.36	117.06	269.50	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	537.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	590.54	80.00	113.36	117.06	269.50	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	579.54	80.00	113.36	117.06	216.50	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	632.54	80.00	113.36	117.06	269.50	2.50

Table 19: 60 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
Basic economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	167.19	30.00	19.52	74.00	167.19	30.00	19.52	74.00
		SU with discharge plenum (B,L,R,T)	184.19	30.00	19.52	74.00	184.19	30.00	19.52	74.00
		SU with small post-evap blank, discharge plenum (B,L,R,T)	229.19	30.00	19.52	74.00	229.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	282.19	30.00	19.52	74.00	282.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	271.19	30.00	19.52	74.00	271.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	324.19	30.00	19.52	74.00	324.19	30.00	19.52	74.00
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	248.19	30.00	19.52	74.00	248.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	301.19	30.00	19.52	74.00	301.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	290.19	30.00	19.52	74.00	290.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	343.19	30.00	19.52	74.00	343.19	30.00	19.52	74.00
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	190.85	40.00	26.51	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	207.85	40.00	26.51	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	260.85	40.00	26.51	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	256.19	30.00	19.52	74.00	256.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	309.19	30.00	19.52	74.00	309.19	30.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	301.19	30.00	19.52	74.00	301.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	354.19	30.00	19.52	74.00	354.19	30.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	343.19	30.00	19.52	74.00	343.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	396.19	30.00	19.52	74.00	396.19	30.00	19.52	74.00
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	191.19	30.00	19.52	74.00	191.19	30.00	19.52	74.00
		SU with discharge plenum (B,L,R,T)	208.19	30.00	19.52	74.00	208.19	30.00	19.52	74.00
		SU with small post-evap blank, discharge plenum (B,L,R,T)	253.19	30.00	19.52	74.00	253.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	306.19	30.00	19.52	74.00	306.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	295.19	30.00	19.52	74.00	295.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	348.19	30.00	19.52	74.00	348.19	30.00	19.52	74.00
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	272.19	30.00	19.52	74.00	272.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	325.19	30.00	19.52	74.00	325.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	314.19	30.00	19.52	74.00	314.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	367.19	30.00	19.52	74.00	367.19	30.00	19.52	74.00
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	214.85	40.00	26.51	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	231.85	40.00	26.51	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	284.85	40.00	26.51	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	280.19	30.00	19.52	74.00	280.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	333.19	30.00	19.52	74.00	333.19	30.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	325.19	30.00	19.52	74.00	325.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	378.19	30.00	19.52	74.00	378.19	30.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	367.19	30.00	19.52	74.00	367.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	420.19	30.00	19.52	74.00	420.19	30.00	19.52	74.00

Table 19: 60 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	334.19	30.00	19.52	74.00	334.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	387.19	30.00	19.52	74.00	387.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	376.19	30.00	19.52	74.00	376.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	429.19	30.00	19.52	74.00	429.19	30.00	19.52	74.00
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	353.19	30.00	19.52	74.00	353.19	30.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	406.19	30.00	19.52	74.00	406.19	30.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	395.19	30.00	19.52	74.00	395.19	30.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	448.19	30.00	19.52	74.00	448.19	30.00	19.52	74.00
	Heat	SU, discharge through heat section (B,L)	312.85	40.00	26.51	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	365.85	40.00	26.51	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	361.19	30.00	19.52	74.00	361.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	414.19	30.00	19.52	74.00	414.19	30.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	406.19	30.00	19.52	74.00	406.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	459.19	30.00	19.52	74.00	459.19	30.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	448.19	30.00	19.52	74.00	448.19	30.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	501.19	30.00	19.52	74.00	501.19	30.00	19.52	74.00

Table 20: 60 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
Basic economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	168.06	28.21	4.65	72.04	168.06	28.21	4.65	72.04
		SU with discharge plenum (B,L,R,T)	185.06	28.21	4.65	72.04	185.06	28.21	4.65	72.04
		SU with small post-evap blank, discharge plenum (B,L,R,T)	230.06	28.21	4.65	72.04	230.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	283.06	28.21	4.65	72.04	283.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	272.06	28.21	4.65	72.04	272.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	325.06	28.21	4.65	72.04	325.06	28.21	4.65	72.04
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	249.06	28.21	4.65	72.04	249.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	302.06	28.21	4.65	72.04	302.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	291.06	28.21	4.65	72.04	291.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	344.06	28.21	4.65	72.04	344.06	28.21	4.65	72.04
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	190.75	40.00	9.19	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	207.75	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	260.75	40.00	9.19	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	257.06	28.21	4.65	72.04	257.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	310.06	28.21	4.65	72.04	310.06	28.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	302.06	28.21	4.65	72.04	302.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	355.06	28.21	4.65	72.04	355.06	28.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	344.06	28.21	4.65	72.04	344.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	397.06	28.21	4.65	72.04	397.06	28.21	4.65	72.04

Table 20: 60 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	192.06	28.21	4.65	72.04	192.06	28.21	4.65	72.04
		SU with discharge plenum (B,L,R,T)	209.06	28.21	4.65	72.04	209.06	28.21	4.65	72.04
		SU with small post-evap blank, discharge plenum (B,L,R,T)	254.06	28.21	4.65	72.04	254.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	307.06	28.21	4.65	72.04	307.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	296.06	28.21	4.65	72.04	296.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	349.06	28.21	4.65	72.04	349.06	28.21	4.65	72.04
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	273.06	28.21	4.65	72.04	273.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	326.06	28.21	4.65	72.04	326.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	315.06	28.21	4.65	72.04	315.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	368.06	28.21	4.65	72.04	368.06	28.21	4.65	72.04
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	214.75	40.00	9.19	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	231.75	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)					-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	281.06	28.21	4.65	72.04	281.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	334.06	28.21	4.65	72.04	334.06	28.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	326.06	28.21	4.65	72.04	326.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	379.06	28.21	4.65	72.04	379.06	28.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	368.06	28.21	4.65	72.04	368.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	421.06	28.21	4.65	72.04	421.06	28.21	4.65	72.04
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	335.06	28.21	4.65	72.04	335.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	388.06	28.21	4.65	72.04	388.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	377.06	28.21	4.65	72.04	377.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	430.06	28.21	4.65	72.04	430.06	28.21	4.65	72.04
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	354.06	28.21	4.65	72.04	354.06	28.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	407.06	28.21	4.65	72.04	407.06	28.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	396.06	28.21	4.65	72.04	396.06	28.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	449.06	28.21	4.65	72.04	449.06	28.21	4.65	72.04
	Heat	SU, discharge through heat section (B,L)	312.85	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	365.85	40.00	9.19	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	362.06	28.21	4.65	72.04	362.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	415.06	28.21	4.65	72.04	415.06	28.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	407.06	28.21	4.65	72.04	407.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	460.06	28.21	4.65	72.04	460.06	28.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	449.06	28.21	4.65	72.04	449.06	28.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	502.06	28.21	4.65	72.04	502.06	28.21	4.65	72.04

Note:

1. A SU includes length for economizer, draw-through filter, cooling coil, supply fan, and condenser. A SU includes a draw-through (pre-evaporator) filter with 2 in. angle filter or 2 in. + 12 in. (or 18 in.) filter. Units with a vertical 4 in. draw-through filter in place of the standard 2 in. angle or 2 in. + 12 in. (or 18 in.) filter are listed as *SU with Vertical Filter 4 in.*
2. Basic economizer unit does not include an exhaust fan or return fan option.
3. The heat section includes either gas, hot water, steam, or electric.
4. SU = Standard Unit, DP = Discharge Plenum, B = Bottom Discharge, L = Left Discharge, R = Right Discharge, T = Top Discharge.
5. Dimensions are ± 1 in.
6. For units that are shipped split, please contact your local sales office or use the Selection Navigator to get the individual air handler and condenser unit lengths.

Figure 16: 70 ton to 80 ton dimensional drawing

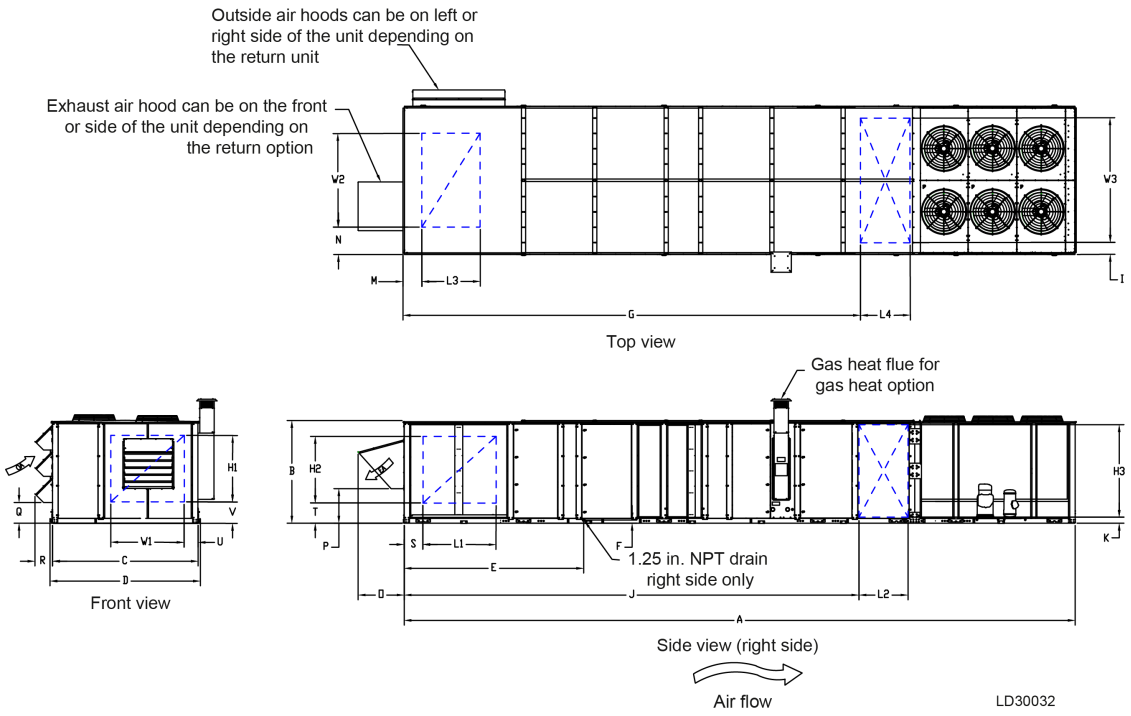


Table 21: 70 ton to 80 ton unit dimensions (in.) for return options with an ERW

Unit configuration	ERW only available with an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	111.48	72.92	54.50	54.42	26.71	22.48	16.17	13.93
Bottom return, right OA, front exhaust	111.48	72.92	54.50	54.42	26.71	22.48	16.17	13.93

Table 22: 70 ton to 80 ton unit dimensions (in.) for return options without an ERW

Unit configuration	If unit has a return fan with modulating damper								If unit has an exhaust fan with backdraft damper or modulating damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	13.66	41.63	45.51	54.71	52.68	13.07	16.17	13.93	13.66	56.94	71.31	31.05	35.95	26.92	16.17	13.93
Bottom return, right OA, front exhaust	13.66	41.63	45.51	54.71	52.68	13.07	16.17	13.93	13.66	56.91	77.87	31.05	35.95	26.92	16.17	13.93
Bottom return, left OA, side exhaust	13.66	41.63	45.51	12.83	52.68	13.07	16.17	13.93	13.66	56.91	71.31	10.67	35.95	26.92	16.17	13.93
Bottom return, left OA, front exhaust	13.66	41.63	45.51	12.83	52.68	13.07	16.17	13.93	13.66	56.91	77.87	4.13	35.95	26.92	16.17	13.93
Top return, right OA, side exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	28.70	35.95	26.92	16.17	13.93
Top return, right OA, front exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	28.70	35.95	26.92	16.17	13.93
Top return, left OA, side exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	1.76	35.95	26.92	16.17	13.93
Top return, left OA, front exhaust	-	-	-	-	-	-	-	-	3.23	49.30	82.59	1.76	35.95	26.92	16.17	13.93
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	18.99	47	47	10.34	52.68	13.07	16.17	13.93	5.09	74.78	66.11	7.64	35.95	26.92	16.17	13.93
Right return, left OA, front exhaust	18.99	47	47	10.34	52.68	13.07	16.17	13.93	5.09	74.78	66.11	7.64	35.95	26.92	16.17	13.93
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	12.80	47	47	10.34	52.68	13.07	16.17	13.93	5.09	62.40	66.10	7.64	35.95	26.92	16.17	13.93
Front return, right OA, left exhaust	53.25	47	47	10.34	52.68	13.07	16.17	13.93	45.56	62.40	66.10	7.64	35.95	26.92	16.17	13.93

Unit configuration	If unit has no fan and barometric damper							
Dimension set	**M**	**L3**	**W2**	**N**	**O**	**P**	**Q**	**R**
Bottom return, right OA, side exhaust	6.13	54.28	65.00	43.92	38.08	20.58	11.27	13.93
Bottom return, right OA, front exhaust	6.13	54.28	65.00	43.92	38.08	20.58	11.27	13.93
Bottom return, left OA, side exhaust	6.13	54.28	65.00	4.13	38.08	20.58	11.27	13.93
Bottom return, left OA, front exhaust	6.13	54.28	65.00	4.13	38.08	20.58	11.27	13.93

Unit configuration	If unit has no fan and barometric damper							
Bottom return, no OA, no EA	6.13	54.28	65.00	43.92	-	-	-	-
Top return, right OA, side exhaust	3.23	49.30	71.29	40.01	38.08	20.58	11.27	17.46
Top return, right OA, front exhaust	3.23	49.30	71.29	40.01	38.08	20.58	11.27	17.46
Top return, left OA, side exhaust	3.23	49.30	71.29	1.76	38.08	20.58	11.27	17.46
Top return, left OA, front exhaust	3.23	49.30	71.29	1.76	38.08	20.58	11.27	17.46
Top return, no OA, no EA	3.23	49.30	71.29	40.01	-	-	-	-
Dimension set	**S**	**L1**	**H2**	**T**	**O**	**P**	**Q**	**R**
Left return, right OA, front exhaust	5.09	50.78	66.05	7.67	38.08	20.58	11.27	13.93
Left return, no OA, no EA	5.09	50.78	66.05	7.67	-	-	-	-
Right return, left OA, front exhaust	5.09	50.78	66.04	7.67	38.08	20.58	11.27	17.46
Right return, no OA, no EA	5.09	50.78	66.04	7.67	-	-	-	-
Dimension set	**U**	**W1**	**H1**	**V**	**O**	**P**	**Q**	**R**
Front return, left OA, right exhaust	5.09	62.40	66.10	7.64	38.08	20.58	11.27	17.46
Front return, right OA, left exhaust	45.56	62.40	66.10	7.64	38.08	20.58	11.27	17.46
Front return, no OA, no EA	45.56	62.40	66.10	7.64	-	-	-	-

Table 23: 70 ton to 80 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
Basic economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	365.04	80.00	113.36	117.00	98.80	2.50
		SU with discharge plenum (B,L,R,T)	382.04	80.00	113.36	117.00	115.80	2.50
		SU with small post-evap blank, discharge plenum (B,L,R,T)	427.04	80.00	113.36	117.06	115.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	480.04	80.00	113.36	117.06	168.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	469.04	80.00	113.36	117.06	115.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	522.04	80.00	113.36	117.06	168.80	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	446.04	80.00	113.36	117.00	115.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	499.04	80.00	113.36	117.06	168.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	488.04	80.00	113.36	117.06	115.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	541.04	80.00	113.36	117.06	168.80	2.50
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	391.04	80.00	113.36	117.00	98.80	2.50
		SU, discharge through heat section (B,L)	408.04	80.00	113.36	117.00	115.80	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	461.04	80.00	113.36	117.06	168.8	2.50
		SU with heat, discharge plenum (B,L,R,T)	454.04	80.00	113.36	117.00	115.80	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	507.04	80.00	113.36	117.06	168.8	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	499.04	80.00	113.36	117.00	115.80	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	552.04	80.00	113.36	117.06	168.8	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	541.04	80.00	113.36	117.06	115.80	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	594.04	80.00	113.36	117.06	168.8	2.50

Table 23: 70 ton to 80 ton unit dimensions (in.)

		Unit configuration	Unit length (A)	Unit height (B)	Unit width (C)	Unit width lifting lug to lifting lug (D)	Evaporator drain length (E)	Evaporator drain height (F)
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	389.04	80.00	113.36	117.00	122.80	2.50
		SU with discharge plenum (B,L,R,T)	406.04	80.00	113.36	117.00	139.80	2.50
		SU with small post-evap blank, discharge plenum (B,L,R,T)	451.04	80.00	113.36	117.06	139.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	504.04	80.00	113.36	117.06	192.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	493.04	80.00	113.36	117.06	139.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	546.04	80.00	113.36	117.06	192.80	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	470.04	80.00	113.36	117.00	139.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	523.04	80.00	113.36	117.06	192.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	512.04	80.00	113.36	117.06	139.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	565.04	80.00	113.36	117.06	192.80	2.50
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	415.04	80.00	113.36	117.00	122.80	2.50
		SU, discharge through heat section (B,L)	432.04	80.00	113.36	117.00	139.80	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	485.04	80.00	113.36	117.06	192.80	2.50
		SU with heat, discharge plenum (B,L,R)	478.04	80.00	113.36	117.00	139.80	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	531.04	80.00	113.36	117.06	192.80	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	523.04	80.00	113.36	117.00	139.80	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	576.04	80.00	113.36	117.06	192.80	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	565.04	80.00	113.36	117.06	139.80	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	618.04	80.00	113.36	117.06	192.80	2.50
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	551.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	604.04	80.00	113.36	117.06	292.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	593.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	646.04	80.00	113.36	117.06	292.80	2.50
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	570.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	623.04	80.00	113.36	117.06	292.80	2.50
		SU with large post-evap blank, discharge plenum (B,L,R,T)	612.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	665.04	80.00	113.36	117.06	292.80	2.50
	Heat	SU, discharge through heat section (B,L)	532.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, discharge through heat section (B,L)	585.04	80.00	113.36	117.06	292.80	2.50
		SU with heat, discharge plenum (B,L,R,T)	578.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	631.04	80.00	113.36	117.06	292.80	2.50
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	623.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	676.04	80.00	113.36	117.06	292.80	2.50
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	665.04	80.00	113.36	117.06	239.80	2.50
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	718.04	80.00	113.36	117.06	292.80	2.50

Table 24: 70 ton to 80 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
Basic economizer - no ERW	No heat - 55 in. supply fanNo heat - 74 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	195.69	40.00	19.52	74.00	195.69	40.00	19.52	74.00
		SU with discharge plenum (B,L,R,T)	212.69	40.00	19.52	74.00	212.69	40.00	19.52	74.00
		SU with small post-evap blank, discharge plenum (B,L,R,T)	257.69	40.00	19.52	74.00	257.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	310.69	40.00	19.52	74.00	310.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	299.69	40.00	19.52	74.00	299.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	352.69	40.00	19.52	74.00	352.69	40.00	19.52	74.00
	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	276.69	40.00	19.52	74.00	276.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	329.69	40.00	19.52	74.00	329.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	318.69	40.00	19.52	74.00	318.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	371.69	40.00	19.52	74.00	371.69	40.00	19.52	74.00
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	219.35	40.00	26.50	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	236.35	40.00	26.50	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	289.35	40.00	26.50	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	284.69	40.00	19.52	74.00	284.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	337.69	40.00	19.52	74.00	337.69	40.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	329.69	40.00	19.52	74.00	329.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	382.69	40.00	19.52	74.00	382.69	40.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	371.69	40.00	19.52	74.00	371.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	424.69	40.00	19.52	74.00	424.69	40.00	19.52	74.00
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	219.69	40.00	19.52	74.00	219.69	40.00	19.52	74.00
		SU with discharge plenum (B,L,R,T)	236.69	40.00	19.52	74.00	236.69	40.00	19.52	74.00
		SU with small post-evap blank, discharge plenum (B,L,R,T)	281.69	40.00	19.52	74.00	281.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	334.69	40.00	19.52	74.00	334.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	323.69	40.00	19.52	74.00	323.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	376.69	40.00	19.52	74.00	376.69	40.00	19.52	74.00
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	300.69	40.00	19.52	74.00	300.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	353.69	40.00	19.52	74.00	353.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	342.69	40.00	19.52	74.00	342.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	395.69	40.00	19.52	74.00	395.69	40.00	19.52	74.00
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	243.35	40.00	26.50	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	260.35	40.00	26.50	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	313.35	40.00	26.50	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	308.69	40.00	19.52	74.00	308.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	361.69	40.00	19.52	74.00	361.69	40.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	353.69	40.00	19.52	74.00	353.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	406.69	40.00	19.52	74.00	406.69	40.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	395.69	40.00	19.52	74.00	395.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	448.69	40.00	19.52	74.00	448.69	40.00	19.52	74.00

Table 24: 70 ton to 80 ton unit dimensions (in.) with bottom and top discharge

		Unit configuration	Bottom discharge				Top discharge			
			G	L4	I	W3	G	L4	I	W3
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	381.69	40.00	19.52	74.00	281.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	434.69	40.00	19.52	74.00	334.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	423.69	40.00	19.52	74.00	323.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	476.69	40.00	19.52	74.00	376.69	40.00	19.52	74.00
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	400.69	40.00	19.52	74.00	400.69	40.00	19.52	74.00
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	453.69	40.00	19.52	74.00	453.69	40.00	19.52	74.00
		SU with large post-evap blank, discharge plenum (B,L,R,T)	442.69	40.00	19.52	74.00	442.69	40.00	19.52	74.00
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	495.69	40.00	19.52	74.00	495.69	40.00	19.52	74.00
	Heat	SU, discharge through heat section (B,L)	360.35	40.00	26.50	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	413.35	40.00	26.50	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	408.35	40.00	26.50	60.00	408.35	40.00	26.50	60.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	461.69	40.00	19.52	74.00	461.69	40.00	19.52	74.00
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	453.69	40.00	19.52	74.00	453.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	506.69	40.00	19.52	74.00	506.69	40.00	19.52	74.00
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	495.69	40.00	19.52	74.00	495.69	40.00	19.52	74.00
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	548.69	40.00	19.52	74.00	548.69	40.00	19.52	74.00

Table 25: 70 ton to 80 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
Basic economizer - no ERW	No heat - 55 in. supply fanNo heat - 74 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	196.56	38.21	4.65	72.04	196.56	38.21	4.65	72.04
		SU with discharge plenum (B,L,R,T)	213.56	38.21	4.65	72.04	213.56	38.21	4.65	72.04
		SU with small post-evap blank, discharge plenum (B,L,R,T)	258.56	38.21	4.65	72.04	258.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	311.56	38.21	4.65	72.04	311.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	300.56	38.21	4.65	72.04	300.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	353.56	38.21	4.65	72.04	353.56	38.21	4.65	72.04
	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	277.56	38.21	4.65	72.04	277.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	330.56	38.21	4.65	72.04	330.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	319.56	38.21	4.65	72.04	319.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	372.56	38.21	4.65	72.04	372.56	38.21	4.65	72.04
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	219.25	40.00	9.19	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	236.25	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	289.25	40.00	9.19	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	285.56	38.21	4.65	72.04	285.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	338.56	38.21	4.65	72.04	338.56	38.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	330.56	38.21	4.65	72.04	330.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	383.56	38.21	4.65	72.04	383.56	38.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	372.56	38.21	4.65	72.04	372.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	425.56	38.21	4.65	72.04	425.56	38.21	4.65	72.04

Table 25: 70 ton to 80 ton unit dimensions (in.) with left and right discharge

		Unit configuration	Left discharge				Right discharge			
			J	L2	K	H3	J	L2	K	H3
Standard economizer - no ERW	No heat - 55 in. supply fan	SU with 4 in. vertical filter, discharge plenum (B,L,R,T)	220.56	38.21	4.65	72.04	220.56	38.21	4.65	72.04
		SU with discharge plenum (B,L,R,T)	237.56	38.21	4.65	72.04	237.56	38.21	4.65	72.04
		SU with small post-evap blank, discharge plenum (B,L,R,T)	282.56	38.21	4.65	72.04	282.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	335.56	38.21	4.65	72.04	335.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	324.56	38.21	4.65	72.04	324.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	377.56	38.21	4.65	72.04	377.56	38.21	4.65	72.04
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	301.56	38.21	4.65	72.04	301.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	354.56	38.21	4.65	72.04	354.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	343.56	38.21	4.65	72.04	343.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	396.56	38.21	4.65	72.04	396.56	38.21	4.65	72.04
	Heat	SU with 4 in. vertical filter, discharge through heat section (B,L)	243.25	40.00	9.19	60.00	-	-	-	-
		SU, discharge through heat section (B,L)	260.25	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	313.25	40.00	9.19	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	309.56	38.21	4.65	72.04	309.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	362.56	38.21	4.65	72.04	362.56	38.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	354.56	38.21	4.65	72.04	354.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	407.56	38.21	4.65	72.04	407.56	38.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	396.56	38.21	4.65	72.04	396.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	449.56	38.21	4.65	72.04	449.56	38.21	4.65	72.04
Standard economizer - ERW	No heat - 55 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	282.56	38.21	4.65	72.04	282.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	335.56	38.21	4.65	72.04	335.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	324.56	38.21	4.65	72.04	324.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	377.56	38.21	4.65	72.04	377.56	38.21	4.65	72.04
	No heat - 74 in. supply fan	SU with small post-evap blank, discharge plenum (B,L,R,T)	401.56	38.21	4.65	72.04	401.56	38.21	4.65	72.04
		SU with pre-evap blank, small post-evap blank, discharge plenum (B,L,R,T)	454.56	38.21	4.65	72.04	454.56	38.21	4.65	72.04
		SU with large post-evap blank, discharge plenum (B,L,R,T)	443.56	38.21	4.65	72.04	443.56	38.21	4.65	72.04
		SU with pre-evap blank, large post-evap blank, discharge plenum (B,L,R,T)	496.56	38.21	4.65	72.04	496.56	38.21	4.65	72.04
	Heat	SU, discharge through heat section (B,L)	360.25	40.00	9.19	60.00	-	-	-	-
		SU with pre-evap blank, discharge through heat section (B,L)	413.25	40.00	9.19	60.00	-	-	-	-
		SU with heat, discharge plenum (B,L,R,T)	409.56	40.00	9.19	60.00	409.56	40.00	9.19	60.00
		SU with pre-evap blank, heat, discharge plenum (B,L,R,T)	462.56	38.21	4.65	72.04	462.56	38.21	4.65	72.04
		SU with heat, small post-evap blank, discharge plenum (B,L,R,T)	454.56	38.21	4.65	72.04	454.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, small post-evap blank, discharge plenum (B,L,R,T)	407.56	38.21	4.65	72.04	407.56	38.21	4.65	72.04
		SU with heat, large post-evap blank, discharge plenum (B,L,R,T)	496.56	38.21	4.65	72.04	496.56	38.21	4.65	72.04
		SU with pre-evap blank, heat, large post-evap blank, discharge plenum (B,L,R,T)	449.56	38.21	4.65	72.04	449.56	38.21	4.65	72.04

Note:

1. A SU includes length for economizer, draw-through filter, cooling coil, supply fan, and condenser. A SU includes a draw-through (pre-evaporator) filter with 2 in. angle filter or 2 in. + 12 in. (or 18 in.) filter. Units with a vertical 4 in. draw-through filter in place of the standard 2 in. angle or 2 in. + 12 in. (or 18 in.) filter are listed as *SU with Vertical Filter 4 in.*
2. Basic economizer unit does not include an exhaust fan or return fan option.
3. The heat section includes either gas, hot water, steam, or electric.
4. SU = Standard Unit, DP = Discharge Plenum, B = Bottom Discharge, L = Left Discharge, R = Right Discharge, T = Top Discharge.
5. Dimensions are ± 1 in.
6. For units that are shipped split, please contact your local sales office or use the Selection Navigator to get the individual air handler and condenser unit lengths.

Table 26: Blank sections

Post-evaporator blank options		Pre-evaporator blank options
Small blank	**Large blank**	
Empty	Empty	Empty
Humidifier	Humidifier	Air blender
Sound attenuator	Sound attenuator	-
Final filter	Final filter	-
-	Sound attenuator and final filter	-
-	Sound attenuator and humidifier	-

Figure 17: 25 ton to 80 ton roof curbs: left bottom return opening and bottom supply opening with ERW

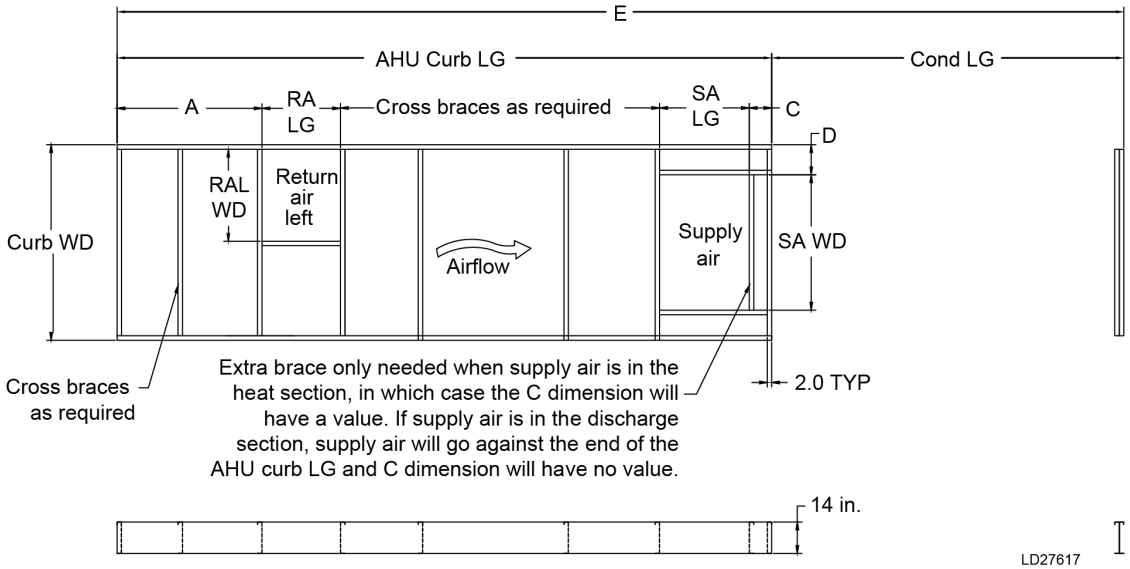


Table 27: 25 ton to 30 ton roof curbs: left bottom return opening and bottom supply opening with ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	330.90	96.05	326.4	91.55	72	398.40	84.38
	SU with large post-evap blank, DP (B, L, R, T)	372.90	96.05	368.4	91.55	72	440.40	84.38
Heat	SU with discharge through heat section (B, L)	302.90	96.05	298.40	91.55	72	370.40	84.38
	SU with heat, DP (B, L, R, T)	337.50	96.05	333.00	91.55	72	405.00	84.38
	SU with pre-evap blank, with discharge through heat section (B, L)	359.00	96.05	354.50	91.55	72	426.50	84.38
	SU with pre-evap blank, heat, DP (B, L, R, T)	390.50	96.05	386.00	91.55	72	458.00	84.38
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	435.50	96.05	431.00	91.55	72	503.00	84.38
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	477.50	96.05	473.00	91.55	72	545.00	84.38
	SU with heat, small post-evap blank, DP (B, L, R, T)	383.90	96.05	379.40	91.55	72	451.40	84.38
	SU with heat, large post-evap blank, DP (B, L, R, T)	425.90	96.05	421.40	91.55	72	493.40	84.38

Unit configuration		RAL WD	RA LG	C	D	SA LG	SA WD
No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)					
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)					
	SU with small post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00

Unit configuration		RAL WD	RA LG	C	D	SA LG	SA WD
Heat	SU with discharge through heat section (B, L)	31.94	51.36	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	31.94	51.36	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	31.94	51.36	-	7.27	30.13	77.00

Table 28: 40 ton to 50 ton left bottom return opening and bottom supply opening with ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	346.40	96.05	341.90	91.55	87.30	429.20	91.32
	SU with large post-evap blank, DP (B, L, R, T)	388.40	96.05	383.90	91.55	87.30	471.20	91.32
Heat	SU with discharge through heat section (B, L)	318.40	96.05	313.90	91.55	87.30	401.20	91.32
	SU with heat, DP (B, L, R, T)	353.00	96.05	348.50	91.55	87.30	435.80	91.32
	SU with pre-evap blank, with discharge through heat section (B, L)	376.50	96.05	372.00	91.55	87.30	459.30	91.32
	SU with pre-evap blank, heat, DP (B, L, R, T)	406.00	96.05	401.50	91.55	87.30	488.80	91.32
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	451.00	96.05	446.50	91.55	87.30	533.80	91.32
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	493.00	96.05	488.50	91.55	87.30	575.80	91.32
	SU with heat, small post-evap blank, DP (B, L, R, T)	399.40	96.05	394.90	91.55	87.30	482.20	91.32
	SU with heat, large post-evap blank, DP (B, L, R, T)	441.40	96.05	436.90	91.55	87.30	524.20	91.32

Unit configuration		RAL WD	RA LG	C	D	SA LG	SA WD
No heat	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)					
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)					
	SU with small post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
Heat	SU with discharge through heat section (B, L)	45.00	52.86	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	45.00	52.86	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	45.00	52.86	-	7.27	30.13	77.00

Table 29: 60 ton left bottom return opening with bottom supply opening with ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	421.4	113.0	416.8	108.49	97.2	514.0	109.2
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	463.4	113.0	458.8	108.49	97.2	556.0	109.2
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	368.4	113.0	363.8	108.49	97.2	461.0	109.2
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	410.4	113.0	405.8	108.49	97.2	503.0	109.2
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	440.4	113.0	435.8	108.49	97.2	533.0	109.2
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	482.4	113.0	477.8	108.49	97.2	575.0	109.2
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	387.4	113.0	382.8	108.49	97.2	480.0	109.2
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	429.4	113.0	424.8	108.49	97.2	522.0	109.2
Heat	SU with discharge through heat section (B, L) with ext eco	359.4	113.0	354.8	108.49	97.2	452.0	109.2
	SU with heat, DP (B, L, R, T) with ext eco	395.4	113.0	390.8	108.49	97.2	488.0	109.2
	SU with pre-evap blank, discharge through heat section (B, L) with ext eco	412.4	113.0	407.8	108.49	97.2	505.0	109.2
	SU with pre-evap blank, heat, DP (B, L, R, T) with ext eco	448.4	113.0	443.8	108.49	97.2	541.0	109.2
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with ext eco	493.4	113.0	488.8	108.49	97.2	586.0	109.2
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with ext eco	535.4	113.0	530.8	108.49	97.2	628.0	109.2
	SU with heat, small post-evap blank, DP (B, L, R, T) with ext eco	440.4	113.0	435.8	108.49	97.2	533.0	109.2
	SU with heat, large post-evap blank, DP (B, L, R, T) with ext eco	482.4	113.0	477.8	108.49	97.2	575.0	109.2

Table 30: 60 ton left bottom return opening with bottom supply opening with ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
Heat	SU with discharge through heat section (B, L) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with heat, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with ext eco	48.6	54.4	53.9	-	17.2	30.0	74.0

Table 31: 70 ton to 80 ton left bottom return opening with bottom supply opening with ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	478.9	113.0	474.3	108.49	125.2	599.5	109.2
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	520.9	113.0	516.3	108.49	125.2	641.5	109.2
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	425.9	113.0	421.3	108.49	125.2	546.5	109.2
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	467.9	113.0	463.3	108.49	125.2	588.5	109.2
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	497.9	113.0	493.3	108.49	125.2	618.5	109.2
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	539.9	113.0	535.3	108.49	125.2	660.5	109.2
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	444.9	113.0	440.3	108.49	125.2	565.5	109.2
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	486.9	113.0	482.3	108.49	125.2	607.5	109.2

Table 31: 70 ton to 80 ton left bottom return opening with bottom supply opening with ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
Heat	SU with discharge through heat section (B, L) with ext eco	406.9	113.0	402.3	108.49	125.2	527.5	109.2
	SU with Heat, DP (B, L, R, T) with ext eco	452.9	113.0	448.3	108.49	125.2	573.5	109.2
	SU with pre-evap blank, discharge through heat section (B, L) with ext eco	459.9	113.0	455.3	108.49	125.2	580.5	109.2
	SU with pre-evap blank, heat, DP (B, L, R, T) with ext eco	505.9	113.0	501.3	108.49	125.2	626.5	109.2
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with ext eco	550.9	113.0	546.3	108.49	125.2	671.5	109.2
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with ext eco	592.9	113.0	588.3	108.49	125.2	713.5	109.2
	SU with heat, small post-evap blank, DP (B, L, R, T) with ext eco	497.9	113.0	493.3	108.49	125.2	618.5	109.2
	SU with heat, large post-evap blank, DP (B, L, R, T) with ext eco	539.9	113.0	535.3	108.49	125.2	660.5	109.2

Table 32: 70 ton to 80 ton left bottom return opening with bottom supply opening with ERW (in.)

Unit Configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
Heat	SU with discharge through heat section (B, L) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with heat, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with ext eco	62.6	54.4	72.9	-	17.2	40.0	74.0

Note:

1. AHU = Air Handling Unit, LG = Length, WD = Width, Cond = Condenser, RA = Return Air, RAL = RA Left, SA = Supply Air, SU = Standard Unit

2. DP = Discharge Plenum, B = Bottom, L = Left, R = Right, T = Top

Figure 18: 25 ton to 50 ton roof curbs: left bottom return opening and bottom supply opening without ERW

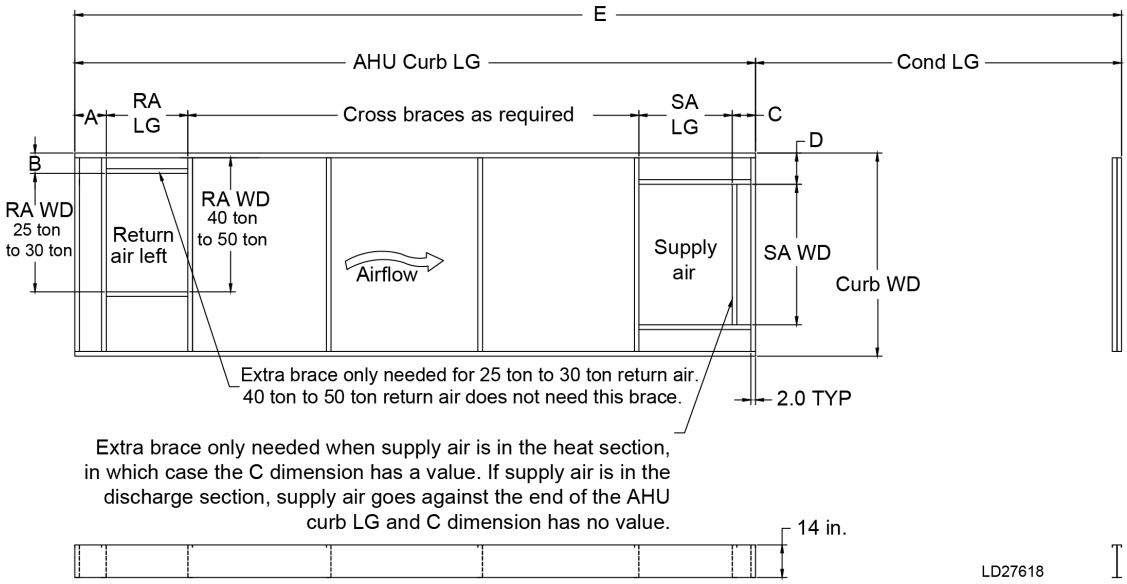


Table 33: 25 ton to 30 ton roof curbs: left bottom return opening and bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	192.40	96.05	187.90	91.55	72.00	259.90	11.41
	SU with DP (B, L, R, T)	209.40	96.05	204.90	91.55	72.00	276.90	11.41
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	254.40	96.05	249.90	91.55	72.00	321.90	11.41
	SU with large post-evap blank, DP (B, L, R, T)	302.90	96.05	298.40	91.55	72.00	370.40	11.41
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	209.40	96.05	204.90	91.55	72.00	276.90	11.41
	SU with discharge through heat section (B, L)	226.40	96.05	221.90	91.55	72.00	293.90	11.41
	SU with heat, DP (B, L, R, T)	261.00	96.05	256.50	91.55	72.00	328.50	11.41
	SU with pre-evap blank, with discharge through heat section (B, L)	279.40	96.05	274.90	91.55	72.00	346.90	11.41
	SU with pre-evap blank, heat, DP (B, L, R, T)	314.00	96.05	309.50	91.55	72.00	381.50	11.41
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	359.00	96.05	354.50	91.55	72.00	426.50	11.41
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	401.00	96.05	396.50	91.55	72.00	468.50	11.41
	SU with heat, small post-evap blank, DP (B, L, R, T)	307.40	96.05	302.90	91.55	72.00	374.90	11.41
	SU with heat, large post-evap blank, DP (B, L, R, T)	349.40	96.05	344.90	91.55	72.00	416.90	11.41

Table 34: 25 ton to 30 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00

Table 35: 40 ton to 50 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	209.90	96.05	205.40	91.55	87.30	292.70	11.41
	SU with DP (B, L, R, T)	226.90	96.05	222.40	91.55	87.30	309.70	11.41
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	271.90	96.05	267.40	91.55	87.30	354.70	11.41
	SU with large post-evap blank, DP (B, L, R, T)	318.40	96.05	313.90	91.55	87.30	401.20	11.41
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	226.90	96.05	222.40	91.55	87.30	309.70	11.41
	SU with discharge through heat section (B, L)	243.90	96.05	239.40	91.55	87.30	326.70	11.41
	SU with heat, DP (B, L, R, T)	278.50	96.05	274.00	91.55	87.30	361.30	11.41
	SU with pre-evap blank, with discharge through heat section (B, L)	296.90	96.05	292.40	91.55	87.30	379.70	11.41
	SU with pre-evap blank, heat, DP (B, L, R, T)	331.50	96.05	327.00	91.55	87.30	414.30	11.41
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	376.50	96.05	372.00	91.55	87.30	459.30	11.41
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	418.50	96.05	414.00	91.55	87.30	501.30	11.41
	SU with heat, small post-evap blank, DP (B, L, R, T)	324.90	96.05	320.40	91.55	87.30	407.70	11.41
	SU with heat, large post-evap blank, DP (B, L, R, T)	366.90	96.05	362.40	91.55	87.30	449.70	11.41

Table 36: 40 ton to 50 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00

Note:

1. AHU = Air Handling Unit, LG = Length, WD = Width, Cond = Condenser, RA = Return Air, RAR = RA Right, RAL = RA Left, SA = Supply Air
2. SU = Standard Unit, DP = Discharge Plenum, B = Bottom, L = Left, R = Right, T = Top

Figure 19: 25 ton to 50 ton roof curbs: right bottom return opening and bottom supply opening without ERW

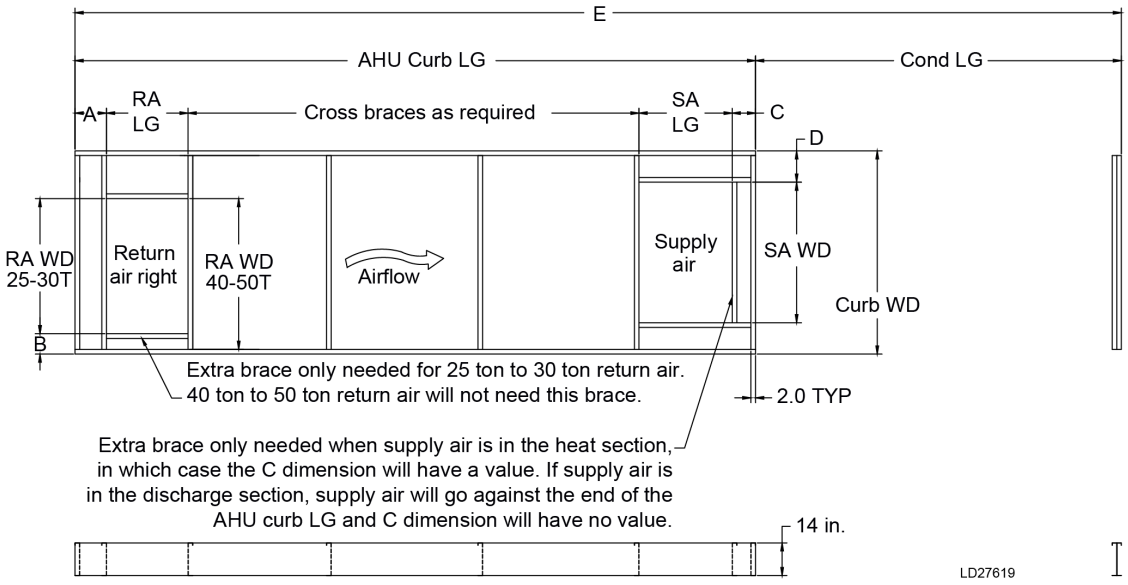


Table 37: 25 ton to 30 ton roof curbs: right bottom return opening and bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	192.40	96.05	187.90	91.55	72.00	259.90	11.41
	SU with DP (B, L, R, T)	209.40	96.05	204.90	91.55	72.00	276.90	11.41
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	254.40	96.05	249.90	91.55	72.00	321.90	11.41
	SU with large post-evap blank, DP (B, L, R, T)	302.90	96.05	298.40	91.55	72.00	370.40	11.41
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	209.40	96.05	204.90	91.55	72.00	276.90	11.41
	SU with discharge through heat section (B, L)	226.40	96.05	221.90	91.55	72.00	293.90	11.41
	SU with Heat, DP (B, L, R, T)	261.00	96.05	256.50	91.55	72.00	328.50	11.41
	SU with pre-evap blank, with discharge through heat section (B, L)	279.40	96.05	274.90	91.55	72.00	346.90	11.41
	SU with pre-evap blank, heat, DP (B, L, R, T)	314.00	96.05	309.50	91.55	72.00	381.50	11.41
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	359.00	96.05	354.50	91.55	72.00	426.50	11.41
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	401.00	96.05	396.50	91.55	72.00	468.50	11.41
	SU with heat, small post-evap blank, DP (B, L, R, T)	307.40	96.05	302.90	91.55	72.00	374.90	11.41
	SU with heat, large post-evap blank, DP (B, L, R, T)	349.40	96.05	344.90	91.55	72.00	416.90	11.41

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	9.35	51.00	33.73	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	9.35	51.00	33.73	-	7.27	30.13	77.00

Table 38: 40 ton to 50 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	209.90	96.05	205.40	91.55	87.30	292.70	11.41
	SU with DP (B, L, R, T)	226.90	96.05	222.40	91.55	87.30	309.70	11.41
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	271.90	96.05	267.40	91.55	87.30	354.70	11.41
	SU with large post-evap blank, DP (B, L, R, T)	318.40	96.05	313.90	91.55	87.30	401.20	11.41
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	226.90	96.05	222.40	91.55	87.30	309.70	11.41
	SU with discharge through heat section (B, L)	243.90	96.05	239.40	91.55	87.30	326.70	11.41
	SU with heat, DP (B, L, R, T)	278.50	96.05	274.00	91.55	87.30	361.30	11.41
	SU with pre-evap blank, with discharge through heat section (B, L)	296.90	96.05	292.40	91.55	87.30	379.70	11.41
	SU with pre-evap blank, heat, DP (B, L, R, T)	331.50	96.05	327.00	91.55	87.30	414.30	11.41
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	376.50	96.05	372.00	91.55	87.30	459.30	11.41
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	418.50	96.05	414.00	91.55	87.30	501.30	11.41
	SU with heat, small post-evap blank, DP (B, L, R, T)	324.90	96.05	320.40	91.55	87.30	407.70	11.41
	SU with heat, large post-evap blank, DP (B, L, R, T)	366.90	96.05	362.40	91.55	87.30	449.70	11.41

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat	SU with vertical filter 4 in., DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T)	See SU with heat, small post-evap blank, DP (B, L, R, T)						
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T)	See SU with heat, large post-evap blank, DP (B, L, R, T)						
	SU with small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with heat, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, with discharge through heat section (B, L)	-	72.99	37.63	4.40	17.90	40.00	50.00
	SU with pre-evap blank, heat, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with heat, small post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00
	SU with heat, large post-evap blank, DP (B, L, R, T)	-	72.99	37.63	-	7.27	30.13	77.00

Figure 20: 60 ton to 80 ton roof curbs left bottom return opening and bottom supply opening without ERW

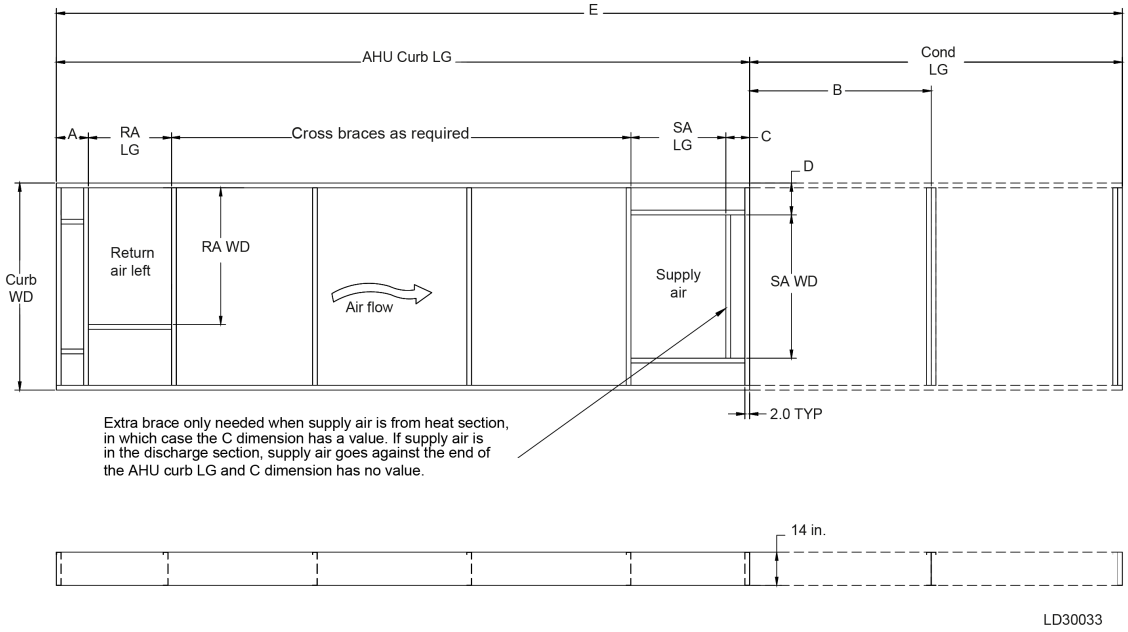


Table 39: 60 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	201.4	113.0	196.8	108.49	97.2	294.0	3.8
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	225.4	113.0	220.8	108.49	97.2	318.0	11.4
	SU with DP (B, L, R, T) with basic eco	218.4	113.0	213.8	108.49	97.2	311.0	3.8
	SU with DP (B, L, R, T) with standard eco	242.4	113.0	237.8	108.49	97.2	335.0	11.4
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	316.4	113.0	311.8	108.49	97.2	409	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	340.4	113.0	335.8	108.49	97.2	433	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	358.4	113.0	353.8	108.49	97.2	451	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	382.4	113.0	377.8	108.49	97.2	475	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	263.4	113.0	258.8	108.49	97.2	356	3.8
	SU with small post-evap blank, DP (B, L, R, T) with std eco	287.4	113.0	282.8	108.49	97.2	380	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	305.4	113.0	300.8	108.49	97.2	398	3.8
	SU with large post-evap blank, DP (B, L, R, T) with std eco	329.4	113.0	324.8	108.49	97.2	422	11.4

Table 39: 60 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	335.4	113.0	330.8	108.49	97.2	428	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	359.4	113.0	354.8	108.49	97.2	452	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	377.4	113.0	372.8	108.49	97.2	470	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	401.4	113.0	396.8	108.49	97.2	494	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	282.4	113.0	277.8	108.49	97.2	375.0	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	306.4	113.0	301.8	108.49	97.2	399.0	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	324.4	113.0	319.8	108.49	97.2	417	3.8
	SU with large post-evap blank, DP (B, L, R, T) with std eco	348.4	113.0	343.8	108.49	97.2	441	11.4

Table 39: 60 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	237.4	113.0	232.8	108.49	97.2	330.0	3.8
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	261.4	113.0	256.8	108.49	97.2	354.0	11.4
	SU with discharge through heat section (B, L) with basic eco	254.4	113.0	249.8	108.49	97.2	347.0	3.8
	SU with discharge through heat section (B, L) with standard eco	278.4	113.0	273.8	108.49	97.2	371.0	11.4
	SU with heat, DP (B, L, R, T) with basic eco	290.4	113.0	285.8	108.49	97.2	383.0	3.8
	SU with heat, DP (B, L, R, T) with standard eco	314.4	113.0	309.8	108.49	97.2	407.0	11.4
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	307.4	113.0	302.8	108.49	97.2	400	3.8
	SU with pre-evap blank, discharge through heat section (B, L) with std eco	331.4	113.0	326.8	108.49	97.2	424	11.4
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	343.4	113.0	338.8	108.49	97.2	436	3.8
	SU with pre-evap blank, heat, DP (B, L, R, T) with std eco	367.4	113.0	362.8	108.49	97.2	460	11.4
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	388.4	113.0	383.8	108.49	97.2	481	3.8
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with std eco	412.4	113.0	407.8	108.49	97.2	505	11.4
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	430.4	113.0	425.8	108.49	97.2	523	3.8
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with std eco	454.4	113.0	449.8	108.49	97.2	547	11.4
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	335.4	113.0	330.8	108.49	97.2	428.0	3.8
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	359.4	113.0	354.8	108.49	97.2	452.0	11.4
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	377.4	113.0	372.8	108.49	97.2	470	3.8
	SU with heat, large post-evap blank, DP (B, L, R, T) with std eco	401.4	113.0	396.8	108.49	97.2	494	11.4

Table 40: 60 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0

Table 40: 60 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with standard eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with heat, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, discharge through heat section (B, L) with std eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with std eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with std eco	48.6	77.9	56.9	-	17.2	30.0	74.0

Table 41: 70 ton to 80 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	239.9	113.0	235.3	108.49	125.2	360.5	3.8
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	263.9	113.0	259.3	108.49	125.2	384.5	11.4
	SU with DP (B, L, R, T) with basic eco	256.9	113.0	252.3	108.49	125.2	377.5	3.8
	SU with DP (B, L, R, T) with standard eco	280.9	113.0	276.3	108.49	125.2	401.5	11.4
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	354.9	113.0	350.3	108.49	125.2	475.5	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	378.9	113.0	374.3	108.49	125.2	499.5	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	396.9	113.0	392.3	108.49	125.2	517.5	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	420.9	113.0	416.3	108.49	125.2	541.5	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	301.9	113.0	297.3	108.49	125.2	422.5	3.8
	SU with small post-evap blank, DP (B, L, R, T) with std eco	325.9	113.0	321.3	108.49	125.2	446.5	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	343.9	113.0	339.3	108.49	125.2	464.5	3.8
	SU with large post-evap blank, DP (B, L, R, T) with std eco	367.9	113.0	363.3	108.49	125.2	488.5	11.4
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	373.9	113.0	369.3	108.49	125.2	494.5	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	397.9	113.0	393.3	108.49	125.2	518.5	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	415.9	113.0	411.3	108.49	125.2	536.5	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	439.9	113.0	435.3	108.49	125.2	560.5	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	320.9	113.0	316.3	108.49	125.2	441.5	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	344.9	113.0	340.3	108.49	125.2	465.5	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	362.9	113.0	358.3	108.49	125.2	483.5	3.8
	SU with large post-evap blank, DP (B, L, R, T) with std eco	386.9	113.0	382.3	108.49	125.2	507.5	11.4

Table 41: 70 ton to 80 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	265.9	113.0	261.3	108.49	125.2	386.5	3.8
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	289.9	113.0	285.3	108.49	125.2	410.5	11.4
	SU with discharge through heat section (B, L) with basic eco	282.9	113.0	278.3	108.49	125.2	403.5	3.8
	SU with discharge through heat section (B, L) with standard eco	306.9	113.0	302.3	108.49	125.2	427.5	11.4
	SU with heat, DP (B, L, R, T) with basic eco	328.9	113.0	324.3	108.49	125.2	449.5	3.8
	SU with heat, DP (B, L, R, T) with standard eco	352.9	113.0	348.3	108.49	125.2	473.5	11.4
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	335.9	113.0	331.3	108.49	125.2	456.5	3.8
	SU with pre-evap blank, discharge through heat section (B, L) with std eco	359.9	113.0	355.3	108.49	125.2	480.5	11.4
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	381.9	113.0	377.3	108.49	125.2	502.5	3.8
	SU with pre-evap blank, heat, DP (B, L, R, T) with std eco	405.9	113.0	401.3	108.49	125.2	526.5	11.4
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	426.9	113.0	422.3	108.49	125.2	547.5	3.8
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with std eco	450.9	113.0	446.3	108.49	125.2	571.5	11.4
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	468.9	113.0	464.3	108.49	125.2	589.5	3.8
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with std eco	492.9	113.0	488.3	108.49	125.2	613.5	11.4
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	373.9	113.0	369.3	108.49	125.2	494.5	3.8
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	397.9	113.0	393.3	108.49	125.2	518.5	11.4
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	415.9	113.0	411.3	108.49	125.2	536.5	3.8
	SU with heat, large post-evap blank, DP (B, L, R, T) with std eco	439.9	113.0	435.3	108.49	125.2	560.5	11.4

Table 42: 70 ton to 80 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0

Table 42: 70 ton to 80 ton left bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	62.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with standard eco	62.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with heat, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, discharge through heat section (B, L) with std eco	62.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with std eco	62.6	77.9	56.9	-	17.2	40.0	74.0

Note:

For the 60 ton to 80 ton units, the basic economizer is available with the barometric damper. The standard economizer is available with the exhaust and return fan.

Note:

1. AHU = Air Handling Unit, LG = Length, WD = Width, Cond = Condenser, RA = Return Air, RAR = RA Right, RAL = RA Left, SA = Supply Air
2. SU = Standard Unit, DP = Discharge Plenum, B = Bottom, L = Left

Figure 21: 60 ton to 80 ton roof curbs right bottom return opening and bottom supply opening without ERW

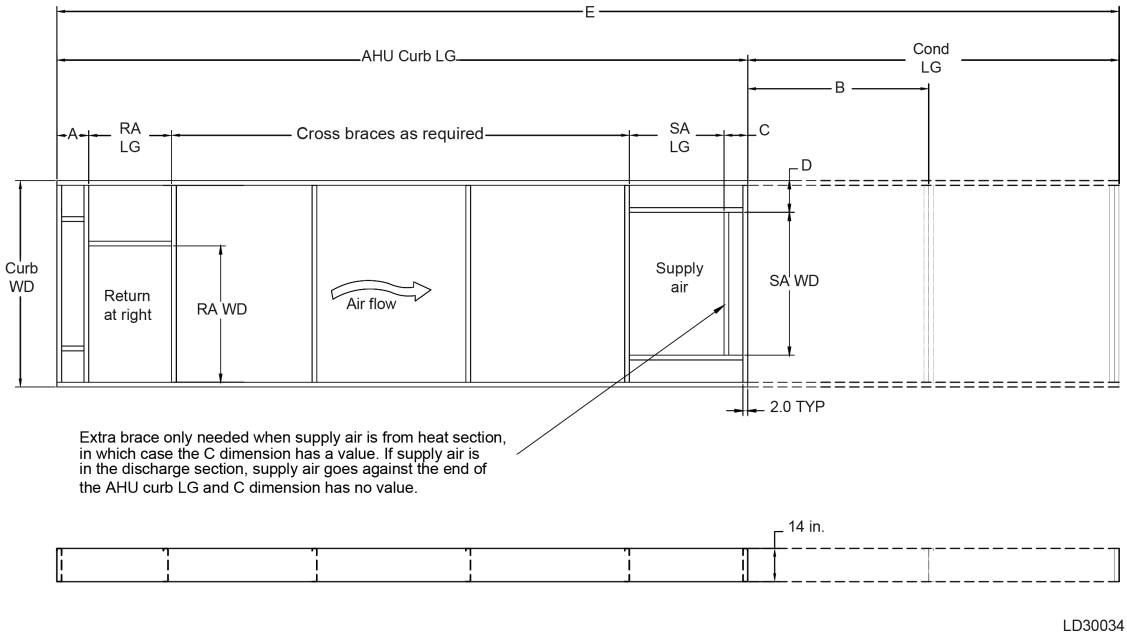


Table 43: 60 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	201.4	113.0	196.8	108.49	97.2	294.0	3.8
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	225.4	113.0	220.8	108.49	97.2	318.0	11.4
	SU with DP (B, L, R, T) with basic eco	218.4	113.0	213.8	108.49	97.2	311.0	3.8
	SU with DP (B, L, R, T) with standard eco	242.4	113.0	237.8	108.49	97.2	335.0	11.4
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	316.4	113.0	311.8	108.49	97.2	409	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	340.4	113.0	335.8	108.49	97.2	433	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	358.4	113.0	353.8	108.49	97.2	451	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	382.4	113.0	377.8	108.49	97.2	475	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	263.4	113.0	258.8	108.49	97.2	356	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	287.4	113.0	282.8	108.49	97.2	380	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	305.4	113.0	300.8	108.49	97.2	398	3.8
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	329.4	113.0	324.8	108.49	97.2	422	11.4

Table 43: 60 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	335.4	113.0	330.8	108.49	97.2	428	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	359.4	113.0	354.8	108.49	97.2	452	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	377.4	113.0	372.8	108.49	97.2	470	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	401.4	113.0	396.8	108.49	97.2	494	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	282.4	113.0	277.8	108.49	97.2	375.0	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	306.4	113.0	301.8	108.49	97.2	399.0	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	324.4	113.0	319.8	108.49	97.2	417	3.8
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	348.4	113.0	343.8	108.49	97.2	441	11.4

Table 43: 60 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	237.4	113.0	232.8	108.49	97.2	330.0	3.8
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	261.4	113.0	256.8	108.49	97.2	354.0	11.4
	SU with discharge through heat section (B, L) with basic eco	254.4	113.0	249.8	108.49	97.2	347.0	3.8
	SU with discharge through heat section (B, L) with standard eco	278.4	113.0	273.8	108.49	97.2	371.0	11.4
	SU with heat, DP (B, L, R, T) with basic eco	290.4	113.0	285.8	108.49	97.2	383.0	3.8
	SU with heat, DP (B, L, R, T) with standard eco	314.4	113.0	309.8	108.49	97.2	407.0	11.4
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	307.4	113.0	302.8	108.49	97.2	400	3.8
	SU with pre-evap blank, discharge through heat section (B, L) with standard eco	331.4	113.0	326.8	108.49	97.2	424	11.4
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	343.4	113.0	338.8	108.49	97.2	436	3.8
	SU with pre-evap blank, heat, DP (B, L, R, T) with standard eco	367.4	113.0	362.8	108.49	97.2	460	11.4
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	388.4	113.0	383.8	108.49	97.2	481	3.8
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with standard eco	412.4	113.0	407.8	108.49	97.2	505	11.4
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	430.4	113.0	425.8	108.49	97.2	523	3.8
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with standard eco	454.4	113.0	449.8	108.49	97.2	547	11.4
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	335.4	113.0	330.8	108.49	97.2	428.0	3.8
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	359.4	113.0	354.8	108.49	97.2	452.0	11.4
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	377.4	113.0	372.8	108.49	97.2	470	3.8
	SU with heat, large post-evap blank, DP (B, L, R, T) with standard eco	401.4	113.0	396.8	108.49	97.2	494	11.4

Table 44: 60 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0

Table 44: 60 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with standard eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with heat, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	48.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with pre-evap blank, discharge through heat section (B, L) with standard eco	48.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	48.6	65.0	54.3	-	17.2	30.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with standard eco	48.6	77.9	56.9	-	17.2	30.0	74.0

Table 45: 70 ton to 80 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit Configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	239.9	113.0	235.3	108.49	125.2	360.5	3.8
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	263.9	113.0	259.3	108.49	125.2	384.5	11.4
	SU with DP (B, L, R, T) with basic eco	256.9	113.0	252.3	108.49	125.2	377.5	3.8
	SU with DP (B, L, R, T) with standard eco	280.9	113.0	276.3	108.49	125.2	401.5	11.4
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	354.9	113.0	350.3	108.49	125.2	475.5	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	378.9	113.0	374.3	108.49	125.2	499.5	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	396.9	113.0	392.3	108.49	125.2	517.5	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	420.9	113.0	416.3	108.49	125.2	541.5	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	301.9	113.0	297.3	108.49	125.2	422.5	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	325.9	113.0	321.3	108.49	125.2	446.5	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	343.9	113.0	339.3	108.49	125.2	464.5	3.8
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	367.9	113.0	363.3	108.49	125.2	488.5	11.4
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	373.9	113.0	369.3	108.49	125.2	494.5	3.8
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	397.9	113.0	393.3	108.49	125.2	518.5	11.4
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	415.9	113.0	411.3	108.49	125.2	536.5	3.8
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	439.9	113.0	435.3	108.49	125.2	560.5	11.4
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	320.9	113.0	316.3	108.49	125.2	441.5	3.8
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	344.9	113.0	340.3	108.49	125.2	465.5	11.4
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	362.9	113.0	358.3	108.49	125.2	483.5	3.8
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	386.9	113.0	382.3	108.49	125.2	507.5	11.4

Table 45: 70 ton to 80 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit Configuration		AHU LG	Unit WD	AHU Curb LG	Curb WD	Cond LG	Total LG (E)	A
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	265.9	113.0	261.3	108.49	125.2	386.5	3.8
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	289.9	113.0	285.3	108.49	125.2	410.5	11.4
	SU with discharge through heat section (B, L) with basic eco	282.9	113.0	278.3	108.49	125.2	403.5	3.8
	SU with discharge through heat section (B, L) with standard eco	306.9	113.0	302.3	108.49	125.2	427.5	11.4
	SU with heat, DP (B, L, R, T) with basic eco	328.9	113.0	324.3	108.49	125.2	449.5	3.8
	SU with heat, DP (B, L, R, T) with standard eco	352.9	113.0	348.3	108.49	125.2	473.5	11.4
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	335.9	113.0	331.3	108.49	125.2	456.5	3.8
	SU with pre-evap blank, discharge through heat section (B, L) with standard eco	359.9	113.0	355.3	108.49	125.2	480.5	11.4
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	381.9	113.0	377.3	108.49	125.2	502.5	3.8
	SU with pre-evap blank, heat, DP (B, L, R, T) with standard eco	405.9	113.0	401.3	108.49	125.2	526.5	11.4
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	426.9	113.0	422.3	108.49	125.2	547.5	3.8
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with standard eco	450.9	113.0	446.3	108.49	125.2	571.5	11.4
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	468.9	113.0	464.3	108.49	125.2	589.5	3.8
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with standard eco	492.9	113.0	488.3	108.49	125.2	613.5	11.4
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	373.9	113.0	369.3	108.49	125.2	494.5	3.8
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	397.9	113.0	393.3	108.49	125.2	518.5	11.4
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	415.9	113.0	411.3	108.49	125.2	536.5	3.8
	SU with heat, large post-evap blank, DP (B, L, R, T) with standard eco	439.9	113.0	435.3	108.49	125.2	560.5	11.4

Table 46: 70 ton to 80 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
No heat + 55 in. SU	SU with vertical filter 4 in., DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with vertical filter 4 in., DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
No heat + 74 in. SU	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0

Table 46: 70 ton to 80 ton right bottom return opening with bottom supply opening without ERW (in.)

Unit configuration		B	RA WD	RA LG	C	D	SA LG	SA WD
Heat	SU with vertical filter 4 in., with discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with vertical filter 4 in., with discharge through heat section (B, L) with standard eco	62.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	4.2	24.3	40.0	60.0
	SU with discharge through heat section (B, L) with standard eco	62.6	77.9	56.9	4.2	24.3	40.0	60.0
	SU with heat, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, discharge through heat section (B, L) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with pre-evap blank, heat, large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, small post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with basic eco	62.6	65.0	54.3	-	17.2	40.0	74.0
	SU with heat, large post-evap blank, DP (B, L, R, T) with standard eco	62.6	77.9	56.9	-	17.2	40.0	74.0

Note:

For the 60 ton to 80 ton units, the basic economizer is available with the barometric damper. The standard economizer is available with the exhaust or return fan.

Note:

1. AHU = Air Handling Unit, LG = Length, WD = Width, Cond = Condenser, RA = Return Air, RAR = RA Right, RAL = RA Left, SA = Supply Air
2. SU = Standard Unit, DP = Discharge Plenum, B = Bottom, L = Left

Table 47: Field piping — unit connection sizes

Field piping	25 ton to 30 ton unit	40 ton to 50 ton unit	60 ton unit	70 ton to 80 ton unit
Condensate drain	1.25 in. NPT	1.25 in. NPT	1.25 in. NPT	1.25 in. NPT
Gas heat 250 MBH	0.75 in. NPT	-	-	-
Gas heat 500 MBH	1.00 in. NPT	1.00 in. NPT	1.00 in. NPT	1.00 in. NPT
Gas heat 750 MBH	1.00 in. NPT	1.00 in. NPT	-	-
Gas heat 1000 MBH	-	-	1.25 in. NPT	1.25 in. NPT
Gas heat 1250 MBH	-	1.25 in. NPT	-	-
Gas heat 1500 MBH	-	-	1.50 in. NPT	1.50 in. NPT
Humidifier inlet	1 in. NPT	1 in. NPT	1.25 in. NPT	1.25 in. NPT
Humidifier drain	1.25 in. NPT	1.25 in. NPT	1.25 in. NPT	1.25 in. NPT
Hot water supply (high heat)	2.50 in. NPT	3.00 in. NPT	3.00 in. NPT	3.00 in. NPT
Hot water return (high heat)	2.50 in. NPT	3.00 in. NPT	3.00 in. NPT	3.00 in. NPT
Hot water supply (low heat)	1.50 in. NPT	2.00 in. NPT	2.50 in. NPT	2.50 in. NPT
Hot water return (low heat)	1.50 in. NPT	2.00 in. NPT	2.50 in. NPT	2.50 in. NPT
Steam supply	2.00 in. NPT	2.00 in. NPT	2.00 in. NPT	2.00 in. NPT
Steam return	1.50 in. NPT	1.50 in. NPT	1.50 in. NPT	1.50 in. NPT

Note:

For gas heat connection sizes, see Table 65.

For hot water heat connection sizes, see Table 67.

Submittal data

Refer to the model number on the unit's nameplate and compare it with the Nomenclature 25 ton to 80 ton model number to see what options the unit has. Find the submittal data specific to your unit in the Selection Navigator on the *Navigator*® customer portal.

Note: Alternatively download and use the RTUToolkit application to get unit specific data.

Electrical data

The rooftop unit requires both power and control wiring. Power and control wiring must be field provided and installed.

Power and control wiring must conform to the latest edition of the National Electrical Code® (NEC) NFPA 70 or local codes and regulations. Power supply to the unit must be NEC Class 1 and comply with applicable local codes.

CAUTION

Copper conductors MUST be used for power wiring.A disconnect switch MUST be installed (factory option available).

Internal wiring harnesses furnished with the unit are an integral part of the design certified unit. Field alterations to comply with local codes must not be needed. If any factory wiring needs to be replaced, it must be of the same wire type and gauge as the original factory wire.

CAUTION

Field power wiring connected to the incoming power termination point must be copper conductor only. Aluminum wire cannot be connected to the incoming power termination point.

Electrical service sizing

The minimum circuit ampacity (MCA) and maximum overcurrent protection (MOP) ratings for each unit can be found on the unit nameplate, from the unit

factory order form and submittal data, or by using the Table 48.

- **MCA -** This rating is based on 125% of the rated load amps for the largest motor plus 100% of the rated load amps for all other loads included in the circuit, per NFPA 70 Article 440-34. The minimum recommended disconnect switch is based on 115% of the rated load amps included in the circuit per NFPA 70.
- **MOP -** This rating is based on 225% of the rated load amps for the largest load plus 100% of the rated load amps for all other loads included in the circuit per NEC Article 440-22.

Supply power voltage limitations are shown in Table 48.

In order to determine the electrical service required for the rooftop unit, use the appropriate calculations listed below from U.L. 60335-2-40. Based on the configuration of the unit, the calculations yield different MCA and MOP.

Using the following load definitions and calculations, determine the correct electrical sizing for the unit. All concurrent load conditions must be considered in the calculations, and the highest value for any combination of loads must be used.

Load definitions:

- **LOAD1** is the current of the largest motor – compressor or fan motor.
- **LOAD2** is the sum of the remaining motor currents that may run concurrently with LOAD1.
- **LOAD3** is the current of the electric heaters – zero for cooling only units.
- **LOAD4** is the sum of any remaining currents greater than or equal to 1 amp.

Use the following calculations to determine MCA and MOP for units supplied with a single-point power connection.

Note: For electric heat applications, the nameplate MCA/MOP value is the larger of the cooling mode or the heating mode value calculated.

MCA = (1.25 × Load1) + (1.25 × Load3) + Load2 + Load4

Exception: Load3 may be multiplied by 1 if the electric heater is greater than 50 kW.

MOP = (2.25 × Load1) + Load2 + Load3 + Load4

Use the following calculations to determine MCA and MOP for units supplied with a dual-point power connection.

Note: For electric heat applications, the nameplate MCA 1/MOP 1 value is the larger of the cooling mode or the heating mode value calculated.

Electrical circuit 1: compressors and crankcase heaters, condenser fan motors, electric heat (MCA 1/MOP 1).

Electrical circuit 2: supply fan, return and exhaust fan, energy recovery wheel, 120 V transformer for lights, UV lights, convenience outlet, and 24 VAC control transformers (MCA 2/MOP 2).

Use the previous formulas to calculate MCA and MOP for electrical circuits 1 and 2.

For single or dual point power connection, if the MOP does not equal a standard current rating of an overcurrent protective device, then the marked maximum rating is to be the next lower standard rating. However, if the device selected for MOP is less than the MCA, then select the lowest standard maximum fuse size greater than or equal to the MCA.

Note: All wiring must conform to the NEC and all local codes that may be in addition to the NEC.

Table 48: Power supply voltage limits

Power supply	Minimum voltage	Maximum voltage
208 to 230 V/3 Ph/60 Hz	187	253
460 V/3 Ph/60 Hz	414	506
575 V/3 Ph/60 Hz	518	632

Table 49: Three phase power supply conductor size range

Line voltage connection	Wires or pole	Minimum gauge	Maximum gauge
No Disconnect, Standard SCCR and <335A MOP	1	6 AWG	400 kcmil
No Disconnect, Standard SCCR and >335A MOP	2	6 AWG	500 kcmil

Table 49: Three phase power supply conductor size range

Line voltage connection	Wires or pole	Minimum gauge	Maximum gauge
No Disconnect, High SCCR and <200A MOP	1	14 AWG	1/0 AWG
No Disconnect, High SCCR and <400A MOP	2	6 AWG	350 kcmil
No Disconnect, High SCCR and <600A MOP	2	4 AWG	500 kcmil
Disconnect, High and Low SCCR, <200A MOP	1	6 AWG	300 kcmil
Disconnect, High and Low SCCR, <400A MOP	2	1/0 AWG	250 MCM
Disconnect, High and Low SCCR, <600A MOP	2	2 AWG	600 kcmil

Table 50: Standard efficiency and standard capacity compressor electrical data

Model	Compressor	Nominal voltage					
		208-230/3/60*		460/3/60		575/3/60	
		RLA	LRA	RLA	LRA	RLA	LRA
25 ton	1A	34	240	16	140	12.9	107.6
	2A	15.6	110	7.8	52	5.8	38.9
	2B	25	164	12.2	100	9	78
30 ton	1A	25	164	12.2	100	9	78
	1B	25	164	12.2	100	9	78
	2A	22.4	149	10.6	75	7.7	54
	2B	27.6	191	12.8	101	9.6	78
40 ton	1A	48.1	245	18.6	125	14.7	100
	1B	22.4	149	10.6	75	7.7	54
	2A	34	240	16	140	12.9	107.6
	2B	28.2	240	14.7	130	11.3	93.7
50 ton	1A	29.5	195	14.7	95	12.2	80
	1B	55.8	340	26.9	173	23.7	132
	2A	48.1	245	18.6	125	14.7	100
	2B	34	240	16	140	12.9	107.6
60 ton	1A	41	304	19.2	147	16.7	122
	1B	48.1	351	24.7	197	22.4	135
	2A	41	304	19.2	147	16.7	122
	2B	48.1	351	24.7	197	22.4	135
70 ton	1A	39.1	267	18.6	142	15.4	103
	1B	67.3	485	32.7	215	26.3	175
	2A	48.1	351	24.7	197	22.4	135
	2B	48.1	351	24.7	197	22.4	135
80 ton	1A	48.1	351	24.7	197	22.4	135
	1B	48.1	351	24.7	197	22.4	135
	2A	48.1	351	24.7	197	22.4	135
	2B	67.3	485	32.7	215	26.3	175

Note:

* 208 VA to 230 VA are based on 230 V operation.

Table 51: Standard efficiency and high capacity compressor electrical data

Model	Compressor	Nominal voltage					
		208-230/3/60*		460/3/60		575/3/60	
		RLA	LRA	RLA	LRA	RLA	LRA
25 ton	1A	34	240	16	140	12.9	107.6
	2A	19	123	9.7	62	7.4	50
	2B	27.6	191	12.8	101	9.6	78
30 ton	1A	28.2	240	14.7	130	11.3	93.7
	1B	22.4	149	10.6	75	7.7	54
	2A	25	164	12.2	100	9	78
	2B	25	164	12.2	100	9	78
40 ton	1A	51.3	300	23.1	150	19.9	109
	1B	25	164	12.2	100	9	78
	2A	34	240	16	140	12.9	107.6
	2B	28.2	240	14.7	130	11.3	93.7
50 ton	1A	30.1	225	16.7	114	12.2	80
	1B	55.8	340	26.9	173	23.7	132
	2A	29.5	195	14.7	95	12.2	80
	2B	55.8	340	26.9	173	23.7	132
60 ton	1A	44.2	315	22.4	158	18.5	136
	1B	48.1	351	24.7	197	22.4	135
	2A	44.2	315	22.4	158	18.5	136
	2B	48.1	351	24.7	197	22.4	135
70 ton	1A	48.1	351	24.7	197	22.4	135
	1B	48.1	351	24.7	197	22.4	135
	2A	48.1	351	24.7	197	22.4	135
	2B	67.3	485	32.7	215	26.3	175
80 ton	1A	48.1	351	24.7	197	22.4	135
	1B	67.3	485	32.7	215	26.3	175
	2A	48.1	351	24.7	197	22.4	135
	2B	67.3	485	32.7	215	26.3	175

Note:

* 208 VA to 230 VA are based on 230 V operation.

Table 52: High efficiency and standard capacity compressor electrical data

Model	Compressor	Nominal voltage								
		208-230/3/60*			460/3/60			575/3/60		
		RLA	Input A	LRA	RLA	Input A	LRA	RLA	Input A	LRA
25 ton	VSD[2,3]	-	50.4	-	-	24.5	-	-	26.3	-
	2A	19	-	123	9.7	-	62	7.4	-	50
	2B	27.6	-	191	12.8	-	101	9.6	-	78
30 ton	VSD[2,3]	-	80	-	-	49.9	-	-	37.6	-
	2A	25	-	164	12.2	-	100	9	-	78
	2B	25	-	164	12.2	-	100	9	-	78
40 ton	VSD[2,3]	-	68	-	-	31	-	-	31	-
	1B	39.1	-	267	18.6	-	142	15.4	-	103
	2A	27.6	-	203	14.1	-	98	11.5	-	84
	2B	27.6	-	203	14.1	-	98	11.5	-	84
50 ton	VSD[2,3]	-	80	-	-	36	-	-	47	-
	1B	41	-	304	19.2	-	147	16.7	-	122
	2A	39.1	-	267	18.6	-	142	15.4	-	103
	2B	39.1	-	267	18.6	-	142	15.4	-	103

Table 52: High efficiency and standard capacity compressor electrical data

Model	Compressor	Nominal voltage								
		208-230/3/60*			460/3/60			575/3/60		
		RLA	Input A	LRA	RLA	Input A	LRA	RLA	Input A	LRA
60 ton	VSD[2,3]	-	80	-	-	40	-	-	31	-
	1B	48.1	-	351	24.7	-	197	22.4	-	135
	2A	39.1	-	267	18.6	-	142	15.4	-	103
	2B	48.1	-	351	24.7	-	197	22.4	-	135
70 ton	VSD[2,3]	-	104	-	-	47	-	-	37	
	1B	48.1	-	351	24.7	-	197	22.4	-	135
	2A	44.2	-	315	22.4	-	158	18.6	-	136
	2B	48.1	-	351	24.7	-	197	22.4	-	135
80 ton	VSD[2,3]	-	104	-	-	47	-	-	37	-
	1B	48.1	-	351	24.7	-	197	22.4	-	135
	2A	48.1	-	351	24.7	-	197	22.4	-	135
	2B	48.1	-	351	24.7	-	197	22.4	-	135

Note:

- 208 VA to 230 VA amps are based on 230 V operation.
- Variable speed drive compressor on circuit 1A.
- Input A is supplied for maximum input current to compressor VFD.

Table 53: Condenser fan motor 25 ton to 80 ton

Unit configurations					Each motor data	208-230/3/60*		460/3/60		575V/3/60	
						SS FLA	VFD IN A	SS FLA	VFD IN A	SS FLA	VFD IN A
						7.2	9.5	3.4	4.3	1.7	3.9
Condenser fan option	Unit size	Comp config	Total quantity of fans	Quantity SS fans	Quantity VFD fans	Total fan amps					
Standard ambient	25 ton	All configurations	2	1	1	16.7		7.7		5.6	
	30 ton	High efficiency/ standard capacity									
		Standard efficiency/ standard capacity	2	0	2	19		8.6		7.8	
		Standard efficiency/High capacity									
	40 ton	All configurations	4	4	0	28.8		13.6		6.8	
	50 ton	All configurations									
Low ambient	25 ton	All configurations	2	0	2	19		8.6		7.8	
	30 ton										
	40 ton		4	2	2	33.4		15.4		11.2	
	50 ton										
Standard ambient	60 ton	All configurations	4	4	0	28.8		13.6		6.8	
	70 ton to 80 ton	All configurations	6	6	0	43.2		20.4		10.2	

Table 53: Condenser fan motor 25 ton to 80 ton

Unit configurations					Each motor data	208-230/3/60*		460/3/60		575V/3/60	
						SS FLA	VFD IN A	SS FLA	VFD IN A	SS FLA	VFD IN A
						7.2	9.5	3.4	4.3	1.7	3.9
Condenser fan option	Unit size	Comp config	Total quantity of fans	Quantity SS fans	Quantity VFD fans	Total fan amps					
Low ambient	60 ton	All configurations	4	2	2	33.4		15.4		11.2	
	70 ton to 80 ton	All configurations	6	4	2	47.8		22.2		14.6	

Note:

* 208 VA to 230 VA are based on 230 V operation.

Table 54: Electric heat amp draw

Capacity	Type of heat	Heater nominal kW	Each stage kW	Steps	208-230/3/60*	460/3/60	575/3/60
					A	A	A
25 ton to 30 ton	Low heat	50	16.7	3	115.3	-	-
	Low heat with SCR**			3***			
	Low heat	60	20	3	-	69.2	55.3
	Low heat with SCR**			3***			
	High heat	100	16.7	6	230.5	-	-
	High heat with SCR**			6***			
	High heat	120	20	6	-	138.3	110.7
	High heat with SCR**			6***			
40 ton to 50 ton	Low heat	60	15	4	138.3	-	-
	Low heat with SCR**			4***			
	Low heat	80	20	4	-	92.2	73.8
	Low heat with SCR**			4***			
	High heat	120	15	8	276.6	-	-
	High heat with SCR**			8***			
	High heat	160	20	8	-	184.4	147.5
	High heat with SCR**			8***			
60 ton to 80 ton	Low heat	90	15	6	207.49	-	-
	Low heat with SCR**			6***			
	Low heat	120	20	6	-	137.63	110.55
	Low heat with SCR**			6***			
	High heat	120	15	8	276.65	-	-
	High heat with SCR**			8***			
	High heat	120	20	10	-	229.39	184.43
	High heat with SCR**			10***			

Note:

* 208 VA to 230 VA are based on 230 V operation.

** Silicon controlled rectifier (SCR) is a modulating electric heat option.

*** SCR electric heat is installed on the first stage of the unit and provides modulation from 0–100%.

Table 55: Supply fan and return or exhaust fan 25 ton to 50 ton premium efficiency - ODP

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Supply fan motor **	5	14	6.6	5.3
	7.5	20.4	9.7	8
	10	26	12.5	10
	15	38	17.8	14.2
	20	52	23.5	19.1
	25	64	29	24.5
	30	76	35	29
	40	99	49	40
	50	121	57	46
Return or exhaust fan motor	3	8.5	4.2	3.4
	5	14	6.6	5.3
	7.5	20.4	9.7	8
	10	26	12.5	10
	15	38	17.8	14.2
	20	52	23.5	19.1

Table 56: Supply fan and return or exhaust fan 60 ton to 80 ton premium efficiency - ODP

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Supply fan motor (each) **	5	13.2	6.6	5.3
	7.5	19.4	9.7	8
	10	25	12.5	10
	15	36	18	14.2
	20	48	24	19.1
	25	60	30	24.5
	30	72	36	29
	40	98	49	40
Return fan motor**	7.5	19.7	9.9	7.88
	10	25.2	12.6	10.1
	15	36.9	18.5	14.8
	20	48.5	24.3	19.4
	25	57.5	28.7	23
	30	68.6	34.3	27.4
	40	92.6	46.3	37
Exhaust fan motor	5	13.2	6.6	5.3
	7.5	19.4	9.7	81
	10	25	12.5	10
	15	36	18	14.2
	20	48	24	19.1
	25	60	30	24.5
	30	72	36	29
	40	98	49	40

Table 56: Supply fan and return or exhaust fan 60 ton to 80 ton premium efficiency - ODP

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Exhaust fan motor with VFD	5	14.1	7.5	6.2
	7.5	21	10.3	9.2
	10	31.1	13.9	12.5
	15	45.1	20.2	17.3
	20	58	27.2	23.6
	25	71.5	32.3	28.3
	30	83.7	38.1	34.6
	40	114.7	54.1	47.2

Table 57: Supply fan and return or exhaust fan 25 ton to 50 ton - premium efficiency - TEFC

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Supply fan motor **	5	13.9	6.7	5.3
	7.5	20	9.5	7.6
	10	25.4	12	9.6
	15	38	18.1	14.6
	20	52	24	19.2
	25	64	31	24
	30	78	38	29
	40	102	48	39
	50	122	56	45
Return or exhaust fan motor	3	9	4.2	3.3
	5	13.9	6.7	5.3
	7.5	20	9.5	7.6
	10	25.4	12	9.6
	15	38	18.1	14.6
	20	52	24	19.2

Table 58: Supply fan and return or exhaust fan 60 ton to 80 ton - premium efficiency - TEFC

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Supply fan motor**	5	13.4	6.7	5.3
	7.5	19	9.5	7.6
	10	24	12	9.6
	15	36.2	18.1	14.6
	20	48	24	19.2
	25	62	31	24
	30	76	38	29
	40	96	48	39
Return fan motor	7.5	19.1	9.59	7.67
	10	25.6	12.8	10.23
	15	36.4	18.2	14.56
	20	48.6	24.3	19.45
	25	58.2	29.1	23.26
	30	68.6	34.3	27.44
	40	92.6	46.3	372

Table 58: Supply fan and return or exhaust fan 60 ton to 80 ton - premium efficiency - TEFC

Motor HP		Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
Exhaust fan motor	5	13.4	6.7	5.3
	7.5	19	9.5	7.6
	10	24	12	9.6
	15	36.2	18.1	14.6
	20	48	24	19.2
	25	62	31	24
	30	76	38	29
	40	96	48	39
Exhaust fan motor with VFD	5	14.1	7.5	6.2
	7.5	21	10.3	9.2
	10	31.1	13.9	12.5
	15	45.1	20.2	17.3
	20	58	27.2	23.6
	25	71.5	32.3	28.3
	30	83.7	38.1	34.6
	40	114.7	54.1	47.2

Note:

* 208 VA to 230 VA are based on 230 V operation.

** Actual unit nameplate amps are based on operating conditions and are calculated based on a supply or return fan value that may be less than the maximum amp values shown in the table. See the selection program output for supply or return fan amps.

Table 59: ERW motor

Model	Type	Nominal voltage		
		208-230/3/60*	460/3/60	575/3/60
		FLA	FLA	FLA
25 ton	Low CFM ERW	0.88	0.44	0.46
	High CFM ERW	0.88	0.44	0.46
30 ton	Low CFM ERW	0.88	0.44	0.46
	High CFM ERW	0.88	0.44	0.46
40 ton	Low CFM ERW	0.88	0.44	0.46
	High CFM ERW	2.2	1.1	0.88
50 ton	Low CFM ERW	0.88	0.44	0.46
	High CFM ERW	2.2	1.1	0.88
60 ton	Low CFM ERW	2.6	1.3	1.2
	High CFM ERW	2.6	1.3	1.2
70 ton	Low CFM ERW	2.6	1.3	1.2
	High CFM ERW	2.6	1.3	1.2
80 ton	Low CFM ERW	2.6	1.3	1.2
	High CFM ERW	2.6	1.3	1.2

Note:

* 208 VA to 230 VA are based on 230 V operation.

Table 60: Miscellaneous data

Description	Nominal voltage		
	208-230/3/60*	460/3/60	575/3/60
	A	A	A
Control transformer 0.2 kVA	1	0.5	0.5
Convenience outlet	9	4.5	3.5
Gas heat (per module)	0.92	0.46	0.37
250 MBH	0.92	0.46	0.37
500 MBH	0.92	0.46	0.37
750 MBH	1.84	0.92	0.74
1000 MBH	1.84	0.92	0.74
1250 MBH	2.76	1.38	1.10
1500 MBH	2.76	1.38	1.10
Crankcase heater 90 W	0.3	0.2	0.1
UV lights 25 ton to 50 ton	4.5	2.1	1.7
UV lights 60 ton to 80 ton	9.7	4.4	3.6
Internal lights (per light)	05	03	02

Note:

* 208 VA to 230 VA are based on 230 V operation.

Control wiring

The unit can operate out of the box with no control wiring connected to it.

The main control board and two refrigeration boards come standard on every unit, see Figure 23.

The unit can have an optional factory installed customer terminal board that can be used to reference and provide inputs to numerous components and sequences, see Figure 23.

The unit can also have an optional factory installed options board. While the options board is not standard, if the unit is ordered with an option that requires this board, it is automatically installed at the factory, see Figure 23.

Field control wiring must be a minimum 20 AWG and must contain a shield.

Consult the wiring diagrams shipped with the unit, or use the QR code on the unit nameplate to view them on the RTUToolkit app.

For field wiring diagrams, see Figure 24 and Figure 25 and Figure 26.

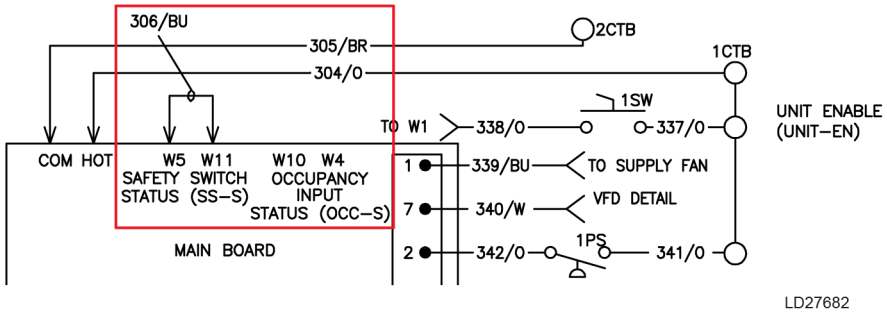
Occupancy input

- The unit can accept a hardwired 24 VAC input for occupancy status
- 24 VAC present at the W4 terminal on the main control board puts the unit into OCC mode
- 24 VAC must be provided by the main control board
- On the main control board, wire between W10, 24 VAC output, and W4, OCC-S input. See Figure 22.

Safety switch input

- The rooftop unit can accept a safety switch input that can immediately shut down all unit operation.
- The safety switch input is on terminal W5 on the main control board.
- When 24 VAC is not present at the safety switch input, the unit shuts down all operation.
- 24 VAC must be provided by the main control board.
- On the main control board, wire between W11, 24 VAC output, and W5, SS-S. See Figure 22.
- Minimum run times are ignored when a safety switch input is received.
- There is a factory installed jumper on the main control board between 24 VAC and terminal W5 when the unit leaves the factory.

Figure 22: Safety switch input and occupancy input status



Main control board

See Figure 26 for field wiring.

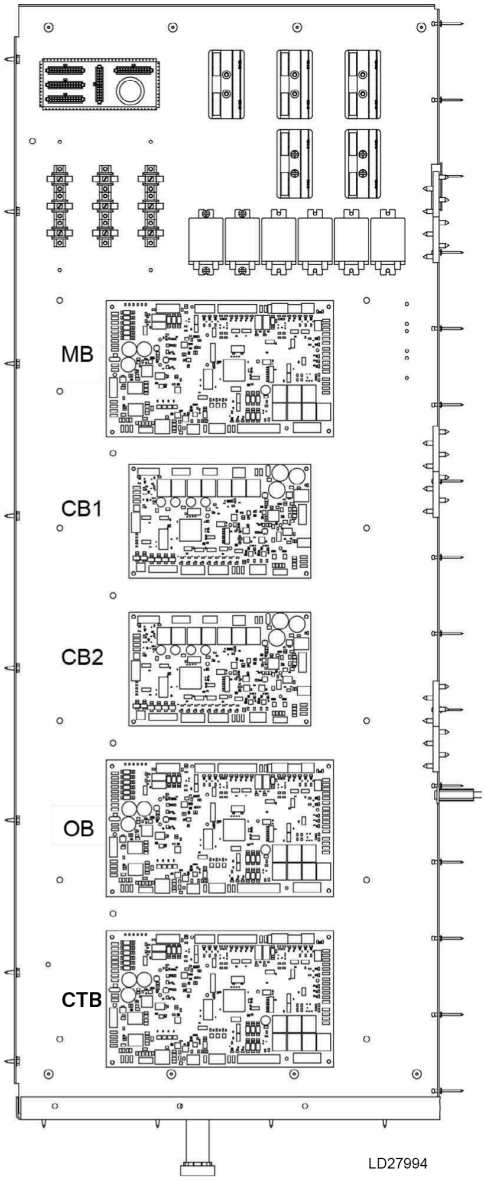
Customer terminal board

- The unit can have an optional customer terminal board, see Figure 24 for field wiring.
- This terminal board can be used to reference numerous devices and provide numerous inputs for different unit sequences.
- The board also accepts hard wired temperature and humidity sensors used to control the unit.
- See the customer terminal board and its list of terminals. For their locations and descriptions, refer to the *Johnson Controls Premier™ 25 Ton to 80 Ton Rooftop Units R-410A Start-Up and Operation Guide (5881421-JSG-B)* that shipped with the unit.

Options board

- The unit can be ordered with numerous factory installed options.
- The options board is factory installed if the unit is ordered with a specific option that requires this board.
- There are several field wiring connections that can be used to monitor and control components on the options board, see Figure 25.
- See the options board and its list of terminals. For their locations and descriptions, refer to the *Johnson Controls Premier™ 25 Ton to 80 Ton Rooftop Units R-410A Start-Up and Operation Guide (5881421-JSG-B)* that shipped with the unit.

Figure 23: Control board locations



Note:

MB = Main Board, CB1 = Condenser Board 1, CB2 = Condenser Board 2, OB = Options Board, CTB = Customer Terminal Board

Figure 24: Field wiring to CTB

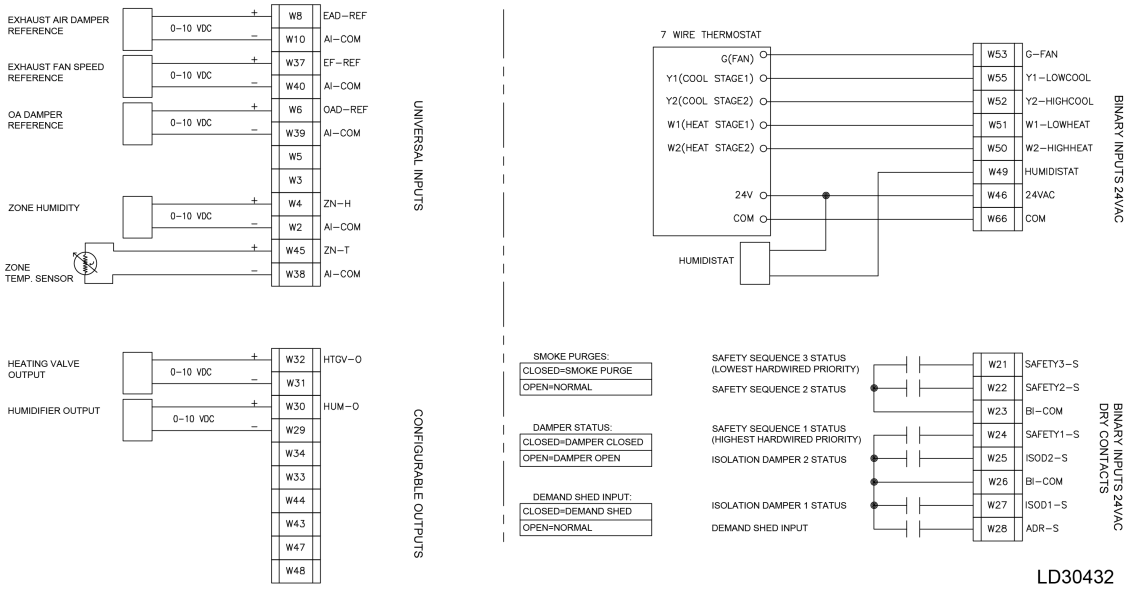


Figure 25: Field wiring to OB

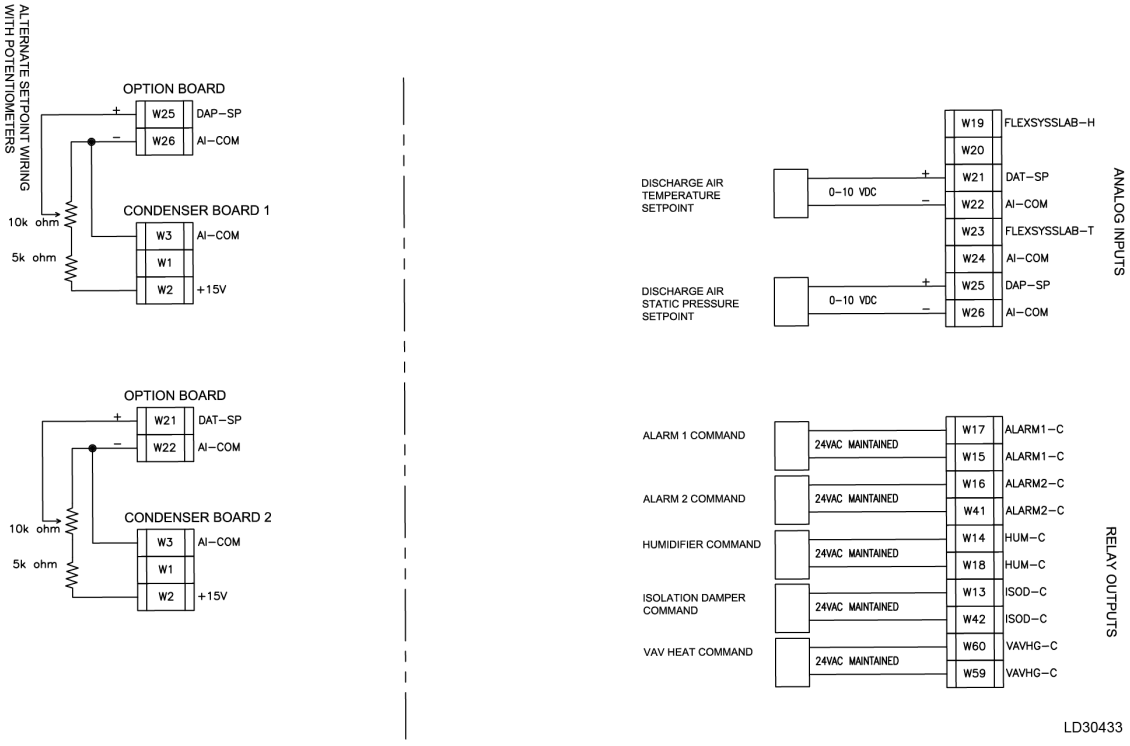
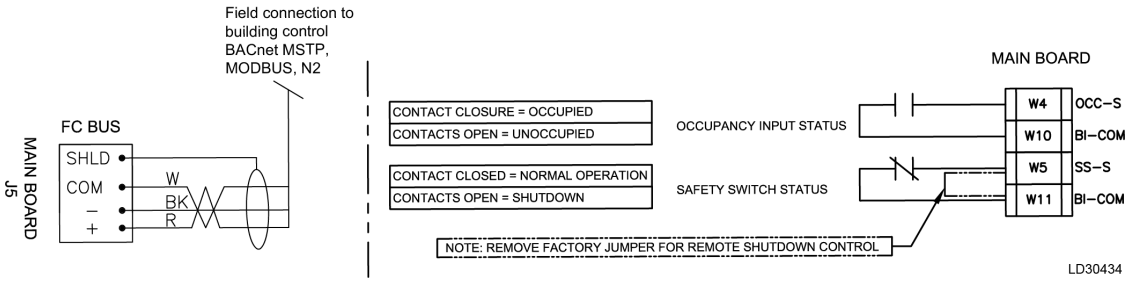


Figure 26: Field wiring to MB



Display panel

Depending on the options selected, the unit display panel may have either three VFD cutouts, 25 ton to 50 ton, or seven VFD cutouts, 25 ton to 80 ton. The cutouts either have a blank plate or a VFD display installed that coincides with the unit's options.

Figure 27: Three VFD cutout display panel

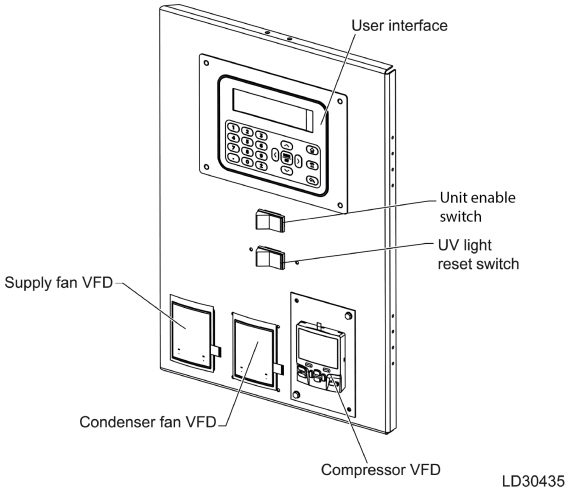
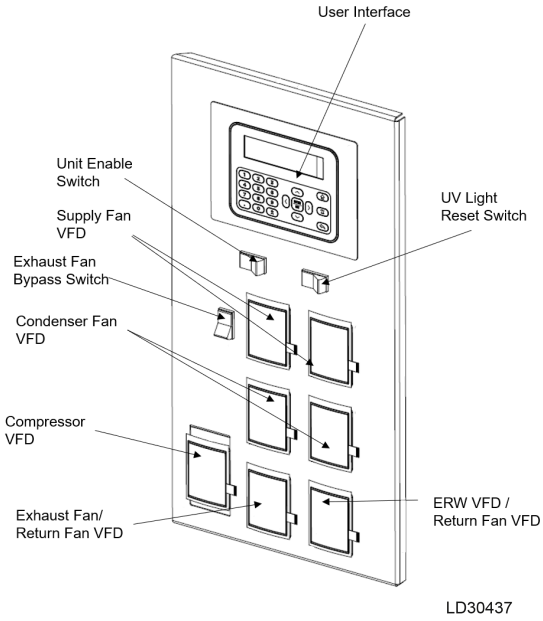


Figure 28: Seven VFD cutout display panel



Note: Depending on the VFD options selected for the unit, some of the cutouts may have a blank plate instead of a VFD display.

Display panel adjustment

The display panel can be adjusted up or down.

To adjust panels with three VFD cutouts, remove the two brackets with eight screws total. Adjust the panel to the desired, allowable height, see Figure 31 and Figure 29. Assemble the panel in the desired location by re-installing the two brackets and eight screws using the pre-drilled holes, see Figure 31.

To adjust panels with seven VFD cutouts, remove the three brackets with 12 screws total. Adjust the panel to the desired, allowable height, see Table 62 and Figure 30. Assemble the panel in the desired location by re-installing the three brackets and 12 screws using the pre-drilled holes, see Figure 32.

For VFD field parameter settings, refer to the *Johnson Controls Premier™ 25 Ton to 80 Ton Rooftop*

Units R-410A Start-Up and Operation Guide (5881375-JSG-A).

Table 61: Three VFD cutout display panel mounting options

	Location	X (in.)	Y (in.)
25 ton to 30 ton	Upper	7.89	22.11
	Center	19.08	10.92
	Lower	Not an available option	
40 ton to 50 ton	Upper	3.33	41.67
	Center	15.02	29.98
	Lower	26.22	18.78

Note:

- See Figure 29.
- Three VFD display panel is only available for 25 ton to 50 ton units.

Figure 29: Three VFD cutout display panel

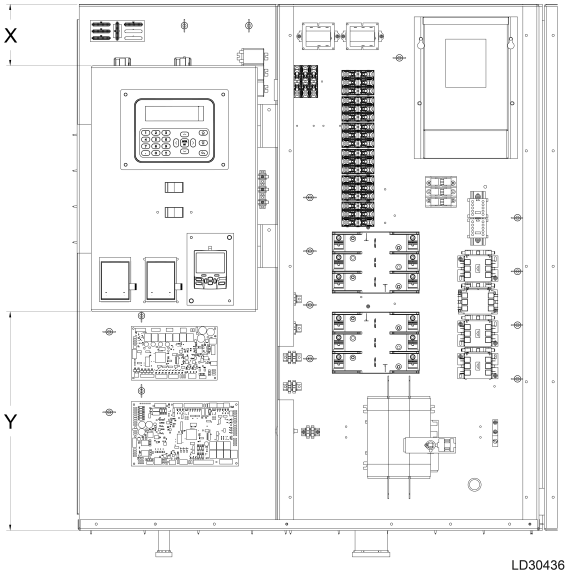


Table 62: Seven VFD cutout display panel mounting options

	Location	X (in.)	Y (in.)
25 ton to 30 ton	Upper	Not an available option	
	Center	7.89	11.34
	Lower	Not an available option	
40 ton to 50 ton	Upper	Not an available option	
	Center	15.02	19.21
	Lower	26.22	8.01

Table 62: Seven VFD cutout display panel mounting options

	Location	X (in.)	Y (in.)
60 ton to 80 ton	Upper	3.83	40.5
	Center	15.02	29.3
	Lower	26.22	18.11

Figure 30: Seven VFD cutout display panel

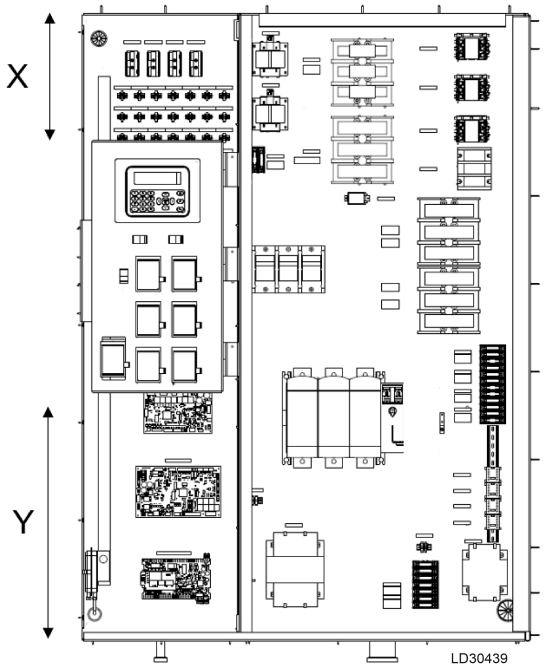


Figure 31: Three VFD cutout display panel assembly

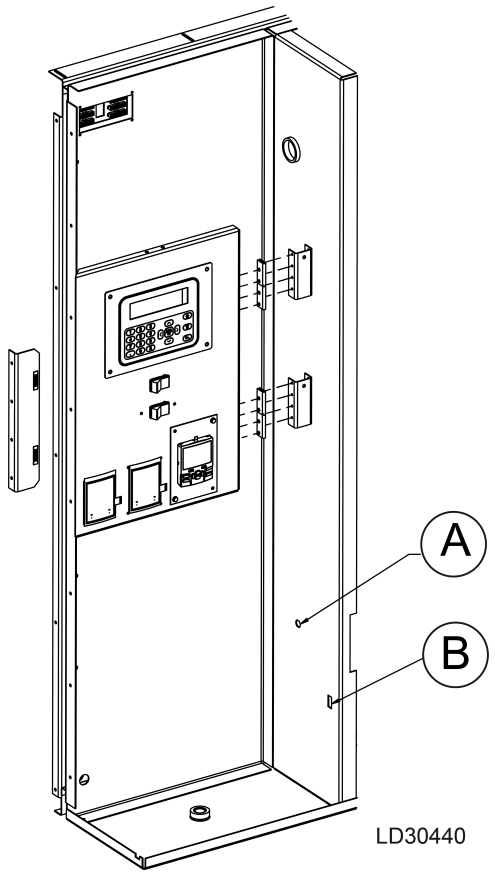


Table 63: Three VFD cutout display panel assembly

Item	Description
A	Internal light switch
B	Reset switch

Figure 32: Seven VFD cutout display panel assembly

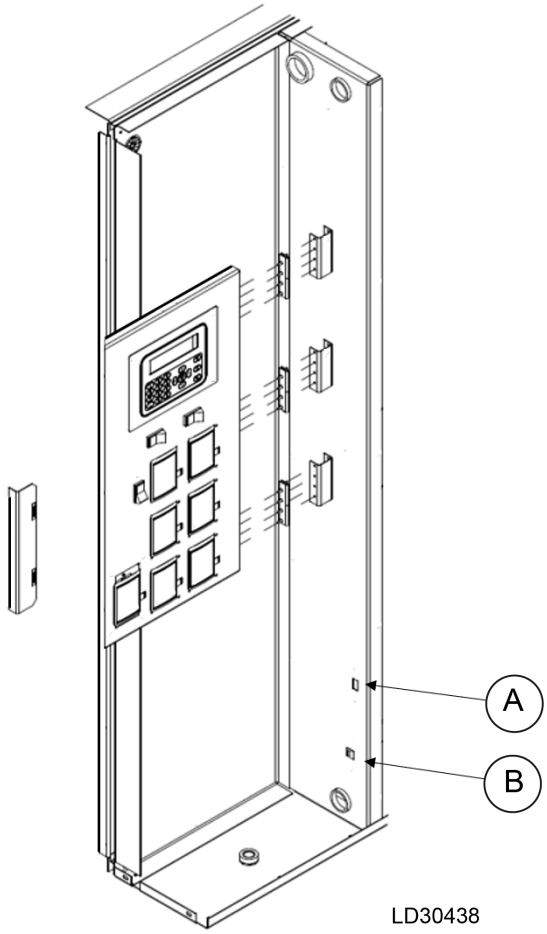


Table 64: Seven VFD cutout display panel assembly

Item	Description
A	Internal light switch
B	Reset switch

Reset switch

When the unit is equipped with a convenience outlet, a reset switch is installed on the inner wall of the low side control cabinet, see Figure 31 and Figure 32. The reset switch is provided as a safeguard in case of an overload on the circuit or a short circuit in the appliance plugged into the circuit. If this switch trips frequently, the user is advised to evaluate the appliance wiring or amperage draw. The convenience outlet load must not exceed 15 amps.

Unit enable switch

The unit enable switch is provided as a standard feature below the display panel to disable the unit in case of emergency or when the user needs to shut down the unit instantly. The unit cannot be turned ON unless this switch has been enabled. The display remains ON when the unit enable switch is turned OFF.

See Figure 27 and Figure 28 for location.

UV light reset switch

When equipped with UV lights, the UV light reset switch must be switched ON whenever the UV lights are disabled due to opening the evaporator, supply fan, or filter cabinet door.

See Figure 27 and Figure 28 for location.

Field tubing

The unit could have several factory installed static pressure transducers that are required for certain unit types and sequences.

These factory installed transducers must have field provided pneumatic tubing installed. The pneumatic tubing must be 3/16 in. inside diameter (ID) and connected to the high side port of the transducers. Route the field provided tubing to the appropriate location dependent on the transducer and the function.

Discharge air static pressure transducer

- A unit can be ordered configured for variable air volume (VAV), in which a discharge air static pressure transducer is factory installed.
- Route the field provided pneumatic tubing from the high side port of the transducer and connect it to the discharge air static probe located in the supply ductwork.
- The ideal location for the discharge air static probe is two-thirds of the way between the unit outlet and the first duct take-off or tee.
- The discharge air static pressure sensor is located inside the economizer section on the vertical upright on the front wall.

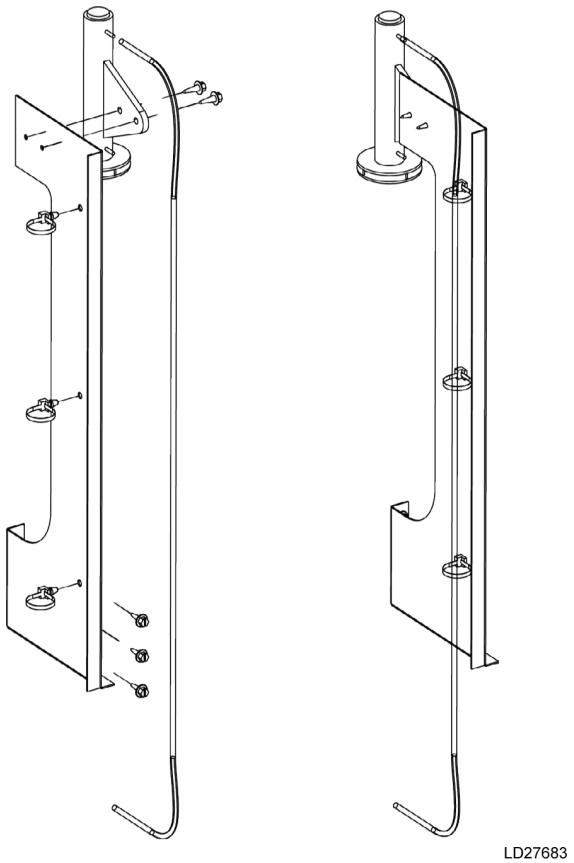
Building static pressure transducer

- A unit can be ordered with a factory installed exhaust damper that is capable of removing excess building static pressure. If the unit was ordered with an exhaust damper, a building static pressure transducer is factory installed.
- Route the field provided pneumatic tubing from the high side port of the building static pressure transducer to the building static pressure probe.
- The ideal location for the building pressure probe must be in an interior closet with little to no traffic and an undercut door. Locations of the probe can vary greatly with each building type.
- The building static pressure sensor is located inside the economizer section on the vertical upright on the front wall of 25 ton to 50 ton units. On 60 ton to 80 ton units the building static pressure sensor is located inside the control panel.

Outdoor pressure reference

- If a unit has either of the previous pressure transducers installed, an outdoor pressure reference is needed, see Figure 33.
- An outdoor pressure reference kit is shipped loose in the unit for field installation.

Figure 33: Outdoor pressure reference assembly



- On units with outside air hoods, the pneumatic tubing is always installed on the side of the outside air hoods.

- On units without outside air hoods, the pneumatic tubing placement is decided by the contractor.
- Refer to the instructions provided with the outdoor pressure reference for proper installation.

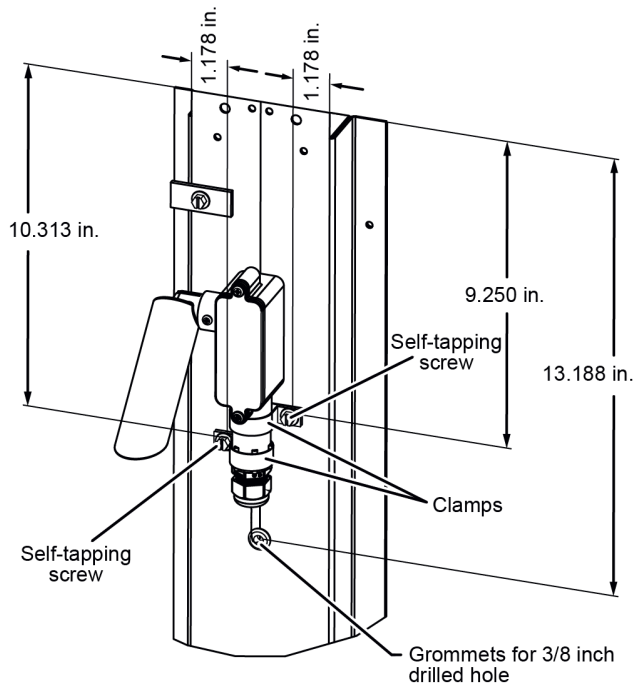
Outside air temperature sensor

For 100% return air units, with no fresh air, it is required to have an outside air temperature (OAT) sensor.

Field install the factory supplied kit that is shipped loose, secured to the draw-through filter rack in the filter section of the unit.

1. Locate the OAT sensor on the right-side column of the return air section.
2. Drill a 3/8 in. hole at the specified dimensions according to Figure 34.
3. Install the factory suppled grommets on both sides of the drilled hole.
4. Install the OAT sensor to the column using the two factory supplied clamps and two self-tapping screws.
5. Make a small hole through the insulation to pass the sensor wires through the grommets.
6. Connect the sensor wires to the OAT sensor.
7. Caulk around the wires and the grommets.

Figure 34: Installing the OAT sensor



Gas piping

The unit can have optional factory installed staged or modulating gas heating sections. When optional gas heat is ordered, natural gas is the standard offering. Propane can be ordered as an option.

The installing contractor is responsible for the proper sizing of the inlet gas piping. Proper sizing depends on the cubic feet per hour of gas flow required, specific gravity of the gas, and the length of piping run.

The latest edition of the National Fuel Gas Code Z223.1 must be followed in all cases unless superseded by local codes. See Table 66.

The maximum gas pressure allowed at the unit connection is 0.5 psig or 13.5 iwg.

DANGER

If the information in this manual is not followed exactly, a fire or explosion can result and cause property damage, personal injury, or loss of life. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS: Do not try to light any appliance. Do not touch any electrical switch, and do not use any phone in your building. Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions. If you cannot reach your gas supplier, call the fire department. Installation and service must be performed by a qualified installer, service agency, or the gas supplier.

WARNING

Disconnect gas piping from unit when leak testing at pressures greater than 0.5 psig or 13.5 iwg. Pressures greater than 0.5 psig or 13.5 iwg will cause gas valve damage resulting in a hazardous condition. If the gas valve is subjected to pressure greater than 0.5 psig or 13.5 iwg, it must be replaced.

Table 65: Staged and modulating gas heat

Staged and modulating gas heat					Staged gas heat	Modulating gas heat
Model	Gas input capacity (MBH)	Maximum output capacity (MBH)	Minimum airflow (CFM)	Gas connection size (in.)	Steps	Turndown
25 ton to 30 ton	250	202.5	5,000	0.75	2	10:1
	500	405	5,000	1.00	2	20:1
	750	607.5	5,000	1.00	4	30:1
40 ton to 50 ton	500	405	8,000	1.00	2	20:1
	750	607.5	8,000	1.00	4	30:1
	1250	1012.5	8,000	1.25	6	50:1
60 ton	500	405	12,000	1.00	2	10:1
	1000	810	12,000	1.25	4	20:1
	1500	1215	12,000	1.50	6	30:1
70 ton to 80 ton	500	405	14,000	1.00	2	10:1
	1000	810	14,000	1.25	4	20:1
	1500	1215	14,000	1.50	6	30:1

Note:

- Sizing of gas connection from source to unit to be determined in the field.
- For proper operation, the building supplied natural gas pressure must be 7 iwg to 14 iwg, liquid propane pressure is 12 iwg to 14 iwg.
- Temperature rise can be calculated where temperature rise = (gas input capacity (Btu) x 0.81) / (CFM x 1.085).
- Maximum leaving air temperature cannot exceed 120.0°F (48.8°C).

Figure 35: Typical gas piping connection

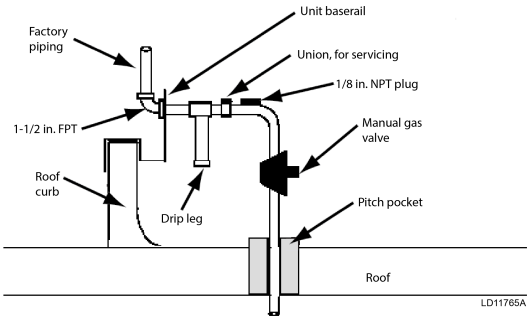


Table 66: Sizing of inlet gas piping

Length (ft)	Nominal iron pipe size		
	1 1/4 in.	1 1/2 in.	2 in.
10	1,404	2,103	3,050
20	965	1,445	2,100
30	775	1,116	1,650
40	663	993	1,450
50	-	880	1,270
60	-	798	1,150
70	-	734	1,050
80	-	638	990

Note: Maximum capacity of pipe in cubic feet of gas per hour based upon a pressure drop of 0.5 iwg and 0.6 specific gravity gas.

Gas connection

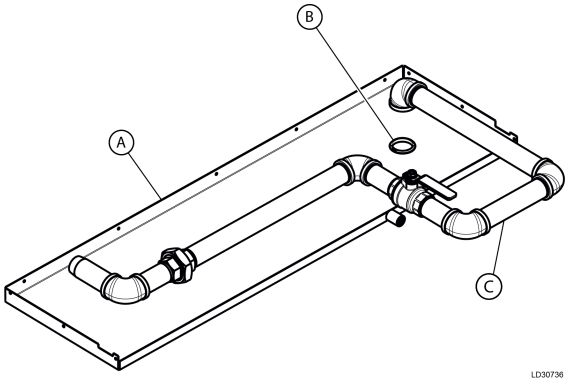
- The gas supply line can enter the unit through a bottom or side entry access hole.
- Run the gas supply line either inside the building and penetrate the roof near the gas inlet access, or install the line exposed on the roof of the building.
- If gas supply line pressure is greater than 0.5 psig or 13.5 iwg, a properly sized regulator must be installed.
- See Figure 35 for typical gas piping arrangement.
- Follow all local codes when installing the gas supply line.

Gas piping recommendation

- A drip leg and a ground joint union must be installed in the gas piping.
- When required by local codes, a manual shut-off valve must be installed outside of the unit.

- Use wrought iron or steel pipe for all gas lines. Thread sealing compounds must be used sparingly on male threads only.
- All piping must be cleaned of dirt and scale by hammering on the outside of the pipe and blowing out loose particles.
- Before initial start-up, all air must be purged out of the gas supply line piping.
- The gas supply must be a separate line and installed in accordance with all safety codes as prescribed under limitations listed previously in this section.
- After completion of gas connections, open the main shut-off valve allowing gas into the unit. All factory piping must be checked for leaks using a soap and water solution.
- An 1/8 in. NPT plugged tapping must be installed immediately upstream of the gas supply connection to the furnace.
- The hollow grommet that is shipped as a loose-piece item with kits must be assembled with the fuel pipe for bottom penetration option as shown in Figure 36. For the side penetration option, keep the existing grommet on the drain pan as is.
- The hollow grommet must properly fit between the drain pan hole and fuel pipe outside diameter.
- Apply proper sealant across the grommets to seal the gap across its internal and external diameter.

Figure 36: The hollow grommet

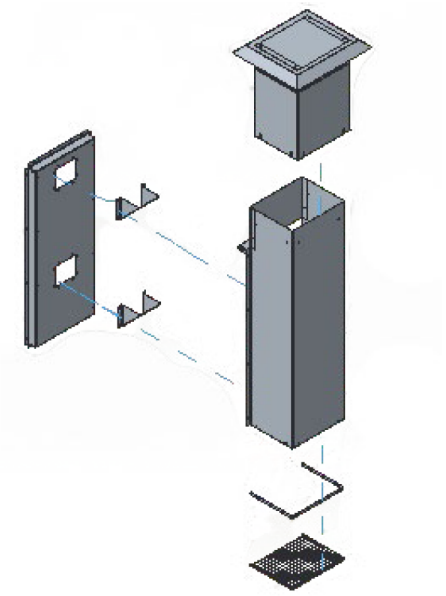


Component	Description
A	Drain pan
B	Hollow grommet
C	Bottom intake fuel supply kit

Flue gas chimney installation

- On units that have optional staged or modulating gas heat, field installation of a flue gas chimney is required.
- The flue gas chimney is shipped loose in the return air section of the unit.
- Carefully remove the flue gas chimney assembly from the return air section and install it over the inducer motor outlets as shown in Figure 37.
- Install up to three diverter angles with the flue gas chimney.
- Number of diverter angles vary based on the gas heat capacity, low heat = 1, medium heat = 2, high heat = 3.

Figure 37: Flue gas chimney assembly



Hydronic piping

The unit can have an optional factory installed hot water coil or steam coil.

Hot water coil

- The factory installed hot water coil is located in the discharge air section of the unit.
- The hot water coil is designed for a maximum working pressure of 250 psig.
- The unit can be ordered with a three-way modulating valve shipped loose from the factory to be installed in the field. See the submittal package for the valve part number and specifications.

- Piping to and from the hot water coil must be field supplied and installed. This includes the strainer, pipes, and pipe fittings. See Figure 39.
- Piping locations can also be found in the submittal data.
- A field provided and installed valve can also be used as long as the valve matches the specifications and ratings of the factory installed valve.
- Connect the modulating valve to the customer terminal board using the hot water and steam heating valve output (HTGV-O) at terminal W32. See Figure 38.

Figure 38: Hot water and steam heating valve output

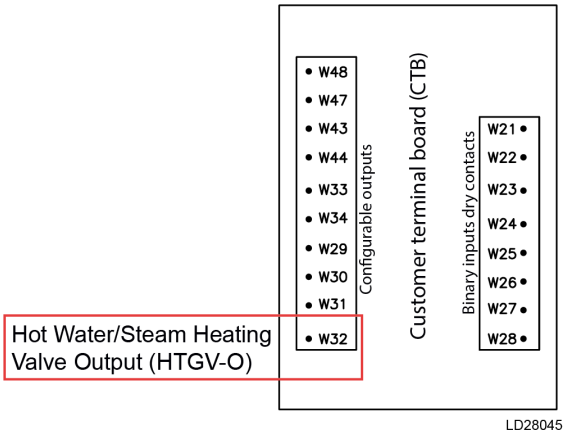


Figure 39: Hot water piping schematic

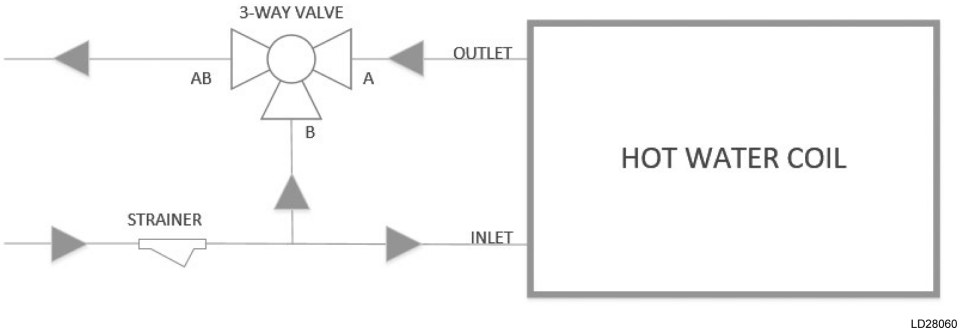


Figure 40: Steam piping schematic

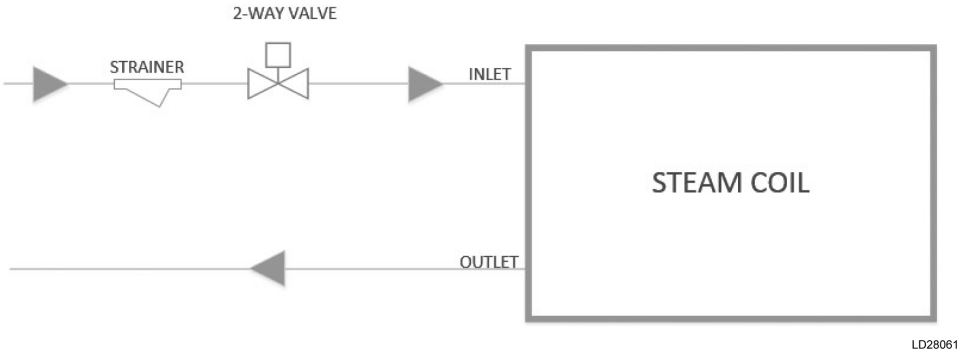


Table 67: Coil component sizing

Model	Coil	Valve size (in.)	Header size (in.)	Connection size (inlet/outlet)
25 ton to 30 ton	Hot water (low heat)	2	1.5	1.5/1.5
	Hot water (high heat)	2	2.5	2.5/2.5
	Steam (low heat)	2	2	2/1.5
	Steam (high heat)	2	2	2/1.5
40 ton to 50 ton	Hot water (low heat)	2	2	2/2
	Hot water (high heat)	2	3	3/3
	Steam (low heat)	2	2	2/1.5
	Steam (high heat)	2	2	2/1.5
60 ton	Hot water (low heat)	2	2.5	2.5/2.5
	Hot water (high heat)	2	3	3/3
	Steam (low heat)	2	2	2/1.5
	Steam (high heat)	2	2	2/1.5
70 ton to 80 ton	Hot water (low heat)	2	2.5	2.5/2.5
	Hot water (high heat)	2	3	3/3
	Steam (low heat)	2	2	2/1.5
	Steam (high heat)	2	2	2/1.5

Steam coil

- The factory installed steam coil is located in the discharge air section of the unit.
- The steam coil is designed for a maximum working pressure of 15 psig.
- The unit can be ordered with a two-way modulating valve shipped loose from the factory to be installed in the field. See the submittal package for the valve part number and specifications.
- Install the modulating valve and strainer on the inlet line.
- Piping to and from the steam coil must be field supplied and installed. This includes the strainer, pipes, and pipe fittings. See Figure 40.
- Piping locations can also be found in the submittal data.
- A field provided and installed valve can also be used as long as the valve matches the specifications and ratings of the factory installed valve.
- Connect the modulating valve to the customer terminal board using the hot water and steam heating valve output (HTGV-O) at terminal W32. See Figure 38.

Humidifier

The rooftop unit can be ordered with an optional factory installed steam humidifier manifold. The steam control valve, Y (wye) type strainer, and steam trap are factory provided and shipped loose for field installation. Steam is provided by others.

Piping locations can be found in the submittal data.

HUM-O (humidifier output) and HUM-C (humidifier command) points are located on the customer terminal board. See Figure 42.

Return air and discharge air humidity sensors are provided to maintain zone and return air humidity.

Steam inlet piping and condensate drain connection sizes vary by tonnage sizes. For more information, see Table 47. The steam control valve is a 24 VAC normally closed, spring return actuator. All piping necessary for installing the strainer, valve, and trap are field provided and installed.

Figure 41: Humidifier connections

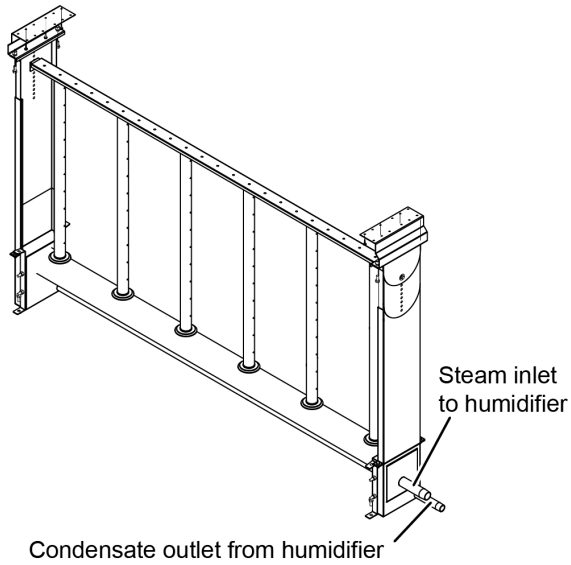
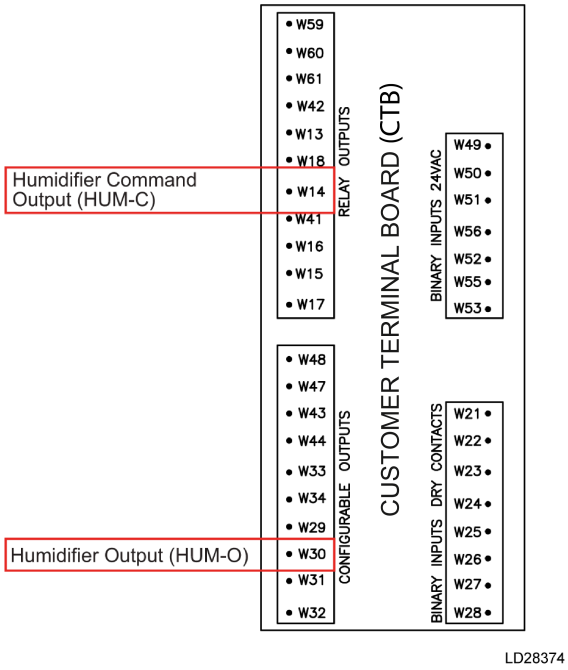


Figure 42: Humidifier output and command



Note: Outlet hose and piping must not reach the bottom of the funnel fitting.

- Install the wye type strainer before the steam control valve.
- Install the steam trap per the instructions that ship with the shipped loose item.
- Humidifier connections are shown in Figure 41.
- Connect the steam control valve to the customer terminal board using the hot water and steam heating valve output (HTGV-O) at terminal W32. See Figure 42.

Ductwork

Ductwork must be designed and sized according to the methods in the Air Conditioning Contractors of America's (ACCA) Manual Q.

A closed return duct system is recommended. This type of return duct system ensures proper air change-out throughout the interior space. This does not preclude use of economizers or outdoor fresh air intakes.

CAUTION

Elbows, discharge damper, and other abrupt flow area changes installed directly at the fan outlet will cause system losses. These losses must be taken into account during the design phase and must be added to any field measurements.

The supply and return air duct connections at the unit must be made with flexible joints to minimize noise. When the unit is equipped with an exhaust fan assembly or a return fan assembly, the return duct must have a 90° elbow before opening to the building space to decrease noise.

It is vital that supply and return ductwork be designed and sized for the CFM and static pressure requirements of the HVAC system. They must not be sized to match the dimensions of the duct connections at the unit.

Figure 43: Air duct configurations

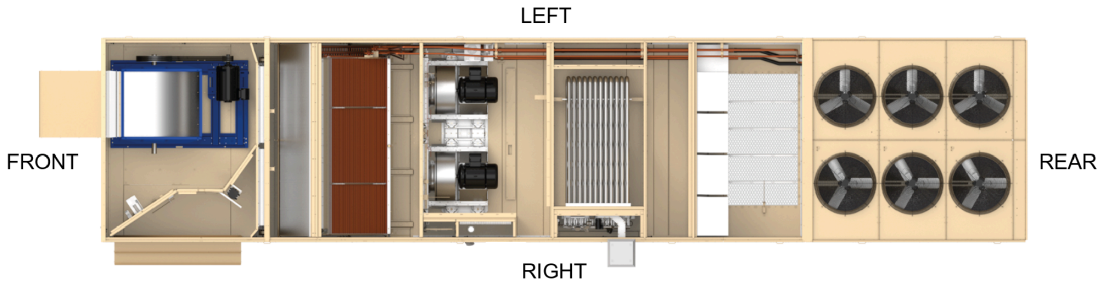


Table 68: 25 ton to 80 ton supply and return air duct configurations

Unit configuration	Supply air				Return air					Outside air		Exhaust air	
	Bottom	Left	Right	Top	Bottom	Left	Right	Top	Front	Left	Right	Side*	Front
Cooling only	Yes	Yes	Yes	Yes	-	Yes	-	-	-	-	Yes	-	Yes
	Yes	Yes	Yes	Yes	-	-	Yes	-	-	Yes	-	-	Yes
	Yes	Yes	Yes	Yes	Yes	-	-	Yes	-	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes	Yes	-
Cooling with discharge through heat section	Yes	Yes	-	-	-	Yes	-	-	-	-	Yes	-	Yes
	Yes	Yes	-	-	-	-	Yes	-	-	Yes	-	-	Yes
	Yes	Yes	-	-	Yes	-	-	Yes	-	Yes	Yes	Yes	Yes
	Yes	Yes	-	-	-	-	-	-	Yes	Yes	Yes	Yes	-
Cooling with heat and discharge plenum or cooling with downstream section and discharge plenum	Yes	Yes	Yes	Yes	-	Yes	-	-	-	-	Yes	-	Yes
	Yes	Yes	Yes	Yes	-	-	Yes	-	-	Yes	-	-	Yes
	Yes	Yes	Yes	Yes	Yes	-	-	Yes	-	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes	Yes	-
Cooling with ERW and discharge through heat section	Yes	Yes	-	-	Yes	-	-	-	-	-	Yes	Yes	Yes
Cooling with heat with ERW with downstream section and discharge plenum	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	Yes	Yes	Yes

Note:

*Exhaust air side is opposite of outside air side.

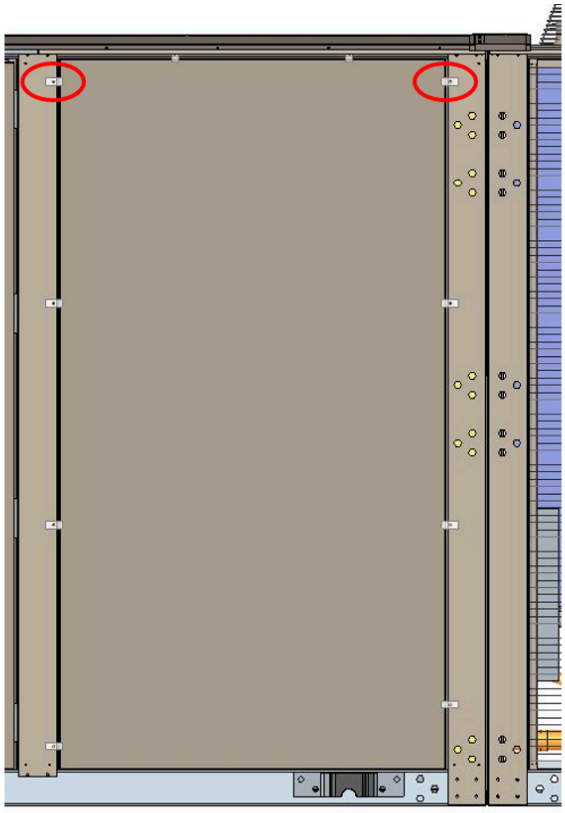
Top return with return fan or ERW is not available.

Discharge panel

For horizontal units with a blank section, the discharge section can be field adjusted from one side of the unit to another unless a HEPA® filter option is selected.

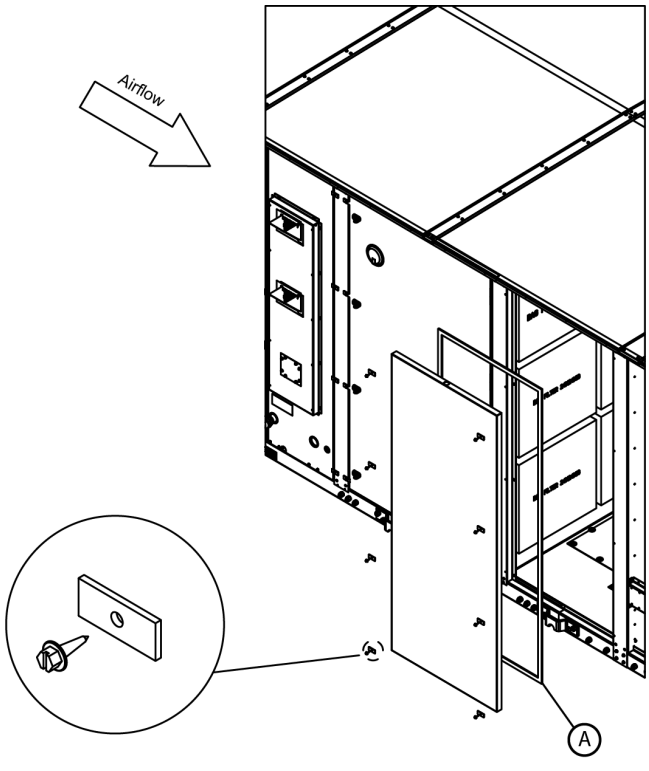
1. Remove six screws, 25 ton to 50 ton, or eight screws, 60 ton to 80 ton, see Figure 45, and panel cleats that hold the discharge panel in place, see Figure 44.
2. Remove the panel and relocate to the opposite side of the unit.
3. At the new location for the discharge panel, install a gasket on the flanges identified by arrows in Figure 45.
4. Install the panel in the opening, and secure using the six or eight panel cleats and screws removed in step 1.

Figure 44: Original discharge panel location



LD30442

Figure 45: New discharge panel location



LD30441

Component	Description
A	Gasket to be applied to the fixed panel

Air hoods

The rooftop unit can be ordered with several options that use hoods over outside and exhaust air openings.

The unique design of these hoods allows them to be installed on the unit at the factory. They are folded flat for ease of shipping. By removing the hold-down brackets, the hoods can be easily unfolded and assembled in the field with minimal effort.

See Figure 46 and Figure 47, which details the removal of the hold-down brackets and securing the side pieces to the hood.

Outside air hood

Note: The 25 ton to 30 ton units only have two hoods. The 40 ton to 80 ton units have three hoods, as shown in Figure 46.

1. Remove the hold-down brackets from the air hoods, one on each side of each hood. There are either four or six total hold-down brackets depending on the number of hoods.
2. Lift up the hood top, and open out the side hood pieces.
3. Attach each side hood piece to its hood top using the shipped loose screws.
4. Repeat steps 2 and 3 for the remaining hood tops and their side hood pieces.

Figure 46: Open outside air hoods

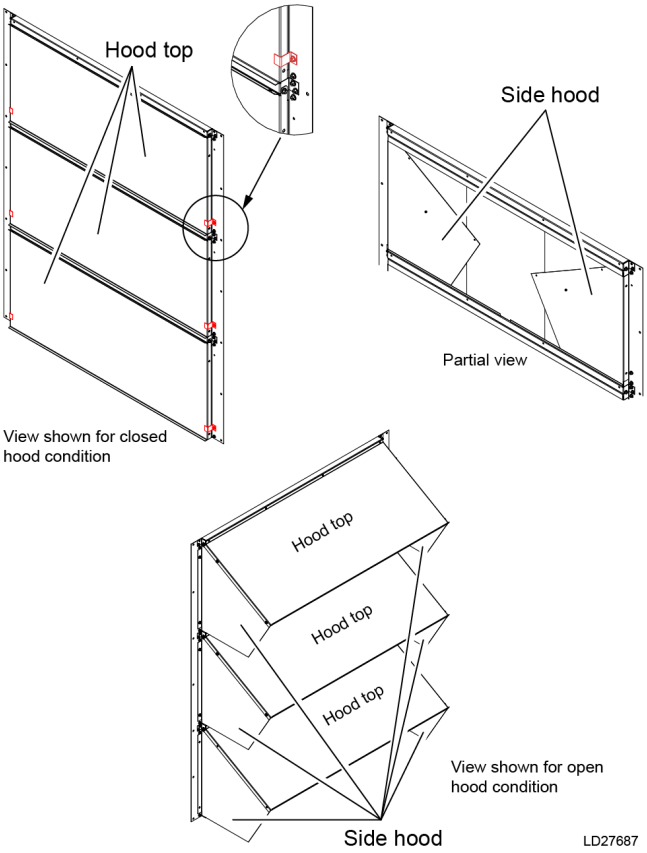
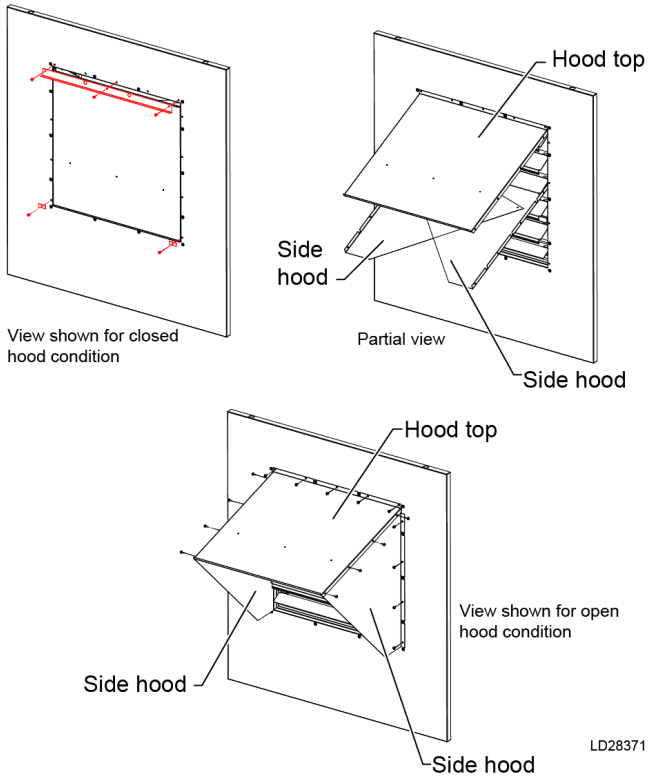


Figure 47: Open exhaust air hoods



Exhaust air hood

1. Remove the top hold-down bracket and two bottom hold-down brackets.

2. Open the hood top, untie the cable tie, and remove the two side hoods.
3. Position the hood top and side hoods in place against the unit frame, and fasten them using the shipped loose screws.

Filters

The rooftop unit can have many different combinations of standard or optional filters selected and factory installed. Both return air filters and final filters can be selected. Return air filters are installed in the return airstream before the evaporator coil. Final filters are installed in the supply airstream after the cooling and heating components.

Filters must be kept clean. Dirty filters reduce the overall capacity of the unit and could result in cooling or heating safety lockouts. The unit must never be operated without air filters installed.

Always replace filters with the same MERV rating, size, and quantity that were originally installed in the factory.

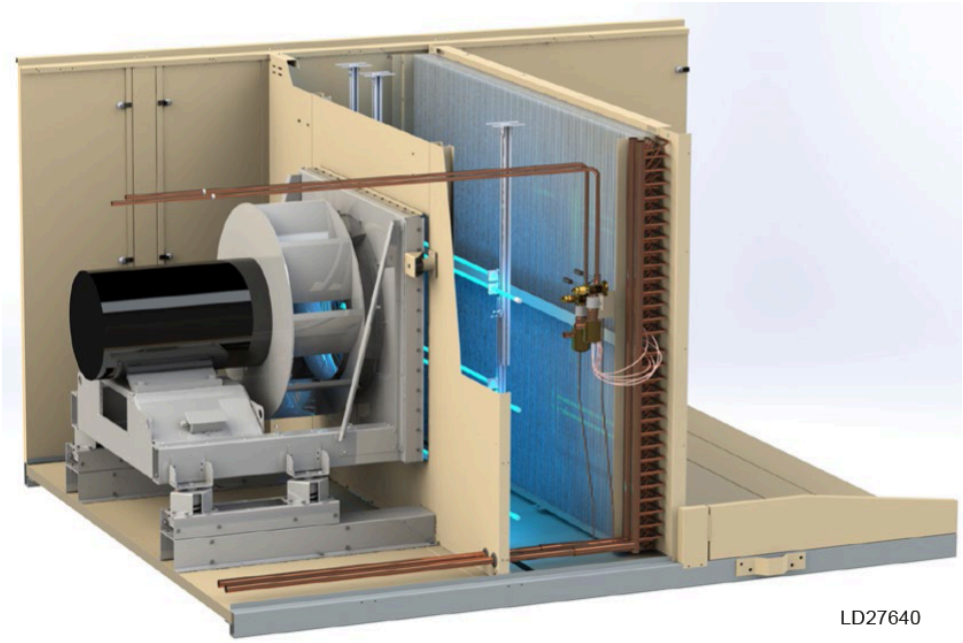
Ultraviolet lights

The unit has the option for factory-provided, field-installed UV lights. If selected, six UV tube lights, 61 in. (155 cm) each, are shipped loose inside the evaporator cabinet in the case of 25 ton to 50 ton units. For 60 ton to 80 ton units, if UV lights are selected, six UV tube lights, 61 in. (155 cm) each, and six 36 in. (91 cm) tube lights are shipped loose inside the evaporator cabinet.

⚠ CAUTION

Take care when handling the UV lights. Oil from skin can cause premature failure of the UV light. When installing the UV lights, wear clean cotton or latex gloves or thoroughly wipe the UV tube lights clean after installing.

Figure 48: UV lights



To install the UV lights, remove the protective packaging and install where applicable inside the evaporator cabinet.

Doors to the evaporator, supply fan, and filter cabinets include an electrical switch that disables the UV lights when the doors are opened. To turn on the UV lights, close evaporator, supply fan, or filter cabinet door and switch the UV light reset switch on the display panel to ON, see Figure 27 and Figure 28.

Condensate drain

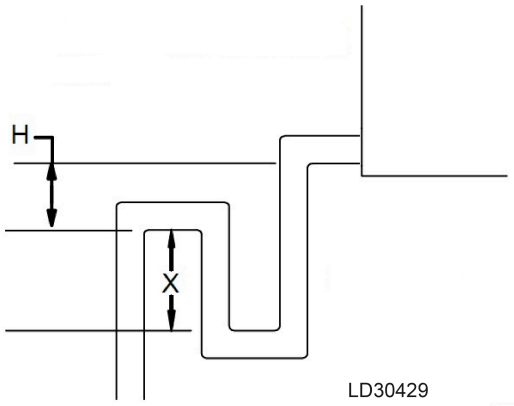
The unit must have a condensate drain installed. The connection for the condensate drain is on the right side of the unit. For the correct location of the drain connection, refer to the submittal data.

The drain connection is 1 1/4 in. FPT. The condensate drain must be properly trapped to ensure proper water drainage from the condensate drain pan. See Figure 49 for proper sizing of condensate trap.

The condensate trap and any associated piping must be protected from freezing. All plumbing must conform to local codes. A thread sealant must be used on male pipe threads. It is strongly recommended that a clean-out port be provided on the condensate trap.

Note: The door opens over the drain pan connection. Install any clean out ports for the condensate trap far enough away to allow for door clearance.

Figure 49: Condensate drain trap detail for draw through application



Note:

- X = 1/2 (H).
- H must be at least 1 + Delta P upstream of the supply fan(s).

Fan tie-downs

CAUTION

The supply, exhaust, and return fans have tie-down bolts installed at the factory to prevent movement in the fan assemblies during shipment. THESE TIE-DOWN BOLTS MUST BE REMOVED PRIOR TO OPERATION OF THE FANS.

During installation and before starting up the unit, the supply, exhaust, and return fan isolator spring tie-down bolts must be removed.

For each variation and cabinet size of the exhaust, return, supply fans, there are four tie-down bolts, washers, and spacers to remove and discard, two on both sides of the fan. See Figure 50 through Figure 59.

Figure 50: 25 ton to 50 ton supply fan tie-down bolts

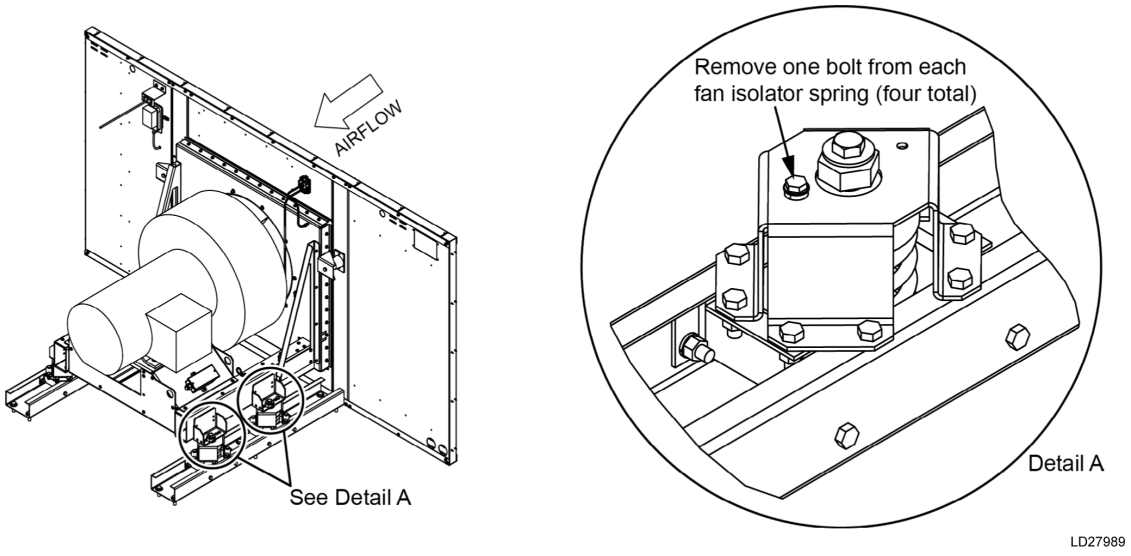


Figure 51: 60 ton to 80 ton supply fan tie-down bolts

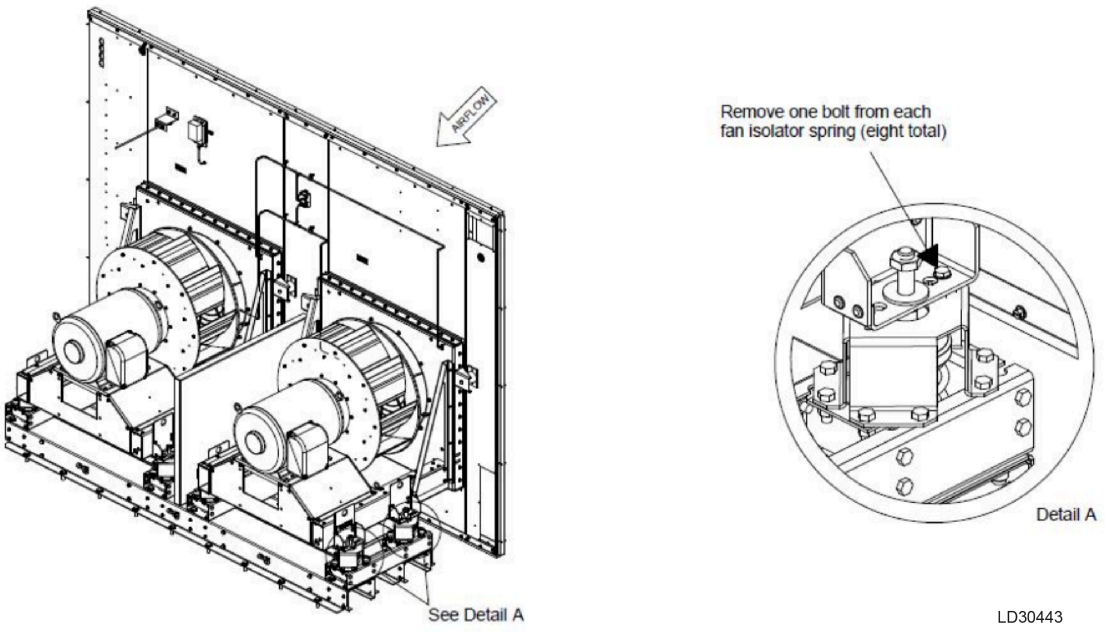


Figure 52: 25 ton to 80 ton front and side exhaust fan tie-down bolts

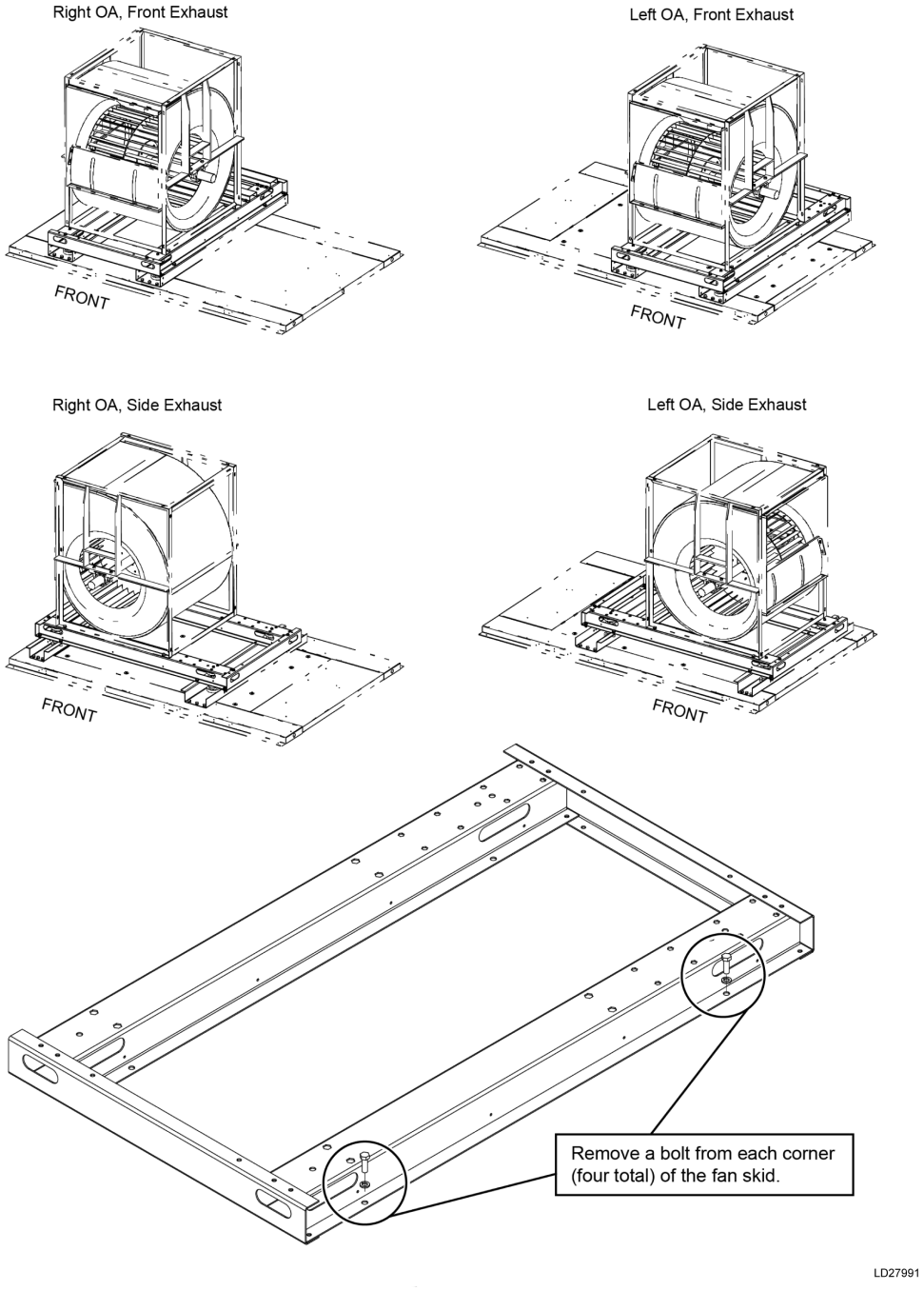


Figure 53: 60 ton to 80 ton dual exhaust fan tie-down bolt

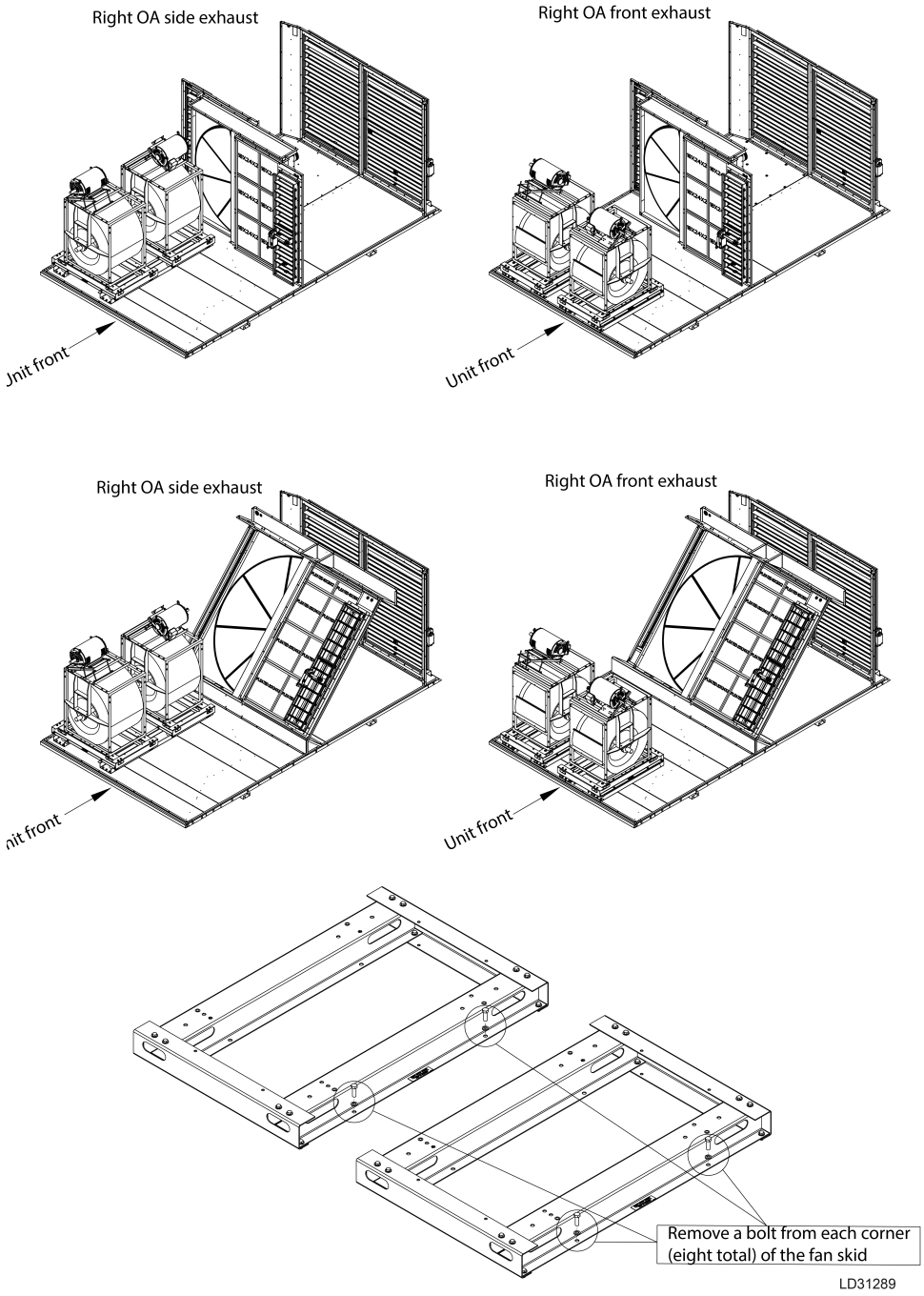


Figure 54: 25 ton to 50 ton front, left, and right return fan

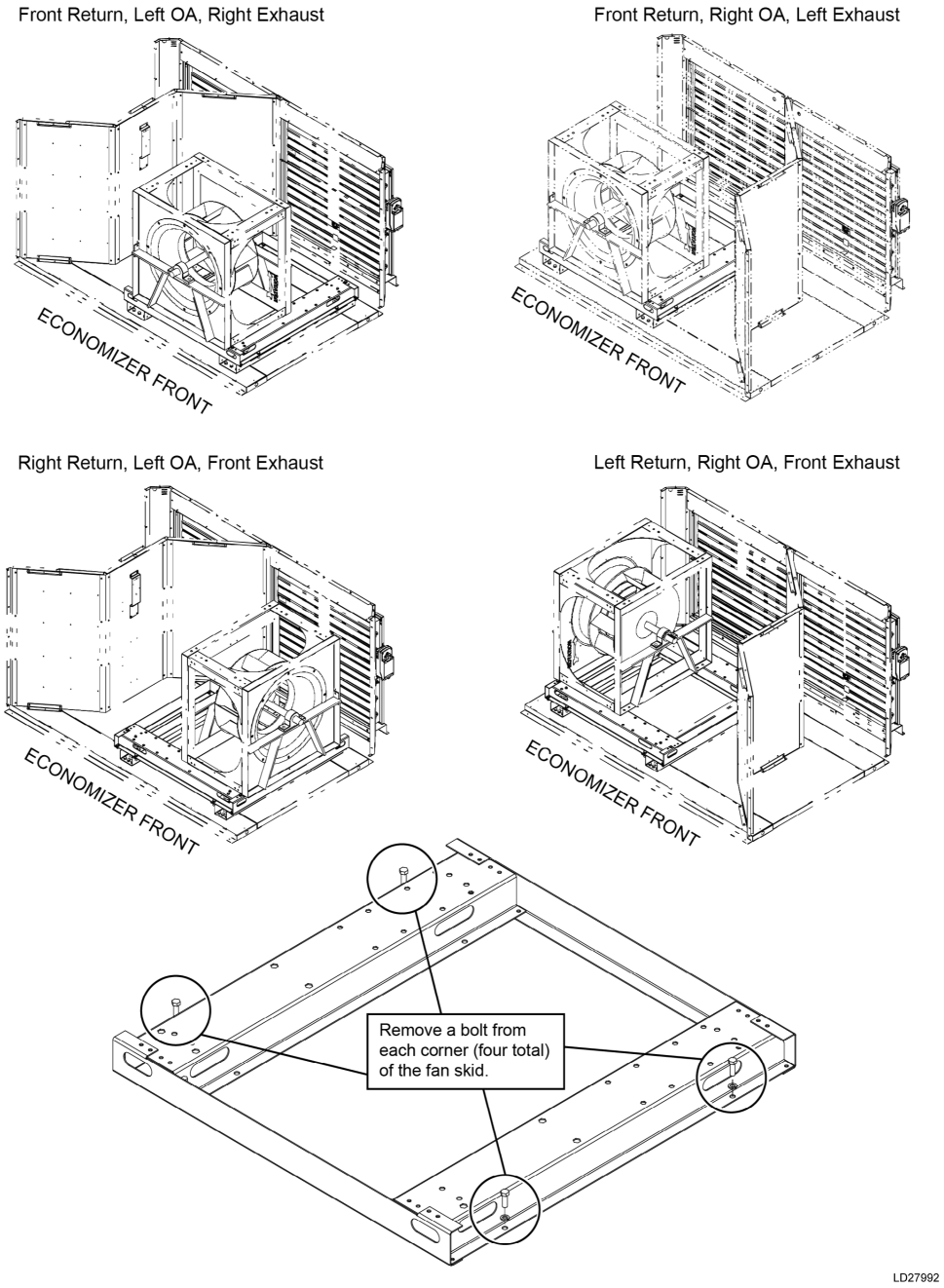


Figure 55: 60 ton to 80 ton front, left, and right return fan

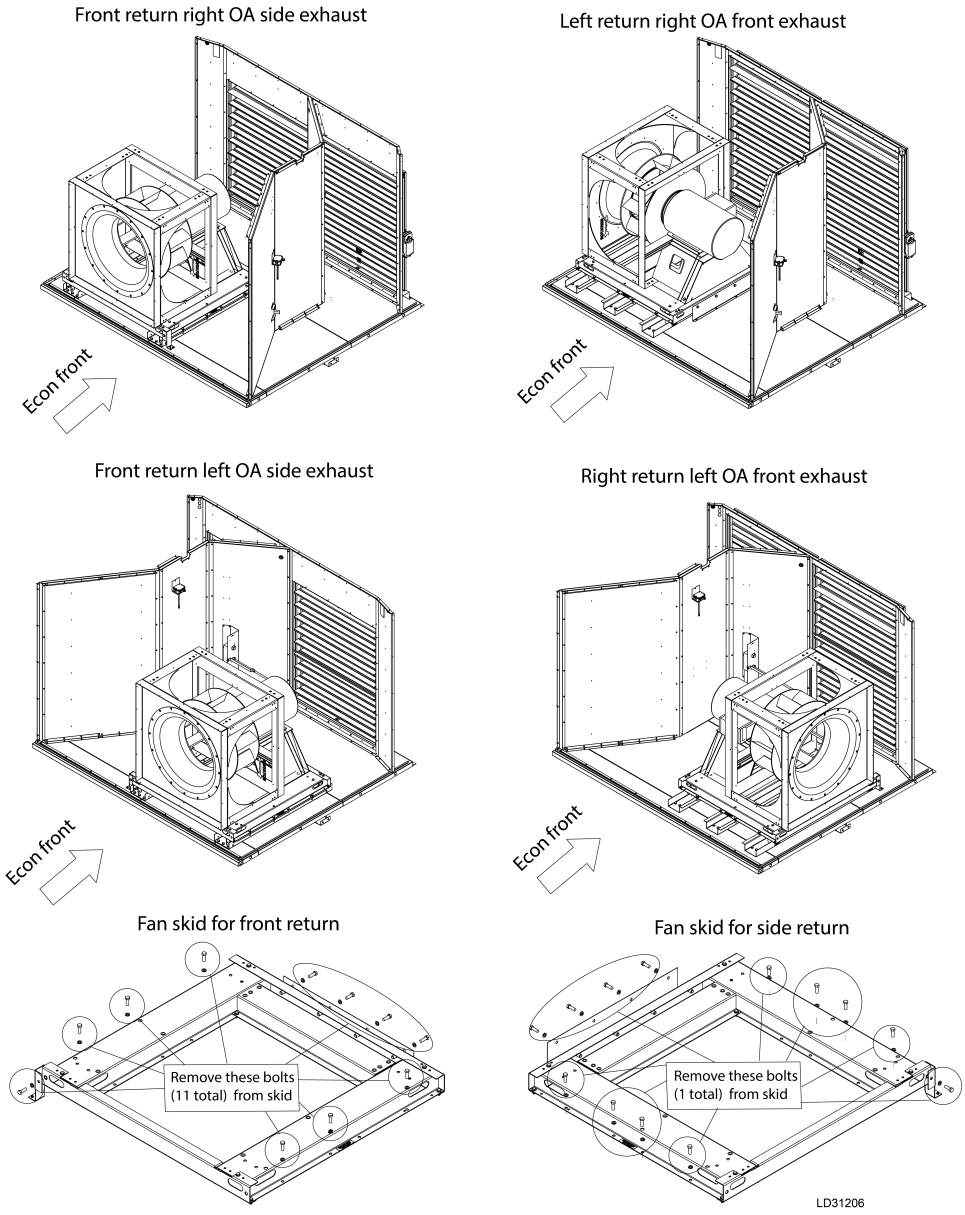


Figure 56: 25 ton to 50 ton bottom return fan tie-down bolts

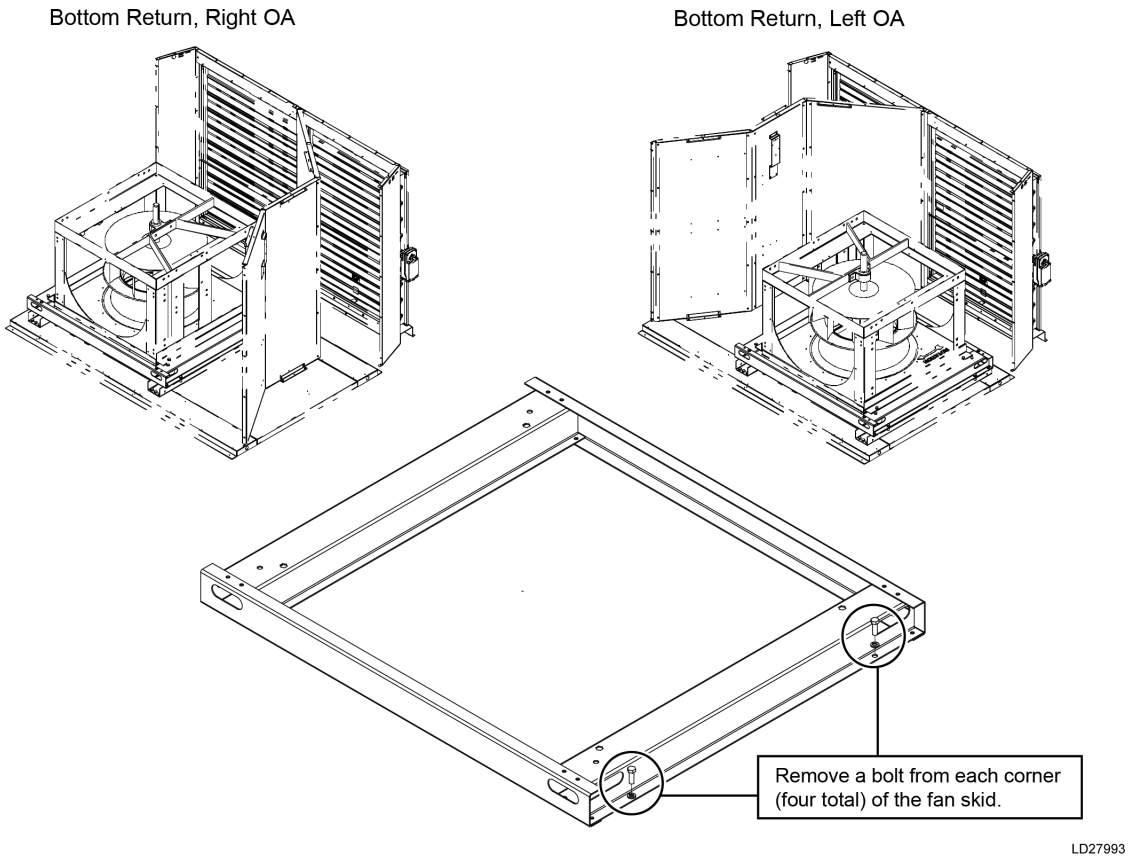


Figure 57: 60 ton to 80 ton bottom return fan tie-down bolts, left OA

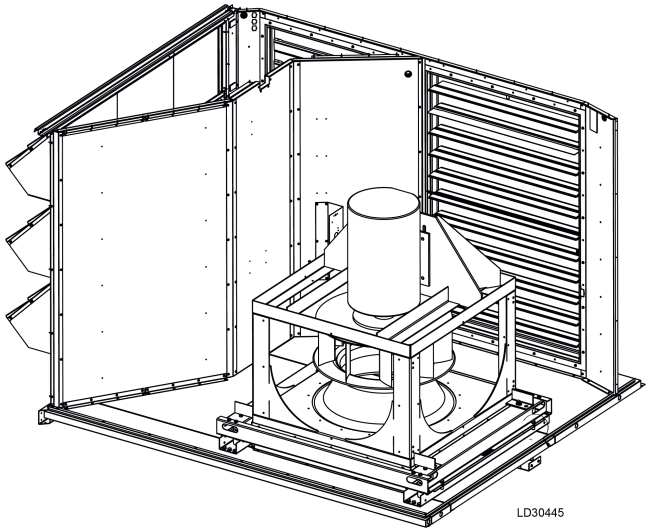
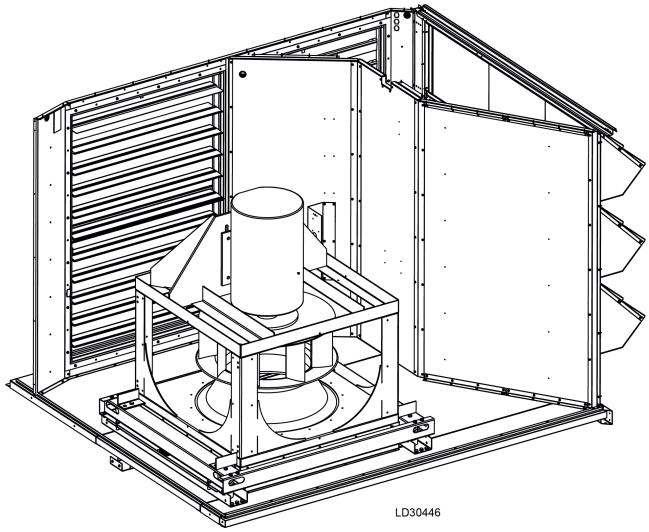
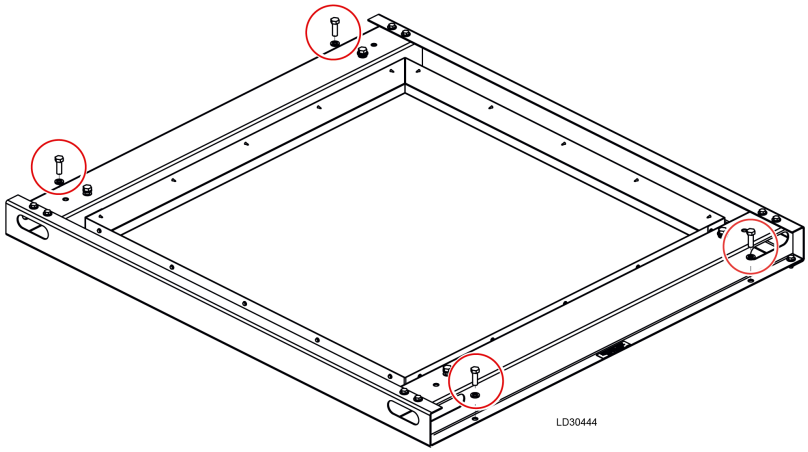


Figure 58: 60 ton to 80 ton bottom return fan tie-down bolts, right OA



Remove bolt from each corner, four total, of the fan skid, as shown in Figure 59.

Figure 59: Removal of bolts from skid



Start-up and operation

For information regarding system start-up, sequences of operation, the BACnet® points list, and the faults list, refer to the *Johnson Controls Premier™ 25 Ton to 80 Ton Rooftop Units R-410A Start-Up and Operation Guide (5881375-JSG-A)* that shipped with the unit.

Maintenance

General

A planned program of regularly scheduled maintenance returns dividends by averting possible costly and unexpected periods of down time. It is the responsibility of the owner to provide the necessary maintenance for the rooftop units and coils. If a system failure occurs due to improper maintenance during the warranty period, Johnson Controls is not liable for costs incurred to return the unit to satisfactory operation.

Safety

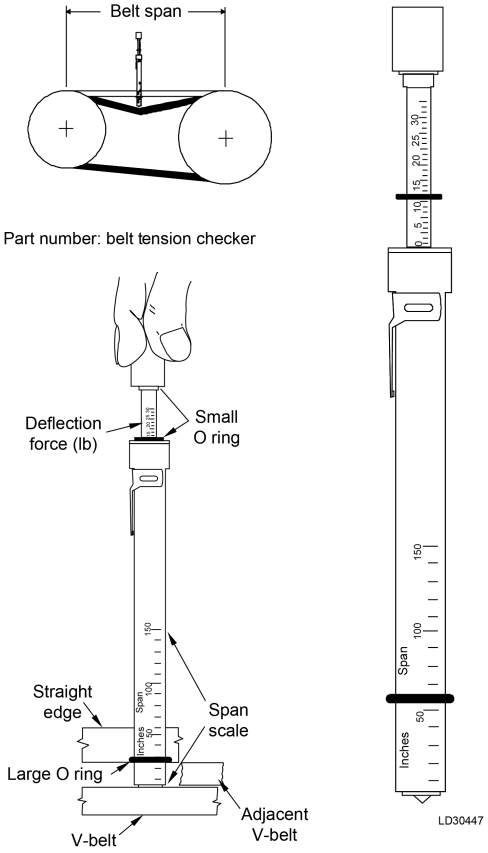
You are required to review the Safety considerations before providing any service or maintenance on the rooftop unit.

WARNING

Before performing service or maintenance operations on this unit, turn off the main power switch to the unit. Electrical shock could cause personal injury. Improper adjustment, alteration, service, or maintenance can cause injury or property damage. For assistance or additional information, consult a qualified service agency or the gas supplier.

Browning belt tension gauge

Figure 60: Browning belt tension gauge



Periodic maintenance - monthly

Belt tensioning

A Browning® belt tension gauge is used in Figure 60 to check the belts for appropriate tension.

Filters

Check the cleanliness of the filters, and replace or clean as required.

Linkages

Examine the damper and operator linkages to ensure that each is free and operating smoothly.

Compressors

Oil level check

The oil level can only be tested when the compressor is running in stabilized conditions to ensure that there is no liquid refrigerant in the lower shell of the compressor. When the compressor is running in stabilized conditions, the oil level must be between 1/4 and 3/4 in the oil sight glass, if equipped.

Note: At shutdown, the oil level can fall to the bottom limit of the oil sight glass.

For the C1A modulating compressor on 40 ton to 80 ton high efficiency units, an optical sensor is provided over the sight glass, in which the unit controller monitors the correct oil level. If too low, the unit controller adjusts the compressor speed to try to recover oil to the compressor. If that fails, then the unit controller shuts off the compressor

Oil analysis

Use York Type T POE oil (clear) for units charged with R-410A refrigerant. The type of refrigerant and amount per system is listed on the unit nameplate.

A change in the oil color or odor may be an indication of contaminates in the refrigeration system. If this occurs, take an oil sample and analyze it. If contaminations are present, the system must be cleaned to prevent compressor failure.

Clean the system by installing oversized suction and liquid line driers. The driers may have to be changed several times to fully clean the entire system depending on the degree of contamination.

CAUTION

When using the factory installed valve package to perform a pump-down of the refrigerant system, do not allow the scroll compressor to pump the low side into a vacuum. Pump-down should be stopped when suction pressure reaches 10 psig. The remaining refrigerant must be removed using proper recovery methods.Allowing a scroll compressor to pump into a vacuum causes internal arcing of the compressor motor, which results in compressor motor failure.

Condenser and evaporator coils

Dirt must not be allowed to accumulate on the condenser coil surfaces. Cleaning may be required as necessary to keep the coil surfaces clear in order to maintain proper operation of the unit.

Regular cleaning is an essential part of maintaining the integrity and heat transfer properties of heat exchangers. The reduced depth and parallel tube layout of the coils minimizes the restriction of cleaning water through the heat exchanger. This can provide a shorter and more direct path for cleaning water to carry away dirt and debris in coils during regular maintenance.

In addition, the simple fin layout makes it possible to use nylon bristle brushes to sweep debris on the heat exchanger face without the use of water.

The condenser coil cleaning hatches on both sides of the condenser frame provide access to clean the coils. See Figure 62 and Figure 63.

CAUTION

Do not use coil cleaners or any chemical on the coils. This can cause severe damage to the coils.

Do not use a pressure washer to clean the coils.

Do not contact the coil with a hard surface such as a hose nozzle, metal vacuum nozzle, or any other tool.

Do not clean when ambient temperatures would cause the water to freeze before the water dries from the coil. This can cause severage damage to the coils.

Figure 61: Condenser coil cleaning hatch, 25 ton to 30 ton

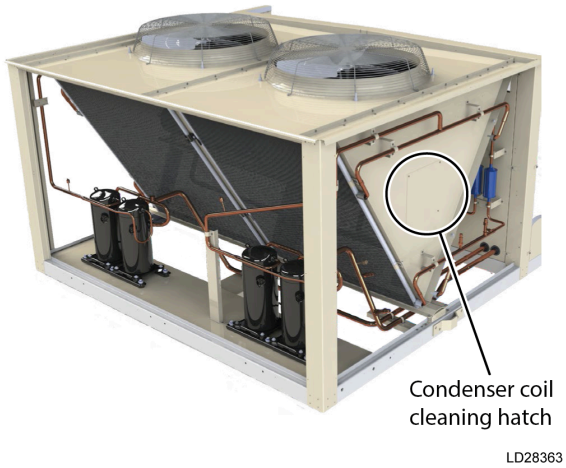


Figure 62: Condenser coil cleaning hatch, 40 ton to 60 ton

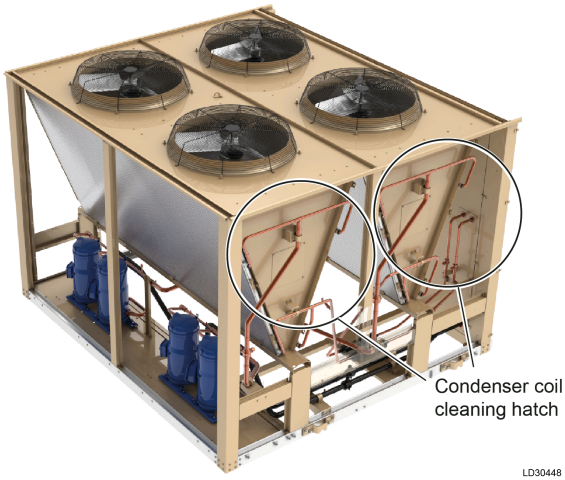
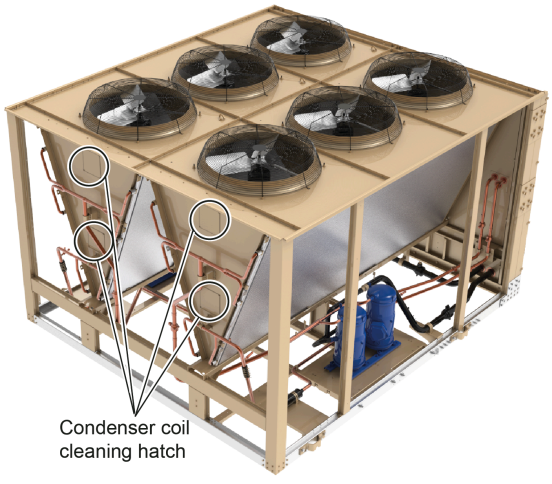


Figure 63: Condenser coil cleaning hatch, 70 ton to 80 ton



⚠ CAUTION

Failure to adhere to the following product cleaning guidelines can result in heat exchanger damage, including leaks or loss of performance.

Follow these recommended cleaning procedures when cleaning is required:

- Use clean, potable water to clean the coils. City tap water is recommended. Do not use chemical cleaners to clean the coils.
- Remove surface debris such as dirt, leaves, insects, fibers, or other debris with a vacuum cleaner that has a soft attachment rather than a metal tube. Do not contact the heat exchanger with the vacuum nozzle, air nozzle, or any other tool. Compressed air blown from the inside out can also be used.
- When brushing dirt and debris off the face of the heat exchanger, a clean, unused, soft bristle (not wire) brush can be used. Take care to prevent damage to the coil. The brush must not be contaminated with other metallic debris such as copper shavings.
- Water pressure for cleaning must not exceed the pressure of the spray from a common garden hose with attached nozzle. Use a gentle spray from a spray nozzle with a plastic end or put your finger on the end of the spray nozzle to reduce impact and provide a gentle spray. Do not use a pressure washer, as it causes damage to the heat exchanger.

Cleaning must be from the inside out to drive fibers and dirt out of the heat exchanger.

Hot water and steam coils

Inspect the hot water and steam coils for dirt and debris, and clean when necessary using the same procedure as the condenser and evaporator coils.

Periodic maintenance - 3 months to 6 months

WARNING

Disconnect and lockout power from the unit before performing any service on the fan section. Failure to do so could result in serious injury or death due to the fan turning ON while work is in progress.

CAUTION

Squealing belts during start-up is caused by slipping belts that are not tensioned properly.

Motor bearing lubrication

Refer to the motor nameplate for the recommended lubricant, see Figure 64. If there is no lubricant listed, the recommended lubricant for anti-friction bearings, -15.0°F (-26.1°C) to 120.0°F (48.8°C), is Polyrex™ EM.

Cleanliness is important in lubrication. Any grease used to lubricate anti-friction bearings must be fresh and free from contamination. Properly clean the grease inlet area of the motor to prevent grease contamination.

Lubrication preparation

1. Select the appropriate service condition from Table 69.
2. Select the lubrication interval from Table 70.
3. Adjust the lubrication interval with the appropriate multiplier from Table 69.
4. Select volume of grease from Table 71.

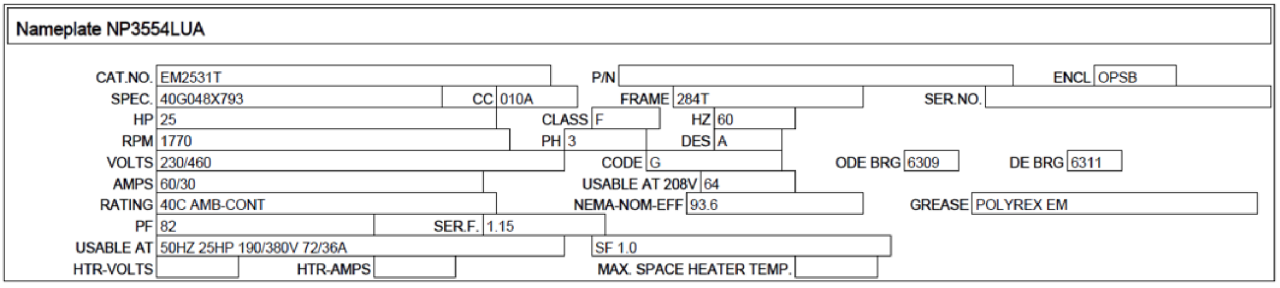
If the unit runs at standard service intervals of 8 hours per day at 1,770 RPM, the motor would require greasing every 2.5 years with 1.5 oz, or 8 teaspoons, of grease.

Lubrication procedure

Bearings must be lubricated while stationary and the motor is warm.

1. Locate the grease inlet, clean the area, and replace the pipe plug with a grease fitting.
2. Locate and remove the grease drain plug if applicable.
3. Add the recommended volume of the recommended grease.
4. Replace the grease inlet plug and run the motor for 15 minutes.
5. Replace the grease drain plug.

Figure 64: Motor nameplate example



LD30450

Table 69: 25 ton to 80 ton: service conditions

Conditions	Daily hours of operation	Max. ambient temperature (°F)	Atmospheric contamination	Lubrication interval multiplier
Standard	8	104	Clean, little corrosion	1
Severe	16 or more	122	Moderate dirt, corrosion	0.5

Table 69: 25 ton to 80 ton: service conditions

Conditions	Daily hours of operation	Max. ambient temperature (°F)	Atmospheric contamination	Lubrication interval multiplier
Extreme	16 or more	>122.0* or class H insulation	Severe dirt, abrasive dust, corrosion, heavy shock or vibration	0.1
Low temperature	-	< -20.2**	-	1

Note:

- *Special high temperature grease is recommended: Dow Corning MOLYKOTE® 44 High Temperature Bearing Grease.
- **Special low temperature grease is recommended: AeroShell Grease 7.
- Different grease types are generally incompatible and must not be mixed. Mixing different types can cause lubricant and bearing failure.
- Thoroughly clean bearing and cavity before changing grease type.

Table 70: 25 ton to 80 ton: re-lubrication intervals

NEMA (IEC) frame size	Rated speed (RPM)			
	3600	1800	1200	900
Up to 210 incl. (132)	5,500 hours	12,000 hours	18,000 hours	22,000 hours
120–280 incl. (180)	3,600 hours	9,500 hours	15,000 hours	18,000 hours
280–360 incl. (225)	2,200 hours	7,400 hours	12,000 hours	15,000 hours
360–5,800 incl. (400)	2,200 hours	3,500 hours	7,400 hours	10,500 hours
324T (200)	-	3,000 hours	-	-

Note:

- Re-lubrication intervals are for ball bearings. For vertically mounted motors and roller bearings, divide the re-lubrication interval by 2. For motors operating at speeds greater than 3,600 RPM, contact ABB Motors and Mechanical, Inc. for re-lubrication recommendations.
- For 60 ton to 80 return fan TECO motors, regreasing is not applicable.
- 324T (TECO motor) applicable only to 60 ton to 80 ton return fan.

Table 71: Amount of grease to add

NEMA (IEC) frame size	Bearing description - large bearings (shaft end) in each frame size			
	Bearing	Weight of grease oz (grams)	Volume of grease	
			$Inches^3$	Teaspoon
56–140 (90)	6203	0.08 (2.4)	0.15	0.5
140 (90)	6205	0.15 (3.9)	0.2	0.8
180 (100–112)	6206	0.19 (5.0)	0.3	1.0
210 (132)	6307	0.30 (8.4)	0.6	2.0
250 (160)	6309	0.47 (12.5)	0.7	2.5
280 (180)	6311	0.61 (17)	1.2	3.9
320 (200)	6312	0.76 (20.1)	1.2	4.0
324T (200)	6212	1.41 (40)	-	-

Table 71: Amount of grease to add

NEMA (IEC) frame size	Bearing description - large bearings (shaft end) in each frame size			
	Bearing	Weight of grease oz (grams)	Volume of grease	
			Inches^3	Teaspoon
324T (200)	6213	1.76 (50)	-	-
324T (200)	6310	1.41 (40)	-	-
324T (200)	6213	2.12 (60)	-	-
360 (225)	6313	0.81 (23)	1.5	5.2
400 (250)	6316	1.25 (33)	2.0	6.6
440 (280)	6318	1.52 (40)	2.5	8.2
440 (280)	6319	2.12 (60)	4.1	13.4
5,000–5,800 (315–400)	6328	4.70 (130)	9.2	30.0
5,000–5,800 (315–400)	NU328	4.70 (130)	9.2	30.0
360–449 (225–280)	NU319	2.12 (60)	4.1	13.4
AC induction servo				
76 Frame 180 (112)	6207	0.22 (6.1)	0.44	1.4
77 Frame 210 (132)	6210	0.32 (9.0)	0.64	2.1
80 Frame 250 (160)	6213	0.49 (14.0)	0.99	3.3

Note: 324T (TECO motor) applicable only to 60 ton to 80 ton return fan.

Table 72: 25 ton to 80 ton: fan bearing lubrication schedule in months for ball bearing pillow blocks

	Speed (RPM)								
Shaft diameter (in.)	500	1000	1500	2000	2500	3000	3500	4000	4500
1/2 - 1 11/16	6	6	5	3	3	2	2	2	1
1 15/16 - 2 7/16	6	5	4	2	2	1	1/2	1/4	1/4
2 11/16 - 2 15/16	5	4	3	2	1	1/2	1/2	-	-
3 7/16 - 3 15/16	4	3	2	1	1/2	1/2	-	-	-

Fan bearing lubrication

Add grease slowly with the shaft rotating until a slight bead forms at the seals. If necessary, re-lubricate while the bearing is stationary. The fan data plate, attached to the fan scroll, lists the type of grease that must be used for lubricating the bearings. See Table 72 for the lubricating schedule.

Figure 65: Shaft ball bearing with set screw type locking device

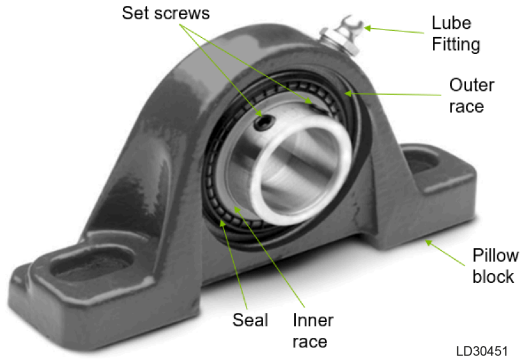


Table 73: 25 ton to 80 ton: fan shaft bearings

Cabinet	Type	Size (in.)
25 ton to 30 ton	Heavy duty ball bearing	1 15/16
40 ton to 50 ton	Unit roller bearings (one fixed and one float)	1 15/16
60 ton to 80 ton	Normal duty - SC Pillow block - setscrew ball bearing	2 11/16

Condensate drain

Inspect and flush the trap drain lines when required. Protect the trap drain lines from freezing.

Note: The unit must be properly trapped and charged with water before the units are started. See Figure 49.

Periodic maintenance - yearly

Check the fan wheels and inspect the drain pan for sludge and foreign materials. Clean if required.

Observe the operation of all dampers and make any necessary adjustments in linkage and blade orientation for proper operation.

Entire unit inspection

In addition to the checks listed in this section, the overall unit must be periodically inspected to ensure proper equipment operation. Items such as loose hardware, component operation, refrigerant leaks, and unusual noises must be investigated and corrected immediately.

Condensate float switch

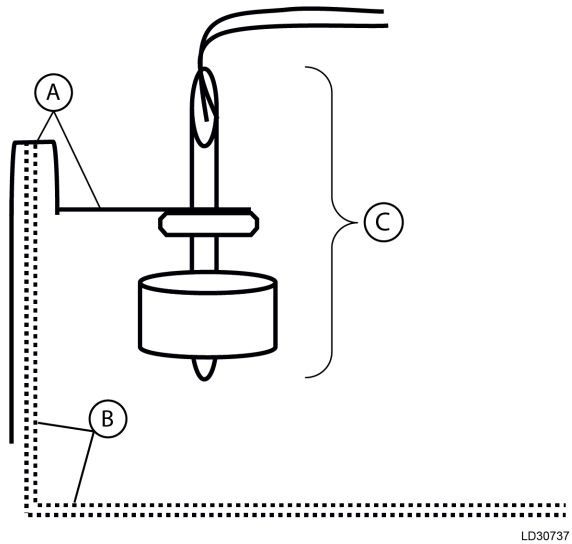
Prior to annually preparing the unit for cooling, check the condensate float switch for proper operation.

The condensate float switch must be lifted to ensure the cooling operation of the unit stops and that an alarm generates on the display of the unit controller. To do this, tape the condensate float switch in the up position and then start the unit with a cooling demand.

After correct functionality is confirmed, restore the condensate float switch to its normal operation.

Visually inspect the float on the switch to ensure it is free of any debris or scale accumulation.

Figure 66: Installation on drain pan



Component	Description
A	Clip or bracket
B	Drain pan
C	Float switch

Ultraviolet lights

The unit controller issues a warning to replace the UV lights after 9,000 hours of unit runtime, which is equal to approximately 1 year.

CAUTION

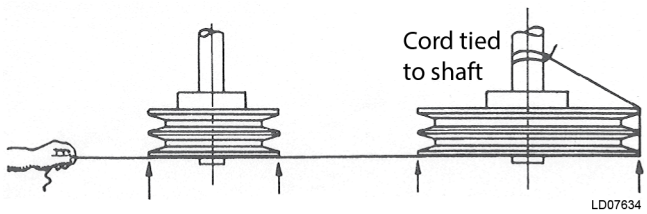
Take care when handling the UV lights. Oil from skin can cause premature failure of the UV light. When replacing the UV lights, wear clean cotton or latex gloves or thoroughly wipe the UV tube lights clean after replacement.

Internal lights

To replace any internal lights, use a 3/32 size Allen wrench to remove the single lock nut on the light fixture.

Replace internal lights using A19, 120 V, 60 W equivalent bulbs.

Figure 67: Sheave alignment



Note: Cord touching sheaves at points indicated by arrows.

Sheave alignment

To check sheave alignment, use a straight edge or a piece of string. If the sheaves are properly aligned, the string or straight edge touch at all points, as indicated in Figure 67. Rotating the sheaves determines if the sheave is wobbly or the drive shaft is bent. An alignment error must be corrected to avoid bearing and belt failure.

Belts

New belts must be re-checked after 24 hours of operation. On multiple belt pulleys, the pitch depth must be checked to ensure identical belt travel, power transfer, and wear. Adjustable motor bases are provided for belt adjustment.

Motor pulleys and blower shaft pulleys are locked in position with either setscrews or split taper lock bushings. All setscrews or taper lock bolts must be checked for tightness and alignment before putting equipment into operation.

An incorrectly aligned and tensioned belt can substantially shorten belt life or overload blower and motor bearings, shortening their life expectancy. A belt tensioned too tightly can overload the motor electrical, causing nuisance tripping of the motor overloads, motor failure, or shaft failure.

For replacement belts, enter the unit's serial number in Parts Navigator on the *Navigator*® customer portal to find the correct, unit-specific belt.

Belt replacement

Always replace belts as a set. Follow the steps below to replace belts:

1. Release the tension on the belts by loosening the adjusting nuts on the motor base, see Figure 68.
2. Remove old belts and recheck the sheave alignment with a straight edge or piece of string.
3. Install the new belts on the sheaves.

Never use a screwdriver to place the belts on the sheaves. This can permanently damage the belts.

Figure 68: Loosen adjusting nuts on motor base



Filter drier replacement

The filter drier must be replaced any time work is performed on the refrigerant circuit. The rooftop unit comes with sealed type, non-replaceable, core standard or optional replaceable core.

If the unit is not equipped with the optional valve package including suction, discharge, and liquid line valves with replaceable core filter driers, the refrigerant must be recovered with a recovery machine to replace the filter drier.

CAUTION

When using the factory installed valve package to perform a pump-down of the refrigerant system, do not allow the scroll compressor to pump the low side into a vacuum. Pump-down must be stopped when suction pressure reaches 10 psig. The remaining refrigerant must be removed using proper recovery methods. Allowing a scroll compressor to pump into a vacuum causes internal arcing of the compressor motor, which results in compressor motor failure.

When the unit is equipped with a valve package, the unit can be pumped down by closing the liquid line ball valve, prior to the filter drier, while the unit is running, initiating a unit pump-down. The unit shuts off when the mechanical low-pressure switch opens. When the unit shuts down, close the ball valve located after the filter drier and remove power from the unit to prevent the unit from running. The unit must be monitored for head pressure during this operation, manual recovery may be required.

Once the filter drier core has been replaced, the filter drier section must be evacuated via the Schrader® access valve located next to the filter or drier prior to opening the ball valves and restoring the unit to normal operation.

WARNING

Never shut the discharge valve while the unit is running. Doing so could rupture the discharge line or components, resulting in death or serious injury.

CAUTION

Never close the suction line ball valve with the compressor running. Doing so will cause the compressor to pump down into a vacuum and damage the compressor due to internal arcing.

Energy recovery wheel

Inspect the ERW at yearly intervals to verify that the wheel, motor, belt, and segments are in good working order.

Clean the segments at the manufacturer recommended frequency specified in Table 74.

Table 74: Cleaning Frequency

Air class[1]	Frequency
Class 1 - Clean air	Every 8 to 10 years
Class 2 - Moderately clean air	Every 4 to 6 years
Class 3 - Dirty air	Every 1 to 2 years
Class 4 - Contaminated air	NA[2]

Note:

1. Air class is based on ASHRAE 62.1-2016 classifications.
2. For Class 4, the manufacturer recommends inspecting and cleaning once or twice per year to maintain optimal performance.

CAUTION

Do not use acid based cleaners, aromatic solvents, temperatures in excess of 170.0°F (76.6°C), or steam to clean the ERW segments.

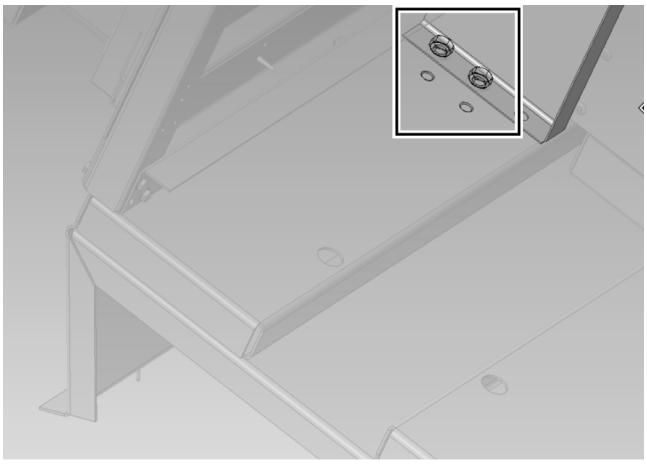
Follow these recommended cleaning procedures when cleaning is required:

- For a buildup of dry contaminants, brush or vacuum both sides of each segment to remove debris.
- For other contaminant buildup:
  - Soak the segment overnight in a 5% solution of a non-acid based coil cleaner. After soaking, rinse the segments until the water runs clear, and drain any excess water before reinstallation (highly recommended option).
  - Run water from a hose through the removed segment while brushing it.
  - **Note:** Slight discoloration of the ERW segments that remains after cleaning does not affect the performance of the wheel.

Remove the wheel holder supports

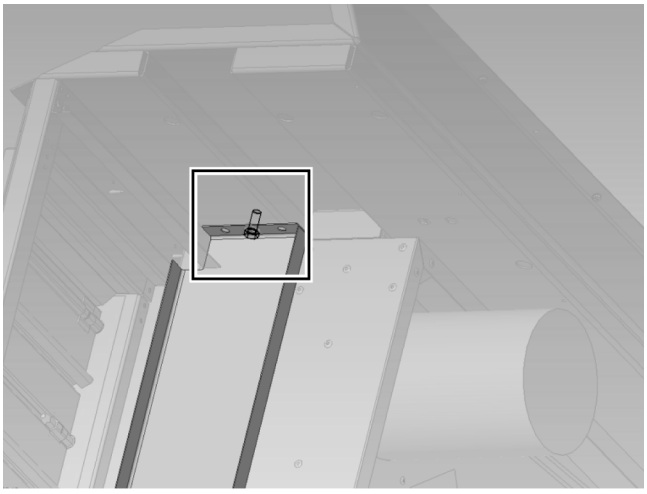
Unscrew two bolts at the bottom, see Figure 69, and one bolt at the top, see Figure 70, to remove the supports on either side. See Figure 71.

Figure 69: Bottom wheel holder support bolts



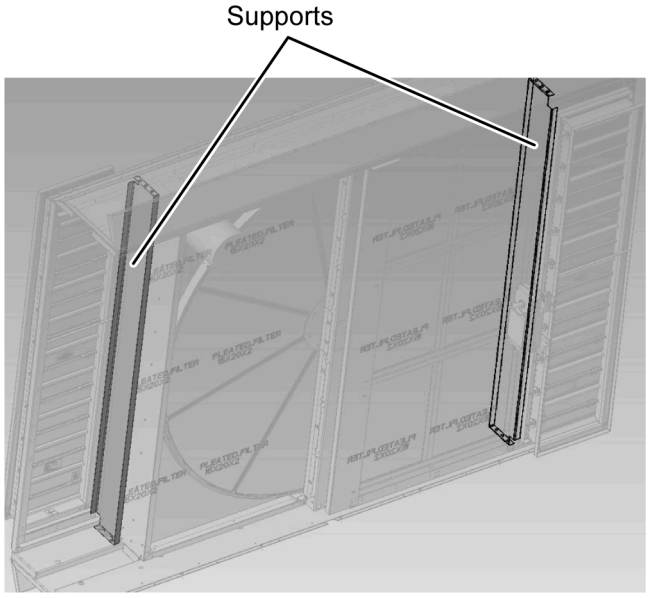
LD27988

Figure 70: Top wheel holder support bolt



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Figure 71: Wheel holder supports

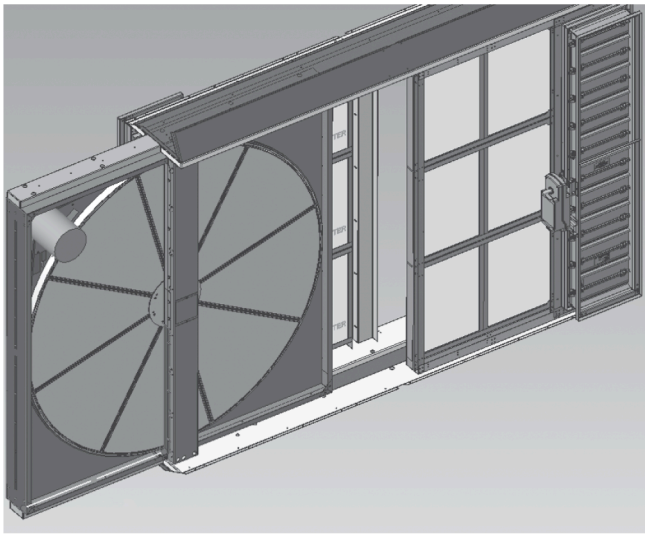


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Sliding the ERW

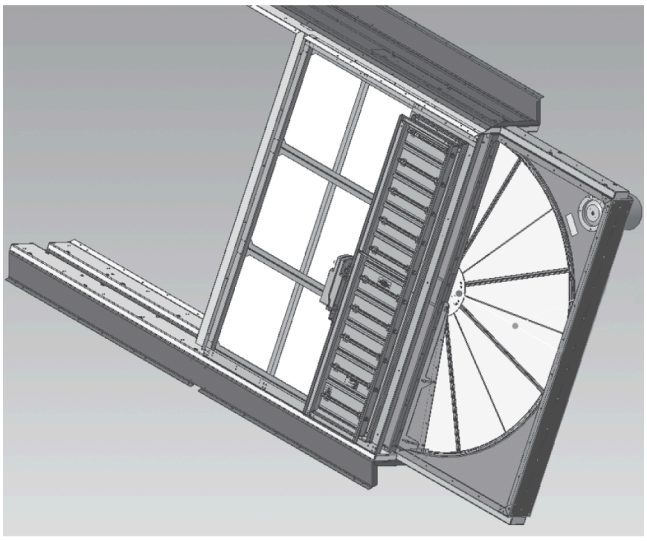
Note: Low and high CFM ERWs can slide a maximum of 26 in. (66 cm) outside the unit. For 60 ton to 80 ton, ERWs do not slide as it is a fixed design. Servicing accessibility is provided through doors.

Figure 72: Sliding high CFM ERW: back



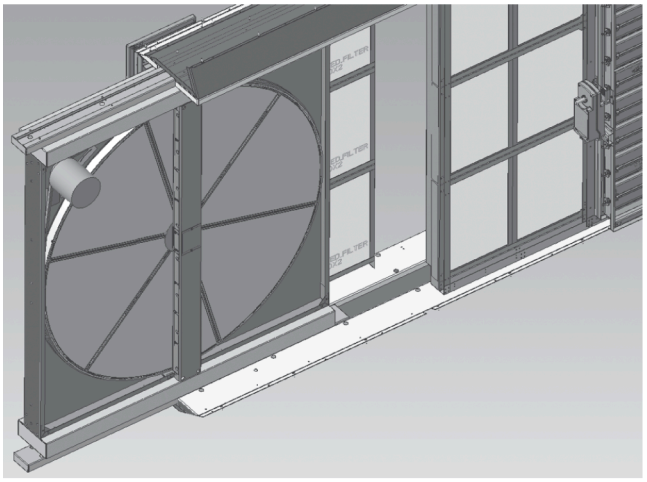
LD27982

Figure 73: Sliding high CFM ERW: front



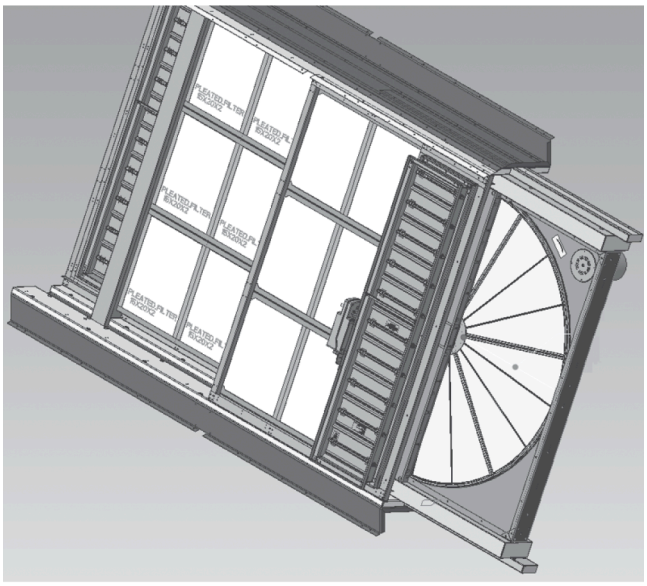
LD27983

Figure 74: Sliding low CFM ERW: back



LD27984

Figure 75: Sliding low CFM ERW: front



LD27985

Remove wheel segments

WARNING

Remove/install opposing wheel segments to evenly distribute the weight. This will minimize wheel imbalance and unwanted rotation during service. Failure to maintain control of the wheel rotation while removing/installing segments can cause severe injury to hands. Always close and secure retaining latches on wheel segments before rotating the wheel.

WARNING

Before servicing, turn off the main disconnect to the unit and use site specific lockout-tag out procedure.

1. Access the wheel and slide the wheel frame out of its cabinet.
2. From the pulley side, rotate the wheel segment that is removed to the top of the wheel.
3. Use a flathead screwdriver to unlock and open the two segment retaining latches at the outer corners of the segment being removed.
4. Use a 3/16 in. Allen wrench to remove the nose bolt securing the segment to the hub plate.
5. Slide out the outer portion of the wheel segment before disengaging the nose.

   Note: A flathead screwdriver may be used for segment removal, being careful not to bend the segment frame or wheel rim.

6. Upon removing the wheel segment, close both segment retaining latches.

WARNING

The wheel will now be unbalanced.

7. Slowly rotate the wheel 180° to remove the opposite wheel segment in order to rebalance the wheel.
8. Remove the remaining wheel segments by repeating the previous steps.

Install wheel segments

WARNING

Before servicing, turn off the main disconnect to the unit and use site specific lockout-tag out procedure.

1. Position one empty wheel segment bay at the top of the wheel, and open the two segment retaining latches.

   Note: The face of the segment with the embedded stiffener must face the motor side of the wheel.

2. From the pulley side, slide the wheel segment into place nose first. Push the outer portion of the segment into the wheel frame.
3. Use a 3/16 in. Allen wrench to install the nose bolt to secure the wheel segment to the hub.
4. Close the segment retaining latches on the outer corners of the wheel segment to secure it inside the wheel.
5. Rotate the first segment 180° to install the opposing wheel segment to rebalance the wheel.
6. Repeat until all of the remaining wheel segments are installed, ensuring balance throughout the procedure.
7. Apply power to the wheel and confirm proper rotation.

Periodic maintenance - as needed

Replacing the main control board

When it is necessary to replace the main control board, the unit configuration must be restored from a backup file. For instructions, refer to the *Backup Function* and *Restore Function* sections in the *Johnson Controls Premier™ 25 Ton to 80 Ton Rooftop Units R-410A Start-Up and Operation Guide (5881375-JSG-A)*.

When unable to back up the unit configuration from the current main control board, download the correct backup file by scanning the QR code on the unit with the RTUToolkit app, or contact Product Technical Support.

Phase monitor checks and adjustments

If the phase monitor fails to properly operate, check that all three voltages are present and are the correct voltage level and phase rotation.

Check all fuses and verify that all wiring connections are correct.

To adjust the low voltage trip point just below the nominal phase-to-phase voltage, rotate the adjustment control fully clockwise, or until the red (TRIP) indicator illuminates.

Slowly rotate the adjustment control counterclockwise, just until the green (NORM) indicator illuminates. At this point, the phase monitor is the most sensitive to irregular power line conditions. If nuisance tripping occurs, rotate the adjustment control slightly farther counterclockwise.

Compressor replacement

When it is necessary to replace a compressor in the unit, follow these steps:

1. Determine if the compressor failure was mechanical or electrical.
   a. When the failure is electrical, an oil analysis is strongly recommended to see if the oil has become acidic. When the oil is acidic, it is strongly recommended to replace both compressors on the circuit if they are a tandem set.
   b. When the failure is mechanical, an oil analysis may be necessary to determine the amount of debris in the system.
2. Always replace the in-line or replaceable core filter driers.
3. Replace the compressor contactor.
4. After replacing the compressor, pull the entire system into a deep vacuum.

   ⓘ **Note:** A deep vacuum is considered to be less than 500 microns.

5. If the failure was electrical and the oil was determined to be acidic, use fresh refrigerant to recharge the system.

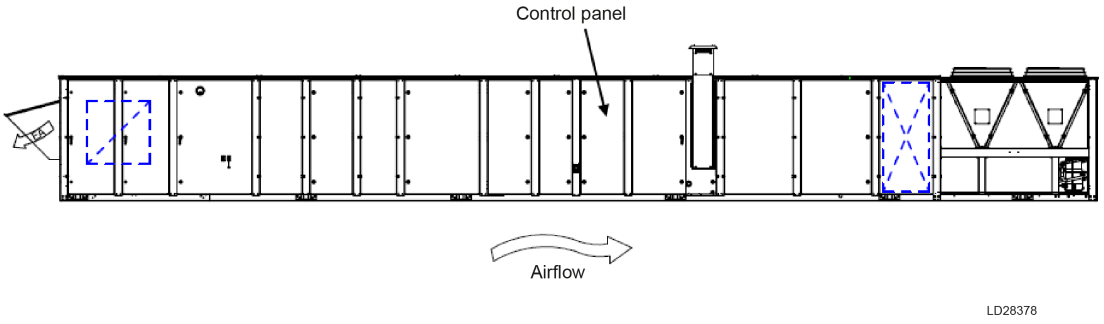
Technical supplement

25 ton to 50 ton power wiring side penetration for slab-mounted units

Installing the power wiring through the side panel of the rooftop unit

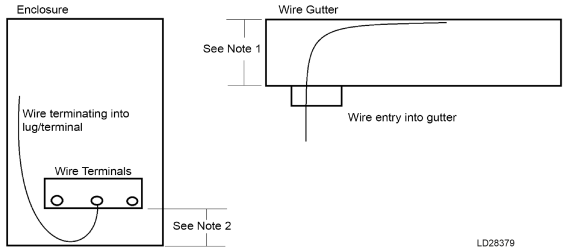
1. Locate the first panel downstream from the control panel that is more than 10 in. (25.4 cm) wide and has the necessary clearances detailed in Figure 77.
2. Locate the center point 5 in. (12.7 cm) from the bottom of the panel, and drill the following two holes:
   - Drill one 3.5 in. (8.9 cm) hole for the installation of a 3 in. (7.6 cm) power wiring conduit nipple.
   - Drill one 1.5 in. (3.8 cm) hole for the installation of a 1 in. (2.5 cm) control wire conduit nipple.
3. Install the power and control wiring conduit nipples with the applicable nuts and proper seal.
4. Inside the unit, run the wiring along the floor to the control panel. Drill any additional holes necessary through internal components, and install conduit nipples, hardware, and seals as needed until the wiring reaches the control panel.

Figure 76: The control panel on a rooftop



Note: A 40 ton to 50 ton unit is shown for reference.

Figure 77: Bend radius for power wiring



Note:

a. This distance is determined by the data in Table 312.6 (A) in the 2017 National Electric Code (NFPA 70).

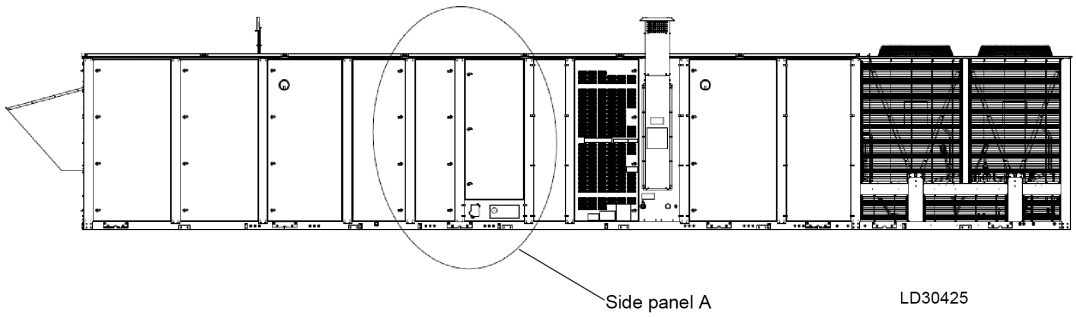
b. This distance is determined by the data in Table 312.6 (B) in the 2017 National Electric Code (NFPA 70).

60 ton to 80 ton power wiring side penetration for slab-mounted units

Installing the power wiring through the side panel of the rooftop unit

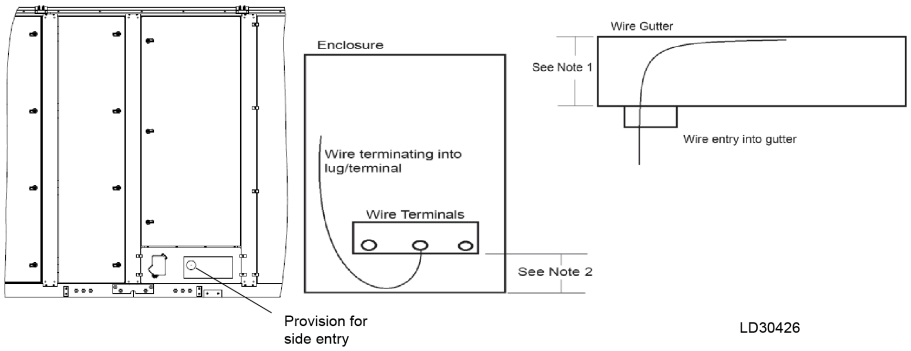
1. Unscrew the panel cleats and remove the panel shown in Figure 78.

Figure 78: The control panel on a rooftop unit



2. Disconnect the convenience outlet wires (if applicable).
3. For the side entry label, see Figure 79, and position the drill to align with the symbol ().

Figure 79: Bend radius for power wiring



Note:

a. This distance is determined by the data in Table 312.6 (A) in the 2017 National Electric Code (NFPA 70).

b. This distance is determined by the data in Table 312.6 (B) in the 2017 National Electric Code (NFPA 70).

4. Bore the hole depending on the size of the gland and the size of wire required.
5. Use tight liquid glands (PG) for wires according to UL 60335.

Technical supplement

Installing door tie-back brackets *(5881370-UTS-A-0420)*

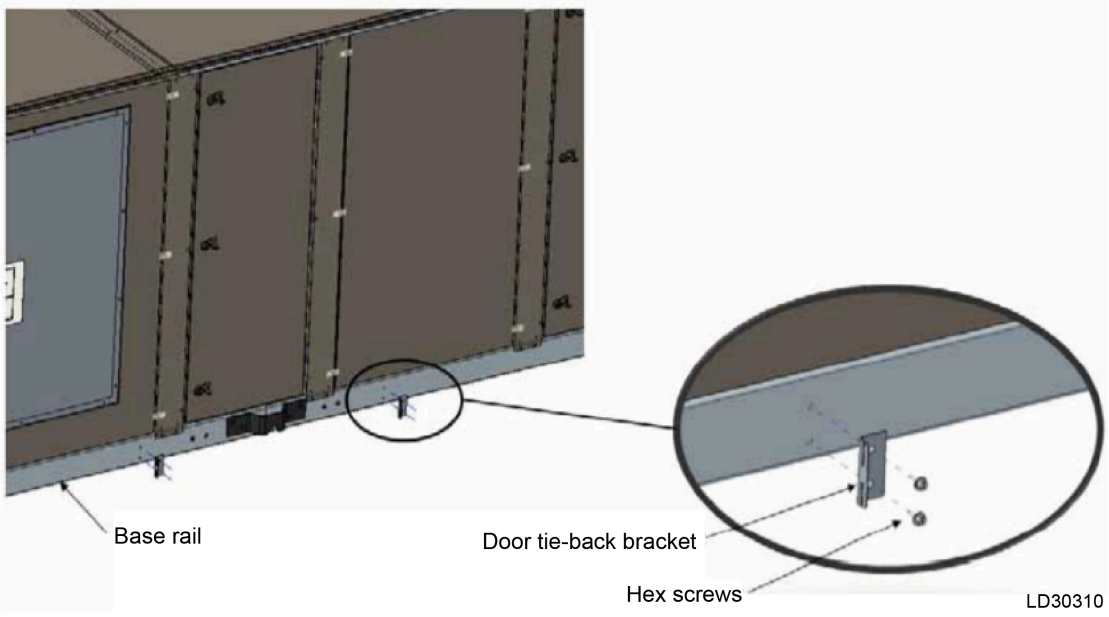
1. Read all the instructions before you begin the installation.

   Table 75: Door tie-back bracket kit contents

Quantity	Description
Varies	Door tie-back brackets
Varies	Screws to mount tie-back brackets
1	Instructions to install

   To avoid damaging door tie-backs, install them after the unit is installed in its final location.
2. To install door tie-back brackets:
   a. Align with holes in base rail.
   b. Bracket can be mounted either way.
   c. Use provided screws to mount all brackets.
3. It is important that all brackets are mounted to provide a catch for the chain to hold the door open.

Figure 80: Item locations



Supplément technique

Instructions d'installation du chauffage au gaz

Chauffage à gaz

Pour le chauffage à gaz, le gaz utilise un chauffage à gaz induit conçu pour une efficacité et une fiabilité élevées.La fournaise du dispositif de chauffage à gaz utilise un échangeur de chaleur turbulante conçu en acier aluminisé et fonctionne à des temperatures suffisantes pour empêcher les gaz d'échappement acides de se condenser à l'interieur de l'échangeur de chaleur à des vitesses de combustion faibles, contrairement aux tubes et valves d'autres dispositif de chauffage à gaz qui génèrent une condensation. Un échangeur de chaleur en acier inoxydable est également disponible en option.

Le chauffage à gaz totalement modulante et les étapes de contrôle de capacité supérieure offrent des performances de conception supérieures tout en maintenissant un comfort optimal pour les occupants.

L'option de chauffage au gaz inclut une réduction non surpassée de 50:1 pour une fournaise à gaz à modulation et jusqu'à six étapes pour un contrôle du chauffage par étapes .

Figure 81: Emplacement des composants de l'unité sur le toit

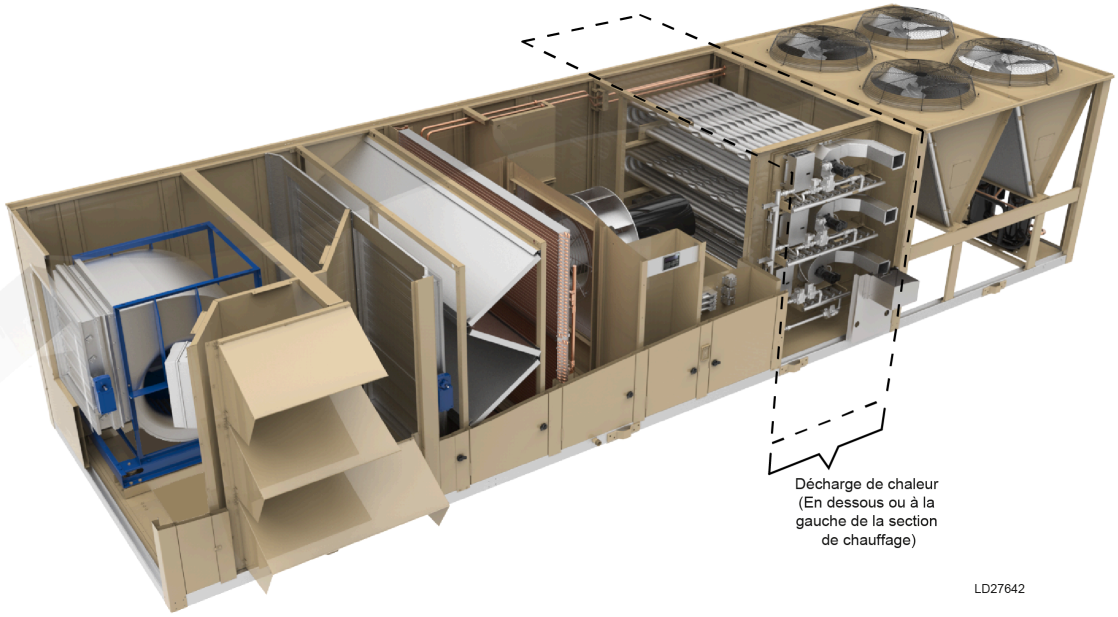


Figure 82: Vue de face et de côté de l'unité

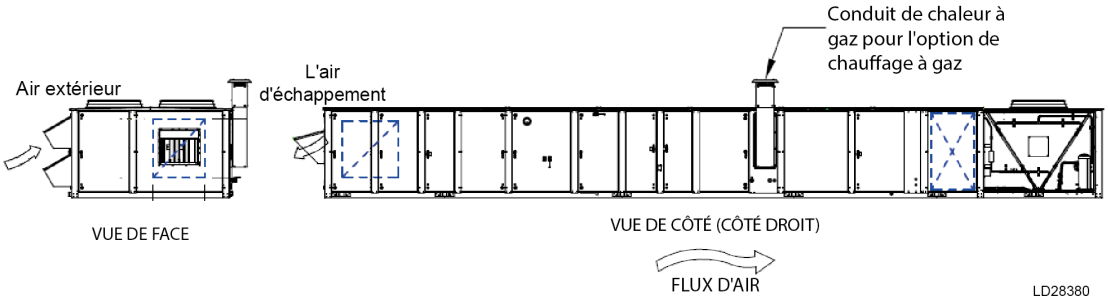


Table 76: Tableau: Données physiques sur le chauffage à gaz

Le Modèle	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Four à gaz							
Tailles de four étagées (entrée-KW / sortie-KW/ étapes)	73 / 59 / 2		147 / 119 / 2		147 / 119 / 2		
	147 / 119 / 2		220 / 178 / 4		293 / 237 / 4		
	220 / 178 / 4		366 / 297 / 6		440 / 356 / 6		
Débit d'air (min à max m3/s)	2.36-5.66		3.8-9.44		5.6-11.32	6.6-15.10	6.6-15.10
Efficacité à l'état d'équilibre de ll chauffage à gaz	81%		81%		81%	81%	81%
Tailles du four modulant (entrée / sortie / turndown)	73 / 59 / 10:1		147 / 119 / 20:1		147 / 119 / 10:1		
	147 / 119 / 20:1		220 / 178 / 30:1		293 / 237 / 20:1		
	220 / 178 / 30:1		366 / 297 / 50:1		440 / 356 / 30:1		
Débit d'air (min à max m3/s)	2.36-5.66		3.8-9.44		5.6-11.32	6.6-15.10	6.6-15.10

Table 77: Tableau: Données du poids du chauffage à gaz

Le Modèle	25 ton	30 ton	40 ton	50 ton	60 ton	70 ton	80 ton
Chaleur gazeuse (en phase ou modulante) (acier aluminisé ou inoxydable)							
250 MBH	118	118	-	-	-	-	-
500 MBH	173	173	181	181	162	162	162
750 MBH	259	259	268	268	-	-	-
1000 MBH	-	-	-	-	277	277	277
1250 MBH	-	-	409	409	-	-	-
1500 MBH	-	-	-	-	390	390	390

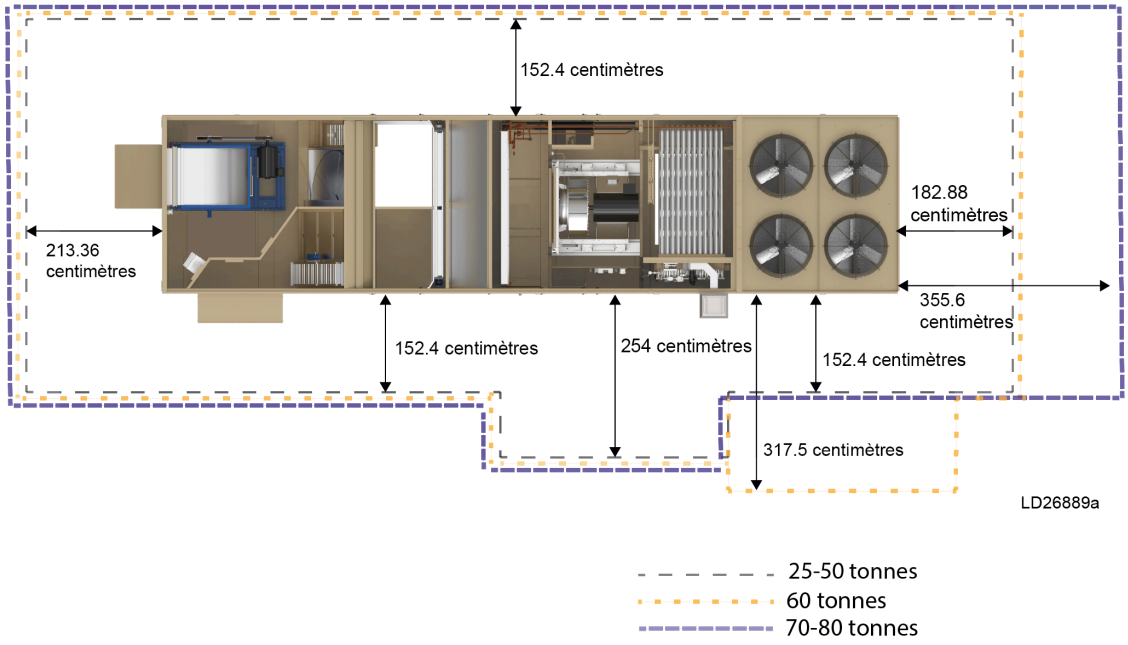
Les dégagements

Les dégagements du service appropriés doivent être maintenus autour du périmètre de l'unité. Cela permettra un entretien correct de l'unité ainsi qu'un débit d'air adéquat pour les serpentins du condenseur et l'air de combustion du chauffage à gaz.

⚠ Avertissement

Cette unite de chauffage a gaz ne doit pas être utilisé pour le chauffage temporaire de bâtiments ou de structures en construction.

Figure 83: Dégagements de l'unité



Note:

1. Un dégagement minimum de 3 mètres au-dessus de l'unité de condensation.
2. Un seul mur adjacent peut dépasser la hauteur de l'unité.
3. 3,6 mètres de dégagement requis pour les unités adjacentes.

Tuyauterie de gaz

L'unité peut avoir en option des sections de chauffage au gaz étagé ou modulant installées en usine. Lorsque la chaleur au gaz est optionellement commandée, le gaz naturel est l'offre standard. Le propane peut être commandé en option.

L'entrepreneur chargé de l'installation est responsable du bon dimensionnement de la tuyauterie d'admission de gaz. Le dimensionnement correct dépend du pied cube par heure de débit de gaz requis, de la densité du gaz et de la longueur de la tuyauterie.

Code d'installation pour les gaz naturelles et code d 'installation pour le propane, CSA B149.1. Voir le Table 78.

La pression de gaz maximale autorisée à la connexion de l'unité est de 0,5 jauge de livres par pouce carré (psig ou 13,5 jauge d'eau en pouces (iwg).

⚠ Avertissement

Le non respect des mises en garde pourrait entraîner des blessures graves, la mort ou des pertes matérielles.

Prendre soin de lire et de comprendre les instructions d'installation, de fonctionnement et d'entretien contenues dans ce guide.

Une installation, un réglage, une modification, une réparation ou un entretien inapproprié peut entraîner des blessures graves, la mort ou des pertes matérielles.

Ne pas entreposer ni utiliser d'essence ou autre vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

1. Ne tentez pas d'allumer un appareil.
2. Ne touchez pas à un interrupteur; n'utilisez pas de téléphone dans l'édifice où vous vous trouvez.
3. Sortez de l'édifice immédiatement.
4. Appelez immédiatement le fournisseur de gaz à partir d'un téléphone à l'extérieur de l'édifice. Suivez les instructions du fournisseur de gaz.
5. Si vous ne pouvez joindre le fournisseur de gaz, appelez les pompiers.

L'installation et les réparations doivent être confiées à un installateur qualifié ou au fournisseur de gaz.

⚠ Avertissement

Débranchez la tuyauterie de gaz de l'unité lors de tests d'étanchéité à des pressions supérieures à 0,5 psig ou 13.5 iwg. Des pressions supérieures à 0,5 psig ou 13.5 iwg entraînent des dommages de la soupape à gaz entraînant une situation dangereuse. Si la soupape à gaz est soumise à une pression supérieure à 0,5 psig ou 13.5 iwg, elle doit être remplacée.

Figure 84: Connexion de tuyauterie de gaz typique

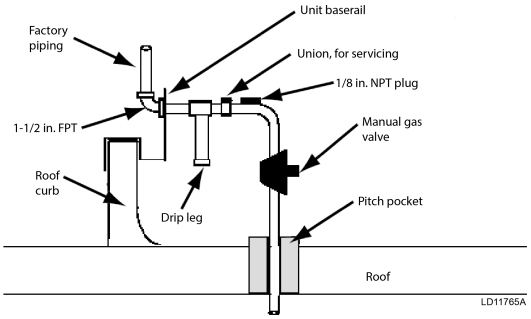


Table 78: Tableau: Dimensionnement de la tuyauterie de gaz d'admission

Longueur (m)	Taille nominale du tuyau de fer		
	32 mm*	40mm*	50mm*
3	1404	2103	3050
6	965	1445	2100
9	775	1161	1650
12	663	993	1450
15	-	880	1270
18	-	798	1150
21	-	734	1050
24	-	638	990

Note: *Capacité maximale des tuyaux de conduit en pieds cubes de gaz par heure (basée sur une chute de pression de 0,5 iwg et de 0,6 densité.)

Connexion de gaz

- La conduite d'alimentation en gaz peut entrer dans l'unité par un orifice d'accès inférieur ou latéral
- Faites fonctionner la conduite d'alimentation en gaz à l'intérieur du bâtiment et pénétrez dans le toit à proximité de l'entrée de gaz ou installez la conduite exposée sur le toit du bâtiment
- Si la pression dans la conduite d'alimentation en gaz est supérieure à 0,5 psig ou 13,5 iwg, un détendeur de taille appropriée doit être installé
- Reportez-vous à la Figure 84 pour connaître la disposition typique des canalisations de gaz.
- Suivez tous les codes locaux lors de l'installation de la conduite d'alimentation en gaz

Recommandation sur la tuyauterie de gaz

- Un tuyau d'égouttement et une jonction au sol doivent être installés dans la tuyauterie du gaz
- Lorsque requis par les codes locaux, une vanne d'arrêt manuel doit être installée à l'extérieur de l'unité
- Utilisez des tuyaux en fer forgé ou en acier pour toutes les conduites de gaz. Les produits d'étanchéité pour filetage doivent être utilisés avec parcimonie uniquement sur les filets mâles
- Toute la tuyauterie doit être nettoyée de la saleté et du tartre en frappant à l'extérieur du tuyau et en éliminant les particules
- Avant la première mise en route, tout l'air doit être purgé de la tuyauterie d'alimentation en gaz
- L'alimentation en gaz doit constituer une conduite séparée et être installée conformément à tous les codes de sécurité prescrits dans les limites énumérées précédemment dans cette section
- Une fois les raccordements de gaz terminés, ouvrez le robinet d'arrêt principal permettant l'alimentation en gaz du dispositif. Toutes les tuyauteries d'usine doivent être vérifiées à l'aide d'une solution d'eau savonneuse
- Un taraudage obturé avec un filetage national (NPT) de 3.175 millimètres doit être installé immédiatement en amont du raccordement de l'alimentation en gaz à lachaudière

Installation de cheminée de gaz de combustion

- Sur les appareils dotes d'une modulante de chaleur à gaz, l'installation d 'une cheminée est necessaire
- Le gaz de combustion est cheminée en vrac dans la section de libération d'air del'unité
- Retirez avec précaution la cheminée des gaz de combustion de la section de reprise d'air et installez la sur les sorties du moteur de l'inducteur, comme indiqué à la Figure 85
- Installez jusqu'à trois angles de déviation avec la cheminée de gaz decombustion

Figure 85: Assemblage de cheminée à gaz de combustion

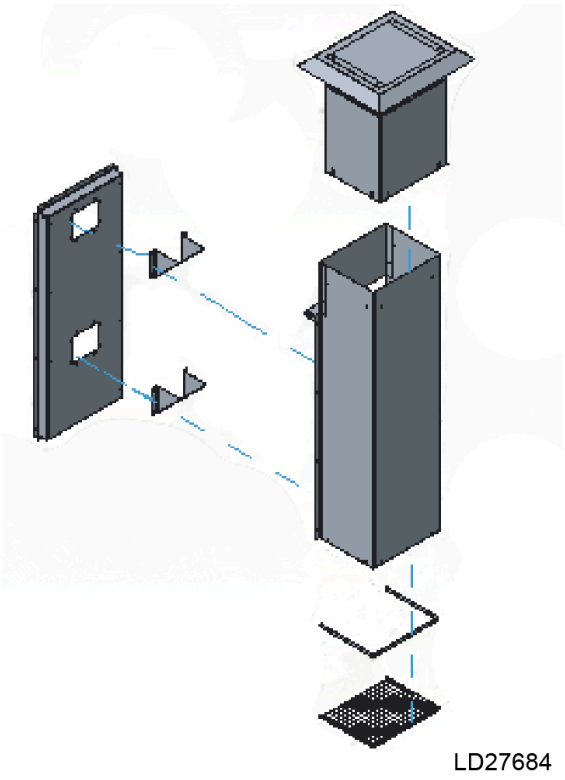


Table 79: Tableau: Chauffage à gaz étagée et modulante

Chaleur de gaz étagée et modulante					Chaleur de gaz étagée	Chaleur gazeuse modulante
Le Modèle	Capacité d'entrée de gaz (kW)	Capacité de sortie maximale (kW)	Débit d'air minimum(m3/s)	Taille de connexion de gaz (mm)	Mesures	Turndown
25-30	73	59	2.36	25	2	10:1
	147	119	2.36	25	2	20:1
	220	178	2.36	25	4	30:1
40-50	147	119	3.8	32	2	20:1
	220	178	3.8	32	4	30:1
	366	297	3.8	32	6	50:1
60	147	119	5.6	25	2	10:1
	293	237	5.6	32	4	20:1
	439	356	5.6	38	6	30:1

Table 79: Tableau: Chauffage à gaz étagée et modulante

Chaleur de gaz étagée et modulante					Chaleur de gaz étagée	Chaleur gazeuse modulante
Le Modèle	Capacité d'entrée de gaz (kW)	Capacité de sortie maximale (kW)	Débit d'air minimum(m3/s)	Taille de connexion de gaz (mm)	Mesures	Turndown
70-80	147	119	6.6	25	2	10:1
	293	237	6.6	32	4	20:1
	439	356	6.6	38	6	30:1

Note:

Pour un fonctionnement correct, la pression du gaz naturel fournie par le bâtiment doit être comprise entre 7 et 14 iwg (la pression pour le propane liquide doit être comprise entre 12 et 14 iwg).

L'élévation de température peut être calculée là où l'élévation de température = (capacité d'entrée de gaz (kW) x 0,81) / (m3/s x 1,085). La température maximale de l'air sortant ne doit pas dépasser 48,8°C.

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