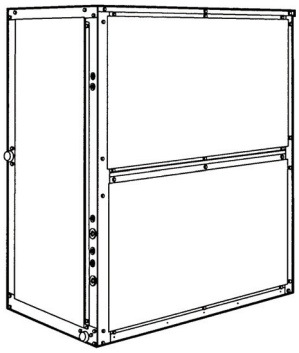
HEATING & COOLING PRODUCTS

FAL
Product Specifications

Introducing the new FAL 6 to 30 ton air-handling unit. With direct expansion cooling, FAL air handlers offer maximum performance and flexibility for even the most demanding jobs.

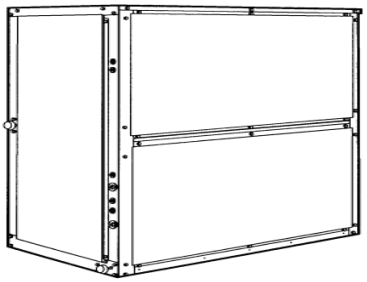


FAL072-120 unit shown

Our easy-to install and economical FAL units provide reliable operation and versatility with:

- Environmentally balanced R-454B refrigerant, which delivers a 75% reduction in global warming potential (GWP) compared to the original R-410A refrigerant. R-454B's GWP of 466 easily exceeds the EPA (Environmental Protection Agency) requirement of <700 GWP
- Factory installed A2L leak detection system certified to UL 60335-2-40 to ensure reliable and safe indoor and outdoor unit operation (included on all FAL models)
- Multi-position designs for horizontal or vertical installation without modification
- Standard sloped drain pans and cleanable insulation
- Cooling coils with mechanically bonded fins for improved heat transfer and die-formed galvanized steel casings to provide durability and structural integrity available either painted or unpainted
- Standard factory-installed thermostatic expansion valves (TXV) with removable power element on FAL units
- Upgraded unit control board with intuitive indoor fan adjustment
- 2-speed indoor fan motor system through our patented X-Vane Fan Technology (6-10 ton sizes) or factory installed and configured VFD (12.5 tons and up)
- Multiple fan static options to meet a wider range of applications
- Ultra Low Leak Economizer accessories to provide ventilation air and "free" cooling with built in Fault Detection and Diagnostic (FDD) capabilities
- Hot water coil, steam coil, and electric heat accessories

X-Vane™ Fan



FAL150-336 unit shown

Indoor air quality features

The FAL Series air handlers deliver clean, fresh, conditioned air to the occupied space through a unique combination of features:

- **Cooling Coils:** Prevent humidity build-up, even during part-load conditions. Units 6 to 8.5 tons use a single coil while units 10 tons and above feature dual-circuit face-split coils that can be manifolded together for single circuit operation.
- **Filters:** 2-inch (51 mm) disposable filters remove dust and airborne particles.
- **Pitched Drain Pan:** Adjustable for right-hand or left-hand connections to ensure positive drainage and prevent standing condensate.
- **Economizer Accessory:** Precisely controls the blend of outdoor and room air to achieve comfort levels and allow for free cooling when available. The Ultra Low Leak design meets California Title 24 section 140.4 requirements for return and outside air damper leakage. The controller meets California Title 24 Section 120.2 Fault Detection and Diagnostic (FDD) requirements.

Economy

The FAL Series packaged air handlers offer low initial costs and continue to save money through reduced installation expenses and energy-efficient performance.

The multi-position design allows for quick installation in the horizontal or vertical (upflow) configuration without modifications. Drain-pan connections are available on both sides, and pans can be pitched for right-hand or left-hand operation with a simple adjustment.

Fan motors and contactors are pre-wired, and TXVs are factory-installed on FAL models to allow contractors to set up units faster and get on to the next job.

Precision balanced high efficiency X-Vane fans or VFD controlled forward curved fan assemblies minimize air turbulence, surging, and unbalanced operation, reducing operating expenses over the unit lifetime.

Form FAL11-072-336-02PD
12/2025

Table of contents

Features/Benefits

Rugged dependability

The FAL units are built to last with galvanized steel panels to ensure structural integrity under all operating conditions and mechanically bonded coil fins to provide improved heat transfer. To ensure reliable fan operation, X-Vane Fans or forward curved fan assemblies are securely mounted to a die-formed galvanized steel deck. For larger units - FAL sizes 14 and up - the design includes rugged pillow-block bearings that are securely fastened to the solid steel fan shaft with split collets and clamp locking devices.

Direct Expansion (DX) coils

The FAL air handling units are designed with AC Direct-Expansion (DX) coils for use with R-454B refrigerant, featuring copper tubes mechanically bonded to aluminum sine-wave fins. Includes factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles.

Easier installation and service

The multi-position design and component layout allow for quick unit installation and operation. There are simple, fast plug-in connections to the standard integrated unit control board (UCB). The UCB has clearly labeled connection points to reduce installation time. Also, a large control box provides room to work and mount accessory controls. The filters, motor, drive, TXVs, and coil connections are easily accessed by removing a single side panel.

X-Vane fan technology

The direct drive X-Vane Technology indoor fan system on 6 to 10 ton FAL units uses a Vane Axial fan design and easily adjustable electronically commutated motor.

This design has 75% fewer moving parts, uses up to 40% less energy, and eliminates the need for fan belts, blower bearings or an additional shaft. The ECM motor offers internal protection from phase reversal and phase loss situations and comes in multiple static options to make air balancing at site easier than ever.

Easy to use

The newly re-designed Unit Control Board puts all connections and troubleshooting points in one convenient place. Most low voltage connections are made to the same board, making it easy to access. Setting up the fan is simple by an intuitive switch and rotary dial arrangement.

2-speed indoor fan motor system

Our units will automatically adjust the indoor fan motor speed in sequence with the unit's cooling operation. Per ASHRAE®[1] 90.1 2010 standard section 6.4.3.10.b, during the first stage of cooling operation the fan motor (either ECM or controlled by VFD) will adjust to provide two-thirds of the total cfm established for the unit. When a call for the second stage of cooling is required, the fan motor will allow the total cfm (100%) established for the unit. During the heating mode the fan motor will allow total design cfm (100%) operation and during the ventilation mode the fan motor will allow operation to two-thirds of total cfm.

R-454B features

Announced in 2018, R-454B is our next generation refrigerant for light commercial products. With a GWP of 466 and similar working pressure and performance to R-410A, R-454B easily exceeds the EPA's new, stringent <700 GWP refrigerant requirement while minimizing unit redesign. Like other next generation refrigerants (R-32, etc.), R-454B is classified as an "A2L" refrigerant by ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers). This designation means that R-454B is "mildly flammable" under certain conditions. While this is a change from legacy "A1 — No Flame Propagation" refrigerants like R-410A, A2Ls are still very low on the flammability scale and quite safe for use. A2L refrigerants are difficult to ignite and have an extremely low flame speed — much less so than natural gas, propane, or even rubbing alcohol.

We are committed to safety. As such, all of our R-454B systems include a factory installed dissipation control board and leak sensor designed to last the lifetime of the unit. This system is certified to UL 60335-2-40 and designed to work right away, without any field configuration or major rewiring. In the event of a leak, these systems automatically identify and resolve the issue by dissipating the refrigerant to minimize risk to equipment, buildings, or occupants.

1. Third-party trademarks and logos are the property of their respective owners.

Model number nomenclature

FAL Model Number Nomenclature

MODEL SERIES	F	A	L	0	9	1	L	2	A	A	0	A	U	A
Position Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14

F = Fan Coil Unit

A = Air Conditioning (Cooling Only) — **Type**

L = R-454B Refrigerant — **Refrigerant**

072 = 6 Tons
091 = 7.5 Tons
120 = 10 Tons
150 = 12.5 Tons
180 = 15.0 Tons
240 = 20.0 Tons
300 = 25.0 Tons
336 = 30.0 Tons — **Nominal Tonnage**

H = 208/230-3-60
L = 460-3-60
S = 575-3-60 — **Voltage**

1 = Standard Static Motor (150-336 only)
2 = Medium Static Motor
3 = High Static Motor — **Fan Motor Options**

A = Al/Cu — **Coil Options**

A = Standard DX Coil
N = Adaptive Dehumidification Coil, Single Circuit (072-120 only)
U = Adaptive Dehumidification Coil, Dual Circuit (120 only) — **Type of Coil**

0 = X-Vane Two-Speed Direct Drive Axial Fan ECM (072-120 only)
2 = Two-Speed Forward Curve Fan with VFD (150-336 only) — **Fan Motor Speed Controller**

A = Standard — Unpainted
B = Painted Cabinet — **Painted Cabinet Options**

U = Unit Control Board (UCB) Electromechanical Controls — **Controls**

A = Standard — **Packaging**

Physical data

FAL Physical Data, Sizes 072-120

UNIT FAL	072	091	120
NOMINAL CAPACITY (Tons)	6	7.5	10
OPERATING WEIGHT (lb)			
Base Unit with TXV (4 Row)	399	404	425
Adaptive Dehumidification System	420	428	439/448[a]
Plenum	175	175	175
Economizer	185	185	185
Hot Water Coil[b]	195	195	195
Steam Coil[b]	215	215	215
FANS			
Qty...Diam. (in.)	1…23	1…23	1…23
Nominal Airflow (cfm)	2400	3000	4000
Airflow Range (cfm)	1800-3000	2250-3750	3000-5000
Nominal Motor HP (Standard Motor)[c]			
208/230-3-60 and 460-3-60	2.4	2.4	2.4
575-3-60	2.4	2.4	2.4
Motor Speed (rpm)			
208/230-3-60 and 460-3-60	2000	2000	2000
575-3-60	2000	2000	2000
REFRIGERANT[d]	R-454B	R-454B	R-454B
Shipping Charge (lb)	Nitrogen Purge	Nitrogen Purge	Nitrogen Purge
Metering Device	TXV	TXV	TXV
Operating Charge (lb) (approx per circuit)	3.0	3.0	1.5/1.5
DIRECT-EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins		
Max Working Pressure (psig)	650	650	650
Material (Tube / Fin)	Al / Cu	Al / Cu	Al / Cu
Coil Type	RTPF	RTPF	RTPF
Face Area (sq ft)	6.67	8.33	10.01
No. of Splits	1	1	2
Split Type...Percentage	—	—	Face...50/50
No. of Circuits per Split	12	15	9
Rows...Fins/in.	4...15	4...15	4...15
ADAPTIVE DEHUMIDIFICATION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins		
Max Working Pressure (psig)	650	650	650
Material (Tube / Fin)	Al / Cu	Al / Cu	Al / Cu
Coil Type	RTPF	RTPF	RTPF
Face Area (sq ft)	6.46	7.52	8.57
No. of Splits	1	1	2
Split Type...Percentage	—	—	Face...50/50
No. of Circuits per Split	6	7	4
Rows...Fins/in.	2...17	2...17	2...17
STEAM COIL[b]			
Max Working Press. (psig at 260°F)	20	20	20
Total Face Area (sq ft)	6.67	6.67	6.67
Rows...Fins/in.	1...9	1...9	1...9
HOT WATER COIL[b]			
Max Working Pressure (psig)	150	150	150
Total Face Area (sq ft)	6.67	6.67	6.67
Rows...Fins/in.	2...8.5	2...8.5	2...8.5
Water Volume			
(gal)	8.3	8.3	8.3
(ft^3)	1.1	1.1	1.1
PIPING CONNECTIONS			
Quantity...Size (in.)			
DX Coil — Suction (ODF)	1...1-1/8	1...1-1/8	2...1-1/8
DX Coil — Liquid Refrig, (ODF)	1...5/8	1...5/8	2...5/8
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2
Condensate (PVC)	1...5/8 ODM / 1-1/4 IDF		

Physical data (cont)

FAL Physical Data, Sizes 072-120

UNIT FAL	072	091	120
FILTERS	Throwaway — Factory-Supplied		
Quantity...Size (in.)	4...16 x 24 x 2		
Access Location	Right or Left Side		

NOTE(S):
a. Weights listed for coil type options N/U, respectively.
b. Field-installed accessory only.
c. FAL units are medium static option.
d. Units are shipped without refrigerant charge.

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

Physical data (cont)

FAL Physical Data, Sizes 150-336

UNIT FAL	150	180	240	300	336
NOMINAL CAPACITY (tons)	12.5	15.0	20.0	25.0	30.0
OPERATING WEIGHT (lb)					
Base Unit with TXV	695	713	730	1,050	1,062
Plenum	225	225	225	325	325
FANS					
Qty / Diameter (in.)	2 / 15	2 / 15	2 / 15	2 / 18	2 / 18
Nominal Airflow (cfm)	5,000	6,000	8,000	10,000	12,000
Airflow Range (cfm)	3,750-6,250	4,500-7500	6,000-10,000	7,500-12,500	9,000-15,000
Nominal Motor Hp (standard motor)					
208/230-3-60 and 460-3-60	2.9	3.7	5.0	7.5	10.0
575-3-60	3.7	3.7	5.0	7.5	10.0
Motor Speed (rpm)					
208/230-3-60 and 460-3-60	1,735	1,750	1,755	1,760	1,755
575-3-60	1,710	1,710	1,755	1,750	1,755
REFRIGERANT	R-454B	R-454B	R-454B	R-454B	R-454B
Operating Charge (lb) (approx per circuit)[a]	2.0 / 2.0	2.5 / 2.5	3.5 / 3.5	4.5 / 4.5	5.0 / 5.0
DIRECT EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins				
Max Working Pressure (psig)	650	650	650	650	650
Face Area (sq ft)	13.25	17.67	19.88	24.86	29.83
No. of Splits	2	2	2	2	2
No. of Circuits per Split	12	16	18	20	24
Split Type / Percentage	Face / 50 / 50	Face / 50 / 50	Face / 50 / 50	Face / 50 / 50	Face / 50 / 50
Rows / Fins per Inch	4 / 15	4 / 15	4 / 15	4 / 15	4 / 15
PIPING CONNECTIONS					
Qty / Size (in.)					
DX Coil — Suction (ODF)	2 / 1-1/8	2 / 1-1/8	2 / 1-1/8	2 / 1-3/8	2 / 1-3/8
DX Coil — Liquid Refrigerant (ODF)	2 / 5/8	2 / 5/8	2 / 5/8	2 / 5/8	2 / 5/8
Steam Coil, In (MPT)	1 / 2-1/2	1 / 2-1/2	1 / 2-1/2	1 / 2-1/2	1 / 2-1/2
Steam Coil, Out (MPT)	1 / 1-1/2	1 / 1-1/2	1 / 1-1/2	1 / 1-1/2	1 / 1-1/2
Hot Water Coil, In (MPT)	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2
Hot Water Coil, Out (MPT)	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2
Condensate (PVC)	1 / 1-5/8 ODM / 1-1/4 IDF	1 / 1-5/8 ODM / 1-1/4 IDF	1 / 1-5/8 ODM / 1-1/4 IDF	1 / 1-5/8 ODM / 1-1/4 IDF	1 / 1-5/8 ODM / 1-1/4 IDF
FILTERS	Throwaway — Factory-Supplied				
Qty / Size (in.)	4 / 16 x 20 x 2	4 / 16 x 20 x 2	4 / 16 x 20 x 2	4 / 20 x 24 x 2	4 / 20 x 24 x 2
	4 / 16 x 24 x 2	4 / 16 x 24 x 2	4 / 16 x 24 x 2	4 / 20 x 25 x 2	4 / 20 x 25 x 2
Access Location	Either Side	Either Side	Either Side	Either Side	Either Side
STEAM COIL[b]					
Max Working Pressure (psig at 260°F)	20	20	20	20	20
Total Face Area (sq ft)	13.33	13.33	13.33	15.0	15.0
Rows / Fins per Inch	1 / 10	1 / 10	1 / 10	1 / 10	1 / 10
HOT WATER COIL[b]					
Max Working Pressure (psig)	150	150	150	150	150
Total Face Area (sq ft)	13.33	13.33	13.33	15.0	15.0
Rows / Fins per Inch	2 / 8.5	2 / 8.5	2 / 8.5	2 / 12.5	2 / 12.5
Water Volume					
(gal)	13.9	13.9	13.9	14.3	14.3
(ft^3)	1.85	1.85	1.85	1.90	1.90

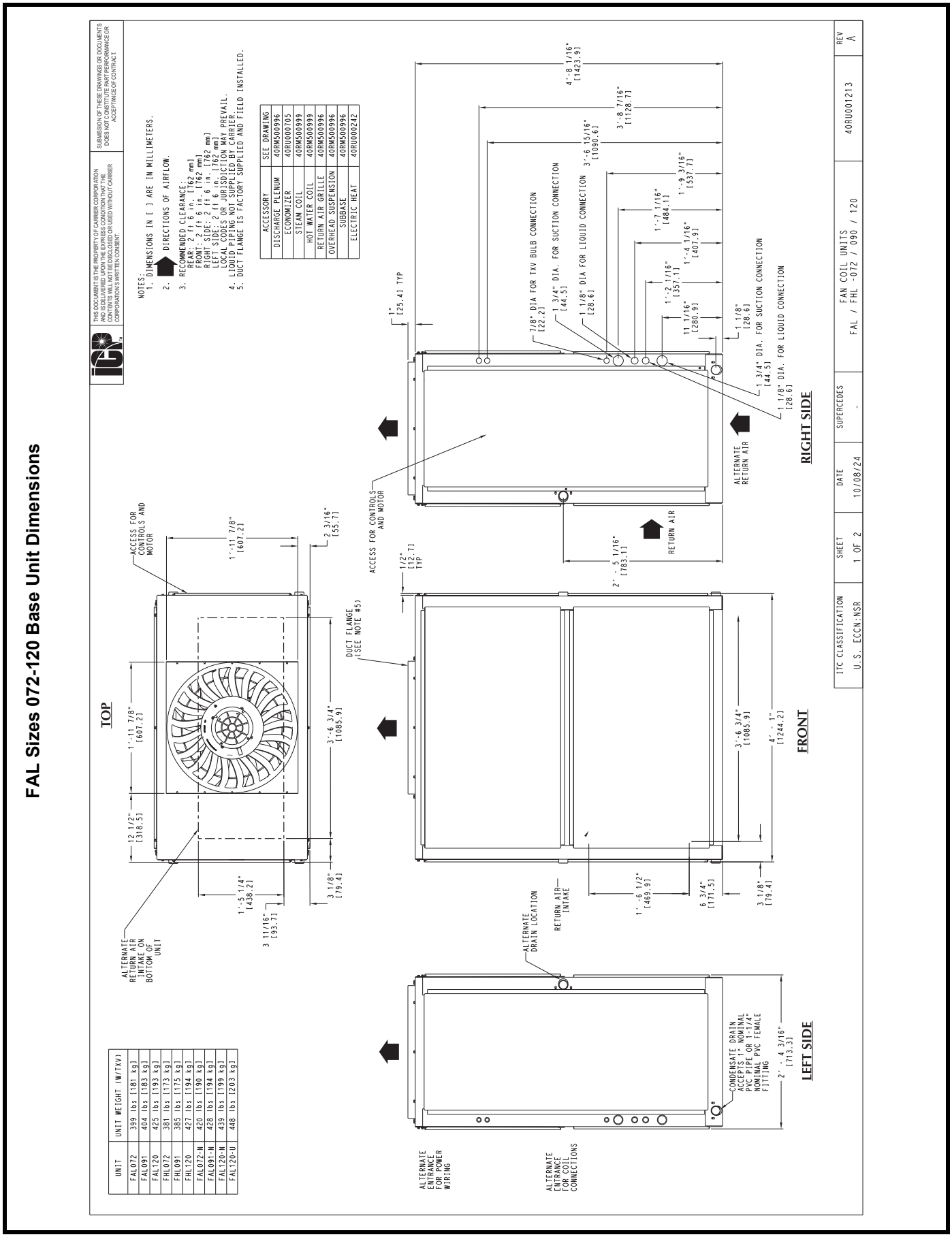
NOTE(S):
a. Units are shipped without refrigerant charge.
b. Field-installed accessory only.

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

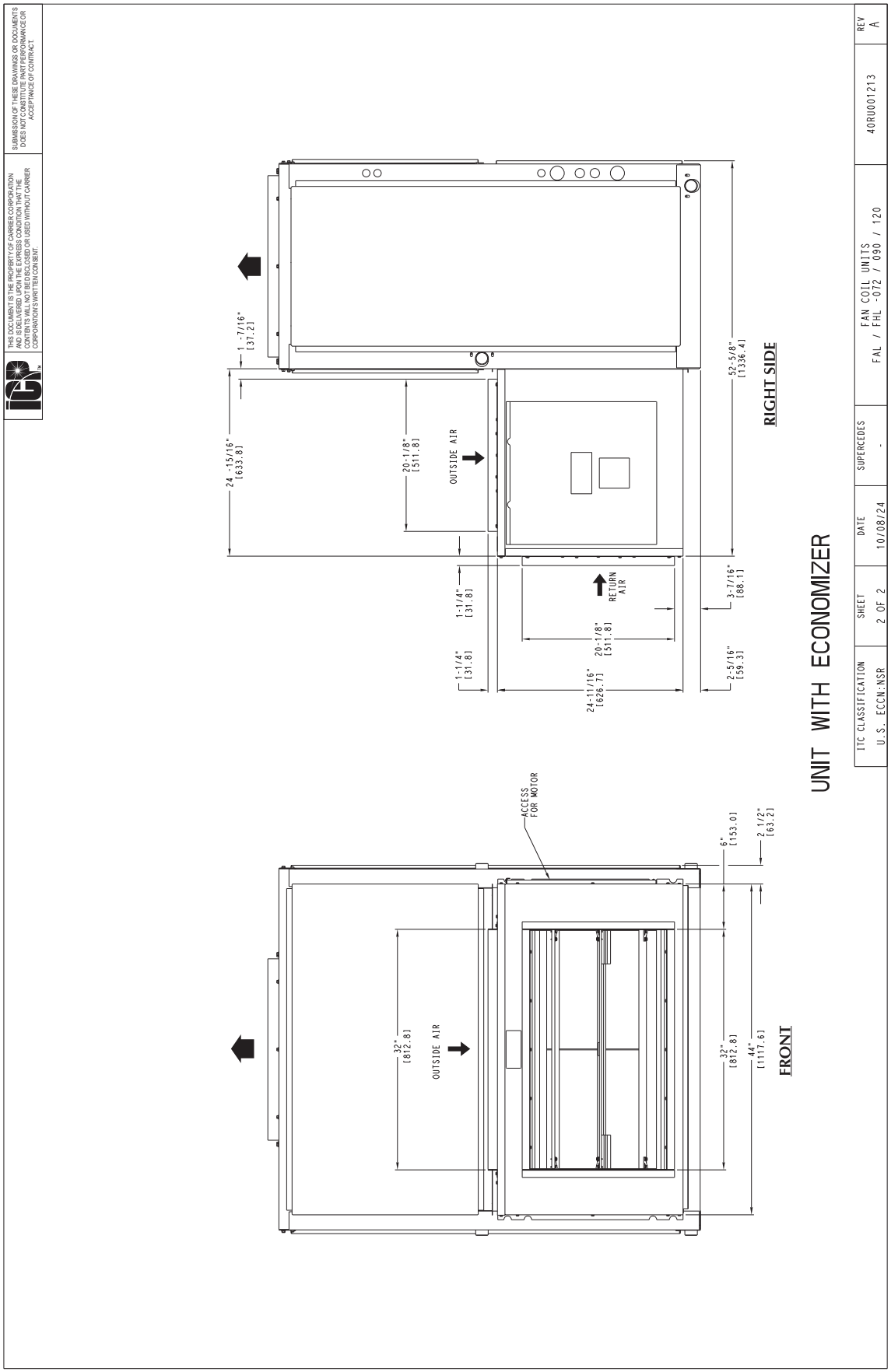
Base unit dimensions

FAL Sizes 072-120 Base Unit Dimensions



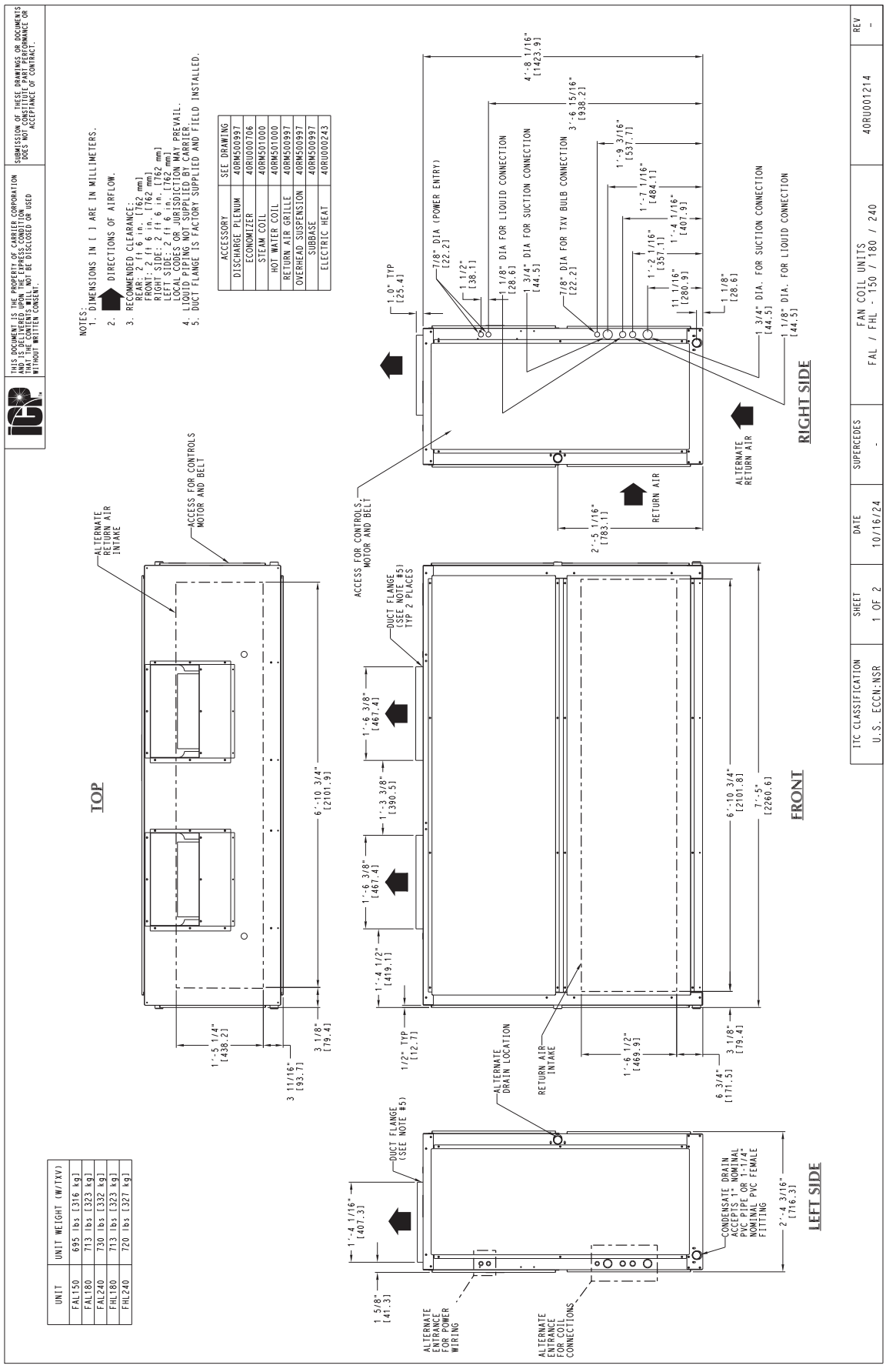
Base unit dimensions (cont)

FAL Sizes 072-120 Base Unit Dimensions (cont)



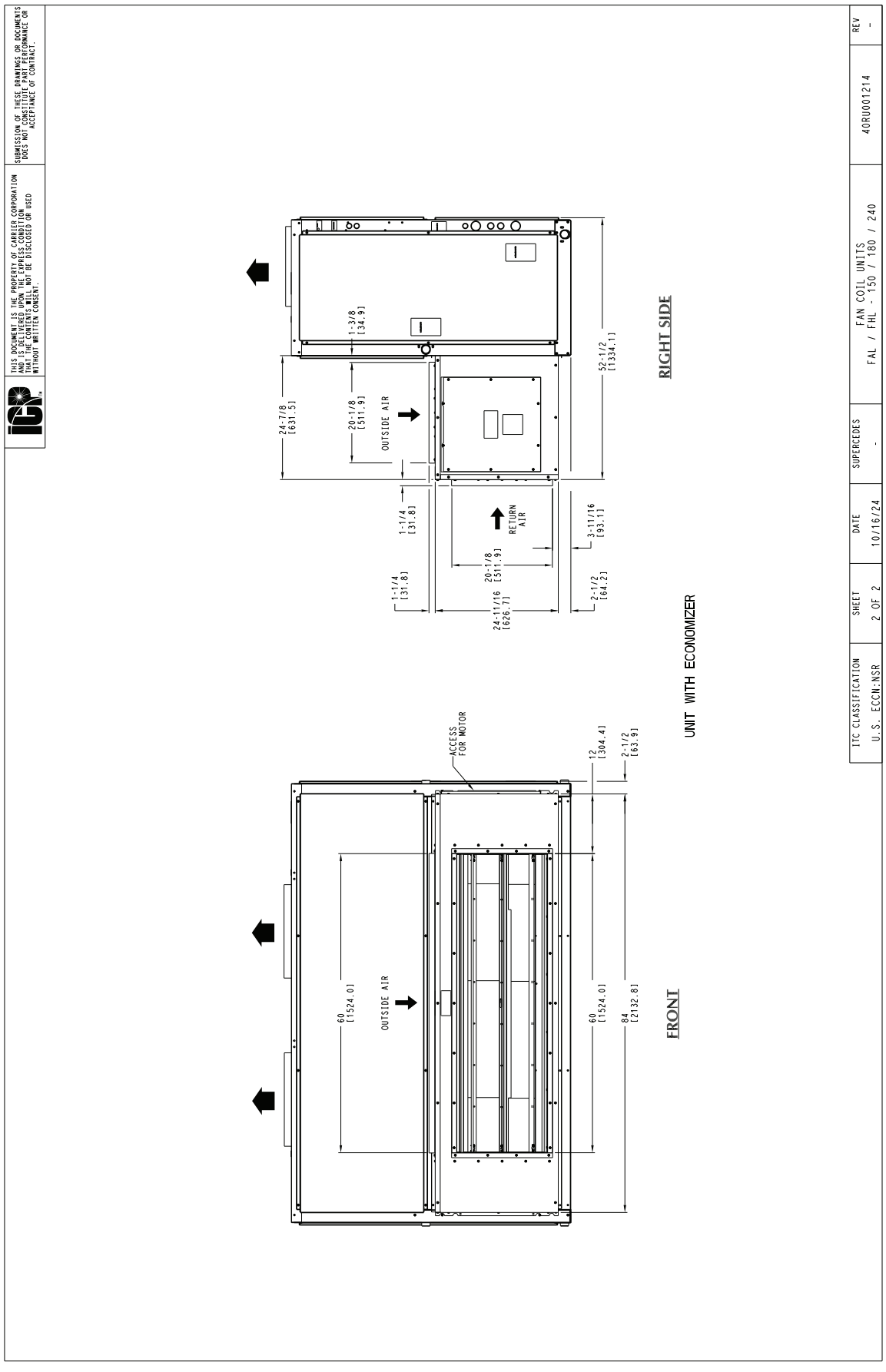
Base unit dimensions (cont)

FAL Sizes 150-240 Base Unit Dimensions



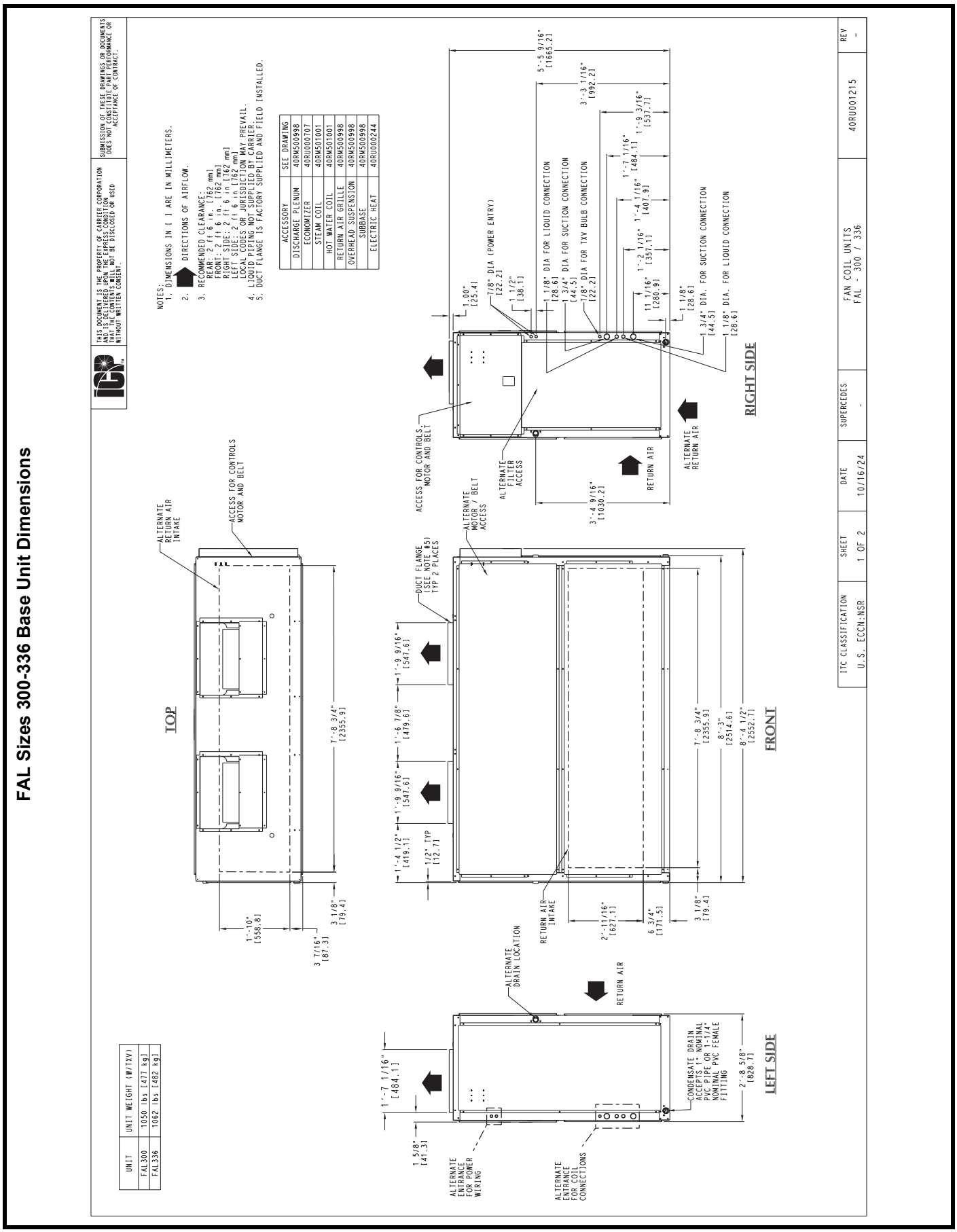
Base unit dimensions (cont)

FAL Sizes 150-240 Base Unit Dimensions (cont)



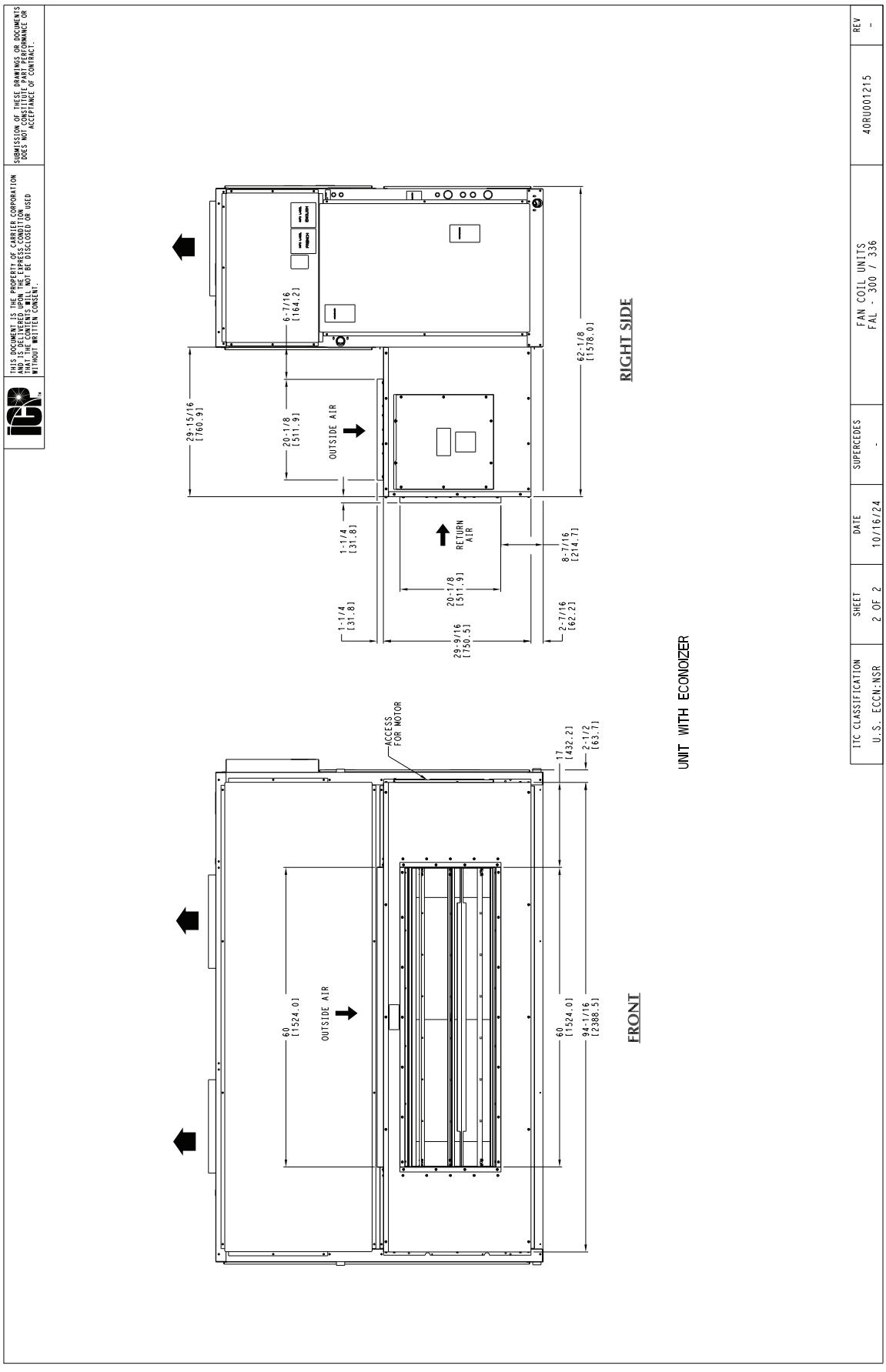
Base unit dimensions (cont)

FAL Sizes 300-336 Base Unit Dimensions



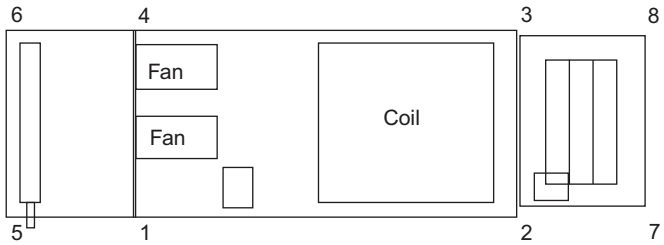
Base unit dimensions (cont)

FAL Sizes 300-336 Base Unit Dimensions (cont)



Base unit dimensions (cont)

Corner Weights — Horizontal Position



FAL Horizontal Position

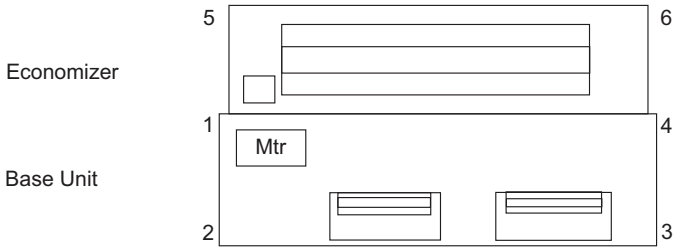
FAL UNIT SIZE	UNIT OR ACCESSORY NAME		UNIT OR ACCESSORY WEIGHT (lb)	CORNER NUMBER (Weight in lb)							
				1	2	3	4	5	6	7	8
FAL072	Fan Coil Base Unit		399	109.3	106.1	90.6	93.4	—	—	—	—
FAL091	Fan Coil Base Unit		404	110.7	107.5	91.7	94.5	—	—	—	—
FAL 072, 091, 120	Steam Coil	Add	215	40.2	—	—	40.6	66.5	67.5	—	—
	Hot Water Coil	Add	195	35.9	—	—	36.7	60.4	62.0	—	—
	Economizer	Add	185	—	36.8	35.7	—	—	—	56.8	55.1
	Eco + Steam Coil	Add	400	38.8	38.6	37.4	39.2	64.2	65.2	59.5	57.7
	Eco + Hw Coil	Add	380	36.9	35.8	34.6	37.7	62.1	63.8	55.1	53.4
FAL150	Fan Coil Base Unit		695	224.0	177.7	129.8	163.7	—	—	—	—
FAL180	Fan Coil Base Unit		713	229.8	182.3	133.2	167.9	—	—	—	—
FAL240	Fan Coil Base Unit		730	235.6	186.4	136.5	171.5	—	—	—	—
FAL 150-240	Steam Coil	Add	340	61.4	—	—	62.0	107.8	108.8	—	—
	Hot Water Coil	Add	285	51.7	—	—	51.3	91.5	90.6	—	102.0
	Economizer	Add	340	—	66.9	62.0	—	—	—	109.8	97.1
	Eco + Steam Coil	Add	680	64.4	63.7	59.0	65.0	113.0	114.1	104.5	87.8
	Eco + Hw Coil	Add	625	60.0	57.6	53.4	59.5	106.2	105.1	94.6	—
FAL300	Fan Coil Base Unit		1050	338.4	268.5	196.1	247.2	—	—	—	—
FAL336	Fan Coil Base Unit		1062	342.4	271.6	198.3	249.7	—	—	—	—
FAL 300-336	Steam Coil	Add	405	73.2	—	—	73.8	128.4	129.6	—	—
	Hot Water Coil	Add	345	62.6	—	—	62.1	110.7	109.6	—	—
	Economizer	Add	450	—	88.5	82.0	—	—	—	145.3	134.2
	Eco + Steam Coil	Add	855	80.6	80.1	74.1	81.6	142.0	143.4	131.3	122.0
	Eco + Hw Coil	Add	795	76.8	73.7	68.2	75.7	135.0	133.6	120.3	111.7

LEGEND

ECO — Economizer
HW — Hot Water

Base unit dimensions (cont)

Corner Weights — Vertical Position



NOTE: Steam, Hot Water and Plenum on top of positions 1, 2, 3, 4

FAL Vertical Position

FAL UNIT SIZE	UNIT OR ACCESSORY NAME		UNIT OR ACCESSORY WEIGHT (lb)	CORNER NUMBER (Weight in lb)					
				1	2	3	4	5	6
FAL072	Fan Coil Base Unit		399	100.5	114.9	98.0	85.8	—	—
FAL091	Fan Coil Base Unit		404	101.7	116.3	99.1	86.9	—	—
FAL120	Fan Coil Base Unit		425	107.6	122.3	108.0	87.1	—	—
FAL 072, 091, 120	Steam Coil	Add	215	54.1	54.1	53.4	53.4	—	—
	Hot Water Coil	Add	195	49.4	49.4	48.1	48.1	—	—
	Plenum	Add	175	50.8	36.7	36.7	50.8	—	—
	Economizer	Add	195	38.9	—	—	37.1	59.9	58.3
	Eco + Steam Coil	Add	410	93.0	53.4	52.6	91.1	61.0	59.1
	Eco + Hw Coil	Add	390	88.9	52.3	50.9	86.5	56.7	54.9
FAL150	Fan Coil Base Unit		695	191.2	210.5	153.8	139.5	—	—
FAL180	Fan Coil Base Unit		713	196.2	216.0	157.8	143.1	—	—
FAL 150, 180	Steam Coil	Add	340	85.4	85.4	84.6	84.6	—	—
	Hot Water Coil	Add	285	70.9	70.9	71.6	71.6	—	—
	Plenum	Add	225	72.5	40.0	40.0	72.5	—	—
	Economizer	Add	340	66.5	—	—	62.0	109.5	102.0
	Eco + Steam Coil	Add	680	153.0	89.1	88.7	147.7	104.5	97.0
	Eco + Hw Coil	Add	625	139.9	82.5	83.3	136.7	94.7	87.9

LEGEND

ECO — Economizer
HW — Hot Water

Options and accessories

ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Alternate Fan Motors & Drives	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Duct Adapter (072-120)		X
Discharge Plenum		X
Economizer		X
Electric Heater		X
Hot Water Heating Coils (2 row)		X
Adaptive Dehumidification System (sizes 072-120 only)	X	
Optional VFD Display Kit (150-336)		X
Overhead Suspension Package		X
Pre-Painted Units	X	
Programmable Thermostats		X
Return Air Grille		X
2-Speed Indoor Fan Motor System	X	
Steam Heating Coil (1 row)		X
Alternate Drive	X	

Factory-installed options

Adaptive dehumidification system (sizes 072-120)

Our adaptive dehumidification system is a factory-installed option for 6 to 10 ton FAL units, offering year-round comfort and flexibility by providing an additional sub-cooling operating mode.

Sub-cooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control.

NOTE: The system includes a Low Ambient controller.

Alternate fan motors and drives

Alternate fan motors and drives are available to provide the widest possible range of performance.

Pre-painted steel units

Pre-painted units are available from the factory for applications that require painted units. Units are painted with American Sterling Gray color.

2-speed indoor fan motor system

Our units will automatically adjust the indoor fan motor speed in sequence with the unit's cooling operation. Per ASHRAE 90.1 2010 standard section 6.4.3.10.b, during the first stage of cooling operation the fan motor (either ECM or controlled by VFD) will adjust to provide two-thirds of the total cfm established for the unit. When a call for the second stage of cooling is required, the fan motor will allow the total cfm (100%) established for the unit. During the heating mode the fan motor will allow total design cfm (100%) operation and during the ventilation mode the fan motor will allow operation to two-thirds of total cfm.

Field-installed accessories

Optional VFD display Kit (sizes 150-336)

There is an optional VFD display kit offered (as an accessory) for FAL units to allow the user to troubleshoot any VFD faults in the field after start-up.

NOTE: Do not use the VFD display kit to adjust the frequency and voltage in the VFD to required performance requirements. This could lead to decreased life of the motor and VFD.

Two-row hot water coils

Two-row hot water coils have copper tubes mechanically bonded to aluminum plate fins and non-ferrous headers.

One-row steam coil

One-row steam coils have copper tubes and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The steam coil has a broad operating pressure range; up to 20 psi (138 kPag) at 260°F (126°C). The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

Electric heater

Electric heaters are available as factory-supplied, field-installed accessories for nominal 240-v, 480-v, and 575-v, 3-phase, 60 Hz units. Electric heaters are UL and CSA, agency-approved. They have single-point power wiring. The heater assembly includes contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters should not be used with an air discharge plenum.

EconomizerONE

This ultra low leak, temperature dry bulb controlled economizer accessory comes with solid-state POL224 controller, gear-driven, modulating damper, and spring return actuator. It is supply/outdoor air sensors, and CO_2 sensor compatible, for use in electro-mechanical controls only. It also includes return and outside air damper leakage that meets California Title 24 section 140.4 requirements.

Controller meets California Title 24 Section 120.2 Fault Detection and Diagnostic (FDD) requirements. Also meets AMCA Class 1A economizer damper test standards and labeling.

Discharge plenum

Discharge plenum directs the air discharge directly into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. This accessory is available unpainted or painted. Field assembly is required (only applicable for vertical application).

Return-air grille

The return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. This accessory is available unpainted or painted.

Overhead suspension package

The overhead suspension package includes necessary brackets to support units in horizontal ceiling installations.

CO_2 sensors

CO_2 sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO_2 level in the space exceeds the set point.

Options and accessories (cont)

Condensate drain trap

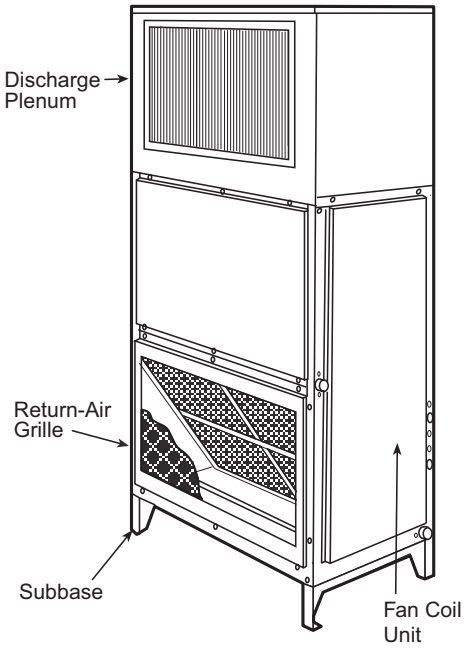
The condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. Kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

Discharge duct adapter (sizes 072-120)

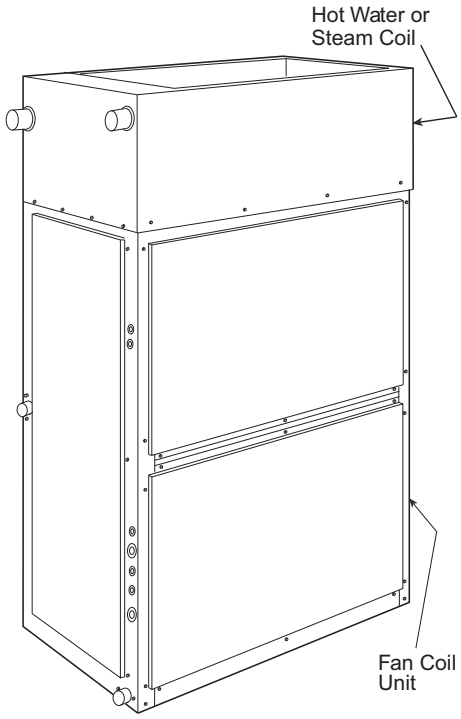
This accessory is required for replacements using FAL units with or without electric heat. It is not required for new installations or when using steam coil, hot water coil, or discharge plenum accessories.

Options and accessories (cont)

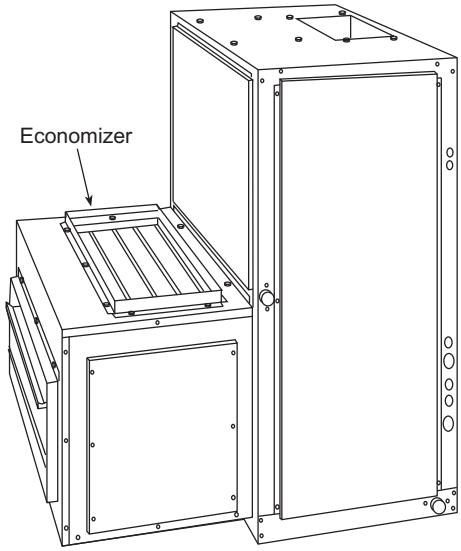
FAL with Discharge Plenum Return-Air Grille and Subbase



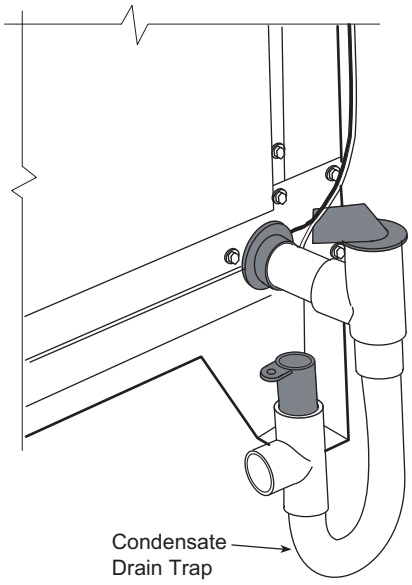
FAL with Hot Water or Steam Coil



FAL with Economizer



FAL with Condensate Trap

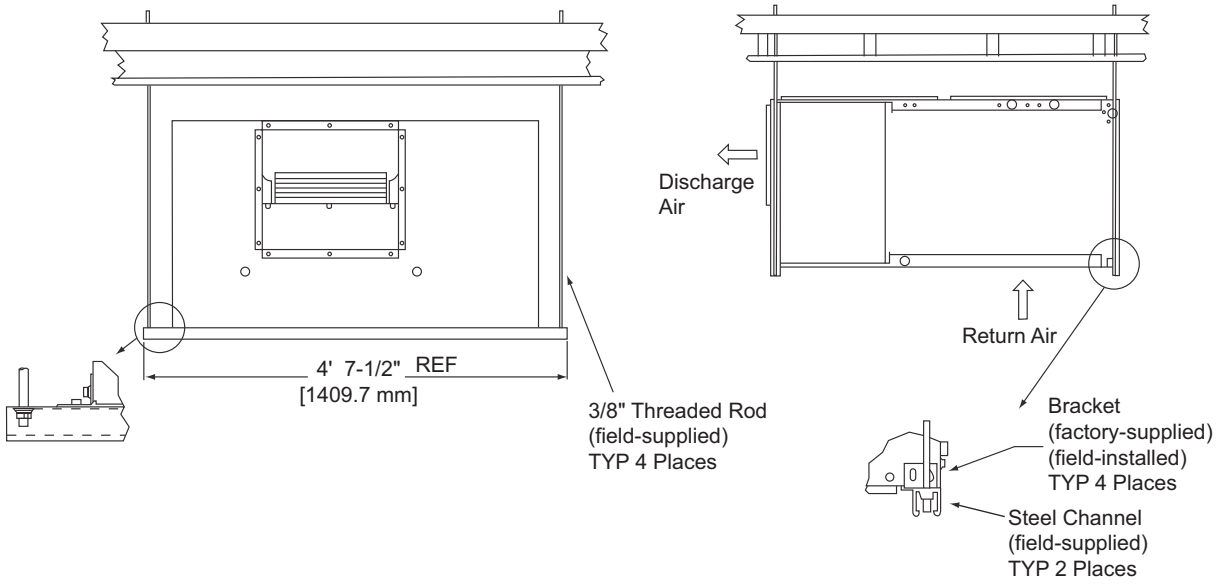


Accessory dimensions

Overhead Suspension Accessory — Sizes 072-336

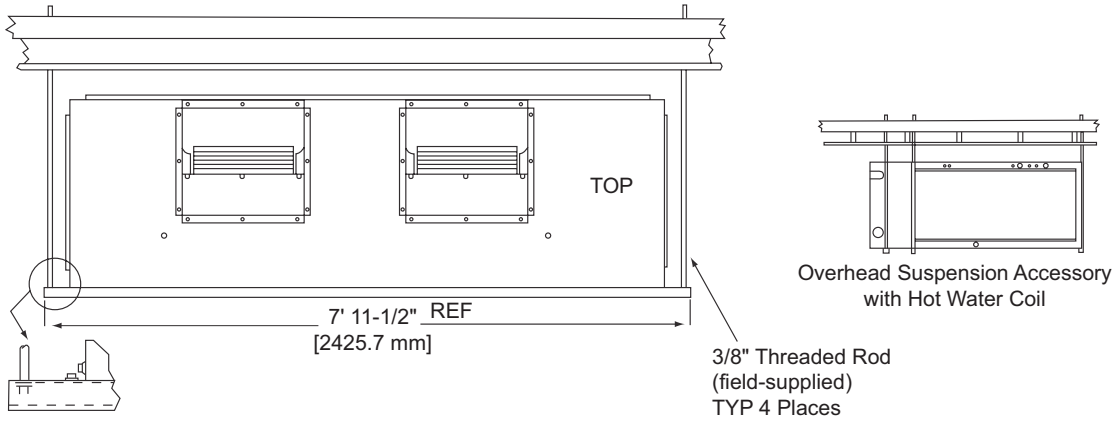
6-10 Ton Units

(front)



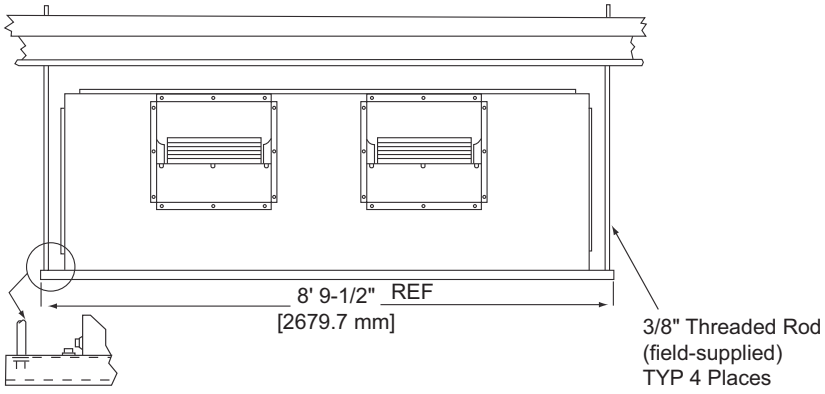
12.5-20 Ton Units

(front)



25-30 Ton Units

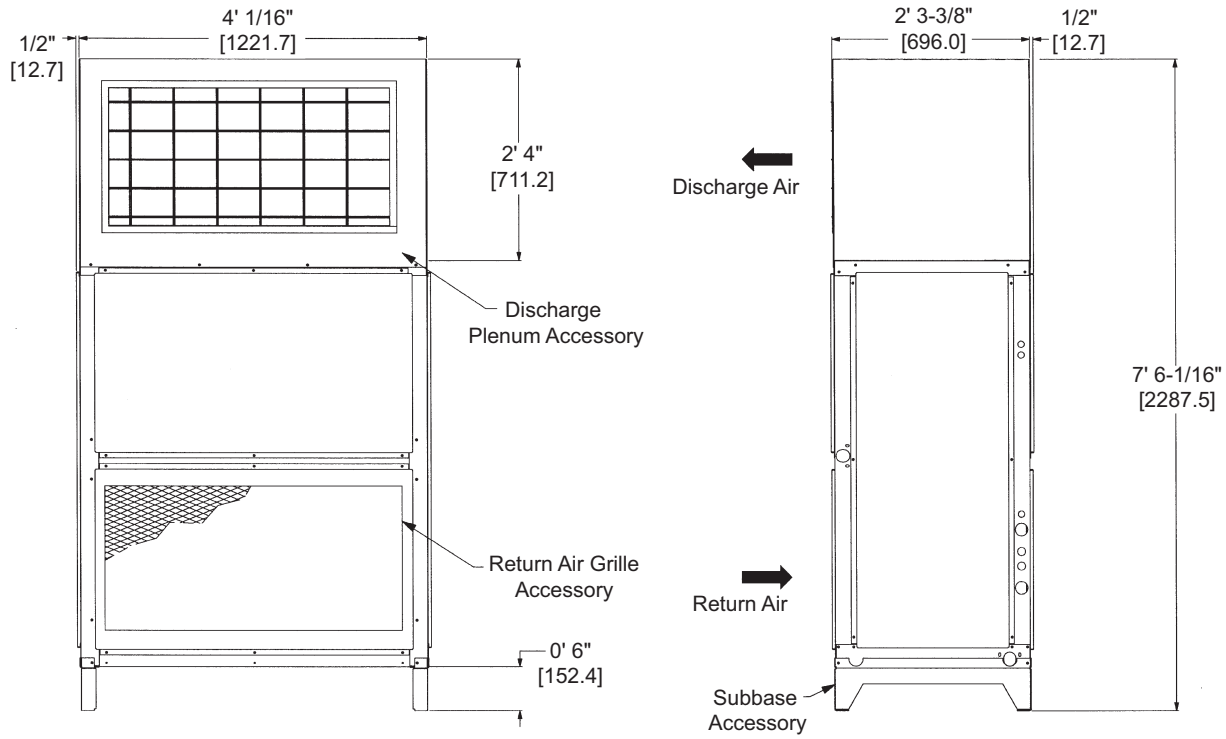
(front)



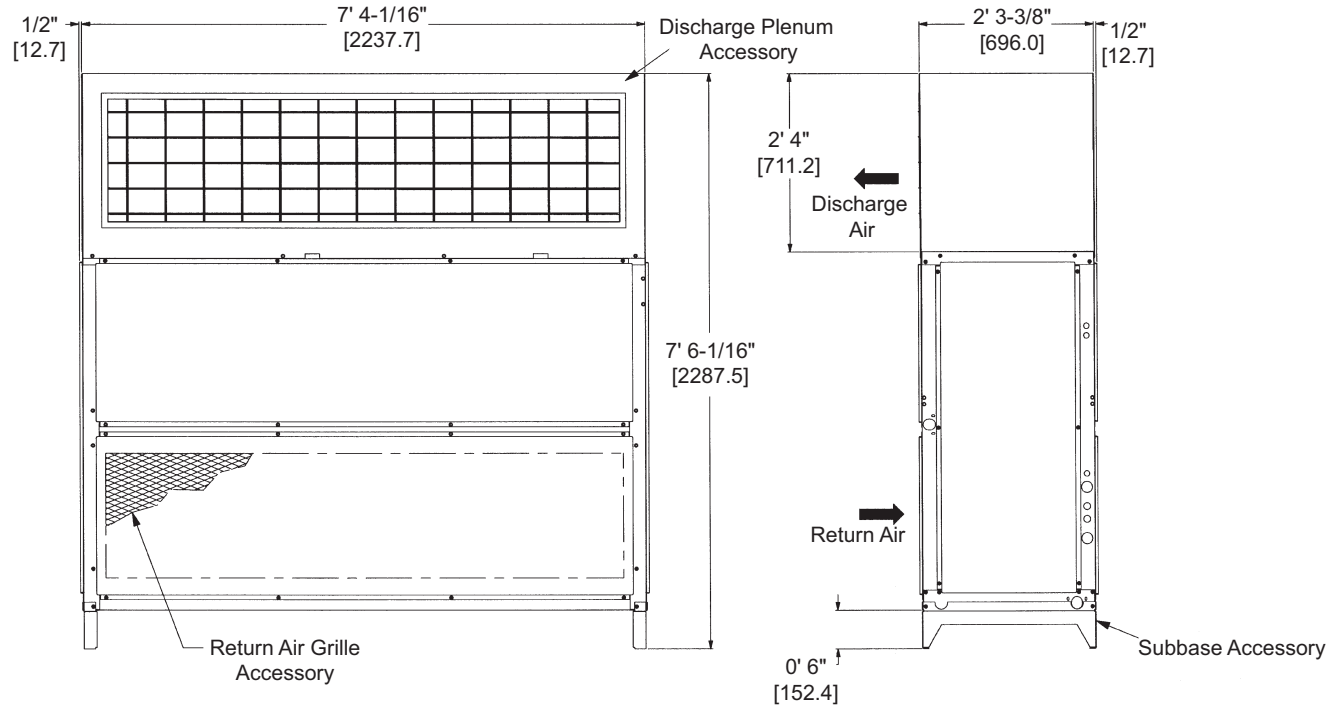
Accessory dimensions (cont)

Plenum, Return-Air Grille, and Subbase Accessories — Sizes 072-240

6-10 Ton Units



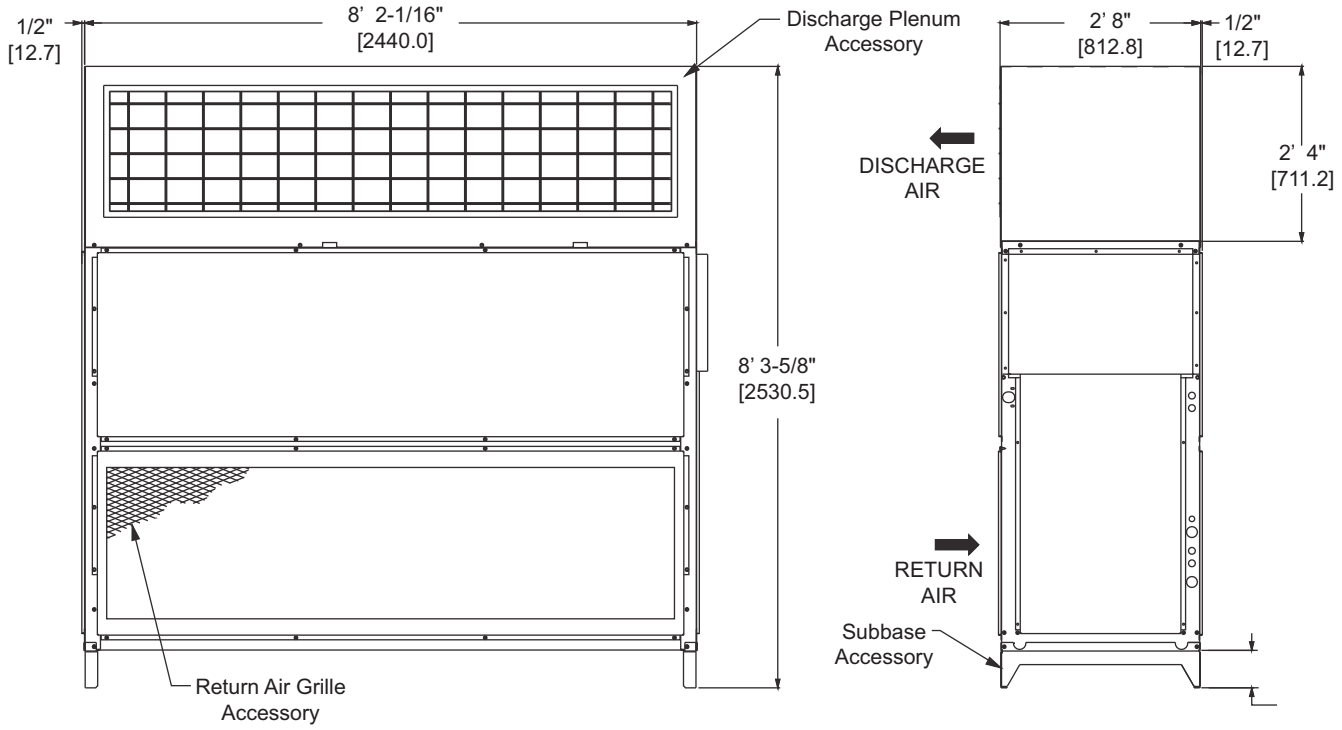
12.5-20 Ton Units



Accessory dimensions (cont)

Plenum, Return-Air Grille, and Subbase Accessories — Sizes 300-336

25-30 Ton Units

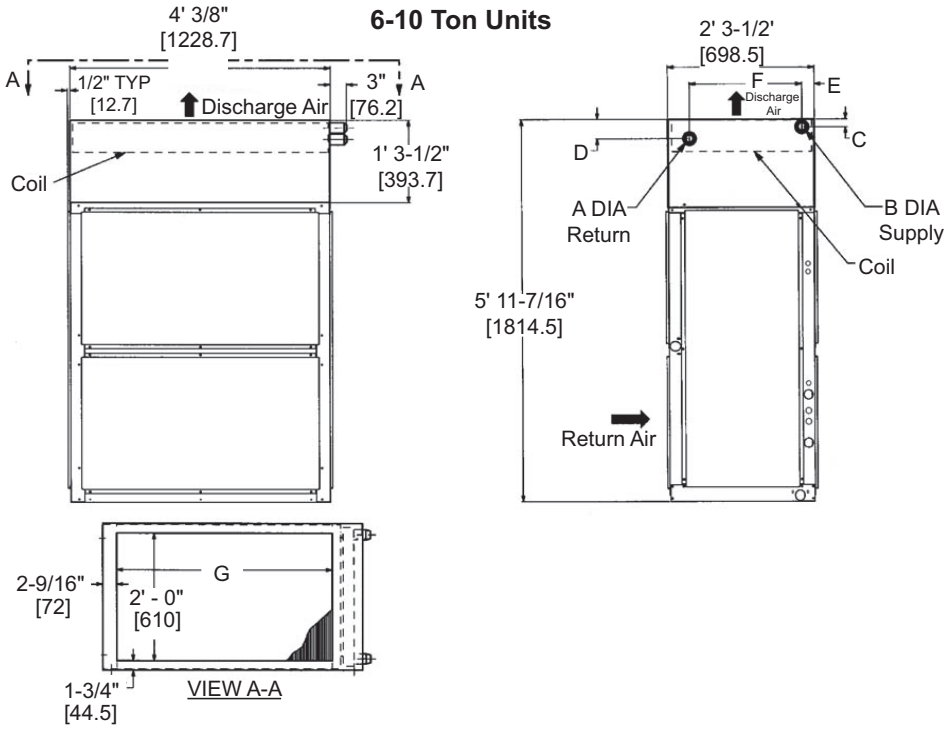


NOTE: Dimensions in [ ] are millimeters.

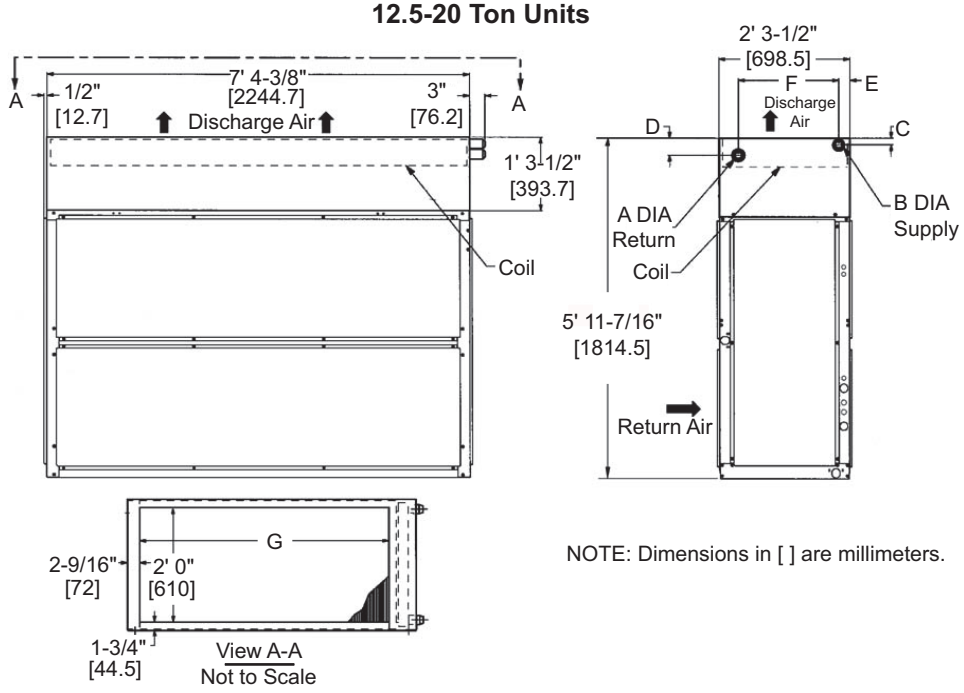
Accessory dimensions (cont)

Hot Water and Steam Coil Accessories

6-10 Ton Units



12.5-20 Ton Units



NOTE: Dimensions in [ ] are millimeters.

FAL072-120

DIMENSIONS	HOT WATER COIL	STEAM COIL
A	1-1/2" MPT [38.1]	1-1/2" MPT [38.1]
B	1-1/2" MPT [38.1]	2-1/2" MPT [63.5]
C	2-3/8" [60.3]	3-1/8" [79.4]
D	4-7/8" [123.8]	3-1/8" [79.4]
E	2-1/8" [54.0]	4-9/16" [115.8]
F	1'-11-1/4" [590.6]	1'-9" [584.2]
G	3'-4" [1016.0]	3'-4" [1016.0]

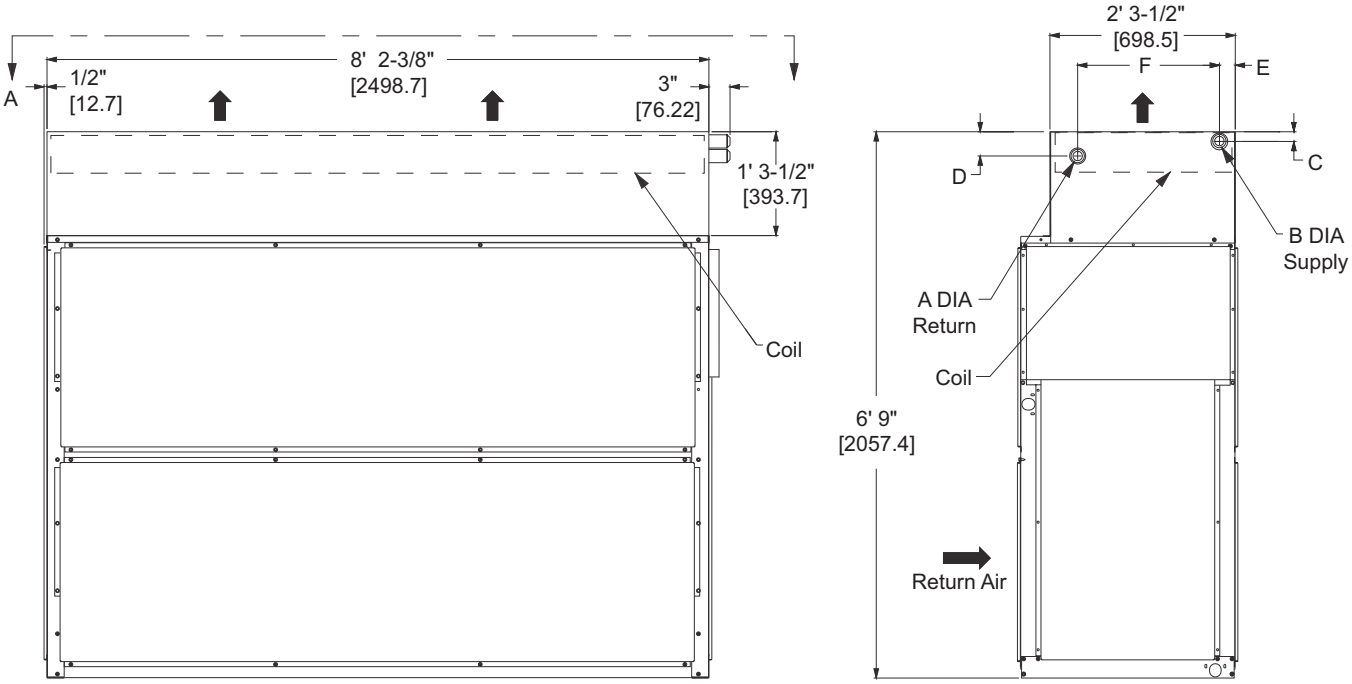
FAL150-240

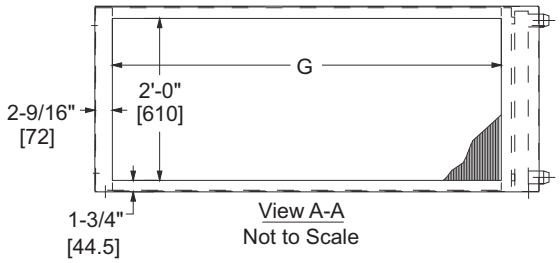
DIMENSIONS	HOT WATER COIL	STEAM COIL
A	2" MPT [50.8]	1-1/2" MPT [38.1]
B	2" MPT [50.8]	2-1/2" MPT [63.5]
C	2-3/8" [60.3]	3-1/8" [79.4]
D	4-7/8" [123.8]	3-1/8" [79.4]
E	2-1/8" [54.0]	4-9/16" [115.8]
F	1'-11-1/4" [590.6]	1'-9" [584.2]
G	6'-8" [2032.0]	3'-4" [2032.0]

Accessory dimensions (cont)

Hot Water and Steam Coil Accessories — Sizes 300-336

25-30 Ton Units





NOTE: Dimensions in [ ] are millimeters.

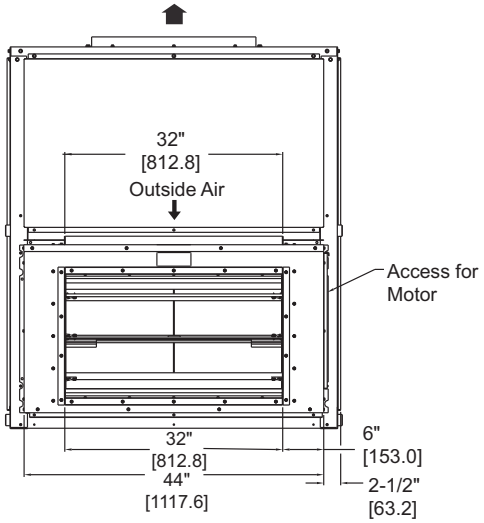
FAL300-336

DIMENSIONS	HOT WATER COIL	STEAM COIL
A	2" MPT [50.8]	1-1/2" MPT [38.1]
B	2" MPT [50.8]	2-1/2" MPT [63.5]
C	2-3/8" [60.3]	3-1/8" [9.4]
D	4-7/8" [123.8]	3-1/8" [79.4]
E	2-1/8" [54.0]	4-9/16" [115.8]
F	1'-11-1/4" [590.6]	1'-9" [584.2
G	7'-6" [2286.0]	7'-6" [2286.0]

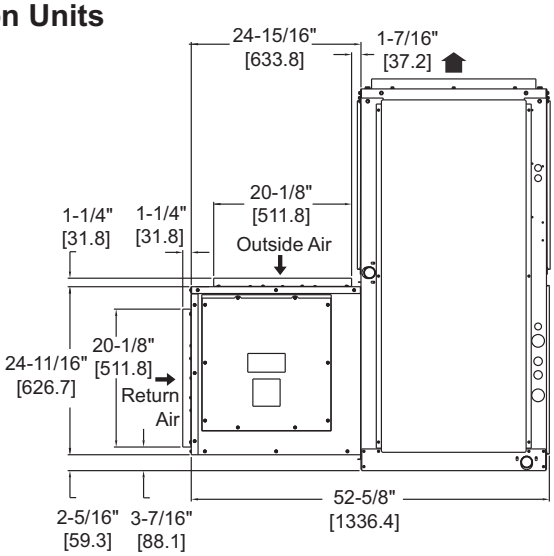
Accessory dimensions (cont)

Economizer Accessory — Sizes 072-336

6-10 Ton Units

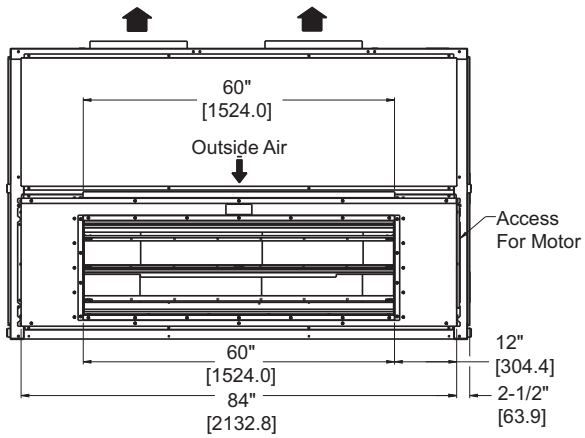


FRONT

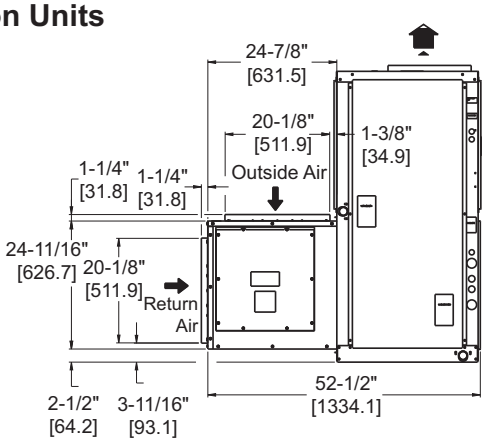


RIGHT SIDE

12.5-20 Ton Units

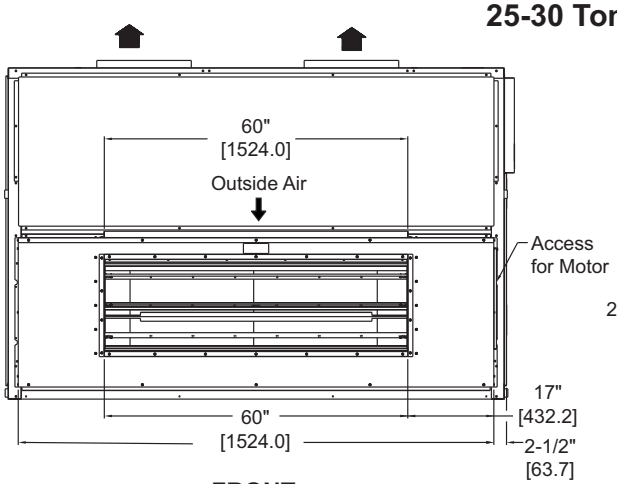


FRONT

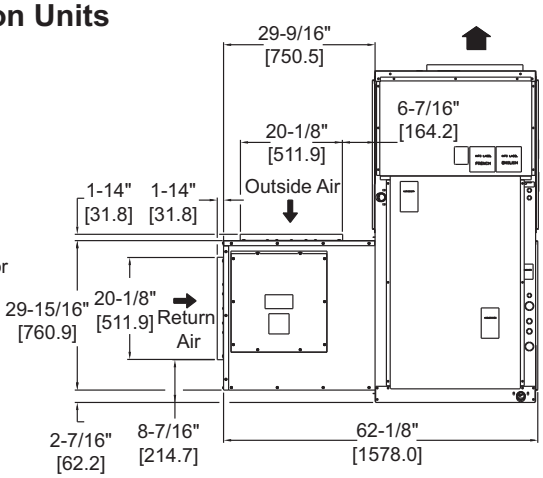


RIGHT SIDE

25-30 Ton Units



FRONT

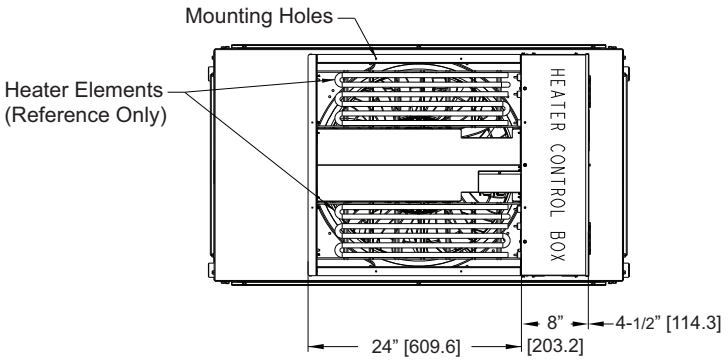


RIGHT SIDE

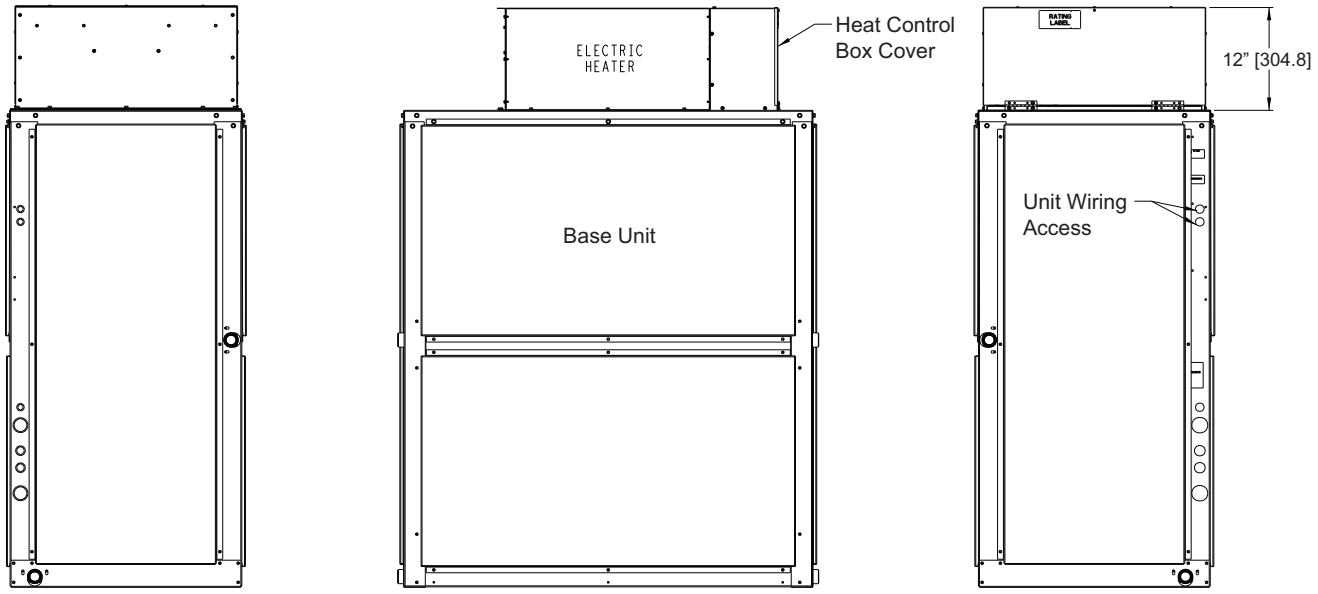
NOTES:
1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.
2. Dimensions in [ ] are in millimeters.

Accessory dimensions (cont)

Electric Heater Accessory - Sizes 072-120



Top



Front **Right Side**

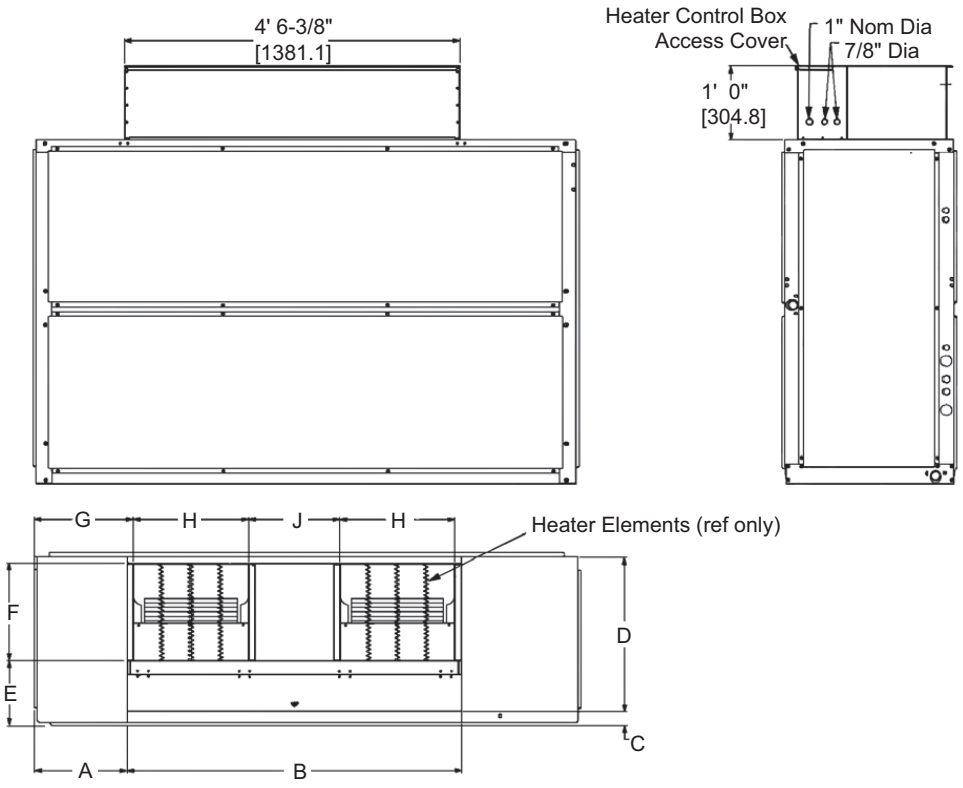
Recommended Unit Service Clearances[a,b]	
Front	2' 6" [762]
Rear[b]	2' 6" [762]
Right Side	2' 6" [762]
Left Side	2' 6" [762]

NOTE(S):
a. Dimensions in [ ] are millimeters.
b. Rear clearance for base units with heaters must be increased from that of base units without heaters to allow service access.

Accessory dimensions (cont)

Electric Heater Accessory — Sizes 150-336

12.5-30 Ton Units

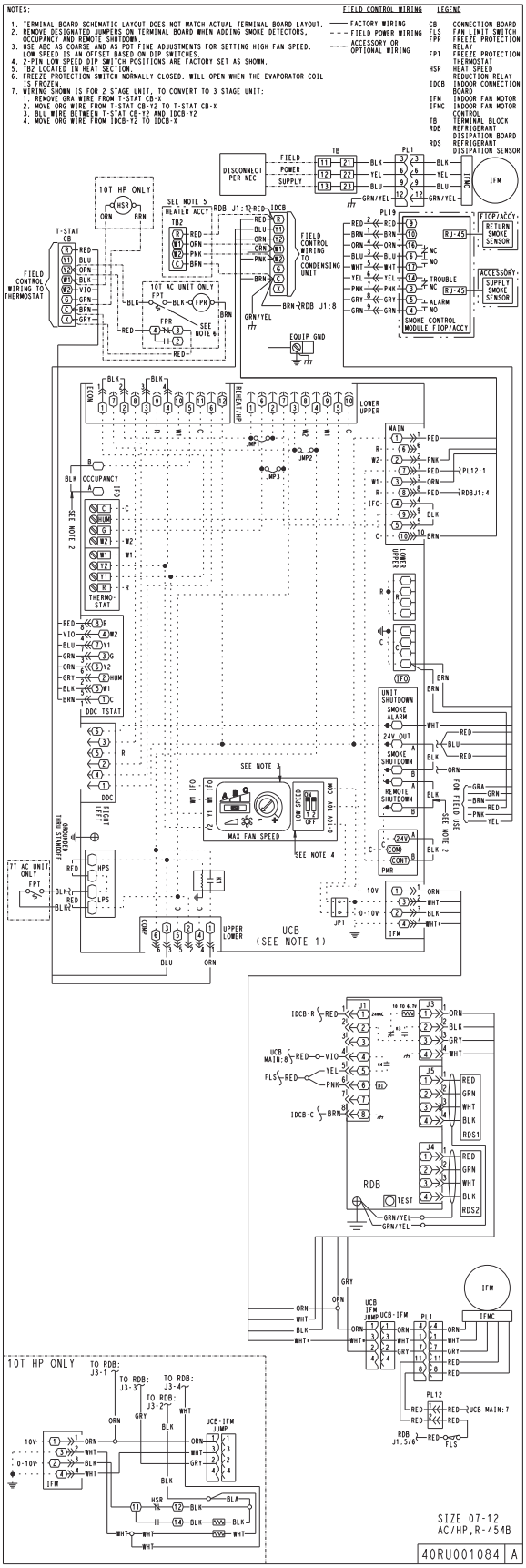


FAL UNIT SIZE	A	B	C	D	E	F	G	H	J
150-240	1'-3-1/4" [387.4]	4'-6" [1381.1]	2-5/16" [58.7]	2'-1-1/4" [641.4]	10-5/8" [269.9]	1'-4" [406.4]	1'-4-5/16" [414.3]	1'-6-3/4" [476.3]	1'-7/8" [327.0]
300, 336	1'-3-3/8" [390.5]	5'-4-7/8" [1636.8]	2-1/16" [52.4]	2'-6-3/16" [766.8]	1'-1/4" [311.2]	1'-7" [482.6]	1'-4-5/16" [414.3]	1'-10" [558.8]	1'-4-7/16" [417.1]

NOTE: Dimensions in [ ] are in millimeters.

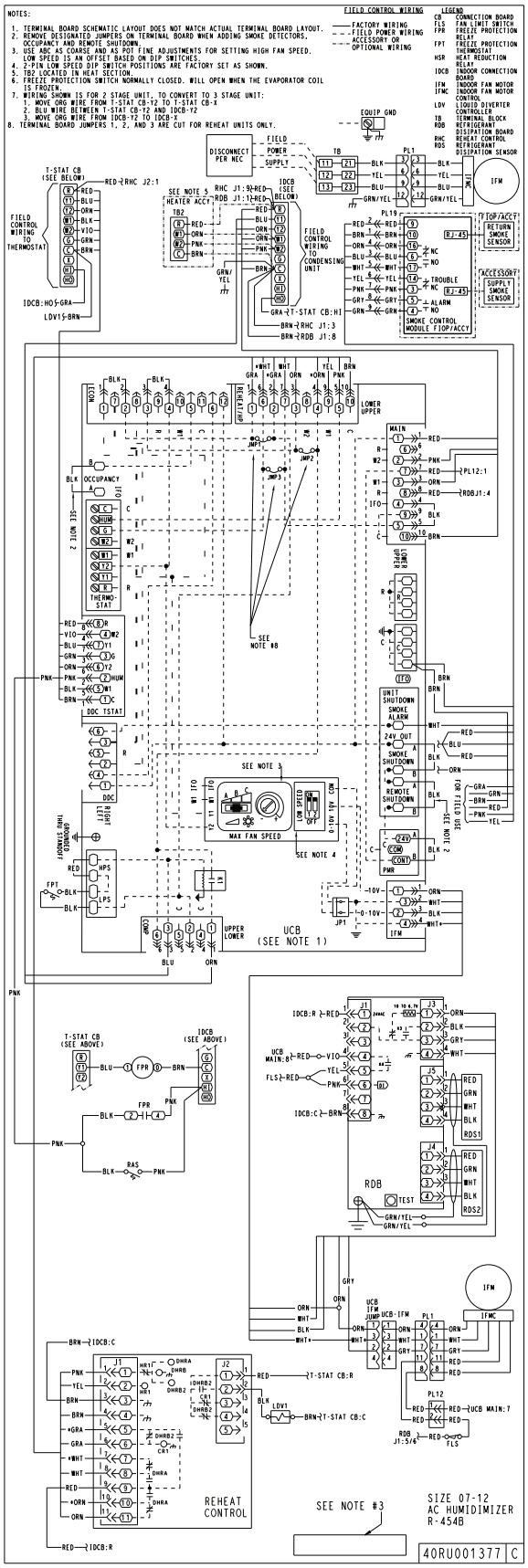
Typical piping and wiring

Unit Wiring Diagram — FAL-072-120



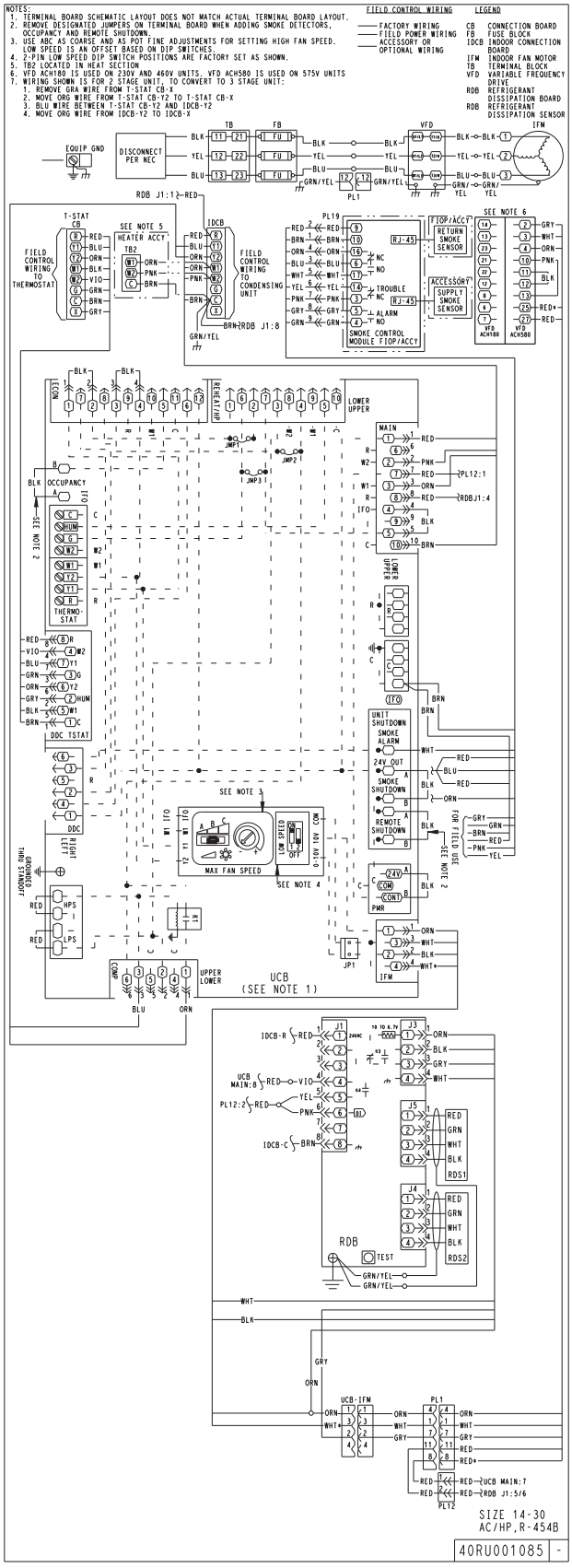
Typical piping and wiring (cont)

Unit Wiring Diagram — FAL072-120 with Adaptive Dehumidification System



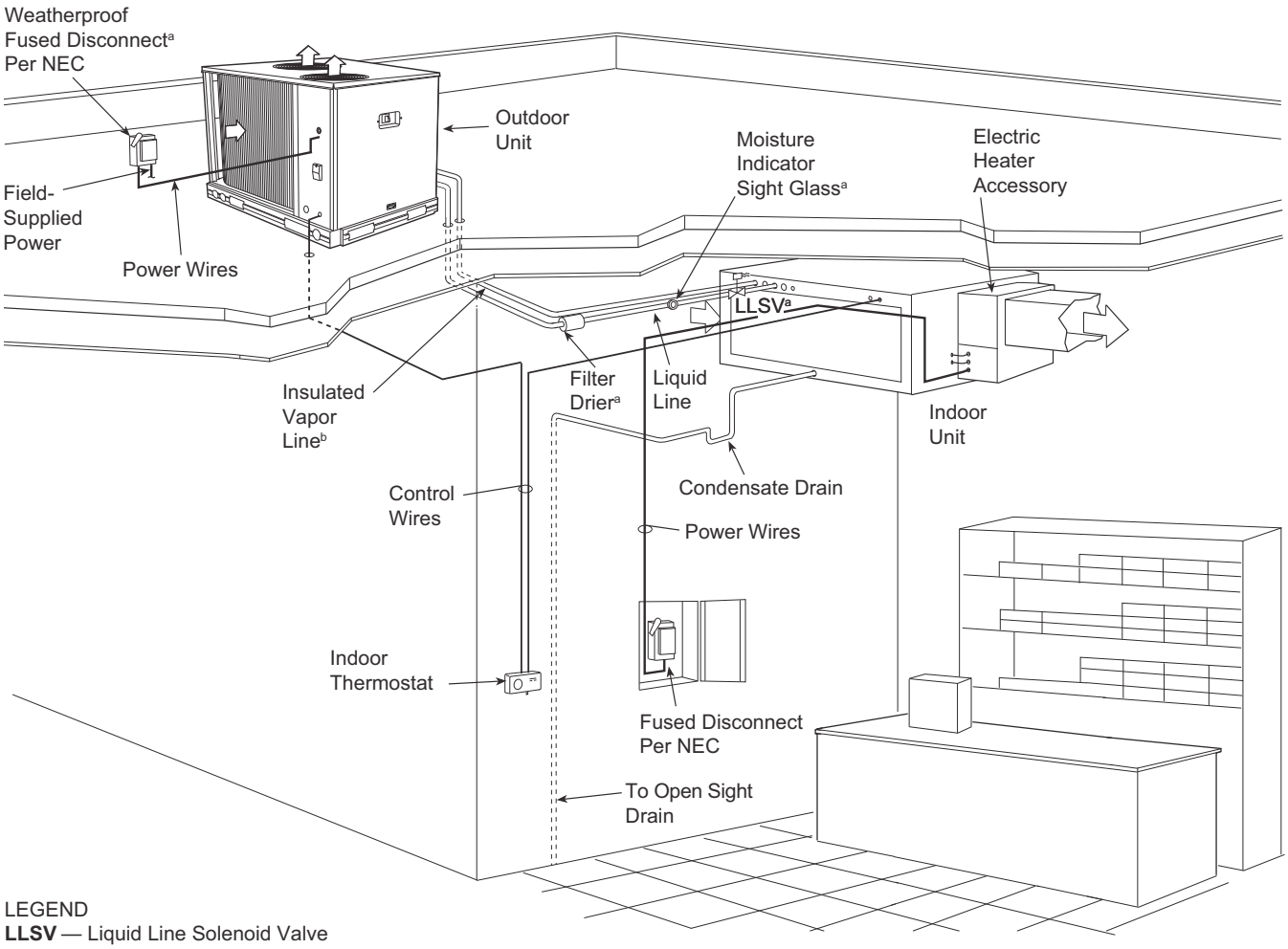
Typical piping and wiring (cont)

Unit Wiring Diagram — FAL150-336



Typical piping and wiring (cont)

Horizontal Installation — FAL

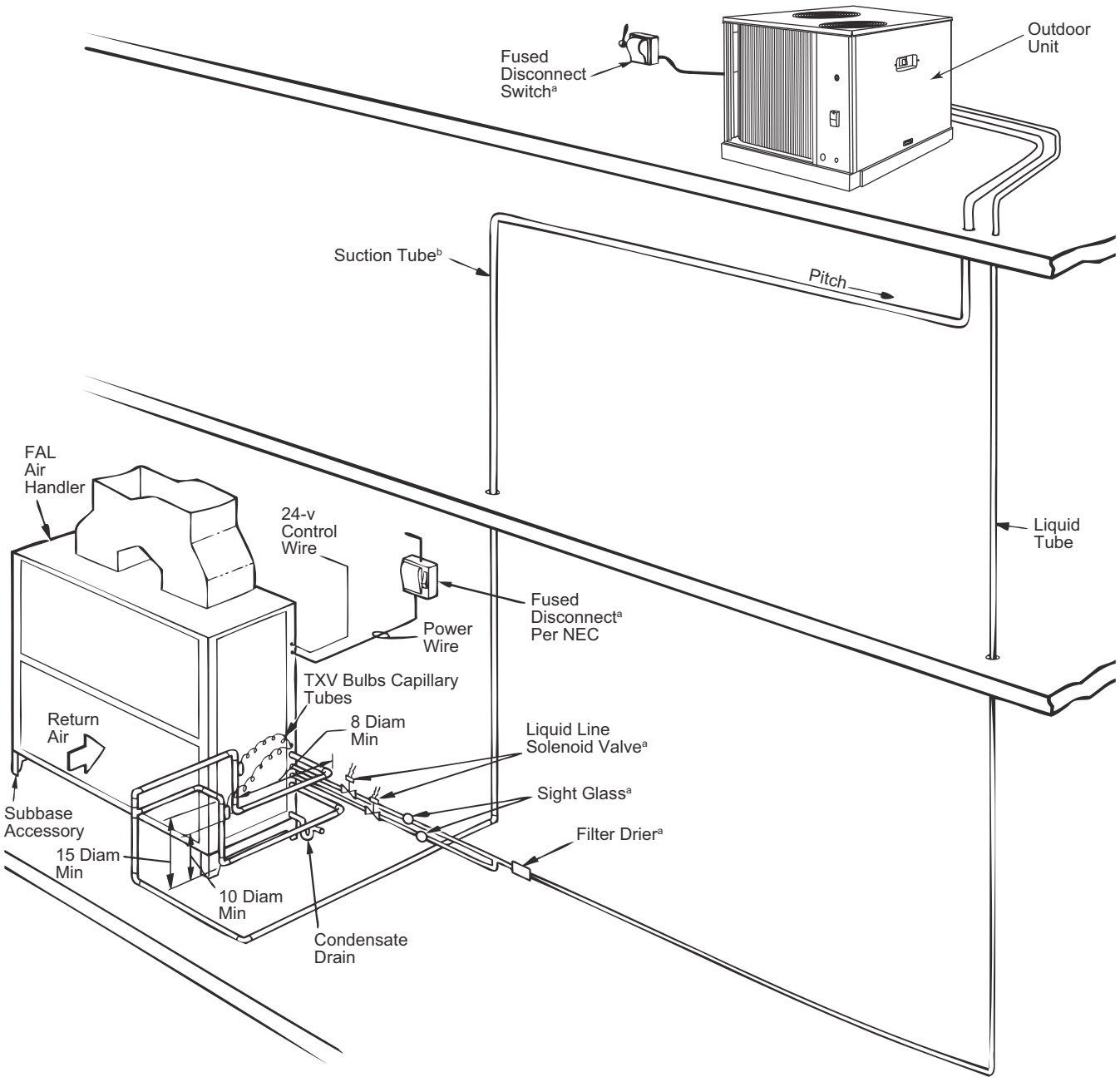


LEGEND
LLSV — Liquid Line Solenoid Valve
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve

NOTE(S):
a. Field-supplied.
b. Double riser may be required. Consult condensing unit product data catalog for details.
c. All piping must follow standard refrigerant piping techniques.
d. All wiring must comply with the applicable local and national codes.
e. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
f. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
g. Internal factory-supplied TXVs not shown.

Typical piping and wiring (cont)

Vertical Installation — FAL

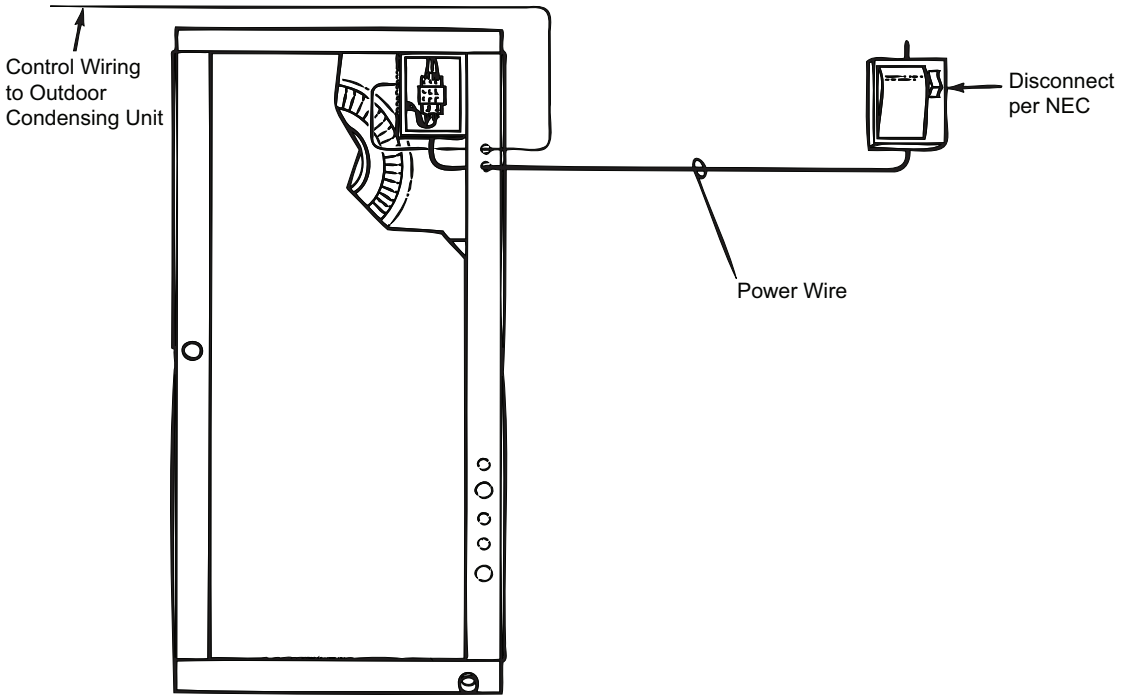


LEGEND
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve
LLSV — Liquid Line Solenoid Valve

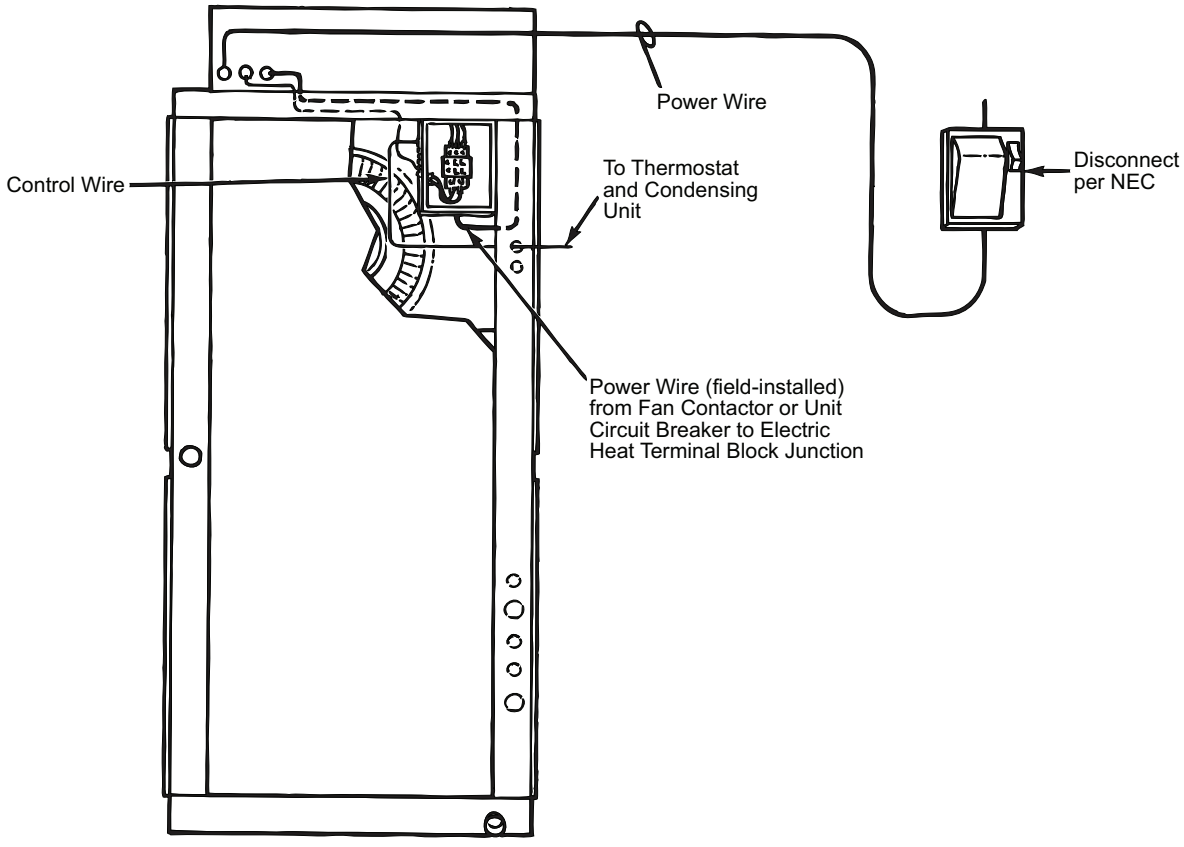
NOTE(S):
a. Field-supplied.
b. Double riser may be required. Consult condensing unit product data catalog for details.
c. All piping must follow standard refrigerant piping techniques.
d. All wiring must comply with the applicable local and national codes.
e. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
f. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
g. Internal factory-supplied TXVs not shown.

Typical piping and wiring (cont)

Wire Routing, Base Unit — FAL



Wire Routing, Unit with Electrical Heat — FAL



Sequence of operation

Optional adaptive dehumidification system

Units with the factory equipped dehumidification system option can provide a mode of improved dehumidification as a variation of the normal cooling cycle. The dehumidification system option includes an additional valve in the liquid line of the refrigerant circuit, a small reheat condenser coil downstream of the evaporator, and variable-speed control of some or all outdoor fans. Operation of the revised refrigerant circuit for each mode is described below.

The dehumidification system provides two sub-modes of operation: Cool and Reheat1:

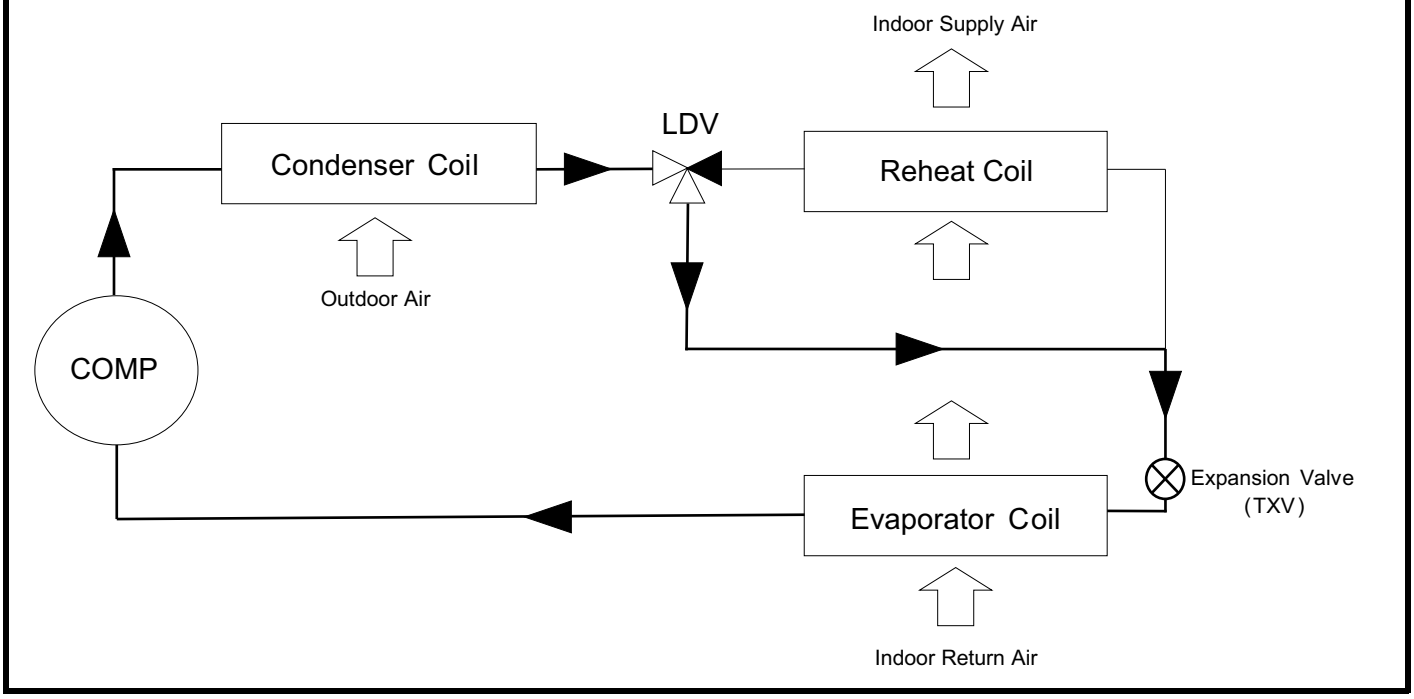
Cool — provides a normal ratio of sensible and latent cooling effect from the evaporator coil.

Reheat1 — provides increased latent cooling while slightly reducing the sensible cooling effect The Reheat1 mode is available when the unit is not in a Heating mode and when the Low Ambient Lockout switch is closed. Reheat1 mode will run with 2 different thermostat calls:

1. Cooling and Dehumidification until set point is reached
2. Dehumidification only until set point is reached, or return air is below 60°F. If the return air reaches below 60°F the unit will shut down until the return air gets above 65°F. This is to protect the unit from freezing, this safety will not affect the unit if there is a cooling call.

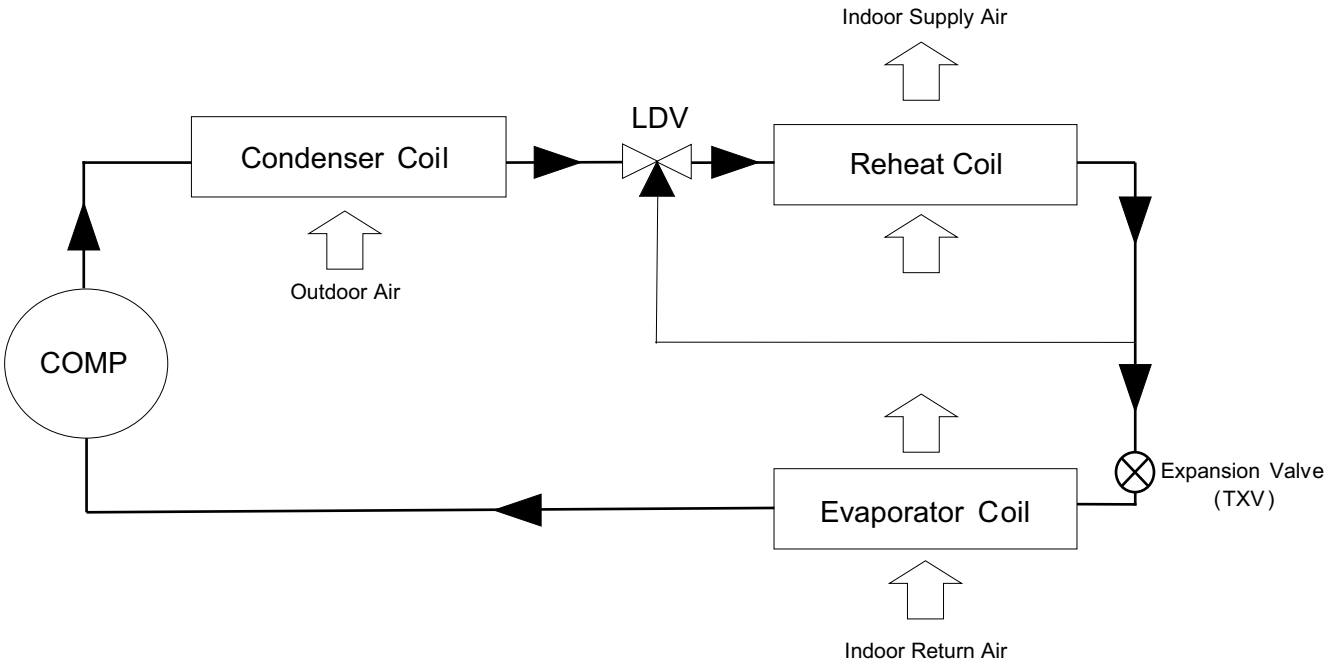
Refer to the following two figures for piping flow diagrams.

Normal Cooling Mode – Adaptive Dehumidification System for FAL072-120



Sequence of operation (cont)

Subcooling Mode – Adaptive Dehumidification System for FAL072-120



Fan data

General Fan Performance Notes

1. Interpolation is permissible. Do not extrapolate.
2. External static pressure is the static pressure difference between the return duct and the supply duct plus the static pressure caused by any FIOPs or accessories.
3. Tabular data accounts for pressure loss due to clean filters, unit casing, wet coils, and highest gas heat exchanger (when gas heat unit).
4. Factory options and accessories may effect static pressure losses. Selection software is available, through your salesperson, to help you select the best motor/drive combination for your application.
5. The fan performance tables offer motor/drive recommendations. In cases when two motor/drive combinations would work, the lower horsepower option is recommended.
6. For information motor electrical properties, see the Electrical Data section of this book.
7. For information on motor performance limits, see the Application Data section of this book.
8. The EPACT (Energy Policy Act of 1992, U.S.A.) regulates energy requirements for specific types of indoor fan motors. Motors regulated by EPACT include any general purpose, T-frame (three-digit, 143 and larger), single-speed, foot mounted, polyphase, squirrel cage induction motors of NEMA (National Electrical Manufacturers Association) design A and B, manufactured for use in the United States. Ranging from 1 to 200 Hp, these continuous-duty motors operate on 230 and 460 volt, 60 Hz power. If a motor does not fit into these specifications, the motor does not have to be replaced by an EPACT compliant energy-efficient motor. Variable-speed motors are exempt from EPACT compliance requirements.

FAL072 Fan Data (rpm-bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	788	0.18	942	0.31	1081	0.48	1202	0.67	1308	0.88
1950	828	0.20	973	0.34	1107	0.52	1227	0.71	1333	0.92
2100	870	0.23	1005	0.37	1134	0.55	1252	0.75	1358	0.97
2250	914	0.26	1040	0.41	1163	0.59	1278	0.80	1383	1.02
2400	958	0.30	1077	0.45	1194	0.63	1305	0.84	1409	1.07
2550	1004	0.34	1115	0.50	1226	0.68	1334	0.89	1435	1.13
2700	1050	0.39	1155	0.55	1261	0.74	1364	0.95	1462	1.18
2850	1097	0.44	1197	0.60	1297	0.79	1395	1.01	1491	1.25
3000	1144	0.50	1239	0.66	1334	0.86	1429	1.08	1521	1.32

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	1403	1.09	1491	1.32	1571	1.55	1647	1.79	1718	2.04
1950	1429	1.14	1517	1.38	1598	1.62	1674	1.87	1745	2.13
2100	1454	1.20	1542	1.44	1624	1.69	1700	1.95	1772	2.21
2250	1479	1.25	1568	1.50	1650	1.76	1726	2.02	1799	2.30
2400	1504	1.31	1593	1.57	1675	1.83	1752	2.11	1825	2.39
2550	1529	1.37	1618	1.64	1700	1.91	1777	2.19	1850	2.48
2700	1555	1.44	1643	1.70	1725	1.98	1802	2.27	1875	2.57
2850	1582	1.50	1668	1.78	1750	2.06	1827	2.36	1900	2.66
3000	1610	1.58	1695	1.86	1775	2.14	1852	2.45	1925	2.76

Standard Static 788-2000 rpm, 2.55 Max bhp

High Static 788-2200 rpm, 3.2 Max bhp

Fan data (cont)

FAL072 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	788	3.8	942	4.6	1081	5.3	1202	5.9	1308	6.4
1950	828	4.0	973	4.7	1107	5.4	1227	6.0	1333	6.6
2100	870	4.2	1005	4.9	1134	5.5	1252	6.2	1358	6.7
2250	914	4.4	1040	5.1	1163	5.7	1278	6.3	1383	6.8
2400	958	4.6	1077	5.3	1194	5.9	1305	6.4	1409	7.0
2550	1004	4.9	1115	5.4	1226	6.0	1334	6.6	1435	7.1
2700	1050	5.1	1155	5.7	1261	6.2	1364	6.7	1462	7.2
2850	1097	5.4	1197	5.9	1297	6.4	1395	6.9	1491	7.4
3000	1144	5.6	1239	6.1	1334	6.6	1429	7.1	1521	7.5

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	1403	6.9	1491	7.4	1571	7.8	1647	8.2	1718	8.5
1950	1429	7.1	1517	7.5	1598	7.9	1674	8.3	1745	8.7
2100	1454	7.2	1542	7.6	1624	8.1	1700	8.5	1772	8.8
2250	1479	7.3	1568	7.8	1650	8.2	1726	8.6	1799	9.0
2400	1504	7.4	1593	7.9	1675	8.3	1752	8.7	1825	9.1
2550	1529	7.6	1618	8.0	1700	8.5	1777	8.9	1850	9.2
2700	1555	7.7	1643	8.2	1725	8.6	1802	9.0	—	—
2850	1582	7.9	1668	8.3	1750	8.7	1827	9.1	—	—
3000	1610	8.0	1695	8.4	1775	8.8	1852	9.2	—	—

Standard Static 788-2000 rpm, 2.55 Max bhp

FAL072 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	788	3.5	942	4.2	1081	4.8	1202	5.4	1308	5.9
1950	828	3.7	973	4.3	1107	5.0	1227	5.5	1333	6.0
2100	870	3.9	1005	4.5	1134	5.1	1252	5.6	1358	6.1
2250	914	4.1	1040	4.6	1163	5.2	1278	5.7	1383	6.2
2400	958	4.3	1077	4.8	1194	5.4	1305	5.9	1409	6.3
2550	1004	4.5	1115	5.0	1226	5.5	1334	6.0	1435	6.5
2700	1050	4.7	1155	5.2	1261	5.7	1364	6.1	1462	6.6
2850	1097	4.9	1197	5.4	1297	5.8	1395	6.3	1491	6.7
3000	1144	5.1	1239	5.6	1334	6.0	1429	6.4	1521	6.9

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	1403	6.3	1491	6.7	1571	7.1	1647	7.4	1718	7.8
1950	1429	6.4	1517	6.8	1598	7.2	1674	7.6	1745	7.9
2100	1454	6.6	1542	7.0	1624	7.3	1700	7.7	1772	8.0
2250	1479	6.7	1568	7.1	1650	7.5	1726	7.8	1799	8.1
2400	1504	6.8	1593	7.2	1675	7.6	1752	7.9	1825	8.3
2550	1529	6.9	1618	7.3	1700	7.7	1777	8.0	1850	8.4
2700	1555	7.0	1643	7.4	1725	7.8	1802	8.2	1875	8.5
2850	1582	7.1	1668	7.5	1750	7.9	1827	8.3	1900	8.6
3000	1610	7.3	1695	7.7	1775	8.0	1852	8.4	1925	8.7

High Static 788-2200 rpm, 3.2 Max bhp

Fan data (cont)

FAL091 Fan Data (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	884	0.23	1009	0.37	1131	0.54	1247	0.74	1354	0.95
2440	937	0.27	1053	0.42	1168	0.59	1279	0.79	1383	1.01
2625	991	0.32	1099	0.47	1206	0.64	1311	0.84	1412	1.07
2815	1048	0.37	1149	0.53	1249	0.70	1348	0.90	1445	1.13
3000	1103	0.43	1199	0.59	1293	0.77	1386	0.97	1478	1.20
3190	1161	0.50	1252	0.66	1340	0.85	1428	1.05	1516	1.28
3375	1218	0.57	1304	0.74	1388	0.93	1471	1.14	1554	1.37
3565	1277	0.66	1359	0.83	1438	1.02	1517	1.24	1596	1.47
3750	1335	0.75	1413	0.93	1489	1.13	1564	1.34	1639	1.58

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	1452	1.18	1542	1.43	1625	1.68	1703	1.94	1776	2.21
1950	1480	1.25	1570	1.50	1653	1.76	1731	2.03	1805	2.31
2100	1507	1.31	1597	1.57	1680	1.83	1759	2.11	1833	2.40
2250	1537	1.38	1625	1.64	1708	1.91	1787	2.20	1861	2.50
2400	1568	1.45	1654	1.72	1736	2.00	1814	2.29	1888	2.60
2550	1602	1.54	1685	1.80	1765	2.09	1842	2.39	1916	2.70
2700	1636	1.62	1717	1.90	1795	2.18	1871	2.49	1944	2.81
2850	1675	1.73	1752	2.00	1828	2.29	1902	2.60	1973	2.92
3000	1714	1.83	1788	2.11	1862	2.41	1933	2.71	2003	3.04

Standard Static 788-2000 rpm, 2.55 Max bhp

High Static 788-2200 rpm, 3.2 Max bhp

FAL091 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	884	4.3	1009	4.9	1131	5.5	1247	6.1	1354	6.7
2440	937	4.5	1053	5.1	1168	5.7	1279	6.3	1383	6.8
2625	991	4.8	1099	5.4	1206	5.9	1311	6.5	1412	7.0
2815	1048	5.1	1149	5.6	1249	6.1	1348	6.6	1445	7.1
3000	1103	5.4	1199	5.9	1293	6.4	1386	6.8	1478	7.3
3190	1161	5.7	1252	6.2	1340	6.6	1428	7.1	1516	7.5
3375	1218	6.0	1304	6.4	1388	6.9	1471	7.3	1554	7.7
3565	1277	6.3	1359	6.7	1438	7.1	1517	7.5	1596	7.9
3750	1335	6.6	1413	7.0	1489	7.4	1564	7.8	1639	8.1

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	1452	7.2	1542	7.6	1625	8.1	1703	8.5	1776	8.8
2440	1480	7.3	1570	7.8	1653	8.2	1731	8.6	1805	9.0
2625	1507	7.5	1597	7.9	1680	8.4	1759	8.8	1833	9.1
2815	1537	7.6	1625	8.1	1708	8.5	1787	8.9	1861	9.3
3000	1568	7.8	1654	8.2	1736	8.6	1814	9.0	—	—
3190	1602	8.0	1685	8.4	1765	8.8	1842	9.2	—	—
3375	1636	8.1	1717	8.5	1795	8.9	1871	9.3	—	—
3565	1675	8.3	1752	8.7	1828	9.1	—	—	—	—
3750	1714	8.5	1788	8.9	1862	9.3	—	—	—	—

Standard Static 788-2000 rpm, 2.55 Max bhp

Fan data (cont)

FAL091 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	884	3.9	1009	4.5	1131	5.1	1247	5.6	1354	6.1
2440	937	4.2	1053	4.7	1168	5.2	1279	5.7	1383	6.2
2625	991	4.4	1099	4.9	1206	5.4	1311	5.9	1412	6.4
2815	1048	4.7	1149	5.1	1249	5.6	1348	6.1	1445	6.5
3000	1103	4.9	1199	5.4	1293	5.8	1386	6.2	1478	6.7
3190	1161	5.2	1252	5.6	1340	6.0	1428	6.4	1516	6.8
3375	1218	5.5	1304	5.9	1388	6.3	1471	6.6	1554	7.0
3565	1277	5.7	1359	6.1	1438	6.5	1517	6.8	1596	7.2
3750	1335	6.0	1413	6.4	1489	6.7	1564	7.1	1639	7.4

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	1452	6.5	1542	7.0	1625	7.3	1703	7.7	1776	8.0
2440	1480	6.7	1570	7.1	1653	7.5	1731	7.8	1805	8.2
2625	1507	6.8	1597	7.2	1680	7.6	1759	8.0	1833	8.3
2815	1537	6.9	1625	7.3	1708	7.7	1787	8.1	1861	8.4
3000	1568	7.1	1654	7.5	1736	7.9	1814	8.2	1888	8.6
3190	1602	7.2	1685	7.6	1765	8.0	1842	8.3	1916	8.7
3375	1636	7.4	1717	7.8	1795	8.1	1871	8.5	1944	8.8
3565	1675	7.6	1752	7.9	1828	8.3	1902	8.6	1973	9.0
3750	1714	7.8	1788	8.1	1862	8.4	1933	8.8	2003	9.1

High Static 788-2200 rpm, 3.2 Max bhp

Fan data (cont)

FAL120 Fan Data (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1080	0.40	1175	0.55	1268	0.72	1361	0.92	1453	1.14
3250	1154	0.48	1243	0.64	1329	0.81	1415	1.01	1501	1.24
3500	1229	0.57	1312	0.74	1393	0.92	1473	1.13	1553	1.35
3750	1305	0.68	1384	0.86	1459	1.04	1534	1.25	1609	1.48
4000	1381	0.80	1456	0.99	1527	1.18	1598	1.40	1668	1.63
4250	1458	0.94	1529	1.13	1597	1.34	1664	1.56	1730	1.79
4500	1535	1.09	1603	1.29	1668	1.50	1731	1.73	1794	1.97
4750	1613	1.26	1678	1.47	1740	1.69	1800	1.92	1860	2.17
5000	1691	1.45	1753	1.67	1813	1.90	1870	2.14	1927	2.39

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1543	1.38	1629	1.64	1712	1.91	1791	2.20	1866	2.50
3250	1586	1.48	1668	1.74	1748	2.02	1825	2.31	1899	2.62
3500	1632	1.59	1711	1.86	1787	2.14	1862	2.44	1935	2.75
3750	1683	1.73	1757	1.99	1830	2.28	1902	2.58	1972	2.89
4000	1738	1.88	1807	2.14	1877	2.43	1945	2.73	2013	3.05
4250	1795	2.04	1861	2.31	1927	2.60	1992	2.90	—	—
4500	1856	2.23	1918	2.50	1980	2.79	2042	3.09	—	—
4750	1919	2.43	1977	2.71	2036	3.00	—	—	—	—
5000	1983	2.66	2039	2.94	—	—	—	—	—	—

Standard Static 788-2000 rpm, 2.55 Max bhp

High Static 788-2200 rpm, 3.2 Max bhp

FAL120 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1080	5.3	1175	5.8	1268	6.2	1361	6.7	1453	7.2
3250	1154	5.6	1243	6.1	1329	6.5	1415	7.0	1501	7.4
3500	1229	6.0	1312	6.5	1393	6.9	1473	7.3	1553	7.7
3750	1305	6.4	1384	6.8	1459	7.2	1534	7.6	1609	8.0
4000	1381	6.8	1456	7.2	1527	7.6	1598	7.9	1668	8.3
4250	1458	7.2	1529	7.6	1597	7.9	1664	8.3	1730	8.6
4500	1535	7.6	1603	8.0	1668	8.3	1731	8.6	1794	8.9
4750	1613	8.0	1678	8.3	1740	8.7	1800	9.0	1860	9.3
5000	1691	8.4	1753	8.7	1813	9.0	1870	9.3	1927	9.6

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1543	7.6	1629	8.1	1712	8.5	1791	8.9	1866	9.3
3250	1586	7.9	1668	8.3	1748	8.7	1825	9.1	—	—
3500	1632	8.1	1711	8.5	1787	8.9	1862	9.3	—	—
3750	1683	8.4	1757	8.8	1830	9.1	—	—	—	—
4000	1738	8.7	1807	9.0	1877	9.4	—	—	—	—
4250	1795	8.9	1861	9.3	—	—	—	—	—	—
4500	1856	9.3	1918	9.6	—	—	—	—	—	—
4750	1919	9.6	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—

Standard Static 788-2000 rpm, 2.55 Max bhp

Fan data (cont)

FAL120 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1080	4.8	1175	5.3	1268	5.7	1361	6.1	1453	6.6
3250	1154	5.2	1243	5.6	1329	6.0	1415	6.4	1501	6.8
3500	1229	5.5	1312	5.9	1393	6.3	1473	6.6	1553	7.0
3750	1305	5.9	1384	6.2	1459	6.6	1534	6.9	1609	7.3
4000	1381	6.2	1456	6.6	1527	6.9	1598	7.2	1668	7.5
4250	1458	6.6	1529	6.9	1597	7.2	1664	7.5	1730	7.8
4500	1535	6.9	1603	7.2	1668	7.5	1731	7.8	1794	8.1
4750	1613	7.3	1678	7.6	1740	7.9	1800	8.2	1860	8.4
5000	1691	7.7	1753	7.9	1813	8.2	1870	8.5	1927	8.7

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1543	7.0	1629	7.4	1712	7.7	1791	8.1	1866	8.5
3250	1586	7.2	1668	7.5	1748	7.9	1825	8.3	1899	8.6
3500	1632	7.4	1711	7.7	1787	8.1	1862	8.4	1935	8.8
3750	1683	7.6	1757	8.0	1830	8.3	1902	8.6	1972	8.9
4000	1738	7.9	1807	8.2	1877	8.5	1945	8.8	2013	9.1
4250	1795	8.1	1861	8.4	1927	8.7	1992	9.0	—	—
4500	1856	8.4	1918	8.7	1980	9.0	2042	9.3	—	—
4750	1919	8.7	1977	9.0	2036	9.2	—	—	—	—
5000	1983	9.0	2039	9.3	—	—	—	—	—	—

High Static 788-2200 rpm, 3.2 Max bhp

Fan data (cont)

Standard Fan, FAL150-336, 0.0-1.2 in. wg ESP, 60 Hz[a,b,c]

UNIT FAL	AIRFLOW (cfm)	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.2		0.4		0.6		0.8		1.0		1.2	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
FAL150	3,750	410	0.43	467	0.55	567	0.83	649	1.12	721	1.41	788	1.72	851	2.05
	4,300	455	0.62	504	0.74	599	1.05	679	1.38	748	1.70	811	2.04	871	2.39
	5,000	514	0.92	556	1.06	641	1.39	718	1.76	786	2.14	847	2.52	903	2.91
	5,700	575	1.32	612	1.47	686	1.82	759	2.23	825	2.66	884	3.09	939	3.52
	6,250	624	1.71	657	1.87	725	2.24	793	2.66	856	3.12	915	3.59	969	4.06
FAL180	4,500	437	0.61	483	0.72	576	1.01	660	1.35	732	1.69	797	2.03	856	2.38
	5,300	499	0.95	538	1.07	617	1.37	696	1.74	767	2.13	830	2.53	888	2.94
	6,000	555	1.34	590	1.48	659	1.79	730	2.17	798	2.59	860	3.04	918	3.49
	6,800	620	1.91	651	2.06	712	2.39	774	2.78	836	3.22	896	3.71	952	4.21
	7,500	677	2.52	706	2.69	761	3.04	817	3.44	873	3.89	929	4.39	984	4.93
FAL240	6,000	542	1.29	577	1.42	646	1.72	716	2.09	785	2.51	849	2.95	907	3.40
	7,000	620	1.99	652	2.15	711	2.48	771	2.85	831	3.28	890	3.76	947	4.27
	8,000	700	2.92	728	3.10	781	3.46	833	3.85	885	4.29	938	4.78	990	5.32
	9,000	781	4.10	806	4.30	854	4.71	900	5.13	946	5.58	993	6.08	1039	6.62
	10,000	862	5.56	885	5.79	929	6.24	971	6.70	1012	7.18	1054	7.69	1096	8.24
FAL300[d]	7,500	476	1.39	510	1.58	579	1.99	644	2.40	701	2.81	752	3.29	804	3.96
	8,750	545	2.14	574	2.35	633	2.81	691	3.29	747	3.77	797	4.25	842	4.76
	10,000	615	3.12	641	3.36	692	3.87	743	4.41	794	4.96	843	5.51	888	6.05
	11,250	685	4.37	709	4.64	754	5.20	800	5.79	845	6.40	891	7.02	935	7.64
	12,500	756	5.92	778	6.22	819	6.83	860	7.47	901	8.14	942	8.83	983	9.52
FAL336	9,000	539	2.18	569	2.39	626	2.85	683	3.34	739	3.83	791	4.32	837	4.82
	10,500	620	3.37	646	3.62	695	4.13	744	4.68	793	5.25	842	5.83	888	6.41
	12,000	701	4.94	724	5.22	769	5.80	811	6.40	854	7.04	897	7.69	940	8.36
	13,500	783	6.95	804	7.27	844	7.91	883	8.57	920	9.26	958	9.97	996	10.71
	15,000	865	9.45	884	9.81	921	10.52	956	11.24	991	11.98	1025	12.75	1059	13.54

NOTE(S):
a. Maximum allowable fan speed is 1100 rpm for unit sizes 300 and 336; 1200 rpm for all other sizes.
b. Underline indicates a field-supplied drive is required.
c. Fan performance is based on deductions for wet coil, clean 2 in. filters, and unit casing. See page 48 for factory-supplied accessory filter pressure drop.
d. For 60 Hz units, the medium-static drive and standard motor combination is not available for FAL300.

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure

Standard Static
Medium Static
High Static

Fan data (cont)

Standard Fan, FAL150-336, 1.4-2.4 in. wg ESP, 60 Hz[a,b,c]

UNIT FAL	AIRFLOW (cfm)	EXTERNAL STATIC PRESSURE (in. wg)											
		1.4		1.6		1.8		2.0		2.2		2.4	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
FAL150	3,750	912	2.39	971	2.76	1028	3.14	1083	3.54	1135	3.95	1185	4.36
	4,300	928	2.75	982	3.13	1036	3.53	1087	3.94	1138	4.37	1187	4.81
	5,000	956	3.30	1007	3.71	1056	4.13	1104	4.56	1151	5.00	1196	5.46
	5,700	990	3.96	1039	4.40	1086	4.85	1130	5.31	1174	5.78	—	—
	6,250	1019	4.54	1067	5.02	1112	5.50	1156	5.99	1198	6.49	—	—
FAL180	4,500	912	2.75	967	3.12	1019	3.52	1070	3.92	1120	4.35	1168	4.79
	5,300	942	3.34	992	3.76	1041	4.18	1088	4.61	1134	5.06	1179	5.52
	6,000	971	3.95	1020	4.40	1067	4.86	1112	5.33	1156	5.81	1198	6.29
	6,800	1005	4.72	1054	5.23	1101	5.75	1145	6.27	1187	6.79	—	—
	7,500	1036	5.48	1084	6.04	1131	6.61	1174	7.17	—	—	—	—
FAL240	6,000	961	3.86	1011	4.31	1058	4.77	1104	5.24	1147	5.71	—	—
	7,000	1000	4.79	1050	5.32	1097	5.85	1142	6.38	1184	6.91	—	—
	8,000	1041	5.88	1090	6.47	1137	7.07	1181	7.67	—	—	—	—
	9,000	1086	7.21	1133	7.82	1178	8.47	—	—	—	—	—	—
	10,000	1138	8.83	1180	9.46	—	—	—	—	—	—	—	—
FAL300[d]	7,500	874	5.33	897	5.91	940	6.80	990	7.50	—	—	—	—
	8,750	886	5.36	930	6.31	982	7.32	1020	8.10	—	—	—	—
	10,000	930	6.60	969	7.00	1007	7.89	1045	8.71	—	—	—	—
	11,250	976	8.25	1014	8.86	1051	9.49	1086	10.17	—	—	—	—
	12,500	1023	10.20	1061	10.88	1097	11.56	—	—	—	—	—	—
FAL336	9,000	881	5.37	923	6.03	967	6.89	1020	8.25	—	—	—	—
	10,500	930	6.97	970	7.55	1008	8.17	1045	8.86	—	—	—	—
	12,000	981	9.02	1021	9.67	—	—	—	—	—	—	—	—
	13,500	1035	11.45	—	—	—	—	—	—	—	—	—	—
	15,000	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):
a. Maximum allowable fan speed is 1100 rpm for unit sizes 300 and 336; 1200 rpm for all other sizes.
b. Underline indicates a field-supplied drive is required.
c. Fan performance is based on deductions for wet coil, clean 2 in. filters, and unit casing. See page 48 for factory-supplied accessory filter pressure drop.
d. For 60 Hz units, the medium-static drive and standard motor combination is not available for FAL 300.

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure

Medium Static
High Static

Fan data (cont)

FAL150-336 Standard Drive Data

UNIT	FAL 150	FAL 180	FAL 240	FAL 300	FAL 336
MOTOR DRIVE					
Motor Pulley Pitch Diameter (in.)	2.8-3.8	2.8-3.8	3.7-4.7	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	3.0	3.0	3.0
FAN DRIVE					
Pulley Pitch Diameter (in.)	9.0	9.0	9.4	11.0	11.0
Pulley Bore (in.)	1-1/16	1-1/16	1-1/16	1-15/16	1-15/16
Belt No. — Section	1—A	1—A	1 — B	2 — B[a]	2 — B[a]
Belt Pitch (in.)	42.3	42.3	41.8	(2) 42.8 (2) 43.8	(2) 42.8 (2) 43.8
FAN SPEEDS (rpm)					
Factory Setting	632	632	771	752	752
Range	537-728	537-728	679-863	682-841	674-831
Max Allowable Speed (rpm)	1,200	1,200	1,200	1,100	1,100
Change per 1/2 Turn of Movable Motor Pulley Flange	19.1	19.1	15.3	13.1	13.1
MAX FULL TURN FROM CLOSED POSITION	5	5	6	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32	10.44-12.32	9.12-10.99	6.67-9.43	6.67-9.43

NOTE(S):
a. Four belts shipped with unit. Use correct set of 2 belts sized according to the pulley setting.

FAL150-336 Medium-Static Drive Data

UNIT	FAL 150	FAL 180	FAL 240	FAL 300	FAL 336
MOTOR DRIVE					
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.7-4.7	4.3-5.3	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	3.0	3.0	3.0	3.0
FAN DRIVE					
Pulley Pitch Diameter (in.)	8.2	8.6	9.4	9.4	9.4
Pulley Bore (in.)	1-1/16	1-1/16	1-1/16	1-15/16	1-15/16
Belt No. — Section	1—A	1—B	1 — B	2 — B[a]	2 — B[a]
Belt Pitch (in.)	41.3	41.8	41.8	(2) 38.8 (2) 39.8	(2) 38.8 (2) 39.8
FAN SPEEDS (rpm)					
Factory Setting	820	842	881	881	881
Range	715-926	742-943	798-984	798-984	798-984
Max Allowable Speed (rpm)	1,200	1,200	1,200	1,100	1,100
Change per 1/2 Turn of Movable Motor Pulley Flange	21.1	16.7	15.3	15.3	15.3
MAX FULL TURN FROM CLOSED POSITION	5	6	6	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32	10.44-1.2.32	9.16-10.99	6.67-9.43	6.67-9.43

NOTE(S):
a. Four belts shipped with unit. Use correct set of 2 belts sized according to the pulley setting.

Fan data (cont)

FAL150-336 High-Static Drive Data

UNIT	FAL 150	FAL 180	FAL 240	FAL 300	FAL 336
MOTOR DRIVE					
Motor Pulley Pitch Diameter (in.)	3.7-4.7	4.3-5.3	4.3-5.3	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	3.0	3.0	3.0	3.0	3.0
FAN DRIVE					
Pulley Pitch Diameter (in.)	7.4	7.9	7.4	8.6	8.6
Pulley Bore (in.)	1-1/16	1-1/16	1-1/16	1-15/16	1-15/16
Belt No. — Section	1—B	1—B	2 — B	2 — B	2 — B
Belt Pitch (in.)	39.8	39.8	36.8	37.8	37.8
FAN SPEEDS (rpm)					
Factory Setting	979	1,060	1,118	1,024	1,024
Range	873-1,096	950-1,171	1,014-1,200[a]	873-1,075	873-1,075
Max Allowable Speed (rpm)	1,200	1,200	1,200	1,100	1,100
Change per 1/2 Turn of Movable Motor Pulley Flange	19.4	18.4	19.4	16.7	16.7
MAX FULL TURN FROM CLOSED POSITION	6	6	6	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32[b]	9.16-10.99	8.16-10.02	6.67-9.43	6.67- 9.43

NOTE(S):
a. It is possible to adjust drive so that fan speed exceeds maximum allowable. DO NOT exceed 1,200 rpm.
b. 575v unit has a center distance of 9.16-10.99 in.

Performance data

Duct Sound Power Levels (Lw)[a,b,c]

MODEL	SIZE	CFM	db(A)	OCTAVE BAND CENTER FREQUENCY (Hz)						
				63	125	250	500	1000	2000	4000
FAL	072	2,400	86.3	93.2	89.2	85.2	84.2	80.2	78.2	74.2
	091	3,000	88.3	95.3	91.3	87.3	86.3	82.3	80.3	76.3
	120	4,000	91.6	98.6	94.6	90.6	89.6	85.6	83.6	79.6
	150	5,000	91.1	97.3	93.3	89.3	90.3	84.3	82.3	78.3
	180	6,000	92.7	98.9	94.9	90.9	91.9	85.9	83.9	79.9
	240	8,000	96.4	102.6	98.6	94.6	95.6	89.6	87.6	83.6
	300	10,000	96.2	102.5	98.5	94.5	95.5	89.5	87.5	83.5
	336	12,000	98.5	104.7	100.7	96.7	97.7	91.7	89.7	85.7

NOTE(S):
a. The estimated sound power levels are based upon the ASHRAE calculation approach from the ASHRAE 1987 HVAC Systems and Applications handbook, Chapter 52.
b. Since this data is calculated, these sound power levels may be different than the actual sound power levels.
c. The acoustic center of the unit is located at the geometric center of the unit.

LEGEND

ASHRAE — American Society of Heating, Refrigerating and Air Conditioning
HVAC — Heating, Ventilation and Air Conditioning

Performance data (cont)

FAL072-120 Cooling Capacities[a,b,c,d,e]

UNIT FAL	EVAPORATOR AIR		COIL REFRIGERANT TEMP (°F)[f]									
	Airflow (cfm)	Ewb (°F)	30		35		40		45		50	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
072	1,800	72	148	72	135	65	121	58	107	50	88	43
		67	128	72	112	66	98	60	82	53	65	46
		62	103	76	90	69	75	62	60	55	48	47
	2,400	72	178	85	163	77	147	68	127	60	106	52
		67	151	88	135	81	117	73	98	65	77	56
		62	125	93	109	85	91	77	73	68	59	59
	3,000	72	201	95	187	85	169	77	144	69	119	60
		67	172	101	154	93	134	84	112	75	88	66
		62	142	108	124	100	104	90	84	80	74	69
091	2,250	72	201	93	184	84	165	75	143	65	120	55
		67	167	96	149	86	130	77	109	67	86	57
		62	135	97	117	88	98	78	78	68	59	59
	3,000	72	251	116	229	106	205	94	178	82	149	70
		67	209	122	187	110	163	98	136	86	107	74
		62	171	125	148	114	124	101	98	89	76	76
	3,750	72	294	136	268	124	239	111	208	97	173	83
		67	246	144	219	131	191	117	160	103	126	89
		62	201	150	175	137	147	123	116	108	92	92
120	3,000	72	270	128	247	117	222	105	195	93	164	79
		67	225	133	202	120	177	108	149	94	118	81
		62	184	135	160	122	135	109	108	96	83	83
	4,000	72	334	159	306	145	275	131	241	115	203	100
		67	280	167	252	152	221	136	186	120	147	103
		62	231	172	202	156	170	140	135	123	106	106
	5,000	72	389	184	356	169	320	153	280	135	235	117
		67	327	196	294	179	258	161	218	143	173	124
		62	271	204	237	187	201	168	160	149	127	127

NOTE(S):
a. Ratings based on approximately 15°F superheat leaving coil.
b. Direct interpolation is permissible. Do not extrapolate.
c. Dashes indicate coil loading limits are exceeded.
d. Evaporator fan heat not deducted from ratings.
e. See dry and wet bulb formulas below.
f. SHC is based on 80°F db temperature of air entering evaporator coil.

Dry and Wet Bulb Formulas:

$$\text{Leaving db} = \text{entering db} - \frac{\text{sensible heat capacity (Btuh)}}{1.1 \times \text{cfm}}$$

$$\text{Leaving wb} = \text{wet-bulb temperature corresponding to enthalpy of air leaving coil } (h_{|wb})$$

$$h_{|wb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

where $h_{|wb}$ = enthalpy of air entering coil

LEGEND

db — Dry Bulb Temperature (°F)
SHC — Sensible Heat Capacity (1000 Btuh)
TC — Total Capacity (1000 Btuh)
wb — Wet Bulb Temperature (°F)

Performance data (cont)

FAL150-336 Cooling Capacities[a,b,c,d,e]

UNIT FAL	EVAPORATOR AIR		COIL REFRIGERANT TEMP (°F)[f]									
	AIRFLOW (cfm)	Ewb (°F)	30		35		40		45		50	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
150	3,750	72	349	164	319	149	286	133	250	117	209	100
		67	290	169	259	153	226	136	190	119	151	103
		62	236	171	205	155	173	138	138	122	105	105
	5,000	72	434	203	397	185	356	167	310	147	260	126
		67	363	213	325	193	284	173	238	152	187	130
		62	297	219	259	198	217	177	173	156	135	135
	6,250	72	507	237	463	217	415	195	362	172	303	148
		67	425	251	381	229	333	205	280	182	219	156
		62	350	261	306	238	257	214	203	188	161	161
180	4,500	72	418	198	382	180	342	161	298	141	249	120
		67	348	205	312	185	271	164	228	144	181	124
		62	284	208	248	188	209	168	167	148	127	127
	6,000	72	515	242	470	221	421	198	368	174	308	149
		67	432	254	387	230	337	206	282	181	222	155
		62	355	261	308	237	258	211	205	186	160	160
	7,500	72	597	279	545	255	488	230	426	202	357	174
		67	502	296	450	270	393	242	330	214	259	184
		62	415	309	362	281	303	252	239	222	190	190
240	6,000	72	528	253	482	231	432	207	376	182	315	155
		67	442	264	395	239	344	213	288	186	228	160
		62	362	270	314	244	264	218	211	192	165	165
	8,000	72	644	307	588	281	526	252	459	222	386	191
		67	541	325	485	295	424	265	355	233	278	200
		62	447	337	389	306	325	274	258	241	207	207
	10,000	72	742	353	677	323	606	290	529	256	443	221
		67	625	376	560	343	489	309	412	274	324	237
		62	518	396	453	361	380	325	301	287	243	243
300	7,500	72	629	266	578	243	521	219	458	194	387	167
		67	515	277	464	252	407	226	343	199	271	171
		62	412	284	360	257	301	231	237	204	177	177
	10,000	72	787	340	723	312	652	282	572	250	483	216
		67	651	359	586	328	515	296	435	263	346	228
		62	527	374	462	342	389	308	307	273	235	235
	12,500	72	917	401	844	370	760	335	668	298	564	259
		67	765	431	690	395	606	358	513	319	409	279
		62	624	454	548	417	463	379	370	337	290	290
336	9,000	72	609	261	553	238	491	212	423	185	348	157
		67	499	276	443	249	382	222	314	195	242	168
		62	398	286	342	259	281	232	217	204	173	173
	12,500	72	755	333	686	303	609	271	525	237	432	203
		67	626	356	557	324	481	291	396	257	303	222
		62	507	377	437	344	359	309	277	272	229	229
	15,000	72	840	374	763	340	678	305	584	268	481	230
		67	701	405	623	370	538	333	445	296	341	256
		62	571	434	493	397	406	359	314	314	264	264

NOTE(S):
a. Ratings based on approximately 15°F superheat leaving coil.
b. Direct interpolation is permissible. Do not extrapolate.
c. Dashes indicate coil loading limits are exceeded.
d. Evaporator fan heat not deducted from ratings.
e. See dry and wet bulb formulas below.
f. SHC is based on 80°F db temperature of air entering evaporator coil.

Dry and Wet Bulb Formulas:

$$\text{Leaving db} = \text{entering db} - \frac{\text{sensible heat capacity (Btuh)}}{1.1 \times \text{cfm}}$$

$$\text{Leaving wb} = \text{wet-bulb temperature corresponding to enthalpy of air leaving coil } (h_{|wb})$$

$$h_{|wb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

where $h_{|wb}$ = enthalpy of air entering coil

LEGEND

db — Dry Bulb Temperature (°F)
SHC — Sensible Heat Capacity (1000 Btuh)
TC — Total Capacity (1000 Btuh)
wb — Wet Bulb Temperature (°F)

Performance data (cont)

Hydronic Heating Capacities[a,b,c]

UNIT	AIRFLOW (cfm)	1-ROW STEAM[d]		2-ROW HOT WATER COIL[e]			
		Cap.	Ldb	Cap.	Ldb	Water Flow (Gpm)	PD
FAL072	1,800	146	134	156.0	140	15.6	3.4
	2,400	173	126	183.0	131	18.3	4.3
	3,000	209	123	206.0	124	20.6	5.2
FAL091	2,250	168	129	174.0	133	17.4	4.0
	3,000	209	123	206.0	124	20.6	5.2
	3,750	240	117	238.0	118	23.8	6.5
FAL120	3,000	209	123	299.0	152	29.9	5.0
	4,000	243	115	275.0	124	27.5	6.6
	5,000	279	111	316.0	119	31.6	8.2
FAL150	3,750	370	150	362.0	149	36.2	4.2
	5,000	425	137	409.0	136	40.9	5.1
	6,250	465	128	456.0	128	45.6	6.0
FAL180	4,500	402	141	412.0	145	41.2	4.5
	6,000	458	129	471.0	133	47.1	5.5
	7,500	479	118	529.0	125	52.9	6.6
FAL240	6,000	458	129	506.0	138	50.6	5.1
	8,000	487	115	584.0	128	58.4	6.3
	10,000	499	105	652.0	120	65.2	7.5
FAL300	7,500	511	122	649.0	140	64.9	5.7
	10,000	575	112	752.0	130	75.2	7.1
	12,500	626	106	842.0	122	84.2	8.5
FAL336	9,000	560	117	735.0	136	73.5	6.2
	12,000	621	107	850.0	126	85.0	7.8
	15,000	670	101	950.0	119	95.0	9.3

NOTE(S):
a. Maximum operating limits for heating coils: 20 psig at 260°F.
b. See leaving dry bulb formula below.
c. See Heating Correction Factors table.
d. Based on 5 psig steam, 60°F entering-air temperature. All steam coils are non-freeze type.
e. Based on 200°F entering water, 20°F water temperature drop, 60°F entering air temperature.

Leaving dry bulb formula:

$$\text{Leaving db} = \text{ent db (°F)} + \frac{\text{Capacity (Btuh)}}{1.1 \times \text{cfm}}$$

LEGEND

Cap. — Capacity (Btuh in 1000)
Ldb — Leaving Air Dry Bulb Temp (°F)
PD — Pressure Drop (ft water)

Heating Correction Factors

HOT WATER COIL						
Water Temp Drop (°F)	Entering Water Temp (°F)	Entering Water Temp (°F)				
		40	50	60	70	80
10	140	0.72	0.64	0.57	0.49	0.41
	160	0.89	0.81	0.74	0.66	0.58
	180	1.06	0.98	0.90	0.83	0.75
	200	1.22	1.15	1.07	1.00	0.92
	220	1.39	1.32	1.24	1.17	1.09
20	140	0.64	0.57	0.49	0.41	0.33
	160	0.81	0.74	0.66	0.58	0.51
	180	0.98	0.91	0.83	0.75	0.68
	200	1.15	1.08	1.00	0.93	0.85
	220	1.32	1.25	1.17	1.10	1.02
30	140	0.56	0.49	0.41	0.33	0.24
	160	0.74	0.66	0.58	0.51	0.43
	180	0.91	0.83	0.76	0.68	0.60
	200	1.08	1.00	0.93	0.85	0.78
	220	1.25	1.18	1.10	1.03	0.95

STEAM COIL					
STEAM PRESSURE (psig)	Entering-Air Temperature (°F)				
	40	50	60	70	80
0	1.06	0.98	0.91	0.85	0.78
2	1.09	1.02	0.95	0.89	0.82
5	1.13	1.06	1.00	0.93	0.87

NOTE: Multiply capacity is given in the Hydronic Heating Capacities table by the correction factor for conditions at which unit is actually operating. Correct leaving-air temperature using formula in Note b of Hydronic Heating Capacities table.

Performance data (cont)

Accessory Pressure Drop — in. wg

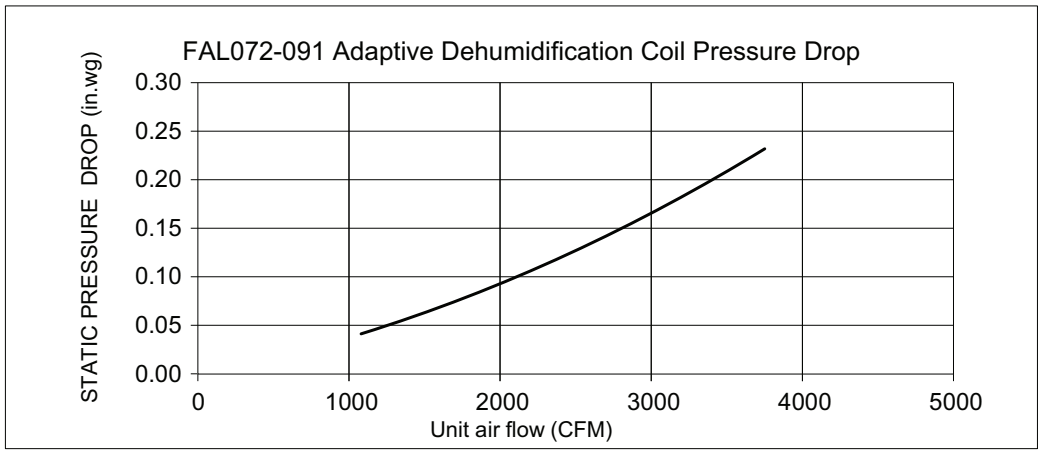
UNIT	AIRFLOW (cfm)	DISCHARGE PLENUM	RETURN AIR GRILLE	HOT WATER	STEAM	ELECTRIC	ECONOMIZER
FAL072	1,800	0.06	0.01	0.10	0.10	0.04	0.05
	2,400	0.10	0.01	0.16	0.16	0.06	0.07
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
FAL091	2,250	0.09	0.01	0.15	0.15	0.06	0.06
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	3,750	0.21	0.03	0.35	0.35	0.15	0.15
FAL120	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	4,000	0.22	0.04	0.37	0.37	0.17	0.17
	5,000	0.32	0.06	0.53	0.53	0.26	0.28
FAL150	3,750	0.07	0.01	0.11	0.11	0.04	0.05
	5,000	0.12	0.02	0.17	0.17	0.07	0.07
	6,250	0.17	0.02	0.25	0.25	0.11	0.11
FAL180	4,500	0.10	0.01	0.15	0.15	0.06	0.06
	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	7,500	0.23	0.03	0.33	0.33	0.15	0.15
FAL240	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	8,000	0.26	0.04	0.37	0.37	0.17	0.17
	10,000	0.37	0.06	0.53	0.53	0.26	0.28
FAL300	7,500	0.15	0.02	0.28	0.28	0.09	0.06
	10,000	0.24	0.03	0.44	0.44	0.16	0.09
	12,500	0.34	0.05	0.63	0.63	0.24	0.14
FAL336	9,000	0.20	0.03	0.37	0.37	0.13	0.08
	12,000	0.32	0.05	0.59	0.59	0.22	0.14
	15,000	0.46	0.07	0.85	0.85	0.34	0.21

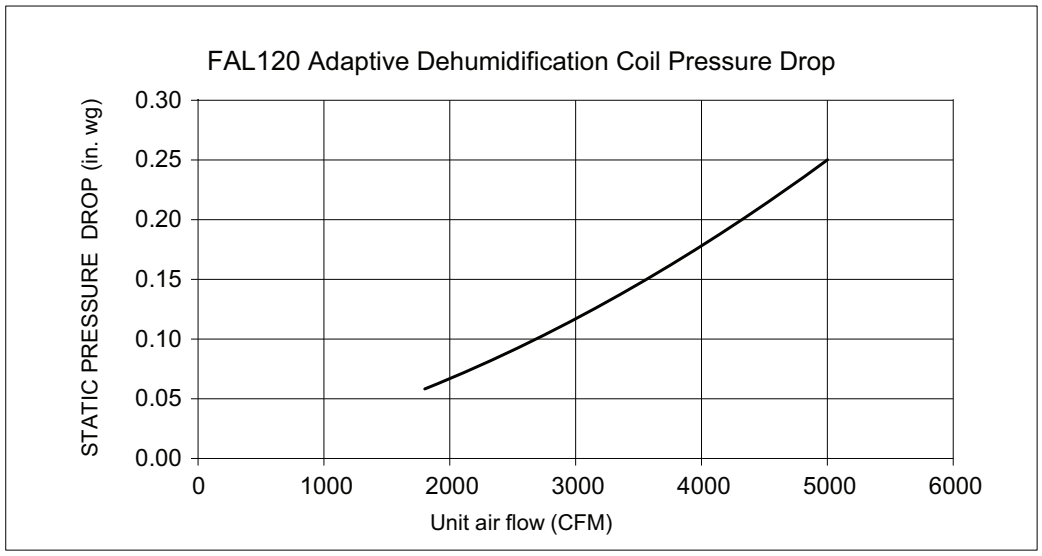
Factory-Supplied Filter Pressure Drops

UNIT	AIRFLOW (cfm)	PRESSURE DROP (in. wg)
FAL072	1,800	0.05
	2,400	0.08
	3,000	0.11
FAL091	2,250	0.07
	3,000	0.11
	3,750	0.15
FAL120	3,000	0.11
	4,000	0.17
	5,000	0.23
FAL150	3,750	0.06
	5,000	0.10
	6,250	0.13
FAL180	4,500	0.08
	6,000	0.12
	7,500	0.17
FAL240	6,000	0.12
	8,000	0.19
	10,000	0.26
FAL300	7,500	0.15
	10,000	0.22
	12,500	0.30
FAL336	9,000	0.19
	12,000	0.29
	15,000	0.40

Performance data (cont)

Adaptive Dehumidification Coil Pressure Drop





Performance data (cont)

Accessory Plenum Air Throw Data (ft)[a]

UNIT	AIRFLOW (cfm)	VANE DEFLECTION		
		Straight	21-1/2°	45°
FAL072	2,400	39	33	24
FAL091	3,000	45	38	28
FAL120	4,000	55	46	33
FAL150	5,000	45	38	28
FAL180	6,000	50	43	31
FAL240	8,000	60	51	37
FAL300	10,000	76	65	47
FAL336	12,000	85	72	52

NOTE(S):
a. Throw distances shown are for 75 fpm terminal velocity. Use the multipliers below to determine throw values for other terminal velocities.

TERMINAL VELOCITY (fpm)	THROW FACTOR
50	x 1.50
100	x 0.75
150	x 0.50

Electrical data

Legend and Notes for Electrical Heater Data tables, pages 53-63

LEGEND

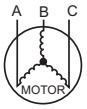
FLA — Full Load Amps
MCA — Minimum Circuit Amps
MOC — Maximum Operating Current (For Variable Frequency Drives)
MOCP — Maximum Overcurrent Protection (Amps)

NOTES:

1. Electrical resistance heaters are rated at 240v, 480v, 575v. To determine heater capacity (kW) at unit nameplate multiply the 240v, 480v, or 575v capacity (kW) by the factor shown in the table below for the unit voltage.
2. The following equation converts kW of heat energy to Btuh: kW x 3412 = Btuh.
3. Heater contactor coils are 24v and require 8va holding current.
4. Electric heaters are tested and UL approved at maximum total external static pressure of 1.9 in. wg.

$$\text{\% Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224-v
BC = 231-v
AC = 226-v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.

(AB) 227-224 = 3-v

(BC) 231-227 = 4-v

(AC) 227-226 = 1-v

Maximum deviation is 4-v.

Determine percent of voltage imbalance.

$$\text{\% Voltage Imbalance} = 100x \frac{4}{227} = 1.76\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE AT SITE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

Electrical Data, Standard Motors — Two Speed[a]

UNIT	NOMINAL V-PH-Hz	IFM TYPE	UNIT VOLTAGE RANGE[b,c]		FAN MOTOR			POWER SUPPLY[d]	
			Min.	Max.	Hp	kW	FLA/*MOC*[e]	MCA	MOCP
FAL072	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
FAL091	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
FAL120	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
FAL150	208/230	STD	187	253	2.9	2.16	*15.0*	19.0	30.0
		MED	187	253	2.9	2.16	*15.0*	19.0	30.0
		HIGH	187	253	3.7	2.76	*17.0*	22.0	35.0
	460	STD	414	506	2.9	2.16	*3.8*	5.0	15.0
		MED	414	506	2.9	2.16	*3.8*	5.0	15.0
		HIGH	414	506	3.7	2.76	*4.9*	7.0	15.0
	575	STD	518	632	3.7	2.76	*4.5*	6.0	15.0
		MED	518	632	3.7	2.76	*4.5*	6.0	15.0
		HIGH	518	632	5.0	3.73	*5.1*	7.0	15.0

Electrical data (cont)

Electrical Data, Standard Motors — Two Speed[a] (cont)

UNIT	NOMINAL V-PH-Hz	IFM TYPE	UNIT VOLTAGE RANGE[b,c]		FAN MOTOR			POWER SUPPLY[d]	
			Min.	Max.	Hp	kW	FLA/*MOC*[e]	MCA	MOCP
FAL180	208/230	STD	187	253	3.7	2.76	*14.6*	19	30
		MED	187	253	3.7	2.76	*14.6*	19	30
		HIGH	187	253	5.0	3.73	*16.7*	21	35
	460	STD	414	506	3.7	2.76	*5.3*	7	15
		MED	414	506	3.7	2.76	*5.3*	7	15
		HIGH	414	506	5.0	3.73	*8.9*	12	20
	575	STD	518	632	3.7	2.76	*6.1*	8	15
		MED	518	632	3.7	2.76	*6.1*	8	15
		HIGH	518	632	5.0	3.73	*9.0*	12	20
FAL240	208/230	STD	187	253	5.0	3.73	*16.7*	21	35
		MED	187	253	5.0	3.73	*16.7*	21	35
		HIGH	187	253	7.5	5.60	*24.2*	31	50
	460	STD	414	506	5.0	3.73	*8.9*	12	20
		MED	414	506	5.0	3.73	*8.9*	12	20
		HIGH	414	506	7.5	5.60	*12*	15	25
	575	STD	518	632	5.0	3.73	*6.1*	8	15
		MED	518	632	5.0	3.73	*6.1*	8	15
		HIGH	518	632	7.5	5.60	*9.0*	12	20
FAL300	208/230	STD	187	253	7.5	5.60	*24.2*	31	50
		MED	187	253	10.0	7.46	*24.2*	31	50
		HIGH	187	253	10.0	7.46	*24.2*	31	50
	460	STD	414	506	7.5	5.60	*12.0*	15	25
		MED	414	506	10.0	7.46	*12.0*	15	25
		HIGH	414	506	10.0	7.46	*12.0*	15	25
	575	STD	518	632	7.5	5.60	*9.0*	12	20
		MED	518	632	10.0	7.46	*9.0*	12	20
		HIGH	518	632	10.0	7.46	*9.0*	12	20
FAL336	208/230	STD	187	253	10.0	7.46	*24.2*	31	50
		MED	187	253	10.0	7.46	*30.8*	39	60
		HIGH	187	253	10.0	7.46	*30.8*	39	60
	460	STD	414	506	10.0	7.46	*12.0*	15	25
		MED	414	506	10.0	7.46	*16.2*	21	35
		HIGH	414	506	10.0	7.46	*16.2*	21	35
	575	STD	518	632	10.0	7.46	*9.0*	12	20
		MED	518	632	10.0	7.46	*11.0*	14	20
		HIGH	518	632	10.0	7.46	*11.0*	14	20

NOTE(S):
a. Installation with Accessory Electric Heaters: Size the Field Power Wiring between the heater TB1 and the FAL indoor fan motor per NEC Article 430-28 (1) or (2) (depends on length of conduit between heater enclosure and FAL power entry location). Install wires in field-installed conduit.
b. Unbalanced 3-Phase Supply Voltage: Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the formula in the example (see example below) to determine the percentage of voltage imbalance.
c. Motors are designed for satisfactory operation within 10% of normal voltage shown. Voltages should not exceed the limits shown in the Voltage Limits column.
d. Minimum circuit amps (MCA) and maximum overcurrent protection (MOCP) values are calculated in accordance with NEC Article 440.
e. Motor FLA and VFD MOC values are established in accordance with Underwriters Laboratories (UL). Standard 60335-2-40.

Electrical data (cont)

FAL072-120, 60 Hz Electrical Heater Data

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Min	Max	hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Stage 2	Total	FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
FAL072H2AA0	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
FAL072H3AA0		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
FAL072L2AA0	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
FAL072L3AA0		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
FAL072S2AA0	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
FAL072S3AA0		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35

FAL072-120, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
FAL091H2AA0	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
			187	253	2.4	1.76	6.4/5.8	061A	208/240	32	12/16	12/16	24/32	66.7/77	91.4/103.5	100/110
FAL091H3AA0		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
			187	253	3	2.24	7.5/6.7	061A	208/240	32	12/16	12/16	24/32	66.7/77	92.8/104.6	100/110
FAL091L2AA0	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
			414	506	2.4	1.76	3	062A	480	35	20	15	35	42.1	56.4	60
FAL091L3AA0		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
			414	506	3	2.24	3.5	062A	480	35	20	15	35	42.1	57	60
FAL091S2AA0	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
			518	632	2.4	1.76	2.5	063A	575	35	20	15	35	33.7	45.3	50
FAL091S3AA0		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35
			518	632	3	2.24	3	063A	575	35	20	15	35	33.7	45.9	50

FAL072-120, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA *MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	ELECTRIC HEATER(S) Heater Voltage	ELECTRIC HEATER(S) Nom. Cap. (kW)	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 1	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 2	ELECTRIC HEATER(S) Actual Capacity (kW) Total	ELECTRIC HEATER(S) FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
FAL120H2AA0	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
			187	253	2.4	1.76	6.4/5.8	061A	208/240	32	12/16	12/16	24/32	66.7/77	91.4/103.5	100/110
FAL120H3AA0		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
			187	253	3	2.24	7.5/6.7	061A	208/240	32	12/16	12/16	24/32	66.7/77	92.8/104.6	100/110
FAL120L2AA0	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
			414	506	2.4	1.76	3	062A	480	35	20	15	35	42.1	56.4	60
FAL120L3AA0		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
			414	506	3	2.24	3.5	062A	480	35	20	15	35	42.1	57	60
FAL120S2AA0	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
			518	632	2.4	1.76	2.5	063A	575	35	20	15	35	33.7	45.3	50
FAL120S3AA0		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35
			518	632	3	2.24	3	063A	575	35	20	15	35	33.7	45.9	50

NOTE(S):
a. MCA and MOCP Values shown are for single-point connection of electric heat accessory and air handler.

FAL150-336, 60 Hz Electrical Heater Data

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
FAL150H1AA2	208/230	STD	187	253	2.9	2.16	*15*	—	208/240	—	—	—	—	—	19	30
			187	253	2.9	2.16	*15*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	2.9	2.16	*15*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	2.9	2.16	*15*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
FAL150H2AA2		MED	187	253	2.9	2.16	*15*	—	208/240	—	—	—	—	—	19	30
			187	253	2.9	2.16	*15*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	2.9	2.16	*15*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	2.9	2.16	*15*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
FAL150H3AA2		HIGH	187	253	3.7	2.76	*17.0*	—	208/240	—	—	—	—	—	22	35
			187	253	3.7	2.76	*17.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	3.7	2.76	*17.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	3.7	2.76	*17.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
FAL150L1AA2	460	STD	414	506	2.9	2.16	*5.0*	—	480	—	—	—	—	—	5	15
			414	506	2.9	2.16	*5.0*	017B	480	10	10	—	10	12	15	15
			414	506	2.9	2.16	*5.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	2.9	2.16	*5.0*	023B	480	30	20	10	30	36.1	45.1	50
FAL150L2AA2		MED	414	506	2.9	2.16	*5.0*	—	480	—	—	—	—	—	5	15
			414	506	2.9	2.16	*5.0*	017B	480	10	10	—	10	12	15	15
			414	506	2.9	2.16	*5.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	2.9	2.16	*5.0*	023B	480	30	20	10	30	36.1	45.1	50
FAL150L3AA2		HIGH	414	506	3.7	2.76	*9.1*	—	480	—	—	—	—	—	7	15
			414	506	3.7	2.76	*9.1*	017B	480	10	10	—	10	12	15	15
			414	506	3.7	2.76	*9.1*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	3.7	2.76	*9.1*	023B	480	30	20	10	30	36.1	45.1	50

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA *MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	ELECTRIC HEATER(S) Heater Voltage	ELECTRIC HEATER(S) Nom. Cap. (kW)	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 1	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 2	ELECTRIC HEATER(S) Actual Capacity (kW) Total	ELECTRIC HEATER(S) FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
FAL150S1AA2	575	STD	518	632	3.7	2.76	*6.0*	—	575	—	—	—	—	—	6	15
			518	632	3.7	2.76	*6.0*	018B	575	10	10	—	10	10	12.5	15
			518	632	3.7	2.76	*6.0*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	3.7	2.76	*6.0*	024B	575	30	20	10	30	30.1	37.6	40
FAL150S2AA2		MED	518	632	3.7	2.76	*6.0*	—	575	—	—	—	—	—	6	15
			518	632	3.7	2.76	*6.0*	018B	575	10	10	—	10	10	12.5	15
			518	632	3.7	2.76	*6.0*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	3.7	2.76	*6.0*	024B	575	30	20	10	30	30.1	37.6	40
FAL150S3AA2		HIGH	518	632	5.0	3.73	*9.1*	—	575	—	—	—	—	—	7	15
			518	632	5.0	3.73	*9.1*	018B	575	10	10	—	10	10	12.5	15
			518	632	5.0	3.73	*9.1*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	5.0	3.73	*9.1*	024B	575	30	20	10	30	30.1	37.6	40
FAL180H1AA2	208/230	STD	187	253	3.7	2.76	*17.0*	—	208/240	—	—	—	—	—	22	35
			187	253	3.7	2.76	*17.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	3.7	2.76	*17.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	3.7	2.76	*17.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	3.7	2.76	*17.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175
FAL180H2AA2		MED	187	253	3.7	2.76	*17.0*	—	208/240	—	—	—	—	—	22	35
			187	253	3.7	2.76	*17.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	3.7	2.76	*17.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	3.7	2.76	*17.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	3.7	2.76	*17.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175
FAL180H3AA2		HIGH	187	253	5.0	3.73	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	5.0	3.73	*25.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	5.0	3.73	*25.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	5.0	3.73	*25.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	5.0	3.73	*25.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
FAL180L1AA2	460	STD	414	506	3.7	2.76	*9.1*	—	480	—	—	—	—	—	7	15
			414	506	3.7	2.76	*9.1*	017B	480	10	10	—	10	12	15	15
			414	506	3.7	2.76	*9.1*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	3.7	2.76	*9.1*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	3.7	2.76	*9.1*	026B	480	50	30	20	50	60.1	75.1	80
FAL180L2AA2		MED	414	506	3.7	2.76	*9.1*	—	480	—	—	—	—	—	7	15
			414	506	3.7	2.76	*9.1*	017B	480	10	10	—	10	12	15	15
			414	506	3.7	2.76	*9.1*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	3.7	2.76	*9.1*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	3.7	2.76	*9.1*	026B	480	50	30	20	50	60.1	75.1	80
FAL180L3AA2		HIGH	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	12	20
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	15	15
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
FAL180S1AA2	575	STD	518	632	3.7	2.76	*6.0*	—	575	—	—	—	—	—	6	15
			518	632	3.7	2.76	*6.0*	018B	575	10	10	—	10	10	12.5	15
			518	632	3.7	2.76	*6.0*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	3.7	2.76	*6.0*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	3.7	2.76	*6.0*	027B	575	50	30	20	50	50.2	62.8	70
FAL180S2AA2		MED	518	632	3.7	2.76	*6.0*	—	575	—	—	—	—	—	6	15
			518	632	3.7	2.76	*6.0*	018B	575	10	10	—	10	10	12.5	15
			518	632	3.7	2.76	*6.0*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	3.7	2.76	*6.0*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	3.7	2.76	*6.0*	027B	575	50	30	20	50	50.2	62.8	70
FAL180S3AA2		HIGH	518	632	5.0	3.73	*9.1*	—	575	—	—	—	—	—	7	15
			518	632	5.0	3.73	*9.1*	018B	575	10	10	—	10	10	12.5	15
			518	632	5.0	3.73	*9.1*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	5.0	3.73	*9.1*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	5.0	3.73	*9.1*	027B	575	50	30	20	50	50.2	62.8	70

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA *MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	ELECTRIC HEATER(S) Heater Voltage	ELECTRIC HEATER(S) Nom. Cap. (kW)	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 1	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 2	ELECTRIC HEATER(S) Actual Capacity (kW) Total	ELECTRIC HEATER(S) FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
FAL240H1AA2	208/230	STD	187	253	5.0	3.73	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	5.0	3.73	*25.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	5.0	3.73	*25.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	5.0	3.73	*25.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	5.0	3.73	*25.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175
FAL240H2AA2		MED	187	253	5.0	3.73	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	5.0	3.73	*25.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	5.0	3.73	*25.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	5.0	3.73	*25.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	5.0	3.73	*25.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175
FAL240H3AA2		HIGH	187	253	7.5	5.60	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	7.5	5.60	*25.0*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	26/30.1	30/35
			187	253	7.5	5.60	*25.0*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	7.5	5.60	*25.0*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	78.1/90.3	80/100
			187	253	7.5	5.60	*25.0*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	130.3/150.4	150/175
FAL240L1AA2	460	STD	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	12	20
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	15	15
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
FAL240L2AA2		MED	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	12	20
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	15	15
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
FAL240L3AA2		HIGH	414	506	7.5	5.60	*15.0*	—	480	—	—	—	—	—	19	30
			414	506	7.5	5.60	*15.0*	017B	480	10	10	—	10	12	15	15
			414	506	7.5	5.60	*15.0*	020B	480	20	20	—	19.9	23.9	29.9	30
			414	506	7.5	5.60	*15.0*	023B	480	30	20	10	30	36.1	45.1	50
			414	506	7.5	5.60	*15.0*	026B	480	50	30	20	50	60.1	75.1	80

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
FAL240S1AA2	575	STD	518	632	5.0	3.73	*9.1*	—	575	—	—	—	—	—	10	15
			518	632	5.0	3.73	*9.1*	018B	575	10	10	—	10	10	12.5	15
			518	632	5.0	3.73	*9.1*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	5.0	3.73	*9.1*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	5.0	3.73	*9.1*	027B	575	50	30	20	50	50.2	62.8	70
FAL240S2AA2		MED	518	632	5.0	3.73	*9.1*	—	575	—	—	—	—	—	10	15
			518	632	5.0	3.73	*9.1*	018B	575	10	10	—	10	10	12.5	15
			518	632	5.0	3.73	*9.1*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	5.0	3.73	*9.1*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	5.0	3.73	*9.1*	027B	575	50	30	20	50	50.2	62.8	70
FAL240S3AA2		HIGH	518	632	7.5	5.60	*9.1*	—	575	—	—	—	—	—	12	20
			518	632	7.5	5.60	*9.1*	018B	575	10	10	—	10	10	12.5	15
			518	632	7.5	5.60	*9.1*	021B	575	20	20	—	20	20.1	25.1	30
			518	632	7.5	5.60	*9.1*	024B	575	30	20	10	30	30.1	37.6	40
			518	632	7.5	5.60	*9.1*	027B	575	50	30	20	50	50.2	62.8	70
FAL300H1AA2	208/230	STD	187	253	7.5	5.60	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	7.5	5.60	*25.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	7.5	5.60	*25.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	7.5	5.60	*25.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	7.5	5.60	*25.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225
FAL300H2AA2		MED	187	253	10.0	7.46	*25.0*	—	208/240	—	—	—	—	—	32	50
			187	253	10.0	7.46	*25.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	10.0	7.46	*25.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	10.0	7.46	*25.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	10.0	7.46	*25.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225
FAL300H3AA2		HIGH	187	253	10.0	7.46	*33.0*	—	208/240	—	—	—	—	—	42	70
			187	253	10.0	7.46	*33.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	10.0	7.46	*33.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	10.0	7.46	*33.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	10.0	7.46	*33.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA *MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Actual Capacity (kW) Stage 2	Actual Capacity (kW) Total	FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
FAL300L1AA2	460	STD	414	506	7.5	5.60	*15.0*	—	480	—	—	—	—	—	19	30
			414	506	7.5	5.60	*15.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	7.5	5.60	*15.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	7.5	5.60	*15.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	7.5	5.60	*15.0*	038B	480	70	40	30	70	84.2	105.3	110
FAL300L2AA2		MED	414	506	10.0	7.46	*17.0*	—	480	—	—	—	—	—	20	35
			414	506	10.0	7.46	*17.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	10.0	7.46	*17.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	10.0	7.46	*17.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	10.0	7.46	*17.0*	038B	480	70	40	30	70	84.2	105.3	110
FAL300L3AA2		HIGH	414	506	10.0	7.46	*17.0*	—	480	—	—	—	—	—	20	35
			414	506	10.0	7.46	*17.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	10.0	7.46	*17.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	10.0	7.46	*17.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	10.0	7.46	*17.0*	038B	480	70	40	30	70	84.2	105.3	110
FAL300S1AA2	575	STD	518	632	7.5	5.60	*9.1*	—	575	—	—	—	—	—	12	20
			518	632	7.5	5.60	*9.1*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	7.5	5.60	*9.1*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	7.5	5.60	*9.1*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	7.5	5.60	*9.1*	039B	575	70	40	30	70	70.3	87.9	90
FAL300S2AA2		MED	518	632	10.0	7.46	*17.0*	—	575	—	—	—	—	—	17	25
			518	632	10.0	7.46	*17.0*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	10.0	7.46	*17.0*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	10.0	7.46	*17.0*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	10.0	7.46	*17.0*	039B	575	70	40	30	70	70.3	87.9	90
FAL300S3AA2		HIGH	518	632	10.0	7.46	*17.0*	—	575	—	—	—	—	—	17	25
			518	632	10.0	7.46	*17.0*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	10.0	7.46	*17.0*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	10.0	7.46	*17.0*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	10.0	7.46	*17.0*	039B	575	70	40	30	70	70.3	87.9	90

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA *MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	ELECTRIC HEATER(S) Heater Voltage	ELECTRIC HEATER(S) Nom. Cap. (kW)	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 1	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 2	ELECTRIC HEATER(S) Actual Capacity (kW) Total	ELECTRIC HEATER(S) FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
FAL336H1AA2	208/230	STD	187	253	10.0	7.46	*33.0*	—	208/240	—	—	—	—	—	42	70
			187	253	10.0	7.46	*33.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	10.0	7.46	*33.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	10.0	7.46	*33.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	10.0	7.46	*33.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225
FAL336H2AA2		MED	187	253	10.0	7.46	*33.0*	—	208/240	—	—	—	—	—	42	70
			187	253	10.0	7.46	*33.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	10.0	7.46	*33.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	10.0	7.46	*33.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	10.0	7.46	*33.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225
FAL336H3AA2		HIGH	187	253	10.0	7.46	*33.0*	—	208/240	—	—	—	—	—	42	70
			187	253	10.0	7.46	*33.0*	028B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	52.1/60.1	60/70
			187	253	10.0	7.46	*33.0*	031B	208/240	40	15/20	15/20	30/40	83.4/96.2	104.3/120.3	110/125
			187	253	10.0	7.46	*33.0*	034B	208/240	50	22.6/30	15/20	37.6/50	104.3/120.3	130.4/150.4	150/175
			187	253	10.0	7.46	*33.0*	037B	208/240	70	30/40	22.6/30	52.6/70	145.9/168.4	182.4/210.5	200/225
FAL336L1AA2	460	STD	414	506	10.0	7.46	*17.0*	—	480	—	—	—	—	—	20	35
			414	506	10.0	7.46	*17.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	10.0	7.46	*17.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	10.0	7.46	*17.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	10.0	7.46	*17.0*	038B	480	70	40	30	70	84.2	105.3	110
FAL336L2AA2		MED	414	506	10.0	7.46	*17.0*	—	480	—	—	—	—	—	20	35
			414	506	10.0	7.46	*17.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	10.0	7.46	*17.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	10.0	7.46	*17.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	10.0	7.46	*17.0*	038B	480	70	40	30	70	84.2	105.3	110
FAL336L3AA2		HIGH	414	506	10.0	7.46	*17.0*	—	480	—	—	—	—	—	20	35
			414	506	10.0	7.46	*17.0*	029B	480	20	20	—	20	24.1	30.1	35
			414	506	10.0	7.46	*17.0*	032B	480	40	20	20	40	48.1	60.1	70
			414	506	10.0	7.46	*17.0*	035B	480	50	30	20	50	60.1	75.1	80
			414	506	10.0	7.46	*17.0*	038B	480	70	40	30	70	84.2	105.3	110

FAL150-336, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA *MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
FAL336S1AA2	575	STD	518	632	10.0	7.46	*17.0*	—	575	—	—	—	—	—	17	25
			518	632	10.0	7.46	*17.0*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	10.0	7.46	*17.0*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	10.0	7.46	*17.0*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	10.0	7.46	*17.0*	039B	575	70	40	30	70	70.3	87.9	90
FAL336S2AA2		MED	518	632	10.0	7.46	*17.0*	—	575	—	—	—	—	—	17	25
			518	632	10.0	7.46	*17.0*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	10.0	7.46	*17.0*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	10.0	7.46	*17.0*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	10.0	7.46	*17.0*	039B	575	70	40	30	70	70.3	87.9	90
FAL336S3AA2		HIGH	518	632	10.0	7.46	*17.0*	—	575	—	—	—	—	—	17	25
			518	632	10.0	7.46	*17.0*	030B	575	20	20	—	20	20.1	25.1	30
			518	632	10.0	7.46	*17.0*	033B	575	40	20	20	40	40.2	50.3	60
			518	632	10.0	7.46	*17.0*	036B	575	50	30	20	50	50.2	62.8	70
			518	632	10.0	7.46	*17.0*	039B	575	70	40	30	70	70.3	87.9	90

NOTE(S):
a. MCA and MOCP Values shown are for single-point connection of electric heat accessory and air handler.

Application data

FAL Fan Motor Data
Standard Motor, Direct Drive, Two Speed — English (SI), 60 Hz

UNIT	FAL072	FAL091	FAL120
208/230-3-60 and 460-3-60			
Speed (rpm)	2000 (33.33)	2000 (33.33)	2000 (33.33)
Hp	2.4 (1.79)	2.4 (1.79)	2.4 (1.79)
575-3-60			
Speed (rpm)	2000 (33.33)	2000 (33.33)	2000 (33.33)
Hp	2.4 (1.79)	2.4 (1.79)	2.4 (1.79)

FAL Fan Motor Data
Standard Motor, Two Speed — English (SI), 60 Hz

MOTOR / UNIT	FAL150	FAL180	FAL240	FAL300	FAL336
208/230-3-60 and 460-3-60					
Speed (rpm)	1735 (28.92)	1750 (29.17)	1755 (29.25)	1760 (29.33)	1755 (29.25)
Hp	2.9 (2.16)	3.7 (2.76)	5.0 (3.73)	7.5 (5.59)	10.0 (7.46)
Frame (NEMA)	56HY	56HY	184T	S213T	S215T
Shaft Dia (in.)	7/8 (22.2)	7/8 (22.2)	1-1/8 (28.6)	1-3/8 (34.9)	1-3/8 (34.9)
575-3-60					
Speed (rpm)	1710 (28.50)	1710 (28.50)	1755 (29.25)	1750 (29.17)	1755 (29.25)
Hp	3.7 (2.76)	3.7 (2.76)	5.0 (3.73)	7.5 (5.59)	10.0 (7.46)
Frame (NEMA)	56HY	56HY	184T	S213T	S215T
Shaft Dia (in.)	7/8 (22.2)	7/8 (22.2)	1-1/8 (28.6)	1-3/8 (34.9)	1-3/8 (34.9)

FAL Fan Motor Data
Alternate Motor, Two Speed — English (SI), 60 Hz

UNIT	FAL150	FAL180	FAL240	FAL300	FAL336
208/230-3-60 and 460-3-60					
Speed (rpm)	1750 (29.17)	1755 (29.25)	1760 (29.33)	1755 (29.25)	1755 (29.25)
Hp	3.7 (2.76)	5.0 (3.73)	7.5 (5.59)	10.0 (7.46)	10.0 (7.46)
Frame (NEMA)	56HY	184T	S213T	S215T	S215T
Shaft Dia (in.)	7/8 (22.2)	1-1/8 (28.6)	1-3/8 (34.9)	1-3/8 (34.9)	1-3/8 (34.9)
575-3-60					
Speed (rpm)	1755 (29.25)	1755 (29.25)	1750 (29.17)	1755 (29.25)	1755 (29.25)
Hp	5.0 (3.73)	5.0 (3.73)	7.5 (5.59)	10.0 (7.46)	10.0 (7.46)
Frame (NEMA)	184T	184T	S213T	S215T	S215T
Shaft Dia (in.)	1-1/8 (28.6)	1-1/8 (28.6)	1-3/8 (34.9)	1-3/8 (34.9)	1-3/8 (34.9)

FAL Motor Efficiency
Direct Drive Two Speed Motor

MOTOR Hp	MOTOR EFFICIENCY
2.4	85.0%
3.0	85.0%

WEIGHTS	MEDIUM	HIGH
Motor Hp	2.4	3.0
Motor Weight (lb)	23.8	53.7
Assembly Weight (lb)	56.4	85.6

FAL Motor Efficiency
Two-Speed Motor

MOTOR HP	EPACT MINIMUM (%)	MOTOR EFFICIENCY (%)
2.4	—	80.0
2.9	—	86.5
3.7	—	83.6
5.0	89.5	89.5
7.5	—	91.0
10.0	—	91.7

LEGEND

EPACT — Energy Policy and Conservation Act of 1992

Application data (cont)

Auxiliary Side Connector Data

UNIT	P/N	INLET/OUTLET DIAMETER — ODF (in.)	AUXILIARY (HOT GAS) DIAMETER — ODF (in.)
FAL072	1178747	1-1/8	5/8
FAL091	1178748	1-3/8	7/8
FAL120	1178747	1-1/8	5/8
FAL150	1178747	1-1/8	5/8
FAL180	1178747	1-1/8	5/8
FAL240	1178747	1-1/8	5/8
FAL300	1178748	1-3/8	7/8
FAL336	1178748	1-3/8	7/8

Factory-Installed Nozzle and Distributor Data[a]

UNIT	COIL TYPE	TXV QTY...P/N	DISTRIBUTOR QTY...P/N	FEEDER TUBES PER DISTRIBUTOR[b] QTY...SIZE (in.)	NOZZLE QTY...P/N
FAL072	4 Row	1…1178405 1...BBIZE-5-GA	1…1178408 1...1135	12...1/4	1…1178410 1...G4
FAL091	4 Row	1…1178406 1...BBIZE-6-GA	1…1178412 1...1136	15...1/4	1…1178411 1...G5
FAL120	4 Row	2...1196872 2...HXAE-5-KX	2…1178408 2...1135	9...1/4	2…1178409 2...G3
FAL150	4 Row	2...1193965 2...HXAE-6-KX	2...1178407 2...1113	12...3/16	2…1178409 2...G3
FAL180	4 Row	2...1178406 2...BBIZE-6-GA	2...1178412 2...1136	16...3/16	2...1178410 2...G4
FAL240	4 Row	2...1183553 2...BBIZE-8-GA	2…1175454 2...D196-18-3/16	18...3/16	2...1179769 2...G6
FAL300	4 Row	2…1183751 2...BBIZE-15-GA	2…1173485 2...1126	20...3/16	2…1179803 2...C15
FAL336	4 Row	2…1183751 2...BBIZE-15-GA	2…1173485 2...1126	24...3/16	2…1175908 2...C17

NOTE(S):
a. For FAL150-336 units, hot gas bypass applications require field-supplied auxiliary side connector.
b. Feeder tube size is 1/4 in. (6.35 mm).

LEGEND

TXV — Thermostatic Expansion Valve

Guide specifications — FAL072-120

Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: **6-10 Tons, Nominal Cooling**

Model Numbers: **FAL (Direct-Expansion Coil)**

Part 1 — General

1.01 System Description

A. Indoor, packaged air-handling unit for use in commercial split systems. Unit shall have a multi-position design and shall be capable of horizontal or vertical installation on a floor or in a ceiling, with or without ductwork. (Only vertical units are to be applied without ductwork.)

B. Unit with direct-expansion coil shall use R-454B in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 Quality Assurance

A. Coils shall be designed and tested in accordance with ASHRAE®[1] 15 Safety Code for Mechanical Refrigeration (U.S.A.)

B. Unit shall be constructed in accordance with UL Standard 60335-1 and 60335-2-40, and shall carry the UL and UL, Canada, labels.

C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation.

D. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.

E. Direct-expansion and chilled water coils shall be burst and leak tested at 435 psi.

1.03 Delivery and Storage

A. Units shall be stored and handled per manufacturer's recommendations.

1.04 Safeties

A. A2L Refrigerant Leak Dissipation System (Electromechanical):

1. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40.
2. System shall be designed for the life of the unit.
3. Dissipation system shall be automatic and disable compressors on CAL condensing units.
4. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.
5. Factory installed dissipation controller shall use onboard microprocessor and include:
   a. Automatic reset after a dissipation event has occurred.
   b. Onboard LED with flash code to indicate current unit status and hardware failures.
   c. Depressible "Test" button to allow for a system test and recall/reset of leak detection history.
   d. 24V dry contact alarm terminal to allow for external notification of leak detection.
6. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
7. Dissipation system shall "Fail Safe" per UL requirements.
8. Dissipation shall allow smoke and building fire systems to override in case of event.

Part 2 — Products

2.01 Equipment

A. Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of a direct drive vane axial fan and motor assembly, pre-wired fan motor controller, factory-installed refrigerant metering devices (direct-expansion coil units), cooling coil, 2 in. (51 mm) disposable air filters, and condensate drain pans for vertical or horizontal configurations.

1. Cabinet shall be constructed of mill-galvanized steel.
2. Cabinet panels shall be fully insulated with 1/2 in. (12.7 mm) fire-retardant material.
3. Unit shall contain non-corroding condensate drain pans for both vertical and horizontal applications. Drain pans shall have connections on right and left sides of unit to facilitate field connection. Drain pans shall have the ability to be sloped toward the right or left side of the unit to prevent standing water from accumulating in pans.
4. Unit shall have factory-supplied 2 in. (51 mm) throwaway-type filters installed upstream from the cooling coil. Filter access shall be from either the right or left side of the unit.

B. Evaporator Fan and Motor with X-Vane Technology:

1. Direct Drive Evaporator fan motor:
   a. Shall be an ECM motor design.
   b. Shall be direct drive design for all static options.
   c. Shall have permanently lubricated bearings.
   d. Shall have inherent automatic-reset thermal overload protection.
   e. Shall have slow ramp up to speed capabilities.
   f. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up.
   g. Shall be internally protected from electrical phase reversal and loss.

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2. Evaporator Fan:
   a. Shall be easily set with dedicated selection switch and adjustment pot on unit control board
   b. Shall provide two stage cooling capacity control, the indoor fan speed is automatically controlled to meet the code-compliant <66% low fan speed and 100% at full fan speed operation.
   c. Blower fan shall be a Vane Axial fan design with fan assembly secured directly to ECM motor. Additional shafts, belts, pulleys/ sheaves, and bearing blocks to drive fan shall not be permitted or necessary.
   d. Additional variable frequency drive to control fan motor speed shall not be permitted or necessary. All speed control electronics must be onboard fan motor assembly.
   e. Shall be constructed of a high impact composite material on stator, rotor and air inlet casing.
   f. Shall be a patented / pending design with a corrosion resistant material and dynamically balanced.
   g. Shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems.
   h. Shall be a slide out design with removal of a few support brackets.

C. Control Box:
   1. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

D. Coils:

   DX coil is 4-row and consists of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.
   1. Direct-expansion coils shall feature factory installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be R-454B compatible and capable of external adjustment. Coil tubing shall be internally rifled to maximize heat transfer.

E. Operating Characteristics:
   1. When combined with matching CAL condensing unit the system shall be capable of starting and running at ambient outdoor temperatures from 35°F (2°C) to 125°F (52°C) in cooling mode.
   2. Unit shall operate at ±10% from rated voltage.

F. Motor:
   1. Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.
   2. Evaporator motors do not have conventional horsepower (hp) ratings listed on the motor nameplate. Motors are designed and qualified in the “air-over” location downstream of the cooling coil and carry a maximum continuous bhp rating that is the maximum application bhp rating for the motor; no “safety factors” above that rating may be applied.

G. Special Features:
   1. Alternate Motor and Drive:

      An alternate high-static motor shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.
   2. External Paint:

      Where conditions require, units shall be painted with an American Sterling Gray finish.
   3. Hot Water Coil:

      Coil shall be 2-row, U-bend coil with copper tubes and aluminum plate fins bonded to the tubes by mechanical expansion. Coil shall be mounted in a galvanized steel housing that shall be fastened to the unit’s fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 150 psig.
   4. Steam Distributing Coil:

      Coil shall consist of one row of copper tubes with aluminum plate fins, and shall have inner steam distributing tubes. Coil shall be mounted in a galvanized steel housing and shall be fastened to the unit’s fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 20 psig at 260°F.
   5. Electric Heaters:

      Heaters for nominal 240-v, 480-v, or 575-v, 3-phase, 60 Hz shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be ETL (U.S.A.) and ETL, Canada, agency approved, and shall have single-point power wiring. Heater assembly shall include contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters shall not be used with air discharge plenum.
   6. Air Discharge Plenum:

      Plenum shall be factory-supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with movable vanes for horizontal

or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit's fan deck for blow-thru air distribution. Plenum shall not be used with electric heaters.

7. Return-Air Grille:

   Grille shall be factory-supplied for field installation on the unit's return air opening.

8. Unit Subbase:

   Subbase assembly shall be factory-supplied for field installation. Subbase shall elevate floor-mounted vertical units to provide access for correct condensate drain connection.

9. Economizers:
   a. Accessory Ultra Low Leak EconomizerONE. (Field-installed) Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler.
      1) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
      2) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on in-take or return shall not be acceptable.
      3) Shall include all hardware, actuator and controls to provide free cooling with outdoor air when tem-perature and/or humidity are below setpoints.
      4) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
      5) Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.
      6) Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:
         a) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
         b) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.
         c) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.
         d) LED indication for free cooling, sensor, and damper operation.
         e) One-line LCD interface screen for setup, configuration and troubleshooting.
         f) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®[1].
         g) Sensor failure loss of communication identification.
         h) Capabilities for use with multiple-speed or single speed indoor fan systems.
         i) Digital sensors: Dry bulb and Enthalpy.

10. Overhead Suspension Package:
    Package shall include necessary brackets to support units in a horizontal ceiling installation.

11. CO_2 Sensor:

    Sensor shall provide the ability to signal the economizer to open when the space CO_2 level exceeds the predetermined setpoint.

12. Condensate Drain Trap:

    Trap shall have transparent, serviceable design for easy cleaning. Kit shall include overflow shutoff switch and wiring harness for connection to an alarm if desired.

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Guide specifications — FAL150-336

Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: **12.5 to 30 Tons, Nominal Cooling**

Model Numbers: **FAL (Direct-Expansion Coil)**

Part 1 — General

1.01 System Description

A. Indoor, packaged air-handling unit for use in commercial split systems. Unit shall have a multi-position design and shall be capable of horizontal or vertical installation on a floor or in a ceiling, with or without ductwork. (Only vertical units are to be applied without ductwork.)

B. Unit with direct-expansion coil shall use R-454B in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 Quality Assurance

A. Coils shall be designed and tested in accordance with ASHRAE®[1] 15 Safety Code for Mechanical Refrigeration (U.S.A.)

B. Unit shall be constructed in accordance with UL Standard 60335-1 and 60335-2-40, and shall carry the UL and UL, Canada, labels.

C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation.

D. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.

E. Direct-expansion and chilled water coils shall be burst and leak tested at 435 psi.

1.03 Delivery and Storage

A. Units shall be stored and handled per manufacturer's recommendations.

1.04 Safeties

A. A2L Refrigerant Leak Dissipation System (Electromechanical):

1. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40.
2. System shall be designed for the life of the unit.
3. Dissipation system shall be automatic and disable compressors on CAL condensing units.
4. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.
5. Factory installed dissipation controller shall use onboard microprocessor and include:
   a. Automatic reset after a dissipation event has occurred.
   b. Onboard LED with flash code to indicate current unit status and hardware failures.
   c. Depressible "Test" button to allow for a system test and recall/reset of leak detection history.
   d. 24V dry contact alarm terminal to allow for external notification of leak detection.
6. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
7. Dissipation system shall "Fail Safe" per UL requirements.
8. Dissipation shall allow smoke and building fire systems to override in case of event.

Part 2 — Products

2.01 Equipment

A. Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of forward-curved belt-driven centrifugal fan(s), motor and drive assembly, pre-wired fan motor contactor, factory-installed refrigerant metering devices (direct-expansion coil units), cooling coil, 2 in. (51 mm) disposable air filters, and condensate drain pans for vertical or horizontal configurations.

1. Cabinet shall be constructed of mill-galvanized steel.
2. Cabinet panels shall be fully insulated with 1/2 in. (12.7 mm) fire-retardant material.
3. Unit shall contain non-corroding condensate drain pans for both vertical and horizontal applications. Drain pans shall have connections on right and left sides of unit to facilitate field connection. Drain pans shall have the ability to be sloped toward the right or left side of the unit to prevent standing water from accumulating in pans.
4. Unit shall have factory-supplied 2 in. (51 mm) throwaway-type filters installed upstream from the cooling coil. Filter access shall be from either the right or left side of the unit.

B. Coils:

DX coil is 4-row and consists of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.

1. Direct-expansion coils shall feature factory installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be R-454B compatible and capable of external adjustment. Coil tubing shall be internally rifled to maximize heat transfer.

C. Operating Characteristics:

1. When combined with matching CAL condensing unit the system shall be capable of starting and running at ambient outdoor temperatures from 35°F (2°C) to 125°F (52°C) in cooling mode.

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2. Unit shall operate at ±10% from rated voltage.

D. Motor:
   1. Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.
   2. Motors rated at 1.3 through 3.7 hp shall have inherent thermal overload protection. Motors rated at 5 hp shall be protected by a circuit breaker.
   3. Evaporator-fan motor shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers. Evaporator motors do not have conventional horsepower (hp) ratings listed on the motor nameplate. Motors are designed and qualified in the “air-over” location downstream of the cooling coil and carry a maximum continuous bhp rating that is the maximum application bhp rating for the motor; no “safety factors” above that rating may be applied.
   4. All evaporator-fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT), effective October 24, 1997.

E. Control Box:
   1. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

F. 2-Speed Indoor Fan Motor System for 2-stage cooling models (standard):
   1. Evaporator fan motor.
      a. Shall have permanently lubricated bearings.
      b. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating.
      c. Shall be Variable Frequency duty and 2-speed control.
      d. Shall contain motor shaft grounding ring to prevent electrical bearing fluting damage by safely diverting harmful shaft voltages and bearing currents to ground.
   2. Variable Frequency Drive (VFD) Standard:
      a. Shall be installed inside the unit cabinet, mounted, wired and tested.
      b. Shall contain Electromagnetic Interference (EMI) frequency protection.
      c. Insulated Gate Bi-Polar Transistors (IGBT) used to produce the output pulse width modulated (PWM) wave-form, allowing for quiet motor operation.
      d. Self diagnostics with fault and power code LED indicator. Field accessory Display Kit available for further diagnostics and special setup applications.
      e. RS485 capability standard.
      f. Electronic thermal overload protection.
      g. 5% swinging chokes for harmonic reduction and improved power factor.
      h. All printed circuit boards shall be conformal coated.

G. Special Features:
   1. Alternate Motor and Drive:
      An alternate motor and/or medium-static or high-static drive shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.
   2. External Paint:
      Where conditions require, units shall be painted with an American Sterling Gray finish.
   3. Hot Water Coil:
      Coil shall be 2-row, U-bend coil with copper tubes and aluminum plate fins bonded to the tubes by mechanical expansion. Coil shall be mounted in a galvanized steel housing that shall be fastened to the unit’s fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 150 psig.
   4. Steam Distributing Coil:
      Coil shall consist of one row of copper tubes with aluminum plate fins, and shall have inner steam distributing tubes. Coil shall be mounted in a galvanized steel housing and shall be fastened to the unit’s fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 20 psig at 260°F.
   5. Electric Heaters:
      Heaters for nominal 240-v, 480-v, or 575-v, 3-phase, 60 Hz shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be UL (U.S.A.) and UL, Canada, agency approved, and shall have single-point power wiring. Heater assembly shall include contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters shall not be used with air discharge plenum.
   6. Air Discharge Plenum:
      Plenum shall be factory-supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with movable vanes for horizontal or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit’s fan deck for

blow-thru air distribution. Plenum shall not be used with electric heaters.

7. Return-Air Grille:
   Grille shall be factory-supplied for field installation on the unit's return air opening.
8. Unit Subbase:
   Subbase assembly shall be factory-supplied for field installation. Subbase shall elevate floor-mounted vertical units to provide access for correct condensate drain connection.
9. Economizers:
   a. Accessory Ultra Low Leak EconomizerONE. (Field-installed) Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler.
      1) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
      2) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on in-take or return shall not be acceptable.
      3) Shall include all hardware, actuator and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
      4) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
      5) Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.
      6) Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:
         a) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
         b) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.
         c) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.
         d) LED indication for free cooling, sensor, and damper operation.
         e) One-line LCD interface screen for setup, configuration and troubleshooting.
         f) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®[1].
         g) Sensor failure loss of communication identification.
         h) Capabilities for use with multiple-speed or single speed indoor fan systems.
         i) Digital sensors: Dry bulb and Enthalpy.
10. Overhead Suspension Package:
    Package shall include necessary brackets to support units in a horizontal ceiling installation.
11. CO_2 Sensor:
    Sensor shall provide the ability to signal the economizer to open when the space CO_2 level exceeds the predetermined setpoint.
12. Condensate Drain Trap:
    Trap shall have transparent, serviceable design for easy cleaning. Kit shall include overflow shutoff switch and wiring harness for connection to an alarm if desired.
13. Adaptive Dehumidification System:
    The Adaptive Dehumidification System shall be factory-installed and shall provide greater dehumidification of the occupied space by providing a mode of dehumidification operation in addition to its normal design cooling mode:
    a. Subcooling mode further sub cools the hot liquid refrigerant leaving the condenser coil when both temperature and humidity in the space are not satisfied.

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Lewisburg, Tennessee 37091 USA
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Form FAL11-072-336-02PD
Replaces: FAL11-072-336-01PD