



United Technologies  
turn to the experts

## 38P Condensing Units – 50Hz



**38P 18K—24K**



**38P 30K—60K**



Quality Assurance  
Certificate Reg. No:  
04 100 950420



Subject to change without notice

Manufacturer's Name: Saudi Airconditioning Manufacturing Co. Ltd.

Country of origin : Jeddah, Saudi Arabia

Nearest port of embarkation: Jeddah Islamic port

Product classification: Commercial and Residential

## Product Data Catalog

### 38P – 50Hz

**Nominal Cooling Capacity 1.5 – 5.0 Tons**

**HFC R-410A Refrigerant**

The 38P series energy efficient split condensing units incorporate innovative technology to provide reliable cooling performance. Units are pre-wired, pre-charged with Puron® R-410A refrigerant, and tested at the factory. These units can be placed on the side of a building or can be placed on a roof without roof curbs. Each unit is designed to occupy a minimal space. Piping and drain connections are readily accessible.

Contact your local Carrier representative for additional reference materials.

## Table of Contents

Features / Benefits.....	2
Model Number Nomenclature.....	3
Physical Data.....	4
Base Unit Dimensions .....	5
Optional Deflector Accessory .....	7
Combination Matrix and Ratings.....	9
Electrical Data Table.....	9
Detailed Performance Data .....	10
Typical Wiring Schematic .....	12
Application Data.....	14
Guide Specifications .....	15

## Features / Benefits

- Every compact one-piece unit arrives fully assembled, charged, tested, and ready to run
- Designed especially for high ambient environment
- EER (Energy Efficiency Ratio) up to 12.1
- The small footprint coupled with the horizontal airflow design means that the 38P Series units can be installed within 200 mm (8 in) of an outside wall, on a roof, balcony or deck

## Wide Range of Sizes

The 38P Series is available in 6 nominal sizes from 1.5 ton to 5.0 ton to meet the needs of residential and light commercial application.

## Application Versatility

The unit can be combined with a wide variety of evaporator coils and blower packages to provide quiet, dependable comfort. Unit can be installed on a roof or at ground level.

## Easy access for service and maintenance

A single panel provides immediate access to the isolated compressor and control compartment, allowing a service technician access to check unit operation without losing condenser airflow. Coils can be cleaned quickly from the outside.

## Secure operation

If security is an issue, outdoor and indoor units are connected only by refrigerant piping and wiring to prevent intruders from crawling through ductwork. The 38P Series units can be installed 8 in. away from outside walls, protecting coils from vandals and severe weather.

## Fast installation

Carrier's compact systems take a few hours with only wire and piping needed to be installed. The fast and easy installation ensures minimal disruption to customers in the home or workplace. This Carrier advantage is especially beneficial in retrofit situations.

## External Service Valves

Service valves are brass, front seating type. The 38P Series has flare connections, sweat adapter kit is provided for 7/8" tube size. Valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures.

## Built-in reliability

Carrier split system outdoor units are designed to provide years of trouble-free operation. The 38P Series condensing units are the only dedicated commercial units with all safety features standard to ensure high performance and lasting reliability under the most demanding situations. High-pressure and low-pressure safety switches are standard.

# MODEL NUMBER NOMENCLATURE - 38P - R410A SERIES

1	2	3	4	5	6	7	8	9	10	11	12	13	14
3	8	P	K	C	1	8	D	S	7	0	-	0	2

**Model Type**  
38P Series  
Condensing Unit

**Model Series**  
K = Cool

**Compressor Type**  
C = Reciprocating  
S = Scroll

**Unit Size**  
18 = 1.5 Ton  
24 = 2.0 Ton  
30 = 2.5 Ton  
36 = 3.0 Ton  
48 = 4.0 Ton  
60 = 5.0 Ton

**Application**  
D = Ducted

**Power Supply (V/Ph/Hz)**  
7 = 230/1/50  
9 = 400/3/50

**Coil Fin Options**  
S = Bare Fins (Standard)

**Indoor Configuration**  
0 = Generic

**Design Review**  
— = Factory Assigned

**Design Revision**  
0 = Factory Rev.

**Comp. Ref.**  
1  
2

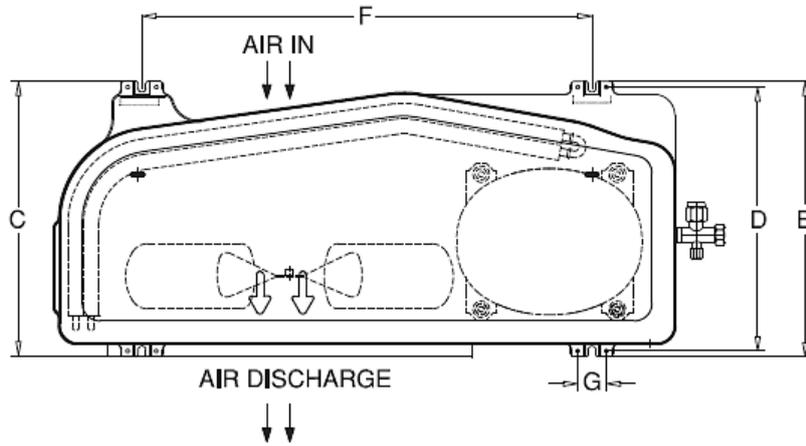
## 38P Unit Physical Data

38P Model	18	24	30	36	48	60
Unit Size (Tons)	1.5	2.0	2.5	3.0	4.0	5.0
Operating Weight(kg)	63.0	67.5	89.3	92.0	95.0	105.0
Unit Dimensions (H x W x D)	705 x 918 x 388		945 x 1132 x 449			1045 x 1132 x 449
Unit Color	Grey Enamel Finish					
Maximum Cooling Ambient (F)	125					
Minimum Cooling Ambient (F)	55					
<b>Compressor</b>						
Cool Only	Reciprocating			Scroll		
<b>Metering Device</b>						
Ducted Application	Nozzle in the indoor unit					
High Pressure Switch (Trip/ Reset) - PSIG	630 / 505					
Low Pressure Switch (Trip/ Reset) - PSIG	54 / 117					
<b>Refrigeration System*</b>						
Refrigerant Type	Puron® R-410A					
Initial Charge(kg)	2.09	2.78	3.46	4.05	3.76	4.37
Connection Type	Flare		Flare/Sweat			
Liquid Line	3/8 Inch					
Vapour Line**	5/8 Inch			7/8 Inch		
Max Length	50 ft		100 ft			
Max Lift	30 ft					
<b>Outdoor Fan</b>						
Motor Type	Permanent Split Capacitor					
RPM - CFM	1100-1800		860 - 3700			
Diameter, No. Blades	18 inch, 3		24 Inch, 3			
Motor Watts	125		200		373	
<b>Condenser Coil</b>						
Standard Coil Material (Pipes/Fins)	Cu/Al					
Coil test Pressure (PSIG)	400-450					

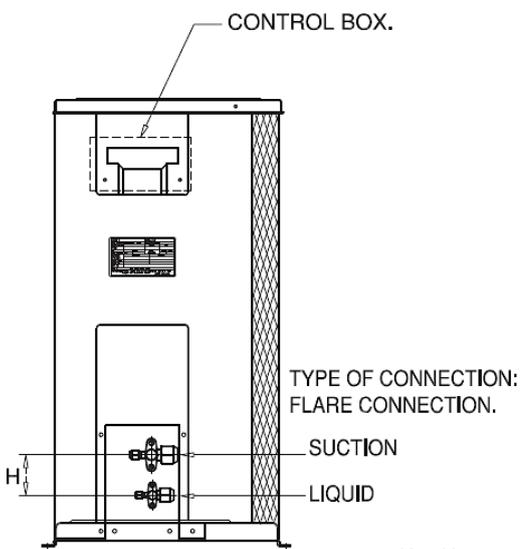
\* For Long line application refer to Long Line Guide Line (Single Stage Only) - Available in the Installation, Operation & Maintenance manual.

\*\* Sweat adapter kit is provided for 7/8" tube size.

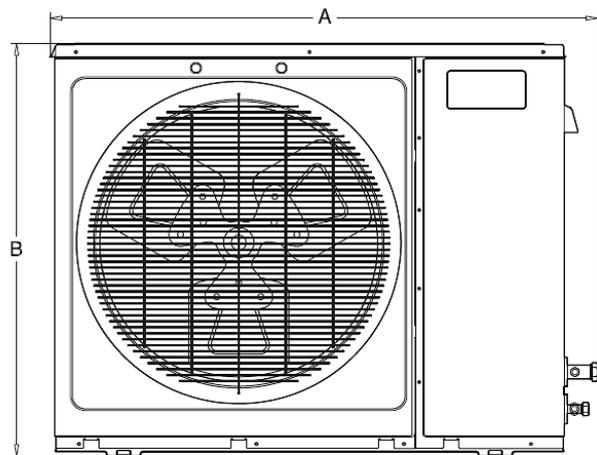
## Base Unit Dimensions – 38P Series Size 18-24



**Top View**



**Side View**



**Front View**

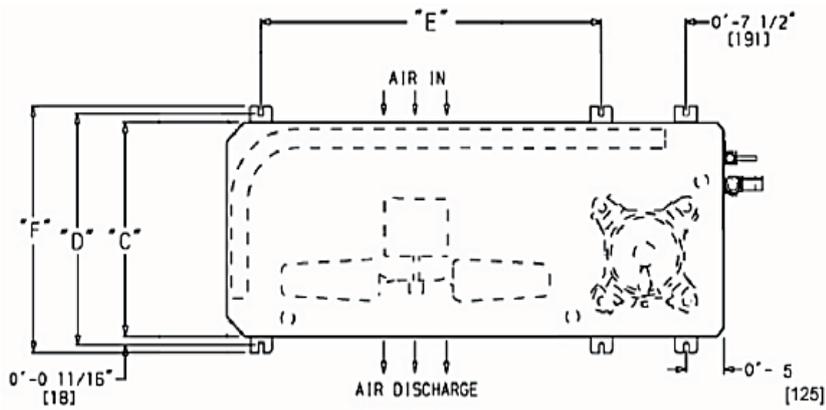
**Dimensions for Unit Model Size 18 - 24**

A		B		C		D		E		F		G		H	
in.	mm	in.	mm	in.	mm										
36.14	918	27.76	705	15.24	387	14.65	372	15.28	388	24.80	630	1.57	40	2.49	63.2

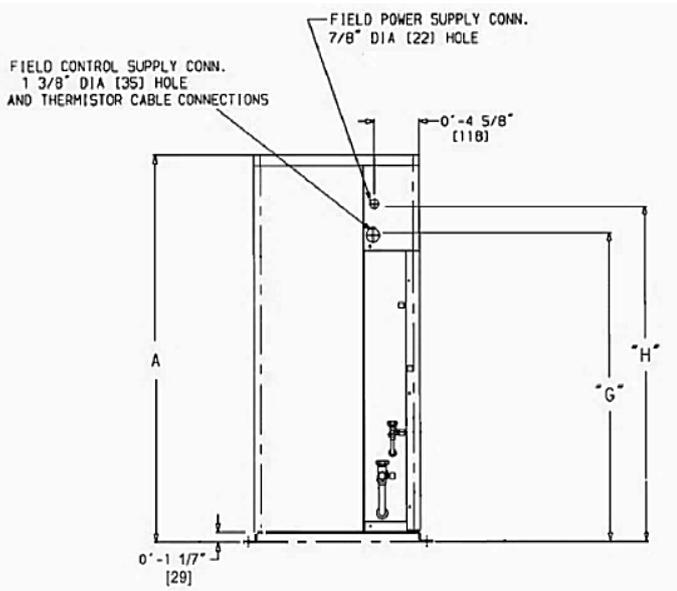
**Notes:**

1. Free distance around the unit from the wall.
  - a. Front: 59 in. (1500 mm) min.
  - b. Rear & Sides: 20 in. (500 mm) min.
2. Size of wire: 12 AWG
3. \* Weights given are approximate for each unit.

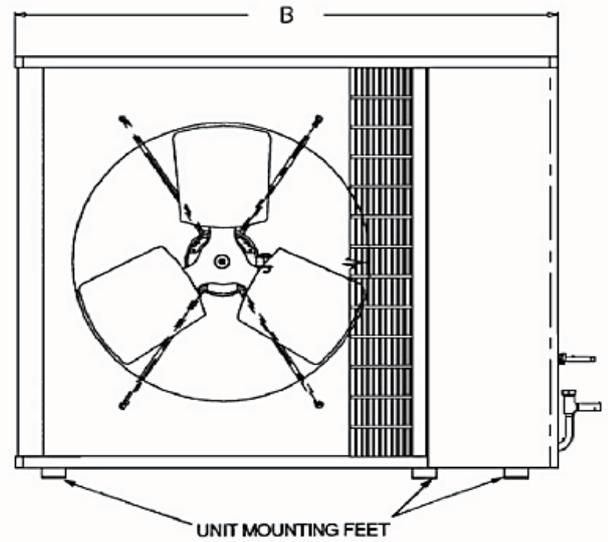
# Base Unit Dimensions – 38P Series Size 30-60



**Top View**



**Side View**



**Front View**

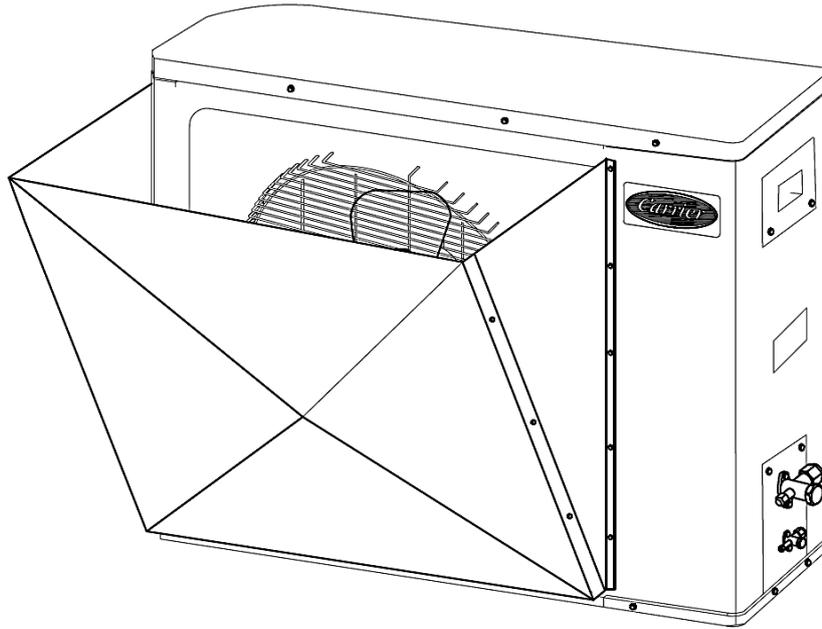
**Dimensions**

A		B		C		D		E		F		G		H	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>Unit Model Size 30 - 48</b>															
37.19	945	44.56	1132	17.46	444	18.44	468.3	30.49	774.4	19.63	498.5	19.63	498.5	29.63	752.5
<b>Unit Model Size 60</b>															
41.13	1045	44.56	1132	17.46	444	18.44	468.3	30.49	774.4	19.63	498.5	23.56	598.5	33.56	852.5

**Notes:**

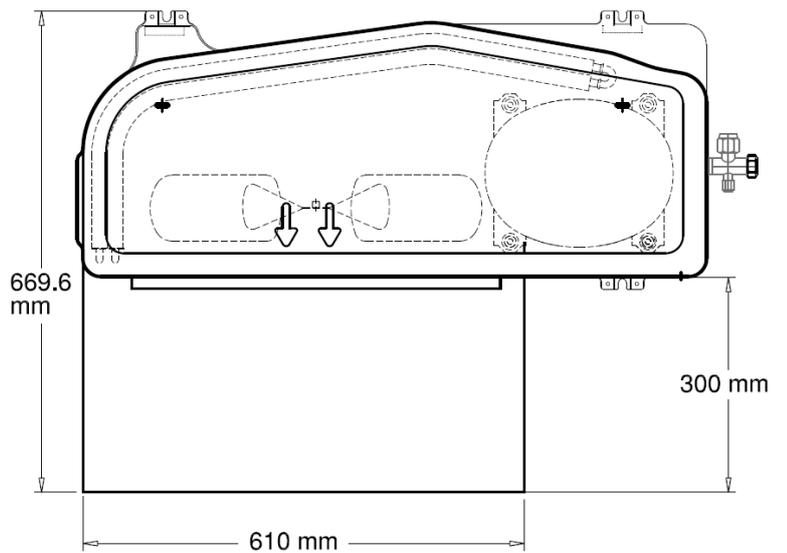
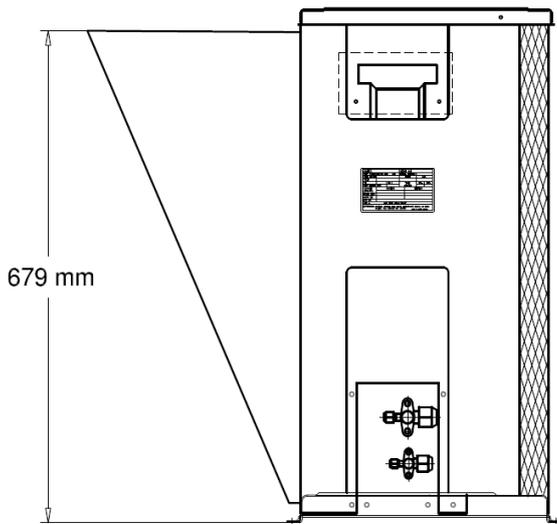
1. Free distance around the unit from the wall.
  - a. Front: 59 in. (1500 mm) min.
  - b. Rear & Sides: 20 in. (500 mm) min.
2. Size of wire: 12 AWG
3. \* Weights given are approximate for each unit.

# Optional Deflector Accessory – 38P Series Size 18-24



SIDE VIEW

TOP VIEW

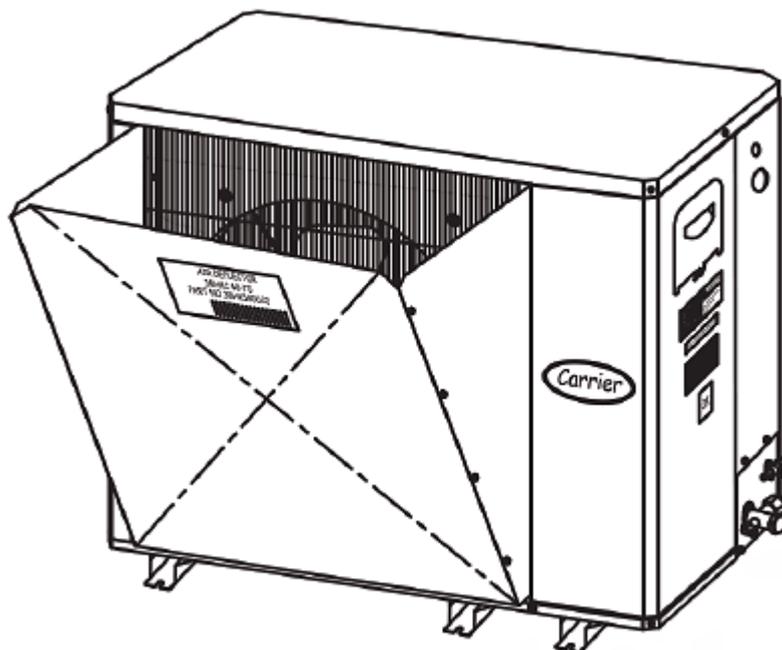


The air deflector accessory converts the direction of air flow in the side discharge outdoor condensing units from horizontal direction to vertical direction to make the unit more flexible and suitable for top discharge applications.

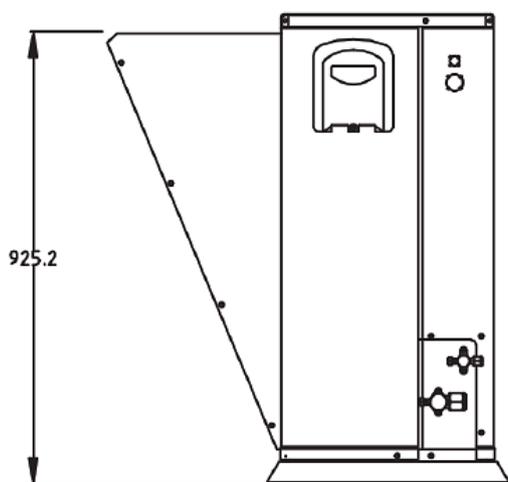
The air deflector accessory consists of three pieces of painted galvanized sheet metal parts assembled at site.

**Note:** This accessory is only available for 38P Size 18-24.

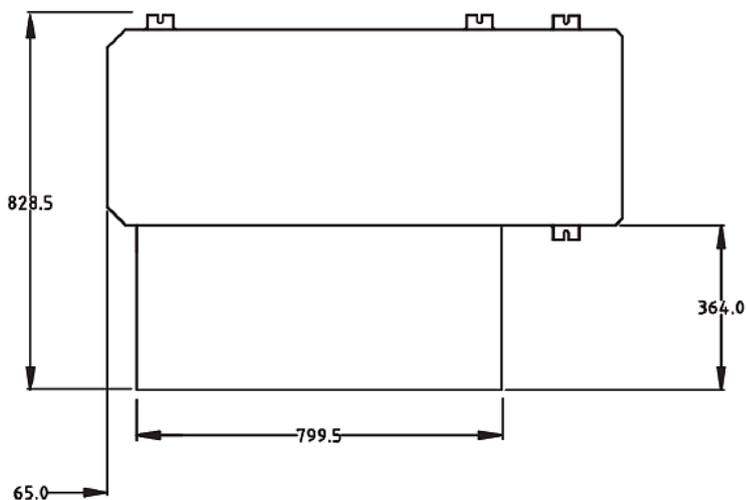
## Optional Deflector Accessory – 38P Series Size 30-60



SIDE VIEW



TOP VIEW



The air deflector accessory converts the direction of air flow in the side discharge outdoor condensing units from horizontal direction to vertical direction to make the unit more flexible and suitable for top discharge applications.

The air deflector accessory consists of three pieces of painted galvanized sheet metal parts assembled at site.

**Note:** This accessory is only available for 38P Size 30-60.

# Combination Matrix and Ratings

Unit Size	Outdoor Model	Indoor Model	Indoor Type	Capacity (Btu/hr)		EER (Btu/hr) / W		Power Input (kW)		AMPS	
				AHRI	T3	AHRI	T3	AHRI	T3	AHRI	T3
18	38PKC18DS70-02	FB4PSSF018000E	Ducted	20600	17000	11.85	8.60	1.738	1.977	8.5	9.5
24	38PKC24DS70-02	FB4PSSF024000E	Ducted	25700	20600	11.90	8.55	2.160	2.409	10.5	11.5
30	38PKC30DS70-02	FB4PSSF030000E	Ducted	30000	24000	11.90	8.40	2.52	2.85	11.0	12.41
36	38PKS36DS90-01	FB4PSSF036000E	Ducted	35000	29000	11.95	8.65	2.93	3.35	5.30	5.63
48	38PKS48DS90-01	FB4PSSF048000E	Ducted	49000	45000	11.81	8.61	4.15	5.23	6.35	7.85
60	38PKS60DS90-01	FB4PSSF060000E	Ducted	56000	49500	12.10	8.65	4.63	5.72	7.30	8.85

## Legend and Notes for Combination Matrix and Ratings

**CFM** — Cubic Feet per Minute

**EER** — Energy Efficiency Ratio

**AHRI** — Air-Conditioning, Heating, and Refrigerant Institute

**Notes:** Testing as per AHRI testing standard and T3 testing standard

## Electrical Data

Size	Outdoor Model	Power Supply (V/Ph/Hz)	Voltage		Compressor		FAN	MCA	MOCP
			Min	Max	RLA	LRA	FLA		
18	38PKC18DS70-02	230/1/50	207	253	7.9	48	1.00	10.9	15
24	38PKC24DS70-02	230/1/50	207	253	9.3	64	1.00	12.6	20
30	38PKC30DS70-02	230/1/50	207	253	11.4	64.0	1.60	15.9	25
36	38PKS36DS90-01	400/3/50	360	440	6.6	46.0	1.60	9.9	15
48	38PKS48DS90-01	400/3/50	360	440	7.6	51.5	2.25	11.8	15
60	38PKS60DS90-01	400/3/50	360	440	9.5	67.1	2.25	14.1	20

## Legend and Notes for Electrical Data Table

**RLA** — Rated Load Amps

**LRA** — Locked Rotor Amps

**FLA** — Full Load Amps

**MCA** — Minimum Circuit Amps

**MOCP** — Maximum Overcurrent Protection

# Detailed Performance Data

## Matching 38P with FB4P

Nom Cap. Mbtuh	Evaporator Air		Condenser Air Entering Deg. F																	
			85			95			105			115			118			125		
	CFM	EWB	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*
			Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen	
18	500	72	22.6	11.4	1.6	21.5	10.9	1.7	19.8	10.2	1.9	16.5	10.2	2.1	16.0	9.3	2.2	15.0	8.8	2.3
		67	20.4	14.2	1.6	18.9	13.6	1.7	17.2	12.8	1.9	16.7	12.8	2.1	14.8	11.8	2.2	13.9	11.2	2.3
		62	18.6	16.2	1.6	17.5	15.6	1.7	15.6	14.6	1.9	15.1	14.6	2.1	13.3	13.3	2.2	12.4	12.7	2.3
		57	17.5	17.5	1.6	16.7	16.7	1.7	15.1	16.7	1.9	14.7	16.7	2.1	13.3	13.3	2.2	12.4	12.7	2.3
	575	72	23.4	12.3	1.6	22.3	11.9	1.7	20.6	11.3	1.9	20.0	11.3	2.1	17.9	10.3	2.2	16.8	9.8	2.3
		67	21.2	15.9	1.6	19.7	15.2	1.7	18.0	14.5	1.9	17.5	14.5	2.1	15.5	13.5	2.2	14.6	12.8	2.3
		62	19.7	18.4	1.6	18.4	17.7	1.8	16.7	16.7	1.9	16.2	16.7	2.1	14.7	14.7	2.2	13.8	14.0	2.3
	650	72	23.9	13.1	1.6	22.8	12.7	1.7	21.2	12.2	1.9	20.6	12.2	2.1	18.4	11.2	2.2	17.3	10.7	2.3
		67	21.7	17.3	1.6	<b>20.6</b>	16.9	<b>1.7</b>	18.7	16.1	1.9	18.1	16.1	2.1	16.1	15.0	2.2	15.1	14.3	2.3
		62	20.6	20.3	1.6	19.2	19.2	1.7	17.8	17.8	1.9	17.2	17.8	2.1	15.8	15.8	2.2	14.8	15.0	2.3
		57	20.5	20.5	1.6	19.2	19.2	1.7	17.8	17.8	1.9	17.2	17.8	2.1	15.8	15.8	2.2	14.8	15.0	2.3
	24	600	72	28.3	14.1	2.0	27.0	13.6	2.2	25.5	13.0	2.4	24.3	13.0	2.6	22.9	12.0	2.7	21.5	11.4
67			25.5	17.6	2.0	24.1	16.9	2.2	22.7	16.3	2.4	21.6	16.3	2.6	19.8	15.0	2.7	18.5	14.3	2.8
62			23.2	19.8	1.9	22.0	19.2	2.1	20.8	18.6	2.3	19.7	18.6	2.5	17.6	17.0	2.6	16.5	16.2	2.7
57			21.6	21.6	1.9	20.7	20.7	2.1	19.7	20.7	2.3	18.7	20.7	2.5	17.3	17.3	2.6	16.2	16.5	2.7
700		72	29.3	15.1	2.0	27.9	14.5	2.2	26.3	13.9	2.4	25.0	13.9	2.6	23.8	13.0	2.7	22.3	12.4	2.8
		67	26.4	19.2	2.0	25.0	18.6	2.2	23.6	17.9	2.4	22.4	17.9	2.6	20.6	16.6	2.7	19.3	15.9	2.8
		62	24.4	22.0	2.0	23.1	21.4	2.2	21.8	20.7	2.4	20.7	20.7	2.6	18.8	18.8	2.7	17.7	18.0	2.8
		57	23.4	23.4	1.9	22.4	22.4	2.1	21.4	21.4	2.4	20.3	21.4	2.6	18.8	18.8	2.7	17.7	18.0	2.8
800		72	29.9	16.0	2.0	28.5	15.4	2.2	26.9	14.8	2.4	25.5	14.8	2.6	24.3	13.8	2.7	22.8	13.2	2.8
		67	27.1	20.7	2.0	<b>25.7</b>	20.1	<b>2.2</b>	24.2	19.4	2.4	23.0	19.4	2.6	21.3	18.2	2.7	19.9	17.4	2.8
		62	25.3	24.1	2.0	24.0	23.3	2.2	22.6	22.6	2.4	21.5	22.6	2.6	20.1	20.1	2.7	18.9	19.2	2.8
		57	24.9	24.9	2.0	23.2	23.8	2.2	22.6	22.6	2.4	21.5	22.6	2.6	20.1	20.1	2.7	18.9	19.2	2.8
30	750	72	32.4	16.2	2.3	31.3	15.8	2.5	29.7	15.1	2.8	27.8	14.4	3.0	27.2	14.1	3.0	25.5	13.5	3.2
		67	30.2	19.8	2.3	28.7	19.2	2.5	26.9	18.4	2.7	24.5	17.4	2.9	23.8	17.1	2.9	21.9	18.7	3.0
		62	27.6	23.2	2.3	25.6	22.3	2.4	23.6	21.3	2.6	21.3	20.1	2.7	20.5	19.7	2.8	18.7	18.7	2.9
		57	25.1	25.1	2.2	23.7	23.7	2.4	22.2	23.7	2.5	20.5	20.5	2.7	20.0	20.0	2.8	18.6	18.6	2.9
	850	72	32.9	16.7	2.3	31.9	16.3	2.5	30.4	15.8	2.8	28.5	15.1	3.0	27.8	14.9	3.0	26.1	14.3	3.2
		67	30.9	20.7	2.3	29.4	20.2	2.5	27.6	19.5	2.7	25.3	18.6	2.9	24.5	18.3	2.9	22.5	17.5	3.0
		62	28.4	24.7	2.3	26.5	23.8	2.5	24.3	22.7	2.6	22.0	21.4	2.8	21.2	21.2	2.8	19.7	19.7	2.9
		57	26.4	26.4	2.2	25.0	25.0	2.4	23.4	23.4	2.6	21.6	21.6	2.7	21.0	21.0	2.8	19.7	19.7	2.9
	950	72	33.2	17.1	2.3	32.3	16.9	2.6	30.9	16.3	2.8	29.0	15.7	3.0	28.3	15.5	3.1	26.6	14.9	3.2
		67	31.4	21.5	2.3	<b>30.0</b>	21.1	<b>2.5</b>	28.2	20.5	2.7	25.9	19.7	2.9	25.1	19.3	3.0	23.1	18.5	3.1
		62	29.0	26.0	2.3	27.2	25.2	2.5	25.0	24.0	2.6	22.7	22.7	2.8	22.0	22.0	2.8	20.6	20.6	2.9
		57	27.6	27.6	2.3	26.1	26.1	2.4	24.4	24.4	2.6	22.6	22.6	2.8	22.0	22.0	2.8	20.6	20.6	2.9

Notes:

- Capacity rating is shown at an on coil dry bulb of 80F(26.6C)
- kW\* — Total System Power Input
- Ewb — Entering Wet-Bulb
- SHC — Sensible Heat Capacity (1000 Btuh) Gross
- Bold, Italics, Underlined** - Standard Ratings
- Formulas:
  - Leaving db = Entering - Sensible Heat Cap / (1.09 x CFM)
  - Leaving wb = wb corresponding to air leaving coil (hwb)
  - hwb Leaving = hwb entering - total cap(Btuh)/(4.5 X CFM)
- Direct interpolation is permissible. Do not extrapolate.

# Detailed Performance Data

## Matching 38P with FB4P (Continued)

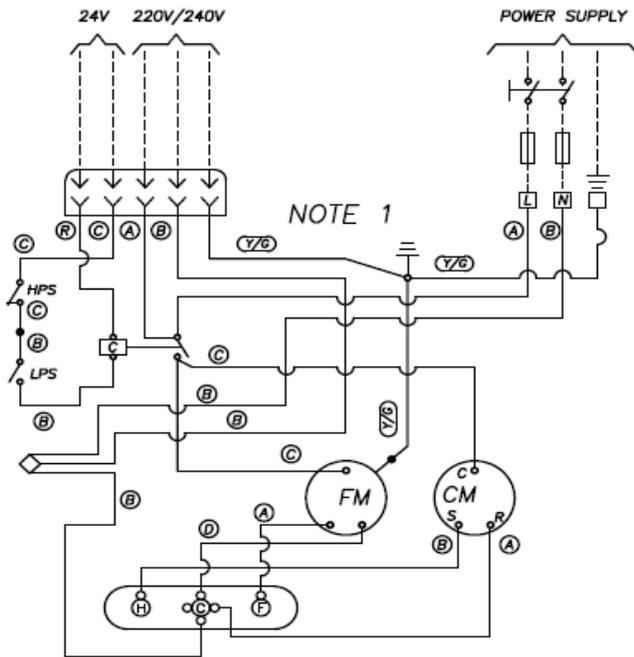
Nom Cap. Mbtuh	Evaporator Air		Condenser Air Entering Deg. F																	
			85			95			105			115			118			125		
	CFM	EWB	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*	Cap. MBH		kW*
			Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen		Tot	Sen	
36	1000	72	38.6	19.8	2.6	37.3	19.3	2.9	35.7	18.7	3.3	33.7	18.0	3.7	33.1	17.8	3.8	31.4	17.2	4.1
		67	35.5	24.6	2.6	33.9	24.0	2.9	32.0	23.1	3.3	29.7	22.2	3.6	29.1	22.0	3.7	27.4	24.3	4.0
		62	32.0	28.9	2.6	30.2	28.0	2.9	28.3	27.0	3.2	26.3	25.8	3.5	25.6	25.6	3.6	24.3	24.3	3.9
		57	30.5	30.5	2.6	29.1	29.1	2.9	27.6	29.1	3.2	26.0	26.0	3.5	25.5	25.5	3.6	24.3	24.3	3.9
	1100	72	39.0	20.4	2.6	37.8	20.0	2.9	36.2	19.4	3.3	34.3	18.7	3.7	33.6	18.5	3.8	32.0	17.9	4.1
		67	36.1	25.7	2.6	34.5	25.1	2.9	32.5	24.3	3.3	30.3	23.4	3.6	29.6	23.1	3.7	27.9	22.4	4.0
		62	32.7	30.4	2.6	30.9	29.4	2.9	29.0	28.3	3.2	27.0	27.0	3.6	26.4	26.4	3.7	25.2	25.2	3.9
		57	31.5	31.5	2.6	30.1	30.1	2.9	28.6	28.6	3.2	26.9	26.9	3.6	26.4	26.4	3.7	25.2	25.2	3.9
	1200	72	39.4	20.9	2.6	38.2	20.6	2.9	36.6	20.0	3.3	34.7	19.4	3.7	34.0	19.2	3.8	32.4	18.6	4.1
		67	36.6	26.6	2.6	<u>35.0</u>	26.1	<u>2.9</u>	33.1	25.4	3.3	30.8	24.5	3.6	30.1	24.2	3.8	28.4	23.5	4.0
		62	33.3	31.7	2.6	31.5	30.7	2.9	29.6	29.6	3.2	27.8	27.8	3.6	27.3	27.3	3.7	26.0	26.0	4.0
		57	32.5	32.5	2.6	31.0	31.0	2.9	29.5	29.5	3.2	27.8	27.8	3.6	27.2	27.2	3.7	26.0	26.0	4.0
48	1300	72	55.2	27.7	3.8	52.6	26.8	4.2	49.8	25.7	4.6	46.8	24.6	5.1	45.8	24.2	5.2	42.4	22.9	5.5
		67	49.1	33.8	3.7	46.5	32.8	4.1	44.0	31.7	4.5	40.6	30.3	5.0	39.2	29.8	5.1	36.2	32.6	5.4
		62	44.0	39.9	3.7	41.5	38.7	4.0	39.1	37.5	4.5	35.7	35.7	4.9	34.8	34.8	5.0	32.6	32.6	5.3
		57	42.4	42.4	3.7	40.4	40.4	4.0	38.5	40.4	4.4	35.7	35.7	4.9	34.7	34.7	5.0	32.5	32.5	5.3
	1500	72	56.8	29.5	3.8	54.0	28.4	4.2	51.1	27.3	4.6	48.0	26.2	5.1	47.0	25.8	5.2	43.7	24.6	5.6
		67	50.6	36.4	3.7	47.9	35.3	4.1	45.3	34.3	4.6	42.1	33.0	5.0	40.5	32.4	5.1	37.4	31.1	5.4
		62	45.5	43.2	3.7	43.0	42.0	4.1	40.7	40.7	4.5	38.0	38.0	4.9	36.9	36.9	5.0	34.7	34.7	5.3
		57	44.7	44.7	3.7	42.7	42.7	4.1	40.6	40.6	4.5	37.9	37.9	4.9	36.9	36.9	5.0	34.6	34.6	5.3
	1750	72	58.3	31.4	3.8	55.3	30.3	4.2	52.3	29.2	4.6	49.1	28.0	5.1	48.1	27.7	5.2	45.1	26.7	5.6
		67	52.1	39.6	3.8	<u>49.0</u>	38.5	<u>4.2</u>	46.6	37.4	4.6	43.5	36.1	5.1	41.8	35.5	5.2	38.7	34.1	5.4
		62	47.2	47.2	3.7	45.1	45.1	4.1	43.0	43.0	4.5	40.4	40.4	5.0	39.2	39.2	5.1	36.8	36.8	5.4
		57	47.1	47.1	3.7	45.0	45.0	4.1	42.9	42.9	4.5	40.3	40.3	5.0	39.1	39.1	5.1	36.7	36.7	5.4
60	1300	72	63.0	30.6	4.2	59.8	29.3	4.6	56.5	28.0	5.1	53.0	26.7	5.6	52.0	26.3	5.8	49.4	25.3	6.2
		67	56.2	36.6	4.1	52.9	35.1	4.6	49.6	33.7	5.0	46.3	32.2	5.5	45.3	31.8	5.7	42.8	36.1	6.1
		62	50.2	42.4	4.1	47.2	40.9	4.5	43.9	39.4	5.0	40.6	37.7	5.5	39.6	37.2	5.6	37.4	36.1	6.0
		57	46.9	46.9	4.1	44.5	44.5	4.5	42.1	44.5	4.9	39.4	39.4	5.4	38.6	38.6	5.6	36.9	36.9	6.0
	1500	72	65.2	32.4	4.2	61.9	31.1	4.7	58.4	29.8	5.1	54.8	28.4	5.7	53.7	28.0	5.8	51.0	27.0	6.3
		67	58.1	39.1	4.2	54.7	37.7	4.6	51.3	36.2	5.1	47.8	34.8	5.6	46.8	34.3	5.7	44.3	33.3	6.1
		62	52.0	45.8	4.1	48.9	44.3	4.5	45.6	42.7	5.0	42.2	40.9	5.5	40.4	40.4	5.6	39.2	39.2	6.0
		57	49.6	49.6	4.1	47.1	47.1	4.5	44.5	44.5	5.0	41.7	41.7	5.5	41.0	41.0	5.6	39.2	39.2	6.0
	1750	72	67.5	34.5	4.2	64.0	33.2	4.7	60.4	31.8	5.2	56.6	30.4	5.7	55.5	30.0	5.9	52.7	29.0	6.3
		67	60.1	42.2	4.2	<u>56.0</u>	40.8	<u>4.6</u>	53.1	39.3	5.1	49.5	37.8	5.6	48.4	37.4	5.7	45.7	36.3	6.1
		62	54.0	49.8	4.1	50.8	48.2	4.6	47.4	46.3	5.0	44.3	44.3	5.5	43.5	43.5	5.7	41.6	41.6	6.1
		57	52.4	52.4	4.1	49.8	49.8	4.5	47.0	47.0	5.0	44.3	44.3	5.5	43.5	43.5	5.7	41.6	41.6	6.1

Notes:

- Capacity rating is shown at an on coil dry bulb of 80F(26.6C)
- kW\* — Total System Power Input
- Ewb — Entering Wet-Bulb
- SHC — Sensible Heat Capacity (1000 Btuh) Gross
- Bold, Italics, Underlined*** - Standard Ratings
- Formulas:
  - Leaving db = Entering - Sensible Heat Cap / (1.09 x CFM)
  - Leaving wb = wb corresponding to air leaving coil (hwb)
  - hwb Leaving = hwb entering - total cap(Btuh)/(4.5 X CFM)
- Direct interpolation is permissible. Do not extrapolate.

# Typical Wiring Schematic – 38P Series

## 38PKC18 & 38PKC24 (230 – 1Ph – 50Hz) – Ducted



NOTE 1

NOTE 1 THE CONNECTION SEQUENCE DOESN'T REPRESENT THE PHYSICAL LAYOUT

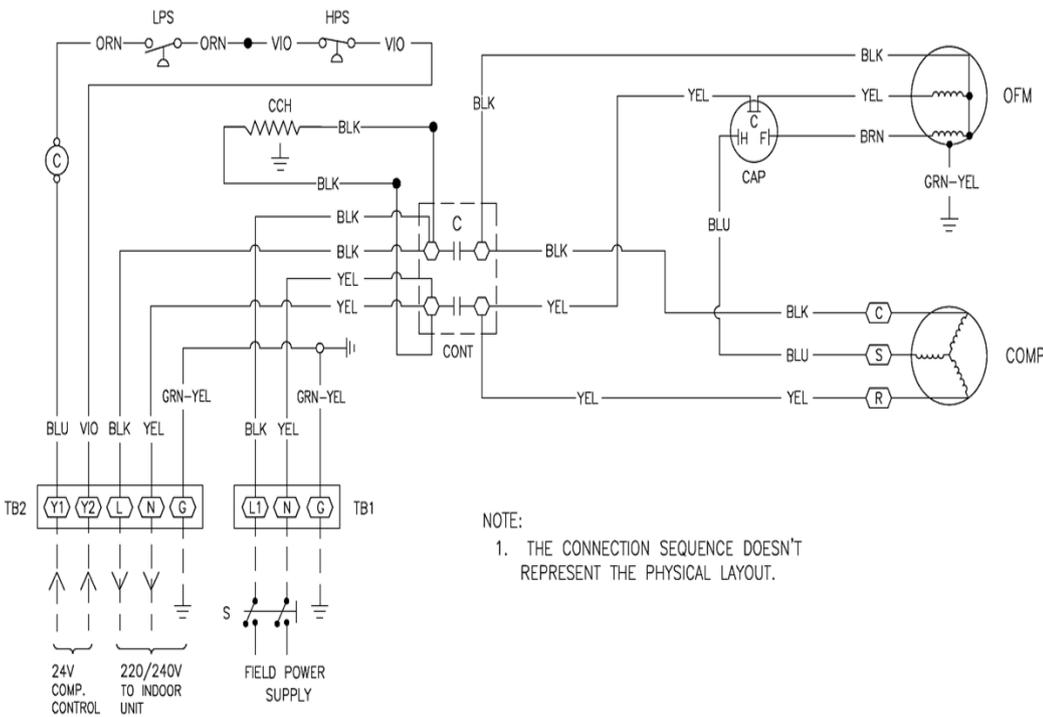
### LEGEND

- FACTORY WIRING
- WIRING BY OTHERS
- ⊗ CONNECTOR
- TERMINAL ON COMPONENTS
- TERMINAL ON STRIP
- ⋈ N.O.CONTACT
- ⋉ N.C.CONTACT
- Ⓜ CAPACITOR (COMP. & FAN MOTOR)
- Ⓛ COIL
- Ⓡ FUSE
- Ⓡ RESISTOR
- C COMPRESSOR CONTACTOR
- CM COMPRESSOR MOTOR
- FM FAN MOTOR EXTERNAL UNIT
- HPS HIGH PRESSURE SWITCH
- LPS LOW PRESSURE SWITCH
- ◇ CONTACTOR DUMMY TERMINAL

### WIRE COLOURS:

- A BROWN
- B BLUE
- C BLACK
- D YELLOW
- Y/G YELLOW/GREEN
- R RED

## 38PKC30 (230 – 1Ph – 50Hz) – Ducted



NOTE:  
1. THE CONNECTION SEQUENCE DOESN'T REPRESENT THE PHYSICAL LAYOUT.

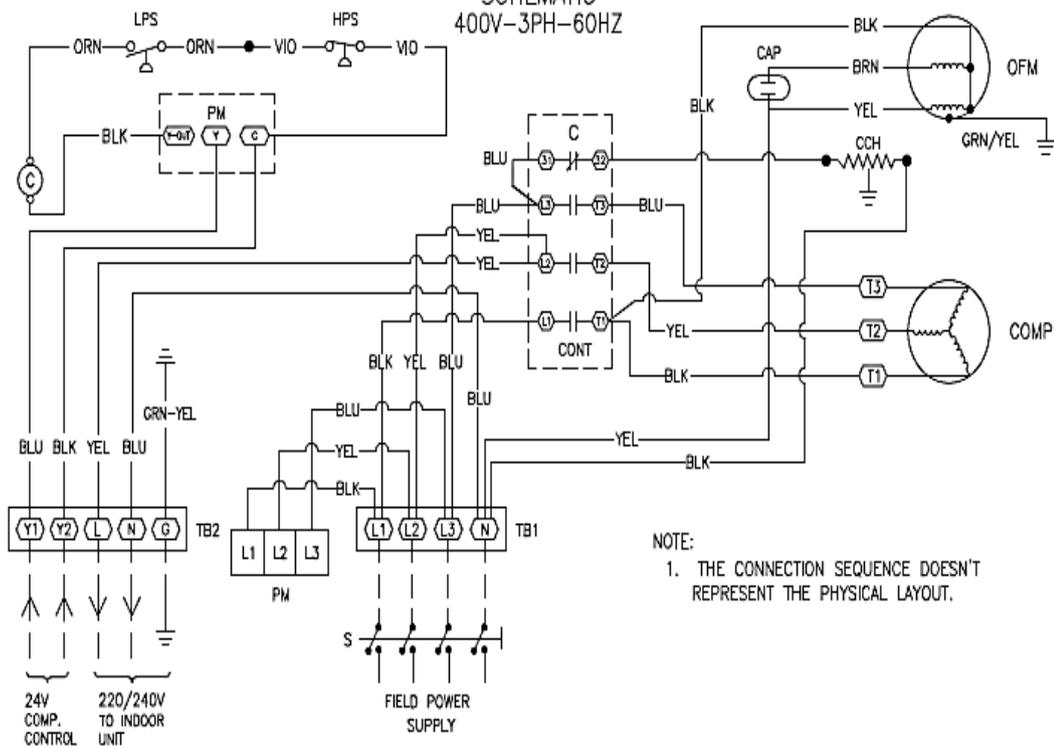
### LEGEND :

- SPLICE
- FACTORY WIRING
- OPTIONAL WIRING
- - - FIELD WIRING
- (X) TERMINAL (MARKED)
- [X] TERMINAL BLOCK
- Ⓛ GROUND
- Ⓛ CONTACTOR COIL
- CCH CRANK CASE HEATER
- CONT CONTACTOR
- C CONTACTOR CONTACT
- CAP CAPACITOR
- COMP COMPRESSOR
- OFM OUTDOOR FAN MOTOR
- HPS HIGH PRESSURE SWITCH
- LPS LOW PRESSURE SWITCH
- TB1&2 TERMINAL BLOCKS
- S MAIN SWITCH

# Typical Wiring Schematic – 38P Series (Continued)

## 38PKS36/48/60 (400 – 3Ph – 50Hz) – Ducted

SCHEMATIC  
400V-3PH-60HZ



### LEGEND :

- SPLICE
- FACTORY WIRING
- - - OPTIONAL WIRING
- - - FIELD WIRING
- (X) TERMINAL (MARKED)
- [X] TERMINAL BLOCK
- |— GROUND
- (C) CONTACTOR COIL
- C CONTACTOR CONTACT
- CAP CAPACITOR
- CCH CRANK CASE HEATER
- COMP COMPRESSOR
- CONT CONTACTOR
- HPS HIGH PRESSURE SWITCH
- LPS LOW PRESSURE SWITCH
- OFM OUTDOOR FAN MOTOR
- PM PHASE MONITOR RELAY
- S MAIN SWITCH
- TB1&2 TERMINAL BLOCKS

NOTE:  
1. THE CONNECTION SEQUENCE DOESN'T REPRESENT THE PHYSICAL LAYOUT.

## Application data

### Unit selection

Select equipment to match or be slightly less than anticipated peak load. This provides better humidity control, fewer unit cycles, and less part-load operation.

For units used in spaces with high sensible loads, base equipment selection on unit sensible load, not on total anticipated load. Adjust for anticipated room wet bulb temperature to avoid under sizing equipment.

When selecting equipment that has outdoor air introduced into the unit, determine the mix conditions of room air and outdoor air at design conditions. The cooling capacity tables in this literature are based on 80.6 F edb. To select the proper equipment, adjust for actual dry-bulb and wet-bulb conditions with the required outdoor air.

### Unit mounting

**Unit leveling:** For reliable operation, units should be level in all planes.

**Clearance:** Provide adequate clearance for airflow. See dimensional drawings for proper clearances. The condensing units are designed for free-blow application. Air inlets and outlets should not be restricted. Outdoor fan external static pressure available is less than 0.1 in. wg.

**Unit location:** Units may be wall mounted, pad mounted at ground level, roof mounted, or mounted on or under a deck or patio. Be sure that water from roof does not drain directly onto the unit. If 38P Series condensing units are mounted near a wall, the condenser air should discharge away from the wall. This will provide inherent coil protection and the best possible sound and airflow performance.

## Controls

### Unit operation

Note: Auto fan mode is used as the unit operation example for all fan coil units in this section. Contact your local Carrier dealer for operation information in other fan modes.

**Fan coil units:** Duct free fan coil units have a self-contained control system that determines the set point for cool mode operation, and heating mode operation (if provided). The un-ducted fan coil and ducted fan coil units are equipped with a thermostat. For ducted fan coils the installed thermostat determines the set point for fan mode operation, and electric heat operation (if provided).

On a call for cooling operation by a single fan coil unit, a signal is sent to the 38P outdoor unit and energizes a control relay.

## Refrigerant lines

### General refrigerant line sizing:

1. All charges, line sizing, and capacities are based on runs of 25 ft. For runs over 25 ft., consult the Long Line Guideline.
2. Refrigerant lines should not be buried in the ground. If it is necessary to bury the lines, not more than 36 in. should be buried. Provide a minimum 6 in. vertical rise to the service valves to prevent refrigerant migration.
3. The refrigerant lines must be insulated. Use a minimum of 1/2-in. thick insulation. Closed-cell insulation is recommended in all applications.
4. Special consideration should be given to isolating interconnecting tubing from the building structure. Isolate the tubing so that vibration or noise is not transmitted into the structure.
5. The 38P Series system charge is based on rated performance and 25 ft. of line.
6. For the supply and return lines, check physical data.

The indoor blower starts according to the normal fan coil unit sequence of operation.

The control relay (in the outdoor unit) initiates operation of a cooling cycle for the compressor. As the set point at the fan coil is satisfied, its individual signal to the 38P unit stops.

**38P Series outdoor condensing unit:** The outdoor unit is equipped with a control that monitors the indoor fan coil cooling request.

**Unit malfunction:** Each unit is equipped with a high-pressure switch (HPS), a low pressure switch (LPS), Compressor over current protection is achieved by an internal line break overload, which automatically resets when the motor temperature cools to a satisfactory level.

# Guide Specifications

## AIR-COOLED, SPLIT-SYSTEM AIR CONDITIONER HVAC Guide Specifications Unit Size Range: 1.5 to 5.0 Ton



### General

#### System Description

Outdoor-mounted, air-cooled, split-system air conditioner unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air horizontally as shown on contract drawings. Unit will be used in a refrigeration circuit to match with ducted and non-ducted indoor units.

#### Quality Assurance

- A. Unit shall be rated in accordance with applicable ESMA, AHRI and T3 standard.
- B. Unit shall be designed in accordance with ISO 9001:2008, and shall be manufactured in a facility registered by ISO 9001:2008.
- C. Unit outer casing shall be capable of withstanding 500 hour salt spray exposure per ASTM B117.
- D. Air-cooled condenser coils will be leak tested at 450 psig.

#### Delivery, Storage, and Handling

Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

### Products

#### Unit Cabinet

- A. Factory-assembled, single-piece, air-cooled air condensing unit. Contained within the unit enclosure is, all factory wiring, piping, controls, compressor, refrigerant charge (R-410a), and any special features required prior to field start-up.
- B. Unit cabinet shall be constructed of galvanized steel bonderized and powder painted enamel finish.
- C. Unit cabinet panels shall be single skin. Cabinet panels shall be easily removable for service.

#### Fans

- A. Condenser fan will be direct-drive propeller type, discharging air horizontally.
- B. Condenser fan motors will be totally enclosed, 1-phase type with class B/F1 insulation and permanently lubricated bearings.
- C. Fan blades will be statically and dynamically balanced.
- D. Condenser fan openings will be equipped with painted steel wire safety guards.

#### Compressor

- A. Compressor will be hermetically sealed.
- B. Compressor will be mounted on rubber vibration isolators.
- C. Compressor will be equipped with internal over load relay.
- D. Compressor oil will be Polyolester.

#### Condenser Coil

- A. Condenser coil will be air cooled.
- B. Coil will be constructed with aluminum fins mechanically bonded to copper tubes which are then pressure tested at 450 PSIG.

## Refrigeration Components

- A. Refrigeration circuit components will include liquid and suction line shutoff valve with flare connections.
- B. System will be charged with Puron® R-410a refrigerant.

## Electrical Requirements

- A. Nominal unit electrical characteristics will be 230V, single phase, 50Hz. The unit will be capable of satisfactory operation within voltage limits of 207V to 253V.
- B. Nominal unit electrical characteristics will be 400V, three phase, 30 Hz. The unit will be capable of satisfactory operation within voltage limits of 360V to 420V.
- C. Unit electrical power will be single point connection.
- D. Control circuit will be 24VAC.

## Special Features

Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

