

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK036A3EMA\*\*00D0000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	3 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	12.00	14.00	
		960 cfm	0.500 in H2O	3.55 ft	3.99 ft	6.40 ft	524.0 lb	718.0 lb			

### Unit Features

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	23.00 A
<b>MOP</b>	30.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

		Capacity
Entering Dry Bulb	80.00 F	<b>Gross Total</b> 37.49 MBh
Entering Wet Bulb	67.00 F	<b>Gross Sensible</b> 26.09 MBh
Ambient Temp	95.00 F	<b>Net Total</b> 36.10 MBh
Leaving Coil Dry Bulb	53.54 F	<b>Net Sensible</b> 24.70 MBh
Leaving Coil Wet Bulb	53.37 F	<b>Refrig Charge-circuit 1</b> 3.0 lb
Leaving Unit Dry Bulb	56.05 F	
Leaving Unit Wet Bulb	54.41 F	

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	100.00 MBh
<b>Output Heating Capacity</b>	80.00 MBh
<b>Output Heating Capacity with Fan</b>	80.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	146.80 F
<b>Heating Temp Rise</b>	76.80 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	1
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	960 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	1.40 A
<b>Component SP</b>	0.000 in H2O	<b>Exhaust Fan Data</b>	
<b>Total SP</b>	0.500 in H2O	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Operating Power</b>	0.28 bhp	<b>Drive Type</b>	Direct
<b>Indoor Motor Power</b>	0.75 kW	<b>Exhaust Fan Performance</b>	
<b>Indoor RPM</b>	725 rpm	<b>Exhaust Fan FLA</b>	5.00 A

### Compressor Section

<b>Compressor 1 RLA</b>	12.54 A
<b>Compressor 2 RLA</b>	0.00 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK048A3EMA\*\*00D0000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	4 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	12.00	14.00	
		1600 cfm	0.500 in H2O	3.55 ft	3.99 ft	6.40 ft	566.0 lb	760.0 lb			

### Unit Features

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	23.00 A
<b>MOP</b>	35.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

		Capacity
<b>Entering Dry Bulb</b>	80.00 F	<b>Gross Total</b> 52.53 MBh
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Sensible</b> 39.59 MBh
<b>Ambient Temp</b>	95.00 F	<b>Net Total</b> 50.06 MBh
<b>Leaving Coil Dry Bulb</b>	56.77 F	<b>Net Sensible</b> 37.12 MBh
<b>Leaving Coil Wet Bulb</b>	56.28 F	<b>Refrig Charge-circuit 1</b> 3.3 lb
<b>Leaving Unit Dry Bulb</b>	58.62 F	
<b>Leaving Unit Wet Bulb</b>	57.01 F	

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	115.00 MBh
<b>Output Heating Capacity</b>	92.00 MBh
<b>Output Heating Capacity with Fan</b>	92.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	123.00 F
<b>Heating Temp Rise</b>	53.00 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	1
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	1600 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	1.40 A
<b>Component SP</b>	0.000 in H2O	<b>Exhaust Fan Data</b>	
<b>Total SP</b>	0.500 in H2O	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Operating Power</b>	0.54 bhp	<b>Drive Type</b>	Direct
<b>Indoor Motor Power</b>	0.75 kW	<b>Exhaust Fan Performance</b>	
<b>Indoor RPM</b>	860 rpm	<b>Exhaust Fan FLA</b>	5.00 A

### Compressor Section

<b>Compressor 1 RLA</b>	13.21 A
<b>Compressor 2 RLA</b>	0.00 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK060A3EMA\*\*00D00000000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	5 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	12.00	14.00	
		1900 cfm	0.500 in H2O	3.55 ft	3.99 ft	6.40 ft	586.0 lb	780.0 lb			

### Unit Features

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	28.00 A
<b>MOP</b>	40.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

<b>Entering Dry Bulb</b>	80.00 F	<b>Capacity</b>	
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Total</b>	61.49 MBh
<b>Ambient Temp</b>	95.00 F	<b>Gross Sensible</b>	45.74 MBh
<b>Leaving Coil Dry Bulb</b>	57.47 F	<b>Net Total</b>	58.52 MBh
<b>Leaving Coil Wet Bulb</b>	56.50 F	<b>Net Sensible</b>	42.76 MBh
<b>Leaving Unit Dry Bulb</b>	59.49 F	<b>Refrig Charge-circuit 1</b>	3.9 lb
<b>Leaving Unit Wet Bulb</b>	57.29 F		

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	115.00 MBh
<b>Output Heating Capacity</b>	92.00 MBh
<b>Output Heating Capacity with Fan</b>	92.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	114.63 F
<b>Heating Temp Rise</b>	44.63 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	1
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	1900 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	1.40 A
<b>Component SP</b>	0.000 in H2O	<b>Exhaust Fan Data</b>	
<b>Total SP</b>	0.500 in H2O	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Operating Power</b>	0.78 bhp	<b>Drive Type</b>	Direct
<b>Indoor Motor Power</b>	0.75 kW	<b>Exhaust Fan Performance</b>	
<b>Indoor RPM</b>	944 rpm	<b>Exhaust Fan FLA</b>	5.00 A

### Compressor Section

<b>Compressor 1 RLA</b>	16.51 A
<b>Compressor 2 RLA</b>	0.00 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK090A3EHA\*\*07M000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	7.5 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.60	14.60	
		3000 cfm	0.500 in H2O	4.09 ft	4.96 ft	7.35 ft	1025.0 lb	1334.0 lb			

### Unit Features

**SupplyFan/Drive/ MotorType** Two speed fan standard motor

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	35.00 A
<b>MOP</b>	45.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

<b>Entering Dry Bulb</b>	80.00 F	<b>Capacity</b>	
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Total</b>	89.40 MBh
<b>Ambient Temp</b>	95.00 F	<b>Gross Sensible</b>	66.40 MBh
<b>Leaving Coil Dry Bulb</b>	59.51 F	<b>Net Total</b>	85.95 MBh
<b>Leaving Coil Wet Bulb</b>	57.54 F	<b>Net Sensible</b>	62.90 MBh
<b>Leaving Unit Dry Bulb</b>	60.57 F	<b>Fan Motor Heat</b>	3.45 MBh
<b>Leaving Unit Wet Bulb</b>	57.94 F	<b>Refrig Charge-circuit 1</b>	3.8 lb
		<b>Refrig Charge-circuit 2</b>	3.1 lb

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	225.00 MBh
<b>Output Heating Capacity</b>	180.00 MBh
<b>Output Heating Capacity with Fan</b>	180.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	125.30 F
<b>Heating Temp Rise</b>	55.30 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	2
<b>Indoor Fan Performance</b>		<b>Drive Type</b>	Direct
<b>Airflow</b>	3000 cfm	<b>Outdoor Fan Performance</b>	
<b>Design ESP</b>	0.500 in H2O	<b>Outdoor Motor Power</b>	0.65 kW
<b>Component SP</b>	0.000 in H2O	<b>Condenser Fan FLA</b>	1.50 A
<b>Total SP</b>	0.500 in H2O	<b>Exhaust Fan Data</b>	
<b>Indoor Motor Operating Power</b>	1.41 bhp	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Power</b>	1.49 kW	<b>Drive Type</b>	Direct
<b>Indoor RPM</b>	685 rpm	<b>Exhaust Fan Performance</b>	
		<b>Exhaust Fan FLA</b>	7.20 A

### Compressor Section

<b>Power</b>	5.72 kW
<b>Compressor 1 RLA</b>	12.00 A
<b>Compressor 2 RLA</b>	9.00 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK102A3EHA\*\*07M000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	8.5 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.20	14.60	
		3400 cfm	0.500 in H2O	4.09 ft	4.96 ft	7.35 ft	1063.0 lb	1372.0 lb			

### Unit Features

**SupplyFan/Drive/ MotorType** Two speed fan standard motor

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	38.00 A
<b>MOP</b>	45.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

		Capacity
<b>Entering Dry Bulb</b>	80.00 F	<b>Gross Total</b> 108.10 MBh
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Sensible</b> 83.60 MBh
<b>Ambient Temp</b>	95.00 F	<b>Net Total</b> 104.04 MBh
<b>Leaving Coil Dry Bulb</b>	57.23 F	<b>Net Sensible</b> 79.50 MBh
<b>Leaving Coil Wet Bulb</b>	56.83 F	<b>Fan Motor Heat</b> 4.06 MBh
<b>Leaving Unit Dry Bulb</b>	58.34 F	<b>Refrig Charge-circuit 1</b> 4.3 lb
<b>Leaving Unit Wet Bulb</b>	57.25 F	<b>Refrig Charge-circuit 2</b> 3.9 lb

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	225.00 MBh
<b>Output Heating Capacity</b>	180.00 MBh
<b>Output Heating Capacity with Fan</b>	180.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	118.79 F
<b>Heating Temp Rise</b>	48.79 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	2
<b>Indoor Fan Performance</b>		<b>Outdoor Fan Performance</b>	
<b>Airflow</b>	3400 cfm	<b>Outdoor Motor Power</b>	0.65 kW
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	1.50 A
<b>Component SP</b>	0.000 in H2O	<b>Exhaust Fan Data</b>	
<b>Total SP</b>	0.500 in H2O	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Operating Power</b>	1.64 bhp	<b>Drive Type</b>	Direct
<b>Indoor Motor Power</b>	1.49 kW	<b>Exhaust Fan Performance</b>	
<b>Indoor RPM</b>	750 rpm	<b>Exhaust Fan FLA</b>	7.20 A

### Compressor Section

<b>Power</b>	7.56 kW
<b>Compressor 1 RLA</b>	12.10 A
<b>Compressor 2 RLA</b>	12.00 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK120A3EHA\*\*07M000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	10 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.20	14.60	
		4000 cfm	0.500 in H2O	4.09 ft	4.96 ft	7.35 ft	1096.0 lb	1405.0 lb			

### Unit Features

**SupplyFan/Drive/ MotorType** Two speed fan standard motor

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	45.00 A
<b>MOP</b>	60.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

<b>Entering Dry Bulb</b>	80.00 F	<b>Capacity</b>	
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Total</b>	121.80 MBh
<b>Ambient Temp</b>	95.00 F	<b>Gross Sensible</b>	97.70 MBh
<b>Leaving Coil Dry Bulb</b>	57.38 F	<b>Net Total</b>	116.00 MBh
<b>Leaving Coil Wet Bulb</b>	57.30 F	<b>Net Sensible</b>	91.90 MBh
<b>Leaving Unit Dry Bulb</b>	58.72 F	<b>Fan Motor Heat</b>	5.80 MBh
<b>Leaving Unit Wet Bulb</b>	57.80 F	<b>Refrig Charge-circuit 1</b>	5.1 lb
		<b>Refrig Charge-circuit 2</b>	4.4 lb

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	250.00 MBh
<b>Output Heating Capacity</b>	200.00 MBh
<b>Output Heating Capacity with Fan</b>	200.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	116.08 F
<b>Heating Temp Rise</b>	46.08 F

### Fan Section

Indoor Fan Data		Outdoor Fan Data	
<b>Type</b>	FC Centrifugal	<b>Type</b>	Propeller
<b>Drive Type</b>	Belt	<b>Fan Quantity</b>	2
<b>Indoor Fan Performance</b>		<b>Outdoor Fan Performance</b>	
<b>Airflow</b>	4000 cfm	<b>Outdoor Motor Power</b>	0.65 kW
<b>Design ESP</b>	0.500 in H2O	<b>Condenser Fan FLA</b>	1.50 A
<b>Component SP</b>	0.000 in H2O	<b>Exhaust Fan Data</b>	
<b>Total SP</b>	0.500 in H2O	<b>Type</b>	FC Centrifugal
<b>Indoor Motor Operating Power</b>	2.38 bhp	<b>Drive Type</b>	Direct
<b>Indoor Motor Power</b>	2.24 kW	<b>Exhaust Fan Performance</b>	
<b>Indoor RPM</b>	853 rpm	<b>Exhaust Fan FLA</b>	12.00 A

### Compressor Section

<b>Power</b>	8.24 kW
<b>Compressor 1 RLA</b>	12.10 A
<b>Compressor 2 RLA</b>	17.60 A

## Trane Foundation Gas/Electric Rooftop

### Unit Overview - GDK150A3EHA\*\*09M000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
Gas/Electric	12.5 Ton	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.00	14.00	
		5000 cfm	0.500 in H2O	4.09 ft	4.96 ft	7.35 ft	1175.0 lb	1484.0 lb			

### Unit Features

**SupplyFan/Drive/ MotorType** Two speed fan oversized motor

### Unit Electrical

<b>Voltage/phase/hertz</b>	208-230/60/3
<b>MCA</b>	64.00 A
<b>MOP</b>	80.00 A



### Controls

**Unit Controls** Electro-mechanical

### Cooling Section

		Capacity
<b>Entering Dry Bulb</b>	80.00 F	<b>Gross Total</b> 150.40 MBh
<b>Entering Wet Bulb</b>	67.00 F	<b>Gross Sensible</b> 119.70 MBh
<b>Ambient Temp</b>	95.00 F	<b>Net Total</b> 141.70 MBh
<b>Leaving Coil Dry Bulb</b>	57.83 F	<b>Net Sensible</b> 111.00 MBh
<b>Leaving Coil Wet Bulb</b>	57.43 F	<b>Fan Motor Heat</b> 8.70 MBh
<b>Leaving Unit Dry Bulb</b>	59.44 F	<b>Refrig Charge-circuit 1</b> 6.8 lb
<b>Leaving Unit Wet Bulb</b>	58.04 F	<b>Refrig Charge-circuit 2</b> 5.1 lb

### Heating Section

<b>Heat Type</b>	Gas heat
<b>Heating Stages</b>	2
<b>Input Heating Capacity</b>	250.00 MBh
<b>Output Heating Capacity</b>	200.00 MBh
<b>Output Heating Capacity with Fan</b>	200.00 MBh
<b>Heating EAT</b>	70.00 F
<b>Heating LAT</b>	106.87 F
<b>Heating Temp Rise</b>	36.87 F

### Fan Section

Indoor Fan Data	Outdoor Fan Data
<b>Type</b> FC Centrifugal	<b>Type</b> Propeller
<b>Drive Type</b> Belt	<b>Fan Quantity</b> 2
<b>Indoor Fan Performance</b>	<b>Drive Type</b> Direct
<b>Airflow</b> 5000 cfm	<b>Outdoor Fan Performance</b>
<b>Design ESP</b> 0.500 in H2O	<b>Outdoor Motor Power</b> 1.15 kW
<b>Component SP</b> 0.000 in H2O	<b>Condenser Fan FLA</b> 4.50 A
<b>Total SP</b> 0.500 in H2O	<b>Exhaust Fan Data</b>
<b>Indoor Motor Operating Power</b> 3.56 bhp	<b>Type</b> FC Centrifugal
<b>Indoor Motor Power</b> 3.73 kW	<b>Drive Type</b> Direct
<b>Indoor RPM</b> 942 rpm	<b>Exhaust Fan Performance</b>
	<b>Exhaust Fan FLA</b> 12.00 A

### Compressor Section

<b>Power</b>	9.79 kW
<b>Compressor 1 RLA</b>	22.40 A
<b>Compressor 2 RLA</b>	12.10 A









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## Mechanical Specifications - Packaged Gas/Electric Rooftop Units

Item: A1 - A11 Qty: 11 Tag(s): 3 ton, 4 ton, 5 ton, 7.5 ton, 8.5 ton, 10 ton, 12.5 ton, 15 ton, 17.5 ton, 20 ton, 25 ton

### 15 thru 25 Ton General

The units shall be dedicated downflow or horizontal airflow. The operating range shall be between 115°F and 40°F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with AHRI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-454B, and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be UL listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 5rd Edition. Unit shall be furnished with a leak detection system from the factory. The leak detection system shall consist of one or more refrigerant detection sensors. When the system detects a leak, the unit controller shall initiate mitigation actions.

### 15 thru 25 Ton Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. In order to ensure a water and air tight seal, service panels shall have lifting handles and no more than three screws to remove. All exposed vertical panels and top covers in the indoor air section shall be insulated with a 1/2", 1.0 lbdensity foil-faced, fire-resistant, permanent, odorless, glass fiber material. The base of the downflow unit shall be insulated with 1/2", 1.0 lbdensity foil-faced, closed-cell material. The downflow unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8" high supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting.

### 15 thru 25 Ton Compressors

All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Internal overloads shall be provided with the scroll compressors. All models shall have phase monitors and low and high pressure control as standard.

### 15 thru 25 Ton Controls

Unit shall be completely factory wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device.

### 15 thru 25 Ton Discharge Line Thermostat

A bi-metal element discharge line thermostat is installed as a standard option on the discharge line of each system. This standard option provides extra protection to the compressors against high discharge temperatures in case of loss of charge, extremely high ambient and other conditions which could drive the discharge temperature higher. Discharge line thermostat is wired in series with high pressure control. When the discharge temperature rises above the protection limit, the bi-metal disc in the thermostat switches to the off position, opening the 24 Vac circuit. When the temperature on the discharge line cools down, the bi-metal disc closes the contactor circuit, providing power to the compressor.

### 15 thru 25 Ton Evaporator and Condenser Coils

Microchannel coils will be burst tested by the manufacturer. Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard for evaporator coils. Microchannel condenser coils shall be standard on all units. Coils shall be leak tested to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 225 psig and pressure tested to 450 psig. Sloped condensate drain pans are standard.

### 15 thru 25 Ton Filters

Two inch standard filters shall be factory supplied on all units.

### 15 thru 25 Ton Gas Heating Section

The heating section shall have a progressive tubular heat exchanger design. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the

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thermostat. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas/Electric Only).

### **15 thru 25 Ton High Pressure Control**

All units include High Pressure Cutout as standard.

### **15 thru 25 Ton Indoor Fan**

Units above shall have belt driven, FC centrifugal fans with adjustable motor sheaves. Units with standard motors shall have an adjustable idler-arm assembly for quick-adjustment of fan belts and motor sheaves. All motors shall be thermally protected. Oversized motors shall be available for high static application. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

### **15 thru 25 Ton Low Pressure Control**

All units include Low Pressure Cutout as standard.

### **15 thru 25 Ton Outdoor Fans**

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor(s) shall be permanently lubricated and shall have builtin thermal overload protection.

### **15 thru 25 Ton Phase Monitor**

The Phase Monitor is a three-phase line monitor module that protects against phase loss, phase reversal and phase unbalance. It is intended to protect compressors from reverse rotation. It has an operating input voltage range of 190-600 Vac, and LED indicators for ON and FAULT. There are no field adjustments and the module will automatically reset from a fault condition.

### **15 thru 25 Ton Refrigerant Circuits**

Each refrigerant circuit shall have independent fixed orifice, service pressure ports, and refrigerant line filter driers factory installed as standard. An area shall be provided for replacement suction line driers.

### **15 thru 25 Ton Unit Top**

The top cover shall be double hemmed and gasket sealed to prevent water leakage.

### **15 thru 25 Ton Multi-Speed Indoor Fan System**

Multi-speed indoor fan system is designed for use in applications for meeting the minimum requirement of CA Title 24. This system incorporates a multi-speed fan control to change the speed of the fan to 66% of full airflow based off of compressor stages.

### **3 thru 5 Ton General**

The units shall be convertible from downflow or horizontal airflow. The operating range shall be between 125.0 F and 40.0 F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-454B, and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be UL listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 5rd Edition. Unit shall be furnished with a leak detection system from the factory. The leak detection system shall consist of one or more refrigerant detection sensors. When the system detects a leak, the unit controller shall initiate mitigation actions.

### **3 thru 5 Ton Casing**

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. In order to ensure a water and air tight seal, service panels shall have lifting handles and no more than four screws to remove. All exposed vertical panels and top covers in the indoor air section shall be insulated with a 1/2", 1.0 lb density foil-faced, fire-resistant, permanent, dorless, glass fiber material. The base of the downflow unit shall be insulated with 1/2", 1.0 lb density foil-faced, closed-cell material. The downflow unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8" high supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting.

### **3 thru 5 Ton Compressors**

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All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Internal overloads shall be provided with the scroll compressors. All models shall have phase monitors and low and high pressure control as standard.

### **3 thru 5 Ton Controls**

Unit shall be completely factory wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device.

### **3 thru 5 Ton Discharge Line Thermostat**

A bi-metal element discharge line thermostat is installed as a standard option on the discharge line of each system. This standard option provides extra protection to the compressors against high discharge temperatures in case of loss of charge, extremely high ambient and other conditions which could drive the discharge temperature higher. Discharge line thermostat is wired in series with high pressure control. When the discharge temperature rises above the protection limit, the bi-metal disc in the thermostat switches to the off position, opening the 24 Vac circuit. When the temperature on the discharge line cools down, the bi-metal disc closes the contactor circuit, providing power to the compressor.

### **3 thru 5 Ton Evaporator and Condenser Coils**

Microchannel coils will be burst tested by the manufacturer. Microchannel condenser coils shall be standard on all units. Coils shall be leak tested to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 225 psig and pressure tested to 450 psig. Sloped condensate drain pans are standard.

### **3 thru 5 Ton Filters**

Two inch standard filters shall be factory supplied on all units.

### **3 thru 5 Ton Gas Heating Section**

The heating section shall have a tubular heat exchanger design. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Units shall be suitable for use with natural gas or propane (field-installed kit) and also comply with the California requirement for low NOx emissions (Gas Heat Only).

### **3 thru 5 Ton High Pressure Control**

All units include High Pressure Cutout as standard.

### **3 thru 5 Ton Indoor Fan**

Units above shall have belt driven, FC centrifugal fans with adjustable motor sheaves. All motors shall be thermally protected. Oversized motors shall be available for high static application. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

### **3 thru 5 Ton Low Pressure Control**

All units include low pressure cutout as standard.

### **3 thru 5 Ton Outdoor Fans**

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor(s) shall be permanently lubricated and shall have built in thermal overload protection.

### **3 thru 5 Ton Phase Monitor**

The Phase Monitor is a three-phase line monitor module that protects against phase loss, phase reversal and phase unbalance. It is intended to protect compressors from reverse rotation. It has an operating input voltage range of 190-600 Vac, and LED indicators for ON and FAULT. There are no field adjustments and the module will automatically reset from a fault condition.

### **3 thru 5 Ton Refrigerant Circuits**

Each refrigerant circuit shall have independent thermal expansion valve, service pressure ports, and refrigerant line filter driers factory installed as standard. An area shall be provided for replacement suction line driers.

### **3 thru 5 Ton Unit Top**

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The top cover shall be double hemmed and gasket sealed to prevent water leakage.

### **General**

- Packaged rooftop units cooling, heating capacities, and efficiencies are AHRI Certified within scope of AHRI Standard (I-P) and ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces
- Packaged rooftop units are dedicated downflow or horizontal airflow
- Operating range between 125°F and 40°F in cooling standard from the factory
- Factory assembled, internally wired, fully charged with R-454B, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory
- Colored and numbered wiring internal to the unit for simplified identification
- Units cULus listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 5th Edition
- Unit shall be furnished with a leak detection system from the factory. The leak detection system shall consist of one or more refrigerant detection sensors. When the system detects a leak, the unit controller shall initiate mitigation actions.

### **Casing**

- Zinc coated, heavy gauge, galvanized steel
- Weather-resistant baked enamel finish on phosphatized exterior surfaces
- Meets ASTM B117, 672 hour salt spray test
- Removable single side maintenance access panels
- Lifting handles in maintenance access panels (can be removed and reinstalled by removing no more than 11 fasteners while providing a water and air tight seal)
- Exposed vertical panels and top covers in the indoor air section shall be insulated with a 1/2-inch, 1-pound density foil-faced, fire-resistant, permanent, odorless, glass fiber material
- Base of unit shall be insulated with 1/2-inch, 1-pound density, foil-faced, glass fiber material
- Base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8-inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up
- Downflow unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8-inch high supply/return openings to provide an added water integrity precaution, if the condensate drain backs up
- Base of unit shall have provisions for forklift and crane lifting

### **Compressors**

- All units have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps
- Suction gas-cooled motor with voltage utilization range of plus or minus 10 percent of unit nameplate voltage
- Internal overloads standard with scroll compressors
- All models have phase monitors and Low and High Pressure Controls as standard

### **Discharge Line Thermostat**

- A bi-metal element discharge line thermostat is installed as a standard option on the discharge line of each system
- Provides extra protection to the compressors against high discharge temperatures in case of loss of charge, extremely high ambient and other conditions which could drive the discharge temperature higher
- Wired in series with high pressure control
- When discharge temperature rises above the protection limit, the bi-metal disc in the thermostat switches to the off position, opening the 24 Vac circuit
- When temperature on the discharge line cools down, the bi-metal disc closes the contactor circuit, providing power to the compressor

### **Evaporator and Condenser Coils**

- Microchannel coils burst tested by manufacturer
- Microchannel evaporator and condenser coils standard on all units
- Coils leak tested to ensure the pressure integrity
- Evaporator coil and condenser coil leak tested to 225 psig and pressure tested to 450 psig
- Sloped condensate drain pans are standard

### **Filters**

Two inch standard filters shall be factory supplied on all units.

### **Gas Heat Section**

- Tubular heat exchanger is fabricated using aluminized steel burners and corrosion-resistant, aluminized steel tubes as standard on all models.

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- Induced draft combustion blower shall be used to pull the combustion products through the firing tubes
  - Heater shall use a direct spark ignition (DSI) system
  - On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition
  - After three unsuccessful ignition attempts, entire heating system shall be locked out until manually reset at the thermostat/zone sensor
  - Units shall be suitable for use with natural gas or propane (field-installed kit)

### **Indoor Fan**

- Belt driven, FC centrifugal fans with adjustable motor sheaves
- Motors thermally protected
- Oversized motors available for high static application
- Indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT)

### **Locking Safety Device**

- Pressure switch monitoring allows for lockout in a situation where the switch is opened
- By monitoring the Y input as well as the pressure switches, advanced decision making can be made to identify situations where faults/errors occur

### **Outdoor Fans**

- Outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position
- Fan motor(s) shall be permanently lubricated and shall have built-in thermal overload protection

### **Phase Monitor**

- 3-phase line monitor module
- Protects against phase loss, phase imbalance and phase reversal indication
- Intended to protect compressors from reverse rotation
- Operating input voltage range of 180-632 Vac
- LED indicators for ON and FAULT
- No field adjustments
- Module will automatically reset from a fault condition

### **Refrigerant Circuits**

- Each refrigerant circuit shall have thermostatic expansion valves, service pressure ports, and refrigerant line filter driers factory installed as standard
- An area shall be provided for replacement suction line driers

### **Refrigerant Pressure Control**

All units include High and Low Pressure Cutouts as standard.

### **Unit Top**

The top cover shall be double hemmed and gasket sealed to prevent water leakage.

### **Multi-Speed Indoor Fan System**

- Incorporates a multi-speed fan control to change the speed of the fan to 70% of full airflow based off of compressor stages

### **Filters**

Two inch standard filters shall be factory supplied on all units.