



## Technical Product Guide

### MULTI SLIM CONCEALED DUCTS

Models:

DUCT09HP230V1AD

DUCT12HP230V1AD

DUCT18HP230V1AD

DUCT24HP230V1AD



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# PRODUCT OVERVIEW

## SUPERIOR DESIGNS PROVIDE EASY SOLUTIONS TO COMPLEX PROBLEMS

GREE Ductless Multi Zone systems provide quiet comfort and energy efficient heating and cooling in up to five different rooms - *without ductwork*. For most residential and light commercial applications, this is the ideal solution to balance comfort, efficiency and ease of installation. This Inverter-driven system offers Seasonal Energy Efficiency Ratings (SEER) up to 16. With individual room control and variable speed compressor operation, comfort is boosted throughout your home or office, while utility bills are held in check.

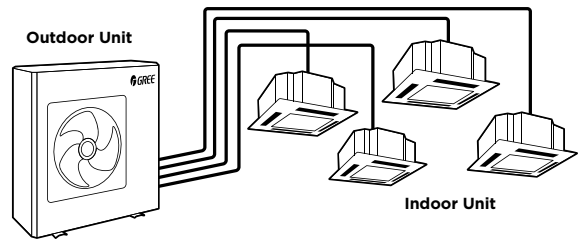


*Gree's exclusive G-10 Inverter technology powers the twin rotary compressor inside the Multi Zone outdoor compressor section. The G-10 Inverter constantly adjusts the compressor speed to maintain a comfortable room temperature. This saves energy, reduces outdoor noise and maintains a steady room temperature by eliminating the harsh starts and stops of conventional systems.*

When laying out a new project, you'll appreciate the flexibility of Gree's Multi Zone Systems. A single outdoor unit can simultaneously power up to five indoor units while eliminating expensive ductwork. Without those ducts, your installation is simpler, faster and more cost-effective. And the flexibility doesn't stop there, as you can also mix and match your choice of Wall Mount, Ceiling Cassette, Concealed Duct, Universal Floor/Ceiling and Mini Floor Console indoor units to create a unique heating and cooling system to perfectly fit any project.

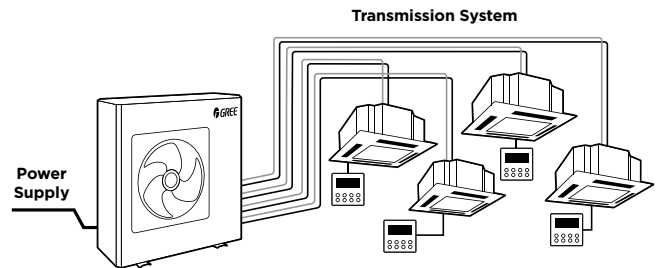
### No pipe sweating

No sweating is needed for the pipe connection between the indoor and outdoor units. All piping connections are flared to simplify and ease the piping installation.



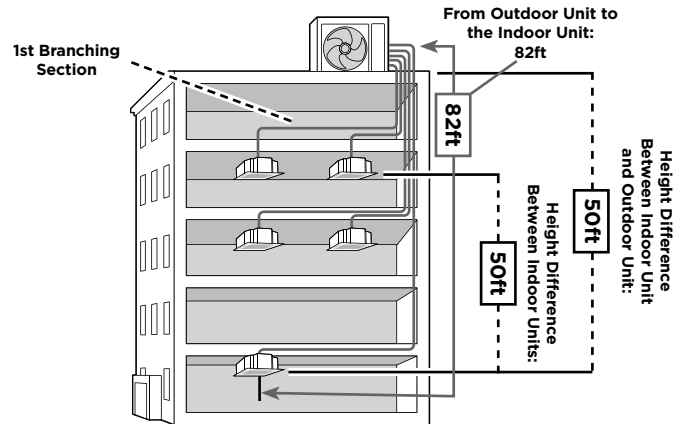
### Simple Wiring

No special or hard-to-find communication wire is needed between the indoor and outdoor units. The system uses common 14-4 AWG stranded copper THHN 600V wire. The system's communication is ready as soon as the electrical wiring between the indoor and outdoor units is complete.



### High Lift Design

Gree's High Lift design allows for extended piping length, up to 262 feet total, as well as 50 feet of vertical lift from the condensing units. This allows for greater flexibility in the layout of the system.



**Allows up to 262 feet of pipe length**

### Energy Saving

Multi Zone systems allow each room to be individually controlled. Only those rooms requiring air conditioning (or heating) are cooled (or heated), and all of it is accomplished without ductwork. In addition, Gree's G-10 inverter technology reduces energy waste, maximizes efficiency and achieves up to 16 SEER.

# PRODUCT OVERVIEW

## Self-Diagnostics System

Each indoor and outdoor unit continuously runs a series of multi-point diagnostic tests on the system, to automatically scan for unacceptable operating conditions or malfunctions. If such conditions occur, the system takes corrective action or stops. The fault code will be shown on the indoor, outdoor and wired controller displays. Problems and system status are displayed with comprehensive diagnostic codes to simplify system troubleshooting and shorten repair times.

## Flexible Design

Gree's Multi Zone systems have many advantages for both the property owner and the installer. Up to five indoor units, powered by a single outdoor unit, results in flexible zoning solutions for almost any application. Various styles of indoor units may be mixed and matched in any combination to create a unique, multiple zone heating and cooling system. Choose from Wall Mount, Ceiling Cassette, Slim Duct, Universal Floor/Ceiling and Mini Floor Console indoor units. All are lightweight and compact enough to be installed on the wall or in any ceiling space.

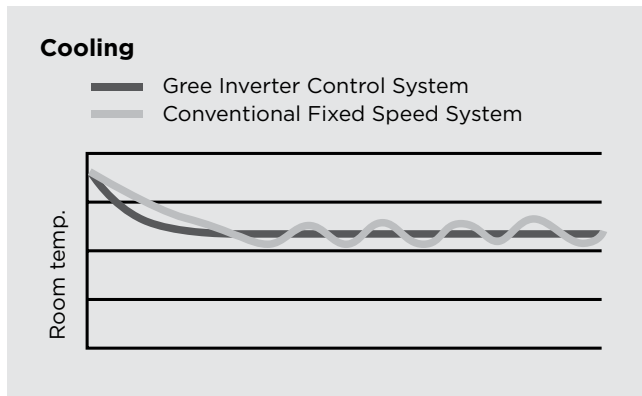
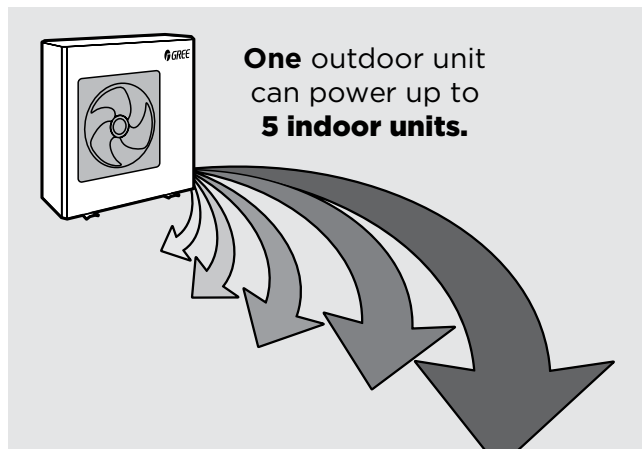
## Intelligent Control

Gree's Multi Zone components use state-of-the-art intelligent controls to generate the ultimate in room comfort. G-10 Inverter technology delivers the exact level of required capacity (from 10% to 100%) to maintain room temperature and humidity in the comfort range. The optimized PID controls maintain the room temperature within less than  $\pm 1.0^{\circ}\text{F}$  of the room setpoint temperature. The result is a virtually constant room temperature without the typical fluctuations that occur with a conventional fixed speed ON/OFF system.

## Ductless Saves Money

Realize energy savings by eliminating heat loss from inefficient and leaky ductwork. The average ducted air distribution system could reduce overall system efficiency by up to 30 percent. Eliminating ductwork allows you to downsize equipment while upsizing performance.

Diagnostic Code	Malfunction
E1	Compressor High Pressure Protection
E2	Indoor Coil Anti-Freeze Protection
E3	Low Pressure Protection
E4	High Discharge Temperature Protection
E5	Compressor High Temperature Protection
E6	Indoor/Outdoor Communication Failure
E7	Heating & Cooling Modes Conflict
E9	Condensate Water Too High
F4	Outdoor Coil Sensor Failure



# +Multi Slim Concealed Ducts



*Compact and powerful, the Gree Multi+ Concealed Duct indoor units offer the ultimate in flexibility and discretion. These slim indoor units are designed to be concealed above suspended ceilings or within open closet spaces to deliver conditioned air via ducting and suitable ceiling or wall grilles. This arrangement provides immense flexibility, in terms of both the distribution of conditioned air and the type of grille or diffuser that best complements the room's styling. Each unit comes with an easy-to-operate wall mounted wired tether controller.*

## FEATURES AND BENEFITS

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### **Whisper Quiet**

Not only are the Gree systems energy efficient but they are quiet too. Wall mounted units operate with sound levels starting as low as 31 dB(A).

### **Convenient Size (12K and 18K only)**

The Gree ceiling cassettes can be easily mounted in a hard ceiling (with an access panel for servicing) or in 2'x2' drop ceiling. They provide great air distribution, quiet operation and a less obtrusive style.

### **Multi Fan Speeds**

The indoor fan can run at up to three different speeds (Low, Medium or High) for either COOLING or HEATING mode for maximum comfort and quiet operation.

### **Built In Condensate Lift Pump**

The unit features a built-in drain pump that lifts condensation up to 11 inches above the drain pan to a gravity condensate drain system. In most cases, the internal condensate lift mechanism will avoid the need for an external condensate pump.

### **Condensate Sentry**

The unit's fail-safe mechanism recognizes when there is a high level in the condensate pan and shuts off the system to prevent overflow problems.

### **Intelligent Pre-Heating**

The Multi Zone system guards against the annoying COLD BLOW in heating mode. The system constantly monitors the discharge air temperature. It will delay the indoor fan until the indoor coil has warmed up to prevent blowing uncomfortable cool air into the room.

### **Tether Controller**

The Gree wired tether controller mounts to the wall up to 25 feet from the unit. It provides complete control over your unit's operation mode, desired temperature, fan speed, airflow direction and more.

# FEATURES AND BENEFITS

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## **Mode Button**

The units can be set to five different operating modes: HEAT, COOL, DRY, FAN ONLY and AUTO. *Note: AUTO MODE has fixed setpoints of 68° F heating and 78° F cooling, which are not changeable. The system will automatically select heating or cooling to maintain room temperature within this band.*

## **Timer Mode**

The unit can be programmed to turn ON or OFF after a specific amount of time. The time period is adjustable between one half and 24 hours.

## **Sleep Mode**

The unit will automatically adjust room temperature during your sleep time. This slight change in temperature will not affect your comfort level due to the natural effects that sleeping has on the body, but it will save on energy consumption and will lower electric bills.

## **Fahrenheit °F / Celsius °C**

The wired tether controller can be set to display in either °F or °C.

## **Power Failure Mode**

Power interruptions are no problem. User selections and system parameters are stored in non-volatile memory. These parameters are retained during a power failure. When power is returned, the system will automatically return to the last operating mode.

## **Self-Diagnosis**

With an on-board computer using real-time diagnostics, the Gree Multi Zone system helps to prolong its own life. The automatic diagnosis feature continuously scans for unacceptable operating conditions or malfunctions. If such conditions occur, the system takes corrective action or stops. Fault codes are shown on the unit display to facilitate easy troubleshooting and repair.

## **Privacy Lock Mode**

The wired tether controller has a Privacy Lock. The Privacy Lock averts unauthorized access and stops tampering with system settings.

## **Agency Listings**

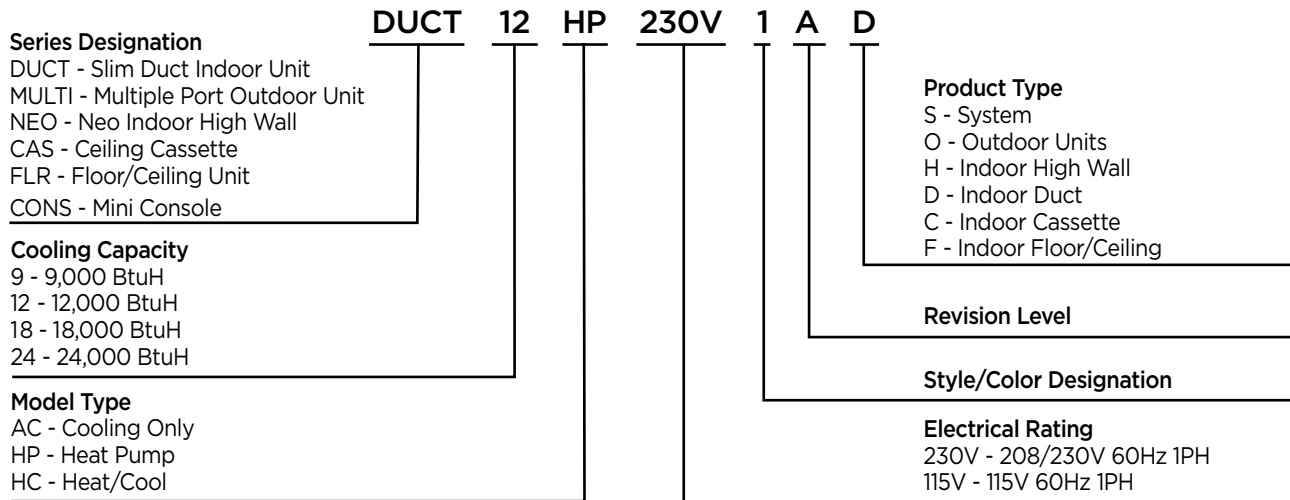
All systems are listed with AHRI (Air conditioning, Heating, and Refrigeration Institute) and are ETL certified per UL Standards.

## **7/5 Year Limited Warranty**

Enjoy one of the most comprehensive warranties in the industry. Seven (7) years on compressor and Five (5) years on all parts.

# +Multi Slim Concealed Ducts

## NOMENCLATURE



## PERFORMANCE SPECIFICATIONS AND DATA

### Slim Concealed Duct

MODEL NUMBER	COOLING CAPACITY (BtuH)	HEATING CAPACITY (BtuH)	DEHUMIDIFICATION (Pts./hr.)
DUCT09HP230V1AD	8,533	9,556	1.69
DUCT12HP230V1AD	11,946	13,140	2.96
DUCT18HP230V1AD	15,359	18,772	3.80
DUCT24HP230V1AD	24,232	27,304	5.28

### Slim Concealed Duct

MODEL NUMBER	COOLING (CFM)		
	LOW FAN	MEDIUM FAN	HIGH FAN
DUCT09HP230V1AD	147	177	265
DUCT12HP230V1AD	177	235	324
DUCT18HP230V1AD	294	353	412
DUCT24HP230V1AD	324	441	589

### Slim Concealed Duct

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# SOUND DATA

## Slim Concealed Duct

MODEL NUMBER	LOW FAN		MEDIUM FAN		HIGH FAN	
	SOUND POWER	SOUND PRESSURE	SOUND POWER	SOUND PRESSURE	SOUND POWER	SOUND PRESSURE
DUCT09HP230V1AD	41	31	44	34	47	37
DUCT12HP230V1AD	42	32	45	35	49	39
DUCT18HP230V1AD	43	33	47	37	51	41
DUCT24HP230V1AD	44	34	48	38	52	42

**Note:** 1. Sound pressure ratings are estimated sound pressure measurements, 3 feet from unit.  
2. Sound power ratings are per AHRI 270 and AHRI 350

# ELECTRICAL DATA

## Slim Concealed Duct

MODEL NUMBER	RATED POWER SUPPLY (volt-phase-hz)	VOLTAGE RANGE (volts)	INDOOR FAN	
			RLA (amps)	POWER (watts)
DUCT12HP230V1AD	208/230v-1ph-60hz	187-253	0.35	80
DUCT12HP230V1AD	208/230v-1ph-60hz	187-253	0.35	80
DUCT18HP230V1AD	208/230v-1ph-60hz	187-253	0.43	100
DUCT24HP230V1AD	208/230v-1ph-60hz	187-253	0.54	124

**Legend:** RLA - Rated Load Amps

# PRODUCT WEIGHT

## Slim Concealed Duct

MODEL NUMBER	PRODUCT WEIGHT	
	NET OPERATING	GROSS SHIPPING
DUCT09HP230V1AD	49 lbs.	60 lbs.
DUCT12HP230V1AD	51 lbs.	64 lbs.
DUCT18HP230V1AD	60 lbs.	79 lbs.
DUCT24HP230V1AD	68 lbs.	90 lbs.

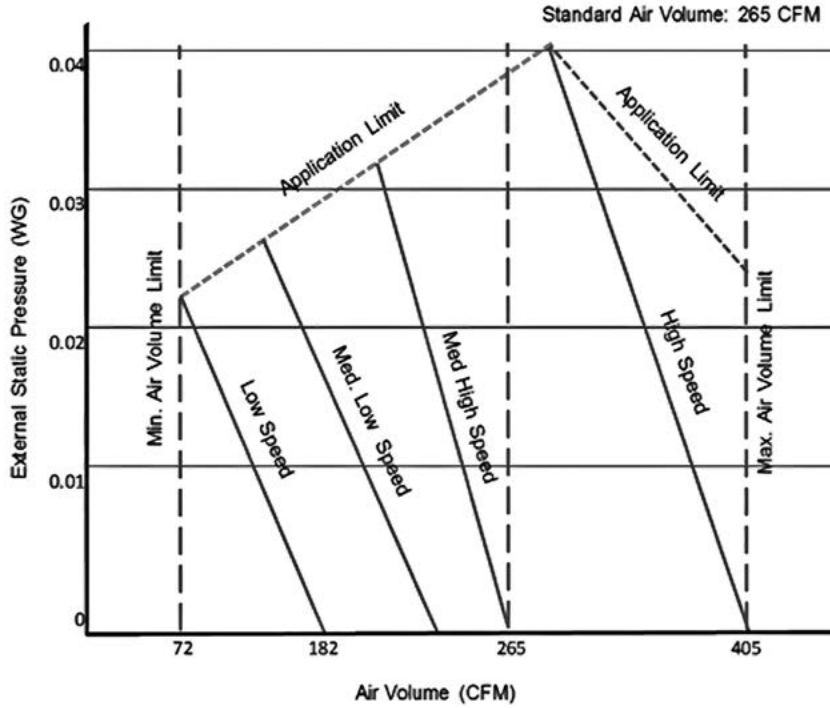


# +Multi Slim Concealed Ducts

## INDOOR FAN PERFORMANCE AND AIR FLOW

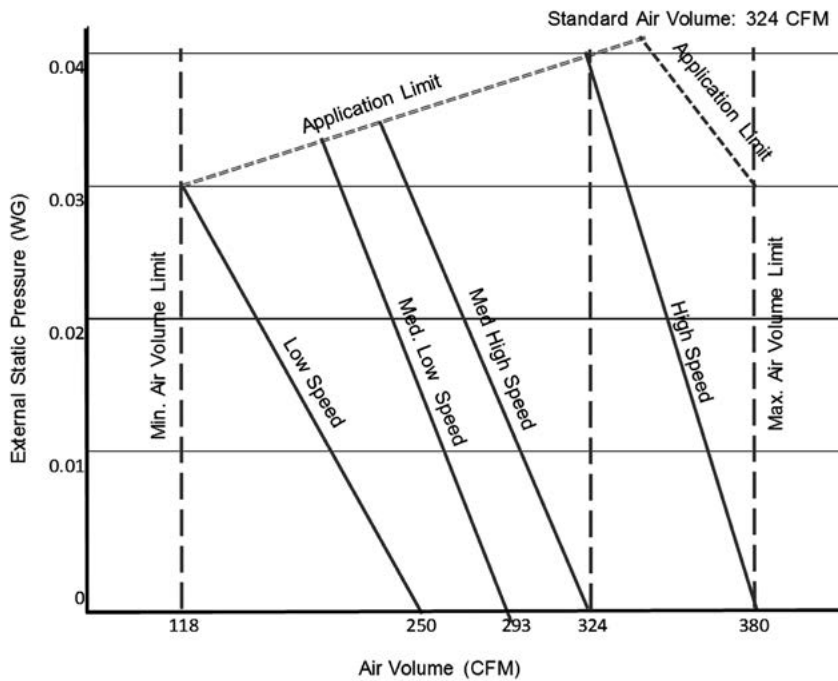
**Model No: DUCT09HP230V1AD**

**9,000 BtuH**



**Model No: DUCT12HP230V1AD**

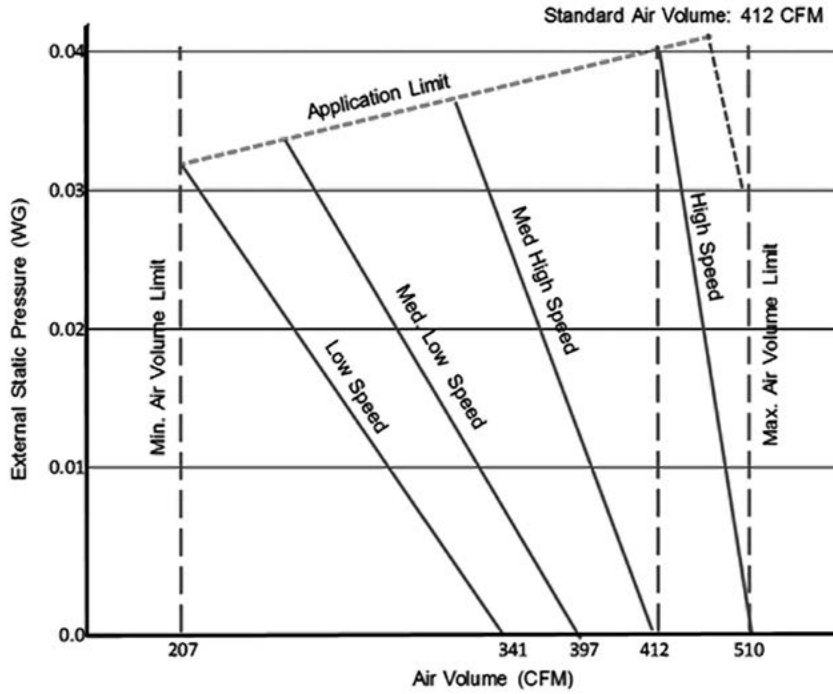
**12,000 BtuH**



# INDOOR FAN PERFORMANCE AND AIR FLOW

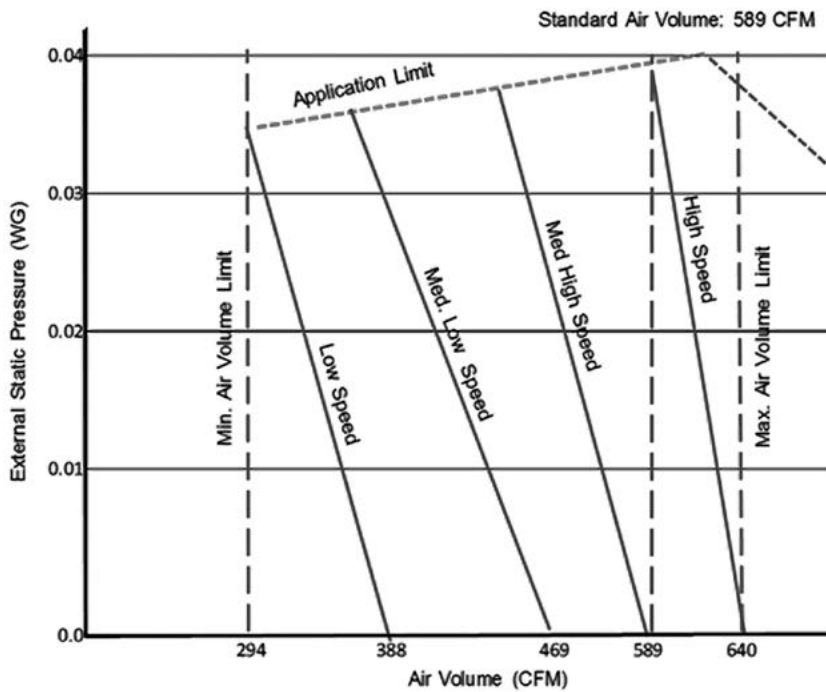
**Model No: DUCT18HP230V1AD**

**18,000 BtuH**



**Model No: DUCT24HP230V1AD**

**24,000 BtuH**



# +Multi Slim Concealed Ducts

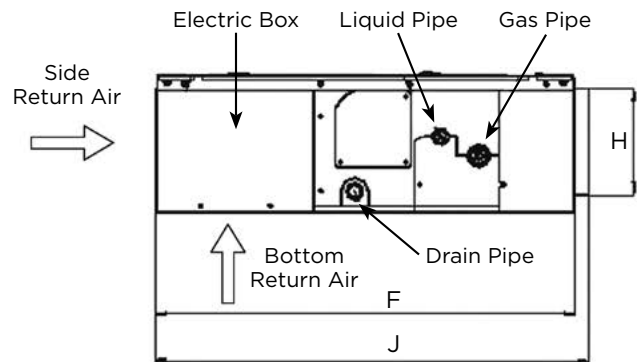
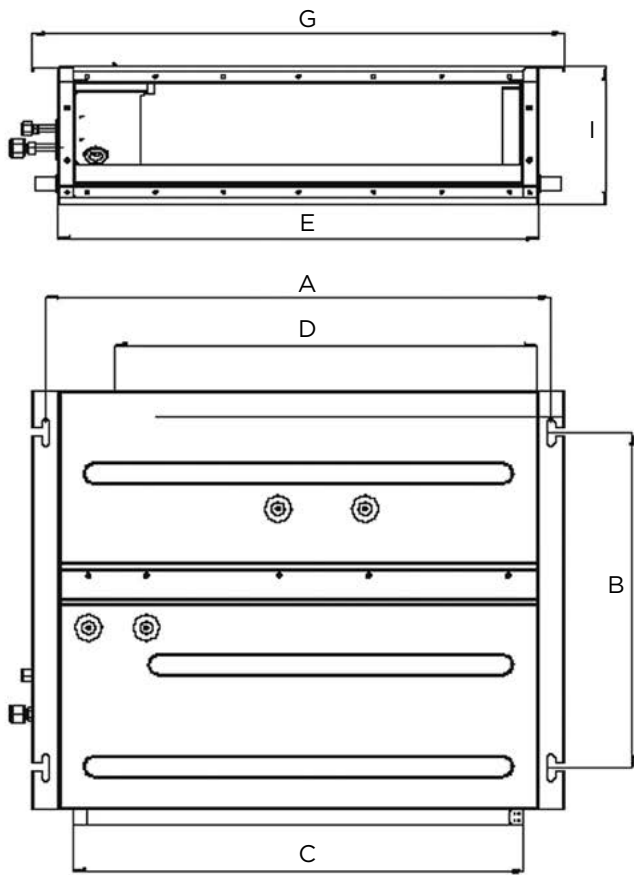
## DIMENSIONAL SPECIFICATIONS

**Model No: DUCT09HP230V1AD**

**9,000 BtuH**

**Model No: DUCT12HP230V1AD**

**12,000 BtuH**



Dimension	(mm)	(inches)
A	742	29.2
B	491	19.3
C	662	26.1
D	620	24.4
E	700	27.6
F	615	24.2
G	782	30.8
H	156	6.1
I	200	7.9
J	635	25.0

### Suction/Gas Line Port Size

Port 1	3/8-in OD Flared
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### Liquid Line Port Size

Port 1	1/4-in OD Flared
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### Drain Connector

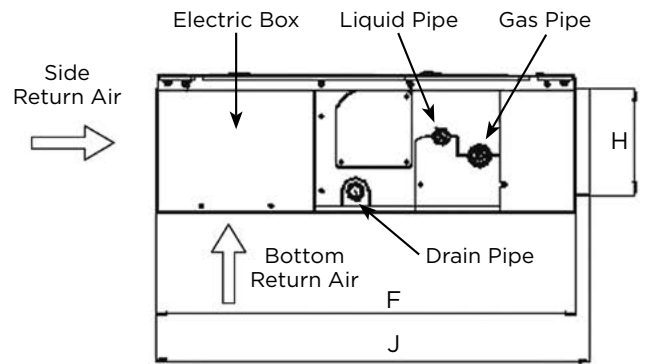
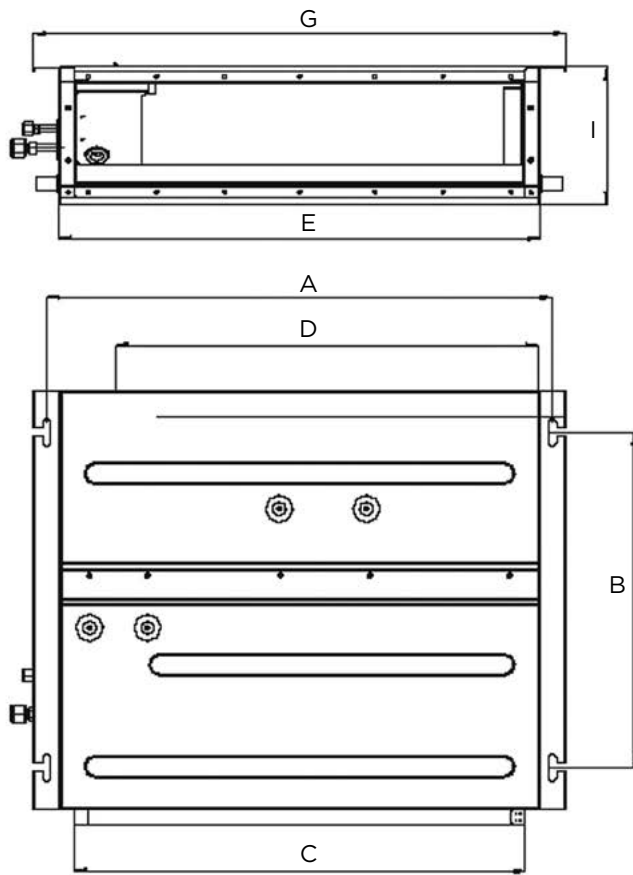
Drain Line	1.0-in OD
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**Note:** Size refrigerant lines based on evaporator port sizes.

# DIMENSIONAL SPECIFICATIONS

**Model No: DUCT18HP230V1AD**

**18,000 BtuH**



Dimension	(mm)	(inches)
A	942	37.1
B	491	19.3
C	862	33.9
D	820	32.3
E	900	35.4
F	615	24.2
G	982	38.7
H	156	6.1
I	200	7.9
J	635	25.0

Suction/Gas Line Port Size	
Port 1	1/2-in OD Flared

Liquid Line Port Size	
Port 1	1/4-in OD Flared

Drain Connector	
Drain Line	1.0-in OD

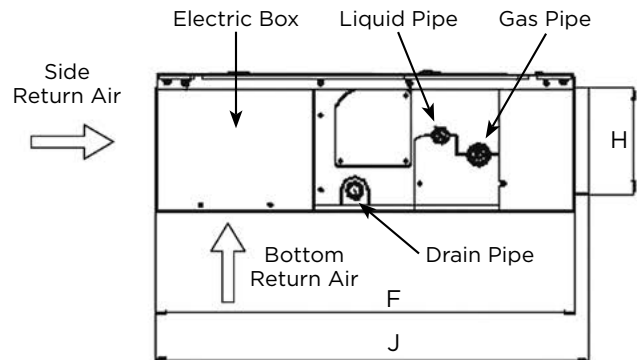
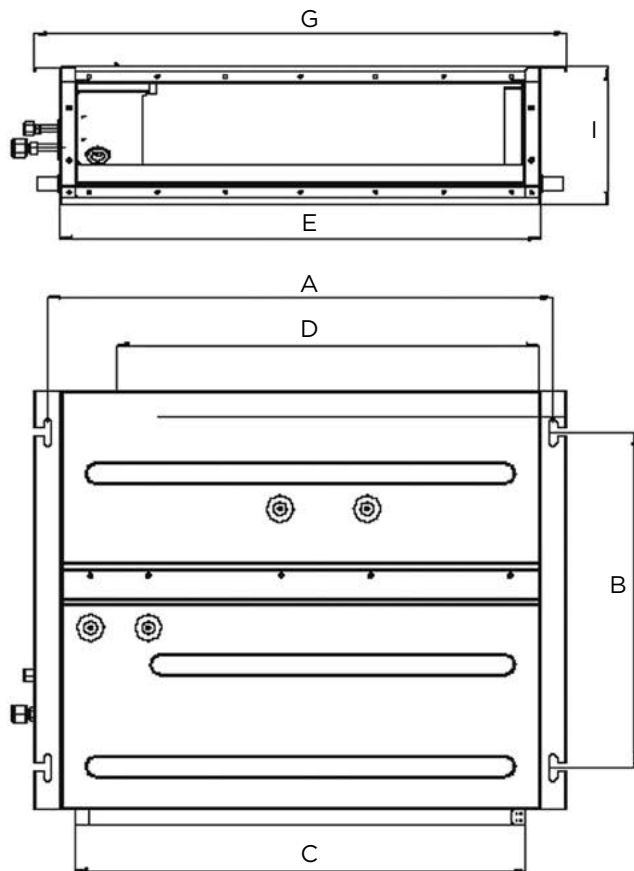
**Note:** Size refrigerant lines based on evaporator port sizes.

# +Multi Slim Concealed Ducts

## DIMENSIONAL SPECIFICATIONS

**Model No: DUCT24HP230V1AD**

**24,000 BtuH**



Dimension	(mm)	(inches)
A	1124	44.3
B	491	19.3
C	1062	41.8
D	1020	40.2
E	1100	43.3
F	615	24.2
G	1182	46.5
H	156	6.1
I	200	7.9
J	635	25.0

Suction/Gas Line Port Size	
Port 1	5/8-in OD Flared

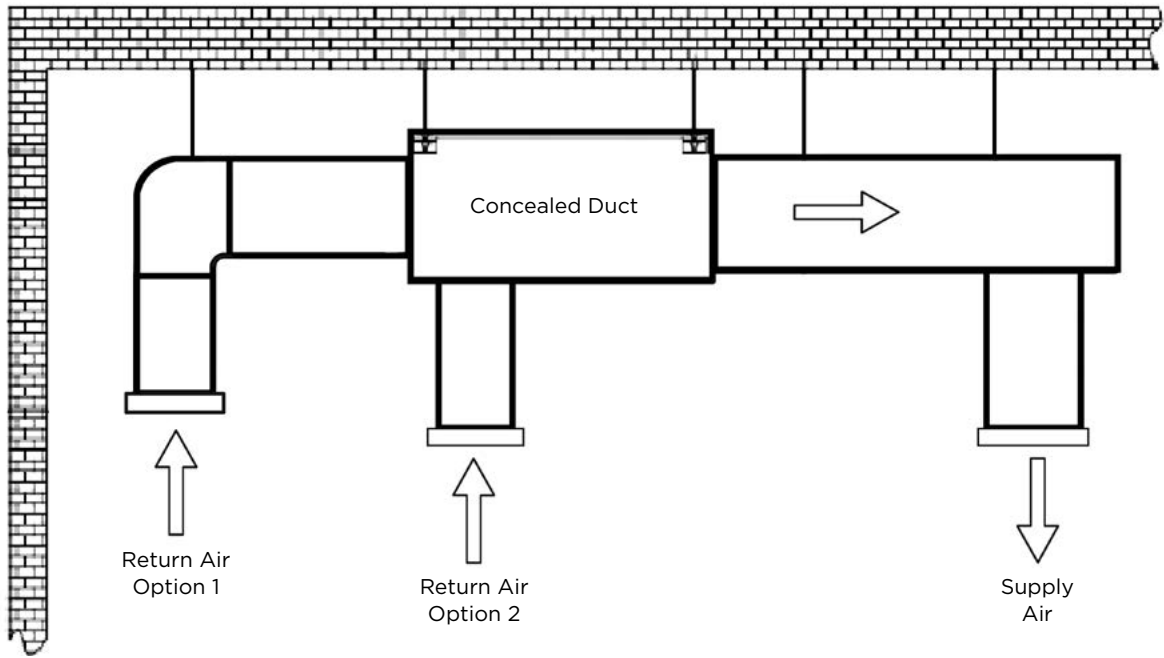
Liquid Line Port Size	
Port 1	3/8-in OD Flared

Drain Connector	
Drain Line	1.0-in OD

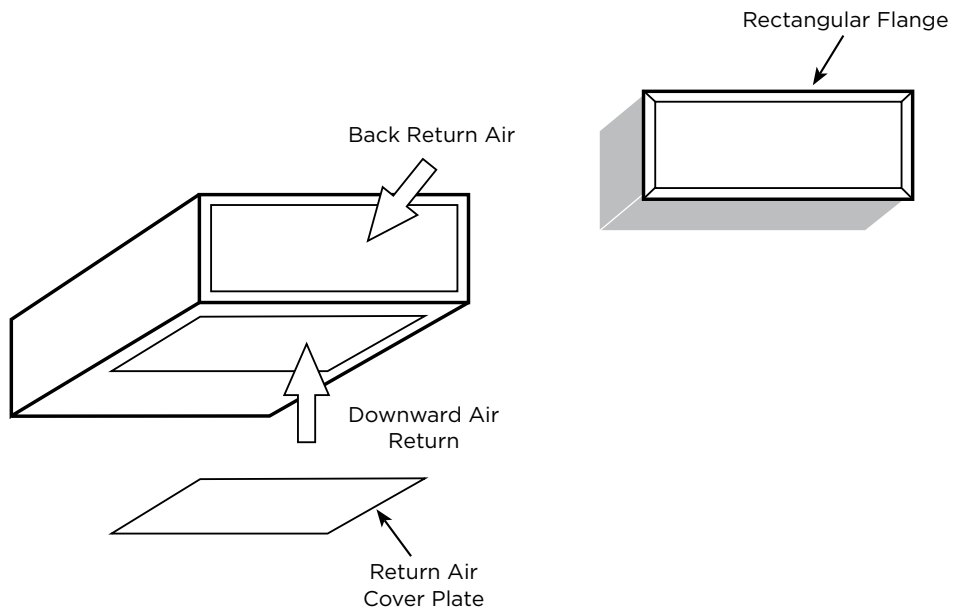
**Note:** Size refrigerant lines based on evaporator port sizes.

# DUCT DESIGN

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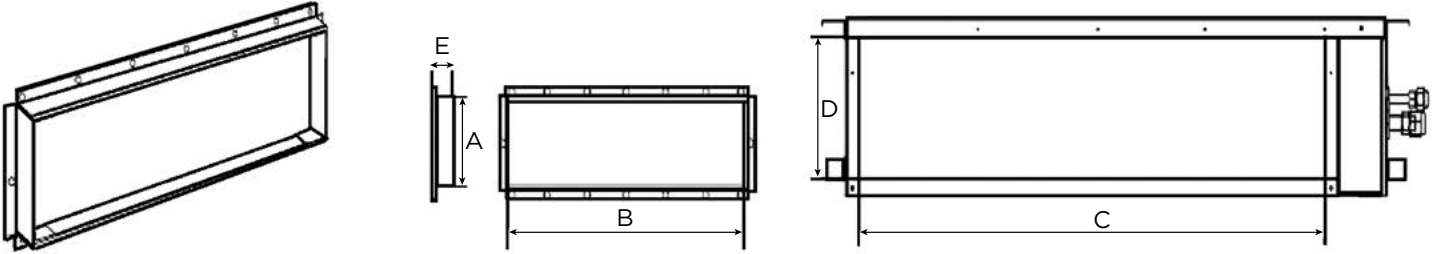


Typical Ductwork Layout



# +Multi Slim Concealed Ducts

## DUCT SIZING SPECIFICATIONS



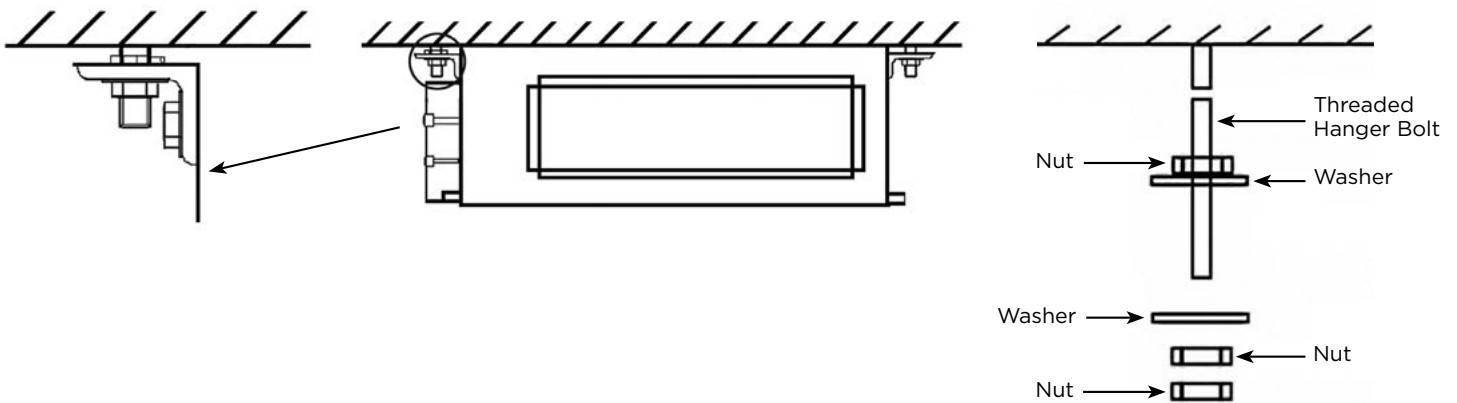
### Dimensions

MODEL NUMBER	SUPPLY DUCT (in/mm)		RETURN DUCT (in/mm)		FLANGE (in/mm)
	A	B	C	D	E
<b>DUCT09P230V1AD</b>	6.1/156	26.1/662	22.8/580	6.4/162	0.8/21
<b>DUCT12P230V1AD</b>	6.1/156	26.1/662	22.8/580	6.4/162	0.8/21
<b>DUCT18P230V1AD</b>	6.1/156	33.9/862	30.7/780	6.4/162	0.8/21
<b>DUCT24P230V1AD</b>	6.1/156	41.8/1062	38.6/980	6.4/162	0.8/21

## INSTALLATION OF MOUNTING HANGERS

Depending on the type of ceiling, threaded hanger bolts (field supplied) are recommended for securing the Concealed Duct to the ceiling or support studs.

Proper mounting hardware is critical, which includes upper nuts, lower flat washers (with insulation), top flat washers (without insulation), top nuts and locking nuts (double) on the threaded hanger bolts as show in diagram below.

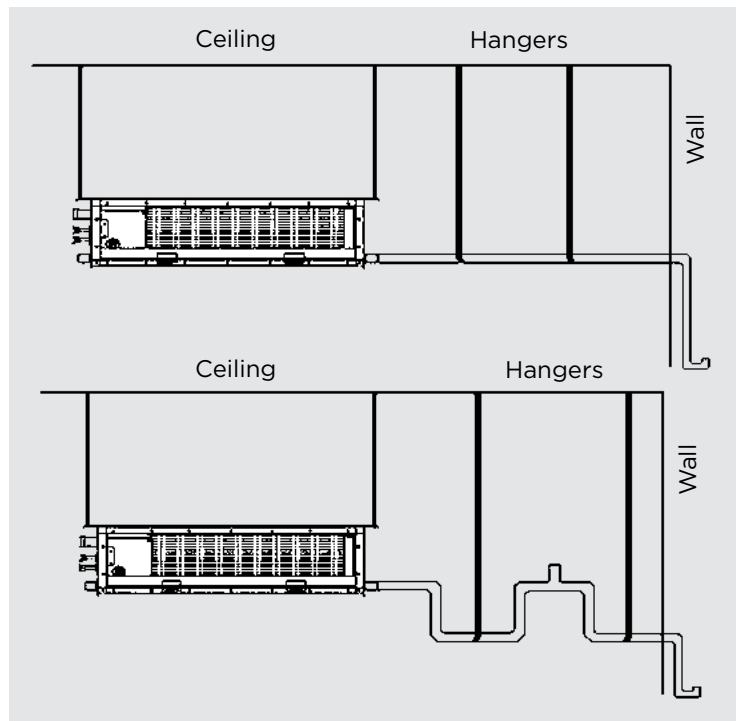


# CONDENSATE DRAIN DESIGNS

It's recommended to build the condensate drain system with hard polyvinyl chloride (PVC) pipe and matching connectors. Use pipe with either the same diameter or larger than the unit drainage port.

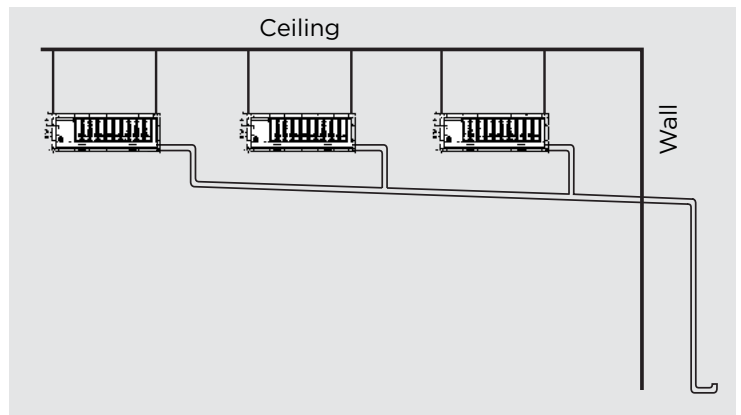
## Gravity Drainage Systems with P-trap & Vent

Pitch the condensate drain pipes at a gradual 2.5% pitch (Example: 1/4-in. drop over a 10-in. length) without obstructions. Use pipe hanger/brackets to support the condensate drain pipe from drooping. Insulate all pipes to prevent sweating and water damage.



## Multiple Units with Common Drain

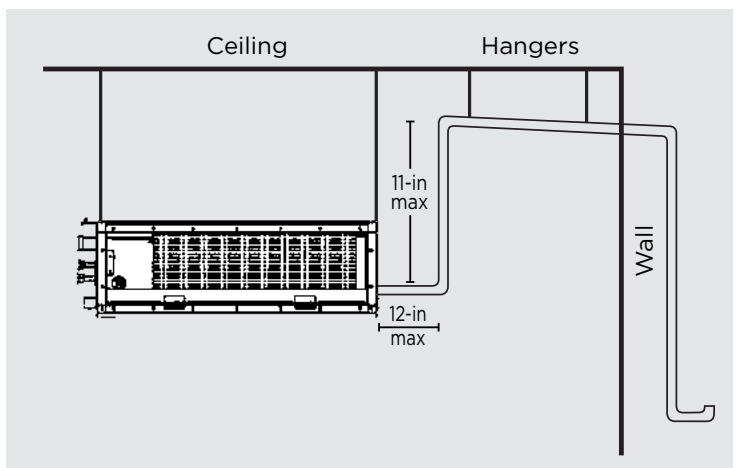
The following is the recommended condensate drainage system for multiple units that share a common drain line. Connecting multiple units to one trap allows air to be pulled through one or more of the units, bypassing the trap. An alternate method is having individual drains and traps for each unit.



## Vertical Lift Drainage System

If a gradual pitch from the drainage port is not obtainable, the Concealed Duct contains an internal condensate pump with limited head or lift. The condensate drain pipe may have a vertical height of 11-in. (280 mm) maximum above the unit drainage port within the first 12-in. (300 mm) as long as the remaining condensate drain pipe gradually descends from that point and aligns with drainage port.

Use an auxiliary condensate pump with float valve for vertical height greater than 11-in. (280 mm) above the unit drainage port. A float valve is recommended to shut off the system if the auxiliary pump fails.





# Limited Warranty Statement



## DUCTLESS HEAT PUMP MULTI-SPLIT SYSTEMS

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Effective on new GREE Ductless purchases on or after March 1, 2013

**DUCT09HP230V1AD**

**DUCT12HP230V1AD**

**DUCT18HP230V1AD**

**DUCT24HP230V1AD**

GREE distributor (hereinafter "Company") warrants this product against failure due to defect in materials or workmanship under normal use and maintenance as follows. All warranty periods begin on the date of original installation. If the date cannot be verified, the warranty period begins one hundred twenty (120) days from date of manufacture. If a part fails due to defect during the applicable warranty period Company will provide a new or remanufactured part, at Company's option, to replace the failed defective part at no charge for the part. This limited warranty is subject to all provisions, conditions, limitations and exclusions listed below.

- A warranty period of Seven (7) years on compressor to the original registered end user.
- A warranty period of Five (5) years on all parts to the original registered end user.
- A warranty period of One (1) year on the remote control provided with the original unit.
- Limited warranty applies only to systems that are properly installed by a state certified or licensed HVAC contractor, under applicable local and state law in accordance with all applicable building codes and permits; GREE installation and operation instructions and good trade practices.
- Warranty applies only to products remaining in their original installation location.
- Defective parts must be returned to the distributor through a registered servicing dealer for credit.

# LIMITATIONS OF WARRANTIES

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All implied warranties and/or conditions (including implied warranties or conditions of merchantability and fitness for a particular use or purpose) are limited to the duration of this limited warranty, some states or provinces do not allow limitations on how long an implied warranty or condition lasts, so the above may not apply to you. The express warranties made in this warranty are exclusive and may not be altered, enlarged, or changed by any distributor, dealer, or other person, whatsoever.

## **THIS WARRANTY DOES NOT COVER:**

1. Labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts, or replacement parts, or new units.
2. Product cleaning required prior to warranty service and repair.
3. Normal maintenance as outlined in the installation and servicing instructions or Owner's Manual, including filter cleaning and/or replacement and lubrication.
4. Failure, damage or repairs due to faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
5. Failure to start due to voltage conditions, blown fuses, open circuit breakers, or damages due to the inadequacy or interruption of electrical service.
6. Failure or damage due to floods, winds, fires, lightning, accidents, corrosive environments (rust, etc.) or other conditions beyond the control of the Company.
7. Failure or damage of coils or piping due to corrosion on installations within one (1) mile of sea coast or corrosive body.
8. Parts not supplied or designated by Company, or damages resulting from their use.
9. Products installed outside continental USA and Canada.
10. Electricity or fuel costs, or increases in electricity or fuel costs for any reason whatsoever, including additional or unusual use of supplemental electric heat.
11. Any cost to replace, refill or dispose of refrigerant, including the cost of refrigerant.
12. Shipping damage or damage as a result of transporting the unit.
13. Accessories such as condensate pumps, line sets and so forth are not covered.
14. Any special, indirect or consequential property or commercial damage of any nature whatsoever. Some states or provinces do not allow the exclusion of incidental or consequential damages, so the above limitation may not apply to you.

## **FOR WARRANTY SERVICE OR REPAIR:**

Contact your installing contractor. You may find the installer's name on the equipment or in your Owner's packet.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

WSO021513-DLSWARR-MULTI - Rev. 10-15-14





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