

Friedrich VRP® Series
Variable Refrigerant Packaged Heat Pumps
VRP performance and single package simplicity

VRP®



 **FRIEDRICH**

THE MOST HVAC SOLUTIONS FOR LODGING AND MULTIFAMILY



VRF performance and single package simplicity, all the pieces come together in Friedrich VRP®



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VRP®
INTRODUCTION

Why compromise?

VRP® solves more design problems than complex systems like VRF and 4-pipe systems

VRP® THE TOTAL HVAC SOLUTION

BEST IN CLASS COOLING PERFORMANCE

Precision Inverter® variable speed compressors deliver efficiencies up to 15.0 SEER2

Automatically adjusts capacity to meet specific cooling conditions

Can operate at up to 120% of rated capacity to reach set point quickly

SUPER EFFICIENT HEATING

Low-ambient heat pump operation to 0° F* HSPF2 up to 7.0
Significant energy rebates available with huge savings over resistance heat

FRESHAIR® IAQ READY

A full complement of Indoor Air Quality Products has been certified through installation and testing to ensure exceptional indoor air quality is achieved when Friedrich FreshAir® IAQ accessories are added.

TRUE HUMIDITY CONTROL

Sophisticated humidity control system with on-board sensors and humidistats

Ability to adjust motor and compressor speed enhances dehumidification

Optional hot gas re-heat coil helps maintain ideal RH levels

CONDITIONED FRESH AIR

Optional FreshAir® system brings in up to 130 CFM of conditioned, MERV 8-filtered outside air. (Up to 130 CFM depending on model, see specifications)

Helps building owners achieve ASHRAE 62.1 compliance for commercial buildings and 62.2 for residential buildings

Reduces cost and complexity associated with dedicated outside air systems



*May experience some loss in capacity. Continuous operation is not guaranteed.

VRP® sets a new benchmark for single package vertical units with efficiencies up to 15.0 SEER2



VRP® is in a class by itself, offering a real win-win for occupants and owners. VRP's Precision Inverter® compressor operates down to 40% of rated capacity, or up to 120%, matching the unit output to the actual demand of the space for increased comfort and lower energy consumption.

State-of-the-art humidity control helps to prevent conditions that promote mold and musty smells



Humidity control is often a challenge for HVAC designers. Many fixed-speed systems are designed only to optimize efficiency at a single operating condition at the expense of adequate humidity control.

The VRP® uses a sophisticated system of temperature and humidity sensors to constantly monitor the space conditions. Our proprietary algorithms use these inputs to provide optimal comfort.

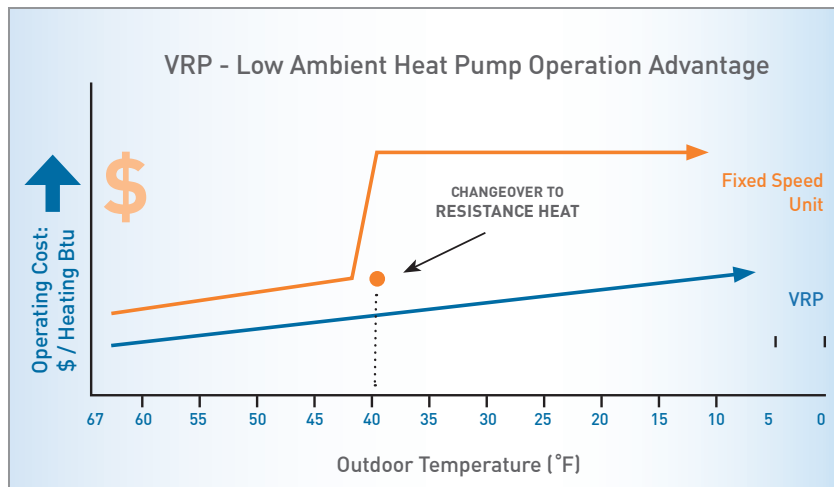
In addition, the VRP® can be ordered with an optional Re-heat coil to augment dehumidification and prevent over-cooling of the occupied space.



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VRP® TRUE
HUMIDITY CONTROL

VRP® also features exceptional low-ambient heat pump operation down to 0° F*

Extended operation in energy-efficient heat pump mode can potentially save hundreds of dollars per year for each unit.



*May experience some loss in capacity. Continuous operation is not guaranteed.

VRP® helps building owners comply with ASHRAE 62.1-2013 building code for IAQ

With VRP® installations, elaborate and expensive rooftop central systems can be considerably downsized to service only the common areas of the property.

Unlike some new products which have recently entered the market, VRP® utilizes the main evaporator coil and MERV 8 filters to truly condition the outside ventilation air.



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VRP® TRUE
MAKE-UP AIR

VRP® active dehumidification system for optimal thermal comfort

An integrated, optimal dehumidification system optional with the Friedrich VRP.

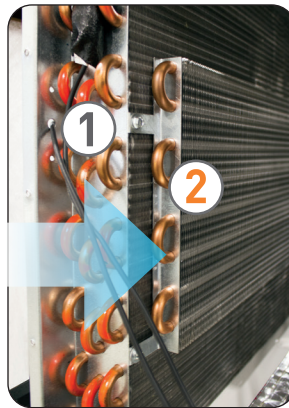
The dehumidification system is comprised of a Hot Gas Reheat Circuit and patented intelligent control that is activated based on indoor relative humidity levels. VRP's variable speed capability combined with the Hot Gas Reheat System actively and efficiently removes humidity providing optimal occupant comfort and improved indoor air quality (IAQ).

1. Indoor/Evaporator Coil

Return air passes over the large surface area of the cold evaporator coil to ring moisture from the air

2. Hot Gas Reheat Coil

That air then passes over the reheat coil that uses efficient rejected heat to temper the air back to an optimal 'space neutral' temperature



WHY CARE ABOUT HIGH HUMIDITY?

High humidity levels can do the following:

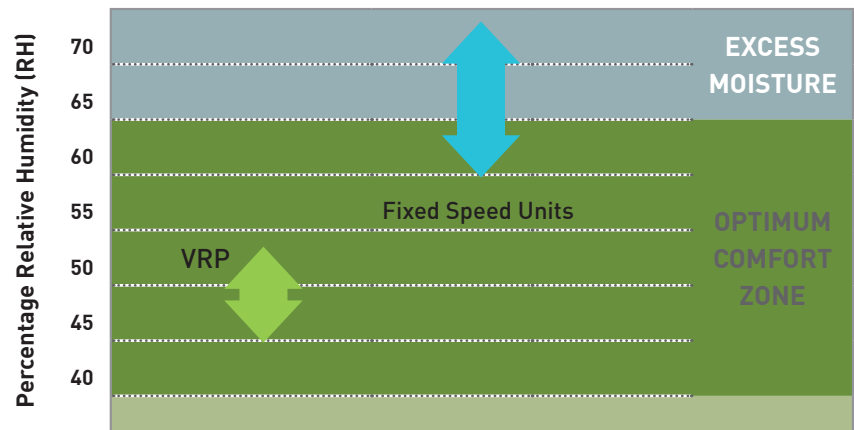
- Compromise occupant comfort
- Create a breeding ground for mold, mildew, dust mites and bacteria
- Compromise the integrity of electronics & building materials leading to more frequent renovations and repairs
- Leave the indoor space with musty unpleasant odors



VRP® VS. CONVENTIONAL FIXED SPEED UNITS

Fixed speed units have to operate across a broad temperature range which causes large variations in humidity levels.

VRP's Precision Inverter® technology along with Hot Gas Reheat System optimizes room conditions for maximum comfort.



VRP® ACTIVE DEHUMIDIFICATION SYSTEM ADVANTAGES

- **INTEGRATED SOLUTION:** Built-in module for the VRP; no need for separate equipment or installation.
- **EFFICIENT DEHUMIDIFICATION:** The reheat energy is site recovered. The heat rejected from the cooling process eliminates expensive auxiliary heat from new energy.
- **CONSTANT MONITORING:** The built-in sensors constantly monitor the indoor relative humidity levels and temperature, not one or the other.
- **SMART ACTIVATION:** Preset levels to auto activate reheat functionality when additional dehumidification is required.
- **OPTIMAL COMFORT:** Moisture removal without over-cooling the space.

NOTE: Hot gas re-heat available as non-standard option.

VRP® ACTIVE DEHUMIDIFICATION SYSTEM WORKING PRINCIPLE

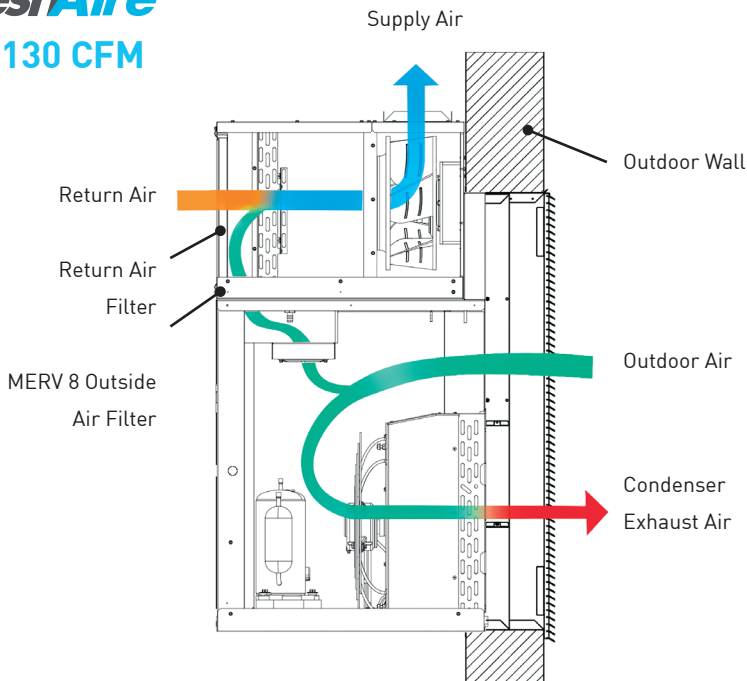
- Dehumidification operation uses Hot Gas Re-heat to extend compressor operation for additional humidity removal.
- The discharge gas from the compressor is used to "re-heat" the air that has been cooled and dehumidified by the VRP indoor coil.
- The reheat valve will energize when the sensible load is near satisfaction but the latent load is too high.
- During active dehumidification, if the space begins to over-cool or the latent load is satisfied the reheat valve will deenergize.

VRP® is the only vertical packaged unit that effectively conditions outside air for occupied spaces

The VRP® equipped with the FreshAir™ system, is the only vertical packaged unit that effectively conditions outside air, helping buildings comply with ASHRAE 62.1 and 62.2 standards for IAQ.

FreshAire®

Up to **130 CFM**



VRP® ADVANTAGES

CONDITIONED FRESH AIR

Effectively conditioned outside air provides clean comfortable environment for occupants without compromising efficiency or performance.

MERV 8 FILTERS

130 CFM or 80 CFM on 3-ton models, and 70 CFM or 35 CFM of fresh outdoor air on 1-ton and 2-ton models passes through dedicated MERV 8 filter(s).

RE-HEAT COIL

VRP features an optional re-heat coil that enhances dehumidification without over cooling the occupied space.

DOWNSIZE PACKAGED ROOFTOP SYSTEMS

Dedicated outdoor air system capacity requirements are greatly reduced to that of the common areas and hallways.

VRP® studio, THE IDEAL HOSPITALITY SOLUTION

MEETING TODAY'S DESIGN TRENDS

VRP® studio was developed based on feedback from the hotel industry that indicated design trends for smaller, better insulated rooms that required a smaller version of our VRP. With a cooling capacity ranging from 3,800 to 10,000 Btu/hr and a smaller footprint, VRP® studio is ideal for standard guestroom applications. It has higher latent cooling capacity for humid climates. It can be installed in new construction and as a direct replacement for many vertical PTACs.

ALL THE BENEFITS OF THE VRP LINE

The VRP® studio brings in conditioned outside air into each room in compliance with ASHRAE 62.1 requirement for MUA. This allows the building owner or developer to save on upfront costs by reducing the duct work, fire dampers, and DOAS equipment to all of the guestrooms.

OPERATIONAL SAVINGS

The high efficiencies and low ambient heat pump capability of the VRP - down to 0°F - helps building owners realize large annual operational cost savings of up to 60% compared to standard, fixed speed equipment.

ENERGY MANAGEMENT SAVINGS

When paired with the VRPXEM wall controller, the property owner gains the added benefit of occupancy-based operation, increasing the annual saving even more.

* Also compatible with Inncom & Telkonet



VRP® STUDIO

COOLING 3,800-10,000 Btu/hr

HEATING 2,800-9,000 Btu/hr

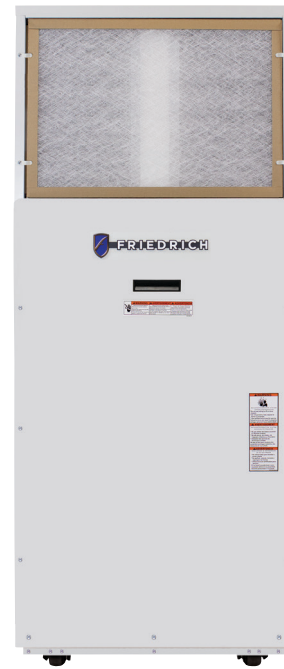
SAVINGS AND SIMPLICITY IN THE RESIDENTIAL MARKET

FULL CAPACITY COVERAGE

In addition to the new VRP® studio, VRP® is offered in nominal one, two, and three ton options, covering 3,800 to 36,000 Btu/hr. This allows a "one-stop-shop" to cover all dwelling units at the property in the simplicity of a single package.

MONTHLY SAVINGS FOR THE TENANT

The building owners or tenants will delight in a cheaper monthly energy bill possible due to the VRP's high efficiencies, variable speed capabilities, and low-ambient heat pump capabilities.



VRP® 36

COOLING 20,000-36,000 Btu/hr

HEATING 16,000-30,000 Btu/hr



VRP® ADVANTAGES

VRP® ELIMINATES MANY OF THE HIGH COSTS ASSOCIATED WITH LARGE CENTRAL HVAC SYSTEMS

Elaborate and expensive rooftop central systems can be considerably downsized to service only the common areas of the property.

ONE ROOM - ONE UNIT SOLUTION VIRTUALLY ELIMINATES DOWNTIME

VRP eliminates safety issues associated with potential refrigerant spills in guest rooms. Maintenance is simplified – VRP units are easy to diagnose, repair and replace. Spare units can be stored on site. Typical troubleshooting and operational support can be accomplished without specialized training or certifications.

NO COOLING TOWERS TO MAINTAIN AND KEEP SAFE

The development of Legionella in a dirty cooling tower is a serious concern with the potential for severe illness and financial liability. Many communities are adopting or considering strict new standards on start-ups and shutdowns, maintenance, water treatment and disinfection plans. Compliance with these standards will be time consuming and costly.

ENTIRE UNITS CAN BE CHANGED OUT IN LESS TIME THAN IT TAKES TO TROUBLESHOOT MOST CENTRAL SYSTEMS

Fast unit change-out keeps tenants and guests happy and allows the unit to be removed and repaired outside the guest room if needed. Central system failures and the need for temporary cooling can be confined to common areas, greatly reducing costs.



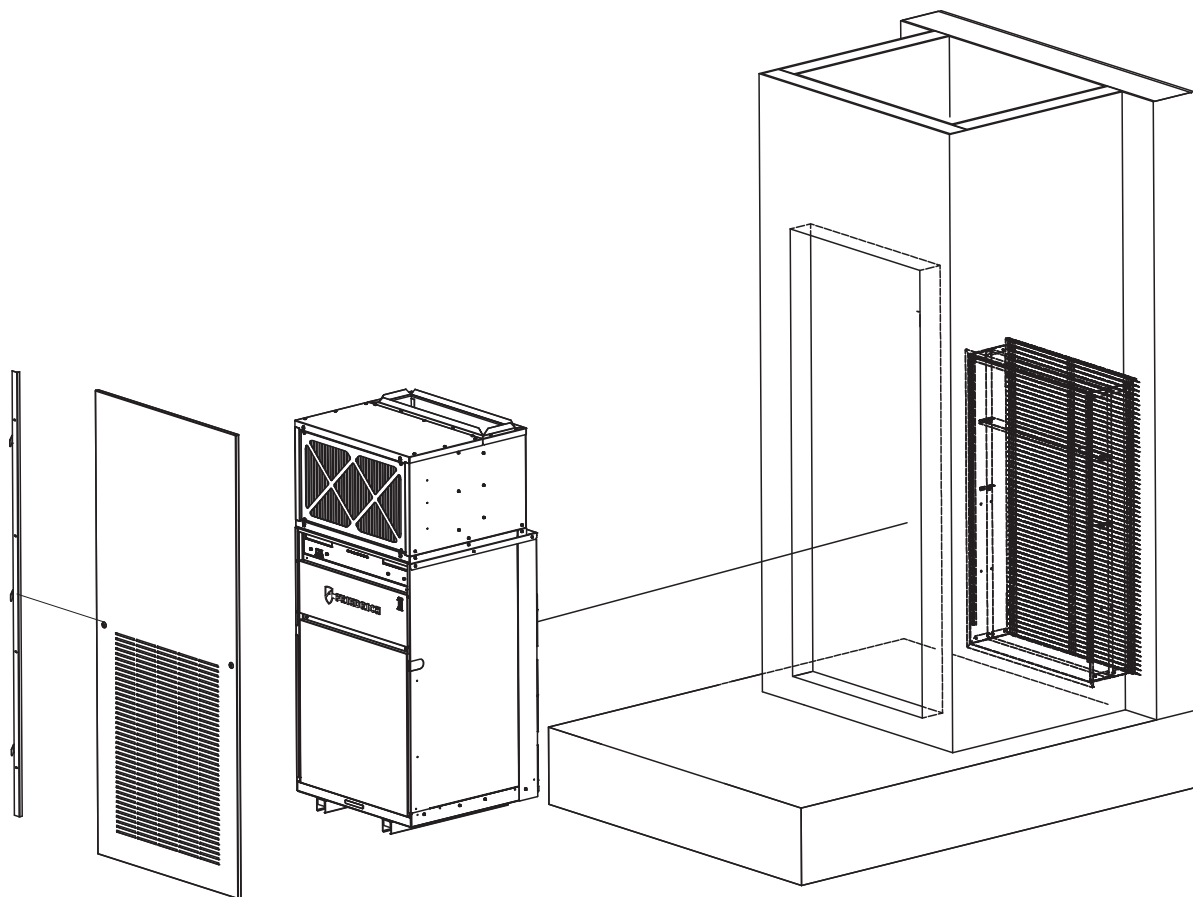
VRP® ADVANTAGES continued

UNITARY PACKAGE DESIGN




- Low upfront installed cost
- Ease of replacement or maintenance
- “In closet” installation provides maximum design flexibility
- No structural requirements to support rooftop systems
- No hiding fields of condensing units
- Patented telescoping plenum adapts to more installation types
- Unique free-floating chassis means no metal-to-metal contact
- Reduced noise from vibration transfer improves guest experience
- Fully insulated cabinets for improved sound characteristics

PRECISION INVERTER® TECHNOLOGY

- Highly efficient - up to 15.0 SEER2
- Low ambient operation down to 0° F
- Economical to operate - Huge savings in operational costs
- Precise cooling or heating to match the required capacity
- Reaches desired temperature faster than conventional air conditioners
- Quieter operation than conventional air conditioners
- Improved guest comfort

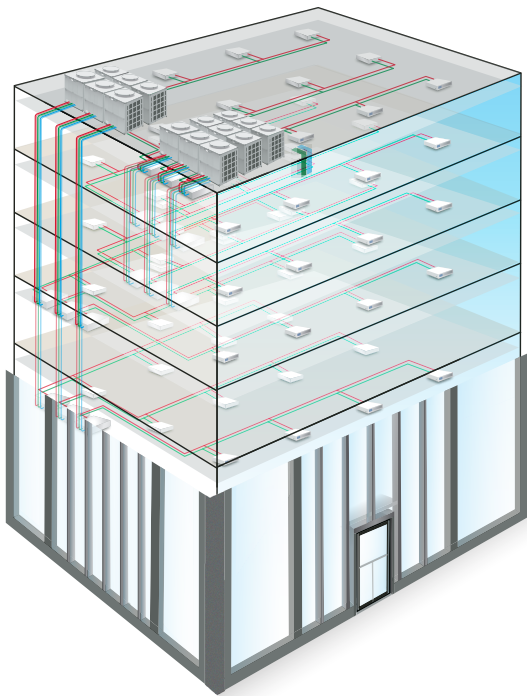


Exceptional performance, low complexity and lower cost. That's the beauty of VRP®

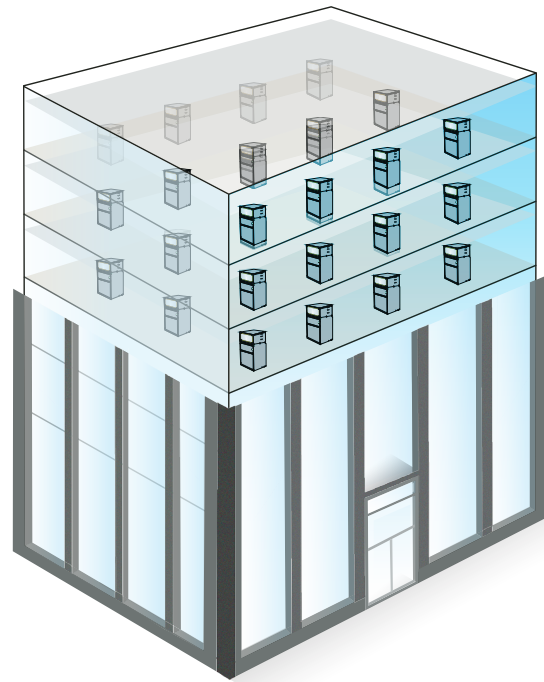
<div> <div>←</div> <div>COST / COMPLEXITY / PERFORMANCE</div> <div>→</div> </div>				
LOW		(Sweet spot)	HIGH	
				
PTACs	VTACs		VRF	4-Pipe System
PROS: Economical Easy to install Easy to maintain Easy to repair Easy to replace	PROS: Improved sound levels More 'home-like' appearance		PROS: Better efficiencies Good sound levels	PROS: Better efficiencies More optional capabilities Good sound levels
CONS: Lower efficiencies Relatively high sound levels Obtrusive appearance 'Low end' stigma	CONS: Relatively low efficiencies		CONS: High cost of installation Complex High initial cost Safety issues	CONS: High cost of installation Complex High initial cost Safety issues



**VRP® IS SIMPLE.
ONE ROOM. ONE UNIT.**



VRF systems require fields of outdoor units and long runs of refrigerant lines. Getting make up air into each room requires complex ductwork and fire damper systems.



The VRP® offers single package simplicity with the combined performance of VRF and complex make up air systems, all at a lower total installed cost.

Save big on energy without compromising guest comfort

ENERGY MANAGEMENT CONTROLLERS OFFER MULTIPLE OPTIONS FOR CONTROL OF ENERGY

REAL TIME MOTION AND THERMAL OCCUPANCY SENSOR

Integrated Occupancy Sensor uses a combination of **motion and thermal sensing technologies** for accurate occupancy detection at all times - no need to install additional devices such as door switches or sensors.

WIRED OR WIRELESS INSTALLATION

Wired or wireless connectivity with extensive configuration options.

ENERGY SAVINGS PRESETS

5 distinct energy saving modes make it easy to choose the optimal energy saving settings for any property.

REMOTE MANAGEMENT*

Web-based remote management provides expansive solutions for remote monitoring and configuration from any computer connected to the internet.

Built-in Wireless Networking enables remote management without using or interfering with property's existing wireless infrastructure. True mesh networking eliminates the need for additional networking equipment such as signal repeaters or multiple data collection boxes.

Friedrich's **VRPXEMRT2** and **VRPXEMWRT2** wall controllers use real-time motion and thermal occupancy detection to save energy.

When the room is unoccupied, the wall controller automatically adjusts the temperature to eliminate unnecessary heating and cooling.

Monitor room status and see the operation, occupancy and energy efficiency status of each room.

ADVANCED ENERGY SAVING FEATURES

Fully configurable energy saving modes maximize energy savings without compromising guest comfort.

Temperature setback automatically adjusts the temperature when the room is unoccupied to save energy.

Temperature recovery calculates the setback temperature so that the desired temperature can be restored within specified time.

Setback optimization continuously monitors temperature recovery rate in the room and adjusts setback temperature to maximize energy savings.

Setback limits allow maximum and minimum room temperature to be set when the room is unoccupied.

Setpoint limits prevent guests from setting room temperature to extreme, energy-wasting levels.

Room status displays operation, occupancy and energy efficiency status of each room.

Room detail displays temperature and occupancy changes in a room.

Energy reports monitor energy use and can even evaluate the performance of energy saving features.

Intuitive interface makes it easy to apply different settings to different rooms.

User management allows configuration of custom access permissions and alert notification settings for different users.

Built-in diagnostic tools automatically send email alert notifications to hotel staff.



*Requires an optional "Online Connection Kit" and a one-time license fee.

STANDARD WALL CONTROLLER

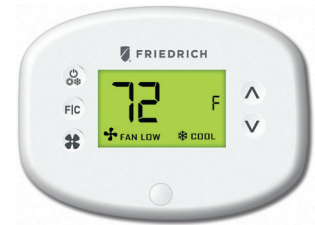
VRPXWCT

- Simple easy-to-use wired wall controller for hotels, schools and other commercial properties with customizable set points ensuring guest comfort.

ENERGY MANAGEMENT WALL CONTROLLER WITH OCCUPANCY SENSOR

VRPXEMRT2, VRPXEMWRT2

- Real time motion and thermal occupancy sensor
- Wired or wireless installation
- 5 energy savings presets
- Remote monitoring



VRPXWCT, VRPXEMRT2,
VRPXEMWRT2

ENERGY MANAGEMENT THERMOSTATS

VRPXEMRT2/ VRPXEMWRT2

Wired thermostat with occupancy based Energy Management

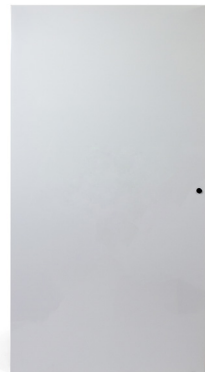
EMOCT	EMRAF	EMROS	
Online connection kit.	Remote access fee.	Remote Occupancy Sensor	
EMRTS	EMRDS	EMCWP	EMRWOS
Remote Temp. Sensor	Door Switch	Wall-Plate	Wireless Occ. Sensor

WALL PLENUMS (REQUIRED)

VPAPW1-8/14 (VRP07) / VRPXWPA-8/14 (VRP12) / VRPXWPB-8/14 (VRP12/24) / VRPXWPC-8/14 (VRP36)

Two-part sleeves that telescope in and out; sits inside the exterior wall penetration.

VPAPW1-8	VRPXWPA-8	VRPXWPB-8	VRPXWPC-8
-Sleeves telescope from 4"- 8"			
VPAPW1-14	VRPXWPA-14	VRPXWPB-14	VRPXWPC-14
-Sleeves telescope from 8"- 14"			



VRPXAPPR1



VRPXAP1

RETURN AIR GRILLE/ ACCESS PANELS

VRPG4/R ***For VRP07 Only

Hinged panel allows access to unit and return air filter. 'R' version is for right in-swing

VRPXAP1

Hinged panel allows access to unit and return air filter (20"x 25"). Can be installed to have a left or right in-swing

VRPXAPPR1

Solid hung panel with 18ga construction and sound attenuating insulation. The return air enters from the perimeter of the door for a more aesthetically pleasing look and overall sound attenuation.

DRAIN PAN (REQUIRED FOR VRP07)

VPDP2

Must be installed prior to chassis for easy installation/removal.



VPDP2

FreshAir® IAQ READY

HEALTHY AIR DELIVERED

The COVID-19 global pandemic is transforming the way the lodging industry meets the comfort and safety needs for guests. As your room air experts, Friedrich remains committed to improving guest comfort and safety with our newest innovation, FreshAir® IAQ solutions - a suite of indoor air quality accessories for use with Friedrich Air Conditioners, all with one dedicated purpose - healthy indoor air.

FreshAir® IAQ solutions incorporate ASHRAE-recommended protocol* to address indoor air quality and airborne transmissions. This suite of products include industry-leading air quality technologies such as MERV 13 filtration, UV germicidal light and bi-polar ionization. Together, they represent a major leap forward in integrated HVAC air purification and rebuilding confidence for indoor environments.

*Based on ASHRAE Guidance for Building Operations During the COVID-19 Pandemic

FRESHAIR® MERV 13 FILTRATION

FreshAir MERV 13 filtration is effective at capturing and removing microorganisms from the air, which according to ASHRAE*, the leading authority on the science behind advanced indoor air quality, include harmful airborne viruses.

FRESHAIR® MERV 13 FILTER KITS

VRPXF-2

Filter bracket kit for 2" deep filters (up to MERV 13) - includes gasket and 2" MERV 13 filter

VRPFKU

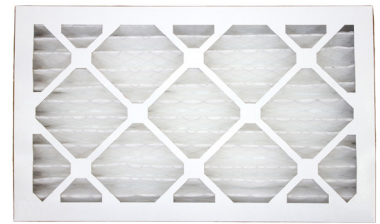
Telescoping filter bracket for 2" - 4" deep filters (up to MERV 13) - includes gasket

FRESHAIR® PURIFIER APWR1

FreshAir Purifier by iWaves features needlepoint bi-polar ionization to address any mold, bacteria, virus, allergens, and VOC's that may be in your air stream to ensure delivery of healthy, clean, purified air.

FRIEDRICH® UV UVT1

Germicidal UV light kits by Fresh-Aire UV have been tested and certified for use on Friedrich Vert-I-Paks. The UV kit can be installed on the evaporator coil and is designed to disinfect surfaces and the air as it circulates through the ventilation system. UV light can kill airborne bacteria, viruses, mold, reduce maintenance costs and extend the life of an HVAC system



FIELD-SUPPLIED MERV13 FILTER



VRPXF-2, VRPFKU



APWR1



UVT1

VRP® SPECIFICATIONS

Model	VRP07K/VRP07R	VRP12K/VRP12R	VRP24K/VRP24R	VRP36K
Cooling Performance Data (Cooling Standards: 95°F DB/75°F Outdoor, 80°F DB/67° WB Indoor)				
Voltage	230/208 265	230/208 265	230/208 265	230/208
Cooling Btu (Rated)	7,000	11,500	23,400	33,400
Cooling Btu (Min. - Max)	3,800 - 10,000	5,400 - 16,000	14,500 - 28,000	20,000 - 36,000
Outdoor Operating Range (°F)	55 - 115	55 - 115	55 - 115	55 - 115
Power (W)	673	1,106	2,925	3,310
SEER2	15.2	15.1 14.7	13.7	14.7
EER2	10.4	10.4	8.0	10.1
Sensible Heat Ratio	77%	74%	74%	78%
Cooling Amps	3.5	5.3 4.6	13.9 11.9	15.7
Heat Pump Performance Data				
Voltage	230/208 265	230/208 265	230/208 265	230/208
Heating Btu (Rated @ 47°F)	7,000	11,200	21,000	28,600
Heating Btu (@ 17°F)	4,300	6,200	13,000	19,200
Heating Btu (Min. - Max)	2,800 - 9,000	4,000 - 14,000	12,000 - 26,000	16,000 - 30,000
Heat Pump Outdoor Operating Range (°F)*	0 - 70	0 - 70	0 - 70	0 - 70
COP (Rated @ 47°F)	3.1	3.4	3.1	3.25
HSPF2	7.2	7.1	6.7	6.7
Heating Power (W)	662	1,189	2,800	2,980
Heating Amps	3.5	4.8	9.1	12.3

*May experience some loss in capacity. Continuous operation is not guaranteed.

Model	VRP07K/VRP07R	VRP12K/VRP12R	VRP24K/VRP24R	VRP36K
Dimensions (W x D x H)	22 15/16" x 22 13/16" x 44 15/16"	26 1/8" x 25 1/8" x 52"	26 1/8" x 25 1/8" x 62"	31 3/4" x 29 7/8" x 77 1/4"
Shipping Dimensions (W x D x H)	25" x 25" x 48 1/4"	28 1/8" x 27 3/8" x 54 1/2"	28 1/8" x 27 3/8" x 64 1/2"	34" x 35" x 81"
Net Weight (lbs.)	161	215	255	330
Shipping Weight (lbs.)	165	276	316	357
R410A Charge (oz.)	31.0	49.8	68.3	125

One or more of the following patents may apply: 10408504, 10436457, 10488083. Additional patents pending.



VRP, AWARD-WINNING INNOVATION

VRP has been repeatedly recognized by the HVAC industry for excellence.

Awards include:

1. Gold Winner, Product of the Year for HVAC: Air movement, compressors, etc. category by voters in Consulting Specifying Engineer Magazine annual contest.
2. Silver Award Winner for Excellence in the Indoor Air Quality category by The Air Conditioning Heating & Refrigeration News (ACHR News) magazine.
3. 2017 AHR Expo Innovation Award finalist in the Indoor Air Quality category.



A COMMITMENT TO QUALITY SINCE 1883

Founded in 1883, Friedrich has manufactured room air conditioners since 1952.

Friedrich is a leading manufacturer of air conditioners and other home environment products. Constructed of the highest quality components, Friedrich products are built to exacting standards and are among the quietest, most highly featured and most energy-efficient available.

If you demand the best, it has to be a Friedrich.



*These products meet a stringent set
of our company's internally defined
sustainability standards*

VRP12-K, VRP12-R, VRP24-K, VRP24-R



Friedrich Air Conditioning Co. | www.friedrich.com