PRODUCT PROFILE

FRIEDRICH
1883

VRP®

Variable Refrigerant Packaged Heat Pump

Innovative | Intelligent | Inverter

A single packaged climate control solution offering the efficiencies and benefits of multiple complex HVAC systems without the complications associated with them.

VRP® Delivers

- Best In Class Cooling Performance
- Super Efficient Heating
- True Humidity Control
- Conditioned Fresh Air

One or more of the following patents may apply:
10408504
10436457
10488083
10731899

Additional patents pending

AHRI CERTIFIED™ www.ahridirectory.org Unitary Small HP AHRI Standard 210/240 Certification applies only when the complete system is listed with AHRI

PRECISION INVERTER™

FreshAire™

c ETL us LISTED Intertek

THE EXPERTS IN ROOM AIR CONDITIONING

Introduction

The Friedrich VRP® is a variable capacity system that utilizes Precision Inverter® technology to provide optimal space conditions. While each VRP unit has a nominal capacity of 7,000, 12,000, 24,000, or 36,000 Btus, every unit has the ability to adjust Btu output based on the actual room load. This equates to:

- Greater in-room dehumidification from longer compressor run time
- Lower energy costs by consuming less power
- Greater occupant comfort due to smaller swings in room temperature and humidity

The VRP accomplishes this by constantly monitoring various system and environmental inputs to vary the output of the unit.

The ability to vary compressor and blower speeds and the use of reheat coil enables the VRP to provide optimal comfort. With up to 20.0 SEER and 10.0 HSPF, the VRP provides a highly efficient solution. Further, the Precision Inverter technology allows the heat pump to operate at ambient conditions as low as 0˚ F reducing the use of strip heat. This results in significant savings in operational costs.

An optional integrated FreshAire™ system delivers conditioned fresh air into the space. The fresh air is filtered through a MERV 8 filter and is then conditioned through the unit's primary DX coils backed by a reheat coil that augments the unit's dehumidification capability. This integrated fresh air solution provides the ability to potentially downsize or eliminate additional make up air and humidity control equipment.

Friedrich's wall controller is the main interface between conditioned space and the unit. The controller has seven back-lit segment displays that indicate the system mode (cool, heat, fan only), fan speed (low, high or auto), set point (°F or °C) or alternatively room temperature (°F or °C).

The controller has an integrated temperature and humidity sensor that sends room status to the main control unit (MCU) to determine operating modes and speeds of various components.

The wall controller also contains a motion sensor that wakes the wall controller from a sleep mode when not in use. This energy saving feature eliminates annoying glow from the controller and the need to turn on lights at night to operate it.

The unitary packaged design means easier installation or replacement. Because the VRP is a packaged unit, it is installed as a completely assembled refrigeration system. Unlike VRF or chilled water systems that require on-site wiring, piping and sealing of individual components, VRP units are assembled, charged and run tested under strict quality control guidelines in Friedrich's North American factory. Additionally, there is no need to locate the cooling tower or condensing units on the ground or rooftops where green spaces can exist instead.

In sum, The Friedrich VRP offers a significant value to all parties involved in the design and construction of a new building. Because of the simpler and more straightforward nature of the packaged design, and the ability to potentially downsize or eliminate additional make up air and humidity control equipment, the VRP reduces much of the headache and complexity facing the design engineer. Because the VRP is easy to install, with no complicated floor-to-floor piping and wiring involved, the contractor can be confident of a high-quality installation and get on and off the job more quickly. And finally, the owner gets the efficiency and performance of larger, more complex and costly equipment, with a lower overall installed cost; and he/she virtually eliminates the potential safety and service issues associated with systems that rely on thousands of feet of refrigerant or water piping running throughout the building, including occupied spaces.

NOTE: For full installation information and methods, please review the Installation & Operations Manuals

Key Features

Best In Class Cooling Performance

- Precision Inverter® variable speed compressors deliver efficiencies up to 20 SEER & 13.0 EER
- 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
- HSPF of 10.0 and COP up to 3.4
- Significant energy savings over other resistance heat packaged equipment that may qualify for utility rebates

True Humidity Control

- Sophisticated humidity control system with on-board sensors and humidistats
- Ability to adjust compressor speed enhances dehumidification
- Re-heat coil helps maintain desired room conditions in all seasons

Conditioned Fresh Air

- Optional FreshAire™ system brings in up to 130 CFM of conditioned, MERV 8-filtered outside air
- Helps building owners conforms to ASHRAE 62.1/2 IAQ building codes
- Reduce much of the cost and complexity associated with dedicated outside air systems

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.

Nomenclature

V	R	P	2	4	K	2	5	S	S	B	S	-A

Series

VRP Heat Pump

Nominal Capacity (Btu /Hr.)

07 = 3,800 - 10,000 Operating range

12 = 5,400 - 16,000 Operating range

24 = 14,500 - 28,000 Operating range

36 = 20,000 - 36,000 Operating range

Voltage

K = 230/208 V (All VRP)

R = 265 V (VRP07/12/24)

Heater watts

00 = 0.0 kW (VRP07/36)
25 = 2.5 kW (VRP07/12)
34 = 3.4 kW (VRP07/12/24)
50 = 5.0 KW (VRP12/24)
75 = 7.5 kW (VRP24)
10 = 10.0 kW (VRP24/36)
15 = 15.0 kW (VRP36)

Reheat

S= Standard; R= Reheat *Not Available on 36000 models

Outdoor Air/ Ventilation S= Standard unit. No FreshAire™**

F= Single OA Fan Powered FreshAire System 35/85 CFM

D= Dual OA Fans Powered FreshAire System 70/130 CFM

Plenum and louver configuration

A= Only for 12000 Btu units

B= For 24000 Btu units (can also be used for 12000 Btu units)

C = Only for 36000 Btu units

D = Only for 7000 Btu units

Engineering code

S = Standard

L = Base pan heat

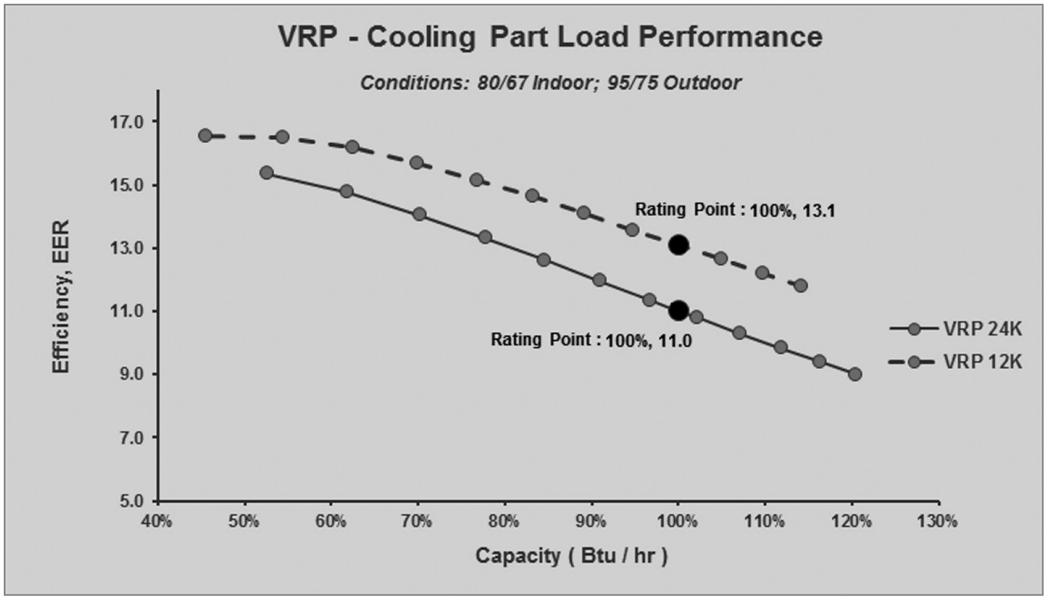
Model	VRP07K/VRP07R		VRP12K / VRP12R		VRP24K / VRP24R		VRP36K
Cooling Performance Data (Cooling Standards: 95°F DB/75°F WB outdoor, 80°F DB/67°F WB indoor)							
Voltage	230/208	265	230/208	265	230/208	265	230/208
Cooling Btu (Rated)	7,000		12,000		23,400		33,400
Cooling Btu (Min. - Max)	3,800 - 10,000		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)	636		923		2138		2990
SEER	15.5		20.0		17.5		15.5
EER	11.0		13.0		11.0		10.9
Sensible Heat Ratio	0.77		0.7		0.7		0.76
Cooling Amps	3.2		4.3		10.0		14.2
Heat Pump Performance Data							
Voltage	230/208	265	230/208	265	230/208	265	230/208
Heating Btu (Rated @ 47° F)	7000		11,500		21,000		28,500
Heating Btu (@ 17° F)	3500		7,700		13,000		18,300
Heating Btu (Min. - Max.)	2800 - 9000		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)	3.3		3.4		3.1		3.25
HSPF	8.6		10.0		10.0		8.6
Heating Power (W)	621		991		1954		2570
Heating Amps	3.1		4.8		9.1		12.3

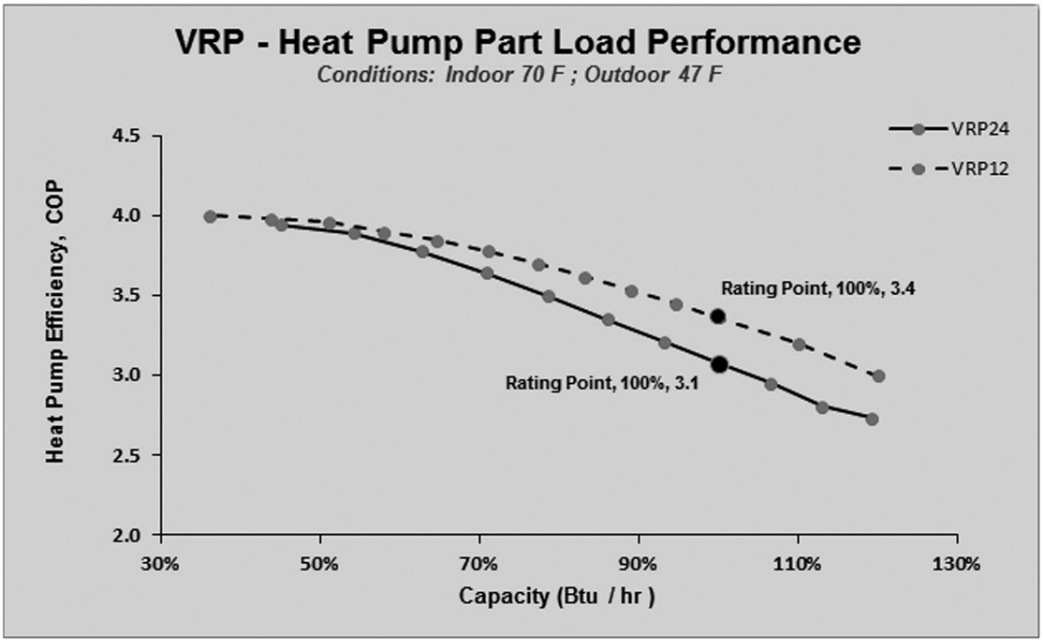
Due to continuing research in new energy-saving technology, specifications are subject to change without notice.

VRP07 will only support single fan ventilation configurations.

Part Load Performance

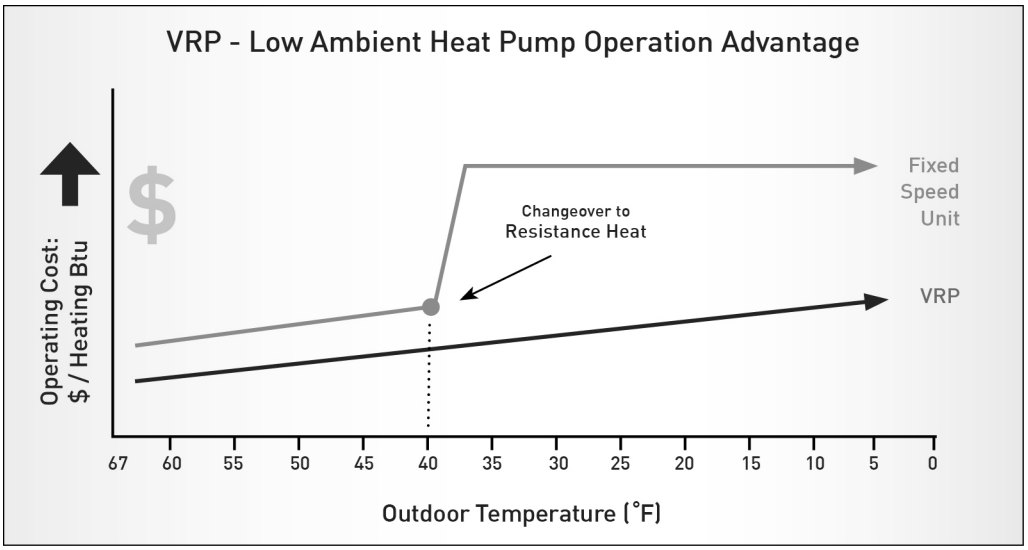
Exceptional Efficiencies with VRP®: Partial load conditions prevail for the majority of the time. VRP's Precision Inverter® compressor can operate down to 40% of rated capacity or up to 120% matching the unit's output to the actual demand of the space and, therefore, only consumes the energy that is required. Because of this ability to modulate the capacity, VRP delivers significantly higher efficiencies than a fixed–speed unit resulting in huge savings in operational costs. Example of variable speed efficiency below.



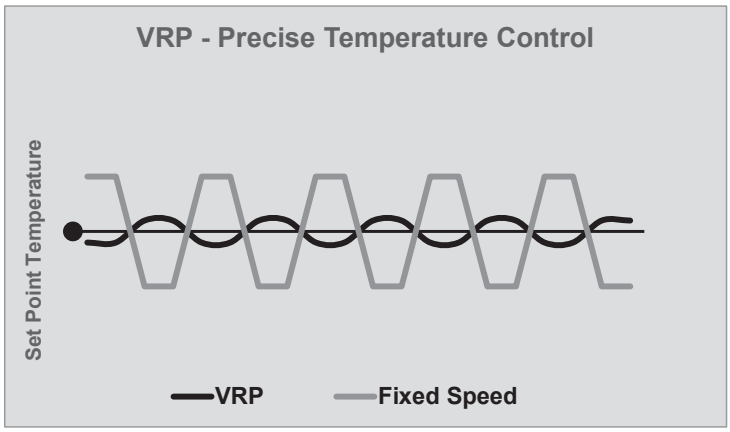


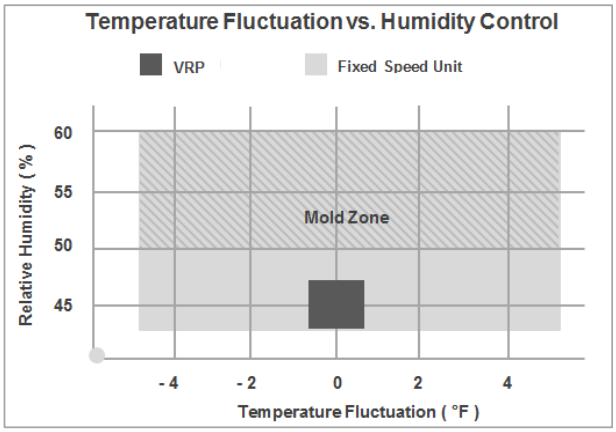
VRP® Variable Speed System vs. Fixed-speed System

Low Ambient Heat Pump Performance: Variable speed technology enables VRP units to supply continuous hot air in heat pump mode even at low outdoor ambient temperatures. This reduces strip heat usage resulting in exceptional savings with VRP units when compared with traditional fixed-speed units which need to switch to strip heat at much higher ambient temperatures.



Precise Temperature & Humidity Control: VRP units not only help keep the air at the preferred temperature, but can more effectively remove moisture from the air. VRP units run longer cycles at lower pressures, helping to cool the air more evenly. The combination of variable speed compressor & blower motor and reheat coil in VRP units provide optimal comfort to the occupants. On the other hand, traditional fixed-speed systems tend to cool the air too fast without proper moisture removal increasing the risk of mold and other airborne problems.





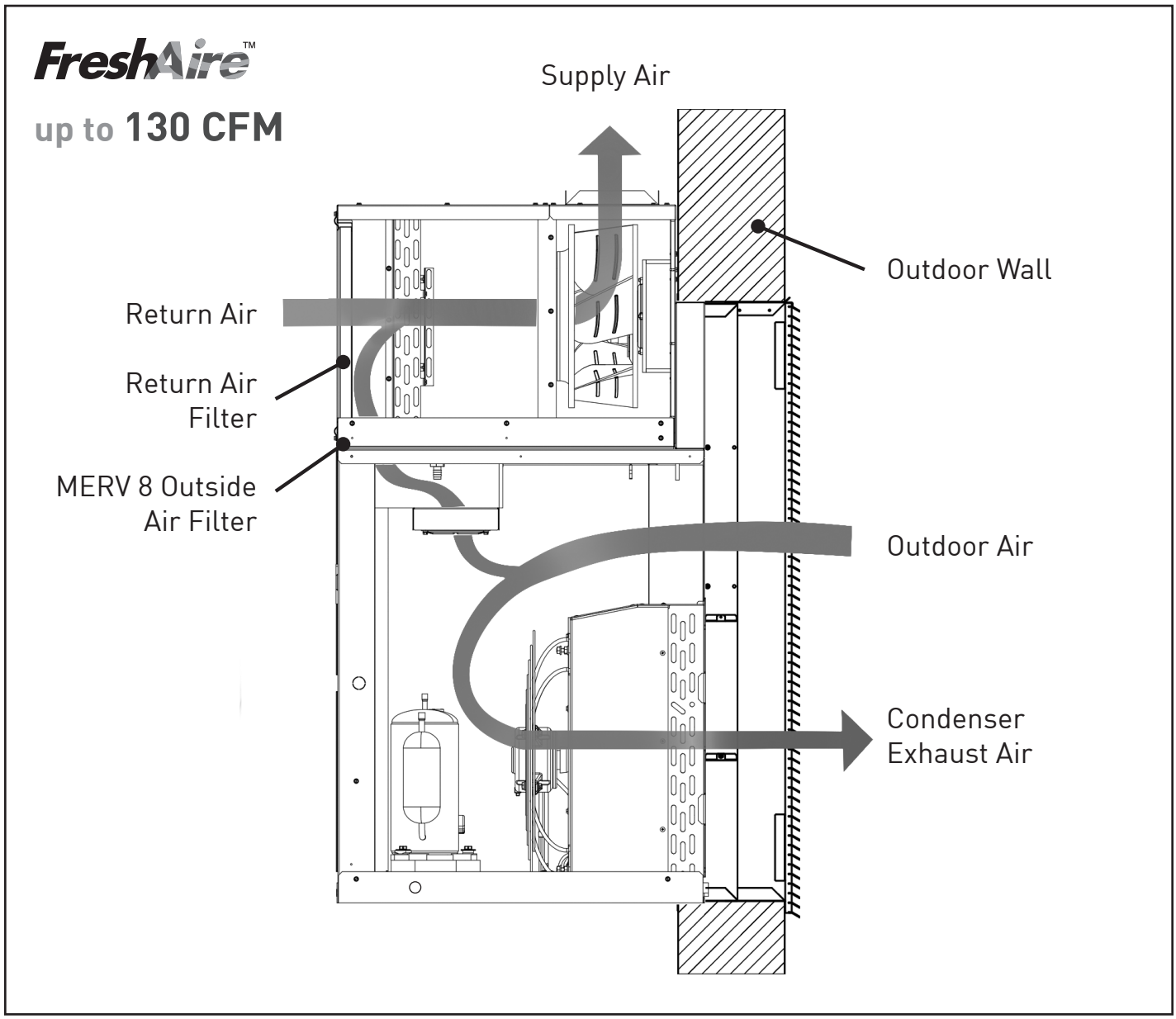
FreshAire™ Conditioned Fresh Air

Helps Buildings Comply With ASHRAE 62.1 & 62.2

FreshAire, is a dedicated fresh air system that brings in up to 70 CFM of outdoor air into the VRP® unit. The FreshAire system can provide between 35 and 130 CFM (depending on model) of fresh outside air into the unit. The outdoor air passes through dedicated 6"x 6"x1" MERV 8 filter(s) that are easily replaceable from the front of the unit.

This outdoor air is mixed with the return air inside the unit prior to the main evaporator coils, reheat coil and heater. Because of the variable speed of both the compressor and evaporator fan, the VRP can increase or decrease the unit's capacity to cool, heat or dehumidify the total supply air. The system uses a proprietary algorithm to measure the dew point of the leaving air. As the system nears the room set point, the system will throttle back both the compressor and the supply air volume in order to maximize the dwell time on the indoor coil to maximize dehumidification.

(Single speed systems cycle on and off, providing less dehumidification capacity and run time as well as encounter condensate re-evaporation when cycled off.)



Reheat Coil - Augments VRP's Dehumidification Capability

Temperature differences are not the only source of discomfort in a living space. Humidity also plays a big role—especially in climates that tend to be both hot and humid. The air conditioning industry's focus on humidity issues has elevated the importance of dehumidification. Air conditioning units operate in environments with varying indoor humidity levels. Therefore, the system should be able to adequately respond to the humidity changes by removing sufficient amounts of moisture in order to keep the conditioned space within the comfort zone.

Anytime the compressor is running in air conditioning mode, it will also be pulling humidity out of the space. Fixed-speed systems shut off after the desired set temperature is reached (i.e. when the sensible load is met). VRP® units run much longer at lower capacity and energy consumption than traditional systems. Humidity levels are reduced to more comfortable levels. The dehumidification capability of VRP units is enhanced through the use of a reheat coil that provides superior flexibility in satisfying a wide range of latent and sensible capacity demands. The reheat coil is placed behind the evaporator coil.

At relatively high ambient temperatures, both sensible and latent components of the system capacity are required to satisfy increased cooling and dehumidification demands. The VRP wall controller and other sensors in the unit combine to continuously monitor the space RH levels and when there is demand for extra dehumidification , the refrigerant exiting the condenser is rerouted to the reheat coil located behind the evaporator on the way to the indoor air stream supplied to the conditioned space.

Thus, cooled and dehumidified air exiting the evaporator coil is reheated to desirable comfort levels for the space.

Air Flow Data

Indoor CFM & External Static Pressure

Model	VRP07K / R	
Air Flow Data		
Indoor CFM	Low	**High**
.05” ESP	300	360
.10” ESP *	260	335
.15” ESP (Max Low)	230	315
.20” ESP (Max High)	---	290

* Rated at 0.10" ESP, High and includes 0.08" ESP for factory installed 1" filter

Model	VRP12K / R		VRP24K / R	
Air Flow Data				
Indoor CFM	Low	**High**	Low	**High**
.10” ESP *	488	559	472	850
.20” ESP	393	466	432	778
.30” ESP	292	383	391	703
.40” ESP	200	304	348	626
.50” ESP	104	234	308	555

* Rated at 0.10" ESP, High and includes 0.08" ESP for factory installed 1" filter

Model	VRP36K	
Air Flow Data		
Indoor CFM	Low	**High**
.15” ESP *	1015	1200
.20” ESP	875	1160
.30” ESP (Max Low)	750	1080
.40” ESP	565	970
.50” ESP (Max High)	440	835

* Rated at 0.15" ESP, High and includes 0.08" ESP for factory installed 1" filter

Condenser CFM & External Static Pressure

VRP® is designed to mount through an exterior wall through a Friedrich wall plenum with an external louver.

Building design and applications may require different configurations of this external connection for aesthetic/architectural reasons. These different configurations may include custom louvers, plenums or special ducted returns.

The following are guidelines for the design of these custom external configurations.

Condenser External Static Pressure			
VRP Model	Design		Maximum
	CFM	ESP ("WC)	ESP ("WC)
VRP 7000 Btu	550	0.02	0.08
VRP 12000 Btu	700	0.03	0.1
VRP 24000 Btu	1150	0.017	0.11
VRP 36000 Btu	2030	0.03	0.20

CAUTION: If the Friedrich designed plenum and louver combinations are not used, the louver/duct design must be evaluated to insure the total pressure drop does not exceed the maximum allowable limits.

Electrical Data

VRP Model	Voltage	Electric Heater Watts	Electric Heating Btu	Total Electric Heating Amps	ID Blower Amps	OD Blower Amps	MCA	MOP / MOCP
VRP07K	230	0	0	0.0	0.6	0.5	8.1	15
	208	0	0	0.0	0.7	0.5		
	230	2500	8530	11.5	0.6	0.5	14.4	15
	208	2045	6980	10.6	0.7	0.5		
	230	3400	11600	15.4	0.6	0.5	19.3	20
	208	2780	9490	14.1	0.7	0.5		
VRP07R	265	0	0	0.0	0.5	0.5	7.9	15
		2500	8530	9.8	0.5	0.5	12.5	15
		3400	11600	16.7	0.5	0.5	16.7	20
VRP12K	230	2500	8530	11.2	0.34	0.57	14.0	15
	208	2030	6980	10.2	0.38	0.63		
	230	3400	11601	15.1	0.34	0.57	18.9	20
	208	2780	9480	13.8	0.38	0.63		
	230	5000	17060	22	0.34	0.57	27.5	30
	208	4100	13980	20.1	0.38	0.63		
VRP12R	265	2500	8530	9.8	0.2	0.5	12.3	15
		3400	11601	13.2	0.2	0.5	16.5	20
		5000	17060	19.3	0.2	0.5	24.1	25
VRP24K	230	2500	8530	11.6	0.77	1.06	14.5	15
	208	2030	6980	10.7	0.85	1.17		
	230	3400	11600	15.6	0.77	1.06	19.5	20
	208	2780	9480	14.3	0.85	1.17		
	230	5000	17050	22.6	0.77	1.06	28.3	30
	208	4100	13980	20.6	0.85	1.17		
	230	7500	25590	33.4	0.77	1.06	41.8	45
	208	6130	20900	30.4	0.85	1.17		
	230	10000	34120	44.3	0.77	1.06	55.4	60
	208	8180	27890	40.2	0.85	1.17		
VRP24R	265	2500	8530	10.8	0.7	1.0	13.5	15
		3400	11601	14.2	0.7	1.0	17.8	20
		5000	17060	20.3	0.7	1.0	25.4	25
		7500	25590	29.7	0.7	1.0	37.1	40
		10000	34120	39.1	0.7	1.0	48.9	60
VRP36K	230	0	0	0.0	1.0	2.1	18.2	30
	208	0	0	0.0	1.0	2.1		
	230	8820	30090	38.3	1.0	2.1	49.2	50
	208	7210	24600	34.7	1.0	2.1		
	230	13230	45120	57.5	1.0	2.1	49.2 + 24.0	50 + 25
	208	10820	36900	52.0	1.0	2.1		

MCA = Minimum Circuit Ampacity

MOP / MOCP = Maximum Overcurrent Protection / Breaker Size

Minimum Circuit Amps (MCA) and MOCP values in the above table are calculated in accordance with The NEC. Article 440

NOTE: VRP36K15 models require dual electrical service (50A + 25A)

VRP Extended Cooling Performance Data

Model: VRP07		Indoor Temperature														
		70˚ FDB			75˚ FDB			**80˚ FDB**			85˚ FDB			90˚ FDB		
		60˚ F WB			63˚ F WB			**67˚ F WB**			71˚ F WB			73˚ F WB		
Outdoor Temperature Dry (°F)	**(˚F) DB**	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
	65˚	7790	450	2.3	8505	450	2.3	9220	450	2.3	9935	450	2.3	10655	455	2.3
	70˚	7480	475	2.4	8170	475	2.4	8850	480	2.4	9530	480	2.4	10220	480	2.4
	75˚	7175	505	2.6	7830	505	2.6	8480	510	2.6	9130	510	2.6	9785	510	2.6
	80˚	6870	540	2.6	7490	545	2.7	8110	545	2.7	8730	545	2.7	9350	550	2.7
	85˚	6565	570	2.8	7155	570	2.9	7740	575	2.9	8330	575	2.9	8915	580	2.9
	90˚	6250	595	3	6815	600	3	7370	605	3	7930	610	3	8490	610	3
	95˚	5940	625	3.2	6470	630	3.2	7000	635	3.2	7530	640	3.3	8060	640	3.3
	100˚	5620	655	3.3	6125	660	3.3	6630	665	3.4	7135	670	3.4	7640	675	3.4
	105˚	5305	685	3.4	5785	695	3.5	6260	700	3.5	6735	705	3.6	7215	710	3.6
	110˚	4990	715	3.5	5440	725	3.6	5890	730	3.7	6340	740	3.7	6790	745	3.8
	115˚	4675	745	3.7	5095	750	3.8	5520	760	3.8	5940	765	3.9	6365	775	3.9

Model: VRP12		Indoor Temperature														
		70˚ FDB			75˚ FDB			**80˚ FDB**			85˚ FDB			90˚ FDB		
		60˚ F WB			63˚ F WB			**67˚ F WB**			71˚ F WB			73˚ F WB		
Outdoor Temperature Dry (°F)	**(˚F) DB**	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
	65˚	11680	615	2.8	12755	615	2.8	13825	615	2.8	14900	615	2.8	15975	620	2.8
	70˚	11460	665	3.0	12510	665	3.0	13555	675	3.0	14600	675	3.0	15650	675	3.0
	75˚	11240	720	3.2	12260	720	3.2	13280	725	3.2	14300	725	3.2	15320	725	3.2
	80˚	10990	765	3.4	11980	775	3.5	12970	775	3.5	13965	775	3.5	14955	780	3.5
	85˚	10735	815	3.6	11700	820	3.7	12660	825	3.7	13625	825	3.7	14585	830	3.7
	90˚	10460	860	3.9	11400	870	3.9	12330	875	3.9	13270	880	3.9	14200	880	3.9
	95˚	10185	910	4.1	11090	920	4.1	12000	925	4.1	12910	930	4.2	13815	935	4.2
	100˚	9875	960	4.3	10760	970	4.3	11645	975	4.4	12530	985	4.4	13415	990	4.4
	105˚	9565	1010	4.5	10425	1020	4.6	11285	1030	4.6	12145	1040	4.7	13005	1045	4.7
	110˚	9265	1060	4.7	10100	1075	4.8	10940	1085	4.9	11775	1100	4.9	12610	1110	5.0
	115˚	8965	1120	5.0	9775	1130	5.1	10590	1145	5.1	11400	1155	5.2	12215	1170	5.2

Cooling Standards: 95°F DB/75°F WB outdoor, 80°F DB/67°F WB indoor. Values reflect performance at A2 rated compressor frequency.

VRP Extended Cooling Performance Data

Model: VRP24		Indoor Temperature														
		70˚ FDB			75˚ FDB			**80˚ FDB**			85˚ FDB			90˚ FDB		
		60˚ F WB			63˚ F WB			**67˚ F WB**			71˚ F WB			73˚ F WB		
Outdoor Temperature Dry (°F)	**(˚F) DB**	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
	65˚	22875	1420	6.4	24980	1420	6.4	27075	1420	6.4	29180	1420	6.4	31285	1430	6.4
	70˚	22440	1535	6.8	24500	1535	6.8	26545	1560	6.8	28590	1560	6.8	30650	1560	6.8
	75˚	22010	1665	7.3	24010	1665	7.3	26005	1675	7.3	28005	1675	7.3	30000	1675	7.3
	80˚	21520	1765	7.7	23460	1790	7.9	25400	1790	7.9	27350	1790	7.9	29285	1800	7.9
	85˚	21025	1880	8.2	22910	1895	8.4	24795	1905	8.4	26680	1905	8.4	28560	1915	8.4
	90˚	20485	1985	8.8	22325	2010	8.8	24145	2020	8.8	25985	2030	8.8	27810	2030	8.8
	95˚	19945	2100	9.3	21720	2125	9.3	23500	2135	9.3	25280	2150	9.5	27055	2160	9.5
	100˚	19340	2215	9.8	21070	2240	9.8	22805	2250	10	24540	2275	10	26270	2285	10
	105˚	18730	2330	10.2	20415	2355	10.4	22100	2380	10.4	23785	2400	10.7	25470	2415	10.7
	110˚	18145	2450	10.7	19780	2480	10.9	21425	2505	11.1	23060	2540	11.1	24695	2565	11.3
	115˚	17555	2585	11.3	19145	2610	11.6	20740	2645	11.6	22325	2665	11.8	23920	2700	11.8

Model: VRP36		Indoor Temperature														
		70˚ FDB			75˚ FDB			**80˚ FDB**			85˚ FDB			90˚ FDB		
		60˚ F WB			63˚ F WB			**67˚ F WB**			71 F WB			73˚ F WB		
Outdoor Temperature Dry (°F)	**(˚F) DB**	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
	65˚	31425	2265	2.3	34315	2265	9.8	37195	2265	2.3	40090	2265	2.3	42980	2285	2.3
	70˚	30910	2365	2.4	33745	2365	10.5	36565	2400	2.4	39380	2400	2.4	42215	2400	2.4
	75˚	30410	2515	2.6	33170	2515	11.2	35930	2530	2.6	38690	2530	2.6	41450	2530	2.6
	80˚	29910	2630	2.6	32605	2665	11.9	35300	2665	2.7	38005	2665	2.7	40700	2680	2.7
	85˚	29395	2760	2.8	32035	2780	12.6	34665	2795	2.9	37310	2795	2.9	39935	2810	2.9
	90˚	28870	2880	3	31465	2910	13.3	34035	2930	3	36625	2945	3	39195	2945	3
	95˚	28350	3010	3.2	30865	3045	14	33400	3060	3.2	35935	3075	3.3	38450	3095	3.3
	100˚	27785	3145	3.3	30275	3175	14.7	32765	3190	3.4	35260	3225	3.4	37750	3240	3.4
	105˚	27235	3260	3.4	29685	3290	15.4	32135	3325	3.5	34585	3355	3.6	37030	3375	3.6
	110˚	26680	3375	3.5	29085	3425	16.1	31500	3455	3.7	33905	3505	3.7	36310	3535	3.8
	115˚	26130	3510	3.7	28495	3540	16.8	30870	3590	3.8	33230	3620	3.9	35605	3670	3.9

Cooling Standards: 95°F DB/75°F WB outdoor, 80°F DB/67°F WB indoor. Values reflect performance at A2 rated compressor frequency.

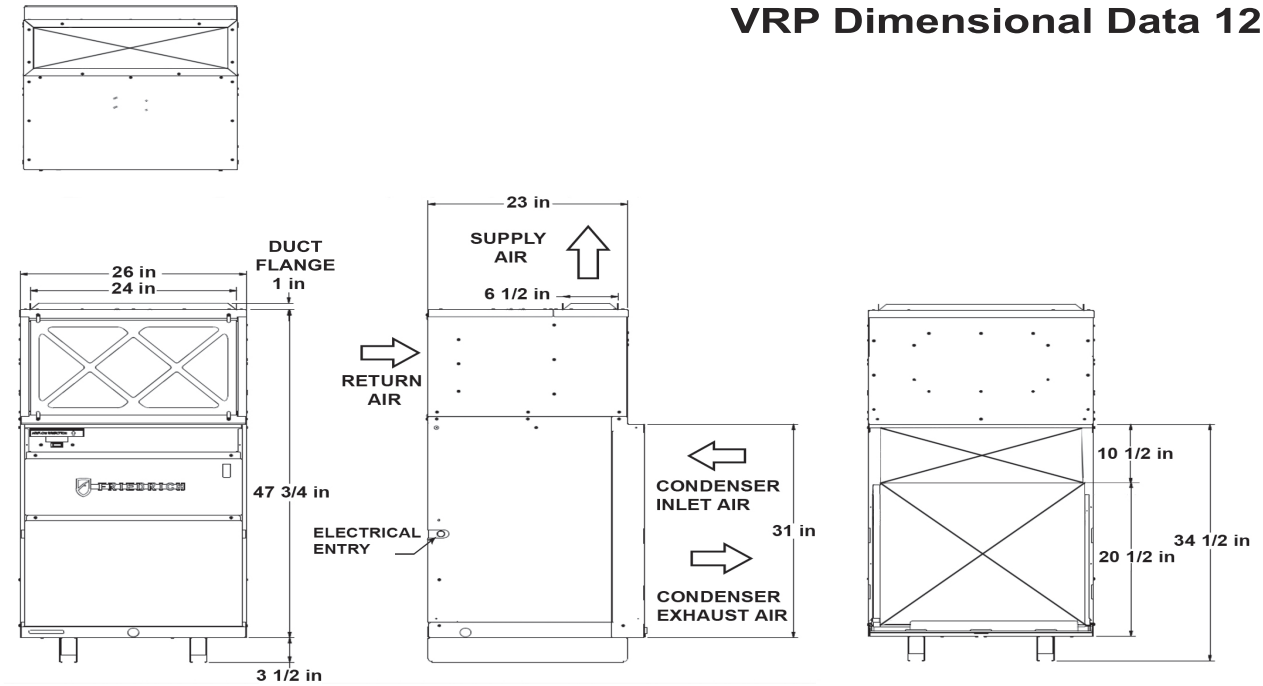
VRP Extended Heating Performance Data

Model: VRP07		Indoor Temperature Dry Bulb (F)								
		60˚			**70˚**			80˚		
Outdoor Temperature Dry Bulb (F)	**(˚F) DB**	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
	17˚	3740	470	2.4	3500	500	2.6	3245	525	2.7
	25˚	5080	500	2.5	4435	530	2.7	4125	565	2.8
	35˚	5990	535	2.7	5600	570	2.9	5210	610	3
	47˚	7470	585	2.9	7000	620	3.1	6510	665	3.2
	55˚	8470	615	2.9	7935	655	3.2	7370	700	3.3
	62˚	9370	640	3.1	8750	685	3.4	8120	730	3.5
Model: VRP12		Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
Outdoor Temperature Dry Bulb (F)	**(˚F) DB**									
	17˚	7551	866	3.0	7100	946	3.3	6609	1014	3.5
	25˚	8810	877	3.1	8273	958	3.4	7688	1031	3.7
	35˚	10384	890	3.3	9740	974	3.6	9036	1051	3.9
	47˚	12272	906	3.4	11400	992	3.8	10654	1077	4.1
	55˚	13531	916	3.6	12673	1004	4.0	11733	1093	4.3
	62˚	14633	925	3.7	13700	1015	4.1	12677	1108	4.4
Model: VRP24		Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
Outdoor Temperature Dry Bulb (F)	**(˚F) DB**									
	17˚	15208	1399	6.4	14299	1528	7	13310	1638	7.5
	25˚	17407	1473	6.7	16347	1610	7.4	15190	1732	7.9
	35˚	20156	1565	7.2	18907	1712	7.8	17541	1850	8.5
	47˚	23455	1675	7.7	21979	1835	8.4	20362	1991	9.1
	55˚	25654	1749	8	24027	1917	8.8	22243	2086	9.5
	62˚	27579	1813	8.3	25819	1989	9.1	23888	2168	9.9
Model: VRP36		Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)	Capacity (Btu/h)	Input (W)	Amps (A)
Outdoor Temperature Dry Bulb (F)	**(˚F) DB**									
	17˚	20495	2280	10.2	19175	2420	11.1	17790	2560	11.3
	25˚	5080	2320	10.4	21690	2475	11.3	20175	2645	11.5
	35˚	26570	2370	10.6	24830	2540	11.5	23090	2720	11.8
	47˚	30510	2465	10.9	28600	2620	11.8	26600	2805	12
	55˚	33210	2510	11	31115	2675	12	28900	2865	12.2
	62˚	35680	2555	11.2	33310	2720	12.1	30910	2905	12.4

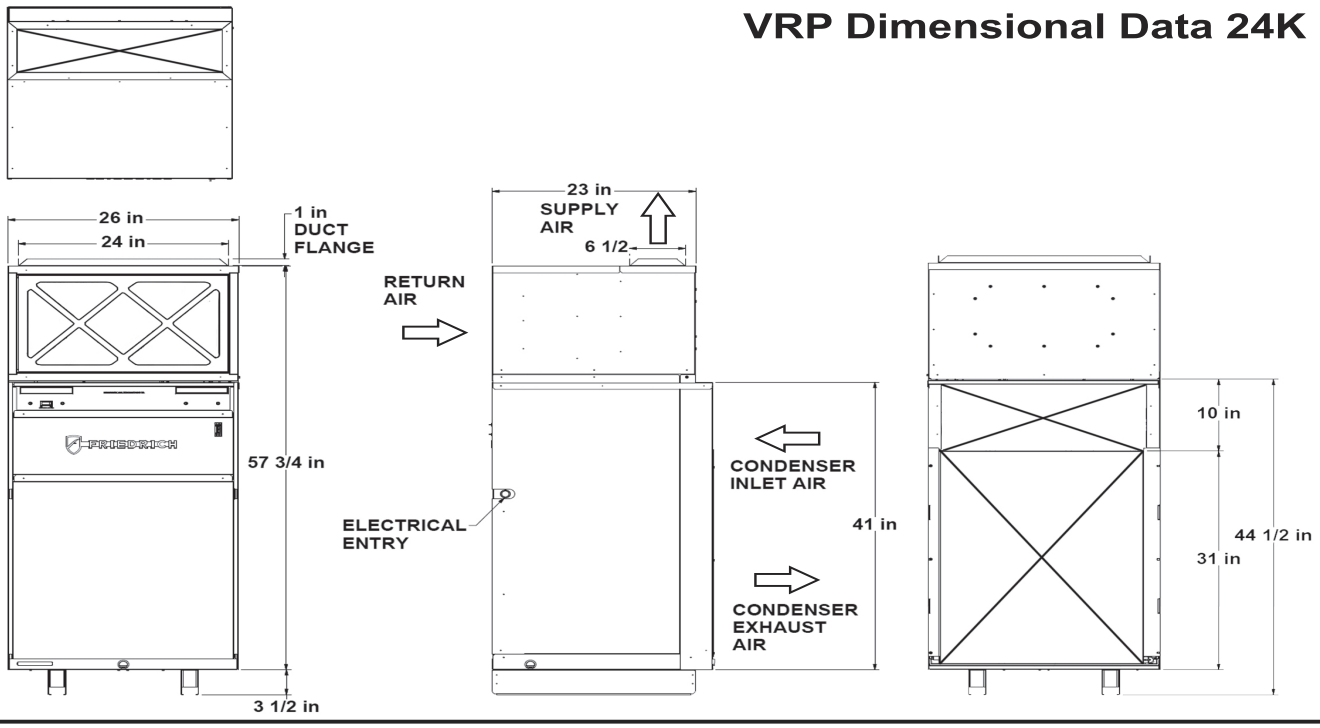
Heating Standards: 47°F DB/43°F WB outdoor, 70°F DB/60°F WB indoor. Values reflect performance at $H1_{Full}$ compressor frequency.

Unit Dimensional Data

VRP Dimensional Data 12K

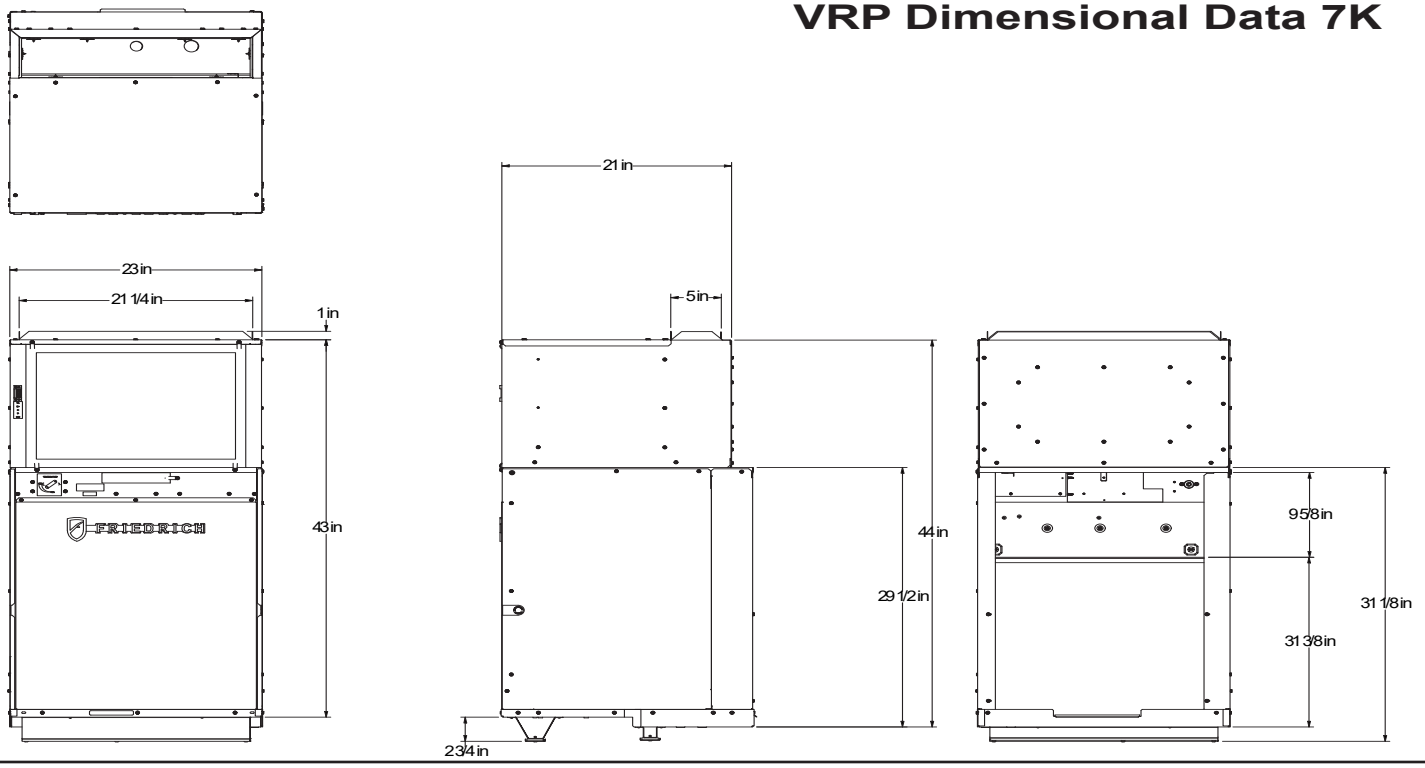


VRP Dimensional Data 24K

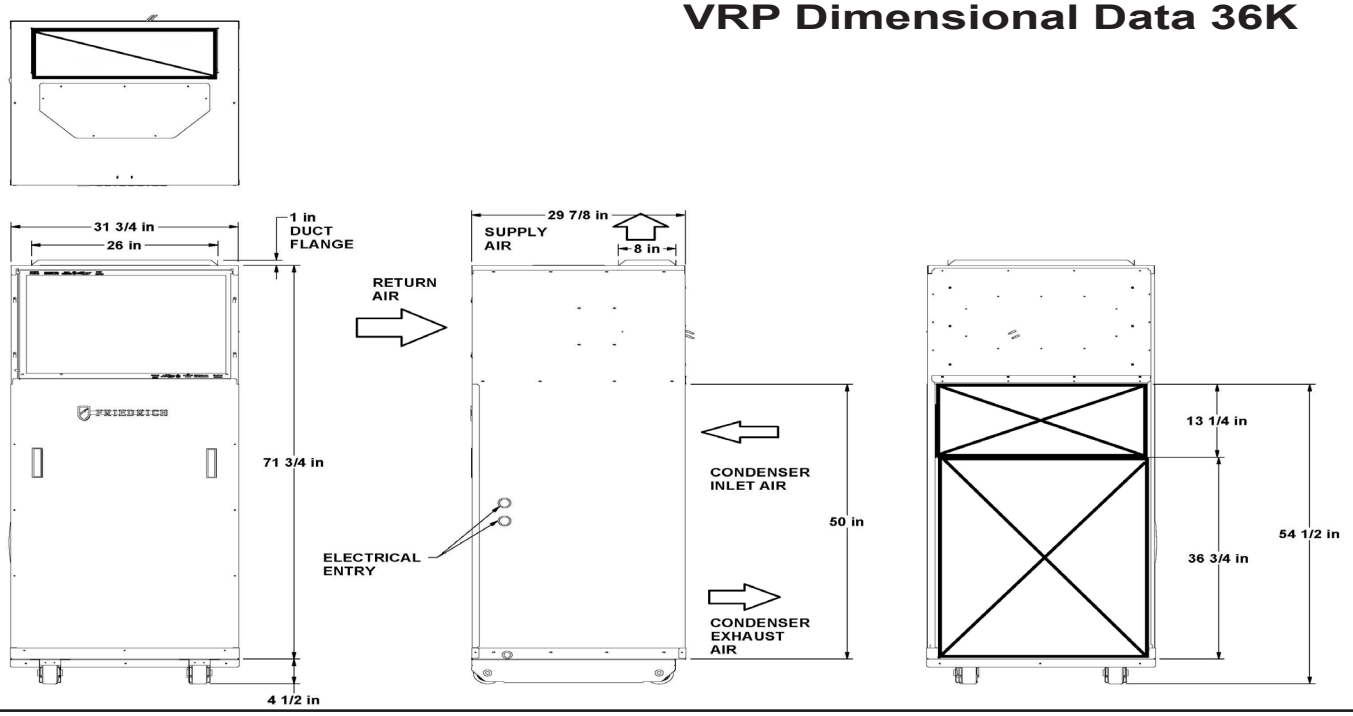


Unit Dimensional Data

VRP Dimensional Data 7K



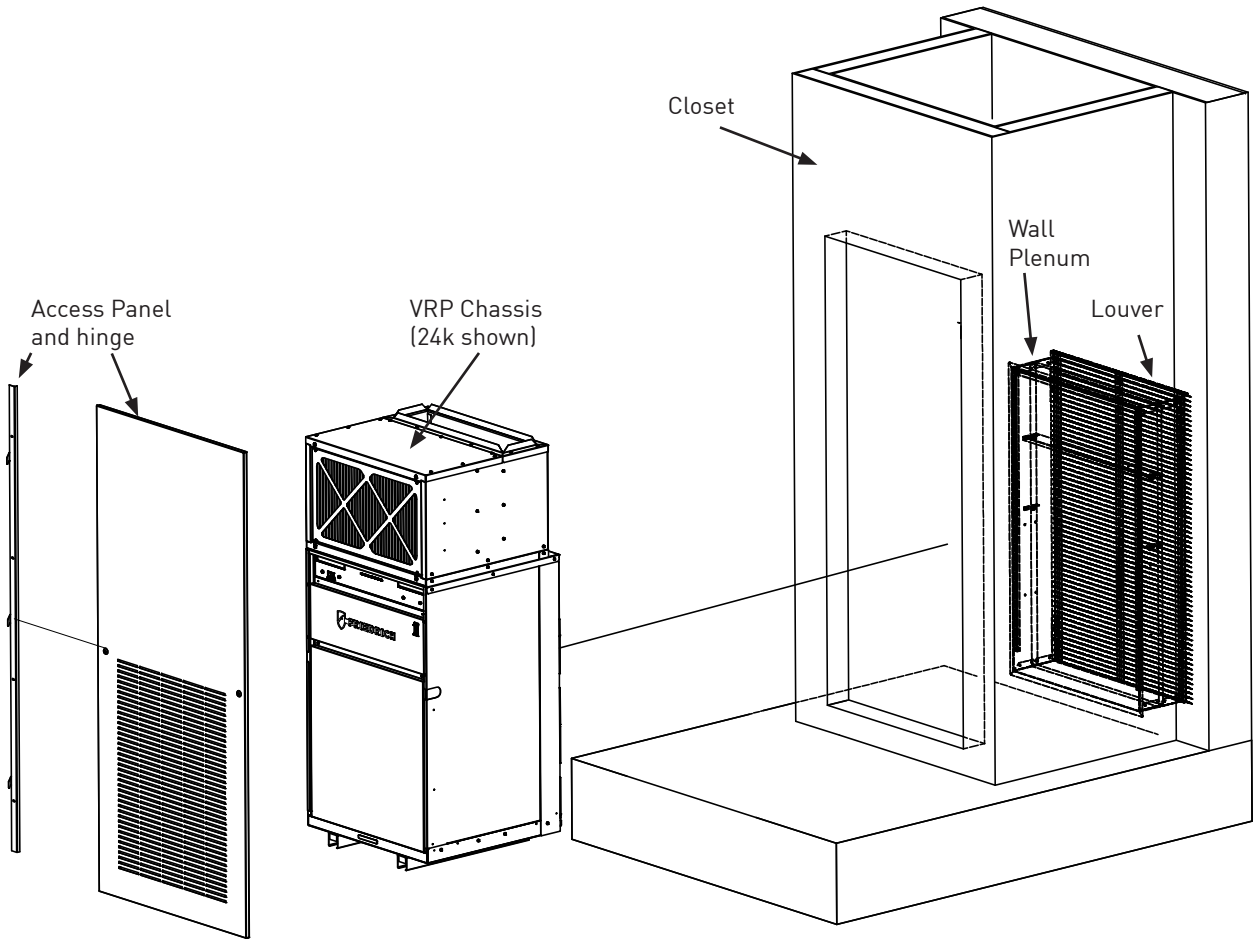
VRP Dimensional Data 36K



Model	VRP07K/R	VRP12K/R	VRP24K/R	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

Closet Exploded View

Typical Closet



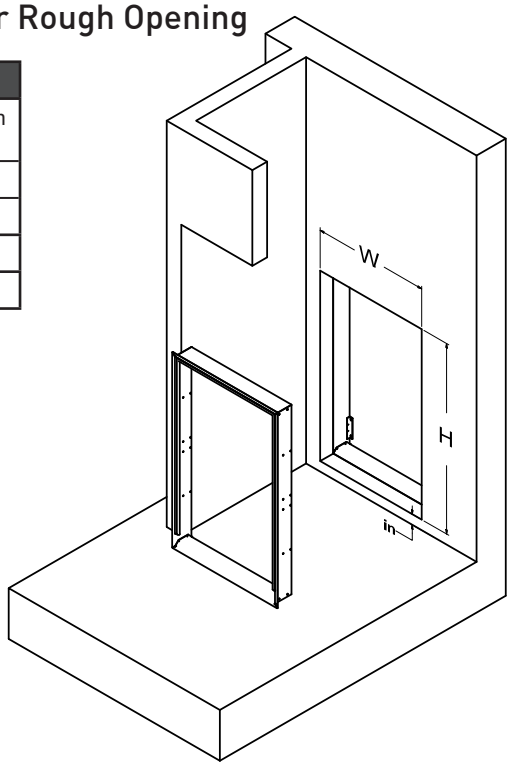
NOTE: For orientation and closet dimension information, please review the Installation & Operations Manuals.

Wall Opening Dimensions

Exterior Rough Opening

EXTERIOR WALL OPENING DIMENSIONS			
Unit	W	H	Height from floor/platform to rough opening
VRP07	24 5/8"	30 7/7”	3/4”
VRP12	28 1/8"	32 1/4”	3”
VRP24*	28 1/8”	42 1/4”	3”
VRP36	32 1/4”	52 1/2”	2 7/8”

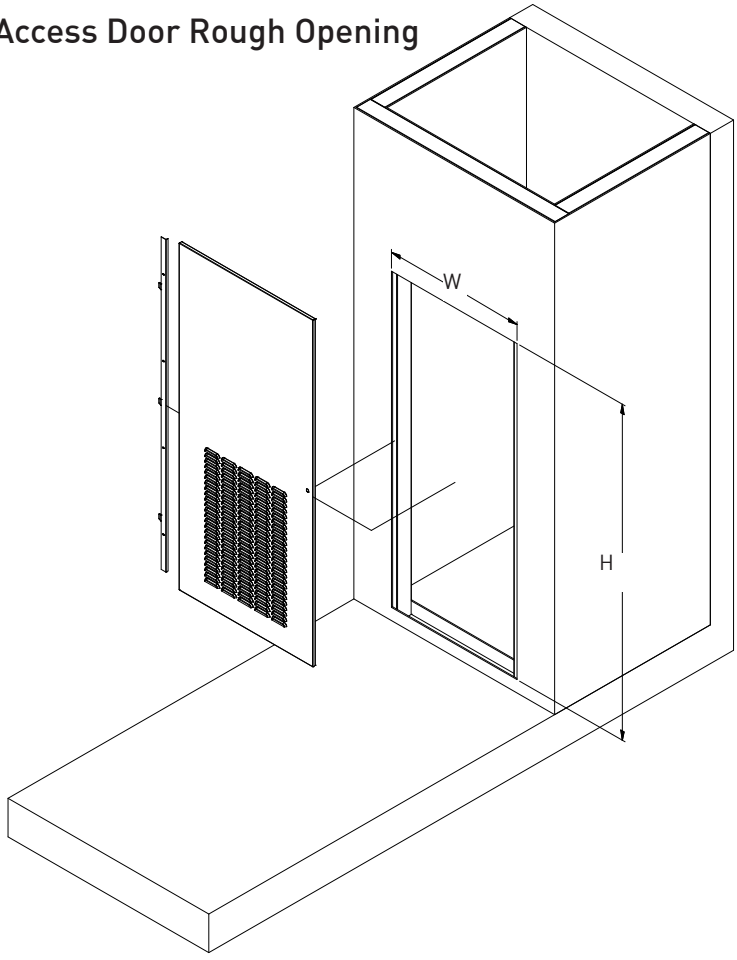
* Also applicable for 12K unit if VRPXALB / VRPXSCB Louver and VRPXWPB-8 / VRPXWPB-14 plenum are selected to be used with 12K unit. (Hint: Your unit model name should have letter ‘**B**’ as the 11th digit. Example: VRP12K34SS**B**S)



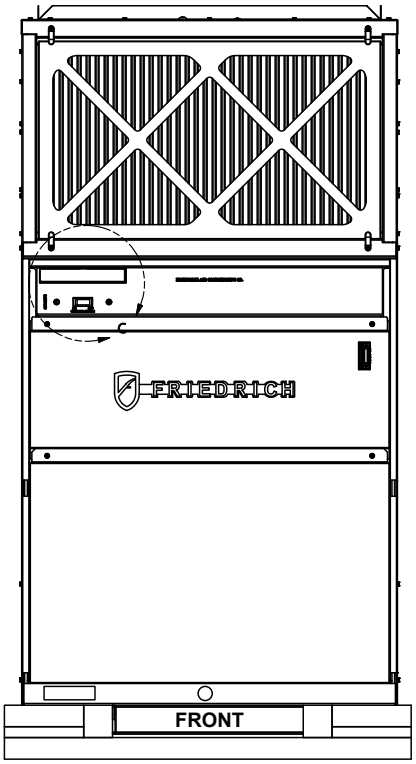
Access Door Rough Opening

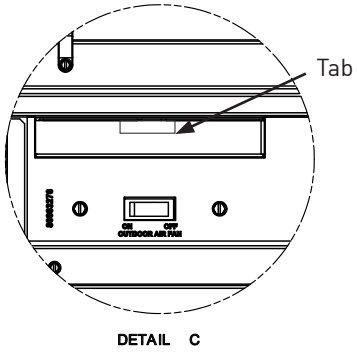
INTERIOR WALL OPENING DIMENSIONS		
Unit	W	H
VRP07	27"	55 3/4”
VRP12	30"	69 3/4”
VRP24	30"	69 3/4”
VRP36	36”	84”

NOTE: Due to its size, VRP36 should be installed in a closet using a louvered or solid 3 foot standard closet door.



FreshAire™ System Set-Up and Operation



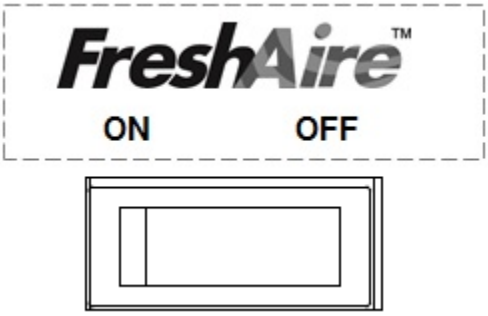


If equipped with the FreshAire™ System, the unit will come with a FreshAire Filter and Blank Off Plate.

Blank Off Plate must be removed before use.

To remove the Blank Off Plate, simply pull the attached tab shown in Detail A. Blank Off Plate can be discarded or retained for future use.

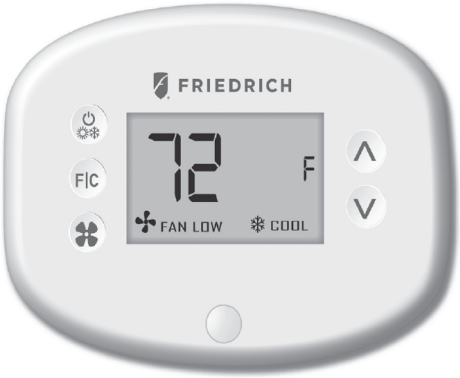
To engage the FreshAire™ System, flip the switch into the ON position.



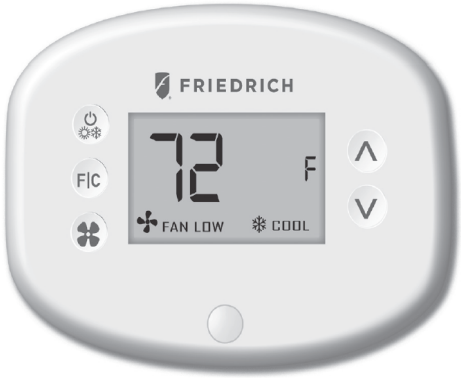
VRP Wall Controller / Thermostat Options

Friedrich offers two types of control options for VRP units:

- Standard Wall Controller (Wired), VRPXWCT
- Energy Management Wall Controller with an Occupancy Sensor
  - Wired, VRPXEMRT2
  - Wireless, VRPXEMWRT2



VRPXWCT



VRPXEMRT2 / VRPXEMWRT2

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

Installation Accessories and Descriptions

Louvers

Accessory	Description	Compatible Model(s)
VPAL2	Architectural louver - 30˚ Blade angle	VRP07
VRSC2	Architectural louver - 30˚ Blade angle - Custom color (Special order)	VRP07
VRPXALA	Architectural louver - 30˚ Blade angle	VRP12
VRPXSCA	Architectural louver - 30˚ Blade angle - Custom color (Special order)	VRP12
VRPXALB	Architectural louver - 30˚ Blade angle	VRP12 & VRP24
VRPXSCB	Architectural louver - 30˚ Blade angle - Custom color (Special order)	VRP12 & VRP24
VRPXALC	Architectural louver - 30˚ Blade angle	VRP36
VRPXSCC	Architectural louver - 30˚ Blade angle - Custom color (Special order)	VRP36

42˚ blade angle louvers available by special order.

Wall Plenums

Accessory	Description	Compatible Model(s)
VPAWP1-8	Vert-I-Pak/VRP floating chassis, telescoping wall plenum - 4”-8” wall depth	VRP07
VPAWP1-14	Vert-I-Pak/VRP floating chassis, telescoping wall plenum - 8”-14” wall depth	VRP07
VRPXWPA-8	VRP floating chassis, telescoping wall plenum - 4”-8” wall depth	VRP12
VRPXWPA-14	VRP floating chassis, telescoping wall plenum - 8”-14” wall depth	VRP12
VRPXWPB-8	VRP floating chassis, telescoping wall plenum - 4”-8” wall depth	VRP12 & VRP24
VRPXWPB-14	VRP floating chassis, telescoping wall plenum - 8”-14” wall depth	VRP12 & VRP24
VRPXWPC-8	VRP telescoping wall plenum - 4”-8” wall depth	VRP36
VRPXWPC-14	VRP telescoping wall plenum - 8”-14” wall depth	VRP36

Access Panels

Accessory	Description	Compatible Model(s)
VPRG4	Vert-I-Pak/VRP louvered access panel - left in-swing	VRP07
VPRG4R	Vert-I-Pak/VRP louvered access panel - right in-swing	VRP07
VRPXAP1	VRP louvered access panel (left and right in-swing)	VRP07, VRP12, VRP24
VRPXAPPR1	VRP hanging perimeter return access panel	VRP07, VRP12, VRP24

Pre-primed (paintable) panels available by special order

Miscellaneous

Accessory	Description	Compatible Model(s)
VPDP2	VRP07 auxiliary drain pan (Required)	VRP07
VRPXFK-2	Filter bracket kit for 2” deep filters (up to MERV 13) - includes gasket	VRP07, VRP12, VRP24, VRP36
VPFKU	Telescoping filter bracket kit for 2” - 4” deep filters (up to MERV 13) - includes gasket	VRP07, VRP12, VRP24, VRP36

Installation Accessories and Descriptions

Wall Controllers and Accessories

Accessory	Description	Compatible Model(s)
VRPXWCT	Wired standard VRP wall controller	VRP07, VRP12, VRP24, VRP36
VRPXEMRT2	Wired energy management wall controller	
VRPXEMWRT2	Wireless (to the unit) energy management controller	
VRPXEMRT2LC	Wired energy management wall controller with lighting control (Requires EMROS)	
VRPXEMRT2HC	Wired energy management wall controller with Hilton Connect Room (RTM) compatibility	
EMOCT	Energy management online connection kit	
EMRAF	Energy management online remote access fee	
EMROS	Energy management wired remote occupancy sensor	
EMRTS	Energy management remote temperature sensor	
EMRDS	Energy management door switch	
EMCWP	Energy management J-box wall-plate	
EMRWOS	Energy management wireless remote occupancy sensor	

HVAC Engineering Specification

Performance: Units shall have the following minimum specifications.

VRP® Packaged Heat pumps

Cooling Range & SEER

- 3,800 – 10,000 Btu (VRP07K / VRP07R) with 15.2 SEER
- 5,400 – 16,000 Btu (VRP12K / VRP12R) with 20.0 SEER
- 14,500 – 28,000 Btu (VRP24K / VRP24R) with 17.5 SEER
- 20,000 – 36,000 Btu (VRP36K) with 15.5 SEER

Heating Range & HSPF

- 2,800 – 9,000 Btu (VRP07K / VRP07R) with 8.6 HSPF
- 4,000 – 14,000 Btu (VRP12K / VRP12R) with 10.0 HSPF
- 12,000 - 26,000 Btu (VRP24K / VRP24R) with 10.0 HSPF
- 16,000 - 30,000 Btu (VRP36K) with 8.6 HSPF

General Construction

- Factory assembled, piped, wired and fully charged with R410A.
- Units shall be tested in accordance to AHRI standard 210/240.
- Units shall be ETL listed and carry the ETL Label.
- All Units shall be factory run tested.
- Basic unit dimensions see unit dimension drawings.
- Unit designed to be inserted into a factory supplied wall plenum 2 3/8”.
- Factory supplied plenum shall allow for a wall 4 ½” to 14” wall thickness. (Shipped separately)
- Wall plenum will be adjustable to allow for a tight installation.
- Unit shall be capable of left, right or straight in installations into a mechanical closet without field modifications.
- Unit shall be secured to the architectural louver by means of a two-part, weather-resistant wall plenum.
- Unit will be separated from the wall plenum with a gasket joint such that there is no metal to metal contact.
- Constructed of minimum 20 gauge steel.
- ¼ inch Closed Cell Flexible Elastomeric Foam Insulation in the evaporator section and Glass Fiber insulation in the condenser section for sound and thermal efficiency
- Unit shall be powder coated for durability.
- Plenum shall be black in color to minimize visibility from the exterior of the building.
- Plenum shipped with a protective weatherboard for use prior to final installation of unit and louver.
- Material of construction in the condenser section to minimize rust marks on the outside of the building.

Architectural Louvers

- Shipped separately.
- Fabricated from extruded anodized aluminum.
- Horizontal blade louvers in 30° blade angle (42° optional).

Refrigeration System

- Hermetically sealed.
- DC Inverter variable speed compressor.
- Compressor shall increase and decrease in 1Hz steps for maximum efficiency.
- Compressor shall operate between 20Hz and 75Hz for variable capacity operation.
- External “rubber in shear” vibration isolators.
- Coils copper tubes and aluminum fins.
- Electrically controlled expansion device.
- Condenser fan will use a Slinger Ring design to improve efficiency and aid in removal of condensate.
- Primary removal of condensate will consist of ¾” FPT on three sides for ease of installation.
- Secondary overflow to the outside of the building will be provided in the event of a condense overflow from a

clogged primary drain.
- Suction line insulation.

Air Handling Section

- ECM fan motor.
- Backward Inclined style fan wheel.
- Vertical airflow.
- Unit will be provided with a rectangular started collar as shown on the general arrangement drawings. For adaption to rigid or flexible ducting.

Fans

- Polymeric fan, fan shroud.

FreshAire™ (Optional)

- Unit will have the capability to provide 35-130 CFM of conditioned fresh air (based on model) to the space continuously.
- Auxiliary fans will ensure positive ventilation.
- FreshAire can be enabled/disabled electrically using an on/off switch.
- The outdoor air will be filtered through MERV8 filters.

Controls

- Unit controlled with the Manufacturer supplied wall-mounted control.
- In the event of wall control failure, unit will operate autonomously to factory default settings.
- Unit will modulate compressor capacity and fan speed to optimally match the space load.
- Wall control will measure space humidity and temperature, and then configure the unit to maintain space temperature and humidity.
- Unit shall be permanently wired with a quick disconnect supplied by the installing contractor.
- Emergency heat override switch is provided to enable the resistance strip heaters in case of heat pump failure.
- Unit will be provided with diagnostic tools for service.

Corrosion Protection

- Corrosion resistant coatings.
- Outside coil has Diamonblue Advanced Corrosion Protection® consisting of hydrophilic-coated fins.

Access Panel

Warranty

- 1 year parts.
- 5 years on the sealed refrigeration system; including compressor, indoor and outdoor coils, and tubing.

Friedrich Air Conditioning Co.
10001 Reunion Place, San Antonio, TX 78216
800.541.6645
www.friedrich.com

VRP Variable Refrigerant Packaged Heat Pump

LIMITED WARRANTY

1. A) ONE YEAR PARTS WARRANTY - FRIEDRICH AIR CONDITIONING CO. (FRIEDRICH) warrants to the original end-user of this product that should it prove defective due to improper workmanship and/or material under normal use for a period of one years from the date of installation, FRIEDRICH will repair or replace, at its option, any defective part without charge for the part. Replacement parts are warranted for the remainder of the original warranty period.

B) THIS WARRANTY DOES NOT INCLUDE LABOR or other cost incurred for servicing, repairing, removing, installing, shipping, or handling of either defective or replacement parts, or complete unit. Such cost may be covered by a separate warranty provided by the installing contractor.

C) SECOND THROUGH FIFTH YEAR (Sixty (60) months from the date of installation). On the sealed REFRIGERATION SYSTEM. Any part of the sealed refrigeration system that is defective in material or workmanship will be repaired or replaced free of charge (excluding freight charges) by our authorized service center during normal working hours. The sealed refrigeration system consists of the compressor, metering device, evaporator, condenser, reversing valve, check valve, and the interconnecting tubing. LABOR IS NOT INCLUDED FOR INSTALLING REPLACEMENT PARTS.

These warranties apply only while the unit remains at the original site and only to units installed inside the continental United States, Alaska, Hawaii, Puerto Rico, and Canada. The warranty applies only if the unit is installed and operated in accordance with the printed instructions and in compliance with applicable local installation and building codes and good trade practices. For international warranty information, contact the Friedrich Air Conditioning Company - International Division.

D) NOTICE: To obtain service and/or warranty parts replacement, you must notify an authorized FRIEDRICH Air Conditioning Co. distributor, dealer, or contractor of any defect within the applicable warranty period.

2. Any defective part to be replaced must be made available to FRIEDRICH in exchange for the replacement part. You must present proof of the original date of installation of the product in order to establish the effective date of the warranty. Otherwise, the effective date will be deemed to be the date of purchase plus thirty days. The return of the owner registration card is not a condition of warranty coverage. However, please detach and return it so that we can contact you should a question of safety arise which could affect you.

3. TO OBTAIN WARRANTY SERVICE, please contact your authorized FRIEDRICH distributor, dealer, or the contractor who installed the equipment. If your dealer or contractor needs assistance, the authorized FRIEDRICH distributor is available for consultation, and FRIEDRICH supports the efforts of the distributor.

4. This limited warranty applies only to units remaining at the site of the original installation (except for mobile home installations) and only to units installed within the continental United States, Alaska, Hawaii, and Canada. This limited warranty applies only if the unit is installed and operated in accordance with FRIEDRICH instructions and in compliance with applicable local installation and building codes and good trade practices.

5. THIS WARRANTY DOES NOT COVER damages caused by: (a) accident, abuse, negligence, or misuse; (b) operating the product in a corrosive atmosphere containing chlorine, fluorine or any other damaging chemicals; (c) modification, alteration, poor service practices; (d) improper matching or application of the product or components; (e) failure to provide proper maintenance and service to the product according to manufacturer's instructions; (f) installation or operating of the product in a manner contrary to the instructions of the manufacturer; (g) lightning, fluctuations in electrical power or other Acts of God; (h) operation of the unit during construction. This LIMITED WARRANTY also excludes all cost of installation, disconnection or dismantling the product, parts used in connection with normal maintenance such as air filters or belts and owner-required maintenance. Consult the instructions enclosed with the product for information regarding recommended maintenance.

6. No one is authorized to change this LIMITED WARRANTY in any respect, or to create any other obligation or liability in connection with this product.

7. YOUR ONLY REMEDIES ARE PROVIDED IN THIS LIMITED WARRANTY. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN, AND ANY REMEDY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, IS HEREBY EXCLUDED AND DISCLAIMED. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO A TERM OF ONE YEAR FROM THE DATE OF ORIGINAL INSTALLATION. UNDER NO CIRCUMSTANCES SHALL FRIEDRICH BE LIABLE TO THE OWNER OR ANY OTHER PERSON FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THIS PRODUCT, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT OR OTHERWISE.

8. Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental, special or consequential damages, so the above limitations or exclusions may not apply to you.

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

10. This warranty is valid in the U.S.A. and Canada and is not transferable. (11-2019)

FRIEDRICH

VRP®
Variable Refrigerant Packaged Heat Pump

PURCHASER	P.O. #	DATE
PROJECT	LOCATION	
ENGINEER	ARCHITECT	
SUBMITTED BY	FOR APPROVAL	FOR REFERENCE

ITEM	PLAN DESIGNATION	QUANTITY	COOLING Btu	VOLTAGE	FRIEDRICH MODEL

Item	Description	QTY.	CHECK LIST
VPAL2	Architectural louver - 30˚ Blade angle		Louvers One required per unit
VRSC2	Architectural louver - 30˚ Blade angle - Custom color (Special order)		
VRPXALA	Architectural louver - 30˚ Blade angle		
VRPXSCA	Architectural louver - 30˚ Blade angle - Custom color (Special order)		
VRPXALB	Architectural louver - 30˚ Blade angle		
VRPXSCB	Architectural louver - 30˚ Blade angle - Custom color (Special order)		
VRPXALC	Architectural louver - 30˚ Blade angle		
VRPXSCC	Architectural louver - 30˚ Blade angle - Custom color (Special order)		
VPAWP1-8	Vert-I-Pak/VRP floating chassis, telescoping wall plenum - 4”-8” wall depth		Wall Plenums One required per unit
VPAWP1-14	Vert-I-Pak/VRP floating chassis, telescoping wall plenum - 8”-14” wall depth		
VRPXWPA-8	VRP floating chassis, telescoping wall plenum - 4”-8” wall depth		
VRPXWPA-14	VRP floating chassis, telescoping wall plenum - 8”-14” wall depth		
VRPXWPB-8	VRP floating chassis, telescoping wall plenum - 4”-8” wall depth		
VRPXWPB-14	VRP floating chassis, telescoping wall plenum - 8”-14” wall depth		
VRPXWPC-8	VRP telescoping wall plenum - 4”-8” wall depth		
VRPXWPC-14	VRP telescoping wall plenum - 8”-14” wall depth		
VPRG4	Vert-I-Pak/VRP louvered access panel - left in-swing		Access Panels One required per unit
VPRG4R	Vert-I-Pak/VRP louvered access panel - right in-swing		
VRPXAP1	VRP louvered access panel (left and right in-swing)		
VRPXAPPR1	VRP hanging perimeter return access panel		
VPDP2	VRP07 auxiliary drain pan (Required)		Required for VRP07
VRPXFK-2	Filter bracket kit for 2” deep filters (up to MERV 13) - includes gasket		Filter Accessories
VPFKU	Telescoping filter bracket kit for 2” - 4” deep filters (up to MERV 13) - includes gasket		
VRPXWCT	Wired standard VRP wall controller		Wall Controllers One required per unit
VRPXEMRT2	Wired energy management wall controller		
VRPXEMWRT2	Wireless (to the unit) energy management controller		
VRPXEMRT2LC	Wired energy management wall controller with lighting control (Requires EMROS)		
VRPXEMRT2HC	Wired energy management wall controller with Hilton Connect Room (RTM) compatibility		
EMOCT	Energy management online connection kit		Optional Energy Management Accessories
EMRAF	Energy management online remote access fee		
EMROS	Energy management wired remote occupancy sensor		
EMRTS	Energy management remote temperature sensor		
EMRDS	Energy management door switch		
EMCWP	Energy management J-box wall-plate		
EMRWOS	Energy management wireless remote occupancy sensor		

Notes

PRODUCT PROFILE

VRP®

Variable Refrigerant Packaged Heat Pump

Innovative | Intelligent | Inverter

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