

# INPAC

1 – 50 Ton Capacity Industrial and  
Hazardous Duty Packaged HVAC  
and Purge/Pressurization Units



# Six reasons why you can depend on us, and our capacity to perform:

*Since 1974, Specific Systems, LLC. has held strong to a commitment of reliability, service and design excellence in special purpose environmental air-conditioning, heating, ventilating and pressurization systems. This has been accomplished through proven engineering and design principles combined with a dedication to continued improvements in our standard modular products. With this strong engineering focus, Specific Systems leads the industry in modular environmental control system technology. You can always depend on Specific Systems to perform to full capacity.*

## **Durability.**

Specific Systems is committed to building the best environmental control systems in the industry. Our engineering expertise and experience gained through 40 years in business enables us to design and build systems that will perform reliably in virtually any application. You can always depend on Specific Systems' equipment for durability, reliability, and performance.

## **Engineering Excellence.**

At Specific Systems, our team of engineers stands ready to work with you in evaluating and designing an environmental control system suited to your specific application. We assign an engineer to oversee your project and serve as liaison between you and our specialists. Customized HVAC engineering capabilities are something you can always depend on at Specific Systems.

## **Minimal Down Time.**

With Specific Systems' standard modular environmental control units, you can significantly reduce costly down time. Our engineers have designed a modular product line that offers dual redundancy, fast, easy, on-site or remote repair, and simplified parts replacement. You can depend on Specific Systems modular concept to save substantial time and money.

## **Flexibility.**

Specific Systems is committed to meeting your needs. Our standard modular product line can be configured to horizontal, vertical, slimline or split system arrangements using the same standard modular components in each configuration. The most demanding custom needs can usually be accommodated for your particular application. Whatever your requirements, you can depend on Specific Systems to provide the best system for your unique needs.

## **Quality.**

Specific Systems takes pride in manufacturing top quality environmental control equipment. From the initial stages of engineering, throughout production, and into the final stages of assembly, our employees maintain a well-documented high standard of quality control. At Specific Systems, you can depend on our quality every step of the way.

## **Service.**

Our goal is to work with you in a timely, professional manner to get the results you want. We'll always be available to answer your questions and provide you with the necessary technical information. Our technicians will monitor the performance of your system following installation to ensure maximum operating performance. You can depend on Specific Systems service before, during and after the installation of your system.

# Table of Contents

Specific Systems History . . . . .	4
Four Things to Know When Choosing Your HVAC Unit . . . . .	5
InPac Unit Applications . . . . .	6
Standard Features . . . . .	8
Optional Features & Accessories . . . . .	10
HVAC Request Form . . . . .	12
600 –16000 Series Units (2 – 50 ton capacities)	
• Physical Configurations . . . . .	14
• Airflow Configurations . . . . .	15
• Dimensional & Capacity Data . . . . .	16
• Electrical Data . . . . .	18
InPac 600a . . . . .	26
Purge & Pressurization . . . . .	27
• Overview . . . . .	28
• PPU Physical Dimensions . . . . .	30
• PPU Electrical Data . . . . .	31
• InPac Purge & Pressurization Add-On Data . . . . .	32
Detailed Options	
• Stack Package . . . . .	34
• Alternating Panel (Multiplexer) . . . . .	35
• Gas Monitors and Alarms . . . . .	36
• Spin Filter . . . . .	37
• Chemical Filtration . . . . .	38
• Third Party Certifications . . . . .	39
• Corrosion Resistant Coil Coatings . . . . .	40
• Carboline Coating . . . . .	41
Nomenclature . . . . .	42

# Industry Proven Reliability

Many environmental control units (ECUs) used in special industrial applications are simply modified versions of commercial-duty units. The very nature of a modified commercial unit requires compromises in features, quality control, and supportability. Fully custom one-of-a-kind units are costly, can take a very extended amount of lead time to design and fabricate, and carry the associated risks with first run designs. Specific Systems solves these problems with our modular InPac series product line engineered specifically for heavy-duty industrial use in petrochemical, process, and power industries. The Specific Systems InPac Series is the most extensive line of industrial HVAC units specifically designed for these applications.

Ranging from 1 to 50 tons, InPac units are designed to provide safe and effective environmental control under the most difficult conditions. For more than 40 years, Specific Systems has been manufacturing ECUs that perform reliably in the most challenging industrial applications, including hazardous, explosive areas. While the standard InPac modular design is based on a wall-mount configuration, pad, roof, and split system designs are available using the same standard proven modular designs and components.

## Record of Innovation

Specific Systems pioneered the use of redundant refrigeration circuits as a standard design, and set an industry standard for custom industrial wall-mounted units with its first InPac system. That tradition of innovation continues today in each of Specific Systems product lines. Our adoption of ozone-friendly R-410A

as our standard refrigerant and use of high quality materials such as 16-gauge hot-dipped galvanized steel, stainless steel, copper, etc, as well as industrial wiring methods improve the serviceability and service life of the units. Modern standard cabinet design improvements have refined the fit, finish, and service accessibility of the ECUs.

## Customization is Standard

With our history of defining the benchmark for industrial packaged HVAC and pressurization along with the skill of our experienced engineers, we are able to provide a standardized solution with many optional features to fit your individual application. Using our modular design, a standard vertical wall-mount unit design can be easily reconfigured to a fully-explosion proof rooftop, pad-mount, or split configuration, incorporating optional features such as chemical filtration, steam or electric heat, gas alarms, and fresh air stacks. Modular options like these allow much shorter lead times than are available with fully custom units. The standard InPac design packages all options in a single, standard, fixed-width enclosure (i.e. frame size) offering ease of maintenance seldom found in custom industrial ECUs. InPac wall-mount units can normally be fully serviced from inside the conditioned area, with easy access to the systems dual refrigeration circuits and controls. This through-the-wall maintenance accessibility is very desirable when the units are installed onto a pier-mounted building

Redundant dual refrigeration circuits are standard on all units, and are an extremely important asset in critical applications. The inherent redundancy of two complete refrigeration systems allows for a 50% cooling system backup in the event of a single circuit failure and extends the life of the compressors and other components by alternating cycles between the circuits. 100% complete redundancy is also available with backup evaporator blowers, fans, and isolated dual controls. InPac units can also serve to purge and pressurize the conditioned area when necessary, and when required by NFPA 496 area reclassification.

## Commitment to Quality

Industrial-duty, corrosion-resistant components, UL listed control panels, CSA/UL listed and labeled units, and a host of available options make the InPac modular line of industrial ECUs the finest HVAC solution available.

  
LISTED  
E303909 / E303910

  
C US

*Explosion Proof Redundancy:  
The unit shown is an InPac 660  
(5 ton) fully redundant system  
with complete explosion proofing*



## #1 – Required Cooling Load

Required cooling load is determined by the size of the area to be conditioned including total interior volume (occupiable space plus any area above a dropped ceiling and below a raised floor), number of occupants, total heat contribution of all electrical equipment contained in the area, R/U-values of wall, floor, and ceiling insulation system, as well as the final geographical destination of the unit/building. Our trained staff will be happy to assist you in preparing a detailed computerized load study calculation for your unique application.

## #2 – Hazardous Location (if applicable)

Depending on the types of hazardous materials and their likelihood of being in the atmosphere, your application may require gas alarms, chemical filtration, a purge & pressurization system, stack packages, and various explosion proof/spark proof application features dictated by the particular area classification. The Specific Systems InPac series of industrial HVAC and pressurization systems are the only fully certified product line of their type in the industry. InPac series units are third-party listed and labeled for use in both general purpose and hazardous areas.

## #3 – Likelihood of Corrosive Agents in the Environment

From salt water to sulfur compounds, corrosive agents are abundant in many industrial and petrochemical facilities. Knowing the types of corrosion likely to occur in your application is helpful in determining the cabinet material (*i.e.* galvanized steel, stainless steel or aluminum), filtration (HEPA, chemical, etc.), and coil and copper coatings best suited to your application. We have more than 40 years of experience in the application of HVAC and pressurization systems in corrosive atmospheres and will be happy to assist you with your particular application.

## #4 – Unit Configuration

While our most popular unit configuration is the vertical wall-mounted packaged to/through-the-wall, some applications require roof mounted, pad mounted, or split system configurations, often useful in buildings where wall space is limited. Page 18 has more information on selecting the proper unit configuration for your application.

Four things to know when choosing your Specific Systems HVAC unit

### Class & Division Overview

- Class I: Flammable gases or vapors may be or are present
- Class II: Combustible dust may be or is present
- Class III: Ignitable fibers may be or are present
- Division 1: Hazard present under normal conditions
- Division 2: Hazard stored in sealed containers, and is present only under abnormal conditions, as through accidental release.

### Typical Class I Locations

- Petroleum refineries and gasoline storage and dispensing areas
- Industrial firms that use flammable liquids in dip tanks for parts cleaning, etc.
- Petrochemical companies that manufacture chemicals from gas and oil
- Dry cleaning plants where vapors from cleaning fluids can be present
- Spraying areas where products are coated with paint or plastics
- Aircraft hangars and fuel servicing areas
- Operations involving storage and handling of liquefied petroleum gas or LNG

### Typical Class II Locations

- Grain elevators, flour and feed mills
- Plants that manufacture, use, or store magnesium or aluminum powders
- Plants that have chemical or metallurgical processes: producers of plastics, medicines, and fireworks, etc.
- Producers of starch or candies
- Spice-grinding plants, sugar plants, and cocoa plants
- Coal preparation plants and other carbon-handling or processing areas

### Typical Class III Locations

- Textile mills, cotton gins, cotton seed mills and flax processing plants
  - Any plant that shapes, pulverizes, or cuts wood and creates sawdust or flyings
- Note: Fibers and flyings are not likely to be suspended in the air, but can collect around machinery or on lighting fixtures where heat, a spark, or hot metal can ignite them.*

# Which industries benefit from using InPac environmental control units?

## *Individualized solutions for:*

- Oil & gas exploration and development
- Oil & gas extraction and production
- Oil & gas processing
- Oil & gas transportation and storage
- Waste water treatment and storage
- Pulp & paper mills
- Potash facilities
- Offshore oil & gas
- Grain processing
- Steel manufacturing
- Data centers
- Power plants (coal-fired, NGL, nuclear, etc.)
- Fueling stations
- Mobile broadcasting units
- Mining / resource extraction
- Rapid emergency response teams

## *Critical applications, including:*

- Motor control centers
- Remote instrument enclosures
- Analyzer houses
- Controller / operator cabins
- Variable frequency drive buildings
- Communication shelters
- Power distribution centers
- Blast resistant buildings
- Hazardous materials storage

## *Severe environments, such as:*

- Classified hazardous areas, up to and including Class I, Division 1, Group B
- Corrosive, toxic environments, including those containing H<sub>2</sub>S, SO<sub>2</sub>, HCl, KCl, and sea water

Specific Systems' InPac units are most often used in heavy industrial applications, such as petroleum, petrochem, production, processing facilities, pipeline pump stations, power/utility distribution, waste water treatment, and grain processing facilities. With a wide selection of options and configurations available for the InPac series units, even the most custom industrial applications can be fit to a tee.

## **Petroleum Processing**

Specific Systems has been dedicated to the design, engineering, and manufacturing of special application environmental control systems for the petroleum and process industries for over 35 years. Our engineering oriented company places special emphasis on durability of design with the ability to withstand adverse atmospheric conditions, including spark resistant and explosion proof areas. In offshore production platforms as well as onshore facilities, many with very corrosive atmospheres, the InPac series units consistently meet and exceed those challenges.

## **Offshore Petroleum Facilities**

Offshore oil processing and production facilities present some of the world's most corrosive and challenging environments. Equipment used in these facilities must withstand salt spray as well as corrosive chemicals and fumes produced during petroleum processing.

HVAC units used in these adverse conditions must be designed to handle the harsh conditions including hydrogen sulfides and many other corrosive chemicals. Specific Systems InPac units are designed, engineered, and manufactured to withstand those and other corrosive elements, as well as explosive environments.

## **Power / Utility Distribution**

InPac customers include many energy-related companies, including power generation and distribution. These companies use high capacity Specific Systems InPac units to cool and protect the power distribution switchgear, MCC, VFD, and process equipment in packaged control centers.

Our engineers are always available to assist in calculating capacity needs for your specific applications by running heat load studies based on internal electrical and electronic equipment and internal and ambient design temperatures.

## **Other Industries**

Along with the petrochemical, utility generation, and distribution industries, Specific Systems manufactures systems destined for use by many other special industries as well as military and governmental agencies. Specific Systems InPac units are found in such diverse applications as food processing, space shuttle ground support systems, and America's space defense initiative.

Grain and ethanol production facilities and explosive production facilities are all users of Specific Systems InPac units.



# Redundancy is Standard



InPac units include as standard what many others consider modifications or special features. Beginning with 16-gauge powder coated galvanized steel cabinets with stainless steel fasteners and drain pans, InPacs are industrial duty by design. Standard features are listed here.

**Cabinet Construction** – All of Specific Systems InPac units incorporate 16-gauge or heavier hot-dipped galvanized steel as the standard cabinet material. Inherently very corrosion-resistant, the galvanized steel is powder coated in-house after fabrication to a thickness of four mils in our standard nitro blue, white, or custom color of your choosing. This adds an additional level of protection beyond wet paint coatings commonly used in custom and commercial-grade HVAC units.

**Dual Fans** – Providing conditioned air into a space is the main purpose of an ECU, and InPac units are built to deliver. All InPac units in capacities from two tons (24,000 BTUH) to 50 tons (600,000 BTUH) utilize dual spark-proof evaporator blower assemblies. Two forward-curved blowers run concurrently on a double-shafted industrial grade motor to distribute the air-handling load with increased total airflow. If necessary, two additional blowers can be optioned to serve as redundant backups and assist in the purging and pressurization of the area in the event of a pressure loss, meeting the exit velocity threshold required by NFPA 496. Spark-proof axial condenser fans are standard on InPac units with dual fans on unit capacities fifteen tons (180,000 BTUH) to twenty tons (240,000 BTUH), with the twenty-five to fifty ton (300,000 to 600,000 BTUH) units incorporating four independent condenser fans.

*InPac 12000 series unit, Shown in standard non-explosion proof design. with ductmate flange for easy integration*

**Evaporator and Condenser Coils** – Our standard coils are constructed from heavy-weight rifled copper tubes mechanically bonded to aluminum fins. All InPac evaporator and condenser coils interlace two completely separate refrigeration circuits, allowing the InPac unit footprint to remain as small as possible while still offering the redundancy and efficiency of four separate coils. Highly corrosion resistant copper fin/copper tube coils are available as an option.

**Compressor** – Two hermetically-sealed scroll compressors comprise the heart of the InPac series units. Crankcase heaters are provided as a standard feature to further extend the life of compressors by helping to keep the refrigerant separate from the lubricant during off-cycles in cold climates, thereby lessening the chance of compressor bearing damage due to lubricant migration.

**Control Systems** – UL 508A Listed and labeled control panels are located in the unit chassis, but can be remotely mounted if requested. Our control panels utilize the most reliable industrial components and modern technology with all wires numbered





*Front View (From inside the conditioned area). Note redundant piping for dual refrigeration circuits including two receivers*

and labeled for easy recognition during service. Basic features of standard InPac HVAC control panels include two-stage control on both heating and cooling, automatic switching, and manual override switches for both stages, if desired.

**Temperature Control** – Close-tolerance temperature control is provided by a dual-stage digital thermostat, generally placed on the unit; alternatively, it can be remotely mounted if required. If desired, a remote temperature and interface control panel capable of controlling multiple individual units from a single location can also be provided (see page 39).

**Power Control** – Fans, compressors, and other components in standard InPac units are automatically shut down by numerous safety devices, depending on any of several overload conditions. Standard fault interrupts on InPac units include high and low refrigerant pressure on both circuits, evaporator coil freeze, compressor high current/temp overload, high temperature in the heating coil, fan motor overloads, and compressor restart delay. Each of these faults can be wired to trigger a local and remote alarm if desired.



*Rear View (From outside the conditioned area). Note the redundant compressors and blowers, as well as optional electric heat and filter dryers.*

**Filtration** – The standard InPac return air filter is a 1" aluminum frame washable flexible polyurethane foam media (UL Class 2). The standard InPac outside air filter is a 2" Farr 30/30, a MERV-8 pleated panel filter that meets most industrial and commercial filtration requirements. Additional special and high efficiency filtration, including HEPA, can be provided as shown in the optional equipment list. Please check with your sales representative for full details on available filtration options.

**Alarms** – System failure alarm Form C contacts for each of the two refrigeration circuits are provided on all units. Units ordered with the optional NFPA 496 purge & pressurization package also include purge system failure, instantaneous and sustained building pressure loss alarms as standard features. All alarms offer one or more Form C dry contacts for interface to remote monitoring systems for notification of an alarm event. A multitude of other alarms, as well as unit mounted visual and audible indicators are available as options.

# Options for Your Unique Needs



In addition to the many standard features, a large number of options are available for customization of your InPac unit. Many of these options are available in packages specially selected and designed for applications such as low ambient conditions, corrosive environments, and classified hazardous locations. Many available options are listed here, with others available by special order. Please contact us if you have any questions regarding which options are required or recommended for your unique application.

**Heat** – Typically the most common option, heat is available in all units. Specific Systems heater options, when paired with a humidistat and humidifier, if required, will help maintain a set humidity level in the conditioned area, improve the comfort level of personnel, and reduce the risk of static electrical damage to industrial control equipment. Low surface temperature electric fin-tube elements are available, and can be ordered in very low watt-density UL/CSA listed and labeled explosion proof configurations. Hydronic and steam coils are also available for supply air, outside air, and pre-heating.

**Coil Coatings** – In corrosive environments, chemicals in the air are abundant and can destroy untreated aluminum and copper in a very short time. For applications in these areas, we offer Esgard, TechniCoat, E-Coat, Heresite, and Thermoguard coil coatings. Each of these coatings is suited to individual sets of corrosive chemicals and environments, so contact our headquarters or your sales rep to determine which

*InPac 8000 Series with explosion proof control panel, custom sized chemical filter box, stack adapter, and purge/pressurization*

coating is correct for your application. Routinely, environments requiring coil coatings also require some type of additional air filtration, including chemical filtration to reduce the level of corrosive gases in an area such as a process control room.

**Chemical Filtration** – Chemical filtration systems are designed to keep corrosive, toxic, and hazardous gases such as  $H_2S$  and  $SO_2$ , often present in outside air in petroleum and petrochem areas, out of conditioned areas where personnel and sensitive electronic equipment are housed. Numerous filtration options can be incorporated directly into the existing InPac cabinet as modular add-on packages, adding minimal depth to the unit, or in some cases, provided as a separate and self-contained unit.

**Economizers** – As the ambient outside air temperature falls below designed room conditions, so falls the need for mechanical cooling. Our economizer option adds an automatic outside/return air damper control to allow cool ambient air to help condition the inside space. This option adds what is termed *free cooling* to the unit, extending the life of the compressors and conserving power.

## HEATERS

2-Stage Electric Heat, 10–80KW  
Finned-tube Heat, 10–40KW  
2-Stage Explosion Proof Electric Heat  
Flanged (Remote) Duct Heater  
Crankcase Heaters  
Explosion Proof Crankcase Heaters  
SCR Heat Controller

## EVAPORATOR & CONDENSER FANS

Auxiliary Evaporator  
Epoxy Coated Blower Wheels  
AMCA B Add-on  
Auxiliary Condenser Fan  
Epoxy Coated Condenser Fan Hub  
NFPA 496 Purge & Pressurization

## CONTROL PANELS

NEMA 4X Enclosure  
NEMA 7 Enclosure  
Remote Control Panel

## ALARMS, VISIBLE & AUDIBLE

Explosion Proof Loss Of Pressure Alarm  
Explosion Proof Strobe Light  
High Temperature Alarm  
Low Temperature Alarm  
Oxygen Depletion Alarm  
Push To Test Alarm Lights  
Clogged Filter Alarm  
Temp & Alarm Monitoring  
High/Low Voltage And Phase Loss Monitor  
Beacon, Non-Hazardous Location

## CORROSION RESISTANT COATINGS AND ADDITIONAL COIL OPTIONS

SpecificCoat  
TechniCoat  
Heresite  
Electrofin E-Coat  
Thermoguard  
Coated copper pipes  
Copper Fin Copper Tube Coils  
Low Fin Coils  
Steam Coil  
Steam Coil Valve  
Chilled Water Evaporator  
Water Cooled Condenser  
Carboline Coated Condenser Section

## ADDITIONAL CABINET OPTIONS

Type 304 Stainless Steel Cabinet  
Type 316 Stainless Steel Cabinet  
1" or 2" Double Wall Construction  
(Standard galvanized or stainless steel)  
All Welded Construction

## DETECTION

Freezestat  
Smoke Detector  
Corrosive Gas Detection  
Combustible Gas Detection  
Toxic Gas Detection  
Firestat  
Oxygen Deficiency Monitor  
Detectors for Most Gases

## FILTER ACCESSORIES

Chemical Filtration Package  
Spin Filter, Evap or Cond  
Roll Filter  
HEPA Filter  
SO<sub>2</sub> Filter  
Carbon Filter  
Filter Gauge

## AIR STACK ACCESSORIES

Rain Cap With Birdscreen  
Freestanding Stack Kit  
Building Brace Kit  
Type 304 / 316 Stainless Steel  
Spiral Wound

## THIRD PARTY CERTIFICATIONS

City Of LA Approval  
City Of LA Res. Report  
CSA Approval (UL 1995) (In House)  
UL 1995 – UL Standard For Safety Heating  
And Cooling Equipment Second Edition;  
CAN/CSA G22.2 No 236-95  
Field Label Provided By CSA  
UL Field Evaluation For A Non-Explosion  
Proof Unit  
UL 1995 Heating & Cooling Equipment  
UBC Seismic Zone 4 Calculation  
And California PE Stamp Showing  
Compliance

\*See page 43 for more information

## ACCESSORIES

Airflow Switch  
Explosion Proof Airflow Switch  
Airflow Metering Station  
Backdraft Dampers  
Remote Thermostat  
Remote Temperature Sensor  
Electronic / Programmable Thermostat  
Humidistat  
De-Humidistat  
Humidifier Systems  
Onguard CCT  
Pressure Regulating Valve  
Double Throw Transfer Switch – NEMA 7  
NEMA 7 Disconnect  
Non-Explosion Proof Disconnect  
(Standard or NEMA 4X)  
Flooded Condenser  
Low Ambient Package  
Ultra Low Ambient Package  
Fan Cycle Switch  
Custom Paint  
Motor Space Heater  
Purge Air Damper  
Economizer – Fully or Non-Modulating  
Power Transfer Kit  
Auto & Manual Switchover  
Override to Energize Standby Unit  
and Lockout  
Lead / Lag Controller With Automatic  
Changeover To Backup  
Lead / Lag Controller To Alternate Two  
Units  
Compressor Lead / Lag Control Modification  
Control Panel Space Heater  
Remote Controls  
PLC With Touchscreen  
PLC Interface With Remote  
Adjustable Pressure Switch  
Supply Air Plenum  
Sound Attenuators  
Variable Frequency Drive (Not Available On  
Single Phase Explosion Proof Units)  
S.S. Mist Eliminator  
Concentric Supply / Return Diffuser  
Filter Grill  
Wash Down Motor  
12" Battery Room Exhaust Fan Unit  
Condensate Overflow Alarm

# HVAC Request Form

Date: \_\_\_\_\_  
 To: \_\_\_\_\_  
 Attn: \_\_\_\_\_  
 Reference: \_\_\_\_\_

Project: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

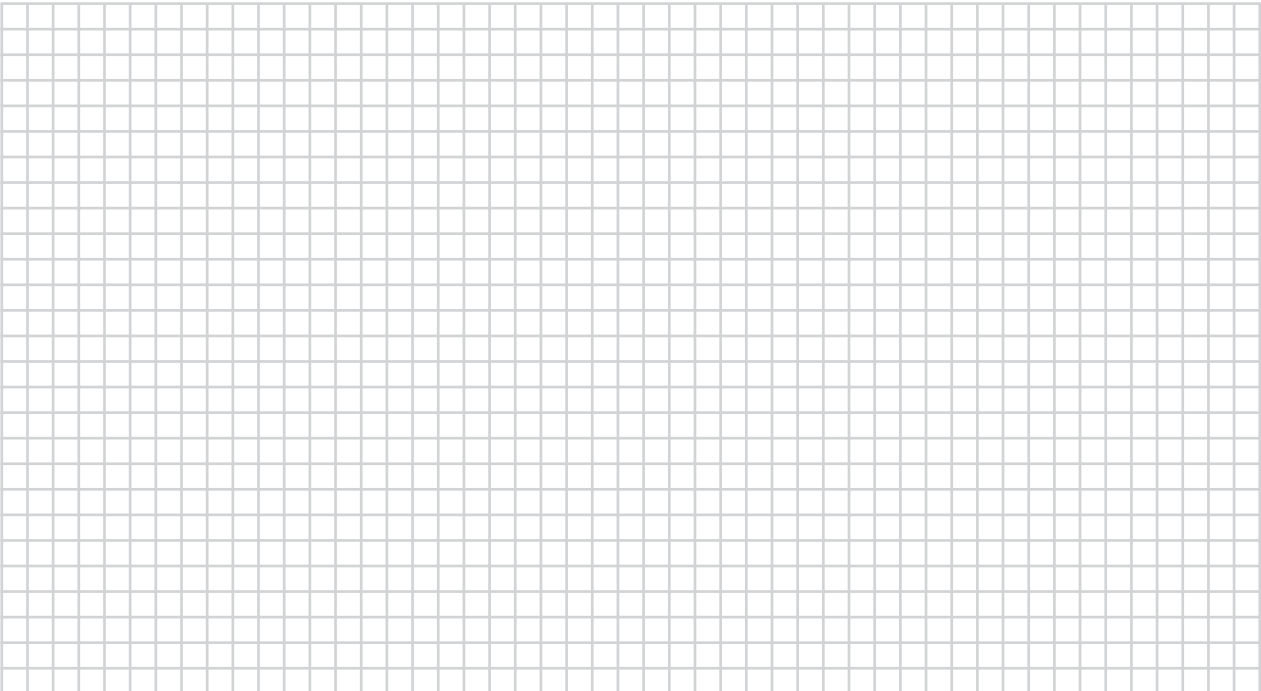
Based on the information below, we recommend the following:

Quantity: \_\_\_\_\_ Capacity (Tons): \_\_\_\_\_  
 Model: \_\_\_\_\_ Heating: \_\_\_\_\_

**Building Description**

Building Size: \_\_\_\_\_ H × \_\_\_\_\_ W × \_\_\_\_\_ L  
 Insulation Factor: \_\_\_\_\_ Roof \_\_\_\_\_ Walls \_\_\_\_\_ Floor  
 Equipment Heat Load, Sensible: \_\_\_\_\_ BTU/KW/Hr  
 Equipment Heat Load, Latent: \_\_\_\_\_ BTU  
 Lighting Heat Load: \_\_\_\_\_ BTU/KW/Hr  
 Number of Building Personnel: \_\_\_\_\_  
 Location of Building: \_\_\_\_\_  
 Avg. Design Temp, Outside: DB/WB: \_\_\_\_\_ Winter; \_\_\_\_\_ Summer  
 Avg. Design Humidity: \_\_\_\_\_ Winter; \_\_\_\_\_ Summer  
 Avg. Design Temp, Inside: DB/WB: \_\_\_\_\_ Winter; \_\_\_\_\_ Summer  
 Voltage: \_\_\_\_\_ V \_\_\_\_\_ Phase  
 Number of Air Changes: \_\_\_\_\_, \_\_\_\_\_ Building Pressure Requirement  
 Notes: \_\_\_\_\_

**Building Sketch**



### 60 Series

- 61 (1 Ton)
- 62 (2 Ton)
- 63 (3 Ton)

### 600 Series

- 624 (2 Ton)
- 636 (3 Ton)
- 648 (4 Ton)
- 660 (5 Ton)

### 6000 Series

- 6090 (7.5 Ton)
- 6120 (10 Ton)

### 8000 Series

- 8090 (7.5 Ton)
- 8120 (10 Ton)
- 8180 (15 Ton)

### 12000 Series

- 12180 (15 Ton)
- 12240 (20 Ton)

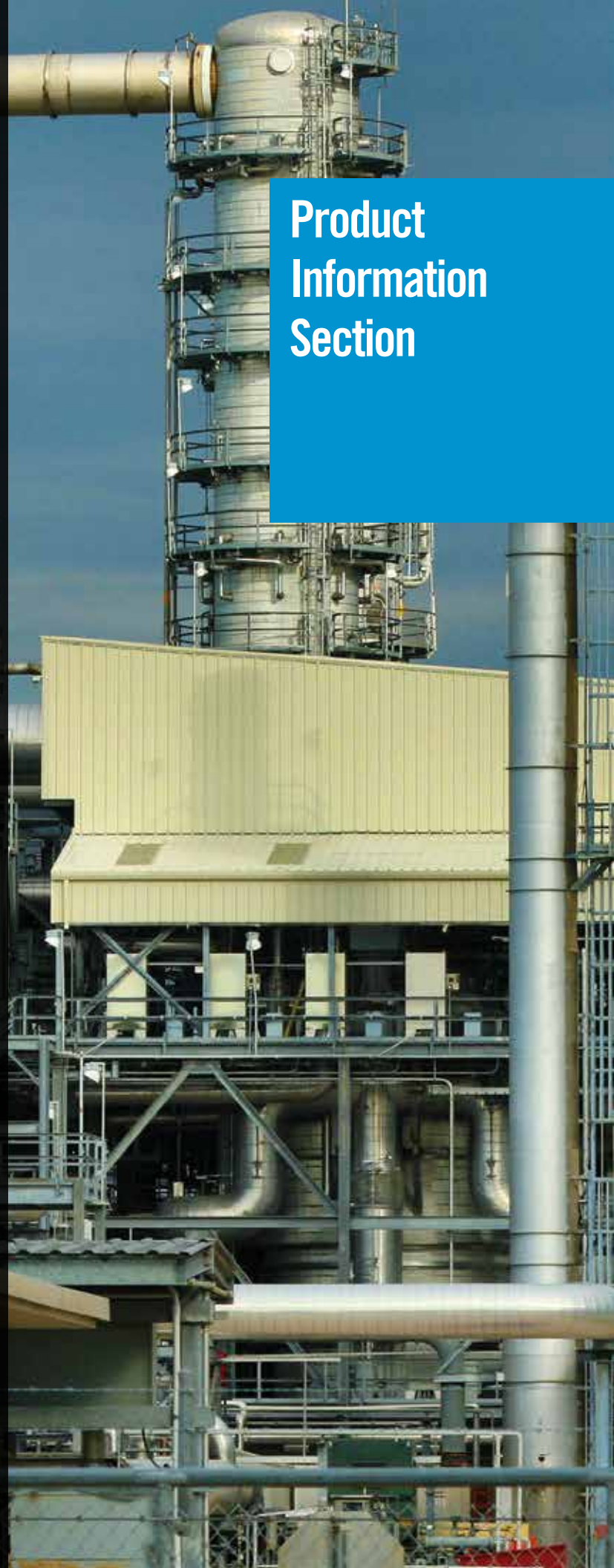
### 14000 Series

- 14300 (25 Ton)
- 14360 (30 Ton)

### 16000 Series

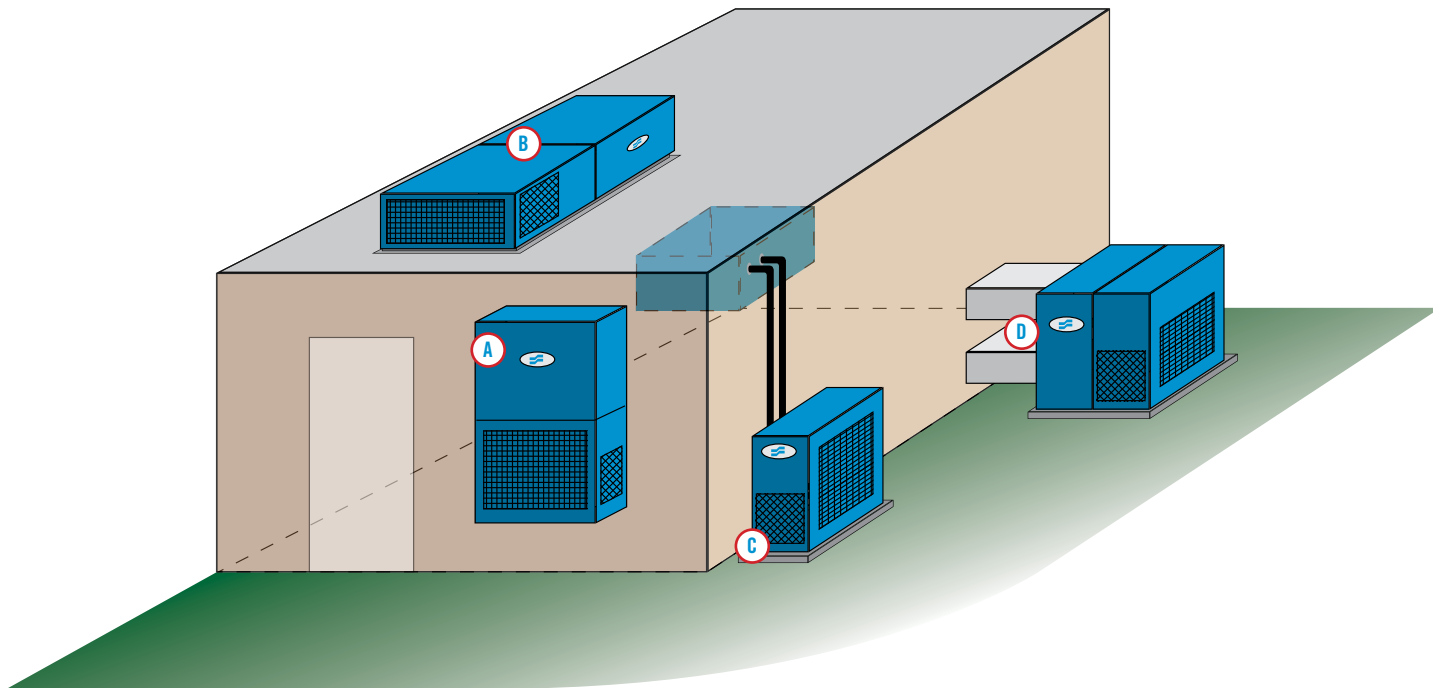
- 16420 (35 Ton)
- 16480 (40 Ton)
- 16540 (45 Ton)
- 16600 (50 Ton)

## Product Information Section



Welcomel

# System Configurations



- A Wall Mount**
  - Easiest installation
  - Easiest serviceability
  - Larger units may require some exterior bracing
- B Roof Mount**
  - Distance from ground allows for shorter stack
  - Uses minimal wall space
  - Perfect for applications with minimal exterior clearance
- C Split System**
  - Quieter—Condenser section mounted outside
  - Uses minimal wall space
  - All-purpose, can be used on all building types
- D Packaged Pad Mount**
  - Lowest interior noise level
  - Uses minimal wall space
  - Requires no structural bracing

## Serviceable by Design

**Wall Mount:** The standard vertical through the wall mounted InPac units are designed to provide maximum capacity in the smallest possible footprint. By engineering the cabinet to fit through the wall, mounting stability is combined with ease of access, allowing most components of the unit to be serviceable from within the conditioned space.

**Roof Mount:** Roof mount configurations use the same standard modules as the wall mounted units, arranged in a skid-based horizontal configuration for mounting on the roof of the building.

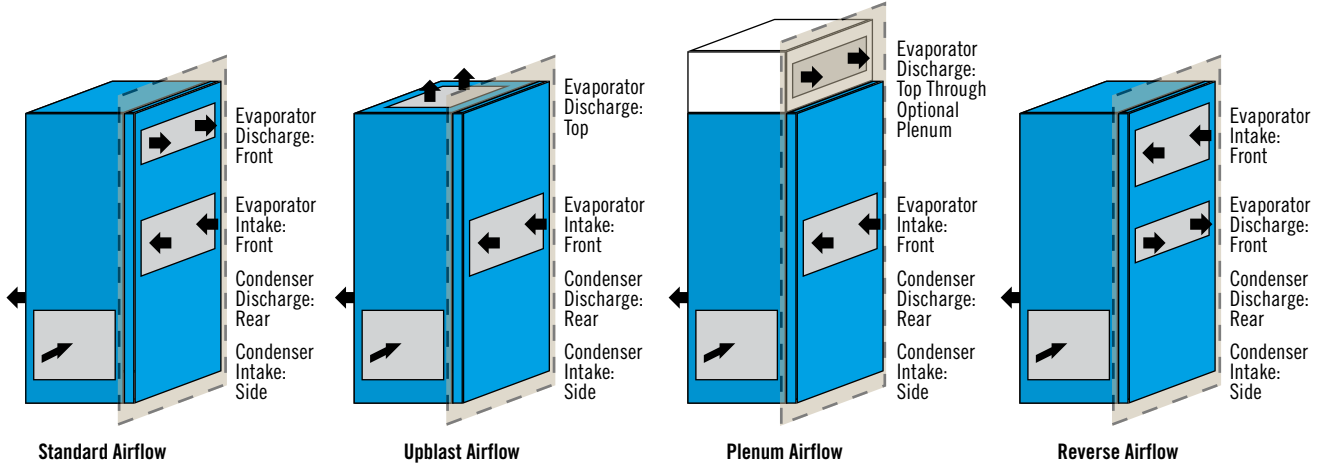
**Slimline:** Slimline unit configurations are also available. In this configuration, the modular condenser and evaporator sections are separated and then placed side-by-side (instead of vertically) as in the wall mounting configuration. The slimline configuration should be considered where the height of the wall mounted configuration will not fit the application.

**Split System:** Much like the HVAC systems in most residential homes, the split system configuration places the condenser section of the InPac unit outside the building, requiring only the evaporator/fan section to be mounted to the building itself. Evaporator sections can be placed inside the building, vertical/horizontal, wall mounted, freestanding, ceiling hung, or roof mounted, making them an excellent selection for existing building retrofit applications.

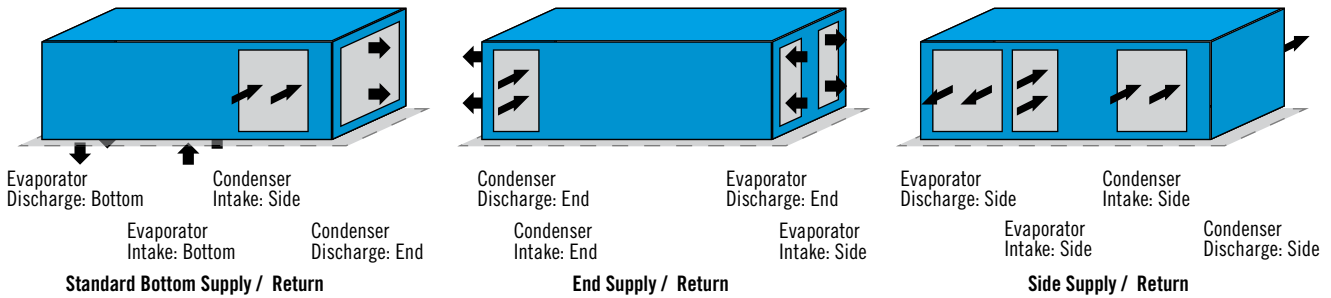
**Packaged Pad Mount:** In a pad mounted system, both the evaporator and condenser sections are located outside the conditioned area, with supply and return air brought in through attached ductwork, thus reducing the interior building noise level and conserving valuable wall space. Standard vertical, horizontal, slimline, and roof mount configurations can be pad mounted.

# Airflow Configurations

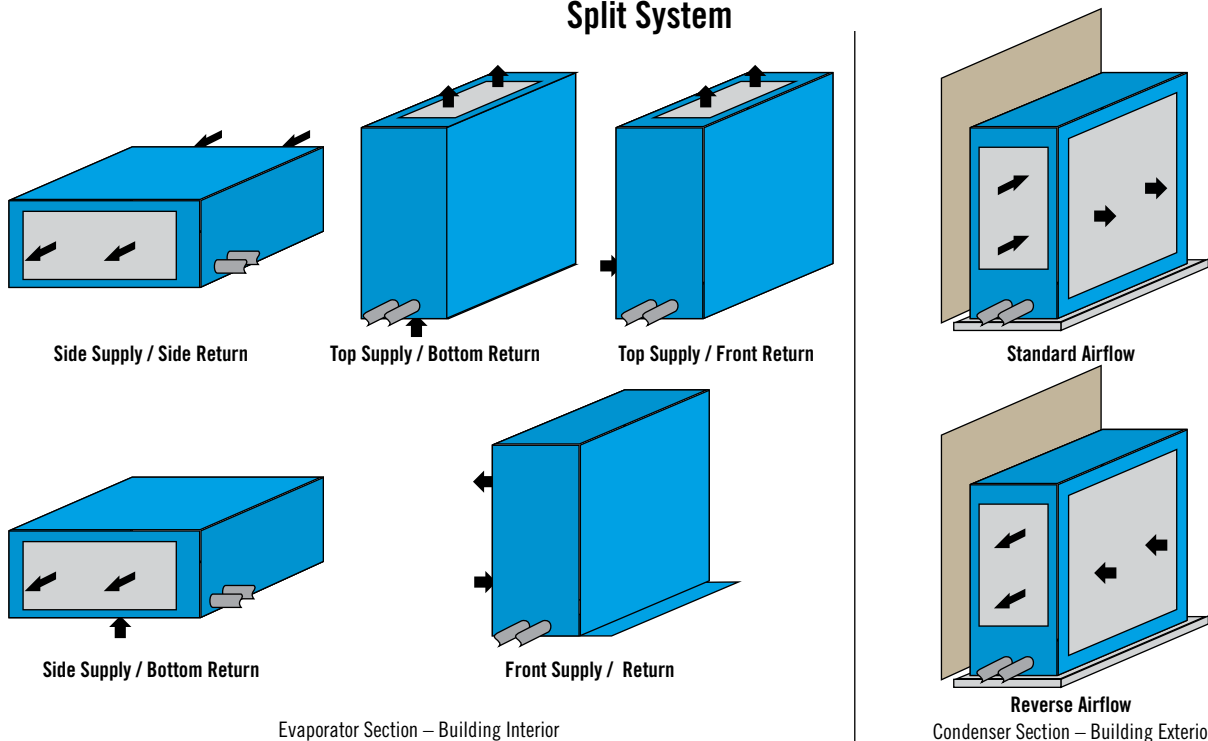
## Wall Mount



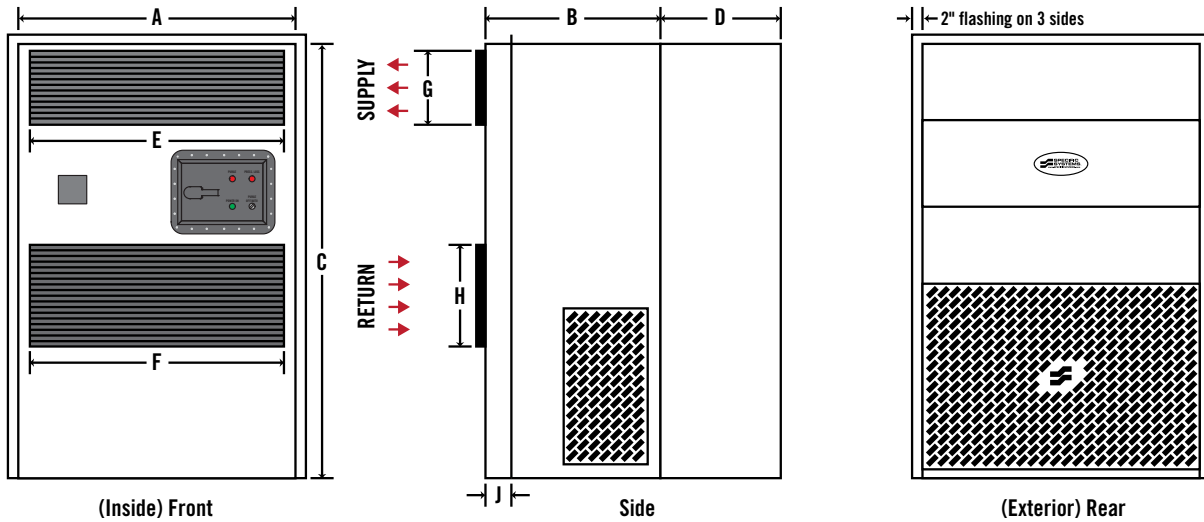
## Roof Mount



## Split System



# Physical Dimensions



Series	A Unit Width	B Basic Unit Depth	C Unit Height	D Unit Depth With Filter Box	E Supply Air Width	F Return Air Width	G Supply Air Height	H Return Air Height	J Wall Pass Through Depth
600	39.50	27.00	94.87	51.00	32.00	32.00	14.00	18.00	7.50
6000	48.00	27.00	94.87	51.00	44.00	44.00	16.00	22.00	7.50
8000	60.00	32.00	94.87	63.00	55.00	55.00	18.00	26.50	7.50
12000	72.00	51.00	108.00*	75.00	55.00	55.00	12.00	26.50	7.50
14000	72.00	75.00	108.00*	98.50	55.00	66.00	12.00	38.00	7.50
16000	86.00	114.00	114.00*	147.00	72.00	66.00	24.00	38.00	7.50

\*Includes 6" skid

Model	Refrigerant Capacity	
	Standard	w/Receivers
624	4	11.5
636	8	23
648	8	23
660	9	25
6090	10	36
6120	11	38
8090	10	36
8120	20	50
8180	34	80
12180	35	84
12240	37	86
14300	46	112
14360	53	112
16420	100	296
16480	100	296
16540	104	300
16600	104	300

Model	CFM @ 0.50" S.P.		Nominal Capacity	
	60Hz	50Hz	60 Hz	50 Hz
624	1750	1460	24000	19920
636	1750	1460	36000	30000
648	1750	1460	48000	40000
660	1750	1460	60000	50000
6090	3700	3070	90000	74700
6120	3700	3070	120000	100000
8090	3700	3070	90000	74700
8120	3700	3070	120000	100000
8180	5700	4730	180000	150000
12180	5700	4730	180000	150000
12240	5700	4730	240000	200000
14300	10000	8300	300000	250000
14360	12000	10000	360000	300000
16420	14000	11600	420000	349000
16480	14000	11600	480000	398000
16540	20000	16667	540000	450000
16600	20000	16667	600000	500000

Note: These are approximate values, refer to nameplate for actual charge.



# Performance & Capacity Data

**Total Cap. @ 60Hz, 80 DB / 67 WB Entering Evap.**

Model	75°F (24°C)	85°F (29°C)	95°F (35°C)	110°F (43°C)	120°F (49°C)
624	27000	25600	24200	21900	20400
636	50800	48200	45600	41300	68400
648	54000	51200	48400	43900	40900
660	70300	66900	63300	57800	53900
6090	107400	102100	96500	147900	85400
6120	140600	133300	126300	114800	107000
8090	104700	101700	95900	86600	79800
8120	144700	137300	129900	117600	109300
8180	200300	190500	181300	164600	153300
12180	215800	205200	194900	177900	166100
12240	274300	260500	246900	226000	210500
14300	358900	341900	325300	298800	280900
14360	402900	384700	365500	335500	313700
16420	494900	471100	446700	408400	382400
16480	601400	573100	543100	495300	463800
16540	601500	572000	541400	492600	458900
16600	643600	611700	576300	524000	485800

**Sensible Cap. @ 60Hz, 80 DB / 67 WB Entering Evap.**

Model	75°F (24°C)	85°F (29°C)	95°F (35°C)	110°F (43°C)	120°F (49°C)
624	17800	17200	16600	15700	15200
636	30900	29800	28600	26800	25800
648	35600	34400	33300	31400	30400
660	45600	44100	42400	40100	38600
6090	74500	72000	69800	66800	64500
6120	98200	95400	92700	88100	85100
8090	73100	70600	68300	64700	60000
8120	97400	94700	92200	87000	84100
8180	140100	136100	133700	125300	122300
12180	149500	145000	141200	134100	129300
12240	191500	186000	180700	173700	167100
14300	254800	247200	240400	229700	223700
14360	289200	283000	274400	262800	254100
16420	345200	335600	325800	309300	300600
16480	408000	397800	385600	364600	354100
16540	421500	410800	399400	378900	365900
16600	450700	439900	423900	404100	387500

ARI

**Total Cap. @ 60Hz, 80 DB / 61.8 WB Entering Evap.**

Model	75°F (24°C)	85°F (29°C)	95°F (35°C)	110°F (43°C)	120°F (49°C)
624	24600	23400	22000	20000	18700
636	46000	43700	41200	37300	34600
648	49300	46800	44100	40100	37500
660	64400	61200	58100	52900	49600
6090	98500	93600	88600	81100	76100
6120	129000	122500	116200	106400	99300
8090	98000	92800	87400	79800	75600
8120	132500	125700	118500	107800	101000
8180	184500	176000	167200	151100	144000
12180	197800	188900	179100	164800	155800
12240	253300	24070	227800	209500	197300
14300	332700	317500	302400	279200	262200
14360	374900	357000	339600	315300	294500
16420	455100	433100	411600	379800	355800
16480	554300	527400	500900	458000	430100
16540	555400	528600	499200	460700	427700
16600	595200	563600	533200	490600	450400

**Sensible Cap. @ 60Hz, 80 DB / 61.8 WB Entering Evap.**

Model	75°F (24°C)	85°F (29°C)	95°F (35°C)	110°F (43°C)	120°F (49°C)
624	22000	27000	24200	21900	20400
636	37600	36500	35300	33400	32000
648	44100	42900	41500	39200	37500
660	56000	54400	52900	50100	48400
6090	91000	89000	86500	51100	48400
6120	120100	116800	114100	106400	99300
8090	89500	87200	85100	79800	75600
8120	120700	118100	113500	107800	101000
8180	173400	170100	164400	153100	144000
12180	183200	178400	173500	164800	155800
12240	237300	231800	222400	209500	197300
14300	309800	302700	295600	279200	262200
14360	354600	345100	333400	315300	294500
16420	425100	413900	402300	379800	355800
16480	499000	485900	475200	455200	430100
16540	522180	511200	490600	460700	427700
16600	563500	546900	533200	490600	450400

35% RH

For further capacity information, including high sensible heat loads, please consult the individual cut sheets for each system.

Electrical Data  
**Model 624**

<b>MODEL 624</b> Electric Power		<b>230/240V</b> 1Φ-60Hz	<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		5.7	2.5	5	2.2	2.2	2.0
Condenser Motor FLA		11.0	3.1	6.1	2.8	2.8	2.5
Compressor Motor RLA		8.3	5.1	6.1	5.1	5.1	3.3
Heat 20kW, Amps (Actual kW)		53.3 (20.1)	26.0 (21.6)	53.3 (20.6)	31.2 (22.4)	29.3 (18.8)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.8 (13.8)	18.5 (15.4)	37.3 (13.8)	22.5 (14.9)	24.9 (15.6)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.0 (10.3)	13.0 (10.8)	26.0 (10.3)	16.0 (11.2)	14.7 (9.4)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	26.5	12.2	18.8	11.6	11.6	9.3
	w/Auxiliary Fan	32.25	14.7	23.8	13.8	13.8	11.3
10 kW Heat	MCA w/o Aux Fan	28.6	21.9	41.4	22.1	22.1	17.9
	MOP w/o Aux Fan	35.0	25.0	45.0	25.0	25.0	20.0
	MCA w/Aux Fan	34.3	21.9	46.4	24.3	24.3	19.9
	MOP w/Aux Fan	40.0	25.0	50.0	25.0	25.0	20.0
15 kW Heat	MCA w/o Aux Fan	—	29.2	55.2	33.9	33.9	23.7
	MOP w/o Aux Fan	—	30.0	60.0	35.0	35.0	25.0
	MCA w/Aux Fan	—	29.2	60.2	36.1	36.1	25.7
	MOP w/Aux Fan	—	30.0	70.0	40.0	40.0	30.0
20 kW Heat	MCA w/o Aux Fan	—	38.9	74.6	39.6	39.6	31.5
	MOP w/o Aux Fan	—	40.0	80.0	40.0	40.0	35.0
	MCA w/Aux Fan	—	38.9	79.6	41.8	41.8	33.5
	MOP w/Aux Fan	—	40.0	90.0	50.0	50.0	40.0
Operating Range		216V–253V	432V–506V	216V–253V	373V–456V	342V–418V	517V–600V

Electrical Data  
**Model 636**

<b>MODEL 636</b> Electric Power		<b>230/240V</b> 1Φ-60Hz	<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		5.7	2.5	5	2.2	2.2	2.0
Condenser Motor FLA		11.0	3.1	6.1	2.8	2.8	2.5
Compressor Motor RLA		13.5	3.5	7.8	4.4	4.4	2.9
Heat 20kW, Amps (Actual kW)		53.3 (20.1)	26.0 (21.6)	53.3 (20.6)	31.2 (22.4)	29.3 (18.8)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.8 (13.8)	18.5 (15.4)	37.3 (13.8)	22.5 (14.9)	24.9 (15.6)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.0 (10.3)	13.0 (10.8)	26.0 (10.3)	16.0 (11.2)	14.7 (9.4)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	35.1	14.1	28.3	15.3	15.3	11.8
	w/Auxiliary Fan	40.8	16.6	33.3	17.5	17.5	13.8
10 kW Heat	MCA w/o Aux Fan	48.6	21.9	41.4	22.1	22.1	17.9
	MOP w/o Aux Fan	60.0	25.0	45.0	25.0	25.0	20.0
	MCA w/Aux Fan	54.3	21.9	46.4	24.3	24.3	19.9
	MOP w/Aux Fan	60.0	25.0	50.0	25.0	25.0	20.0
15 kW Heat	MCA w/o Aux Fan	—	29.2	55.2	34.4	3	23.7
	MOP w/o Aux Fan	—	30.0	60.0	35.0	35.0	25.0
	MCA w/Aux Fan	—	29.2	60.2	36.4	36.4	25.7
	MOP w/Aux Fan	—	30.0	70.0	40.0	40.0	30.0
20 kW Heat	MCA w/o Aux Fan	—	38.9	74.6	39.6	39.6	31.5
	MOP w/o Aux Fan	—	40.0	80.0	40.0	40.0	35.0
	MCA w/Aux Fan	—	38.9	79.6	41.8	41.8	33.5
	MOP w/Aux Fan	—	40.0	90.0	50.0	50.0	40.0
Operating Range		216V–253V	432V–506V	216V–253V	373V–456V	342V–418V	517V–600V

**MODEL 648**  
Electric Power

**230/240V**  
1Φ-60Hz

**460/480V**  
3Φ-60Hz

**230/240V**  
3Φ-60Hz

**415V**  
3Φ-50Hz

**380V**  
3Φ-50Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA		5.7	2.5	5	2.2	2.2	2.0
Condenser Motor FLA		11.0	3.1	6.1	2.8	2.8	2.5
Compressor Motor RLA		8.3	5.1	6.1	5.1	5.1	3.3
Heat 20kW, Amps (Actual kW)		53.3 (20.1)	26.0 (21.6)	53.3 (20.6)	31.2 (22.4)	29.3 (18.8)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.8 (13.8)	18.5 (15.4)	37.3 (13.8)	22.5 (14.9)	24.9 (15.6)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.0 (10.3)	13.0 (10.8)	26.0 (10.3)	16.0 (11.2)	14.7 (9.4)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	34.8	17.3	19.5	16.7	16.7	12.6
	w/Auxiliary Fan	40.5	19.8	24.5	18.9	18.9	14.6
10 kW Heat	MCA w/o Aux Fan	36.9	21.2	41.4	22.1	22.1	17.9
	MOP w/o Aux Fan	50.0	25.0	45.0	25.0	25.0	20.0
	MCA w/Aux Fan	42.6	23.7	46.4	24.3	24.3	19.9
	MOP w/Aux Fan	60.0	25.0	50.0	25.0	25.0	20.0
15 kW Heat	MCA w/o Aux Fan	—	29.2	55.2	34.4	3	23.7
	MOP w/o Aux Fan	—	30.0	60.0	35.0	35.0	25.0
	MCA w/Aux Fan	—	29.2	60.2	36.4	36.4	25.7
	MOP w/Aux Fan	—	30.0	70.0	40.0	40.0	30.0
20 kW Heat	MCA w/o Aux Fan	—	38.9	74.6	39.6	39.6	31.5
	MOP w/o Aux Fan	—	40.0	80.0	40.0	40.0	35.0
	MCA w/Aux Fan	—	38.9	79.6	41.8	41.8	33.5
	MOP w/Aux Fan	—	40.0	90.0	50.0	50.0	40.0
Operating Range		216V–253V	432V–506V	216V–253V	373V–456V	342V–418V	517V–600V

**Model 648**  
Electrical Data

**MODEL 660**  
Electric Power

**230/240V**  
1Φ-60Hz

**460/480V**  
3Φ-60Hz

**230/240V**  
3Φ-60Hz

**415V**  
3Φ-50Hz

**380V**  
3Φ-50Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA		5.7	2.5	5.0	2.2	2.2	2.0
Condenser Motor FLA		11.0	3.1	6.2	2.8	2.8	2.5
Compressor Motor RLA		15.4	6.0	11.5	5.1	5.1	4.3
Heat 20kW, Amps (Actual kW)		53.3 (20.1)	26.0 (21.6)	53.3 (20.6)	31.2 (22.4)	29.3 (18.8)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.8 (13.8)	18.5 (15.4)	37.3 (13.8)	22.5 (14.9)	24.9 (15.6)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.0 (10.3)	13.0 (10.8)	26.0 (10.3)	16.0 (11.2)	14.7 (9.4)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	47.5	19.1	35.7	16.7	16.7	14.6
	w/Auxiliary Fan	53.2	21.6	40.7	18.9	18.9	16.6
10 kW Heat	MCA w/o Aux Fan	52.9	21.2	41.4	22.1	22.1	17.9
	MOP w/o Aux Fan	70.0	25.0	50.0	25.0	25.0	20.0
	MCA w/Aux Fan	58.6	23.7	46.4	24.3	24.3	19.9
	MOP w/Aux Fan	80.0	25.0	50.0	25.0	25.0	25.0
15 kW Heat	MCA w/o Aux Fan	—	28.2	55.2	34.4	34.4	23.7
	MOP w/o Aux Fan	—	30.0	60.0	35.0	35.0	25.0
	MCA w/Aux Fan	—	30.7	60.2	36.6	36.6	25.7
	MOP w/Aux Fan	—	35.0	70.0	40.0	40.0	30.0
20 kW Heat	MCA w/o Aux Fan	—	37.5	74.6	39.6	39.6	31.5
	MOP w/o Aux Fan	—	40.0	80.0	40.0	40.0	35.0
	MCA w/Aux Fan	—	40.0	79.6	41.8	41.8	33.5
	MOP w/Aux Fan	—	50.0	80.0	50.0	50.0	35.0
Operating Range		216V–253V	432V–506V	216V–253V	373V–456V	342V–418V	517V–600V

**Model 660**  
Electrical Data

Electrical Data  
**Model 6090**

<b>MODEL 6090</b> Electric Power		<b>230/240V</b> 1Φ-60Hz	<b>200V</b> 1Φ-50Hz	<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>200V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		9.4	9.9	4.8	9.6	4.2	4.2	8.4	3.9
Condenser Motor FLA		11.0	22.0	3.1	6.2	2.8	2.8	5.6	2.5
Compressor Motor RLA		21.4	21.4	6.3	14.5	6.2	6.2	21.4	6.0
Heat 20kW, Amps (Actual kW)		53.3 (21.2)	47.6 (17.2)	26.0 (21.6)	53.2 (21.2)	29.3 (19.4)	29.3 (19.4)	47.6 (17.2)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.6 (14.9)	40.8 (14.7)	18.5 (15.4)	37.6 (15.0)	25.0 (16.5)	25.0 (16.5)	40.8 (14.7)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.6 (10.6)	24.1 (8.6)	13.0 (10.8)	26.6 (10.6)	14.8 (9.7)	14.8 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	64.7	74.7	22.0	46.3	20.9	20.9	58.3	19.9
	w/Auxiliary Fan	74.1	84.6	26.8	55.9	25.1	25.1	66.7	23.8
10 kW Heat	MCA w/o Aux Fan	70.1	81.5	24.1	49.9	24.6	24.6	63.7	21.4
	MOP w/o Aux Fan	90.0	100.0	25.0	60.0	25.0	25.0	80.0	25.0
	MCA w/Aux Fan	80.0	91.4	24.1	59.5	28.8	28.8	72.1	21.4
	MOP w/Aux Fan	100.0	100.0	25.0	70.0	30.0	30.0	80.0	25.0
15 kW Heat	MCA w/o Aux Fan	—	—	31.0	60.9	36.9	36.9	65.4	26.1
	MOP w/o Aux Fan	—	—	35.0	70.0	40.0	40.0	80.0	30.0
	MCA w/Aux Fan	—	—	31.0	71.5	41.1	41.1	73.8	26.1
	MOP w/Aux Fan	—	—	35.0	80.0	50.0	50.0	90.0	30.0
20 kW Heat	MCA w/o Aux Fan	—	—	40.4	80.4	42.1	42.1	74.4	33.9
	MOP w/o Aux Fan	—	—	45.0	90.0	45.0	45.0	80.0	35.0
	MCA w/Aux Fan	—	—	40.4	90.0	46.3	46.3	82.8	33.9
	MOP w/Aux Fan	—	—	45.0	100.0	50.0	50.0	100.0	35.0
Operating Range		216V–253V	180V–220V	432V–506V	216V–253V	373V–456V	342V–418V	180V–220V	517V–600V

Electrical Data  
**Model 6120**

<b>MODEL 6120</b> Electric Power		<b>230/240V</b> 1Φ-60Hz	<b>200V</b> 1Φ-50Hz	<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>200V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		9.4	9.9	4.8	9.6	4.2	4.2	8.4	3.9
Condenser Motor FLA		11.0	22.0	3.1	6.2	2.8	2.8	5.6	2.5
Compressor Motor RLA		30.8	30.8	9.7	19.0	12.2	12.2	19.0	7.4
Heat 20kW, Amps (Actual kW)		53.3 (21.2)	47.6 (17.2)	26.0 (21.6)	53.2 (21.2)	29.3 (19.4)	29.3 (19.4)	47.6 (17.2)	21.7 (21.6)
Heat 15kW, Amps (Actual kW)		37.6 (14.9)	40.8 (14.7)	18.5 (15.4)	37.6 (15.0)	25.0 (16.5)	25.0 (16.5)	40.8 (14.7)	15.5 (15.4)
Heat 10kW, Amps (Actual kW)		26.6 (10.6)	24.1 (8.6)	13.0 (10.8)	26.6 (10.6)	14.8 (9.7)	14.8 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	83.5	95.0	28.8	55.3	32.9	32.9	53.5	22.7
	w/Auxiliary Fan	92.9	104.9	33.6	64.9	37.1	37.1	61.9	26.6
10 kW Heat	MCA w/o Aux Fan	91.2	96.3	31.2	60.1	36.0	36.0	58.3	24.3
	MOP w/o Aux Fan	100.0	125.0	40.0	70.0	45.0	45.0	70.0	30.0
	MCA w/Aux Fan	100.6	106.2	36.0	69.7	40.2	40.2	66.7	28.5
	MOP w/Aux Fan	125.0	125.0	40.0	80.0	45.0	45.0	80.0	35.0
15 kW Heat	MCA w/o Aux Fan	—	—	31.2	60.9	36.9	36.9	65.4	26.1
	MOP w/o Aux Fan	—	—	40.0	70.0	45.0	45.0	70.0	30.0
	MCA w/Aux Fan	—	—	36.0	70.5	41.1	41.1	71.4	30.0
	MOP w/Aux Fan	—	—	40.0	80.0	50.0	50.0	80.0	35.0
20 kW Heat	MCA w/Aux Fan	—	—	40.4	80.4	42.1	42.1	74.4	33.9
	MOP w/o Aux Fan	—	—	45.0	90.0	45.0	45.0	80.0	35.0
	MCA w/Aux Fan	—	—	45.2	90.0	46.3	46.3	82.8	37.8
	MOP w/Aux Fan	—	—	50.0	100.0	60.0	60.0	90.0	40.0
Operating Range		216V–253V	180V–220V	432V–506V	216V–253V	373V–456V	342V–418V	180V–220V	517V–600V

**MODEL 8090**  
Electric Power

**460/480V**  
3Φ-60Hz

**230/240V**  
3Φ-60Hz

**415V**  
3Φ-50Hz

**380V**  
3Φ-50Hz

**200V**  
3Φ-50Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA		4.8	9.6	4.2	4.2	8.4	3.9
Condenser Motor FLA		2.5	5.0	2.5	2.5	5.0	2.2
Compressor Motor RLA		9.7	19.0	9.7	9.7	19.0	7.4
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.6 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.5 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	30.7	59.1	30.1	30.1	57.9	24.6
	w/Auxiliary Fan	35.5	68.7	24.3	34.3	66.3	28.5
10 kW Heat	MCA w/o Aux Fan	33.7	65.1	32.5	32.5	62.7	26.5
	MOP w/o Aux Fan	40.0	80.0	40.0	40.0	80.0	30.0
	MCA w/Aux Fan	38.5	74.7	36.7	36.7	71.1	30.4
	MOP w/Aux Fan	50.0	90.0	40.0	40.0	90.0	35.0
15 kW Heat	MCA w/o Aux Fan	33.7	65.1	36.9	36.9	65.4	26.5
	MOP w/o Aux Fan	40.0	80.0	40.0	40.0	80.0	30.0
	MCA w/Aux Fan	38.5	74.7	41.1	41.1	73.8	30.4
	MOP w/Aux Fan	50.0	90.0	50.0	50.0	90.0	35.0
20 kW Heat	MCA w/o Aux Fan	40.4	80.4	42.1	42.1	74.4	33.9
	MOP w/o Aux Fan	45.0	90.0	50.0	50.0	80.0	35.0
	MCA w/Aux Fan	45.2	90.0	46.3	46.3	82.8	37.8
	MOP w/Aux Fan	50.0	100.0	50.0	50.0	100.0	40.0
Operating Range		432V-506V	216V-253V	373V-456V	342V-418V	180V-220V	517V-600V

**Model 8090**  
Electrical Data

**MODEL 8120**  
Electric Power

**460/480V**  
3Φ-60Hz

**230/240V**  
3Φ-60Hz

**415V**  
3Φ-50Hz

**380V**  
3Φ-50Hz

**200V**  
3Φ-50Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA		4.8	9.6	4.2	4.2	8.4	3.9
Condenser Motor FLA		2.8	5.6	2.5	2.5	5.0	2.2
Compressor Motor RLA		9.7	19.0	9.7	9.7	19.0	7.4
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.6 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.5 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	31.3	60.3	30.1	30.1	57.9	24.6
	w/Auxiliary Fan	36.1	69.9	24.3	34.3	66.3	28.5
10 kW Heat	MCA w/o Aux Fan	33.7	65.1	32.5	32.5	62.7	26.5
	MOP w/o Aux Fan	40.0	80.0	40.0	40.0	80.0	30.0
	MCA w/Aux Fan	38.5	74.7	36.7	36.7	71.1	30.4
	MOP w/Aux Fan	50.0	90.0	40.0	40.0	90.0	35.0
15 kW Heat	MCA w/o Aux Fan	33.7	65.1	36.9	36.9	65.4	26.5
	MOP w/o Aux Fan	40.0	80.0	40.0	40.0	80.0	30.0
	MCA w/Aux Fan	38.5	74.7	41.1	41.1	73.8	30.4
	MOP w/Aux Fan	50.0	90.0	50.0	50.0	90.0	35.0
20 kW Heat	MCA w/o Aux Fan	40.4	80.4	42.1	42.1	74.4	33.9
	MOP w/o Aux Fan	45.0	90.0	50.0	50.0	80.0	35.0
	MCA w/Aux Fan	45.2	90.0	46.3	46.3	82.8	37.8
	MOP w/Aux Fan	50.0	100.0	50.0	50.0	100.0	40.0
Operating Range		432V-506V	216V-253V	373V-456V	342V-418V	180V-220V	517V-600V

**Model 8120**  
Electrical Data

Electrical Data  
**Model 8180**

<b>MODEL 8180</b> Electric Power		<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>200V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		7.5	15.0	6.1	6.1	12.1	6.0
Condenser Motor FLA		3.1	6.2	2.8	2.8	5.6	2.2
Compressor Motor RLA		14.7	29.5	14.7	14.7	29.5	12.2
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.6 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.5 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	44.6	87.9	42.6	42.6	83.8	36.3
	w/Auxiliary Fan	52.1	102.9	48.7	48.7	95.9	42.3
10–20 kW Heat	MCA w/o Aux Fan	48.3	95.3	46.3	46.3	91.2	39.4
	MOP w/o Aux Fan	60.0	110.0	60.0	60.0	110.0	50.0
	MCA w/Aux Fan	55.8	110.3	52.4	52.4	103.3	45.4
	MOP w/Aux Fan	70.0	125.0	60.0	60.0	125.0	50.0
Operating Range		216V–253V	180V–220V	432V–506V	216V–253V	373V–456V	517V–600V

Electrical Data  
**Model 12180**

<b>MODEL 12180</b> Electric Power		<b>460/480V</b> 3Φ-60Hz	<b>230/240V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>200V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		7.5	15.0	6.1	6.1	12.1	6.0
Condenser Motor FLA		3.5	7.0	3.3	3.3	7.3	2.8
Compressor Motor RLA		14.7	29.5	15.1	15.1	29.5	12.2
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.6 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.8 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	45.4	89.5	44.4	44.4	87.2	37.5
	w/Auxiliary Fan	52.9	104.5	50.5	50.5	99.3	43.5
10 kW Heat	MCA w/o Aux Fan	49.1	96.9	48.2	48.2	94.6	40.6
	MOP w/o Aux Fan	60.0	125.0	60.0	60.0	100.0	50.0
	MCA w/Aux Fan	56.6	111.9	54.3	54.3	106.7	46.6
	MOP w/Aux Fan	70.0	125.0	60.0	60.0	110.0	50.0
15 kW Heat	MCA w/o Aux Fan	49.1	96.9	48.2	48.2	94.6	40.6
	MOP w/o Aux Fan	60.0	125.0	60.0	60.0	110.0	50.0
	MCA w/Aux Fan	56.6	111.9	54.3	54.3	106.7	46.6
	MOP w/Aux Fan	70.0	125.0	70.0	70.0	125.0	50.0
20 kW Heat	MCA w/o Aux Fan	49.1	96.9	48.2	48.2	94.6	40.6
	MOP w/o Aux Fan	60.0	125.0	60.0	60.0	110.0	50.0
	MCA w/Aux Fan	56.6	111.9	54.3	54.3	106.7	45.6
	MOP w/Aux Fan	70.0	125.0	70.0	70.0	125.0	50.0
Operating Range		432V–506V	216V–253V	373V–456V	342V–418V	180V–220V	517V–600V

# Model 12240

Electrical Data

<b>MODEL 12240</b>		<b>460/480V</b>	<b>230/240V</b>	<b>415V</b>	<b>380V</b>	<b>200V</b>	<b>575V</b>
<b>Electric Power</b>		<b>3Φ-60Hz</b>	<b>3Φ-60Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-60Hz</b>
Evaporator Fan Motor FLA		11.0	22.0	9.4	9.4	23.8	8.7
Condenser Motor FLA		3.5	7.0	3.3	3.3	7.3	2.8
Compressor Motor RLA		17.9	37.1	22.4	22.4	37.1	12.8
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.6 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.8 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	55.3	111.7	62.3	62.3	114.1	41.4
	w/Auxiliary Fan	66.3	133.7	71.7	71.7	137.9	50.1
10 kW Heat	MCA w/o Aux Fan	59.8	121.3	67.9	67.9	123.4	44.6
	MOP w/o Aux Fan	70.0	150.0	90.0	90.0	150.0	50.0
	MCA w/Aux Fan	70.8	155.7	77.3	77.3	147.2	53.3
	MOP w/Aux Fan	80.0	175.0	90.0	90.0	175.0	60.0
15 kW Heat	MCA w/o Aux Fan	59.8	—	67.9	67.9	—	44.6
	MOP w/o Aux Fan	70.0	—	90.0	90.0	—	60.0
	MCA w/Aux Fan	70.8	—	77.3	77.3	—	53.3
	MOP w/Aux Fan	80.0	—	90.0	90.0	—	60.0
20 kW Heat	MCA w/o Aux Fan	59.8	—	67.9	67.9	—	44.6
	MOP w/o Aux Fan	70.0	—	90.0	90.0	—	50.0
	MCA w/Aux Fan	70.8	—	77.3	77.3	—	5.3
	MOP w/Aux Fan	80.0	—	90.0	90.0	—	60.0
Operating Range		432V–506V	216V–253V	373V–456V	342V–418V	180V–220V	517V–600V

# Model 14300

Electrical Data

<b>MODEL 14300</b>		<b>460/480V</b>	<b>230/240V</b>	<b>415V</b>	<b>380V</b>	<b>200V</b>	<b>575V</b>
<b>Electric Power</b>		<b>3Φ-60Hz</b>	<b>3Φ-60Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-50Hz</b>	<b>3Φ-60Hz</b>
Evaporator Fan Motor FLA		11.0	22.0	9.4	9.4	23.8	11.6
Condenser Motor FLA		2.5	5.0	2.5	2.5	5.0	2.1
Compressor Motor RLA		22.4	37.1	22.4	22.4	37.1	12.8
Heat 40kW, Amps (Actual kW)		50.0 (41.6)	—	—	—	—	41.8 (41.6)
Heat 30kW, Amps (Actual kW)		37.0 (30.8)	79.2 (31.6)	43.2 (31.1)	44.0 (29.1)	—	31.0 (30.8)
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	53.2 (21.2)	27.2 (19.6)	29.4 (19.4)	47.6 (17.2)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.5 (15.4)	37.6 (15.0)	22.6 (16.2)	25.0 (16.5)	40.8 (14.7)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	26.6 (10.6)	16.0 (11.5)	14.8 (9.7)	23.8 (8.6)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	67.3	117.7	70.5	70.5	119.5	47.1
	w/Auxiliary Fan	78.3	141.1	79.9	79.9	143.3	58.7
10–40 kW Heat	MCA w/o Aux Fan	72.9	127.0	76.1	76.1	128.8	50.3
	MOP w/Aux Fan	90.0	150.0	90.0	90.0	150.0	60.0
	MCA w/Aux Fan	83.9	149.0	85.7	85.7	152.6	51.9
	MOP w/Aux Fan	90.0	175.0	100.0	100.0	175.0	70.0
Operating Range		432V–506V	216V–253V	342V–418V	373V–456V	180V–220V	517V–600V

Electrical Data  
**Model 14360**

<b>MODEL 14360</b> Electric Power		<b>460/480V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		15.1	14.2	14.2	11.6
Condenser Motor FLA		2.5	2.5	2.5	2.1
Compressor Motor RLA		26.3	30.4	30.4	23.7
Heat 40kW, Amps (Actual kW)		50.0 (41.6)	—	—	41.8 (41.6)
Heat 30kW, Amps (Actual kW)		37.0 (30.8)	43.2 (31.1)	44.0 (29.1)	31.0 (30.8)
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	27.2 (19.6)	29.4 (19.4)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.5 (15.4)	22.6 (16.2)	25.0 (16.5)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	16.0 (11.5)	14.8 (9.7)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	79.2	86.5	86.5	68.9
	w/Auxiliary Fan	90.8	100.7	100.7	80.5
10–40 kW Heat	MCA w/o Aux Fan	85.8	94.1	94.1	74.8
	MOP w/o Aux Fan	110.0	110.0	110.0	90.0
	MCA w/Aux Fan	100.9	108.3	108.3	86.5
	MOP w/Aux Fan	125.0	125.0	125.0	125.0
Operating Range		432V–506V	373V–456V	342V–418V	517V-600V

Electrical Data  
**Model 16420**

<b>MODEL 16420</b> Electric Power		<b>460/480V</b> 3Φ-60Hz	<b>415V</b> 3Φ-50Hz	<b>380V</b> 3Φ-50Hz	<b>575V</b> 3Φ-60Hz
Evaporator Fan Motor FLA		25.0	25.0	25.0	20.4
Condenser Motor FLA		3.5	3.3	3.3	2.8
Compressor Motor RLA		30.4	30.4	30.4	24.6
Heat 40kW, Amps (Actual kW)		50.0 (41.6)	—	—	41.8 (41.6)
Heat 30kW, Amps (Actual kW)		37.0 (30.8)	43.2 (31.1)	44.2 (29.1)	31.0 (30.8)
Heat 20kW, Amps (Actual kW)		26.0 (21.6)	27.2 (19.6)	29.4 (19.4)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)		18.5 (15.4)	22.6 (16.2)	25.0 (16.5)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)		13.0 (10.8)	16.0 (11.5)	14.8 (9.7)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	94.3	93.9	93.9	96.9
	w/Auxiliary Fan	119.3	118.9	118.9	117.3
10–40 kW Heat	MCA w/o Aux Fan	101.9	101.5	101.5	105.6
	MOP w/o Aux Fan	125.0	125.0	125.0	125.0
	MCA w/Aux Fan	126.9	126.5	126.5	126.0
	MOP w/Aux Fan	150.0	150.0	150.0	150.0
Operating Range		432V–506V	373V–456V	342V–418V	517V-600V



**MODEL 16480**  
Electric Power

**460/480V**  
3Φ-60Hz

**415V**  
3Φ-50Hz

**380V**  
3Φ-50Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA	25.0	25.0	25.0	20.4
Condenser Motor FLA	3.5	3.3	3.3	2.8
Compressor Motor RLA	42.9	42.9	42.9	34.7
Heat 40kW, Amps (Actual kW)	50.0 (41.6)	—	—	41.8 (41.6)
Heat 30kW, Amps (Actual kW)	37.0 (30.8)	43.2 (31.1)	44.2 (29.1)	31.0 (30.8)
Heat 20kW, Amps (Actual kW)	26.0 (21.6)	27.2 (19.6)	29.4 (19.4)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)	18.5 (15.4)	22.6 (16.2)	25.0 (16.5)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)	13.0 (10.8)	16.0 (11.5)	14.8 (9.7)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	119.3	118.9	118.9
	w/Auxiliary Fan	144.3	143.9	143.9
10-40 kW Heat	MCA w/o Aux Fan	130.0	129.6	129.6
	MOP w/o Aux Fan	150.0	150.0	150.0
	MCA w/Aux Fan	155.0	154.6	154.6
	MOP w/Aux Fan	175.0	175.0	175.0
Operating Range	432V-506V	373V-456V	342V-418V	517V-600V

**Model 16480**  
Electrical Data

**MODEL 16540**  
Electric Power

**460/480V**  
3Φ-60Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA	32.0	26.0
Condenser Motor FLA	3.5	2.8
Compressor Motor RLA	41.9	34.7
Heat 40kW, Amps (Actual kW)	50.0 (41.6)	41.8 (41.6)
Heat 30kW, Amps (Actual kW)	37.0 (30.8)	31.0 (30.8)
Heat 20kW, Amps (Actual kW)	26.0 (21.6)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)	18.5 (15.4)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)	13.0 (10.8)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	124.3
	w/Auxiliary Fan	156.3
10-40 kW Heat	MCA w/o Aux Fan	134.8
	MOP w/o Aux Fan	175.0
	MCA w/Aux Fan	166.0
	MOP w/Aux Fan	175.0
Operating Range	373V-456V	517V-600V

**Model 16540**  
Electrical Data

**MODEL 16600**  
Electric Power

**460/480V**  
3Φ-60Hz

**575V**  
3Φ-60Hz

Evaporator Fan Motor FLA	32.0	26.0
Condenser Motor FLA	3.5	2.8
Compressor Motor RLA	41.9	34.7
Heat 40kW, Amps (Actual kW)	50.0 (41.6)	41.8 (41.6)
Heat 30kW, Amps (Actual kW)	37.0 (30.8)	31.0 (30.8)
Heat 20kW, Amps (Actual kW)	26.0 (21.6)	21.6 (21.6)
Heat 15kW, Amps (Actual kW)	18.5 (15.4)	15.4 (15.4)
Heat 10kW, Amps (Actual kW)	13.0 (10.8)	10.8 (10.8)
Total FLA, Cooling	w/o Auxiliary Fan	124.3
	w/Auxiliary Fan	156.3
10-40 kW Heat	MCA w/o Aux Fan	134.8
	MOP w/o Aux Fan	175.0
	MCA w/Aux Fan	166.0
	MOP w/Aux Fan	175.0
Operating Range	373V-456V	517V-600V

**Model 16600**  
Electrical Data

# InPac 600a

## Standard Features

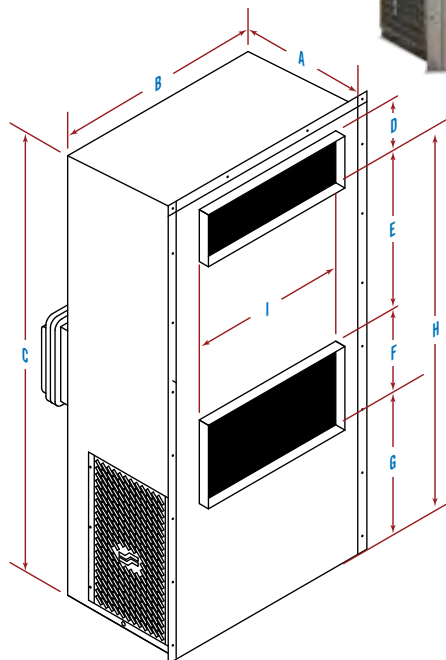
- 5 HP 1155 RPM evaporator motor
- 2 Lau 10-4 evaporator fans
- 1.5 HP 1140 RPM condenser motor
- 18" condenser fan
- 2 compressors (on units 3 tons and above)
- MERV 8 filtration

## Available Options

- A variety of corrosion resistant coil coatings
- Carboline coated condenser section
- Several voltage options available
- Higher efficiency particulate return air filtration
- Low ambient controls for mechanical cooling in ambient conditions down to -35°F

Designed to be direct industrial-quality replacements for failed commercial-style units, the InPac 600a features a standard 16 gauge type 316 stainless steel cabinet and full Class I Division 1 explosion proofing. Two sizes are available. The 600a-1 is sized for capacities from 1–3 tons (3.5–10.55 kW), while the 600a-2 is sized from 3.5–5 tons (12.31–17.58 kW).

Unlike other InPac units, InPac 600a units use standard to-the-wall mounting instead of through-the-wall. This allows for a more compact cabinet while still allowing necessary access to components from outside the conditioned area. Return air filter access is provided by an easily removable panel on the side of the unit.



Dims	InPac 600a-1		InPac 600a-2	
	Inches	CM	Inches	CM
A	24.00	60.96	24.00	60.96
B	39.50	100.33	39.50	100.33
C	70.56	179.22	84.88	215.60
D	7.88	20.02	9.88	25.10
E	17.94	45.57	30.00	76.20
F	13.88	35.26	15.87	40.31
G	28.75	73.03	26.94	68.43
H	103.20	262.13	72.81	184.94
I	27.88	70.82	29.88	75.90

## Purge & Pressurization Overview

### Stand Alone Purge & Pressurization Unit

- Physical Dimensions
- Electrical Data

### InPac Purge & Pressurization Option

# Purge and Pressurization Units and Information

PURGE

POWER LOSS

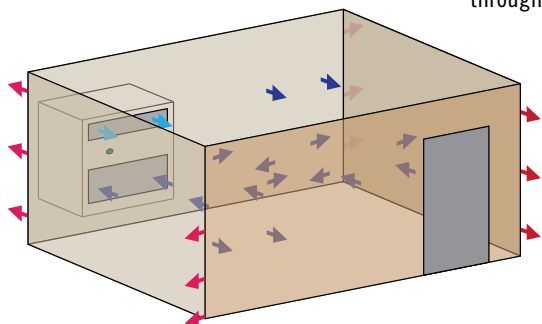
**SPECIFIC SYSTEMS.**  
7655 East 41st Street Tulsa, OK 74146  
WWW.SPECIFICSYSTEMS.COM  
918-483-9321

POWER ON

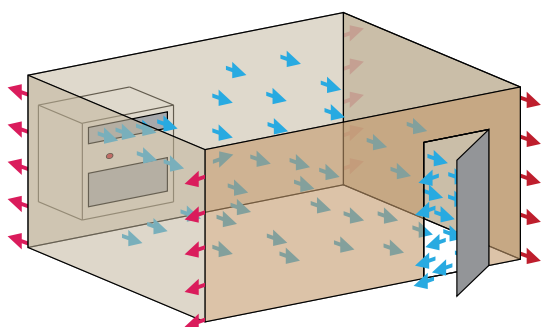
PURGE/OFF/AUTO

# Purge & Pressurization

Ensuring the safety of employees and equipment located in hazardous (classified) areas often requires keeping the area free of any hazardous gases, dust, or fibers that may seep in through doors, windows, or other openings in the room. A very cost effective way to do this is by pressurizing the area with protective air per NFPA 496.



**Figure 1.** Typical Use of Backup Blower for Purge/Pressurization. Under normal operation, one set of blowers is operating, taking air from the outside and circulating it through area.



**Figure 2.** Typical Use of Backup Blower for Purge/Pressurization. During purge, all blowers are active and the return air disengaged, which forces protective air into the area until repressurization is achieved.

Specific Systems manufactures Purge & Pressurization Units to ensure compliance with National Fire Protection Association (NFPA) standards listed in NFPA 496 and the National Electric Code (NFPA 70). These units can be purchased as stand-alone units or as a unit mounted option on all of our InPac series industrial units.

NFPA defines pressurization as “The process of supplying an enclosure with a protective gas with or without continuous flow at sufficient pressure to prevent entrance of a flammable gas or vapor, a combustible dust, or an ignitable fiber” (NFPA 496:3.3.8). In the case of pressurizing a room or building, NFPA adds that the protective gas can be “air” that is “essentially free of contaminants or foreign matter” and that it “contains no more than trace amounts of flammable vapor or gas” (NFPA 496:7.2).

Purging is defined as “the process of supplying an enclosure with a protective gas at a sufficient flow and positive pressure to reduce the concentration of any flammable gas or vapor initially present to an acceptable level.” To put it simply, before an area can be pressurized, it must be purged of the existing air at a rate equal to or greater than ten building volumes.

According to NFPA 496, enclosure (building) pressure must be maintained at a level of at least 25 Pa (0.1 in. w.c.) with all openings closed, and the purge equipment must “provide a minimum of 0.305 msec (60 ft/min) through all openings capable of being opened” including doors used for normal egress.

Generally, if the building requires hazardous area reclassification, it will require protective gas (clean air) to be pulled from a minimum of 25' above ground level. In many instances, a chemical filter option may also be recommended to enhance the area’s indoor air quality and remove corrosive elements such as H<sub>2</sub>S and SO<sub>2</sub>, both prevalent in petrochemical facilities.

Figures 1 and 2, above left, give an example of a Specific Systems InPac unit with the purge & pressurization option. These units feature built-in optional dual backup blowers that act as booster fans when purging an area. During normal operation with doors closed (Figure 1), the unit pressurizes the room, forcing safe, non-explosive air into the area, and out through through any cracks, crevices, and seams. With typical building construction practices, the required pressure can be maintained with no more than 10% of the volume of the bulding, approximately six air changes. Figure 2 shows operation during a purge cycle, in this case a door left open. After one minute of a pressurization drop below a preset level (usually 0.1 in. of water), the return air damper repositions to fully closed and outside air is opened fully. The blowers automatically turn on, bringing in safe air to force potentially hazardous air out of the area. Purging remains active for three to five minutes, (e.g. greater than ten volumes of air) after the purge cycle begins, depending on size of the pressurized area. This time can be adjusted, and is usually a time period that allows movement of an amount of air 10 times the building’s volume.

When determining the need for a purge & pressurization system, four key characteristics of the area must be taken into account: interior volume, desired interior classification of the area to be pressurized, classification of the outside area, and available power requirement.

## Size (Interior Volume)

Size of the area is a major factor in determining the correct capacity of the purge & pressurization unit required. In some instances, it is desirable to place the purge & pressurization unit on the roof of the building, allowing reduced stack height. In others, space considerations may make a wall- or pad-mounted configuration desirable. When determining the volume of the area required for purge & pressurization, one must include any space below a raised floor and above a dropped or vaulted ceiling, as those areas must also be purged and pressurized per NFPA 496.

## Hazardous Classification

Hazardous area classifications are defined in the National Electric Code (NFPA 70, Article 500). A system was devised whereby areas are rated based on their relationships to ignitable gases or dusts (See Page 5). Class I, Division 1 areas have the highest rating, with explosive or flammable gases being prevalent in the area under normal work conditions. Class II, Division 1 is similar, with the presence of ignitable fibers or dust instead of gases.

Division 2 and Zone 2 areas are those where ignitable gases or dust are unlikely to be present during the course of normal operations, but may escape under abnormal conditions (such as the rupture of a valve, leakout, or malfunction of equipment).

There are three levels of NFPA 496 pressurization, Types X, Y, and Z. Type Z pressurization is defined by the NFPA as reducing the classification within the protected enclosure from hazardous to unclassified through purge & pressurization. Type Y pressurization adds a level of protection by de-energizing any component that exceeds the T code classification of the unit, and requires any energized components to meet division 2/zone 2 standards. Type X pressurization goes a step farther by incorporating an automatic disconnect of all components not approved for division 1/zone 1 when the area loses pressure. Specific Systems standard InPac units meet the NFPA 496 reclassification challenge daily in hazardous areas the world over.

## Power Requirement

According to the NFPA, the pressurized area must include a way of indicating failure to maintain positive pressure. This indicator, typically an indicator light and remote form-C contact, can be visual or audible, and must be listed and labeled as safe to use in the hazardous area in which it is placed.

Each of Specific Systems InPac HVAC/PPU series units and options are able to meet all applicable NFPA requirements for installation in Class I or II, Division 1 or 2 or Zone 1 or 2 areas. InPac PPU series units feature explosion proof purge & pressurization controls. Available options include local and remote detectors for corrosive or explosive gases, chemical filtration for the removal of hazardous, corrosive, or odorous elements from air, and high efficiency or special filtration for removal of dust, moisture, and debris.



*PPU 2000, in blue powder coat with explosion proof controls and filter box*

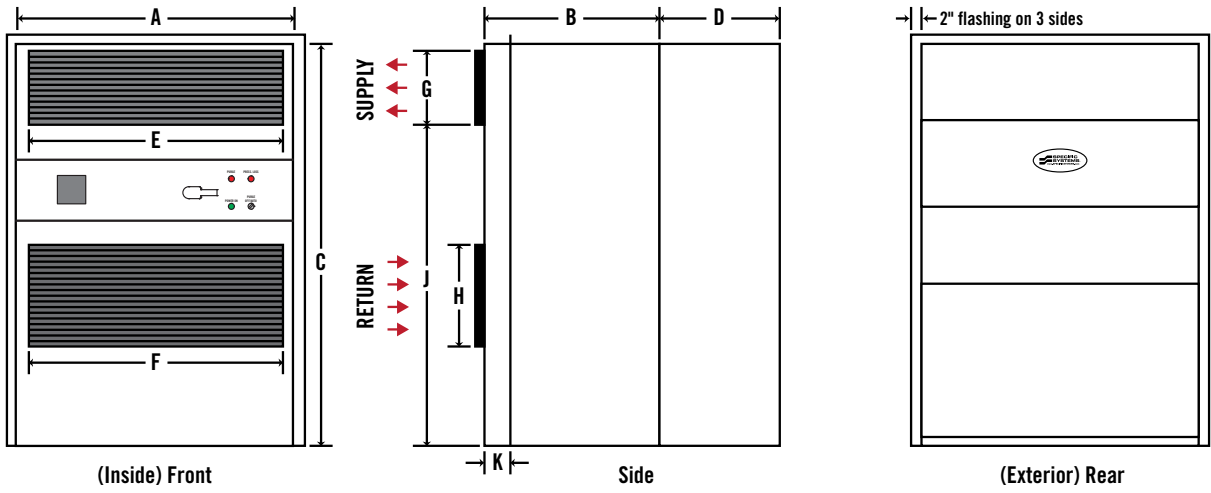


*PPU 4000, in white powder coat with explosion proof controls and filter box*



*PPU 6000, in white powder coat with standard controls, showing available down blast blowers.*

# PPU Physical Dimensions



Series	A Unit Width	B Basic Unit Depth	C Unit Height	D Optional Filter Box Depth	E Supply Air Width	F Return Air Width	G Supply Air Height	H Return Air Height	J Wall Pass Through Depth
2000	39.50	27.00	66.00	24.00	32.00	32.00	14.00	18.00	7.50
4000	48.00	27.00	66.00	24.00	44.00	44.00	16.00	22.00	7.50
6000	60.00	39.00	66.00	24.00	55.00	55.00	18.00	28.25	7.50

Specific Systems InPac PPU purge & pressurization units (PPUs) are designed, engineered, and fabricated to reclassify an area per NFPA 496 regulations when space cooling is not required. PPUs are equipped as standard with 30% (MERV 8) outside air pre-filters. Also available are optional chemical filtration, high efficiency HEPA and bag filters, and stack packages that can be mounted on the unit or freestanding. Stack packages, shown in further detail on page 38, can be constructed from spiral wound or seam-welded galvanized or stainless steel.

Like the InPac product line, stand alone PPUs can be manufactured in both standard and explosion proof designs, with options such as gas alarms, epoxy coated blower wheels, stainless steel cabinet, and more.



Electric Power		230/240V 1Φ-60Hz	200V 1Φ-50Hz	460/480V 3Φ-60Hz	230/240V 3Φ-60Hz	415V 3Φ-50Hz	380V 3Φ-50Hz	200V 3Φ-50Hz	575V 3Φ-60Hz
Fan Motor FLA		8.7	8.5	2.5	5.0	2.3	2.6	4.9	2.1
Total Purge/Press	w/o Aux Fan	8.7	8.5	2.5	5.0	2.3	2.6	4.9	2.1
	w/Aux Fan	17.4	17.0	5.0	10.0	4.6	5.2	9.8	4.2
Max Fuse, Purge/Press (Amps)	w/o Aux Fan	15.0	15.0	5.0	10.0	5.0	5.0	10.0	5.0
	w/Aux Fan	25.0	25.0	10.0	15.0	10.0	10.0	15.0	10.0
Operating Range		216V-253V	180V-220V	432V-506V	216V-253V	373V-456V	342V-418V	180V-220V	517V-600V

# PPU 2000

Electrical Data

Electric Power		230/240V 1Φ-60Hz	200V 1Φ-50Hz	460/480V 3Φ-60Hz	230/240V 3Φ-60Hz	415V 3Φ-50Hz	380V 3Φ-50Hz	200V 3Φ-50Hz	575V 3Φ-60Hz
Fan Motor FLA		16.6	16.3	4.8	9.6	4.4	5.0	9.4	4.0
Total Purge/Press	w/o Aux Fan	16.6	16.3	4.8	9.6	4.4	5.0	9.4	4.0
	w/Aux Fan	33.2	32.6	9.6	19.2	8.8	10.0	18.8	8.0
Max Fuse, Purge/Press (Amps)	w/o Aux Fan	25.0	25.0	10.0	15.0	10.0	10.0	15.0	10.0
	w/Aux Fan	50.0	50.0	15.0	25.0	15.0	15.0	25.0	15.0
Operating Range		216V-253V	180V-220V	432V-506V	216V-253V	373V-456V	342V-418V	180V-220V	517V-600V

# PPU 4000

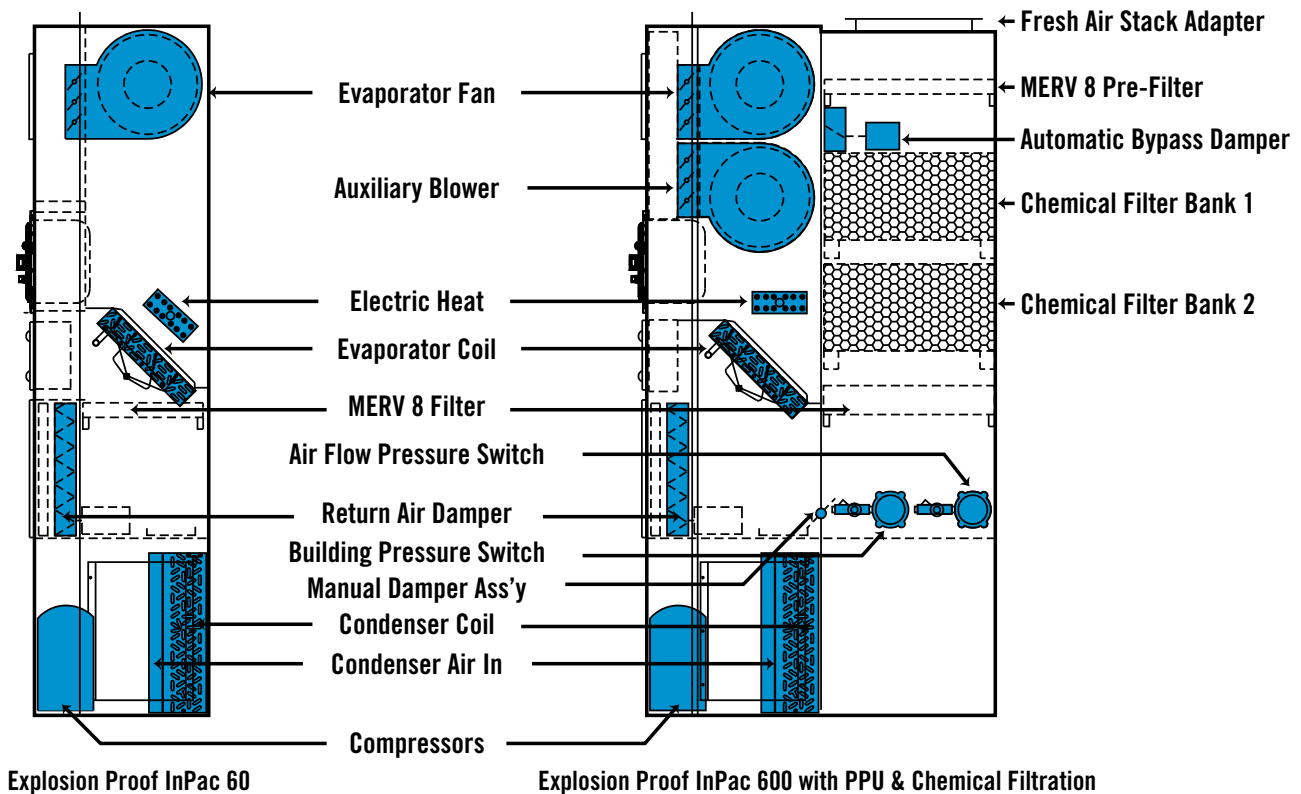
Electrical Data

Electric Power		460/480V 3Φ-60Hz	230/240V 3Φ-60Hz	415V 3Φ-50Hz	380V 3Φ-50Hz	200V 3Φ-50Hz	575V 3Φ-60Hz
Fan Motor FLA		8.3	16.6	7.8	8.6	16.3	6.9
Total Purge/Press	w/o Aux Fan	8.3	16.6	7.8	8.6	16.3	6.9
	w/Aux Fan	16.6	33.2	15.6	17.2	32.6	13.8
Max Fuse, Purge/Press (Amps)	w/o Aux Fan	15.0	25.0	15.0	15.0	25.0	10.0
	w/Aux Fan	25.0	50.0	20.0	20.0	50.0	20.0
Operating Range		342V-418V	180V-220V	432V-506V	216V-253V	373V-456V	517V-600V

# PPU 6000

Electrical Data

# InPac Purge & Pressurization Option



The diagram to the right shows some of the differences between a basic explosion proof InPac 600 Series unit with optional heat (left) and an InPac with purge & pressurization, and a chemical filtration module with stack adapter (right).

## Built-in Purge & Pressurization

The InPac series purge & pressurization option adds a modular set of components to the base InPac HVAC product. Included in this option is an automatic bypass damper, a building pressure indicator, and all timers and electrical components required to automatically purge and repressurize a building upon initial startup or loss of pressure. If redundancy is required by the application, units also can be provided with an additional pair of direct drive evaporator/purge blowers mated to a dual-shafted industrial motor. Purge & pressurization can be added to both general purpose and explosion proof InPac units.

## Chemical Filtration

Many applications requiring purge & pressurization are in areas where chemical filtration is beneficial to both equipment and personnel. Normally, when the purge/pressurization cycle is activated, a filter bypass damper opens automatically to allow maximum airflow to purge the building more quickly. Following the short purge cycle, the bypass damper closes, allowing only enough outside air to flow through the chemical filter cell to meet the pressurization requirement.

More than 40 years of experience designing and manufacturing ECUs for the petrochemical and process industries has allowed us to develop the best possible packaged solution for the most challenging environments. All InPac units with the purge & pressurization option are fully contained in one of seven standard series (width) enclosures and do not require any additional wall space or field interconnection for the purge & pressurization system.



**Stack Packages**

**Alternating Control Panel**

**Gas Monitors & Alarms**

**Spin Filters**

**Chemical Filtration Packages**

**Third Party Certifications**

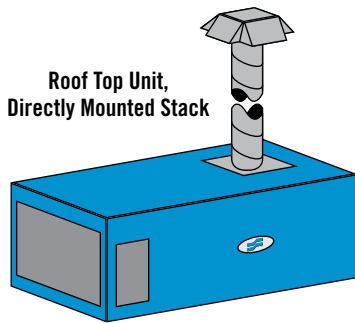
**Corrosion Resistant Coil Coatings**

**Carboline Coating**

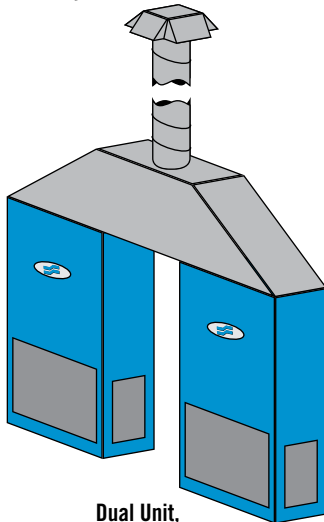
**Purge & Pressurization**

## **Optional Equipment Section**

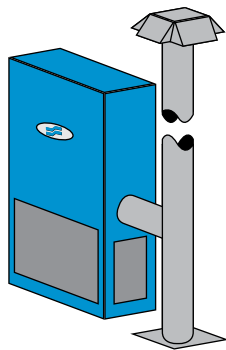
# Stack Packages



Roof Top Unit,  
Directly Mounted Stack



Dual Unit,  
Combined Plenum with Stack



Vertical Unit,  
Freestanding Stack

Several styles of stack packages are available for applications requiring clean protective air in an environment that is contaminated with dust, corrosive, or explosive gases.

Two basic designs are available. Our standard stack package is comprised of spiral wound galvanized steel and designed to tolerate wind gusts and steady winds up to 100 MPH, and our high wind brace kit is capable of withstanding winds up to 120 MPH. 304 or 316 stainless steel construction is available on the standard spiral wound stack for maximum corrosion protection.

Dual stack adapters are available that are designed for installations utilizing a single stack to serve a main and second or redundant unit. Special packages can be designed for installations requiring turns or irregular patterns. Normally, the unit filter cabinet will contain any required filtration, such as HEPA, chemical, carbon, roll, or standard pleated filters. The cabinet also uses a ring flange on the top, sides, or back for optimal attachment of the stack.

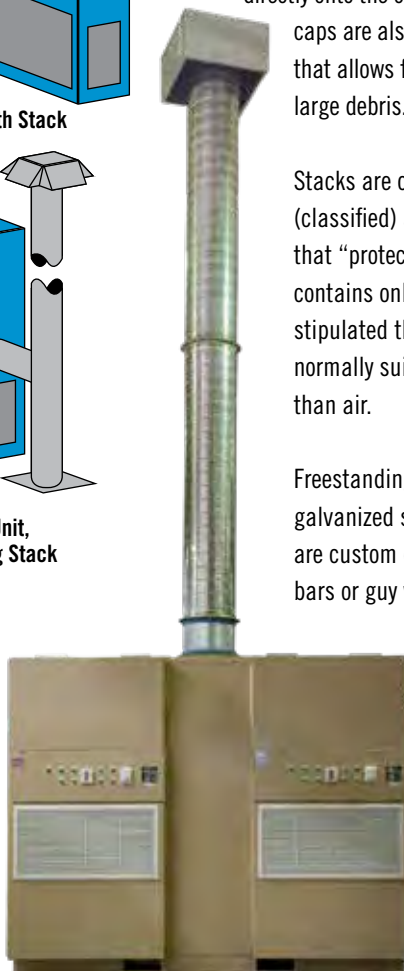
All stack packages come complete with stainless steel rain caps designed to fit directly onto the corresponding stack diameter, without use of an extra flange. The caps are also engineered to deter the nesting of birds, and include a grate that allows for excellent air flow while protecting against the elements and large debris.

Stacks are often required as a source of protective air in hazardous (classified) areas to meet NEC 500 standards. NFPA 496 (7.2) dictates that “protective gas” shall be air that is free of contaminants and contains only trace amounts of hazardous gas or vapor. It is further stipulated that protective air from a height of 25' above ground level is normally suitable because the prevalent hazardous gases are heavier than air.

Freestanding stacks are constructed from heavy gauge hot-dipped galvanized steel or optional 304 or 316 stainless steel. These stacks are custom designed for individual applications, and use no brace bars or guy wires. Freestanding stacks are supplied with a base plate and a T-section for attachment to the InPac unit.

All freestanding stacks have an easily accessible cleanout door on the stack base.

Stack packages are available in 12", 16", 18", and 24" diameters, all properly sized to integrate correctly with the units and the application, and include rain caps sized to meet the stacks with which they are shipped.



# MULTIPLEXER

Some applications require more than one unit to be used in conditioning a building or area. Whether extra units are for redundancy, cooling/heating capacity, purge & pressurization, or another reason, a single point of control for all units is often useful. For these applications, Specific Systems offers the multiplexer/alternating control panel as an option.

The multiplexer is a microprocessor-based programmable logic controller (PLC) control panel to manually or automatically control multiple Specific Systems units. Alternating control programs allow for automatic sequencing of multiple HVAC systems. When combined with the redundant refrigeration circuits standard with Specific Systems units, the multiplexer can greatly extend the life of the InPac's compressors, fan motors and other components.

Several Form C alarm and indicator dry contacts are available with the multiplexers allowing easy installation into your existing remote monitoring system. The contacts include high/low temperature alarms and automatic activation of standby units or circuits as conditions warrant. The remote control panel shown at right is a custom alternating control panel for a dual InPac unit. Note that this panel incorporates additional controls for our purge & pressurization systems, variable speed fan motor drives, and redundant gas sensors/alarms (see next page for further information on gas alarms).

If a failure of the main unit occurs (which can be determined through use of multiple sensors inside each HVAC unit), the multiplexer control automatically energizes a backup system to keep the area conditioned and provides visible local alarms to notify personnel of the failure. Remote alarms can be activated through the standard unit failure Form-C dry contacts. Energizing the backup unit can also be initiated by a power or other type failure of the lead unit or a high temperature alarm. All multiplexers include the ability to manually override or lockout any unit in the system.

With industrial wiring and components enclosed in a hinged 6" deep enclosure, Specific Systems' multiplexers are built to withstand the same harsh conditions as our InPac units. These panels are built in our UL listed electrical panel shop, labeled accordingly, and shipped ready for field installation.

## Key Features

- Auto-sequencing between units, based on 24 hr. timer
- Manual selection of any HVAC system in the circuit
- Automatic operation at high or low temperature condition
- Visual high temperature alarm
- Form C dry contacts
- UL Listed panel



# Gas Monitors and Alarms



## Typical Gas Alarms

- $H_2S$  – Hydrogen Sulfide
- $SO_2$  – Sulfur Dioxide
- $NO_2$  – Nitrogen Dioxide
- $CO$  – Carbon Monoxide
- $CO_2$  – Carbon Dioxide
- $Cl_2$  – Chlorine
- $NH_3$  – Ammonia
- $PH_3$  – Phosphine
- $AsH_3$  – Arsine

A great example of the built-to-task and all-in-one capabilities of the InPac series is the available inclusion of gas monitors and alarms in the units. The alarms may be used in hazardous areas, and are often required for Class I, Division 1 and 2, Groups C, & D environments. Gas alarms are used to detect and alert personnel of the presence of combustible and/or corrosive gases including hydrogen sulfide ( $H_2S$ ) and sulfur dioxide ( $SO_2$ ), nitrogen dioxide ( $NO_2$ ), and others. Refineries and other petroleum processing facilities, pharmaceutical production plants, textile facilities, and analyzer houses often require the use of gas detectors and alarms.

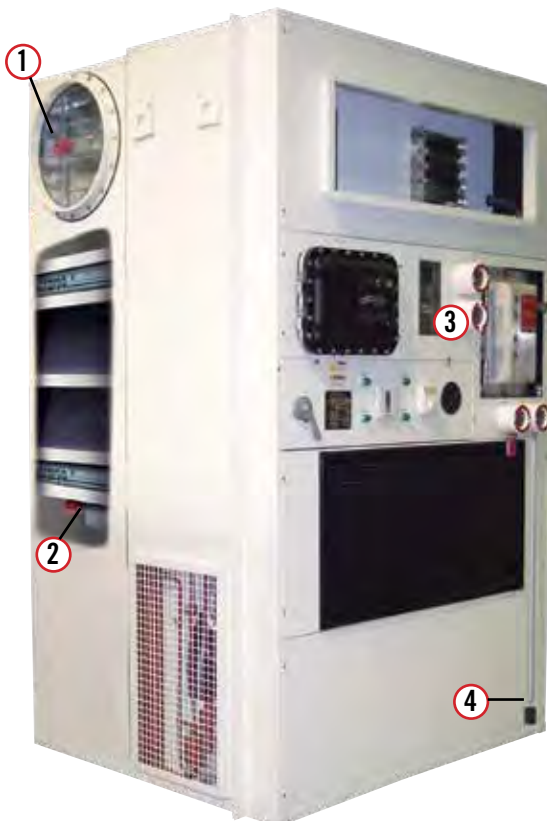
What makes Specific Systems gas alarm option unique is the integration we provide with our HVAC systems. Incorporation of the gas alarms into the InPac units allows us to place the sensors for the alarms directly in the incoming air stream and prewire the alarms to a control panel located alarm terminal strip, saving you the time, expense, and risk of using a third-party contractor. Alarms can be placed on the control panel (as shown on page 39) or integrated directly onto the unit as shown below. This full integration allows for much easier field set up of the unit, and more effective use of the alarms and monitoring devices.

Since the alarms are wired, set up, and tested by us, a number of options are available for activating or deactivating outside air dampers and the HVAC unit itself. For instance, some areas may require all outside air to be closed off during an alarm event, while others specify that the HVAC unit close return air to purge and pressurize the building. Regardless of your application, InPac systems with gas alarms provide safety and reliability under difficult conditions.

As mentioned, gas alarms are installed and pre-wired using Form C contacts, and are factory calibrated for high level, low level, and failure events. Once on-site, another calibration may be necessary for individual environments and specifications. Our standard gas alarms are capable of non-intrusive calibration via the monitor, allowing the device to remain Class I, Division 1, Group C & D certified during adjustment.

Monitors use catalytic bead or infrared technology with sensors mounted in the HVAC unit cabinet to meet the requirements of your application. Alarms are available to detect the presence of combustible gases such as hydrogen and carbon-based gases such as methane. Alarm systems are also available for toxic and corrosive gases such as  $H_2S$ ,  $SO_2$ , carbon monoxide (CO), and others.

Through years of experience and industry practice, we have determined the most effective placements for the monitors, and the illustration at left shows these locations. Dual monitors are also available for full system redundancy.



- 1) Corrosive outside air
- 2) Treated outside air
- 3) Inside corrosive air
- 4) Inside combustible gas



# Spin Filter

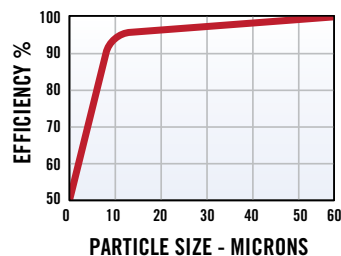
For applications where sand, coal, saw dust, fibers, or rain are present around your HVAC system or its pressurization air inlet, a centrifugal spin filter is an effective solution. The design of the filters allows them to be self-cleaning, making them perfectly suited to areas heavy in airborne contaminants.



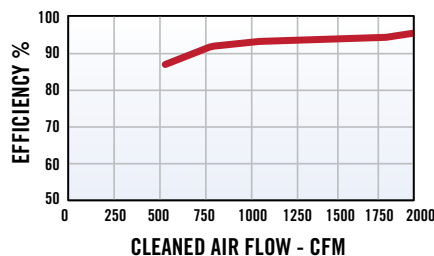
Generally located inside the InPac systems filter cabinet, the spin filters usually require an additional direct drive blower package to force air through them. The booster fan helps to overcome the high pressure drop of the spin filters while allowing the filters to operate at the maximum possible efficiency.

Specific Systems Spin Filter modules are compact, high-density molded polypropylene blocks containing 54 dual tubes with stationary air spinners. By imparting high radial velocity to the dirty input air, the resulting centrifugal force hurls dirt particles and water to the periphery of the tube. Approximately 90% of the input air passes through the clean core at the center of each tube while water on the surface and dirt concentrated in the 10% periphery air is withdrawn and bled through discharge slots on each tube. Dirt particles on the walls of the filter provide a self-cleaning action, preventing dirt from accumulating in the bleed slots and thus guarding against plugged discharge openings.

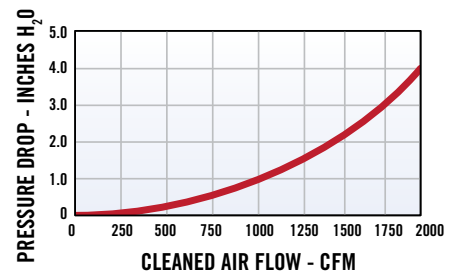
Each spin filter module is sized 9" x 18" nominal and is manufactured using low-pressure transfer-injection technology, eliminating molded-in stresses common to other injection molding processes. The filters and their holders are designed to be mounted horizontally or vertically, and are capable of cleaning up to 2000 cfm of air per module at a pressure drop of two to five (2–5) inches of water column. The filters have a dirt removal efficiency of 98% for particles 15 microns ( $\mu$ ) and larger, and 93% for particles 8 $\mu$  and larger. Figure 1, below, compares dirt removal efficiency with particle size. Water removal efficiency of the module is 90%. Figure 2 illustrates the efficiency of the module through a wide range of inlet air flows. Figure 3 shows pressure drop of 1.1 inches of water at an air flow of 1000 cfm.



**FIGURE 1** - Spin clean dirt removal efficiency at various particle sizes



**FIGURE 2** - Spin clean efficiency at various inlet flow. (AC Standard Coarse Test Dust with particle sizes from sub-micron to 200 microns)



**FIGURE 3** - Pressure drop of 1.1 inches of water at 1,000 CFM air flow.

# Chemical Filtration

InPac Series (Cabinet Size)	# chemical filters modules per bank
60	2
600	3
6000	3
8000	4
12000	5
14000	6

Specific Systems offers standard media to treat the following gases, and can design media to meet requirements for custom applications. A full list is available upon request.

- Alcohols
- Aldehydes
- Alkaloids
- Amines
- Aromatics
- Butyl / Ethyl / Methyl
- Esters
- Ketones
- Mercaptans
- Olefins
- Organic Acids
- Oxides, plus Sulfur Dioxide
- Phenols
- Sulfides, plus Hydrogen Sulfide



Honeycomb filtration media

Specific Systems' ChemPac Filter units are available in multiple sizes to match customer requirements. The ChemPac typically combines four stages of filtration for removal of airborne pollutants and corrosive gases when combined with one of our conditioning units.

The first filter consists of a row of 2" MERV 8 reinforced pleated paper pre-filters. In the standard system, air then passes through a bank of chemical media modules (see chart at left), often followed by a second bank of chemical media modules for maximum scrub. Before entering the evaporator section of the HVAC unit, the air is finally filtered through a set of 2" to 12" final filters, dependent on the maximum allowable particle size specified.

Along with pellet filtration media, we also offer adsorbent honeycomb media as a solution. The honeycomb modules provide increased rate of adsorption of gases and significantly lower pressure drop, a smaller footprint and less weight with equivalent gas removal, and energy savings as a result of reduced system static pressure demand. Additionally, the adsorbent honeycomb modules are much easier and less messy to replace than loose media pellets. This gives the added advantage of less waste and a reduction in potential environmental issues over other spent media.

The ChemPac units can be ordered as a field add-ons to existing units or as an option to new orders. Packed bed scrubbers are available in on-board or standalone units when extreme corrosive gas levels dictate their use. Packed bed scrubbers normally provide a much higher level of corrosive gas scrubbing and longer media life than the standard cellular system noted above.

Specific Systems' experienced engineers are able to assist in determining the proper product and mix required when provided with the external and desired internal design conditions. Standard applications for the filters include:

- Refineries
  - Smelting Facilities
  - Sewage Treatment Plants
  - Clean Rooms
  - Paper and Pulp Plants
- Petrochemical Plants
  - Medical Facilities
  - Sludge Facilities
  - Fertilizer Production
  - Grain Processing Facilities

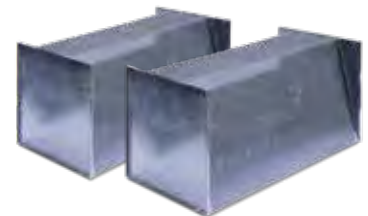
Stack packages are recommended and often required for applications using chemical filtration.



Rear view of 6000 Series ChemPac built-on cabinet



Packed bed scrubber, available as a stand-alone or add-on



Chemical filtration cellular filter modules. Each module is 12" x 12" x 24"

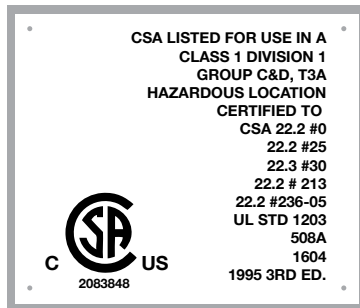


Chemisorb Media

# Third Party Certifications

Specific Systems' entire product line is CSA/UL Listed and Labeled. Specific Systems' panel shop is a UL 508A shop with all electrical panels and components listed and labeled for general purpose as well as hazardous locations as required.

Additional third party certifications (shown at bottom) are available on a per order basis including custom field inspection for both CSA and UL, as well as foreign code compliance including ATEX, GOST, etc.



CSA General Product Certification available on all InPac Units for Use in Hazardous Areas (HAZLOC)



UL General Certification on all HAZLOC panels built in Specific Systems' in-house panel shop



UL General Certification available on all general purpose control panels built in Specific Systems' panel shop



CSA General Certification available on all InPac units for use in General Purpose areas

## Standard Certifications

- CSA/UL listed for General Purpose areas
- CSA/UL listed for Hazardous Areas
- UL listed general purpose industrial control panels, built in house
- UL listed hazardous industrial control panels, built in house

## Available Certifications

- ATEX
- GOST
- CSA Field Inspection
- UL Field Inspection
- City Of LA Approval
- City Of LA Res. Report
- CSA Approval (UL 1995) (In House)
- UL 1995 – UL Standard For Safety Heating And Cooling Equipment Second Edition; CAN/CSA C22.2 No 236-95
- Field Label Provided By CSA
- UL Field Evaluation For A Non-Explosion Proof Unit
- UL 1995 Heating & Cooling Equipment
- UBC Seismic Zone 4 Calculation And California PE Stamp Showing Compliance

## Additional Available Third Party Certifications



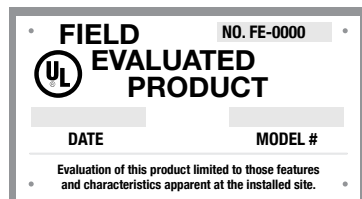
ATEX (European) unit certification



Single unit CSA certification to a specified standard available on all units at time of manufacture or in the field



GOST (Russian) unit certification



Single unit UL certification to a specified standard available on all at time of manufacture or in the field

# Corrosion Resistant Coil Coatings



## Special treatment for corrosive environments

Standard evaporator and condenser coil fins are made of aluminum, which is somewhat corrosion resistant even without some type of coating. However, the harsh conditions under which Specific Systems units are placed may require an additional level of protection. In order to meet these needs, Specific Systems makes available numerous coil coating options, each with unique traits. Coatings offered by Specific Systems are listed here in order of protection, from good to best.

**SpecificCoat** starts with a seven-stage cathodically-applied epoxy that is proven to withstand aggressive industrial atmospheres. It is then topped with Heresite VR-514, the industry standard in air-dried phenolic coatings. The combination of the flexible e-coat with the Heresite spray combines to form a nearly impenetrable barrier that resists cracking while still holding up to salt-spray in coastal/offshore areas.

**Thermoguard Fin Guard** blue epoxy uses a heat-conductive spray coating technique produced to achieve long-lasting corrosion protection. Thermoguard has passed the 80-cycle Kesternich sulfuric environment, Industrial ASTM G85, and Marine ASTM B117 tests. Because its smooth surface resists adhesion from dust and dirt, minimal routine maintenance is necessary.

**Heresite** is a baked phenolic coating, generally dark brown in color, that is extremely flexible for a coating of this type. Heresite is resistant to many chemicals and is one of the most widely-used coatings worldwide, is very safe, and is dip-coated. Because of the nature of the dipping application, coating is uniform on the coil with a thickness of 4–6 mils.

**E-Coat** (or electrocoating) is an environmentally friendly wet dip/flow process used on many products, including as a primer on most new vehicles. E-coat resists chipping and will extend the life of coils, E-coat is also the thinnest coating, with applications computer-controlled to between 0.8 and 1.2 mils. Using a proprietary complete immersion process, Electrofin ensures complete coverage without any fin-bridging (up to 30 fpi/16 rows).

**TechniCoat** is the most protective coating available. It is an air-dried resin-based thermoplastic on top of a baked phenolic coating designed specifically for use in salt-water and harsh chemical environments. TechniCoat has been and is currently being successfully used in water treatment plants, paper mills, food processing plants, oil and gas related plants, off-shore drilling rigs, hatcheries, hospitals, laboratories and research facilities, and hotels. TechniCoat requires minimal maintenance, with only a recommended quarterly washdown with a fan-nozzled pressurewasher and very mild detergent. TechniCoat averages 2–3 mils thick including the top coat, and the coating received excellent ratings with the ASME B117 salt fog test, holding up to an additional 1500 hours of testing.



# Condenser Coating

## Why an additional coating?

Because the condenser sections of HVAC units remain outside and are therefore constantly exposed to the environment, systems designed for a corrosive atmosphere should include multiple types of protection. As the final stage in corrosion protection, Specific Systems makes available a heavy Carboline epoxy protection for the condenser sections of any unit. Applications such as refineries and processing facilities, especially offshore, will benefit greatly from the additional protection Carboline provides to otherwise unprotected equipment.

## What is Carboline?

The standard Carboline used by Specific Systems (Carbomastic 15) is a single coat modified epoxy, applied to a depth of approximately 5 mils. The epoxy is filled with aluminum flakes that greatly increase the distance water must travel in order to reach the underlying components. Combined with their reflective properties, the aluminum flakes help to prevent the harmful effects of ultraviolet rays, thereby protecting the system in all weather conditions.

Carboline Carbomastic 15 is used in many industries to coat structural steel, fire escapes, water towers, bridges, and oil tanks. Carboline has outperformed competing products in multiple standard tests, including the weather-o-meter, salt-fog, and coastal site evaluation.

## Final Stage

Carboline is applied in the final stage prior to shipping, after the unit has been assembled and all the coils have their requested coatings. The entire condenser section of the unit, including cabinet, fans, motor, and piping, is sprayed with the coating. Component labels are masked off to allow for service and technical information access. The coils themselves do not get coated with Carboline because they generally have corrosion protection such as Esgard, Technicoat, or E-Coat added before assembly; additional coating would be unnecessary and interfere with airflow and heat transfer.



*Close-up view of a Carboline-coated condenser section*



*InPac 12000 shown in stainless with return air damper, humidistat, and Carboline-coated condenser section*

Exposure	Immersion	Splash & Spillage	Fumes
Acids	NR	Fair	Very Good
Alkalies	NR	Good	Excellent
Salt Water	Excellent*	Excellent	Excellent
Solvents	NR	Good	Excellent
Water	Excellent*	Excellent	Excellent

\*Discolors to grey

# Model Nomenclature

I 4 15 - C C WHS A S X - A S A S 10 A A C B X X L X  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

The blue numbers under the model designation above correspond to each of the blue numbers listed on these pages. To place your order or determine your model type, just enter the appropriate numbers in the boxes on the opposite page.



## 1 UNIT TYPE

- A – AirPak
- I** – **InPac**
- P – Pressurization Unit

## 2 CABINET SIZE (InPac)

- 1 – 600 Series
- 2 – 6000 Series
- 3 – 8000 Series
- 4** – **12000 Series**
- 5 – 14000 Series
- 6 – 16000 Series

### (AirPak)

- 1 – 42in
- 2 – 48in
- 3 – 60in
- 4 – 72in

## 3 CAPACITY

- 02 – 2-ton
- 03 – 3-ton
- 04 – 4-ton
- 05 – 5-ton
- 07 – 7.5-ton
- 10 – 10-ton
- 12 – 12.5-ton
- 15** – **15-ton**
- 20 – 20-ton
- 25 – 25-ton
- 30 – 30-ton
- 35 – 35-ton
- 40 – 40-ton
- 45 – 45-ton
- 50 – 50-ton

## 4 VOLTAGE

- A – 230/1p
- B – 230/3p
- C** – **480/3p**
- E – 380/3p
- F – 208/1p
- G – 208/3p
- H – 575/3p
- K – 440/3p
- L – 115/1p

## 5 HAZARDOUS RATING

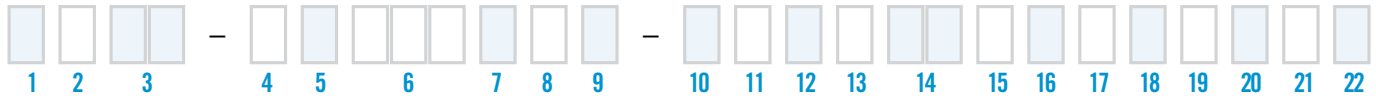
- X – Non-Hazardous
- A – GP Exterior; C1D2 Interior
- B – GP Exterior; C1D1 Interior
- C** – **C1D2 Exterior; Derate Interior (Incl. NFPA-496 P&P)**
- D – C1D2 Exterior; C1D2 Interior
- E – C1D2 Exterior; C1D1 Interior
- F – C1D1 Exterior; Derate Interior (Incl. NFPA-496 P&P)
- G – C1D1 Exterior; C1D2 Interior
- H – C1D1 Exterior; C1D1 Interior
- I – C2D2 Exterior; Derate Interior (Incl. NFPA-496 P&P)
- J – C2D2 Exterior; C2D2 Interior
- K – ATEX - Zone IIB
- L – ATEX - Zone IIA
- M – C1D2 Exterior; Interior Derated by Others
- N – C1D1 Exterior; Interior Derated by Others

## 6 UNIT CONFIGURATION

- WHS** – **Through the Wall, Horizontal Discharge (Standard)**
- WHR – Through the Wall, Horizontal Reverse Airflow
- RHD – Roof-mount, End Supply/Return
- RDB – Roof-mount, Bottom Supply/Return
- PHS – Pad-mount, Horizontal Discharge, Standard Airflow
- PHR – Pad-mount, Horizontal, Reverse Airflow
- AHS – Air-Handling Unit, Standard Airflow
- AHR – Air-Handling Unit, Reverse Airflow
- WVD – Wall-mount, Vertical Discharge
- PVD – Pad-mount, Vertical Discharge
- AHV – Air-Handling Unit, Vertical Discharge
- TWH – To the Wall-mount, Horizontal Discharge
- TWR – To the Wall-mount, Horizontal Reverse Airflow
- SCU – Split Condensing Unit

## 7 REFRIGERANT TYPE

- A** – **R-410A**
- B – R-134A
- C – R-407C
- D – Chilled-Water Evap
- E – Water-Cooled Condenser



### 8 CABINET MATERIAL

- A – Aluminum
- G – Galvanized Steel
- S – **Stainless Steel**

### 9 CABINET COATING

- X – **No Coating (Std. w/Stainless Steel)**
- B – Nitro Blue Powdercoat
- W – White Powdercoat
- 6 – G61 - ANSI Dark Grey Powdercoat
- 7 – G70 - ANSI Light Grey Powdercoat
- T – Desert Tan Powdercoat
- C – Custom Powdercoat

### 10 COIL MATERIAL, EVAPORATOR

- A – **Copper Tube/Aluminum Fin (Std.)**
- B – Copper Tube/Copper Fin
- C – Cupro-Nickel Tubes & Fins
- M – Copper Tube/Alum Fins - Water
- N – Copper Tube/Copper Fins - Water
- O – Cupro-Nickel Tube/Fins - Water

### 11 COIL COATING, EVAPORATOR

- X – No Coating
- S – **SpecificCoat**
- H – Heresite
- T – Technicoat
- V – Heresite VR514

### 12 COIL MATERIAL, CONDENSER

- A – **Copper Tube/Aluminum Fin (Std.)**
- B – Copper Tube/Copper Fin
- C – Cupro-Nickel Tubes & Fins
- P – Steel, Water-Cooled
- Q – Stainless Steel, Water-Cooled

### 13 COIL COATING, CONDENSER

- X – No Coating
- S – **SpecificCoat**
- H – Heresite
- T – Technicoat
- V – Heresite VR514

### 14 HEAT CAPACITY

- 05 – 5 kW
- 10 – 10 kW**
- 15 – 15 kW
- 20 – 20 kW
- 25 – 25 kW
- 30 – 30 kW
- 40 – 40 kW
- 50 – 50 kW
- 60 – 60 kW
- 70 – 70 kW
- 80 – 80 kW

### 15 HEAT TYPE

- X – No Heat
- A – **Wire Element (Standard)**
- B – Finned Tube
- C – Explosion Proof Finned Tube
- D – Steam Heat
- E – Explosion Proof Steam Heat

### 16 PARTICULATE FILTRATION (PRE)

- X – No Filter
- A – **MERV-8, 2 inch**
- B – MERV-8, 4 inch

### 17 CHEMICAL FILTRATION

- X – No Filter
- A – V-Bank, Refillable, Potassium Permanganate
- B – V-Bank, Refillable, Activated Carbon
- C – V-Bank, Disposable, Potassium Permanganate**
- D – V-Bank, Disposable, Activated Carbon
- E – Honeycomb, 2 inch, 1 pass
- F – Honeycomb, 2 inch, 2 pass
- G – Honeycomb, 4 inch, 1 pass
- H – Honeycomb, 4 inch, 2 pass
- I – Honeycomb, 6 inch, 1 pass
- J – Honeycomb, 6 inch, 2 pass

### 18 PARTICULATE FILTRATION (FINAL)

- X – No Filter
- B – MERV-8, 4 inch**
- C – MERV-11, 4 inch
- D – MERV-14, 4 inch
- F – MERV-16, 6 inch
- G – MERV-18 (HEPA), 12 inch

### 19 AUXILIARY FAN

- X – **No Aux Fan**
- Y – Aux Fan

### 20 ECONOMIZER

- X – **No Economizer**
- E – Economizer

### 21 LOW AMBIENT

- X – No Low Ambient
- S – Standard - Cooling available to 35°F (1°C)
- L – Low Ambient - Cooling available to -40°F (-40°C)**
- U – Ultra Low Ambient - Cooling available to -70°F (-56°C)

### 22 HUMIDITY CONTROL

- X – **No Humidity Control**
- D – Dehumidistat



**AIRPAK**  
BY SPECIFIC SYSTEMS



**INPAC**  
BY SPECIFIC SYSTEMS



## Specific Systems Modular Technology is **Number One**

Since 1974, Specific Systems has held strong to a commitment of reliability, service, and design excellence in special purpose environmental air conditioning, heating, ventilating, and pressurization systems. This has been accomplished through proven engineering and design principles, combined with a dedication to continued improvements in our standard modular products. With this strong engineering focus, Specific Systems leads the industry in modular environmental control technology.

Through the years, Specific Systems has designed and manufactured a full range of specialized products, including custom environmental control packages, filtration systems, massive mobile cooling centers, and other HVAC systems. Our custom engineering services are available on a contract basis for special design and development programs.



**SPECIFIC  
SYSTEMS**  
CUSTOMERS FIRST

439 W. 41st St., Tulsa, OK 74107 :: (918) 663-9321 :: (918) 615-4350 fax

### **InPac**

A broad product line of industrial & explosion proof A/C, purge & pressurization, and heating equipment for the petroleum and process industries. Available in sizes from 1–50 tons, InPacs are designed with redundant systems for use in highly corrosive and explosive atmospheres.

### **AirPak**

The AirPak line of wall-mounted A/C units are available in capacities from 5–20 tons. The units are designed for use in heavy-duty commercial and industrial applications such as telecommunications, instrumentation, control, and electrical powerhouse shelter assemblies.