

The **SPU Series** "*Suite*  $20^{TM}$ " is a compact, through the wall packaged HVAC system that can be ducted to individual rooms. Available in Straight Cool (**SPU**), Heat Pump (**SPU-HP**), and Hot Water (**SPU-HW**) models, it's slim design (only 20" wide) uses minimal floor space. The unit installs in a closet having an exterior wall. Conditioned air from a single unit can be ducted to multiple rooms. Each **SPU** unit is controlled by a standard wall thermostat, just like your home. The "*Suite*  $20^{TM}$ " is the best choice for a superior HVAC system when designing:

- Hotel / Motel Suites
- High Rise Apartments / Condominiums
- Renovation / Retrofit Projects
- Assisted Living / Independent Care
- College Dormitories
- Manufactured / Modular Buildings

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"Rear Install" shown

#### **SPU Series** DUCT OPENING FILTER **Straight Cool** Α в 6-1/8 ELEMENT 80 RETURN AIR In keeping with its policy of continuous BLOWER စ္စိစိ progress and product improvement, First MOTOR Operations reserves the right to make 88 changes without notice. Maintenance for all First Co. products is available under SERVICE PULLOUT "Product Maintenance" at www.firstco.com. ELECTRICAL • 66 клоскоит LOW VOLTAGE 41-1/4 LISTED CONDENSER INLET Α В 9,12,18SPU 6-1/2 6-1/2 . 20 24SPU 10 3 20 20

ELECTI	ELECTRICAL DATA (208/230V-1PH-60Hz)																	
		ELECTRIC HEAT DATA					BLOWE	R DATA	CONDENSER DATA			A	MINIMUM		МАХ	мим		
UNIT MODEL		kW		втин		TOTAL HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		CONDENSER MOTOR		CIRCUIT		CIRCUIT PROTECTION		SHIP WT.
		230V	208V	230V	208V	230V	208V	AMPS	HP	RLA	LRA	FLA	HP	208V	230V	208V	230V	
9SPU	-0 -2 -3 -4	0 2 3 4	0 1.5 2.25 3	0 6800 10200 13600	0 5100 7700 10200	0.0 9.0 13.2 17.4	0.0 7.9 11.5 15.1	.72	1/8	4.0	20	.72	1/10	7 10 15 19	7 12 18 23	15 15 20 20	15 15 20 25	245
12SPU	-0 -2 -3 -4 -5	0 2 3 4 5	0 1.5 2.25 3 3.75	0 6800 10200 13600 17000	0 5100 7700 10200 12800	0.0 9.0 13.2 17.4 22.0	0.0 7.9 11.5 15.1 19.0	.72	1/8	6.5	48	.72	1/10	10 10 15 19 24	10 12 18 23 28	15 15 20 20 25	15 15 20 25 30	245
18SPU	-0 -2 -3 -4 -5 -6 -8 -10	0 2 3 4 5 6 8 10	0 1.5 2.25 3 3.75 4.5 6.0 7.5	0 6800 10200 13600 17000 20500 27300 34100	0 5100 7700 10200 12800 15350 20500 25600	0.0 9.2 13.4 17.5 22.0 26.0 34.0 43.0	0.0 8.1 11.7 15.3 19.0 23.0 30.0 37.0	.87	1/8	9.0	48	.72	1/10	13 13 15 19 24 28 37 47	13 13 18 23 28 34 44 54	15 15 20 25 25 30 40 50	15 15 20 25 30 35 45 60	255
24SPU	-0 -3 -4 -5 -6 -8 -10	0 3 4 5 6 8 10	0 2.25 3 3.75 4.5 6.0 7.5	0 10200 13600 17000 20500 27300 34100	0 7700 10200 12800 15350 20500 25600	0.0 14.0 18.2 22.0 27.0 35.0 43.0	1.0 12.3 15.9 20.0 23.0 30.0 38.0	1.4	1/4	12.2	61	.74	1/8	18 18 21 26 30 39 48	18 18 24 28 34 45 55	20 20 25 30 35 45 50	20 20 25 30 35 50 60	255

BLOWEF	BLOWER DATA											
UNIT	MOTOR	CFM vs EXTERNAL STATIC PRESSURE										
MODEL	CONN. (1)	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40			
9SPU	HIGH MED LOW	490 375 290	475 360 280	460 350 270	450 340 260	435 330 240	420 315 230	400 300 215				
12SPU	HIGH MED LOW	490 375 290	475 360 280	460 350 270	450 340 260	435 330 240	420 315 230	400 300 215				
18SPU	HIGH MED LOW	660 580 485	655 578 480	650 575 475	645 570 470	640 565 465	635 560 460	625 550 455	610 540 450			
24SPU	HIGH MED LOW	1030 880 770	1000 860 760	980 840 750	950 820 740	920 790 720	890 760 700	860 730 680	820 700 660			

COOLING / PERFORMANCE DATA (3)								
UNIT MODEL	STANDARD RATING (1)	LOW TEMPERATURE RATING (2)						
	BTUH	BTUH						
9SPU	7800	8300						
12SPU	11500	12300						
18SPU	18900	20000						
24SPU	23800	25200						

(1) Tested at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

(2) Tested at 82°F BD/65°F WB outdoors and 80°F DB/67°F WB indoors

(3) Meets current minimum Federal energy efficiency requirements. Contact factory for further information.

(1) 12,18 and 24SPU blower motors are factory wired for medium (cooling) and low (heating) fan operation. 9SPU is low speed for both.

# **SPU-HP Series**

## **Heat Pump**

In keeping with its policy of continuous progress and product improvement, First Operations reserves the right to make changes without notice. Maintenance for all First Co. products is available under "Product Maintenance" at www.firstco.com.





#### ELECTRICAL DATA (208/230V-1PH-60Hz)

В

6-1/2

3

			ELECTRIC HEAT DATA						BLOWER DATA		CONDENSER DATA			MINIMUM		MAXIMUM			
UNIT MODEL		EL	kW		втин		TOTAL HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		CONDENSER MOTOR		CIRCUIT AMPACITY		CIRCUIT		SHIP WT.
			230V	208V	230V	208V	230V	208V	AMPS	HP	RLA	LRA	FLA	HP	208V	230V	208V	230V	
9SPU	-2 -3 -4	-HP	2 3 4	1.5 2.25 3	6800 10200 13600	5100 7700 10200	9.0 13.2 17.4	7.9 11.5 15.1	.72	1/8	4.0	20	.72	1/10	10 15 19	12 18 23	15 20 20	15 20 25	245
12SPU	-2 -3 -4 -5	-HP	2 3 4 5	1.5 2.25 3 3.75	6800 10200 13600 17000	5100 7700 10200 12800	9.0 13.2 17.4 22.0	7.9 11.5 15.1 19.0	.72	1/8	6.5	48	.72	1/10	10 15 19 24	12 18 23 28	15 20 20 25	15 20 25 30	245
18SPU	-2 -3 -4 -5 -6 -8 -10	-HP	2 3 4 5 6 8 10	1.5 2.25 3 3.75 4.5 6.0 7.5	6800 10200 13600 17000 20500 27300 34100	5100 7700 10200 12800 15350 20500 25600	9.2 13.4 17.5 22.0 26.0 34.0 43.0	8.1 11.7 15.3 19.0 23.0 30.0 37.0	.87	1/8	9.0	48	.72	1/10	13 15 19 24 28 37 47	13 18 23 28 34 44 54	15 20 25 25 30 40 50	15 20 25 30 35 45 60	255
24SPU	-3 -4 -5 -6 -8 -10	-HP	3 4 5 6 8 10	2.25 3 3.75 4.5 6.0 7.5	10200 13600 17000 20500 27300 34100	7700 10200 12800 15350 20500 25600	14.0 18.2 22.0 27.0 35.0 43.0	12.3 15.9 20.0 23.0 30.0 38.0	1.4	1/4	12.2	61	.74	1/8	18 21 26 30 39 48	18 24 28 34 45 55	20 25 30 35 45 50	20 25 30 35 50 60	255

#### **IMPORTANT:**

Electrical data in the above table only applies to units <u>manufactured after</u> <u>8/1/2000</u> (date code G08). Contact factory for electrical data for units manufactured prior to 8/1/2000.

Compressors in these models (after 8/1/2000) do not operate simultaneously with heater elements. Models manufactured before 8/1/2000 (excluding the 24SPU-HP) did feature simultaneous operation and therefore had higher circuit ampacities.

BLOWER DATA											
UNIT MODEL	MOTOR CFM vs EXTERNAL STATIC PRESSURE										
	CONN. (1)	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40		
9SPU-HP	HIGH MED LOW	490 375 290	475 360 280	460 350 270	450 340 260	435 330 240	420 315 230	400 300 215			
12SPU-HP	HIGH MED LOW	490 375 290	475 360 280	460 350 270	450 340 260	435 330 240	420 315 230	400 300 215			
18SPU-HP	HIGH MED LOW	660 580 485	655 578 480	650 575 475	645 570 470	640 565 465	635 560 460	625 550 455	610 540 450		
24SPU-HP	HIGH MED LOW	1030 880 770	1000 860 760	980 840 750	950 820 740	920 790 720	890 760 700	860 730 680	820 700 660		

(1) 12,18 and 24SPU-HP blower motors are factory wired for medium (cooling/heat pump) and low (electric heating) fan operation. 9SPU-HP is low speed in all modes.

COOLING / PERFORMANCE DATA (3)									
UNIT MODEL	STANDARD RATING (1)	LOW TEMPERATURE RATING (2)							
	BTUH	BTUH							
9SPU-HP	7800	8300							
12SPU-HP	10900	12300							
18SPU-HP	17100	18800							
24SPU-HP	23000	25200							

(1) 95°F DB/75°F WB outdoor - 80°F DB/67°F WB indoor.
(2) 82°F DB/65°F WB outdoor - 80°F DB/67°F WB indoor.

(3) Meets current minimum Federal energy efficiency requirements. Contact factory for further information.

HEATING / PERFORMANCE DATA (3)								
UNIT MODEL	STANDARD RATING (1)							
	BTUH							
9SPU-HP	7600							
12SPU-HP	10600							
18SPU-HP	16800							
24SPU-HP	23500							

<sup>(1) 47°</sup>F DB/43°F WB outdoor - 70°F DB/60°F WB indoor.



Figure 1 - General Assembly

### FEATURES AND BENEFITS

- 1. Solid State Circuit Board Incorporates the following control features:
  - Evaporator coil low temperature protection During the cooling mode, should the evaporator coil experience either a low temperature condition that could result in ice build up on the coil or a reduced air flow situation, a temperature sensor attached to the coil will de-energize the SPU unit. The sensor will re-energize the SPU unit when the coil warms back up.
  - Low ambient lockout Locks out compressor at ambient temperatures below 40°F to extend compressor life.
  - **Random restart** When power is turned on after a power outage, a built-in random restart (3 to 4 minutes) prevents all compressors from restarting simultaneously.
  - **Compressor restart delay** This delay (3 minutes) ensures that system pressures are allowed to equalize before a compressor restart, which extends compressor life.
  - Front desk control When wired to a front desk console, each unit can then be enabled or disabled from the front desk, thus saving the energy used to condition unoccupied rooms.
  - **Fan delay** A fan delay allows the evaporator blower to continue running for up to 45 seconds after the thermostat is satisfied. This feature maximizes cooling performance.
- 2. Service Pullout Factory installed for service convenience and maintenance.
- **3.** Adjustable fresh air (manual) To meet code requirements for fresh air introduction. When opened, the fresh air vent (see Figure 8) allows up to 50 CFM of outside air to be introduced into the equipment closet. The air then mixes with return air entering the closet through the return air grille.
- 4. Wall-mounted thermostat (See "accessories", P.8) The SPU is easily controlled by a standard low voltage wall thermostat rather than complicated unit-mounted controls. Low voltage wires are "stubbed" out the left side of the cabinet.

### FEATURES AND BENEFITS (CONT.)

- 5. Wall Sleeve (See Figures 1, 4 and 5) Rear or side install wall sleeves are provided for installation during rough-in and, when ready, the SPU unit is simply slid into the sleeve and the ductwork and electrical connected. The sleeve is a weight-bearing sleeve that supports the entire weight of the SPU unit and provides a weather tight seal against wind and water infiltration. A 3/4" male NPT fitting is provided in the bottom of the sleeve for field connection to a condensate riser. Four wall sleeve depths are available to accommodate wall thickness from 5" to 20". Each sleeve includes a factory installed "weather guard" to cover the sleeve opening during construction.
- 6. Unique "Sleeve Drain" Condensate System (Also see Figure 4) A factory installed drain line connects the evaporator drain pan to a vertical pipe connection in the SPU base pan. Evaporator condensate is delivered from the SPU unit to a catch tray in the



wall sleeve and exits the sleeve through the 3/4" male NPT fitting. This design allows the plumber to completely pipe the drain to a condensate riser during the rough-in stage, thus eliminating condensate connection problems usually encountered when trying to connect the HVAC drain to the riser after the HVAC unit is installed in the closet. This features also allows

the **SPU** unit to be removed for service *without disconnecting the condensate piping*! This configuration does *not* require any

- 7. Secondary overflow: If for any reason the primary condensate riser becomes clogged, water will fill the catch tray and then be diverted through the sleeve to the exterior of the building, *rather than be allowed to overflow into the closet or living area.* Rain water entering the sleeve is automatically diverted to the building exterior as well.
- 8. Ductable return air (See Figure 7) Tabs are provided on the inlet of the evaporator coil to permit the connection of return air ductwork if required by local codes. However, most installations would not normally require ducted return air.
- **9.** New "Flush Style" Architectural Louver (See Figure 6) This new louver is an attractive extruded aluminum architectural louver that attaches to the outside face of the wall sleeve. The blades of this unique grille *recess* into the wall sleeve for a neat, "flush" appearance. Louvers install from the <u>inside</u> of the wall sleeve. Do <u>not</u> install the SPU unit into the sleeve before installing the louver.
- **10.** Filter Brackets (See Figure 7) Filter Brackets and throw away filter are shipped with each unit and are field installed over the unit's evaporator coil. Filter size is 20 x 24 x 1.

#### Figure 2



SHOWN WITH OPTIONAL LOUVERED ACCESS PANEL (See P.8)

NOTE: A solid door or panel in front with a side wall return air grill will result in lower sound levels.

#### Figure 3





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One end of a 4" aluminum vent pipe is connected to the condenser venturi and the other end is connected to the side of the SPU cabinet. A mesh screen is installed inside the vent pipe and a metal plate on the side of the cabinet covers the opening of the vent pipe. Up to 50 CFM of fresh air is introduced into the equipment closet by removing the metal cover plate. The fresh air then mixes with the return air and is then pulled through the evaporator coil and into the supply duct. The cover plate can be re-installed to partially close the fresh air opening if less than 50 CFM is desired. An external source of negative pressure (i.e. a bathroom fan) could be used to introduce more than 50 CFM of fresh air. Consult with factory for further details.

### SPU Rear Installation Detail



#### Notes:

- 1. Sleeve rough-in opening is 44"(H) X 21-5/8"(W).
- 2. Bottom of opening should be approx. 6" above floor level.
  - Minumum 3" of clearance is required on all sides of the SPU unit.

### SPU Closet Dimensions - Rear Installation

#### Instructions:

To find the minimum closet depth (dimension "C"), use the following method:

Determine dimension "A" which is the total finished wall thickness.

Outside Wall

- For 5"-8" outside wall thickness, subtract "A" from 29". ("C" = 29 - "A")

- For 8"-12" outside wall thickness, subtract "A" from 33". ("C" = 33 "A")
- For 12"-15" outside wall thickness, subtract "A" from 36". ("C" = 36 - "A")



### SPU Closet Dimensions - Side Installation



To find the minimum closet depth (dimension "C"), use the following method:

Determine dimension "A" which is the total finished wall thickness.

- For 5"-8" outside wall thickness, subtract "A" from 39". ("C" = 39 "A")
- For 8"-12" outside wall thickness, subtract "A" from 43". ("C" = 43 "A")
- For 12"-15" outside wall thickness, subtract "A" from 46". ("C" = 46 "A")

#### Notes:

27" min.

1. Sleeve rough-in opening is 44"(H) X 21-5/8"(W).

Wall Sleeve

SPU

UNIT

12" min.

0. 0. 0. 0. 0. 0. 0. 0.

- 2. Bottom of opening should be approx. 6" above floor level.
- 3. Minumum 3" of clearance is required on the sides of the SPU unit and 12" clearance on the rear of the unit .

ACCESSORIE	ACCESSORIES (sleeve, louver, and thermostat required for each installation)										
СОМР	ONENT	D	ESCRIPTION	DIMENSIONS (HXWXD)	PART NUMBER	SHIP WT. (EA.)					
		For	5" - 8" thick walls	43-3/4 X 21-3/8 X 26	936-1B	59 (4)					
	REAR	For 8	3" - 12" thick walls	43-3/4 X 21-3/8 X 30	936-2B	63 (4)					
	INSTALL	For 1	2" - 15" thick walls	43-3/4 X 21-3/8 X 33	936-3B	68 (4)					
WALL		For 1	5" - 20" thick walls	43-3/4 X 21-3/8 X 38	936-4B	75 (4)					
(2)		For	5" - 8" thick walls	43-3/4 X 21-3/8 X 26	936-11B	58 (4)					
		For 8	3" - 12" thick walls	43-3/4 X 21-3/8 X 30	936-12B	68 (4)					
	(3)	For 1	2" - 15" thick walls	43-3/4 X 21-3/8 X 33	936-13B	73 (4)					
		For 1	5" - 20" thick walls	43-3/4 X 21-3/8 X 38	936-14B	74 (4)					
			Painted (to match custom color)	44 X 22	G205S (1)	12					
ARCHITE LOU	ECTURAL IVER		Primer Coated (for field painting)	44 X 22	G205P	12					
THERMOSTATS			Straight Cool (24V) Digital cool - off - heat, auto-on	4-5/8 X 5	Т630						
			Heat Pump (24V) Digital w/emergency heat cool - off - heat, auto - on	4-5/8 X 5	T621-HP						

#### NOTES:

(1) "S" indicates custom color, to be provided by customer. Minimum order quantity is 20 per color.

(2) Rear install application provides better access to the SPU unit and is recommended over "side install" wherever possible.

(3) Side install application requires different closet size and configuration. (See P.7) Contact factory for further information.

(4) All wall sleeves are shipped two (2) per carton.

OPTIONAL ACCESSORIES (field installed)										
COMPONENT	DESCRIPTION	DIMEN (H )	PART NUMBER	SHIP WT.						
		FRAME	OPENING							
	LOUVERED (1)	87 X 31	84 X 28	931-11	40					
ACCESS / RETURN	NON-LOUVERED (2)	87 X 31	84 X 28	931-12						
	LOUVERED (1)	82 X 31	79 X 28	931-13	40					
	NON-LOUVERED (2)	82 X 31	79 X 28	931-14	40					
CONDENSATE FLOAT SWITCH	FLOAT SWITCH CLIF (MUST BE INSTALLE	PS ONTO EVAP ED BEFORE UN SLEEVE)	. DRAIN PAN IIT IS SET IN	E306						

### NOTES:

(1) Includes 20 x 24 x 1 filter.

(2) Requires external return air grille and unit mount filter.

(3) Both panels are insulated for sound reduction and have tamperproof screws.

(4) Panels are shipped ten per carton.







