STEFFES
Heating Systems

COMFORT PLUS

CENTRALLY DUCTED OFF-PEAK HEATING

MANUFACTURED IN NORTH AMERICA

COMFORT PLUS

The World's Most Advanced Furnace and Air Handling System

Off-Peak Heating

The Steffes Comfort Plus Series heating systems are a type of Electric Thermal Storage (ETS) equipment which utilize low cost, off-peak electricity to provide economical and comfortable heating. ETS systems convert electricity to heat during off-peak hours and store that heat in specially designed ceramic bricks. Off-peak hours are those times during the day or night when electricity is plentiful and the electric power company can supply it at a lower cost. Power companies generally offer substantial discounts in rates (up to 40% or greater), for electricity used during off-peak hours. With this rate discount, consumers can realize significant savings in their energy bills when compared to alternative heating options.

Applications

- Newly constructed homes or replacement of existing furnaces.
- Use as a stand-alone furnace or as a supplement to other heating systems, such as heat pumps.
- Can accommodate most auxiliary devices such as an air conditioner, central humidifier, electronic air filter, heat pump, etc.

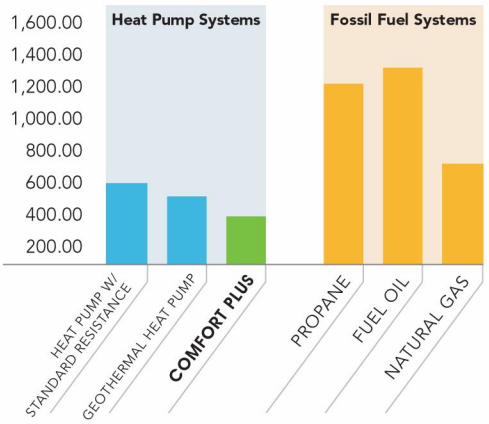
Heat Pump Booster

Heat pumps are known for providing very efficient, low cost heating and cooling. However, during colder outdoor temperatures, traditional heat pumps often times do not deliver acceptable comfort. With the Steffes Comfort Plus unit, you can be assured good comfort while optimizing the heat pump's efficiency. As replacement to the electric resistance strip heat, which is typically used to supplement or back-up heat pump systems, the Comfort Plus unit adds the precise amount of off-peak, stored heat needed

Typical Annual Heating Costs Example

(based on a 45,000 BTU/hr heat loss home)

Annual costs in your area will vary depending on climate, electric rates, heating fuel costs, etc.



to ensure constant, even and comfortable air is being delivered 24 hours a day. During on-peak hours or when the demand for heat is at the point where the heat pump's capacity alone cannot satisfy the heating requirements, the Comfort Plus unit uses its stored, off-peak heat to supplement the heat pump output.

The Comfort Plus/Heat Pump system offers many significant benefits:

- Provides for a high efficiency, low cost heating and cooling system all in one.
- Optimizes system performance by allowing the heat pump's efficiency to be fully utilized.
- Eliminates cool and uncomfortable discharge air temperatures associated with heat pump systems during cool outdoor temperatures.

Utilizing a Comfort Plus unit with a heat pump, in conjunction with an off-peak electric rate, has proven to be one of the most economical heating and cooling systems available.

Operation

Operation of the Comfort Plus is completely automatic. A sensor monitors outdoor temperature to regulate the amount of heat the system stores in its brick core. The room thermostat, along with the duct sensor in the Comfort Plus, controls heat delivery to ensure a warm and comfortable room temperature 24 hours a day.

Variable Speed Blower

The variable speed ECM blower system provides exceptional benefits:

- Substantially lower energy consumption and operating costs as compared to standard blowers
- Quiet operation with automatic ramp up and down speed control
- Interfaces with multi-speed air conditioners and heat pumps
- In "Fan Only" mode, blower operates in low speed providing uniform air circulation and constant air filtration.
- Improved humidity control
- Money-saving energy efficiency all year long.

Green Power and Smart Grid Ready

Comfort Plus systems are environmentally friendly solutions for today and tomorrow. They have the ability to respond to real-time-pricing, load and demand management, alternative energy, frequency control and other signals available from power companies. The energy storage ability of Steffes ETS heaters allows them to serve as a "Thermal Battery" to harness power from various renewable generation sources such as wind and solar.

COMPONENTS OF A COMFORT PLUS

1 Return Air Plenum
3100: provided with unit
(right side mounting only)
4100: separately ordered or installer supplied
(right or left side mounting)

2 Return Air Inlet

3 Air Conditioner or Heat Pump Indoor Coil
(installer supplied)

4 Air Filter
(Provided with return air plenum.)

5 Supply Air Outlet
(4100: bottom right or left side)

6 Insulation
Super-insulated to ensure low surface temperatures along with a doublewall cabinet design to minimize static heating.

7 Circuit Breakers
Element and controls circuit breakers are built in to every system to eliminate the need for a separate service disconnect.

8 Microprocessor Control Panel and Operating Display
This state-of-the-art, intelligent control system provides complete programmability of the system to allow for customization to user and power company immediate and future needs, as well as diagnostic testing through the operating display panel.

9 Heating Elements
Incoloy sheathed, low-watt density for long life.

10 Heat Storage Bricks
Specially designed to store vast amounts of heat for use 24 hours a day.

11 Electrical Compartment

12 Supply Air Blower
High efficiency ECM variable speed provides great comfort and cost savings.

3100 SERIES

OTHER FEATURES

- Built-in powerline carrier communication system.
- Selectable freeze protection.
- Built-in auxiliary load control ability for regulation of other electric loads such as a water heater.
- Time clock module for peak control signaling purposes *(optional)*.
- Completely automatic, making it extremely easy to operate.
- No routine maintenance necessary.

WARRANTY

Steffes Corporation proudly offers product warranties. The heating system is covered by a five-year limited parts warranty

SPECIFICATIONS *for standard 240V units*

208V, 277V, and 347V configurations also available. Contact factory for technical specifications.

1kW = 3412 BTU/hr 1kWh = 3412 BTU **US Pat #5086493 • Canada Pat #2059158**

MODEL	3120			4120			4130		4140	
Charging Input	14.0 kW	17.5 kW	21.6 kW	14.0 kW	19.2 kW	24.8 kW	28.8 kW	37.2 kW	38.4 kW	45.6 kW
Element Current Draw	59 amps	73 amps	90 amps	59 amps	80 amps	104 amps	120 amps	155 amps	160 amps	190 amps
Circuits Required										
Elements	2-40 amps	2-50 amps	2-60 amps	3-30 amps	3-40 amps	3-50 amps	4-40 amps	4-50 amps	4-50 amps	4-60 amps
Blowers/Control	1-15 amp *(6 amps maximum load)*			1-15 amp *(7 amps maximum load)*						
	Unit is factory-configured with multiple-line voltage, single-phase circuit connections. If single feed to the element and blowers/controls circuits is desired, an optional single-feed kit is available. Phase-balancing is recommended when making connections in 3-phase applications.									
Storage Capacity	86 kWh (293,432 BTU)			120 kWh (409,440 BTU)			180 kWh (614,160 BTU)		240 kWh (818,880 BTU)	
	The size and heating ability of the system required for an application is dependent on the heat loss of the area and the power company's off-peak hours. Refer to the Maximum Maintainable Heat Loss for heating abilities in specific charge strategies.									
Approximate Installed Weight	1,562 lbs			2,183 lbs			3,031 lbs		3,859 lbs	
	Contact a building contractor or architect if you have structural weight concerns of the installation surface selected. Adhere to all national and local electrical and building code placement requirements for electric heating appliances.									
Unit Dimensions - W x D x H										
w/o Ducting	41.6" x 27" x 60"			29.2" x 44.7" x 46.6"			29.2" x 44.7" x 57.6"		29.2" x 44.7" x 68.6"	
w/ Factory-Built Ducting (1/2 HP)	63" x 27" x 60"			77.7" x 44.7" x 46.6"			77.7" x 44.7" x 57.6"		72.8" x 44.7" x 68.6"	
w/ Factory-Built Ducting (1 HP)	N/A			82.2" x 44.7" x 46.6"			82.2" x 44.7" x 57.6"		77.3" x 44.7" x 68.6"	
	There are required installation clearances to account for. Contact the factory for this information.									
Duct Openings										
Supply Air Outlet (1/2 HP)	10.1" x 16"			18" x 22.6" (in factory-built plenum)						
Supply Air Outlet (1 HP)	N/A			22.5" x 22.6" (in factory-built plenum)						
Return Air Inlet	21.4" x 21.4" (in factory-built plenum)			10.5" x 22.3" (in unit) or 26 1/16" x 22 3/16" (if using a factory-built plenum)						
Maximum Coil Dimensions (W x D x H)	26" x 22 1/16" x 30 15/16"									
	The factory-built return air plenum is configured for housing an indoor coil. Dimensions listed are that of the inner coil area in this plenum. For larger coils, field provisions to the plenum are necessary or it will need to be supplied by the installer.									
Supply Air Delivery (Field Selectable)										
1/2 HP Variable Speed CFM ratings	1000, 1200, 1400, 1600			1000, 1200, 1400, 1600						
1 HP Variable Speed CFM ratings	N/A			1200, 1400, 1600, 2000						
Heating Ability Based on Charge Time (BTU/hr)										
8 Consecutive Charge Hours	20,414	23,512	23,512	20,414	27,996	32,808	41,994	49,212	55,992	65,615
12 Consecutive Charge Hours	30,621	31,350	31,350	30,621	41,994	43,774	62,991	65,615	83,988	87,487
6/4/6/8 Charge Strategy	30,621	38,276	47,097	30,621	41,994	54,242	62,991	81,363	83,988	99,735
	The size and heating ability of the system required for an application is dependent on the heat loss of the area and the power company's off-peak hours. If the unit is not installed within the heated area, heat lost statically must be taken into account. Contact your local power company, a contractor, or Steffes Corporation for assistance in selecting an appropriately sized system for your specific charge strategy. The 6/4/6/8 strategy listed is 8 hours off-peak at night plus 4 hours off-peak mid-day. (The Heating Ability figures listed have a heat use allowance factored in for sizing purposes. Average BTU delivery rate is the listed value multiplied by .78 heat use factor.)									

STEFFES Heating Systems
"Commitment to Innovation"
ISO 9001 COMPLIANT

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