

GROWER TIPS

SELECTING YOUR FUEL

Selecting your heater and fuel will largely depend on fuels available in your area. The following are pros and cons of the most common fuels.

NATURAL GAS FUEL

Natural Gas has proven to be most popular when available because of its low cost and reliability. Natural gas burns clean and efficiently. Heating equipment generally costs the same or less than similar equipment for other fuels. Heater maintenance is usually minimal and few things can go wrong.

LIQUID PROPANE GAS

Liquid Propane (L.P.) gas is the most popular fuel because of its availability. L.P. gas typically costs more than oil and natural gas because it does not have the high BTU value of the others. Equipment costs are low and maintenance is usually minimal because L.P. fuel is clean burning. Room must be allotted for tank storage. L.P. will be subject to fluctuating price during growing seasons.

OIL FUEL

Oil fuel has the highest BTU value. It provides the most value for the money and is more popular in harsh climates. Like L.P. gas, oil is readily available in all areas. Unlike the gas fuels, oil does not burn cleanly and therefore requires more maintenance. Furnaces have a tendency of costing more. Price fluctuation is not as much as L.P. gas but more than natural gas prices. Oil tank storage is the responsibility of the owner and subject to state and federal environmental regulations.

BTU VALUES

FUEL	BTU VALUE
OIL	140,000 BTU/gal
LIQUID PROPANE	91,600 BTU/gal
NATURAL GAS	85,000 btu/ft ³

SELECTING YOUR HEATER

Selecting your heater will depend largely on the size greenhouse you want to heat and the cost of purchasing and installing this system.

Hot Water and Steam Systems

Hot water and steam systems are most popular in greenhouse ranges over one acre. These systems are quite efficient and economical in operation. They are more expensive in initial cost because 1. equipment costs are high and a minimum of two boilers are needed and 2. installation of materials such as pipe, fin tubing, etc is labor intensive. Typically these units use fuel oil and natural gas.

HOT AIR SYSTEMS

Hot air system heaters are the most commonly used equipment in most greenhouse applications. These units are economically priced and have high efficiency ratings up to 81%. Two units are recommended for single greenhouse applications so a back up unit is available in case of a malfunction in the primary unit. Typically the secondary heater will also fire in conjunction with the primary heater when heating requires additional supplemental heat. This is normally accomplished by using a single stage thermostat for each heater with one being set 3-4° higher than the other. There are three types of hot air heater:

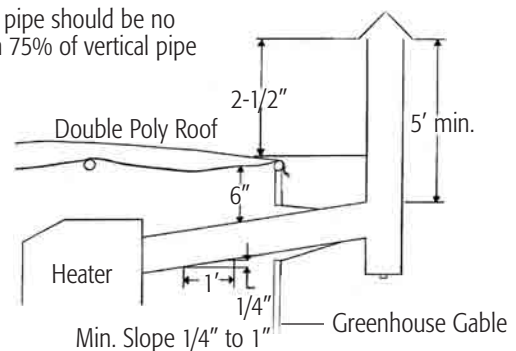
Gravity Flow heaters use the greenhouse air to produce oxygen for combustion. The combusted air and fumes naturally rise up through the heat exchanger, through the stove pipe and out of the greenhouse. When installing stove pipe remember: 1. The horizontal run of pipe through the greenhouse gable end should not be longer than 75% of the vertical height of the pipe outside the greenhouse. 2. The end of the pipe outside the greenhouse should be 2-1/2 feet above the greenhouse roof. These two rules should insure proper venting of gravity flow heaters.

Power Vented heaters use inside air for combustion like gravity flow heaters. The combusted air and fumes are pulled through the heat exchanger by an electric motor and discharged out of the greenhouse. When venting, all that is needed is a horizontal run of pipe through the gable end wall. No vertical pipe is needed once outside the greenhouse. Gravity flow venting can also be used for power vented heaters.

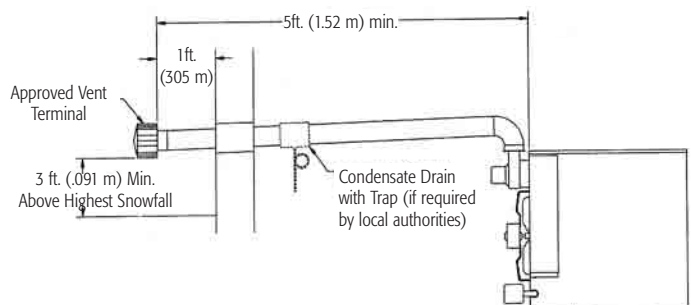
Separate Combustion Chamber heaters are similar to power vented heaters because they have a power venter to discharge combusted air and fumes outside. These heaters are different because they use outside fresh air for the combustion process made available by a separate vented pipe. The advantages of fresh air combustion are higher efficiency, cleaner combustion and longer heater life. Concentric vent kits recommended.

VENTING FOR GRAVITY FLOW HEATERS

Horizontal pipe should be no longer than 75% of vertical pipe length.



VENTING FOR POWER VENTED HEATERS



GREENGRO™ PLUS HEATERS



The GreenGro's advanced, clean burning design offers 20% better fuel efficiency than traditional vented heaters. The GreenGro converts 99+% of its fuel into clean heat energy. They also deliver all the benefits of a highly efficient CO2 generator, providing 1250 ppm concentration in only 15 minutes of full output. All delivered through an advanced, clean burning design that outperforms all U.S. greenhouse combustion and safety standards for CO, NO2, CO2 and ethylene.

ALL GREENGRO PLUS HEATERS INCLUDE:

- Dependable, fuel efficient spark ignition.
- Quick response, on-demand heat.
- Powerful long reaching blower fan.
- Easy integration with building controls.
- Two stage temperature control.
- Heating and air circulation modes.
- Tri-Shield triple coated protection against case corrosion.

FEATURES:

- Easy to install outdoor mounting kit saves growing space.
- Efficient cabinet design offers multiple indoor location options.
- Optional installation/ventilation kits and optional thermostat kit.
- Safety features include a totally enclosed flame, built-in temperature protection and air flow safety devices.
- One-year product warranty plus a 10-year warranty against heat chamber and case corrosion.

VENTILATION REQUIREMENTS

All heaters require ventilation for proper operation. The L.B. White GreenGro is no different. The GreenGro requires 2.5 CFM per 1000 Btu/h of air exchange. For a GreenGro 220, this translates to 550 CFM of air exchange for an indoor installation, and 220 square inches of exit area for an outside mount. Similarly, a GreenGro 120 requires 300 CFM per indoor mount, and 120 square inches of exit area per outdoor mount. To make installation easy, L.B. White offers several pre-assembled ventilation equipment packages. Or, you can purchase your own ventilation equipment. Either way, the ventilation is required for maximum performance.

HEATER SPECIFICATIONS		
BTU/H RATING (INPUT/OUTPUT):	Max. 120,000	220,000
Intermediate	65,000	120,000
HEATER CONFIGURATION:		
Direct Spark Ignition	Yes	Yes
Centrifugal Blower Fan	Yes	Yes
AIR MOVEMENT (CFM):	1,100	1,750
HEAT/AIR CIRCULATION SWITCH:	Yes	Yes
INLET GAS SUPPLY PRESSURE:		
Propane min./max. (in. w.c.)	11 / 13.5	11 / 13.5
Natural Gas min./max. (in. w.c.)	7 / 11	7 / 11
FUEL CONSUMPTION (LBS./HR.) MAX / INTERMEDIATE:		
Liquid Propane Gas (lbs./hr.)	5.6 / 3.0	10.2 / 5.6
Natural Gas (cu. ft./hr.)	120/ 65.0	220.0 /120
ELECTRICAL REQUIREMENTS (VOLTS/HZ/PHASE):	115/60/1	230/60/1
Starting / Continuous Amps	11.8/4.5	6.7/2.6
MINIMUM AIR EXCHANGE REQUIREMENTS:		
Indoor Installation (cu. ft./min.)	300	550
Outdoor Installation (in2 of exit area)	120	220
AIR TEMPERATURE RISE (DEGREES FAHRENHEIT):	110	120
MIN. CLEARANCE (FT.):		
Top/Sides/Back	1/1/1	1/1/1
Blower Outlet	6	6

120 INDOOR INST./VENT. KIT:

- 115 Volt, 1 phase Motorized Inlet Shutter (required wall opening - 13-3/8"x13-3/8")
- 10" Shuttered Exhaust Fan (115 volt, 1 phase, 1/30 motor HP; required wall opening - 15-1/2"x15-1/2").
- Includes eyebolts and chains.

120 OUTDOOR INST./VENT. KIT:

- Exhaust Shutter (required wall opening - 10-1/2"x10-1/2").
- Includes outdoor mount kit.

220 INDOOR INST./VENT. KIT:

- 115 Volt, 1 phase Motorized Inlet Shutter (required wall opening - 15-1/2"x15-1/2")
- 10" Shuttered Exhaust Fan (115 volt, 1 phase, 1/30 motor HP; required wall opening - 110-1/4"x10-1/4").
- Includes eyebolts and chains.

120 INDOOR INST./VENT. KIT:

- Exhaust Shutter (required wall opening - 14-1/2"x14-1/2").
- Includes outdoor mount kit.



Stock No.	Description	LxWxH	Weight	Price
265-8GG120P	GreenGro 120 Plus LP Gas Heater	30.75x18.25x28.25	116	\$1145.00
265-8GG120NP	GreenGro 120N Plus Natural Gas Heater	30.75x18.25x28.25	116	1145.00
265-8GG220P	GreenGro 220 Plus LP Gas Heater	36x22x30	150	1481.00
265-8GG220NP	GreenGro 220N Plus Natural Gas Heater	36x22x30	150	1481.00
265-8GG120OK	GreenGro 120 Installation/Vent Outdoor Kit #24690		40	281.00
265-8GG220OK	GreenGro 220 Installation/Vent Outdoor Kit #24688		50	315.00
265-8GG23778	Thermostat Kit, 2 Stage Nema 4X			109.00

**When ordering GreenGro 220 models please specify 115 or 230 volt.*





TUBULAR GAS FIRED UNIT HEATERS



The Sterling Model "TF" gas-fired unit heater offers a highly efficient, extremely durable alternative to the traditional clam shell design. These propeller type units combine the latest tubular heat exchanger and in shot burner technology with the quality and reliability you have come to know from Sterling.

Standard energy saving features like the DSI (Direct Spark Ignition) and power venting reduces standby losses and offers improved seasonal efficiencies. The Model "TF" is certified by ETL as providing over 80% thermal (combustion) efficiency.

The Sterling tubular heat exchanger has been designed to provide maximum and uniform heat transfer. The low pressure drop associated with this design enables heated air to be evenly distributed to the conditioned space. This curved, non-welded serpentine design experiences less thermally induced stress making it highly durable for significantly longer service life. All Sterling tubular heat exchangers are constructed of heavy duty 20-gauge aluminized steel.

Sterling Low Profile Model "TF" unit heater is ETL certified in accordance with categories I and III venting requirements. Category I enables the unit to be vented vertically with either single or double wall venting material. Category III allows for horizontal venting utilizing single wall venting material.

Sterling warrants the heat exchanger, flue collector and burners of the Model "TF" to be free from defects in materials and workmanship for a period of 10 years from the date of manufacture.

The Sterling "Garage Guy" is a low profile gas unit heater that has all of the same features and benefits as the Sterling "TF" series heaters plus more! All units are built with a proprietary single orifice burner system making only one burner to service when needed. GG units are agency certified for both standard and separate combustion venting. With the Sterling concentric vent kit, the unit can be installed as a separate combustion unit.



"GG" & "TF" TUBULAR PROPELLER GAS-FIRED UNIT HEATER

Stock No.	Input	Output	Thermal Efficiency	CFM	Air Temp. Rise (F)	Motor H.P.	RPM	AMP's @ 115V	Flue Size	Wt. Lbs.	Price
265-9RF060S	60,000	48,600	82%	740	60	1/12	1050	2.6	4"	92	\$694.00
265-9RF105S	105,000	85,050	82%	1,300	60	1/10	1050	4.2	5"	145	904.11
265-9TF150S	150,000	121,500	81%	2400	47	1/4	1140	4.7	5"	195	892.00
265-9TF175S	175,000	141,750	81%	2850	46	1/3	1140	5.8	5"	241	1013.00
265-9TF200S	200,000	162,000	81%	3200	47	1/3	1140	5.8	5"	251	1104.00
265-9TF250S	250,000	202,500	81%	3450	54	1/3	1140	5.8	5"	261	1215.00
265-9TF300S	300,000	243,000	81%	5000	45	(2) 1/4	1140	9.4	6"	367	1433.00
265-9TF350S	350,000	283,500	81%	5600	47	(2) 1/3	1140	11.6	6"	381	1707.00
265-9TF400S	400,000	324,000	81%	5800	51	(2) 1/3	1140	11.6	6"	395	1794.00

409 stainless steel heat exchanger available, add 25% to prices listed. Above units are Natural Gas, for LP Gas a LP Conversion Kit is necessary. F.O.B. North Carolina. Call for current availability of stock items. Quantity discounts available.

STOVE PIPE KITS

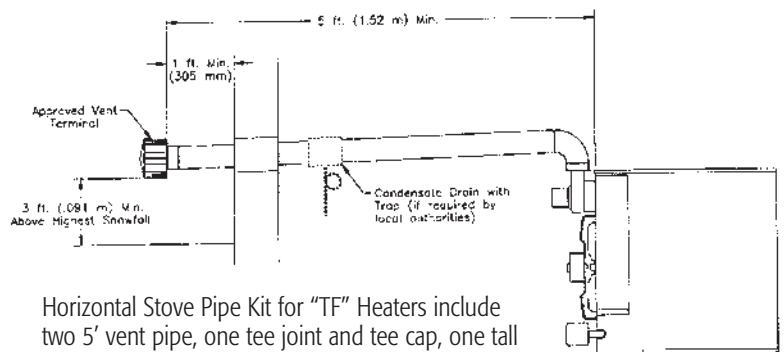
Stock No.	Description	Price
SINGLE WALL		
265-2SPK11TF	4" (30,000 - 90,000)	\$73.98
265-2SPK12TF	5" (100,000 - 250,000)	90.93
265-2SPK13TF	6" (300,000 - 400,000)	103.01
DOUBLE WALL "B-VENT"		
265-2SPK16TFD	4" (60,000)	\$222.42
265-2SPK15TFD	5" (105,000 - 250,000)	306.45
265-2SPK14TFD	6" (300,000 - 400,000)	420.75

CONVERSION KITS NATURAL GAS TO LP GAS

Stock No.	Description	Price
2651096	For CG 60,000	\$38.08
2651097	For CG 105,000	38.08
2651098	For TF 105,000 - 400,000	64.13

GARAGE GUY CONCENTRIC/VENT KITS (FOR SEPARATE COMBUSTION)

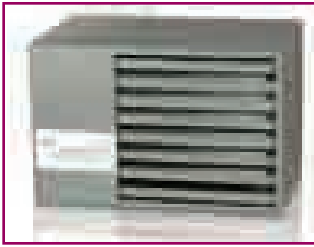
Stock No.	Description	Price
2651078	GG 60,000 X7-4	\$275.55
2351079	GG 105,000 X7-5	450.90



Horizontal Stove Pipe Kit for "TF" Heaters include two 5' vent pipe, one tee joint and tee cap, one tall cone flashing and one chimney cap.

GAS FIRED SEPARATED COMBUSTION UNIT HEATERS

MODINE EFFINITY 93



At 93% thermal efficiency for all model sizes, Modine's Effinity93 condensing unit heater features the highest efficiency available in North America for commercial and industrial gas-fired unit heaters. This industry leading efficiency is a result of the coupling of our Conservicore™ secondary heat exchanger technology with our robust tubular primary heat exchanger design. The Conservicore™ technology features a secondary recuperative heat exchanger fabricated from AL29-4C® stainless steel. This material is superior to other lower grades of stainless steel and aluminum, resulting in outstanding ability to withstand the corrosive environment of condensing gas fired equipment.

Available in six model sizes with input ranges from 135,000 to 310,000 Btu/Hr, Modine offers application flexibility unmatched in the industry. The separated combustion units draw combustion air from outside to ensure that the unit will always have plenty of fresh, clean air for combustion while increasing the overall heating efficiency. Venting material to be used is PVC or CPVC, an extremely cost effective vent system.

Model No.	BTU Input	BTU Output	Thermal Efficiency	CFM	Air Temp Rise	Motor HP	Wt Lb	Price	Concentric Horizontal	Vent Kit# Vertical
PTC135 A/S	135,000	125,550	93%	2160	54	1/3	165	\$3,418.00	57913	57919
PTC135 S/S	135,000	125,550	93%	2160	54	1/3	165	3,820.00	57913	57919
PTC155 A/S	155,000	144,150	93%	2510	53	1/3	165	3,527.00	57914	57920
PTC155 S/S	155,000	144,150	93%	2510	53	1/3	165	3,960.00	57914	57920
PTC180 A/S	180,000	167,400	93%	320	51	1/3	215	3,636.00	57915	57921
PTC180 S/S	180,000	167,400	93%	320	51	1/3	215	4,099.00	57915	57921
PTC215 A/S	215,000	199,950	93%	3865	48	1/2	265	4,152.00	57916	57922
PTC215 S/S	215,000	199,950	93%	3865	48	1/2	265	4,747.00	57916	57922
PTC260 A/S	260,000	241,800	93%	4585	49	3/4	265	4,357.00	57917	57923
PTC260 S/S	260,000	241,800	93%	4585	49	3/4	265	5,030.00	57917	57923
PTC310 A/S	310,000	288,300	93%	5400	49	3/4	310	5,329.00	57918	57924
PTC310 S/S	310,000	288,300	93%	5400	49	3/4	310	6,300.00	57918	57924
Horizontal concentric Vent Kit								269.00		
Vertical Concentric Vent kit								336.00		



Note: A/S= Aluminumized Steel Heat exchanger; S/S= Stainless Steel Heat exchanger. Please specify natural gas or propane when ordering. F.O.B. Manufacturer.

HOTZONE RADIANT HEATERS



The Hottest and only true spot heater on the market!

Focus heat where you need it and with the only true infrared spot heater on the market - the HotZone® heater. The HotZone® heater features high-intensity infrared sources and the patented lobster-eye IRLens™ which focuses 3 to 5 times more infrared energy into the center of the beam than heaters without lenses. This revolutionary design makes HotZone® the most energy-efficient infrared heater on the market today for indoor and outdoor applications heating only objects and not spaces.

HotZone® radiant heaters are different from other infrared heaters on the market in one very fundamental way - the IRLens™. The IRLens™ is an exclusive, unique and patented "lens" that is fitted on HotZone heaters. The revolutionary design of the IRLens™ captures the majority of the infrared wasted by ALL other heaters on the market and FOCUSES it on a targeted area or zone...thus spot heating it! As a result, the HotZone® can:

- Increase delivered heat by 300-500%.
- Attain up to a 20 degree increase in zone temperature.
- Reduce total heating costs by 50% or more.
- Compact and lightweight.
- Full heat in three minutes.
- Increased reliability - no moving parts.
- Wind does not affect radiant heat.
- Doesn't heat areas that don't need it.

Stock No.	Model	Description	Price
2651610	HZE15120SU	1500W Radiant Heater w/ wall mount	\$379.06
2651615	HZE15120SP	1500W 120V Radiant Heater w/ stand	\$569.06

Larger units available upon request.





OIL HEATERS HEATMASTER CLASSIC

FEATURES:

- All controls are wired for installation.
- Electric welded steel construction.
- Adjustable air shutter on burner for better efficiency.
- Designed to work with a horizontal air flow pattern in large buildings.
- High fuel efficiency.
- Home quiet blower.

INCLUDES:

- Single stage oil pump (10' lift).
- 55° thermostat.
- 12" heat distribution elbows.
- Shielded cad cell flame sensor.
- Summer fan switch.
- Flame retention burner.
- Barometric damper.
- Breaker disconnect box.
- Fully guarded blower assembly.
- Energy efficient fan motor.



Stock No.	Item	BTU Input	Gal. Hr.	Width	Overall Length	Height	Vent Pipe	Ship Weight	Price
265-60125HMS	HM125	125,000	.85	23"	70"	37"	6"	500 lbs.	\$5637.50
265-60203HMS	HM203	200,000	1.25	26"	77"	41"	8"	640 lbs.	6850.00
265-61HM304S	HM304	300,000	2.00	31"	88"	41"	8"	840 lbs.	7525.00
265-60404HMS	HM404	400,000	2.75	47"	87"	45"	8"	1000 lbs.	8775.00

QUANTUM OIL

FEATURES:

- All controls are wired for installation.
- Lightweight design offers versatile mounting options (ceiling or floor).
- Designed to work with a horizontal air flow pattern in large buildings.
- High fuel efficiency.

INCLUDES:

- Single stage oil pump (10' lift).
- 55° thermostat.
- Shielded cad cell flame sensor.
- Fan and limit control switch.
- Breaker disconnect box.
- Adjustable outlet louvers.
- Finger protective fan guard.
- Hanger adaptable hooks on case.
- 1/3 H.P. capacitor start fan motor.
- 24" 4-blade "Quite Quiet" fan.



ROYAL OIL

FEATURES:

- All controls are wired for installation.
- Stainless steel baffling.
- Adjustable air shutter on burner for better efficiency.
- Designed to work with a horizontal air flow pattern in large buildings.
- High fuel efficiency.
- Home quiet blower.

INCLUDES:

- Single stage oil pump (10' lift).
- 55° thermostat.
- Cad cell flame sensor.
- Summer fan switch.
- Barometric damper.
- Breaker disconnect box.
- Fully guarded blower assembly.
- Energy efficient fan motor.



Call for more information and pricing. F.O.B. Iowa.

PORTABLE HEATER "Pull 'N Heat"

FEATURES:

- Narrow design fits through 30" doorway.
- On board thermostat for easy temperature control.
- Chimney vent for use in situations where more than 8 hours of use is required.

INCLUDES:

- Fuel tank for up to 24 hours of heating.
- Cad cell flame sensor on burner.
- Large 16" rear wheels.
- Front balloon tires for easy maneuvering.
- 120 volt for easy generator application.



Call for more information and pricing. F.O.B. Iowa.

GAS HEATERS

QUANTUM GAS

FEATURES:

- All controls are wired for installation.
- Lightweight design offers versatile mounting options (ceiling or floor).
- Designed to work with a horizontal air flow pattern in large buildings.
- No sensitive ignition controls to get wet.
- High fuel efficiency (78%+).
- Both LP and natural gas models.

INCLUDES:

- 55° thermostat.
- Fan and limit control switch.
- Breaker disconnect box.
- Draft hood.
- Adjustable outlet louvers.
- Finger protective fan guard.
- Hanger adaptable hooks on case.
- Capacitor start fan motor.
- 24" 4-blade "Quite Quiet" fan.
- Brass pre-sized burner jets.
- Cast iron "Long Life" burner.



Call for more information and pricing. Also available, an AMISH 180,000 BTU Gas Heater, call for further information. F.O.B Iowa.



ROYAL GAS

FEATURES:

- Jet/Vortex combustion design.
- Easy-out burner service tray.
- Horizontally direct air flow pattern.
- Jets are easily cleaned to ensure no plugging.
- Can be used for under bench heating.

INCLUDES:

- Draft diverter.
- Stainless steel baffling.
- 3/4 or 1 H.P. energy efficient blower motor.



WASTE OIL HEATERS

HEATWAVE MODEL 150 HEATWAVE MODEL 250 HEATWAVE MODEL 350



THE 150,000 BTU HEATWAVE WASTE OIL FURNACE OFFERS:

- Cleaning access from both sides.
- A fully assembled unit, ready to set into place.
- Hourly fuel usage of 1.10 gallons.
- A blower that pushes air approximately 40-50 feet and gives a temperature rise of 70 degrees.
- A unit that will heat a 1500-2000 sq. ft. at - 10 degrees and hold a 65 degree indoor temperature.
- Maximum square footage - 5,000.
- Shipping weight 540 lbs.
- Dimensions: 70"L x 42"W x 40"H.



THE 250,000 BTU HEATWAVE WASTE OIL FURNACE OFFERS:

- 1.75 gallons of oil per hour.
- A unit that will heat a 2000-2700 sq. ft. at -10 degrees and hold a 65 degree indoor temperature.
- Easy cleaning access from both sides.
- Tank and stand available.
- Maximum square footage - 12,000.
- Shipping weight 820 lbs.
- Dimensions: 80"L x 45" W x 47"H.



THE 350,000 BTU HEATWAVE WASTE OIL FURNACE OFFERS:

- Cleaning access from both sides.
- A top-mounted blower equipped w/an energy efficient motor, offering a 40% energy saving.
- Heat that can be piped or used most preferably as a horizontal air heat source for large buildings 40' x 80' in-10 to 65 degree interior temperatures.
- 2.75 gallons of waste oil per hour.
- Maximum square footage - 15,000.
- Shipping weight 1080 lbs.
- Dimensions: 74"L x 43" W x 85"H.

Call for more information and pricing. F.O.B Iowa.



DELTA-BENCH™ PACKAGED PROPAGATION SYSTEM

Under development for over two years, Delta Bench stands unmatched as the most comprehensive packaged propagation heating system on the market today. Using Delta Tube SD bench top tubing with one or as many as three standard water heaters, this package is ideal way to efficiently warm the soil and crops resulting in accelerating rooting and crop growth. From the small grower with only a pair of propagation benches to worry about to the large wholesale grower wanting to put hot water heating to the test before making a bigger investment, this system gets results.

This system is great for seed germination. Seed germination experts and plug producers have found that by heating the soil they achieve a higher germination rate and quicker production time. Growers find times in rooting cuttings are reduced by heating the soil directly. The Delta-Bench™ package is pre-engineered with a full set of installation instructions and drawings. It is easy for anybody to install this system.

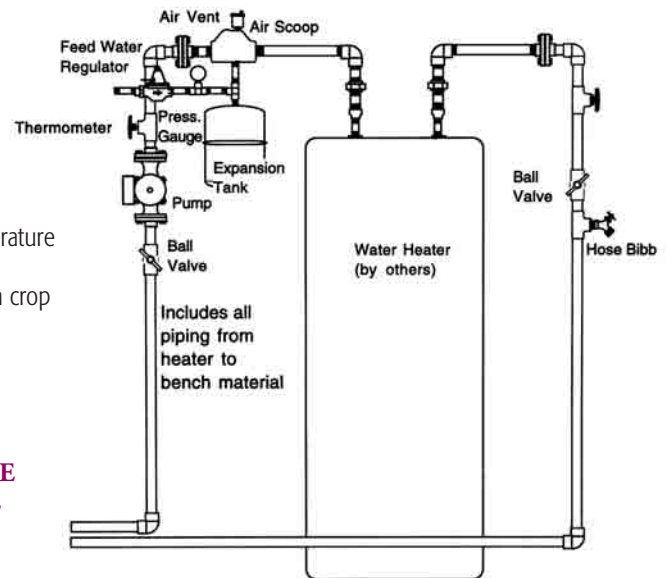
SYSTEM ADVANTAGES:

- Direct contact from tubing to root zone for maximum soil and plant temperature control.
- Even temperatures are maintained throughout the system resulting in even crop temperatures.
- Warm soil means less disease at the plant.
- Accelerated growing means more crop produced from the same area in less time.

THE DELTA T SYSTEM DELTA-BENCH PACKAGE CANNOT BE COMPARED TO ANY OTHER PROPAGATION SYSTEM SINCE THIS PACKAGE IS COMPLETE.

- Complete package means no running to the hardware store.
- Complete installation instructions makes the installation easy.
- All piping necessary to install from the water heater to the bench material up to 10' away.
- Controller has built-in digital display.
- System comes with water treatment.

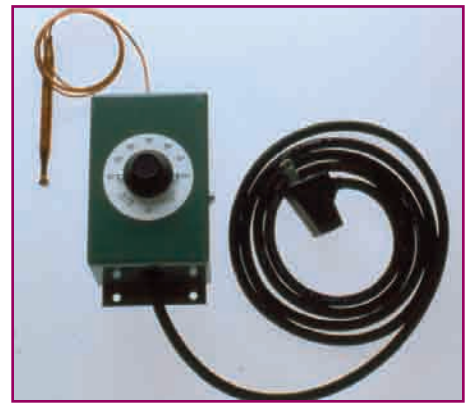
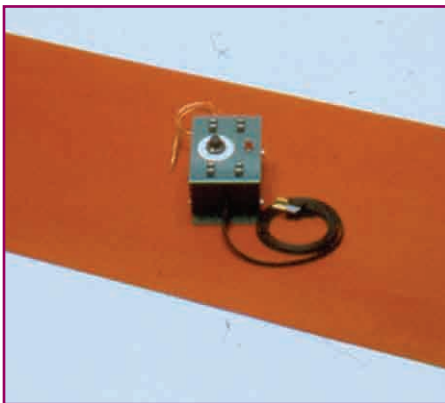
This package is complete except for the water heater: The purchase of one to three 40,000 btu/hr 40 gallon water heaters will complete the package and will provide heat for up to 1300 sq. ft. (grower supplies vent pipe, has line and feed water pipe).



Delta T Solutions

PROPAGATING MATS & THERMOSTATS

Place your flats directly on the heavy rubber mat and get even bottom heat for starting seeds and cuttings. Run the bulb into the soil at the same depth as the seeds are planted. Set the thermostat for the desired germinating temperature ranging from 40° to 100° Fahrenheit. Avoid getting cords, plugs and thermostat wet as an electrical short may occur.



Stock No.	Description	Price
265-6PM2222P	PM-2 Propagating Mat 22" x 22" - 100 watts	\$77.22
265-6PM2260P	PM-9A Propagating Mat 22" x 60" - 200 watts	144.79
265-6THMGC1P	GC-1 Thermostat - operates 2 mats - 720 watts/8 amps	74.00
265-6THMGC4P	GC-4 Thermostat - operates 4 mats - 1500 watts/12.5 amps	114.76

AGRITAPE ROOT ZONE HEATERS



Agritape is manufactured in long rolls 11 inches wide and can be cut to construct individual heaters of any length up to 24 feet. An 8' electrical cord is attached and the cut ends are sealed with liquid plastic. The coating heats up when it is electrified with standard house current (110 volts AC) and will generate heat (96°F) that is extremely uniform across the entire surface of the tape. The tape is rated 20 watts per linear foot. The best application of an Agritape System is in small seed starting and propagation operations. The system is easily installed and removed so bench space is available for other uses. The system features precise temperature control resulting in high germination rates and uniform crop development. Soil temperatures are regulated by plus or minus 1°.



Stock No.	Description	Price
26501012	Agritape - Standard Lengths 10' - 25'	\$5.36/ft.
26501011	Agritape - Custom Lengths Under 10'	6.86
26501017	Grounding Screen - Specify width (1' - 6') and length	.79/sq. ft.
26501013	11" x 4' Agritape w/12" x 4' ground screen kit	30.03
26501014	11" x 10' Agritape w/12" x 10' ground screen kit	60.06
26501015	AT-1 Control Unit (4 outlets, 20 amps, controls up to 120' Agritape)	140.14
26501016	AT-Jr. Control Unit (2 outlets, 13 amps, controls up to 80' Agritape)	127.27

F.O.B. Massachusetts. Small order charge of \$6.00 for orders under \$60.00.

PRECISE HEAT MATS

Agritape Precise Heat Mats are designed for the small commercial grower. It provides 20 watts per foot in an extremely uniform precise temperature over the entire surface. The heater consists of the Agritape heating element and a built-in adjustable dial thermostat. The control unit has a 3' capillary tube with a temperature sensor bulb to insert into the soil. A GFCI (Ground Fault Sensing) plug, which plugs into a standard wall outlet, shuts off the heater if there is any current leakage. A grounded screen is not necessary. The efficient design of this heater provides a professional quality adjustable heat source at a reasonable price. The unit is self-contained and can easily be rolled up for storage.



Stock No.	Description	Price
26501020	11" x 4' Heat Mat w/Adjustable Thermostat	\$108.68
26501021	11" x 8' Heat Mat w/Adjustable Thermostat	124.41

F.O.B. Massachusetts. Small order charge of \$6.00 for orders under \$60.00.



CARGO SPACE HEATERS

The rugged dependable Elston catalytic cargo heater is foolproof and flameless. Designed to deliver clean even heat throughout the trailer, each model features all U.S. made and approved controls and components including: safety shut-off, thermostat controls with a full 18,000 B.T.U. capacity, and manual pilot light spark ignition. Available in two models, the long range over the road double bottle CAT-900 and the single bottle CAT-700 for city pickup and delivery or cargo trailers. **THE CAT-900 AND CAT-700 MEET DOT REQUIREMENTS FOR CATALYTIC HEATERS USED WITH FLAMMABLE LIQUID AND GAS.**



Stock No.	Description	Price
265-7X7000EE	Model X-700 Cargo heater w/mounting bracket	\$1323.55
265-7X9000EE	Model X-900 Cargo heater w/mounting bracket	1562.87
265-7CAT7000	CAT-700 Catalytic space heater	1560.79
265-7CAT9000	CAT-900 Catalytic space heater	2001.23
265-7C9900EE	Adjustable Cargo Mount for all above units	365.79

F.O.B. South Dakota



The model X-900 and X-700 space heaters provide 18,000 B.T.U. input to provide trucks with maximum protection in subzero weather.

FEATURES:

- Puts heat where it is needed and controls it automatically.
- Completely portable with 20 lb. propane bottles (two for the X-900, one for the X-700, not included) in bottom heater chamber which is vented through trailer floor
- One man easily rolls heater from dock to truck and quickly mounts or unmounts as needed.
- Automatic transfer regulator.
- Burner assembly completely enclosed.
- 100% safety shutoff.
- Meets FHWA Flue-Vented Cargo Space Heater requirements.





H.A.F. CIRCULATION FANS GREEN BREEZE

The H.A.F. Circulation Fan of Tomorrow for your greenhouse Today! The Green Breeze is the only fan on the market with an Exclusive Open Front Feature. Its unique design helps cut its cleaning and maintenance by 75%. Removes dust buildup in just a minute. Open the front, clean and close. No tools, no down time. Back to full energy efficient, high output operation. This maximizes heat distribution and humidity control by mixing the air, from ceiling to floor - under, over and around your plants. Improve plant performance. Proper circulation encourages healthy plant growth by increasing CO2 availability (required for photosynthesis), reduces disease and mildew caused by excessive moisture and eliminates overheating on hot days.

FEATURES:

- Mounting Bracket mounts directly to yoke of motor to eliminate any vibration for smooth fan operation.
- Provides constant temperature and helps to eliminate hot and cold spots throughout the greenhouse.
- Corrosion resistant white powder coated fan guard.
- Specially designed guard allows more airflow for optimum air circulation and quiet operation.
- Energy Efficient, maintenance free motor with "two year warranty".
- Variable speed motors for year round air circulation.



Stock No.	Item	Size	CFM High/Low	RPM High/Low	HP	Volts	AMPS High/Low	Price
26213000	VBG12	12"	2600/910	1725/600	1/10	115/230	1.0/0.05	\$167.44
26213002	VBG20	20"	6000/2100	1725/600	1/3	115/230	3.5/1.7	208.75
26213004	VBG24	24"	8500/2975	1725/600	1/2	115/230	4.8/2.4	248.83



EZ BREEZE



FEATURES:

- Quiet efficient operation.
- Available with variable speed motors for year round air circulation.
- Guard designed for maximum safety.
- Provides constant temperature.
- No hot or cold spots throughout the building.
- Maximizes heat distribution.
- Reduces humidity.
- Eliminates condensation.
- Powder coated front and rear guards.
- Controls flies.
- Automatic thermal overload protection.
- Ceiling Mount Bracket.

Stock No.	Item	Size	CFM High/Low	RPM High/Low	HP	Volts	AMPS High/Low	Price
26213008	VDB12	12"	1436/500	1725/600	1/10	115	1.0/0.5	\$125.25
26213009	VDB16	16"	2394/840	1725/600	1/10	115	1.0/0.5	136.94
26213004	VDB20	20"	3492/1220	1725/600	1/10	115	1.0/0.5	248.83
26213012	VDB24	24"	6715/2350	1725/600	1/3	115/230	3.5/1.7	215.43

MANUAL VARIABLE SPEED CONTROLLERS



The MSC-4 is an electronic manual speed control which allows the speed to be adjusted in ventilation and heat exchanger equipment to optimize the performance of this equipment. The model MTC-4C is an electronic temperature control that is specifically designed to control ventilation fans in agricultural, industrial and commercial facilities. It modulates the fan speed according to temperature and will turn the fan off completely when the temperature drops below the temperature set point.



Stock No.	Description	Price
190-2MSC4JD	MSC-4 Variable Speed Controller	\$152.47
190-2MTC4CJD	MTC-4C Temperature Controller	\$232.97

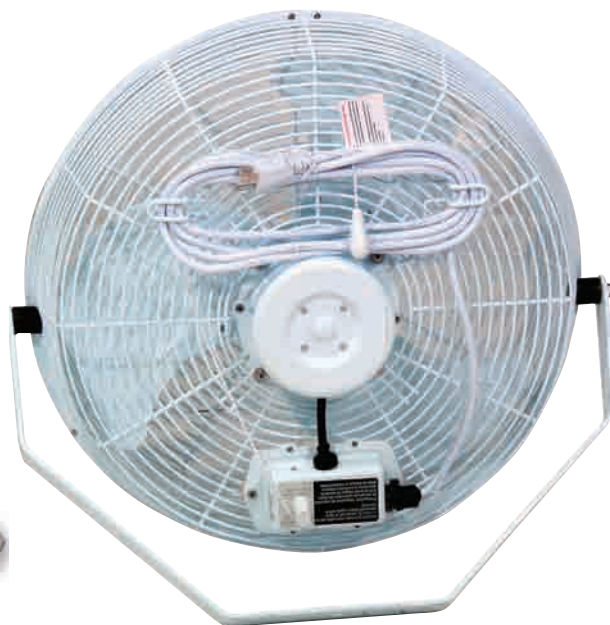


INDOOR/OUTDOOR HAF FANS



FEATURES:

- UL507 certified motors for indoor/outdoor use. Completely sealed motor and speed control.
- Stainless steel hardware.
- Powder coating for extreme conditions.
- Totally enclosed, maintenance free, direct drive high efficiency motors have completely sealed ball bearings, UL and ULC certification, built in automatic thermal overload protection, covered by a Full One Year Warranty.
- 3-Speed pull chain.
- White aluminum blades.



Stock No.	Item	Size	High/Med/Low	High/Med/Low	HP	Volts	High/Med/Low	Price
26213019	POW14	14"	4000/3300/2600	1490/1350/1200	1/8	115	1.3/0.9/0.8	\$98.28
26213020	POW18	18"	6600/4800/3800	1570/1400/1000	1/3	115	1.8/1.6/1.4	136.50

F.O.B Wisconsin



POLY CHILLER DRUM FAN

FEATURES:

- Three winged galvanized blade.
- Fan and guards come completely assembled.
- OSHA approved guard for installations below and above 7 feet.
- 36" model moves air velocity 600 feet per minute at 50' and 300 feet per minute at 100'.
- One piece polyethylene housing with UV inhibitors, no rust, easy to clean and no corners for disease build-up.
- Heavy duty powder coated, corrosion resistant, multi-position support bracket, motor mount and guard.
- Totally enclosed, maintenance free, direct drive high efficiency motors have completely sealed ball bearings, UL and ULC certification, built in automatic thermal overload protection, covered by a Full Two Year Warranty.
- Recirculation fans can be used with our misting/fogging adapters to turn our cooling fans into "Freezing Fans." When you combine the cooling effect of high velocity air with a temperature dropping misting/fogging adapter (up to 20°F in low humid air), the combination can give you the feeling of up to a 30°F temperature drop.



Stock No.	Item	Size	High/Med/Low	High/Med/Low	HP	Volts	High/Med/Low	Price
26213100	VPRF24W	24"	10,200/3,000	1725/600	1/2	115/230	4.8/2.4	\$429.86
26213105	VPRF36W	36"	15,300	825	1/2	115/230	6.0/3.0	517.70

F.O.B Wisconsin

