Controlled Environment Equipment for Greenhouses

Model DC

- Six bladed propeller utilizing a cambered -twist blade designed with a unique dihedral tip for higher air flow capacities at less horsepower
- Non-overloading design maintains horsepower within catalog range of static pressure, resulting in lower motor load and reduced operating costs
- Streamlined orifice insures higher air flow capacity
- Available mounted in either slant housing, or slant housing & diffuser
- Rust protected with a metal wash process and a baked on finish

Discharge Air Diffuser Cone

- Made of galvanized steel, the cone increases air flow with the same HP and includes safety guard, brackets and hardware for easy mounting. Cone is designed for use with slant wall collar (not slant housing) and shipped knocked down.

Model ws slant wall housing

- Slant arrangement protects motor and drives from weather
- High air flow capacity- shutter directs air to fan
- Select fan at 0.5" sp. instead of .10"
- Constructed of heavy gauge galvanized or aluminum
- Includes guard on outlet side
- Shutter and inlet guard held in place by quick release clips
- Wiring knockout allows wiring connections inside building

Caution! Guards must be installed when fan is within reach of personnel or within seven (7) feet of working level or when deemed advisable for safety.

Fan Size	For DC Model Fan			
	Air Diffuser Cone / Wall Housing		Shutter	
	Model	WT	Model	WT
24"	WS24DC	35	WAA2727	14
30"	WS30DC	42	WAA3333	20
36"	WS36DC	46	WAA3939	27
42"	WS42DC	53	WAA4545	30
48"	WS48DC	78	WAA5454	44
54"	WS54DC	106	WAA6060	54

Automatic Aluminum Shutter is ordered and shipped as a separate item from fan

Griffin stocks in 115 volt in either 1 or 2 speed.

24"	$1/3$ HP	In slant wall housing
30"	$1/2$ HP	In slant wall housing
36"	$1/2$ HP	In slant wall housing
42"	$1/2$ HP	In slant wall housing
48"	$1/2$ HP	In slant wall housing

- All Guards for wall housings have 1" x $1/2$" welded galvanized wire in aluminum frame for inlet side of wall housing. Outlet guards are included on WS wall housings as standard equipment. Inlet guards are mounted with quick release clips.

Master-Ex®
MODEL DDPS STAINLESS STEEL

Combining the technology of the most efficient fans designed for agriculture and the corrosion resistance of plastics, the DDPS performs in the toughest environments.

Features:

Housing
- Heavy gauge plastic and fiberglass provides strength and corrosion resistance while being easy to clean and mount. 14" thru 24" fans have plastic housing and diffuser. 36" thru 54" fans have fiberglass housing and plastic diffuser. The slant design on the DDPS improves performance and assists run-off condensation.

Propeller
- Direct drive DDPS fan sizes 14" thru 36" feature stainless steel cambered twist blades riveted through the center, eliminating stress. Belt drive DDPS 36" fans are available with either stainless steel or galvanized propellers.

Motor
- High efficiency motors are totally enclosed with shielded ball bearings for protection from the environment.

Frame
- Stainless steel provides a strong vertical support that aligns the propeller centered in the orifice for maximum performance.

Front Guard
- Heavy gauge and coated to prevent corrosion.

Inlet Guard
- Heavy gauge welded galvanized wire in aluminum frame.

Shutter
- Unique design lowers resistance with preventing back drafts. Available in aluminum or plastic.

Flo-Master ®

- Precision counterbalanced aluminum blades open easier, wider to permit higher fan capacity
- Nylon bearings throughout are corrosion-proof to help prevent sticking. Suitable for dusty or humid applications
- Stainless steel hinge pins will not rust, ensure easy positive blade action
- All shutter blades are reinforced with polished galvanized steel rods, and equipped with double tie-rods
- Automatic: Used with exhaust fans; opens automatically when fan is on, closes automatically when fan is off
- Corrosion resistant heavy gauge aluminum frame
- Keeps out wind, rain, and back drafts when fan is not in operation (See fan selection for shutter sizes)

Aluminum Wall Shutters

Motorized Inlet Shutters
- Cam pulley operator: provides long life to motor and is corrosion resistant
- Motor draws only 17 watts
- WAAC models are center pivoted to open easier against house static pressures
- Motors available in 24v, 115v, 230v, 460v (specify voltage required (Stock 115v)
- Replacement: Motors, Motor and Cam Linkage or Cam Linkage only can be purchased separately.

Item #	Shutter Model	Overall	Opening	Sq. Ft. Opening	Wt.	Price
23-1325	WAAC1818MT	18"x 18"	15"x 15"	1.56	10	$206.64
23-1330	WAAC2626MT	26"x 26"	23"x 23"	3.67	14	220.52
23-1335	WAAC3333MT	33"x 33"	30"x 30"	6.25	18	234.41
23-1340	WAAC4040MT	40"x 40"	37"x 37"	9.50	22	258.93
23-1345	WAAC6318MT	63"x 18"	60"x 15"	6.25	19	305.46
23-1350	WAAC6340MT	63"x 40"	60"x 37"	15.42	35	371.62
23-1355	WAAC6362MT	63"x 62"	60"x 59"	24.58	52	471.26

DC/DCA Belt Tightener

- Designed to fit your acme equipment
- Easy to install
- Payback starts immediately
- One unit fits both sizes

When you go in a greenhouse and hear the high pitched squeal of fan belts, you are listening to the sound of dollars being sucked out of the house. Manually keeping belts tight is a never ending job- an automatic belt tightener is absolutely necessary.

The bottom line? Saving on your electric bill and reduced maintenance (no more belts to tighten) for a very small capital outlay.

Stop Belt Slippage & Cut Electrical Usage

DC/DCA 24, 30 and 54
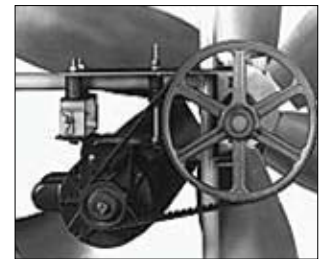
DC/DCA 36 through 48

Item #	Description	Price
23-1860	DC/DCA Belt Tightener	$27.70

Stock One Belt Size to Suit All Your V-Belt Needs

- Unaffected by common horticultural chemicals.
- Assembles to any length required, by hand, in seconds, without tools.
- Easy to install without having to move motor to tension belt.
- Increased fan and heater efficiency.
- Longer belt life.
- Higher heat resistance.

Item #	Width	Length	Price
23-60251	$1/2$"	6½ ft PowerTwist	$63.91
23-60501	$1/2$"	32 ft PowerTwist	281.29
23-60301	$3/8$"	6½ ft PowerTwist	63.26
23-60551	$3/8$"	32 ft PowerTwist	289.02
23-60351	$5/8$"	2 m PowerTwist	72.90
23-60601	$5/8$"	32 ft PowerTwist	293.55

For permanent replacement of V-belts. Eliminates the need to stock extensive line of replacement belts.

Fenner **PowerTwist Plus** V-BELT

Note: Guards have been removed for photographic purposes.

Adjustable Belt Makes Any Length You Need!

Insect Screening

Excluding pests from growing areas is the most effective control method. Some growers have reduced their pesticide use by 90% using LS ECONET in combination with insect-free stock and good sanitation. In addition to being the most effective, it is also the least expensive form of prevention. Plan your crop production and IPM program in advance. Using good sanitation and exclusion is the key to properly managing your growing environment. Design your ventilation system to handle the pressure loss from insect screens.

Please contact our office for proper sizing and requirements.

Common name	Insects	Width
LS ECONET B	Large Insects	13.8 ft
LS ECONET BH BLK ABRI	Sharpshooter	9.8 ft
LS ECONET L	Aphids	10.5 ft
LS ECONET SF MAX	Whiteflies	10.5 ft
LS ECONET M	Whiteflies	11 ft
LS ECONET T	Thrips / Whiteflies	11.2 ft
LS ECONET S	Thrips	11.2 ft

Horizontal Air Flow System

Typical HAF fan placement in a narrow individual greenhouse.

Typical HAF fan placement for even number of bays.
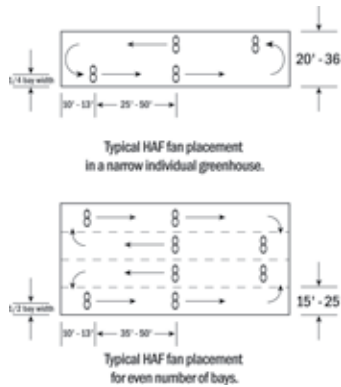
The Horizontal Air Flow (HAF) system has been proven to be the most efficient method for good greenhouse air circulation. The benefits of more uniform temperature, better growth and less disease help you produce higher-quality plants. Fan Capacity- to keep the air mass moving at the 50–100 ft. / min. velocity, it takes a certain amount of energy to overcome turbulence and friction losses. A rule of thumb based on greenhouse trials and smoke bomb tests is 2 cu. ft. / min fan capacity for each square foot of floor area. For example, in the 30' by 144' greenhouse the total cfm fan capacity needed is 30 x 144 x 2 = 8640 cfm. This can be reduced slightly in houses with plants grown only on the floor. It may need to be increased slightly in houses with crops such as tomatoes, roses or hanging baskets. Using 2475 cfm output fans, 4 fans would be needed.

Patented Plant Air® H.A.F. Fans

Features:

- Significantly more efficient air-to-energy usage than other fans.
- Wider guards with less restrictive wire spacing allow for twice the air flow of typical basket fans.
- Variable speed capability (with optional control) allows for air flow control to accommodate temperature and crop changes.
- No-maintenance, completely enclosed motor never needs oiling and uses heavy-duty moisture resistant bearings for a long life.
- **Model VT12PA: 1/10 hp, 115/230 volts, 1.3/.65 amps, 1725 rpm, 1649 ccfm.**

SCHAEFER
Ventilation Equipment

Item #	Description	1-4	5-11	12-up
23-5025	Schaefer 12" HAF Fan	$158.40	$150.48	$142.56

Manual Variable Speed Controls

SCHAEFER
Ventilation Equipment

Our manual controllers can be used on most of our single speed fans to adjust air flow from 20% to 100% of fan output capacity. They also have ability to turn the fan completely off. Supplied in watertight electrical enclosure with approved connectors.

Item#	Model#	Volts	Approved for use with Schaefer Models	Price
23-5030	H-115	115	All 9" and 12" Fans	$68.77

Horizontal Air Flow System

Features:

- Propeller- Aluminum blades held securely in place by a steel spider and hub provide quiet operation.
- Motor- Heavy duty PSC, totally enclosed motor with automatic thermal overload protection and ball bearings is energy efficient. Motor can be used with variable speed control for more precise air movement.
- Guards- Two piece wire guard for easy access has a gray plastic coating to resist corrosion.
- Installation- Two piece rotational bracket provides a locking tilt adjustment for proper angle of air flow. "S" bracket provides two different dimensional mountings.
- Wiring- Motor comes factory-wired on the "A4" with a six foot, three conductor cord with grounding type molded plug for easy installation.

	HAF12A4	HAF20A4
Size	12"	20"
RPM	1566	1626
Motor HP	1/15	1/15
Voltage	115/1	115/1
Watts	124.5	105.0
Air Flow	1145	3005

Item #	Description	Price
23-4020	Acme 12" HAF Fan	$152.98
23-4025	Acme 20" HAF Fan	175.86

Tube Hanger Set

Unique hanger clamps onto tubing for easy attachment to overhead support wire with snap ring.

Item #	Price
23-1825	$0.91

Tube Support Wire Package

Wire support kits, available in 50', 100', and 150' lengths, include six strand 10 gauge wire, turnbuckle and 2 securing clips.

Recommended Spacing

12" tubing every 10 ft.
18" tubing every 10 ft.
24" tubing every 8 ft.
30" tubing every 6 ft.

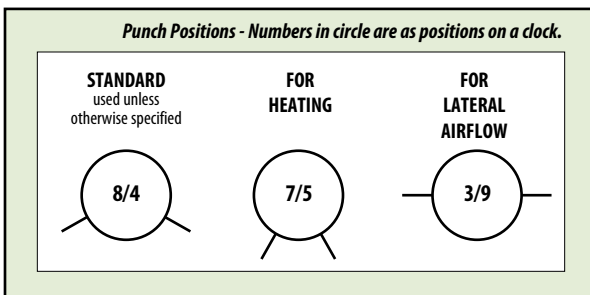| Item #	Length	Price
23-1875	50'	$30.49
23-1880	100'	38.27
23-1885	150'	37.84

Ultra Violet Ventilation Tubing

Engineered to your specifications

For greenhouse use, Ultra Violet Tubing is used where the sun is most intense, or wherever a longer lasting tube is desired. If handled properly, it should last for two seasons of service, thus requiring less frequent replacement.

Custom length ordering notes:

- All tubing is custom cut and punched
- All orders under 50' in length are subject to an up-charge
- Shipped direct from factory; allow shipping time (FOB factory)

Item #	Diameter	Lay Flat Measurement	Per Ft.
23-4030	UV 12"	19"	0.50
23-4035	UV 18"	$28\frac{1}{2}$"	0.50
23-4045	UV 24"	38"	0.52
23-4050	UV 30"	$47\frac{1}{2}$"	0.64

Punch Positions - Numbers in circle are as positions on a clock.

STANDARD used unless otherwise specified	FOR HEATING	FOR LATERAL AIRFLOW
8/4	7/5	3/9

Weatherproof Line Voltage Fan Control

- Great for control of 120v fans/ventilators
- On/Off control with minimum speed adjustment for motor types - shaded pole. P.S.C. and universal
- Weather & corrosion proof all polycarbonate thermoplastic construction.
- Standard 7/8" opening
- Rating: 5 amps at 120 volts

Item #	Description	Price
24-6020	Weatherproof Line Voltage Fan Control	$29.02

Economical, Practical, Effective

American Coolair's Type NBF fan provides the solution to fresh air ventilation in most types of farm buildings. Type NBF fans are built to give you years of heavy-duty trouble-free service. The rugged, belt driven construction operates in any position, has permanently lubricated ball bearings, and is available with single or two speed totally enclosed motors. Coolair has developed a complete ventilation system for farm use combining the Type NBF fan with all aluminum shutter (Type LRW) and heavy gauge galvanized steel wall housing (square box or slope) for exterior mounting, allowing a maximum of unobstructed interior space.

Type GSWH (Slope) Wall Housing

The SLOPE wall housing allows the shutter to be placed on the intake side of the fan and eliminates air turbulence that occurs with the shutter on the downwind side of the fan. It prevents the warm air from being lost through the metal wall housing to the outside cold air in cold climate conditions. The GSWH housing is constructed of galvanized steel for long, durable wear and low maintenance.

Coolair® Motorized LRW Air Inlet Shutter

The LRW Air Inlet Shutter is designed to be opposite side or end of buildings. It features a sturdy aluminum frame, aluminum blades, aluminum reinforcing brackets and nylon bearings on all movable linkage. The LRW Air Inlet Shutter is fully automatic and comes standard with a motor to automatically open and close shutters.
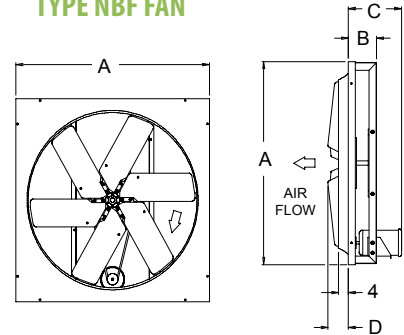
Exclusive Drive Assembly

Our engineering department has developed an innovative drive assembly for the Type NBF fan. Our use of quality materials and precise engineering techniques in constructing wheel assemblies assure you of years of quiet, trouble-free service. Power is applied through V-belts directly to the propeller with blade load concentrated directly over the bearings to eliminate overhang bearing load. The exclusive, time tested design has been widely acclaimed by engineers.

Performance and Efficiency

When economy is measured in terms of cubic feet of air per minute per dollar invested, the Type NBF wall fan exhaust unit is unsurpassed. American Coolair's Type NBF fan is today's best investment, Coolair uses only the most efficient ball bearing motors available. They are totally enclosed resilient base motor.

Fan Model	A	B	C	D
NBF24	32	5 ⅛	12 ½	5
NBF30	38	5 ⅛	12 ½	5 ⅛
NBF36	44	5 ⅛	13 ¼	5 ¼
NBF42	50	5 ⅛	13 ¼	5 ⅞
NBF48	56	5 ⅛	13 ¼	6 ¼
NBFA54	62	5 ⅛	13 ¼	6 ½
NBF60	68	6 ⅛	18	6

TYPE NBF FAN

| Fan Model	E	F	G	H	J	SHIP WT.
GSWH24	32 ⅜	37 ¹¹⁄₁₆	32 ¹¹⁄₁₆	23 ⅞	29 ¹⁄₁₆	52
GSWH30	38 ⅜	44 ½	38 ¾	23	29 ¹⁄₁₆	67
GSWH36	44 ⅜	50 ⁵⁄₁₆	44 ¹³⁄₁₆	22 ½	29 ⁹⁄₁₆	82
GSWH42	50 ⅜	56 ⁵⁄₁₆	50 ¹⁵⁄₁₆	21 ¾	29 ¹¹⁄₁₆	104
GSWH48	56 ⅜	62 ⅜	57	21 ⅝	30 ½	122
GSWH54	62 ⅜	68 ¹¹⁄₁₆	63 ¹⁄₁₆	22 ¾	32 ⁹⁄₁₆	132
GSWH60	68 ⅜	74 ¼	69 ⅛	22 ¼	33	152

Rough Opening for GSWH Housings:
Add 1/2" to 'E' for Width — For 4" Wall: Add 11/4" to 'G' for Height
For 2" Wall: Add 3/4" to 'G' for Height — For 6" Wall: Add 11/2" to 'G' for Height

TYPE GSWH (SLOPE) WALL HOUSING
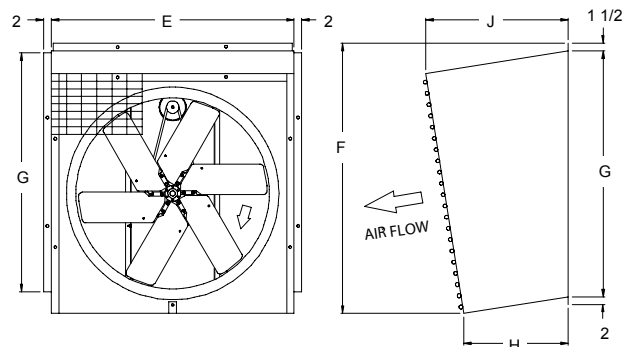
AIR INLET SHUTTERS

Air Inlet Shutter Model	Air Flow Capacity CFM	Required Opening Dim.	Overall Dim. Including Flange	Air Inlet Shutter Model	Air Flow Capacity CFM	Required Opening Dim.	Overall Dim. Including Flange
LRW16E	1,000	17 X 17	19¼ X 19¼	LRW57E	13,400	58 X 58	60¼ X 60¼
LRW21E	1,800	22 X 22	24¼ X 24¼	LRW66E	18,000	67 X 67	69¼ X 69¼
LRW27E	3,000	28 X 28	30¼ X 30¼	LRW4527E	5,000	46 X 28	48¼ X 30¼
LRW33E	4,500	34 X 34	36¼ X 36¼	LRW4515E	2,800	46 X 16	48¼ X 18¼
LRW39E	6,300	40 X 40	42¼ X 42¼	LRW6024E	6,000	61 X 25	67¼ X 27¼
LRW45E	8,400	46 X 46	48¼ X 48¼	LRW6036E	8,900	61 X 37	64¼ X 39¼
LRW51E	10,700	52 X 52	54¼ X 54¼				

For Closed or Open Top Continuous Gutter and Closed or Open Top Plastic Pipe Systems

ACME

kool-cel®

Acme Evaporative Cooling Systems

For 4" or 6" Inch Pads

Features:

- UV Protected Gutter
- Easy Installation
- Low Maintenance
- Stainless Steel Top
- No Additional Water Storage Tank
- System Seals to Building –
   No Additional Parts

Let our Construction Department engineer your cooling requirements

Evaporative Air Coolers

CHAMPION

Side Discharge

MODEL NO.	BHP	MOTOR PART NO.	SPEED	PHASE	VOLTS	AMPS**	SHAFT DIA.	BELT PART NO.
75/85 SD*	¾	110455 110456 110461	1 2 1	1 1 3	115/208-230 230 208-230/46	13.8/7.6-6.9 6.9 3.5-3.2/1.6	5/8 5/8 5/8	110217
	1	110457 110458 110462-9	1 2 1	1 1 3	115/230 230 208-230/460	16/8 8 4.6-4.2/2.1	5/8 5/8 7/8	110217
95 SD*	1½	110459 110463-9	1 1	1 3	115/208-230 208-230/460	20/11-10 6.6-6/3	7/8 7/8	110217
	2	110460 110464-9	1 1	1 3	115/208-230 208-230/460	24/13.2-12 7.5-6.8/3.4	7/8 7/8	110217
10/12 SD*	1	110457 110458 110464-9	1 2 1	1 1 3	115/230 230 208-230/460	16/8 8 4.6-4.2/2.1	5/8 5/8 5/8	110232
	1½	110459 110463-9	1 1	1 3	115/208-230 208-230/460	20/11-10 6.6-6/3	7/8 7/8	110232
	2	110460 110463-9	1 1	1 3	115/208-230 208-230/460	24/13.2-12 7.5-6.8/3.4	7/8 7/8	110232
14/21 SD	1½	110459 110463-9	1 1	1 3	115/208-230 208-230/460	20/11-10 6.6-6/3	7/8 7/8	110219
	2	110460 110464-9	1 1	1 3	115/208-230 208-230/460	24/13.2-12 7.5-6.8/3.4	7/8 7/8	110219
	3	110465-9	1	3	208-230/460	10.6-9.6/4.8	1¼	110219
	5	110466-9	1	3	208-230/460	16.7-15.2/7.6	1¼	110219

* Cabinets have pump and float installed; belt included. Motor and motor sheave shipped separately. Amperage shown is from National Electric Code. Use amperage on motor nameplate to determine motor protector.

![Siebring MFG. INC. logo]

Stocked Item

Heating Systems

125-200-300 or 400 Thousand BTU
Heatmaster Oil Models

Standard Equipment:

- 12" heat distribution elbows
- All controls and wiring
- 550 thermostat
- Single stage oil pump (10' lift)
- Shielded Cad-Cell flame sensor
- Breaker disconnect box
- Adjustable air shutter for better combustion efficiency
- Blower motor Model 125-$\frac{3}{4}$ HP; Model 203-$\frac{3}{4}$ HP (110V-6 Amp.)
   Model 304-$\frac{3}{4}$ HP-7$\frac{1}{2}$ Amp; Model 404-1 HP-9 (110V)
- Fully shielded blower assembly
- Barometric damper
- Summer fan switch

Siebring Warranty:

- 10 years on heat exchanger (pro-rated)
- 1 year on components (replacement of parts only)

Options:

- 2-stage fuel pump (21 ft. lift)
- Low temperature thermostat (30°)

Item #	Model	*BTU Output	GPH	Width	Length	Height	Vent Pipe	Weight	Price
22-2625	HM125	95,200	.85	23"	70"	36"	6"	540 lbs.	$3,373.50
22-2630	HM203	140,000	1.25	26"	77"	38"	8"	640 lbs.	3,763.50
22-2635	HM304	224,000	2.00	31"	85"	38"	8"	840 lbs.	4,699.50
22-2640	HM404	308,000	2.75	47"	87"	44"	8"	1,000 lbs.	5,089.50

*Based on 80% efficiency

![Siebring MFG. INC. logo]

Quantum QT 210 Oil Model

Standard Equipment:

- 55° thermostat
- Single stage oil pump (10' lift)
- Cad Cell Flame Sensor
- Fan and limit control switch
- Breaker disconnect box
- $\frac{1}{3}$ HP capacitor start fan motor
- 4 blade high efficiency fan (24")
- Fully "Finger Protected" fan guard
- Barometric damper included
- 10" clearance from walls suggested
- High fuel efficiency

Design Features:

- Usable in horizontal air flow patterns for large building heating
- Easily serviced Beckett Burner (#2 heating oil)
- Adjustable air shutter for better combustion efficiency
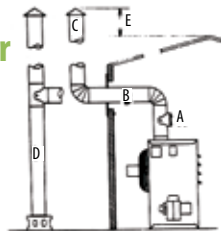- Flame retention burner (high efficiency)

Options:

- 2-stage fuel pump (21' lift)
- Low temperature thermostat (30°)

Siebring Warranty:

- 10 years on heat exchanger (pro-rated)
- 1 year on components (replacement of parts only)

Stocked Item
*Based on 80% efficiency

Item #	Model	*BTU Output	GPH	Width	Length	Height	Vent Pipe	Weight	Price
22-2680	QT-210	168,000	1.50	42"	44"	52"	8"	620	$3,591.00

Correct way to vent a gravity vented oil heater

24'

Trim or remove any nearby trees that would interfere with the chimney draft.

The chimney height will be determined by surrounding roof and trees. chimney should extend at least 24 in. above high point of roof with no obstructions from nearby roofs and trees.

A. Barometric Damper
B. Horizontal Flue (Must slope up at 1/4" per foot)
C. Vertical Flue (Must be at least twice as tall as the horizontal distance)
D. Alternate stack design for free standing support
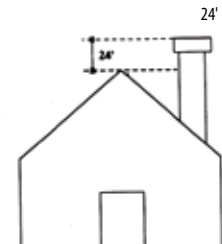E. Chimney should extend at least 2-4 feet above high point of roof
"V"- Vertile Chimney Height ("V" must be at least twice as long as "H")
"H"- Horizontal Pipe (Must slope upwards from the furnace 1/4" per foot of horizontal distance.)
"I"- Draft 0.02 to 0.03 inches of water column. Measure below barometric damper.
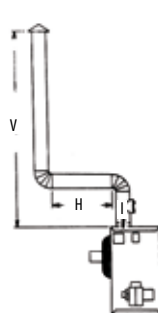
Heating Systems
Counterflow Oil Models

Waste Oil Heaters

Also available.
Call for more info.

Takes Less Horizontal Space

Standard Features:

- Fan and limit control switch
- Breaker disconnect box
- Blower motor:
    - 200: ³/₄ HP-7 Amp
    - 300: ³/₄ HP-7 Amp
    - 400: 1 HP-9.2 Amp

Siebring Warranty:

- 10 years on heat exchanger (pro-rated)
- 1 year on components (replacement of parts only)

Options:

- 2-stage fuel pump (21 ft. lift)
- Low temperature thermostat (30°)

Not a Stocked Item

Item #	Model	*BTU Output	GPH	Width	Length	Height	Vent Pipe	Weight	Price
85-700210	SM200	140,000	1.25	28"	58"	64"	8"	650 lbs.	Call for pricing
85-700230	SM400	308,000	2.75	47"	64"	74"	8"	1000 lbs.	Call for pricing

*Based on 80% efficiency

Royal Heat Gas Model

Gas Model (LP or Natural) in 240-360 Thousand BTU Oil Models Available

Standard Equipment:

- Jet/Vortex combustion design
- Easy-out burner service tray
- Draft diverter included
- Horizontally-directed air flow pattern
- Jets easily cleaned- no plugging
- Stainless steel baffling

Siebring Warranty:

- 10 years on heat exchanger (pro-rated)
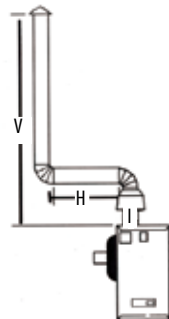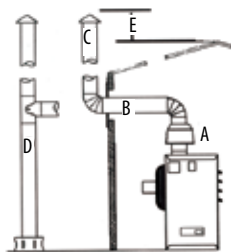- 1 year on components (replacement of parts only)

Case	240	360
Width	27"	31"
Overall width	31"	35"
Length	27"	31"
Overall length	48"	54"
Height	48"	48"
Overall height	51"	51"
Weight	640 lbs.	780 lbs.

Item #	Description	Price
22-2830	Royal 240 Gas Heater	$3,685.50
22-2835	Royal 360 Gas Heater	4,069.00

Not a Stocked Item

Correct way to vent a gravity vented gas heater
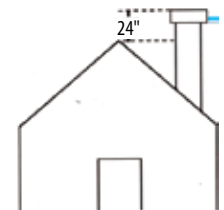
A. Draft Diverter
B. Horizontal Flue (Must slope up at 1/4 " per foot)
C. Vertical Flue (Must be at least twice as tall as the horizontal distance)
D. Alternate stack design for free standing support
E. Chimney should extend at least 2-4 feet above high point of roof
"V"- Vertile Chimney Height ("V" must be at least twice as long as "H"
"H"- Horizontal Pipe (Must slope upwards from the furnace 1/4" per foot of horizontal distance.)
"I"- Draft 0.02 to 0.03 inches of water column. Measure below diverter

Trim or remove any nearby trees that would interfere with the chimney draft.

The chimney height will be determined by surrounding roof and trees. chimney should extend at least 24 in. above high point of roof with no obstructions from nearby roofs and trees.

24"

SOLAR INNOVATIONS INC.
Innovations in Architecture

Commercial spaces designated with commercial greenhouses by Solar Innovations® allow for a truly unique shopping experience. Commercial greenhouses can extend far beyond the florist's shop to include grocery stores, convenience stores, libraries, and shopping centers, just to name a few. These extraordinary focal points allow for environmental growth and convenience for many businesses across the country.

Solar Innovations™ commercial greenhouses allow our customers to improve their internal and external viewing abilities, thus improving overall safety at the greenhouse application. These thermally-enhanced structures provide a consistent growing environment, as well as comfort and versatility. Because of their structural integrity and overall development, Solar Innovations™ greenhouses utilize energy as efficiently as any structure in the industry today.

Working with *progressive vendors*

to find *solutions* for our customers!

BIO-FUEL TECHNOLOGIES

What do you have to burn?

BIO-FUEL TECHNOLOGIES LLC ("BFT") is the exclusive United States Distributor for the BFT Chain Grate Boiler. Our system design incorporates the three components required for efficient combustion of solid fuel. They are Time, Temperature and Turbulence. The combination of over-fire air and the air passing through the fuel bed provides turbulence required for rapid and complete combustion of solid fuel. The Chain Grate Stoker design has a significant advantage over other systems. The system provides a large area of the chain grate that is conservatively designed to assure a complete combustion of solid fuel.

Large wood chips w/turkey manure (ready for firing)

Touch Pad Control Panel

10,000,000 BTU Hot Water Boiler heating a greenhouse

Heater Hanger Kits

Each kit contains all items you will need to hang your heater.

Item #	Description	Price
22-3055	Double Leg Heater Hanger Hanging columns and bar, * truss braces, split tees and hardware.	$181.20

* Truss braces should be angled to gable end for proper fit.

Double Leg Heater Hanger Kit
2 Point mounting arrangement
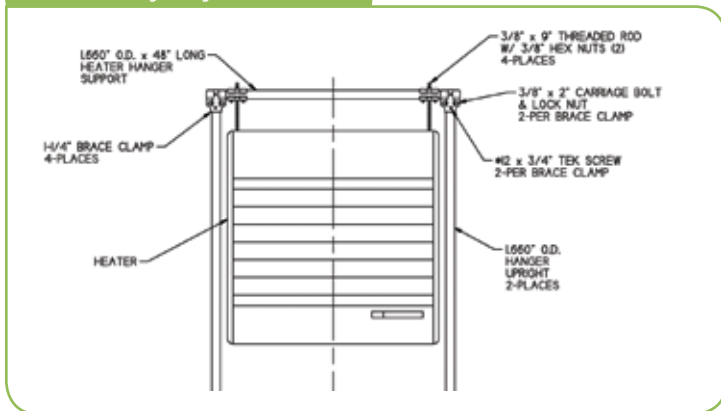
Double Leg Heater Hanger Kit
4 Point mounting arrangement

Not stocked

FOB Factory

XS Smith INC.

## Material Handling Solutions

GET ON THE **Fastrak**

- Complete system with individual components
- Reduces labor costs & increases productivity
- Economically priced for quick payback
- Carts adjust for seasonal crop changes
- Easily retrofits to existing structures
- American made & built to last

Fastrak Systems

All Fastrak Systems need to be priced out per job and a Fastrak Data Sheet needs to be submitted.

QUONSET FREE STANDING

GOTHIC FREE STANDING

GUTTER HOUSE
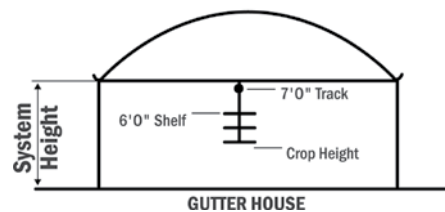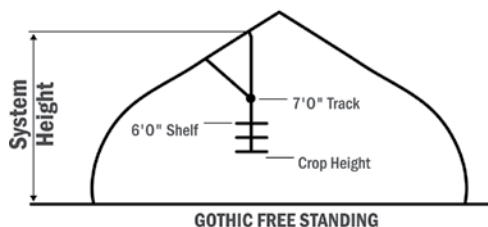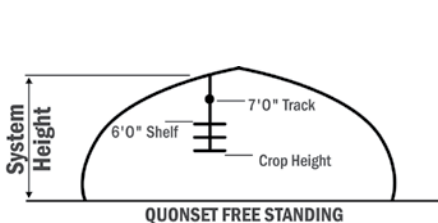
RAISE YOUR COMFORT LEVEL.

Effinity⁹³
with Conservicore™ Technology

IN COMPARISON, THERE'S *NO* COMPARISON.

Modine's Effinity93 (model PTC) condensing unit heater line is the most efficient gas-fired, condensing unit heater in North America.

With six models available — from 135,000 to 310,000 BTU/hr — all operating at 93% efficiency, the Effinity93 will dramatically lower energy costs through decreased fuel consumption.

Your Extended Forecast:
93% Efficiency with 100% Chance of Savings.

High-Efficiency Condensing Gas-Fired Separated Combustion Unit Heaters

MODINE
APPLIED THERMAL INNOVATION™

Propeller Unit Heater Model PTC General Performance Data

	Model PTC Sizes					
	135	**155**	**180**	**215**	**260**	**310**
Btu/Hr Input	135,000	155,000	180,000	215,000	260,000	310,000
Btu/Hr Output	125,550	144,150	167,400	199,950	241,800	288,300
CFM @ 70°F	2160	2510	3020	3865	4585	5400
Outlet Velocity (FPM)	719	835	676	699	831	765
Air Temp Rise (°F)	54	53	51	48	49	49
Max Mounting Height (ft.)	14	17	15	17	20	19
Heat Throw (ft.) @ Max Mtg Ht	51	59	53	60	70	67
Motor Type	PSC	PSC	PSC	PSC	PSC	PSC
Motor HP	1/3	1/3	1/3	1/2	3/4	3/4
Motor RPM	1075	1075	1075	1075	1125	1125

AND RAISE YOUR GREENHOUSE EFFICIENCIES AND PROFITS WITH THE NEW MODINE TUBULAR HEAT EXCHANGER UNIT HEATER LINE.

Gas-fired, Power-exhausted, Low Profile (Also available in Separated-Combustion)

- 80% Thermal Efficiency
- Horizontal or vertical venting
- Field convertible to propane
- Low profile casing
- Direct spark ignition
- 100% Shut-off with continous retry
- Mounting brackets supplied
- Commercial or residential applications

Propeller	Model Number					
	HD 30	**HD 45**	**HD 60**	**HD 75**	**HD 100**	**HD 125**
Btu/Hr Input	30,000	45,000	60,000	75,000	100,000	125,000
Btu/Hr Output	24,000	36,000	48,000	60,000	80,000	100,000
Vent Dia. (in.)*	3 or 5	3 or 5	3 or 5	3 or 5	4 or 6	4 or 6
CFM @ 70°F	505	720	990	1,160	1,490	1,980
Air Temp Rise (°F)	44	46	45	48	50	47
Max Mounting Height (ft.)**	10	10	12	14	12	16
Heat Throw (ft.)**	25	27	36	38	42	56
Motor HP	1/25	1/15	1/12	1/12	1/12	1/8

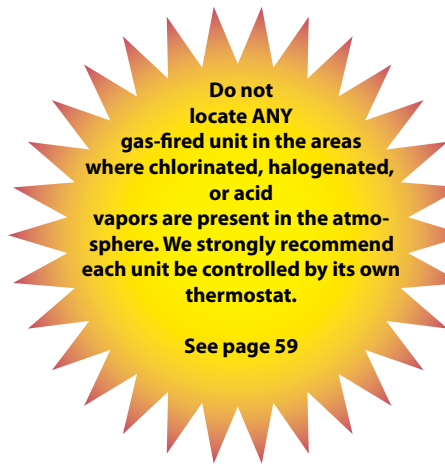*Vent size varies depending upon application.
**At 65°F ambient temperature and unit fired at full-rated input. Mounting height is measured from floor to bottom of unit.

Gas-fired, Power-exhausted
High-efficiency II™ Unit Heaters
(Also available in Separated-Combustion)

- 80% Thermal efficiency
- Rotating power exhaust
- Horizontal or vertical venting
- Field-convertible to propane
- Field-adjustable level hanging
- Intermittent pilot ignition,
  100% shut-off with continuous retry

Do not locate ANY gas-fired unit in the areas where chlorinated, halogenated, or acid vapors are present in the atmosphere. We strongly recommend each unit be controlled by its own thermostat.

See page 59

HIGH EFFICIENCY II®

Propeller		Model Number						
		PDP 150	PDP 175	PDP 200	PDP 250	PDP 300	PDP 350	PDP 400
Btu/Hr Input	For power exhausted models rated 30,000 to 125,000 Btu/hr, please see the previous page.	150,000	175,000	200,000	250,000	300,000	350,000	400,000
Btu/Hr Output		120,000	140,000	160,000	200,000	240,000	280,000	320,000
Vent Dia (In.)		5	5	5	6	6	6	6
CFM @ 70°F		2180	2550	2870	3700	4460	4870	5440
Air Temp Rise (°F)		51	51	52	50	50	53	54
Max Mounting Height (ft)		16	17	15	19	21	20	19
Heat Throw (ft)*		55	59	51	67	74	70	69
Motor HP		1/8	1/6	1/6	1/3	1/2	3/4	3/4

Many sizes in stock.
Call for more information.

* At 65° ambient temperature and unit fired at full-rated input.
Mounting height is measured from floor ro bottom of unit.

MODINE
APPLIED THERMAL INNOVATION™

INDOOR AIR SOLUTIONS

Steam and Hot Water Unit Heaters

Proven for greenhouse, industrial and commercial application. Has adjustable horizontal air deflector blades. Vertical deflector blades are optionally available for complete directional control. Horizontal units available with top/bottom inlet/outlet piping connections.
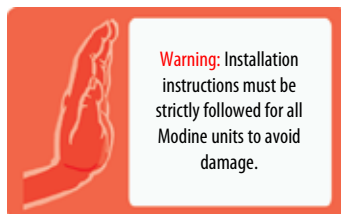
Virticals are designed for overhead and out-of-the-way mounting. Four deflector types are available for various air distribution patterns... from high, jet-like beam to low, broad, gentle cone. V models have copper tubes, VN models have cupro nickel tubes.

Low-Temperature GLW Applications

The Modine Type GLW units were specifically designed to heat greenhouses with low-temperature water. They can be successfully used in applications in which waste or reject heat from steam-electric power plants, refineries, pumping stations, distilleries and other industrial or processing plants can be utilized for heating. The ever-increasing cost of fossil fuel is turning the feasibility of using reject heat as a source to heat greenhouses into a reality. Modine's type GLW units can help make it a reality.

Warning: Installation instructions must be strictly followed for all Modine units to avoid damage.

c **CSA**® us

PARsource
lighting solutions
a division of Hydrofarm

Shown with optional diffuser

Beamflicker-e System
Photoperiod Control Day-Length Extension

Replaces traditional incandescent — Up to 30' x 90' Coverage

A single, centrally-located, stationary fixture providing enough photoperiod control light for an entire greenhouse. Cost efficient, saves up to 80% in energy costs versus traditional incandescent lighting.

Electrical Specifications

Input Voltage: 120, 240

Item #	Wattage	at 120 Volts	at 240 Volts	Price
93-2400	400 watt	3.8 amps	1.7 amps	$883.95
93-2600	600 watt	5.5 amps	2.6 amps	1,016.56

Cost Comparison

Beamflicker™	*Incandescent*
400 or 600 watts	7000 - 10,000 watts
Red	Far Red
24,000 Hrs Life	1000 Hrs Life
Easy to install	Cost to install
Virtually maintenance free	-
Cost to run 10¢ / Day	$3.20 / Day

---

e-Ballast

More Lumens — Completely Silent
Fast Start Up — Maintenance Free

Higher light output compared to traditional magnetic ballasts.

PARsource "E" Ballast - is factory tested for 12 hours to ensure reliability. The "E" is microprosessor-controlled. It automatically adjusts for Halide or Sodium, guaranteeing proper performance with every bulb. RF shielded output cord, automatic safety cut-off circuitry, lightweight - under 20 pounds. Available in, 400, 600, and 1000 watt. Available in, 120, 208, 240, 277, 347 & 480 volts.

T5-e FLUORESCENT
High Lumen, Low Profile

The multifaceted T5 Reflector System puts out more than double the light energy of normal fluorescent lighting systems. T5's stay cool to the touch so they can be used in low clearance rack systems. Available in several light spectrums for specific plant growth needs.
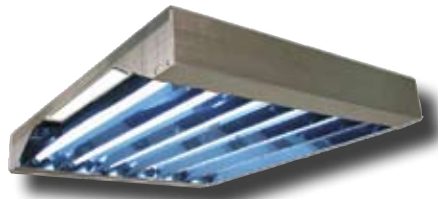
- High output tubes
- Extremely energy efficient
- Includes all bulbs
- Fully assembled
- Lightweight aluminum housing
- Hangs easily, 4-tube weighs under 10 lbs.
- Low profile
- 10,000 hour bulb life
- Rapid start, no noise
- 2-year Warranty

Great for:
Germination Chambers
Under Bench Lighting
Tissue Culture
Growing Racks

T5 Specs	4 Tube	6 Tube
Lumen Output	up to 20,000 total	up to 30,000 total
Amperage	1.8 amps	2.7 amps

T5 Sizes	4 Tube	6 Tube
Size	49¼"L x 13"W x 3"H	49¼"L x 17"W x 3"H
Weight	8 lbs	11 lbs

NEW for 2011
LED Growing Light

Uses
Perfect for germination chambers, indoor growing, photoperiod applications or spectrum enhancement.

Features / Benefits
- Advanced Thermal Design: Innovative heat management system that lets the fixture run efficiently for a long time
- Densely packed high power LED array that puts out far more light than the competition
- Superior optical design that provides expertly constructed optics and provide maximum photon injection into your plants

H150 Purple - General purpose
H150 Magenta - Flowering Emphasis
H150 Red - Bloom Booster
H150 Blue – Vegetation Enhancer

Call for pricing and more information.

Supplemental Lighting

HS2000 Lamp

P.L. LIGHT SYSTEMS
Member of HORTILUX | SCHRÉDER GROUP

More light, less energy - HS2000

With the HS2000, P.L. Light Systems has made a great move forward in terms of efficiency, quality and reliability. The HS2000 is one of the most up-to-date, all in one fixtures on the market today. Also, it rivals electronic ballasts in efficiencies while offering better reliability and maintenance.

- 600 Watt - 208/240/277 as well as 480 Volt system

Contact Our Office for Pricing

High Pressure Sodium Fixtures PL2000

High Pressure Sodium Fixtures are actually available in 150W, 250W, 400W, 400W SUPER, 600W, 1000W.

Standard Features on all HPS Fixtures include:

- Improved collar design for easy installation and removal of all reflectors
- Heat dissipating extruded aluminum body with ventilation openings
- Available in 120, 208, 240, 277, 347, and 480 volts
- Compact body reduces shading effect • C.S.A. and U.L. approved

High Pressure Sodium Lamp

Item #	Description	1-3	4-up
40-1015	High Pressure Sodium Lamp	$272.69	$247.33
	400W 115V		
40-1076	Philips 400W HPS Bulb	24.55	21.98

Metal Halide Fixtures (special order)

Only available in 400W and 1000W. Available with medium or deep reflection.

Standard Features on all Metal Halide Fixtures include:

- Fitted tempered glass reflector covering
- Heat dissipating extruded aluminum body with ventilation openings
- Compact body reduces shading effect
- Available in 120, 208, 240, 277, 347, and 480 volts
- C.S.A. and U.L. approved Metal Halide Fixtures (special order)

Metal Halide Fixture

Remote Fixtures (special order)

Standard Features on all Remote Fixtures include:

- On/Off toggle switch for power supply
- Receptacle and plug for the 15' cord between the fixture and lamp
- Durable steel body with ventilation openings for maximum cooling
- Available in 120, 208, 240, 277, 347 and 480 volts
- Standard mounting hardware for lamp and reflector
- Five year warranty on ballast kit
- Standard 120V or 240V power cord
- One year or 5,000 hour warranty on the light bulb
- C.S.A. and U.L. approved

Remote Fixtures

Reflectors

Superwide

Deep

Midi

Medium

Wide

1000W

G-Stat4

Upgrade from thermostats and cut your expenses with the G-STAT4. Using a simple, centralized control eliminates competition between your heating and cooling equipment, saving you money and energy.

Requires a contactor panel.

Features:

• 4-stages of heating or cooling or a combination of both
• 2 temperature setpoint periods (day and night)
• Solar-shielded temperature sensor with 75' of shielded cable
• LCD screen displays current temperature, mode and output status
• Keypad provides easy operation • Fahrenheit or Celsius scale
• NEMA 4 enclosure, 9" x 5.5" x 3" (228 x 140 x 76 mm)

Benefits:

• Easy to install and operate   • Increases productivity
• Improves crop quality by providing more accurate temperature monitoring
• Reduces fuel costs by centralizing temperature sensor
• Prevents heating and cooling from running simultaneously
• Simplifies control and maintenance • Requires 1amp @ 115 VAC / Shipping Wt. 7 lb

No. 24-3600 $328.80

Day / Night settings help SAVE on your heating

Contactor Panel Options		
No. 24-3605	1 SPDT 1HP 120V M-5500	$83.00
No. 24-3607	2 SPDT 1HP 120V M-5505	97.50
No. 24-3609	3 SPDT 1HP 120V M-5510	126.00
No. 24-3611	4 SPDT 1HP 120V M-5515	148.50

EnviroSTEP ™

There's no better combination of power and value than the EnviroSTEP. This integrated control offer precise control of all aspects of your climate: temperature, humidity, light level, CO2 and watering based on VPD.

WADSWORTH Control Systems Inc.
Maintaining the Climate for Growth

Features:

• Single zone control
• 3 set point temperature periods: day, night and DIF
• 12 relay outputs with manual override switches
• 2 analog outputs (0 to 10VDC) to control variable-speed equipment
• Records the status of all inputs and outputs
• Alarm notification: temperature, RH and power failure
• Largest display in the industry; has menu-driven choices & graphic functions
• Keypad for easy operation
• This is an approved energy saving device

Includes:

• Solar-guarded aspirated temperature and humidity sensor and 100' of cable
• Solar-shielded outdoor temperature sensor with 25' of cable

No. M-4840* $1,845.00

STEP Up Control TM

STEP Up to improved control and increased profits. This control is an approved energy saving device.

WADSWORTH Control Systems Inc.
Maintaining the Climate for Growth

Features:

• Single zone control
• 6 stages: 2 stages of heating and 4 stages of cooling
• 3 set point temperature periods: day, night and DIF; auto adjusts based on sunrise and sunset
• Timed override switches in addition to the manual override toggle switches
• Large menu-driven screen displays current temperature, time, date, grow weeks, equipment status
• Records and stores temperature data
• Modulates vents and curtains
• Logs and graphs data
• Alarm output

Includes:

• Solar-guarded aspirated temperature sensor and 100' of cable

Item #	Description	Price
M-5000*	STEP UP Control	$595.00
	Requires either M-5001 or M5640	
M-5001*	STEP UP Override Relay Panel	495.00
M-5640*	STEP UP Contactor Panel	Call for price

Step 50 A ™

Growers choose this control because it is rugged and easy to operate —just turn the day and night knob to the desired temperature and the STEP 50A will do the rest.

WADSWORTH Control Systems Inc.
Maintaining the Climate for Growth

Features:

• Single zone control
• 5 stages: 2 stages of heating and 3 stages of cooling
• Day and night temperature settings — simply turn the two knobs to indicate the desired temperatures
• Controls most heating and cooling equipment
• Energy savings through programmable lockout of stages
• Modulating output voltage for proportional steam and hot water valves
• Equipment comes on gradually after a power failure
• Color-coded manual override toggle switches
• Replaceable 10 amp DPDT load relays, can operate a wide variety of equipment — these relays reduce the cost of your contactor panel

Includes:

• Solar-guarded aspirated temperature sensor and 100' of cable

No. M-4010 $960.00

*Items not stocked. Prices FOB factory

Power Pull Energy Curtain

Save 30-40% on energy costs. It's an efficient way to cool, control light and heat loss. This truss-to-truss system does not stress the greenhouse and has minimal maintenance.

- Positive drive rack and pinion system — no cable to re-tension
- Fabric glides between stationary stainless steel lines
- Slow-moving system optimizes management of cold air spill
- Built-in safety limits protect your system
- Durable fabric
- Small bundle size ensures minimal shade
- Positive seal when closed
- Flexible design, easy installation for new projects or retrofitting

Save on your heating bill.

WADSWORTH Control Systems Inc.
Maintaining the Climate for Growth

Pleasant View Garden in NH, dual curtain system

3 RPM VC 2000 Vent Drive

- 1/5 Horsepower – TEFC, Continuous Duty
- 115 Volt - 60 Hz - 2.5 amp
- 1600 RPM; Total gear reduction 550:1; final output 3 RPM
- Output torque 1500 in. lb. / 169 Nm VC 100A Vent Drive
- Lifts up to 325' of 4' polycarbonate roof ridge vent or 400' of 4' polycarbonate side vent
- Thermal overload protection – automatic reset
- Quick reversing
- Adjustable torque limit switch assembly
- Output gear reducer: worm gear with tapered roller bearing on output shaft immersed in synthetic grease
- Dual output shaft

Item #	Description	Price
M-1550	VC - 2000 / ILS 1³⁄₈" O.D. Shaft 3 RPM Drive Unit (no control)	$992.00
M-1555	VC - 2000 / ILS 1⁵⁄₈" O.D. Shaft 3 RPM Drive Unit (no control)	992.00
M-1001	LST Lead Control	217.00
M-1003	2R Follower Control	135.00

Prices FOB factory

VC 100A Vent Drive

- 1/20 Horsepower TENV,Continuous Duty
- 15 Volt - 60 Hz - .68 amp
- 1600 RPM motor; Total gear reduction 1900:1; final output .84 RPM
- Output torque 500 in. lb. / 56 Nm
- Lifts up to 75' of 4' polycarbonate roof ridge vent or 125' of 4' polycarbonate side vent
- Thermal overload protection – automatic reset
- Quick reversing
- Adjustable torque limit switch assembly
- Output gear reducer: worm gear with tapered roller bearing on output shaft immersed in synthetic grease
- Dual output shaft

Item #	Description	Price
M-1090	VC - 100A / ILS 1³⁄₈" O.D. Shaft Drive Unit (no control)	$718.00
M-1092	VC - 100A / ILS 1⁵⁄₈" O.D. Shaft Drive Unit (no control)	718.00
M-1001	LST Lead Control	217.00
M-1003	2R Follower Control	135.00

Prices FOB factory

Aluminum Rack and Pinion

Call for pricing

- Zinc pinion gear with shoulders to bear the weight and extend the life
- Wide housing allows for movement in the vents prevents binding
- Freedom from corrosion: stainless clevis pins, cotter pins, set screws, cast sash brackets and tough Nylatron bearings
- Easy alignment: racks work even when the vent is not perfectly square
- Arm and housing are manufactured from aluminum alloy for strength and freedom from corrosion they have precision-cut teeth

Steel Rack and Pinion

Call for pricing

- Rack arms are a heavy galvanized steel u-channel cut
- Corrosion-proof pinion gear
- Pinion houses are galvanized steel
- Rust-free plastic-free rollers and self-lubricating bronze journal bearings

Versatile Vent

- Wadsworth's most flexible and capable vent control. It can be used with any type of environmental control or as a stand-alone unit if you don't have a temperature control.

Features:
- Manual override toggle switches
- Includes a transformer and relays

Does not include Aspirator

No. M-1465*   **$395.00**

Versatile Vent Complete Package

If you don't have a temperature control, the Versatile Vent is available with a temperature sensor.

- It will open your vent or rollup in three increments: 25%, 50% and 100%.

Features:
- Manual override toggle switches
- Displays temperature, vents position, and has an alarm output

Includes:
- Aspirated temperature

No. M-1460*   **$535.00**

*Items not stocked. Prices FOB factory

MICRO GROW
GREENHOUSE SYSTEMS, INC.

**Offers a wide variety of Environmental controls!
Contact you Griffin sales rep for a complete listing.**

Growmaster Growcom

Single Zone Advanced Computer Control

Enjoy the same precision control of our Growmaster Procom a single zone environment with our Growcom system. We have packed the most common environmental control equipment in use in a single zone control system. The Growcom can also be used with our Growlink Windows based software. A Zone Temperature Sensor, as well as a Solar Sensor, come with the Growcom. The Growcom features four separate daily operation modes including DIF. Low voltage 24 VAC operation.

Growmaster Growcom Features

• Use as a stand alone system, or with your PC with our Growlink system
• Cooling, air circulation, ventilation, and shading equipment
• All heating equipment including hot water valves and boilers
• Optional fogging, and dehumidify with humidity sensor available
• Full alarm functions and sensor history record and display for 30 seconds

List Price $1595.00

Growmaster Growmate

For Smaller Installations

The Growmate offers many of the very same features as the Growmate Plus. It is designed for smaller greenhouses, but offers exacting computer-based control of cooling, heating, and air circulation equipment. DIF settings, separate day and night temperature control, and manual override switches are standard features. Low voltage 24 VAC operation.

Growmaster Growmate Features

• Accurate microprocessor control
• Large digital display and convenient program switches
• Three cooling stages, two heating stages
• Air circulation output for HAF fans
• DIF operations are standard

List Price $995.00

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Growmaster Procom

Precision Control, Multiple Zone Capability,

Easy Operation

Years of research and development have resulted in the Growmaster Procom being the system of choice for hundreds of commercial and research greenhouse growing operations throughout the world. From a single zone of operation, to complex multiple zone applications, the Procom delivers time and time again. The Procom features "state of the art" control algorithms based on internal conditions as modes including DIF. Manual override switches are located on the front panel for ease of use. A large informative display constantly updates as to all greenhouse conditions and equipment operations. Enclosed in a NEMA 12, lockable non-metallic enclosure with a clear cover, the Procom is easy to use and easy to install on new and existing projects. Low voltage 24 VAC operation.

Growmaster Procom Features

• Energy saving features for commercial Growers
• Precise automation for research applications
• Sensor History record and display for 30 days
• State of the art software and equipment operations
• Irrigation and misting control based on time, VPD, or soil moisture
• Accurate microprocessor control of your entire environment
• Fully expandable with additional sensor input and output modules
• Add your PC to your Procom system for endless possibilities

List Price $1995.00

Growmaster Growmate Plus

Affordable, Accurate, Control

If you think that computer based greenhouse control systems are expensive, the Growmate line of products will enlighten you. An affordable choice for many growing operations, the Growmate Plus puts the power of a microprocessor based control system in your hands at a price that anyone can afford. All temperature settings can be adjusted independently for day and night heating and cooling, as well as DIF settings. A large and informative display assists in programming, while providing a constant readout of all sensors. Manual override switches for all outputs are conveniently located on the front panel. Growmate Plus includes a temperature sensor and photocell. An optional humidity sensor is available for accurate and true dehumidify functions. Low voltage 24 VAC operations.

Growmaster Procom Features

• Accurate microprocessor control
• Large digital display and convenient program switches
• Five cooling stages, two heating stages
• Air circulation output for HAF fans
• DIF operations are standard
• Optional humidity sensor available

List Price $1295.00

Dramm/Microfan Mechanical Thermostats

Dramm / Microfan mechanical thermostats are designed with rough environments in mind. These high quality thermostats are perfect for any situation where harsh conditions may damage less durable equipment. Protected in durable PVC housing, these thermostats offer stainless steel coil sensors and accuracy to 1º C.

Features:

- Durable PVC housing
- Unlimited accuracy
- Non-corrosive construction
- Sealed wiring strain relief
- Single-stage or two-stage

Item #	Description	Price
24-2300	T41-SV Single Stage Thermostat	$68.46
24-2305	T42-SV Double Stage Thermostat	118.79

T42-SV Double Stage Thermostat

T411-SV Single Stage Thermostat

Portable Single Stage Thermostat (prewired)

Greenhouse Thermostats (weather-proof Line Voltage)

- 16 Full load amp rating at 120 Volt
- 30° to 110°F

Item #	Vendor #	Description	Price
24-6001	KJ16110	Single Stage Thermostat	$33.42
24-6002	KT16110	Double Stage Thermostat	85.87
24-6010	KP16110	Portable (prewired) Single Stage Thermostat (comes with 8' cord)	57.64

Single Stage Thermostat

Nuarms Plug In Timer

The Intermatic Heavy Duty Grounded Timer plugs right into a standard wall outlet. 24 hour grounded plug in timer.

Easy to use - plug the timer into a wall outlet - no wiring involved - then plug your lites,pump,heater,AC or whatever (120V) into the timer.

Three on/off settings (EXTRA CLIPS FOR MORE THAN TWO AVAILABLE IN ACCESSORIES). Rated at 15FLA resistive and 1,875 watts tungsten and inductive. Will work with one 1000 watt grow light or 12 FLA motor or 12 amp AC/heater.

No. 24-6025   **$25.29**

Delta T Solutions
Engineering, Integrating, Innovating Systems

Greenhouse Heating Systems

Twenty Years Experience Designing Heating Systems for All Types of Growing Environments

- Hot water boilers   • Heat exchangers
- EPDM rubber tube bench-top heating
- EPDM rubber tube in-ground heating
- Twin-fin aluminum tube heating
- Multi-fin aluminum tube heating

Hot Water Heating Systems

Delta T hot water heating systems utilize the physics of heat to efficiently heat plants. Putting the heat under the plant allows the heat source to react faster to temperature changes at the plant level. Heating from below offers a more constant temperature, better plant quality, and lowers heating costs.

Delta Tubes
Delta Tube heating systems are designed with the grower in mind. Key benefits include durability, low maintenance, low volume, and fast response.

Delta Tube™ SD

This system provides the best growing environment for propagators, plug producers and general growing. Healthy, more uniform plants plus at least 20% fuel savings make this system the grower's choice. Uses Delta T quality synthetic tubing that will not break down under ultraviolet rays.

Delta Tube™ LD

Large diameter EPDM rubber tube in-ground heating system is ideal for larger ranges. The system excels in the nursery industry and is very economical for starter houses because it can save you 20% or more over conventional forced air heating. Uses DeltaT high quality synthetic tubing that will not break down under ultraviolet rays.

Delta Tube™ HD

The Delta Tube HD is a high density polyethylene floor heating system that is an excellent choice for heating warehouses, retail areas, potting areas, and greenhouses. It installs easily. And because the tubing is installed directly into the concrete floor, it doesn't get in the way. It is great for areas where run-off is a concern. Special manifolds are concealed in a 2' x 3' box in the floor. No tubing is left exposed. We also supply PEX tubing with oxygen barrier.

Delta-Fin™ TF 1 & 2

Heats the greenhouse from below the bench, allowing for maximum temperature control and accelerated plant growth. Proven effective by many of the largest plug growers in the country. The reduced BTU's per foot and added material result in even heat being transmitted to plants. In addition, Delta-Fin TF 1 & 2 offers low water volume, high efficiency, aluminum construction, no rusting, and long life.
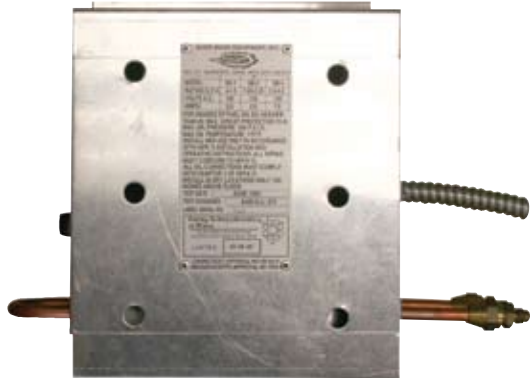
Delta-Fin™ Multi Fin

The grower's choice for uniform convention heating. It is constructed of aluminum to dissipate heat quickly, resulting in energy savings. The external surface of 100 linear feet of Delta-Fin is approximately the same as 844 feet of 2" pipe to produce the same amount of heat as it would take 100 linear feet of 2" Delta-Fin. Its high BTU output means you need fewer units.

SHOR-BURN
Pre-heater

Model SB-2

Increase the BTU's extracted from your fuel oil by up to **20%** with a **SHOR-BURN** Fuel Oil Pre-heater.

The viscosity of fuel oil is lessened when its temperature is increased. It is desirable to burn a stabilized low viscosity oil. With a Shor-Burn Oil Pre-heater, the oil burner can operate to its optimum. It accomplishes this by stabilizing the nozzle flow rate and improving atomization. This allows the combustion efficiency to remain stable and high.

The nozzle in the oil burner atomizes the fuel so it can be burned. It will atomize hot oil into smaller drops, increasing the exposed, burnable surface to extract more BTUs per gallon. Burning thick, cold oil is analagous to burning wet wood - it's inefficient.

The installation should be made by a licensed oil burner technician who can record stack temperatures and adjust the burner for the best combustion efficiency. He may well wish to select a smaller nozzle for the thinner oil.

Item #	Description	Price
22-2002	SB-1 0.75 - 1.25 GPH	$706.50
22-2004	SB-2 1.00 - 2.50 GPH	728.82
22-2006	SB-3 2.5 - 4.0 GPH	1,161.80
22-2008	SB-4 4.0 - 15.0 GPH	3,830.80

All prices are FOB the factory.

Making it easier to place an order...

At Griffin our goal is to always provide you immediate attention by answering your call as quickly and as efficiently as possible. In the past we have found that due to limited staff at some of our smaller Branch locations hinders our ability to accomplish this goal, especially during peak times of the year. In order to remedy this problem we have created a core customer service group to answer your calls and questions.

When placing your order you may now accomplish this in three different ways
• Call our Toll free number **1-800-659-4346**
• Email your order to **Orders@griffinmail.com**
• Fax your order to **1-877-636-3623**

Our Customer Service Representatives are here to provide the highest level of service to you in order to meet your needs and hopefully exceed your expectations. They can provide you assistance to place an order, inquiries about inventory availability and pricing, and answer questions about your delivery. Our computer system is interlinked to see everything that an employee at your local branch would see. We also have contact with all employees via email, voicemail and paging capabilities.

Toll Free

We've gone automated!

On Sept 1, 2009, all of our local numbers began being answered by one central automated system. You are also able to reach the system by calling us toll free at **1-800-888-0054** regardless of the location. You have many choices to reach various departments or extensions. Since this was all done to make it easier for you to get where you want to go, here are the number options.

Press 1 - Customer Service
Press 2 - Plant Department
Press 3 - Construction Department
Press 4 - Technical Services

Press 5 - Accounting Department
Press 6 - Contact Your Local Branch
Press 7 - Corporate Directory
Press 0 - Speak with Our Receptionist

Orders 800-659-4346 / General 800-888-0054

WEB600 Monitoring System

Provides flexible web-based remote monitoring at an affordable price. Keep track of critical temperatures and other conditions and be notified immediately when current values exceed the normal range. Completely stand-alone and easy to use, the Web600 can be used for monitoring cold food storage, medical cold storage, and other temperature sensitive areas like computer rooms and data centers. In addition to temperature monitoring, the Web600 can also read values from humidity sensors, air quality sensors, water leak detection sensors and much more.

- Alarm e-mail / text messages
- Up to eight people can be contacted
- Web programming
- Connect up to six external sensors

Item #	Description	Price
24-3165	WEB600	$379.80
24-3170	External Battery Backup Module	74.97

Sensaphone™

Security Monitoring System

- Phone line needed for operation
- Continually monitors major environmental conditions.
- Provides instant, verbal communication.
- Lets you listen in to "live" sounds in your house.
- Keeps working, even if there's a power failure.
- Automatically dials up to 4 numbers, 32 digits
- A snap to install.

The Sensaphone system allows you to establish two-way communication and direct security monitoring of your property, even when there's no one there.

It calls to tell you there's a problem and reports on:

- Power failure
- Temperature changes

Detection Options Available

- Fire and smoke
- Leaks or Flooding
- Intruders...and more

Sensaphone™

Item #	Vendor #	Description	Price
24-3145	FGD 400	Sensaphone Model #400	$412.63
24-3130	FGD 0100	Remote Temperature Sensor	20.81
24-3135	-	Surge Suppressor w/ modem/FAX suppression	25.70

Thermalarm III

Thermalarm III is a temperature sensitive instrument containing an ambient temperature-indicating hand and two adjustable side hands for limiting the temperature range. When properly installed it will trigger a 6 to 12-volt alarm system when the temperature reaches a predetermined high or low setting.

- Hermetically sealed contacts
- Improved corrosion resistance
- Easily adjusted set hands
- Quicker response to temperature changes

Thermalarm III

Item #	Description	Price
24-2125	ThermAlarm III	$58.74

Temp° Alert®

Temp° Alert® will automatically ring a bell in your home or activate a greenhouse alarm system such as the Sensaphone® when the temperature in your greenhouse drops below or rises above your preset temperature limits.

No. 24-4125   **$58.08**

Temp° Alert®