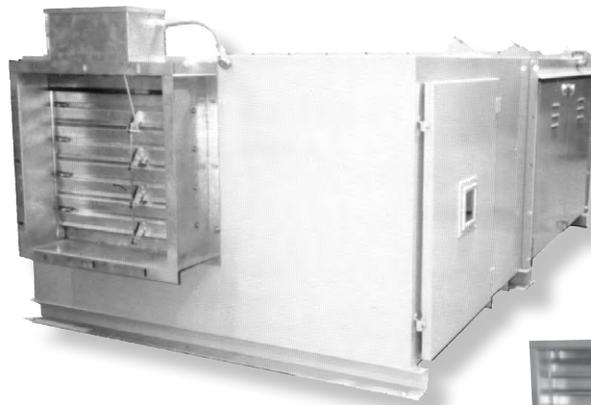


AEROVENT

INDUSTRIAL VENTILATION SYSTEMS



Centrifugal DW



Propeller



GAS-FIRED AIR MAKE-UP UNITS

**Axial Flow & Centrifugal
Direct Digital Control (DDC) Systems**

Introduction

What is make-up air?

Make-up air is outside air tempered and introduced into a building to eliminate negative pressure and provide a positive operating pressure within a facility.

Why do you need make-up air?

Fans and blowers used in spray booths, hoods, ovens, dust collectors, ventilators, and other plant equipment exhaust air to the outside. Without a controlled introduction of air to “make up” for the exhausted air, an air-starved environment will result.

When do you know you need make-up air?

Make-up air is required when:

- Gravity stacks from unit heaters and processes backvent.
- Exhaust systems do not perform at rated volume leading to poor control of contaminants.
- The perimeter of the building is cold due to a high infiltration rate.
- Exterior doors are hard to open.
- There are several indrafts at exterior doors, windows, and building openings.
- Heating systems are not able to maintain uniform comfort conditions throughout the building. The outer core area is cold due to infiltration while the center core is overheated.

How much does make-up air cost?

Make-up air doesn't cost money. It actually saves money by:

- Extending the life of heat exchangers on combustion equipment.
- Providing more uniform temperatures throughout the building, reducing overheated areas and cold drafty areas.
- Allowing exhaust systems to operate at designed capacity, reducing the need for additional equipment.
- Minimizing the damage to materials from contaminants which may exist in the local atmosphere.
- Reducing employee turnover and absenteeism because of better health conditions and plant cleanliness.
- Improving products with fewer rejects because furnaces operate at designed conditions.

How much make-up air do you need?

The recommended procedure to determine the amount of make-up air needed is to total the CFM capacity of all the exhaust fans and blowers in the plant and add 10% to create a positive pressure situation.

If the data is not available, the following equations can be used as a means of determining how much make-up air is required.

Paint Spray Booth: 125 to 175 CFM per square foot of face opening.

Oven Exhaust: one air change per minute of oven volume in cubic feet.

Fume Exhaust: $CFM = \text{area of discharge pipe in square feet} \times \text{velocity (3,000 fpm average)}$.

Roof Ventilator: $CFM = \text{area of discharge pipe in square feet} \times \text{velocity (3,000 fpm average)}$.

Dust Collector: $\text{area of discharge pipe in square feet} \times \text{velocity (4,000 fpm average)}$.

Canopy Hoods: 100 to 300 CFM per square foot of hood open area.

Combustion Air For Furnaces: $CFM = \text{fuel consumed in Btu per hour divided by 6,000}$.

Drying, Baking, or Curing Ovens: 100 CFM per square foot of both cross sections.

Pickling or Cleaning Tanks: 150 CFM per square foot of door opening or 200 CFM per square foot of hood face opening.

Contents

Introduction	2
Application Considerations	3
Design Features	4
Construction Features	7
Accessories	8
Standard Temperature Controls	9

Control Panel	10
Sequence of Operation	11
Digital Temperature Control	12
Performance Data	16
Dimensional Data	21
Typical Specifications	25

Application Considerations

Air Balance

Exhaust fans cannot work properly without an adequate supply of air. If provision for air supply is not made, the vacuum created reduces the effectiveness of mechanical ventilation. Negative pressure also causes excessive infiltration, making it difficult to heat properly. These conditions can be corrected by replacing the exhausted air with clean, fresh, pretreated air. The primary purpose of make-up air is to temper outside air and supply it in sufficient quantities to bring about the condition of balanced ventilation.

Depending upon the quantity of make-up air in relation to the exhaust, the heating system will shut down during the working day allowing the air make-up system to handle the entire load. The heating system then functions only to maintain satisfactory temperatures at nighttime and other plant shutdown periods.

When you add an air make-up system to an existing plant it is necessary to make a detailed analysis of the overall situation in order to determine what the relationship might be between the heat added by make-up air and that supplied from the plant heating system. Where exhaust systems already exist, the installation of air make-up usually will not increase the heating load and can bring about a reduction of overall heating costs. This may be understood by considering that infiltrated air, warmed at least partially by the plant heating system, is ultimately mixed with room air and exhausted through the ventilating fans. Infiltration of unheated air results in a decline of heating efficiency. Most heating systems are not adequately rated to cope with infiltration when appreciable negative pressures exist. Air make-up units provide a systematic method of heating entering air and supplying it in controlled quantity. With the proper balance of supply and exhaust, infiltration is eliminated and negative pressures are equalized. By properly tempering supply air, the heating system is relieved of this abnormal load. The results are uniform space heating, effective ventilation, and improved comfort.

Heating

Experience with fresh air heating systems has shown that it is practical and economically sound to heat industrial plants and even warehouses with fresh air. The question of whether to use 100% fresh air or recirculate some portion is debatable, and engineers are using both methods in their applications.

When direct-fired systems were first used some authorities felt that positive exhaust was necessary to assure a balance and prevent the possibility of a buildup of products of combustion. It is now generally recognized that air can be supplied into most buildings having no mechanical exhaust and in quantities sufficient to heat them without building up a positive pressure of more than a few hundredths of an inch water gauge. It is the reverse of infiltration and this principle can be used to design fresh air plant heating.

The standard air make-up unit is used for industrial space heating with 100% outside air or with a fixed percentage of recirculation, and in some designs with a combination of these. Your Aerovent representative can assist you in determining application requirements for general air make-up and for fresh air heating. They can supply detailed information as it may apply to specific conditions.



A gas-fired air make-up unit on the test stand. All units are tested before delivery.

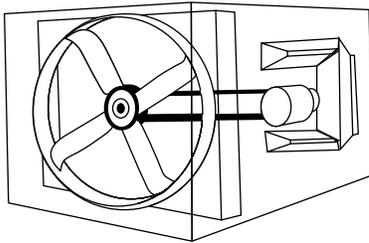
Design Features

The Aerovent Gas-Fired Air Make-up Unit is a complete air supply system in a self-contained package with fan, burner and controls. The unit is ready for connection to the gas line and power source.

These units are available in various sizes and types which can be designed into nearly all industrial requirements. The equipment is designed for tempering outside air and supplying it into the building for ventilation make-up and balancing of negative pressure. The units are also adaptable to other applications where ordinary heating or drying operations are involved.

Axial

Axial units can be adapted to include filters, discharge ducts and weatherhoods. They are best suited for low static pressure applications.



Centrifugal DW

Centrifugal DW Air Make-up Units, utilizing two fan inlets, offer the quietest performance per a given output. Discharges are limited to up, down, and forward.

The Centrifugal DW Air Make-up Unit has the same standardized control system and component assembly as axial flow designs. Units are factory assembled, test fired, and have the controls adjusted and set prior to shipment. The fan wheels are industrial type and available in either forward or backward curved styles. Single-fan, DWDI units have rated capacities from 6,000 cfm to 100,000 cfm.

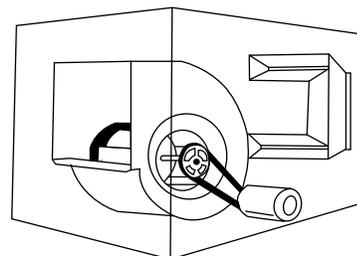
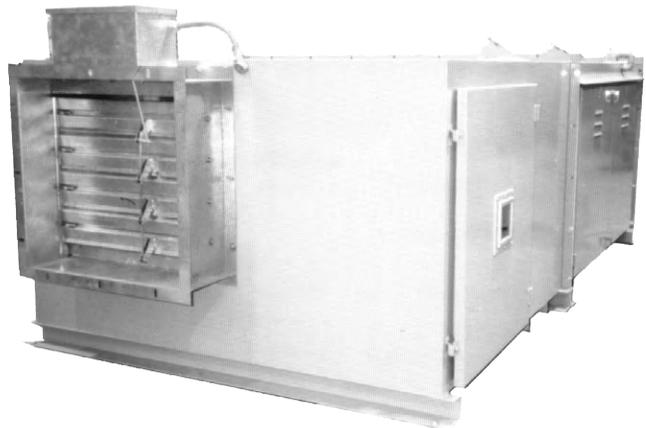
Installation requires only the placement of the unit and connection to power, fuel line, and the remote operating station.

The heavy-duty discharge damper is standard equipment on type DW units.

The large DW housings provide proper clearance between fan inlets and side walls. This dimension is critical for proper performance. The fan shaft uses two bearings supported on steel plate strutted bases. The bearings are heavy-duty, grease-lubricated ball type in standard malleable iron pillow blocks.

When units are mounted outside, the motor and controls are protected by control room doors. The doors are hinged to swing outward, giving an unobstructed access to the control panel and piping.

After surface preparation, a primer coat is applied followed by a weather resistant, air-dried, light gray enamel.



Design Features

Centrifugal SW

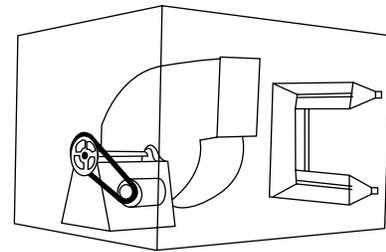
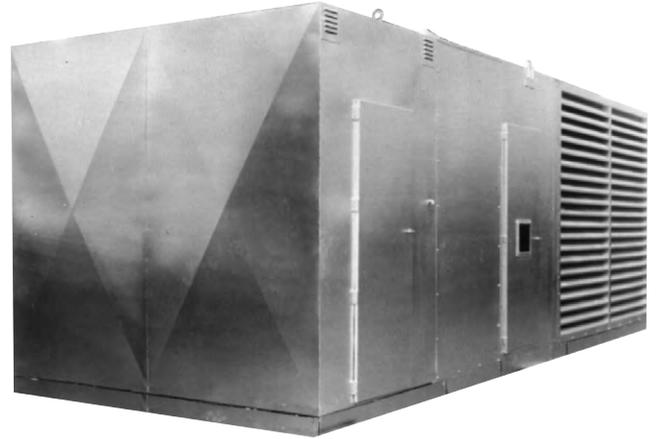
The Model GACSW is a centrifugal fan air make-up unit of unique design. The fan is single width with backward-inclined airfoil blades. The airflow burner is directly in line with the inlet to the fan, and the fan discharge is downward, upward, or to either side as desired. This arrangement eliminates turbulence which is present in the double-width or multiple wheel designs. The effect of placing a housing around the fan is eliminated, and the performance is certified because the fan will behave according to the fan laws.

The higher outlet velocity of the Model GACSW unit is advantageous in the design of industrial duct distribution systems. In cases where low velocities are desirable, it is a simple matter to add an evasé discharge to reduce the velocity as required. In this case, the static pressure regain can be utilized in the design of the duct system.

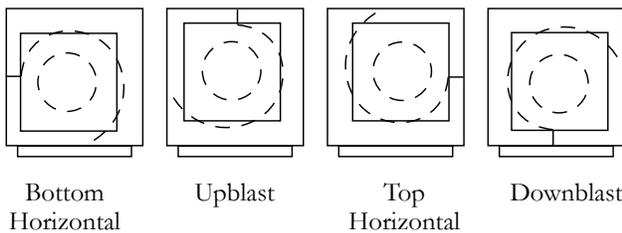
The Model GACSW can be equipped to mount inside or outside. When roof mounted it is completely enclosed forming a compact penthouse. The uniform straight-line appearance will blend well with modern industrial architectural design.

The control system is the same high-quality design with solid-state flame relay, ultraviolet flame sensing and solid-state electronic modulating system. It is completely standardized to meet both FM and IRI requirements. These are the latest and most dependable controls available for air make-up heaters.

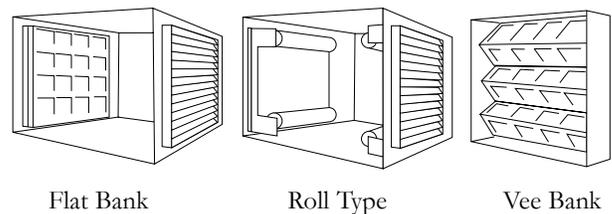
Model GACSW units are offered in two arrangements and four discharges for both roof and inside installation. Page 24 shows the dimensions of two of these: roof mount, down discharge with vee bank; and roof mount, down discharge with roll type filters.



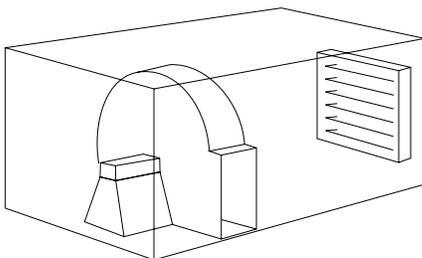
Discharge Arrangements For Centrifugal SW Units



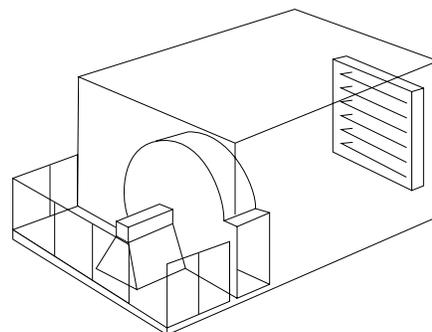
Filter Types



Roof Installation, Bottom Horizontal



Inside Installation, Bottom Horizontal

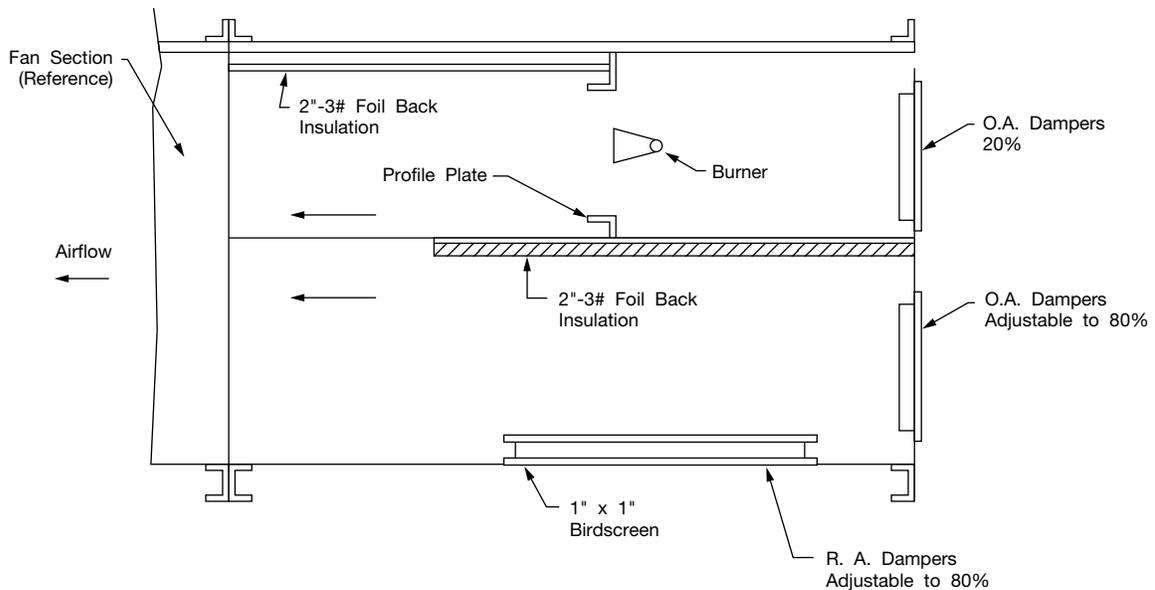


Design Features

Other Make-up Units

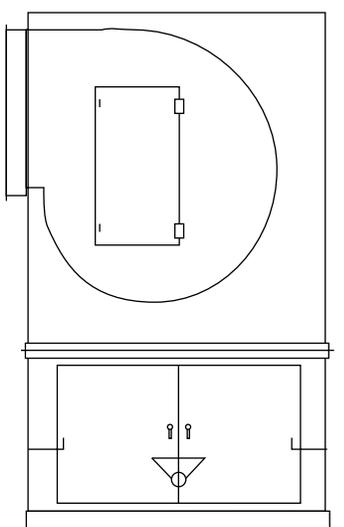
80/20 Recirculating

A recirculating system allowing up to 80% recirculation is offered as an option. This system is designed to insure that a minimum of 20% of the designed performance is outside air. Recirculated air is not allowed to flow across the burner. This design complies with most governmental codes covering recirculation with direct-fired air make-up systems. The percentage of outside air is adjustable from 20% through 100% with a manual set point as standard. Pressure and temperature controllers are available as an option.

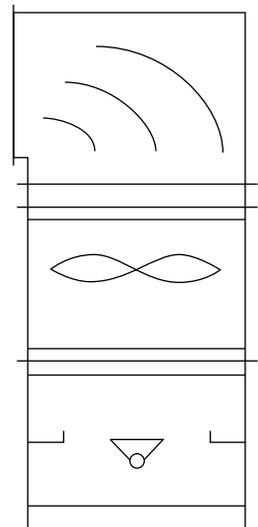


Vertical Type Installations

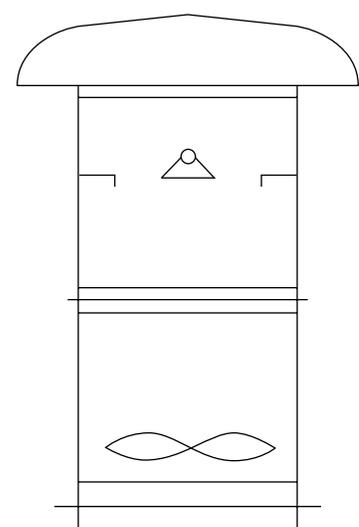
Vertical installations are offered as illustrated below. The propeller units are available as vertical up (minimum height to inlet 6 feet) and vertical down with Tu-Way style inlet hood. The Model GACDW is offered as vertical up only (consult factory for discharge arrangements and minimum requirements).



Vertical DW
(Support by others)



Vertical Up Prop.
(Support by others)
(Elbow optional)

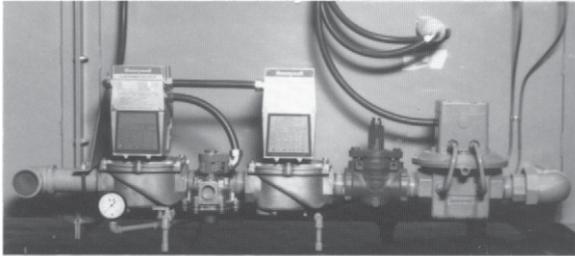


Vertical Down Prop.
(Support by others)
(Inlet hood optional)

Construction Features

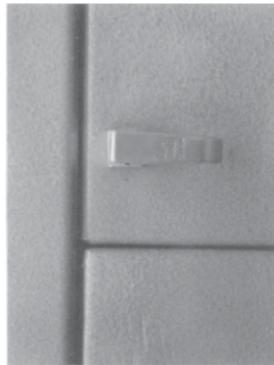
Pipetrain

Liquid-tight conduit is used for all interconnecting wiring. Approved safety shutoff valves are standard.



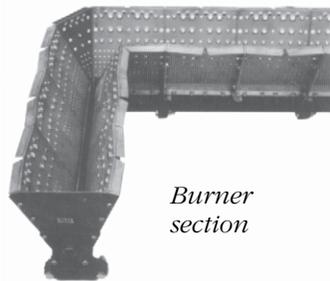
Weather Cover Door

Raintight channeled edges with rustproof, quick clamp lever type latches.

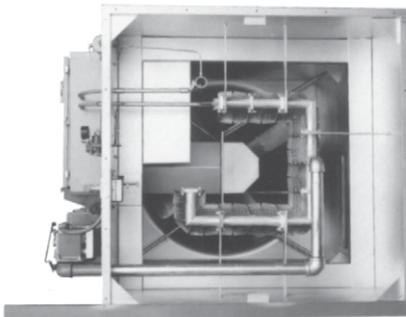


Burner

New NP (Natural/Propane) airflow burner has stainless steel mixing plates and cast iron manifold assembly.



Burner section



Unit inlet showing burner

Housing

Heavy-gauge corner-to-corner welded steel housing sections are flanged or angle construction and are bolted together.

Controls

Mounted in a NEMA 12 enclosure. See page 10.

Velocity Monitor

Senses only velocity pressure (pressure due to airflow) and is not affected by the system static pressure. If the inlet or discharge is accidentally restricted or filters become clogged, this control will cause unit shutdown.



Heavy-duty Damper

Twelve-gauge frame and linkage with 16-gauge blades. Pivots are mounted in 1/2" oil bronze bushings. Blades do not extend beyond the frame.



Bearings

Cast iron housing pillow block ball bearings or spherical roller bearings.

Safety Guard

Rugged safety guard designed for easy removal for access to fan drive components.

Sheaves

Close grain machined cast iron with split taper bushing.

Belts

A, B, or C section belts selected for 150% of horsepower requirement.

Shaft

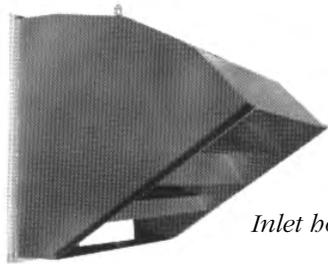
Machined carbon steel.



Accessories

Inlet Hood

With turning vanes as shown or fewer turning vanes for use with vee bank filter section. Available for all units.



Inlet hood

Filter Section

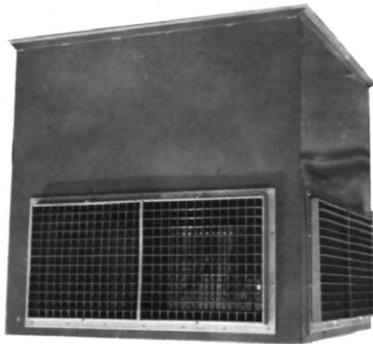
There are three types available: vee bank, Roll-O-Matic, or flat-bank design. The standard filter is a disposable type with washable available as an option.



Vee bank filter section

Air Distributor

Features four directional discharge grilles.



Air distributor

Weathertight Construction

Controls protected by a weatherproof cover.

Walk-in Weathertight Construction

A walk-in weatherproof control enclosure is available for outside installation.

Inlet or Discharge Elbows With Turning Vanes

Inlet elbows for use with propeller units. Discharge elbows fit the propeller units and are adaptable to others.

Directional Discharge Grille

Provides for four-way adjustment of airflow. Cabinet is lined with acoustic material. It is usually used with propeller type units.

Manually Adjustable and Motorized Burner Profile Plates

For use with all type units.

Vibration Eliminators

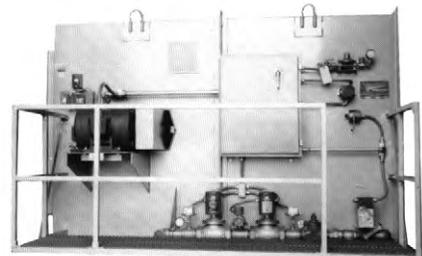
Available for use with all type units. Rubber-in-shear or spring.

Bird Screen

Available for use on all type units.

Service Platform

For convenient access to motor, control enclosure, and piping train, a sturdily-built service platform is optional for all inside installations.



Service platform

Additional Options

The following is a condensed list of additional options that Aerovent can provide. If an option, control, or design is not listed, please contact your Aerovent representative. Aerovent has built many special designs not shown in the catalog.

- Special paint (epoxy, special colors, etc.)
- Two-speed operation
- Night setback with switches and thermostat
- Internal fan isolation
- Inlet plenums and vertical intake hoods
- “Soft” starters (reduced voltage starters)
- Support stands
- Galvanized, aluminum, or stainless steel construction
- Double wall insulated construction

- 80/20 recirculation with temperature or pressure control
- Evaporative air coolers (spray type and media type)
- Variable frequency drives
- Power factor capacitors
- Gas regulators
- Inlet damper
- Dirty filter gauges and lights
- Push-to-test lights
- Mini load centers
- Smoke detectors/alarms
- Fluorescent lighting
- Chilled water or DX cooling sections
- High efficiency filtration
- Process heating applications
- Burner sections for retrofit applications

Standard Temperature Controls

Two standard systems for temperature control are available offering a choice of functions for the regulation of air temperature. The outlet temperature control (OTC) system senses only the discharge air temperature at the unit. The sensing device is located in the airstream. It averages the temperature and sends a signal to the servomechanism in the modulating regulator. The regulator in turn modulates the gas pressure in the burner manifold, and the gas flow is varied to maintain the air temperature constant at the sensor. The OTC system is used where the volume of air supplied is relatively small compared to the volume of the building, which usually means that it is not intended for the air make-up unit to pick up an appreciable part of the building heating.

In most installations, room temperature control is desirable. Two controllers are available for this operation. The simplest and least expensive control is a thermostat added to the OTC system (OTC-RO) and located to sense the room temperature. The contacts close on a call for heat and cause an increase in the discharge air temperature. The air make-up unit delivers air at the higher temperature until the room thermostat is satisfied; full control is then returned to the discharge sensor. The limited amount of temperature increase eliminates excessive discharge air temperature. The temperature setting is usually 5° below the outlet temperature set point.

The modulating room temperature control (MRTC) is slightly more sophisticated. Instead of a thermostat, a thermis-



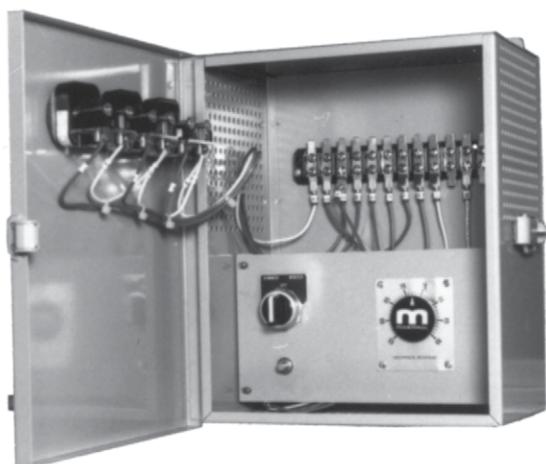
Tamper-proof control system

tor is used to sense the room temperature. The signal actuates the modulating regulator to provide an incremental increase or decrease of the discharge temperature, providing closer control and preventing an abrupt change in the temperature of the air at the outlet of the unit or outlets of a distribution system. In the room temperature control system the discharge air temperature sensor performs a limiting function so that the discharge air cannot exceed a reasonable temperature. The discharge air temperature can be set to suit the individual requirements at the time of installation.

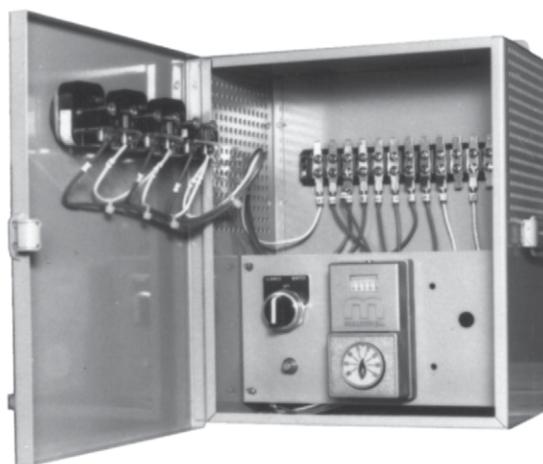
The air temperature controllers are combined with the operation selector switch and indicator lights—all mounted in a remote operating station. The OTC unit can be mounted in any convenient location and contains a summer-off-winter selector switch and indicator lamps showing that power is on, the fan is running, and there is a flame on the burner. There is also a knob for setting the discharge temperature of the air make-up unit.

The OTC-RO control station contains all of these controls and indicators in addition to a room temperature thermostat. The MRTC remote operating station has a thermistor on top instead of the on-off thermostat. The OTC-RO or MRTC remote operating stations should be mounted in a location where the desired room temperature is best sensed. This will be a matter of judgment, made at the time of installation.

The circuit design contains a mild weather thermostat as standard. This thermostat senses the outside temperature and, at a predetermined setting, will cause the burner to be shut off completely while allowing the fan to run. This makes it possible to have year-round operation with the selector switch set to the winter position and the mild weather thermostat set to a desirable “heat off” temperature (65°F). When the outside temperature is above 65° the heat will be off. When it is below 65° the burner will be in operation and the temperature regulated according to the modulating control.



Outlet Temperature Control (OTC)



Modulating Room Temperature Control (MRTC)

Control Panel

The main control panel is designed with the service technician in mind. The panel is housed in a NEMA 12 enclosure and is licensed to carry the UL and CSA label under the 508 listing. The panel meets all standards of the National Electric Code and includes as standard:

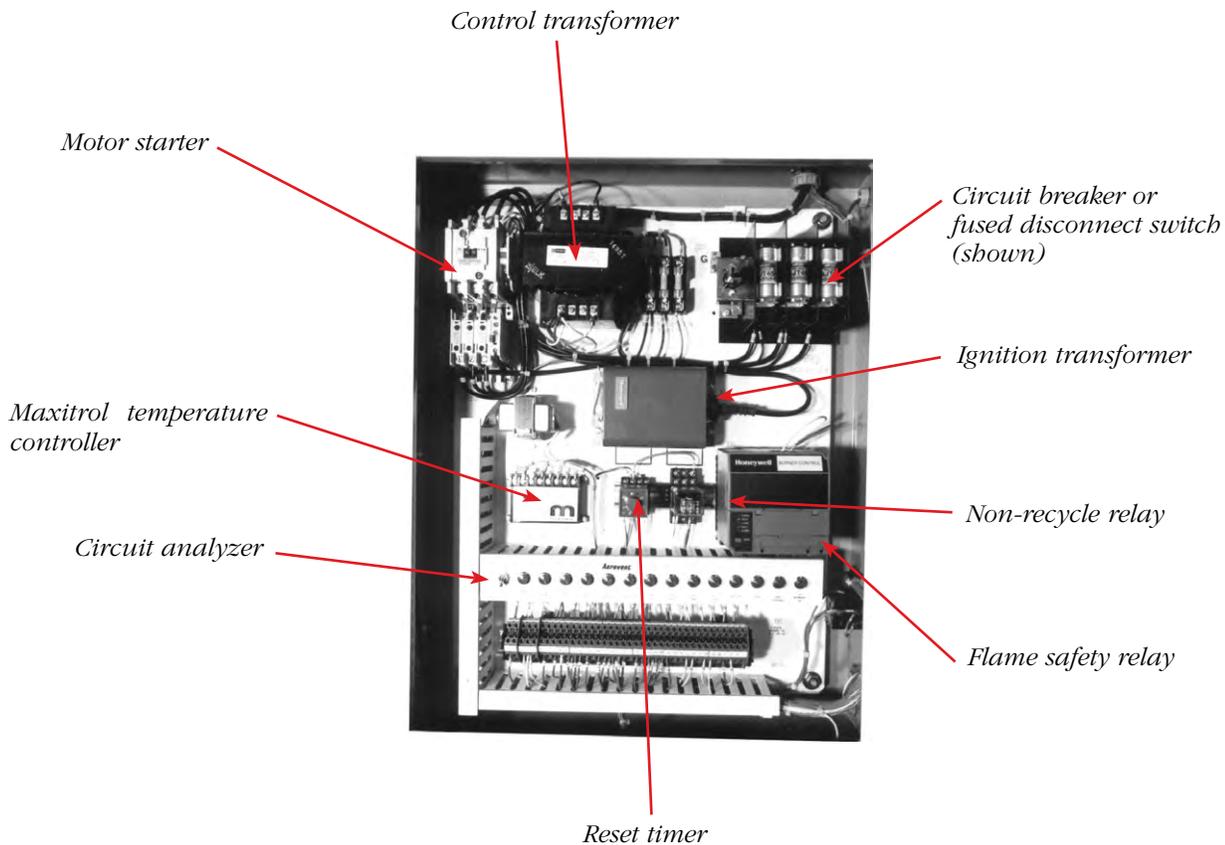
- Industrial duty circuit breaker with flange mount handle
- Stepdown control transformer
- Motor starter with overloads
- Ignition transformer
- Honeywell 7800 series primary flame safeguard system
- Maxitrol temperature controller
- Purge and reset timers

The incorporation of the Honeywell 7800 flame relay offers the customer the following options:

- Remote relay reset (reset lockout from remote panel)
- Communications capability (provides local and remote troubleshooting with 386 CPU)
- Fault history (readout of six most recent faults from LED readout for troubleshooting flame failures)

A unique feature that is standard in all control panels is the Aerovent Circuit Analyzer. The analyzer gives indication of circuit continuity on unit start-up, thus allowing maintenance personnel quick determination of a faulty component which simplifies troubleshooting.

Customized systems are available, including but not limited to remote digital temperature readout and 4-20mA or 0-10V input to our controller.

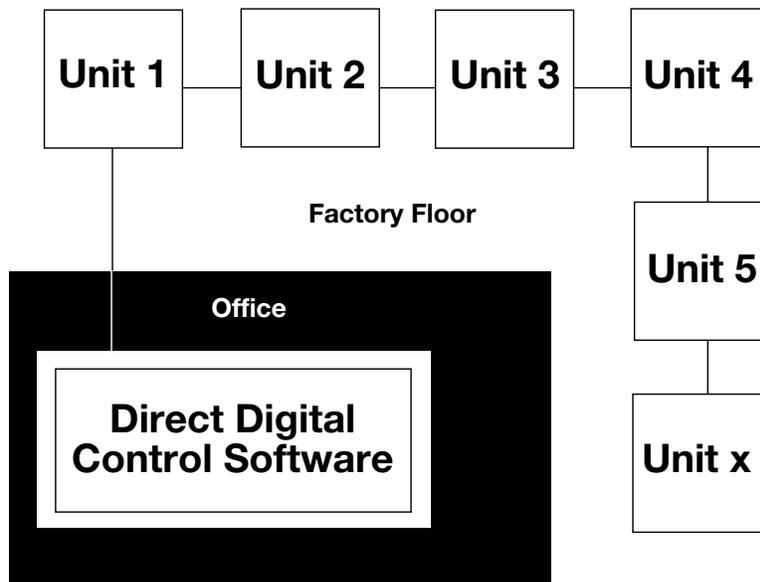
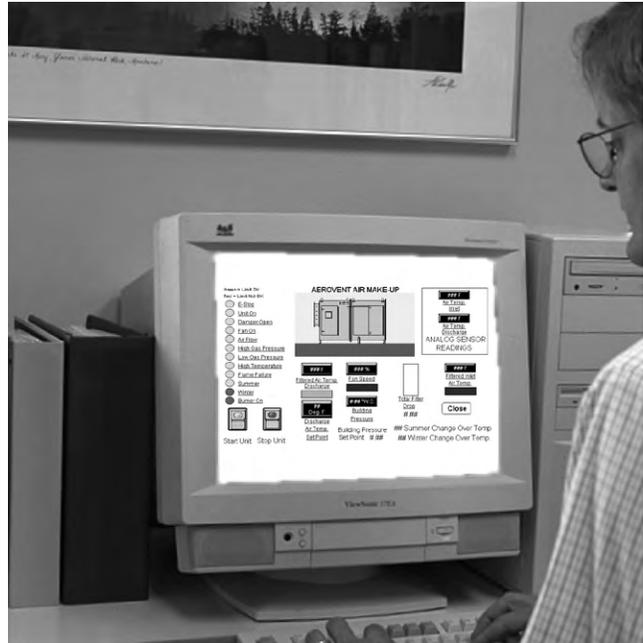


Digital Temperature Control

Aerovent's Direct Digital Control System[®] is a PC-based control system that can remotely monitor and control all aspects of your HVAC system from your PC. Each Air Make-up unit has a stand-alone controller which can be connected to an IBM-compatible PC. The Windows[®]-based* software can be easily customized to include and display the information necessary for smooth operation of your system. The complete system, including PC, is available from Aerovent. Aerovent can supply Air Make-up units compatible for use with an existing DDC system or for future installation of a DDC system.

Capabilities

A typical DDC System would monitor system status, outside air temperature, room air temperature and discharge air temperature. It can control turning units on and off, room pressure (via VFD or recirculation), discharge temperature and summer/winter changeover. It can also control exhaust fans, night temperature setback, and alarm faults.



*Windows[®] is a registered trademark of Microsoft Corporation.

Digital Temperature Control

Typical Direct Digital Control Package For Gas-Fired Air Make-Up

- Maxitrol A200 Signal Conditioner
- Setpoints and sequence, programmed and tested at Aerovent factory
- Stand-alone controller for each unit which can be connected to an IBM-compatible PC
- On-site start-up support and training

DDC System Will Monitor:

- Outside air temperature
- Discharge air temperature
- Room air temperature (optional)
- Motor amperage (optional)
- Gas valve position
- High/low gas pressure status
- Airflow status
- Fan status
- Flame status
- Room pressure (optional for 80/20 recirculation or VFD applications)
- Summer/winter status
- Damper status
- High temp status
- Burner status

Sequence of Operation:

- Turn unit on
- Select summer/winter operation according to outside air temperature
- If discharge air temperature is below low limit setpoint for more than 3 minutes, turn unit off and send fault signal
- If discharge air temperature is above high limit setpoint, turn unit off and send fault signal
- Turn unit off upon detection of status change

Summer:

- Automatically select summer mode if outside air temperature is above the setpoint
- Monitor all inputs
- Disable burner
- Send output to recirculation dampers or VFD according to room pressure (optional)

Winter:

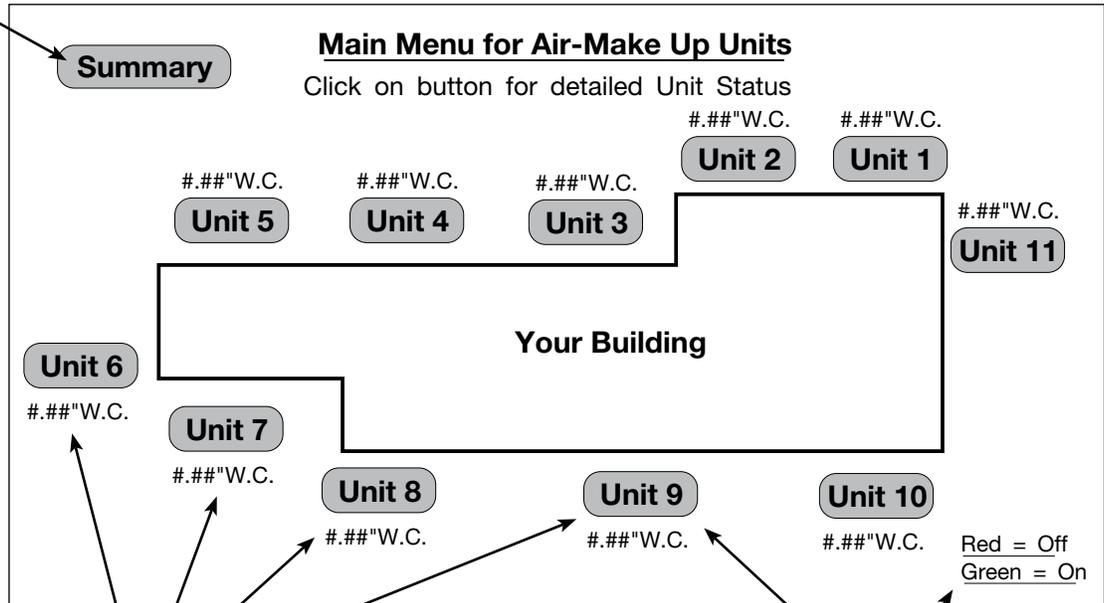
- Automatically select winter mode if outside air temperature is below setpoint
- When fan, burner, and airflow are on, Maxitrol A200 modulates the gas valve according to the discharge or room temperature setpoint
- Send output to recirculation dampers or VFD according to room pressure (optional)

Digital Temperature Control

This is the main screen of the Direct Digital Temperature Control System. It displays the basic status of the unit(s) and the system. From here you can jump to screens (shown next page) which show the status of individual units.

Clicking here will show a summary of the system status. This is customizable to include any or all data points, for example:

- List all units
- On/Off
- Discharge set-point
- Temperature at discharge
- Outside air temperature



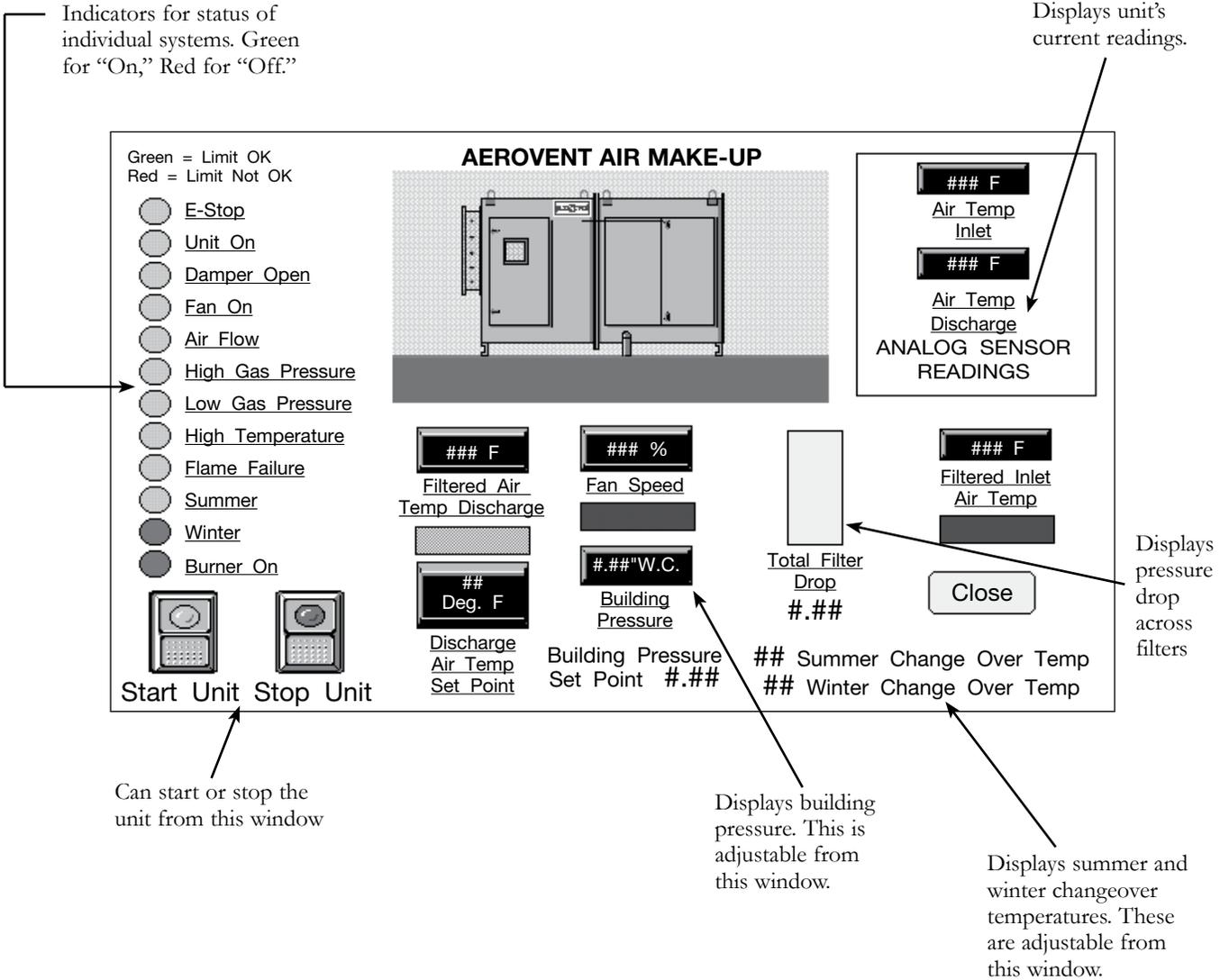
Clicking an individual unit will display the control screen for that unit, shown on the next page.

Background color indicates unit status – green for “On,” red for “Off.”

- Can add an “Alarm” state
- Can customize name, e.g. “Baghouse”

Digital Temperature Control

This screen displays data for individual units. Most functions of the unit can be included or excluded and can be controlled from here.



Performance Data

Model GA Propeller Gas-fired Air Make-up Units Standard Construction

Catalog Numbering System

Assign catalog number by using the numbering system outlined in the example at right and indicate discharge position.

Definitions

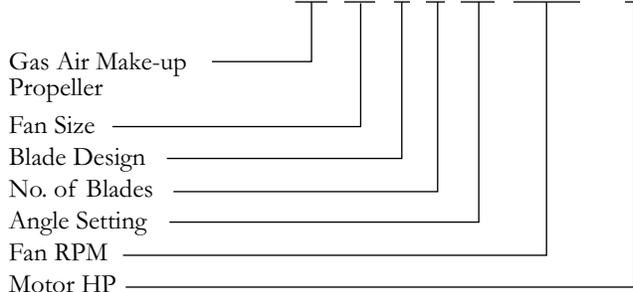
BTU/HR. is sensible heat release. To determine cfh gas input, divide Btu by the net heat value of the fuel.

CFM is net volume at discharge at 70°F.

EXT. SP (external static pressure) is pressure available for addition of ducts.

All units are furnished with burners having 25 to 1 turndown ratio.

GA 30 L 4 22 1081 - 1



AIR MAKE-UP WITHOUT FILTER CABINET						
CATALOG NUMBERS	TEMPERATURE RISE: 0° TO 92°					
	CFM	EXT. SP	FAN SIZE	FAN RPM	MTR. HP	BTU/HR.
GA-30L422-1081-1	6,000	0	30"	1081	1	600,000
GA-30L422-1290-1½	6,000	¼	30"	1290	1½	600,000
GA-30L422-1493-3	6,000	½	30"	1493	3	600,000
GA-30L422-1333-2	10,000	0	30"	1333	2	1,000,000
GA-30L422-1467-3	10,000	¼	30"	1467	3	1,000,000
GA-30L422-1599-5	10,000	½	30"	1599	5	1,000,000
GA-30L422-1730-5	10,000	¾	30"	1730	5	1,000,000
GA-36L422-1154-3	15,000	0	36"	1154	3	1,500,000
GA-36L422-1255-3	15,000	¼	36"	1255	3	1,500,000
GA-36L422-1351-5	15,000	½	36"	1351	5	1,500,000
GA-36L422-1445-5	15,000	¾	36"	1445	5	1,500,000
GA-42L422-976-3	20,000	0	42"	976	3	2,000,000
GA-42L422-1064-5	20,000	¼	42"	1064	5	2,000,000
GA-42L422-1148-7½	20,000	½	42"	1148	7½	2,000,000
GA-42L422-1229-7½	20,000	¾	42"	1229	7½	2,000,000
GA-48L422-831-5	25,000	0	48"	831	5	2,500,000
GA-48L422-911-7½	25,000	¼	48"	911	7½	2,500,000
GA-48L422-987-7½	25,000	½	48"	987	7½	2,500,000
GA-48L422-1060-10	25,000	¾	48"	1060	10	2,500,000
GA-48L422-936-7½	30,000	0	48"	936	7½	3,000,000
GA-48L422-1005-7½	30,000	¼	48"	1005	7½	3,000,000
GA-48L422-1072-10	30,000	½	48"	1072	10	3,000,000
GA-48L422-1136-10	30,000	¾	48"	1136	10	3,000,000
GA-54L422-836-10	40,000	0	54"	863	10	4,000,000
GA-54L422-923-10	40,000	¼	54"	923	10	4,000,000
GA-54L422-979-15	40,000	½	54"	979	15	4,000,000
GA-54L422-1034-15	40,000	¾	54"	1034	15	4,000,000
GA-60L422-784-10	50,000	0	60"	784	10	5,000,000
GA-60L422-837-15	50,000	¼	60"	837	15	5,000,000
GA-60L422-887-15	50,000	½	60"	887	15	5,000,000
GA-60L422-937-20	50,000	¾	60"	937	20	5,000,000
GA-72M622-702-15	75,000	0	72"	702	15	7,500,000
GA-72M622-751-20	75,000	¼	72"	751	20	7,500,000
GA-72M622-799-25	75,000	½	72"	799	25	7,500,000
GA-72M622-850-30	75,000	¾	72"	850	30	7,500,000
GA-84M622-593-20	100,000	0	84"	593	20	10,000,000
GA-84M622-636-25	100,000	¼	84"	636	25	10,000,000
GA-84M622-677-30	100,000	½	84"	677	30	10,000,000
GA-84M622-700-40	100,000	¾	84"	700	40	10,000,000

NOTE: Add 1/4" when ordering unit with filters.

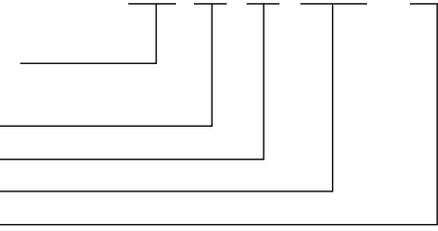
Model GAS Propeller Gas-fired Air Make-up Units Super Panel Construction

Catalog Numbering System

Assign catalog number by using the numbering system outlined in the example at right and indicate discharge position.

GAS 21 B4 1836 - 1 1/2

Gas Air Make-up
Super Panel
Fan Size
Blade Design
Fan RPM
Fan HP



AIR MAKE-UP WITHOUT FILTER CABINET					
CATALOG NUMBERS	TEMPERATURE RISE: 0° TO 92°				
	CFM	EXT. SP	FAN SIZE	BHP	BTU/HR.
GAS21B4-1856-1 1/2	6,000	1/4	21"	1.48	600,000
GAS21B4-1960-2	6,000	1/2	21"	1.82	600,000
GAS21B4-2056-3	6,000	3/4	21"	2.16	600,000
GAS21B4-2150-3	6,000	1	21"	2.49	600,000
GAS21B4-2332-5	6,000	1 1/2	21"	3.21	600,000
GAS21B4-2507-5	6,000	2	21"	3.98	600,000
GAS24B4-1906-3	10,000	1/4	24"	3.00	1,000,000
GAS24B4-1984-5	10,000	1/2	24"	3.55	1,000,000
GAS24B4-2061-5	10,000	3/4	24"	4.13	1,000,000
GAS24B4-2133-5	10,000	1	24"	4.70	1,000,000
GAS24B4-2265-7 1/2	10,000	1 1/2	24"	5.80	1,000,000
GAS24B4-2391-7 1/2	10,000	2	24"	6.94	1,000,000
GAS32B4-1266-5	15,000	1/4	32"	3.92	1,500,000
GAS32B4-1333-5	15,000	1/2	32"	4.79	1,500,000
GAS32B4-1393-7 1/2	15,000	3/4	32"	5.62	1,500,000
GAS32B4-1450-7 1/2	15,000	1	32"	6.44	1,500,000
GAS32B4-1562-10	15,000	1 1/2	32"	8.19	1,500,000
GAS32B4-1670-10	15,000	2	32"	10.05	1,500,000
GAS36B4-1158-7 1/2	20,000	1/4	36"	5.46	2,000,000
GAS36B4-1215-7 1/2	20,000	1/2	36"	6.62	2,000,000
GAS36B4-1268-10	20,000	3/4	36"	7.75	2,000,000
GAS36B4-1317-10	20,000	1	36"	9.30	2,000,000
GAS36B4-1411-15	20,000	1 1/2	36"	11.11	2,000,000
GAS36B4-1502-15	20,000	2	36"	13.52	2,000,000
GAS42B4-953-7 1/2	25,000	1/4	42"	6.35	2,500,000
GAS42B4-1005-10	25,000	1/2	42"	7.76	2,500,000
GAS42B4-1052-10	25,000	3/4	42"	9.13	2,500,000
GAS42B4-1097-15	25,000	1	42"	10.52	2,500,000
GAS42B4-1185-15	25,000	1 1/2	42"	13.47	2,500,000
GAS42B4-1270-20	25,000	2	42"	16.60	2,500,000
GAS48B4-782-7 1/2	30,000	1/4	48"	7.30	3,000,000
GAS48B4-828-10	30,000	1/2	48"	8.97	3,000,000
GAS48B4-870-15	30,000	3/4	48"	10.61	3,000,000
GAS48B4-912-15	30,000	1	48"	12.36	3,000,000
GAS48B4-993-20	30,000	1 1/2	48"	16.05	3,000,000
GAS48B4-953-15	40,000	1/4	48"	11.98	4,000,000
GAS48B4-992-15	40,000	1/2	48"	14.21	4,000,000
GAS48B4-1030-20	40,000	3/4	48"	16.51	4,000,000
GAS48B4-1066-20	40,000	1	48"	18.78	4,000,000
GAS48B4-1132-25	40,000	1 1/2	48"	23.18	4,000,000
GAS48B4-1195-30	40,000	2	48"	27.71	4,000,000
GAS54B3-882-15	50,000	1/4	54"	14.69	5,000,000
GAS54B3-917-20	50,000	1/2	54"	17.19	5,000,000
GAS54B3-951-20	50,000	3/4	54"	19.74	5,000,000
GAS54B3-984-25	50,000	1	54"	22.40	5,000,000
GAS54B3-1046-30	50,000	1 1/2	54"	27.93	5,000,000
GAS54B3-1106-40	50,000	2	54"	33.73	5,000,000
GAS60B3-928-30	75,000	1/4	60"	27.35	7,500,000
GAS60B3-953-30	75,000	1/2	60"	30.90	7,500,000
GAS60B3-979-40	75,000	3/4	60"	34.61	7,500,000
GAS60B3-1005-40	75,000	1	60"	38.40	7,500,000
GAS60B3-1055-50	75,000	1 1/2	60"	46.12	7,500,000
GAS60B3-1102-60	75,000	2	60"	54.16	7,500,000

Model GACDW Centrifugal DW Gas-fired Air Make-up Units

Catalog Numbering System

Assign catalog number by using the numbering system outlined in the example at right and indicate wheel rotation and discharge position.

GACDW 400 BI - 1914 - 5

Gas Air Make-up
DW Centrifugal

Wheel Size

Wheel Design

Fan RPM

Motor HP

FC-DW Centrifugal – Forward Curved Blade

CATALOG NO.	CFM	OUTLET VELOCITY	BTU/HR.	EXTERNAL STATIC PRESSURE									
				0"		½"		1"		1½"		2"	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
GACDW-400-FC	6,000	1500	600,000	784	2.3	898	2.8	1013	3.3	1124	3.9	1229	4.5
GACDW-560-FC	7,500	1055	750,000	453	1.7	583	2.5	—	—	—	—	—	—
GACDW-560-FC	10,000	1410	1,000,000	482	2.8	586	3.8	688	4.8	782	6.0	—	—
GACDW-560-FC	12,500	1760	1,250,000	528	4.5	616	5.6	700	6.8	782	8.1	861	9.5
GACDW-630-FC	15,000	1670	1,500,000	419	4.3	502	5.7	582	7.1	659	8.8	733	10.5
GACDW-630-FC	17,500	1950	1,750,000	449	6.0	521	7.5	592	9.1	661	10.9	728	12.7
GACDW-710-FC	20,000	1640	2,000,000	409	6.7	479	8.5	543	10.4	605	12.3	666	14.4
GACDW-710-FC	22,500	1840	2,250,000	433	8.7	498	10.8	559	12.8	616	14.9	671	17.1
GACDW-800-FC	25,000	2040	2,500,000	358	8.7	419	10.9	466	13.2	535	15.8	591	18.5
GACDW-800-FC	27,500	2250	2,750,000	374	10.6	432	13.2	486	15.7	539	18.3	591	21.2
GACDW-800-FC	30,000	2450	3,000,000	393	13.2	447	15.9	498	18.5	547	21.3	595	24.2

NOTES:

Steel wheel construction.

BTU/HR. is sensible heat release. To determine CFH gas input, divide Btu by the net heat value of the fuel.

BI-DW Centrifugal – Backward Inclined Blade

CATALOG NO.	CFM	OUTLET VELOCITY	BTU/HR.	EXTERNAL STATIC PRESSURE									
				½"		1"		1½"		2"		2½"	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
GACDW-400-BI	6,000	1941	600,000	1885	2.86	1962	3.41	2043	3.97	2132	4.54	2226	5.17
GACDW-560-BI	7,500	1494	750,000	1028	2.76	1110	3.59	1195	4.46	1285	5.38	1374	6.38
GACDW-560-BI	10,000	1992	1,000,000	1179	4.27	1242	5.30	1308	6.24	1374	7.19	1439	8.20
GACDW-560-BI	12,500	2490	1,250,000	1389	6.44	1444	7.60	1496	8.61	1546	10.19	1596	11.34
GACDW-630-BI	15,000	2362	1,500,000	1137	6.72	1192	8.04	1249	9.43	1305	10.85	1361	12.35
GACDW-630-BI	17,500	2756	1,750,000	1278	9.19	1326	10.67	1374	12.21	1423	13.83	1471	15.46
GACDW-710-BI	20,000	2475	2,000,000	1021	9.40	1092	11.11	1140	12.94	1188	14.85	1235	16.77
GACDW-710-BI	22,500	2785	2,250,000	1145	11.93	1189	13.94	1229	15.86	1271	17.91	1313	19.98
GACDW-800-BI	25,000	2437	2,500,000	926	12.03	968	14.20	1006	16.38	1044	18.70	1082	21.07
GACDW-800-BI	27,500	2680	2,750,000	995	14.63	1036	17.01	1074	19.48	1108	21.88	1141	24.35
GACDW-800-BI	30,000	2924	3,000,000	1098	17.37	1136	19.82	1172	22.32	1206	24.92	1241	27.58
GACDW-900-BI	30,000	2311	3,000,000	815	13.44	854	15.99	894	18.73	934	21.59	974	24.57
GACDW-900-BI	35,000	2696	3,500,000	914	18.31	951	19.01	985	24.38	1018	27.42	1052	30.65
GACDW-1000-BI	35,000	2185	3,500,000	649	13.96	686	16.69	722	19.49	759	22.44	792	25.39
GACDW-1000-BI	40,000	2497	4,000,000	713	18.25	746	21.21	779	24.39	811	27.60	842	30.83
GACDW-1120-BI	40,000	1989	4,000,000	544	14.64	581	17.83	617	21.25	649	24.60	681	28.15
GACDW-1120-BI	45,000	2238	4,500,000	589	18.36	622	21.87	653	25.41	685	29.10	716	33.09
GACDW-1120-BI	50,000	2486	5,000,000	634	22.62	665	26.50	694	30.40	723	34.45	751	38.54
GACDW-1250-BI	55,000	2196	5,500,000	521	22.08	550	26.29	579	30.56	608	35.25	636	40.13
GACDW-1250-BI	60,000	2396	6,000,000	553	26.17	581	30.77	608	35.51	634	40.10	661	45.28
GACDW-1250-BI	70,000	2796	7,000,000	622	36.50	646	41.63	669	46.78	693	52.39	716	57.93
GACDW-1250-BI	75,000	2995	7,500,000	657	42.55	680	48.18	703	53.85	724	59.34	745	65.08
GACDW-1400-BI	80,000	2547	8,000,000	516	37.24	539	43.10	563	49.85	585	55.85	609	62.63
GACDW-1400-BI	85,000	2706	8,500,000	541	42.57	563	48.82	586	55.60	606	61.96	627	68.71
GACDW-1400-BI	90,000	2865	9,000,000	566	48.34	586	54.72	608	61.77	628	68.64	648	75.77
GACDW-1600-BI	100,000	2438	10,000,000	474	48.06	498	56.26	522	64.84	544	73.03	567	81.97

BTU/HR. is sensible heat release. To determine CFH gas input, divide Btu by the net heat value of the fuel.

Add ¼" when ordering unit with filters. Bhp shown does not include belt drive losses.

BIA-DW Centrifugal – Airfoil Blade

CATALOG NO.	CFM	OUTLET VELOCITY	BTU/HR.	EXTERNAL STATIC PRESSURE									
				½"		1"		1½"		2"		2½"	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
GACDW-400-BIA	6,000	1941	600,000	1941	2.55	2044	3.10	2140	3.66	2232	4.24	2321	4.83
GACDW-560-BIA	7,500	1494	750,000	1035	2.35	1135	3.14	1235	3.99	1338	4.88	1437	5.84
GACDW-560-BIA	10,000	1992	1,000,000	1220	3.63	1295	4.50	1370	5.44	1444	6.45	1519	7.53
GACDW-560-BIA	12,500	2490	1,250,000	1423	5.48	1489	6.50	1552	7.56	1612	8.66	1671	9.80
GACDW-630-BIA	15,000	2362	1,500,000	1244	5.96	1311	7.27	1372	8.58	1431	9.94	1487	11.31
GACDW-630-BIA	17,500	2756	1,750,000	1388	7.95	1451	9.47	1510	11.00	1564	12.53	1615	14.06
GACDW-710-BIA	20,000	2475	2,000,000	1114	8.26	1200	10.01	1253	11.74	1304	13.54	1353	15.36
GACDW-710-BIA	22,500	2785	2,250,000	1243	10.30	1299	12.31	1350	14.25	1398	16.22	1443	18.19
GACDW-800-BIA	25,000	2437	2,500,000	1001	10.19	1054	12.38	1101	14.55	1147	16.81	1190	19.06
GACDW-800-BIA	27,500	2680	2,750,000	1072	12.19	1122	14.57	1169	17.00	1212	19.40	1253	21.84
GACDW-800-BIA	30,000	2924	3,000,000	1144	14.48	1192	17.07	1237	19.69	1279	22.31	1318	24.91
GACDW-900-BIA	30,000	2311	3,000,000	859	11.75	906	14.35	949	16.98	991	19.72	1031	22.50
GACDW-900-BIA	35,000	2696	3,500,000	957	15.59	1002	16.65	1043	21.70	1081	24.75	1118	27.89
GACDW-1000-BIA	35,000	2185	3,500,000	707	12.90	749	15.83	788	18.81	825	21.83	861	24.95
GACDW-1000-BIA	40,000	2497	4,000,000	775	16.49	814	19.78	850	23.07	885	26.49	918	29.90
GACDW-1120-BIA	40,000	1989	4,000,000	595	13.81	634	17.19	671	20.68	706	24.25	740	27.94
GACDW-1120-BIA	45,000	2238	4,500,000	642	16.92	679	20.68	713	24.45	746	28.36	778	32.38
GACDW-1120-BIA	50,000	2486	5,000,000	690	20.51	725	24.63	758	28.84	789	33.08	819	37.42
GACDW-1250-BIA	55,000	2196	5,500,000	568	20.38	601	24.93	632	29.58	662	34.39	691	39.34
GACDW-1250-BIA	60,000	2396	6,000,000	602	23.80	634	28.76	664	33.81	692	38.87	720	44.21
GACDW-1250-BIA	70,000	2796	7,000,000	673	32.08	703	37.91	730	43.56	757	49.57	782	55.44
GACDW-1250-BIA	75,000	2995	7,500,000	710	37.07	738	43.16	765	49.38	790	55.52	814	61.73
GACDW-1400-BIA	80,000	2547	8,000,000	561	33.49	589	40.13	615	46.82	639	53.45	663	60.44
GACDW-1400-BIA	85,000	2706	8,500,000	587	37.82	613	44.64	639	51.87	662	58.79	685	66.06
GACDW-1400-BIA	90,000	2865	9,000,000	613	42.50	638	49.68	663	57.23	686	64.68	708	72.22
GACDW-1600-BIA	100,000	2438	10,000,000	518	43.39	545	51.49	571	59.70	595	67.53	619	75.69

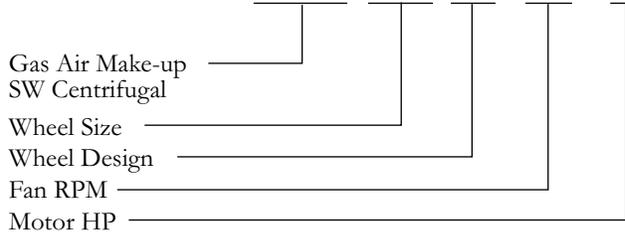
#400-#560 aluminum wheel construction. #630-#1600 steel wheel construction.

Model GACSW Centrifugal SW Gas-fired Air Make-up Units

Catalog Numbering System

Assign catalog number by using the numbering system outlined in the example at right and indicate wheel rotation and discharge position.

GACSW 1000 BIA - 852 - 15



BIA-SW Centrifugal – Airfoil Blade

CATALOG NO.	CFM	OUTLET VELOCITY	BTU/HR.	EXTERNAL STATIC PRESSURE									
				1/2"		1"		1 1/2"		2"		2 1/2"	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
GACSW-1000-BIA	15,000	1670	1,500,000	610	4.32	658	5.60	704	6.93	749	8.33	792	9.80
GACSW-1000-BIA	20,000	2230	2,000,000	737	7.01	777	8.66	815	10.32	852	12.02	887	13.75
GACSW-1000-BIA	25,000	2790	2,500,000	872	10.79	907	12.86	941	14.91	972	16.97	1003	19.05
GACSW-1000-BIA	30,000	3350	3,000,000	1011	15.89	1043	18.40	1073	20.88	1102	23.35	1129	25.82
GACSW-1250-BIA	25,000	1780	2,500,000	507	7.46	544	9.57	580	11.75	614	14.02	647	16.38
GACSW-1250-BIA	30,000	2140	3,000,000	573	10.17	606	12.65	637	15.16	667	17.73	696	20.36
GACSW-1250-BIA	35,000	2500	3,500,000	641	13.56	671	16.44	699	19.32	727	22.24	753	25.19
GACSW-1250-BIA	40,000	2850	4,000,000	711	17.70	739	21.01	765	24.30	790	27.59	814	30.91
GACSW-1250-BIA	45,000	3200	4,500,000	782	22.71	808	26.46	833	30.18	856	33.87	879	37.58
GACSW-1400-BIA	45,000	2540	4,500,000	583	17.84	609	21.54	635	25.25	658	28.99	682	32.77
GACSW-1400-BIA	50,000	2830	5,000,000	633	22.05	658	26.18	681	30.29	704	34.41	725	38.55
GACSW-1400-BIA	55,000	3110	5,500,000	683	26.94	707	31.51	729	36.04	751	40.57	771	45.10
GACSW-1400-BIA	60,000	3390	6,000,000	735	32.57	757	37.60	778	42.57	798	47.51	818	52.44
GACSW-1600-BIA	60,000	2600	6,000,000	518	24.27	541	29.21	563	34.15	583	39.12	603	44.15
GACSW-1600-BIA	65,000	2820	6,500,000	552	28.52	574	33.89	594	39.23	614	44.59	633	49.98
GACSW-1600-BIA	70,000	3040	7,000,000	585	33.29	606	39.10	626	44.87	645	50.62	663	56.39
GACSW-1600-BIA	75,000	3260	7,500,000	620	38.62	640	44.88	659	51.07	677	57.24	694	63.41
GACSW-1800-BIA	100,000	3460	10,000,000	575	56.00	593	64.65	609	72.28	621	78.34	635	87.69

Steel wheel construction

Class I Class II

BIA-SW Centrifugal – Airfoil Blade

CATALOG NO.	CFM	OUTLET VELOCITY	BTU/HR.	EXTERNAL STATIC PRESSURE									
				3"		3 1/2"		4"		4 1/2"		5"	
				RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
GACSW-1000-BIA	15,000	1670	1,500,000	836	11.34	879	12.96	922	14.66	—	—	—	—
GACSW-1000-BIA	20,000	2230	2,000,000	922	15.53	955	17.35	989	19.22	1022	21.14	1055	23.12
GACSW-1000-BIA	25,000	2790	2,500,000	1033	21.15	1062	23.27	1091	25.43	1118	27.62	1146	29.84
GACSW-1000-BIA	30,000	3350	3,000,000	1156	28.29	1182	30.77	1207	33.27	1232	35.79	1257	38.32
GACSW-1250-BIA	25,000	1780	2,500,000	680	18.84	712	21.42	744	24.10	777	26.90	—	—
GACSW-1250-BIA	30,000	2140	3,000,000	724	23.06	752	25.85	780	28.71	807	31.66	834	34.70
GACSW-1250-BIA	35,000	2500	3,500,000	778	28.20	803	31.26	828	34.38	852	37.56	876	40.81
GACSW-1250-BIA	40,000	2850	4,000,000	838	34.26	861	37.64	883	41.07	905	44.54	927	48.07
GACSW-1250-BIA	45,000	3200	4,500,000	901	41.29	922	45.03	943	48.80	963	52.60	983	56.45
GACSW-1400-BIA	45,000	2540	4,500,000	704	36.61	726	40.52	748	44.50	769	48.55	790	52.69
GACSW-1400-BIA	50,000	2830	5,000,000	746	42.74	767	46.97	787	51.26	807	55.61	826	60.02
GACSW-1400-BIA	55,000	3110	5,500,000	791	49.65	810	54.23	829	58.85	848	63.53	866	68.25
GACSW-1400-BIA	60,000	3390	6,000,000	837	57.38	855	62.34	873	67.32	891	72.34	908	77.40
GACSW-1600-BIA	60,000	2600	6,000,000	623	49.24	642	54.42	660	59.69	679	65.06	697	70.53
GACSW-1600-BIA	65,000	2820	6,500,000	651	55.43	669	60.93	687	66.51	704	72.17	721	77.92
GACSW-1600-BIA	70,000	3040	7,000,000	681	62.20	698	68.06	715	73.97	731	79.95	748	86.00
GACSW-1600-BIA	75,000	3260	7,500,000	711	69.60	728	75.82	744	82.09	760	88.40	775	94.78
GACSW-1800-BIA	100,000	3460	10,000,000	654	97.00	667	105.2	681	113.0	694	120.6	710	130.0

Steel wheel construction.

BTU/HR. is sensible heat release. To determine CFH gas input, divide Btu by the net heat value of the fuel. Add 1/4" when ordering unit with filters. Bhp shown does not include belt drive losses.

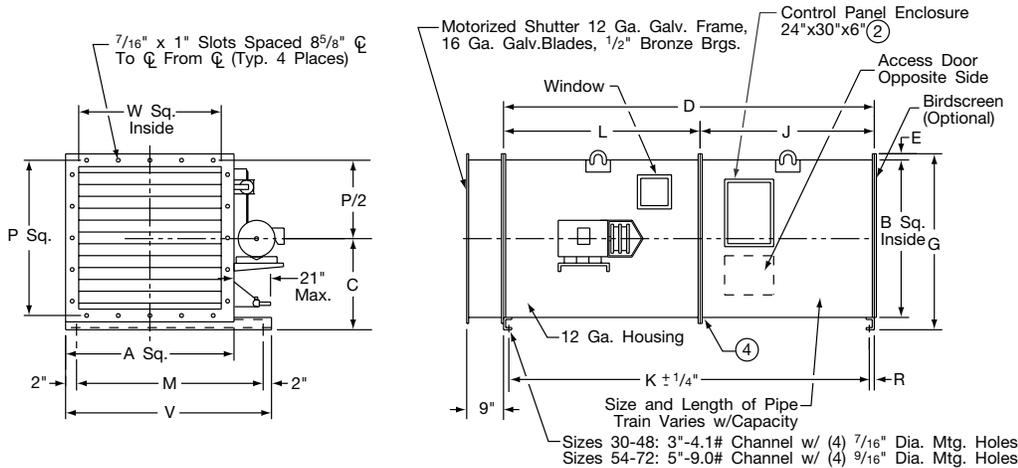
Class I Class II



Dimensional Data

Model GA Propeller Gas-fired Air Make-up Units

Standard Configuration



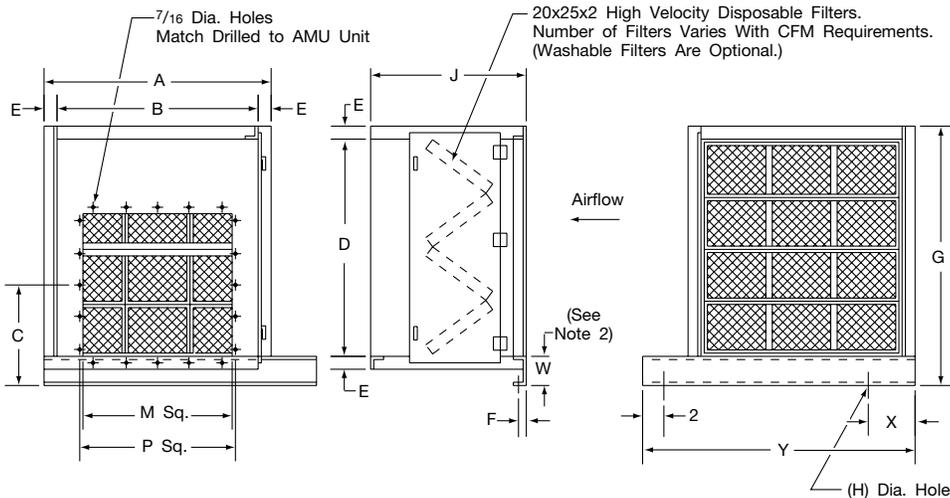
NOTES:

- See drawing R19762-00 for weathertight construction and/or vibration isolator dimensions.
- Panel location may vary from indicated position on various sizes, and size of enclosure may change for special modifications. Control enclosure will extend above housing on sizes 30 and 36.
- Welded construction with internal reinforcing.
- Flanged on sizes 54-72 only; single housing on sizes 30-48.
- NEMA 12 control panel enclosure.
- Liquid-tight conduit.
- Gas piping and conduit detail not shown.
- Propeller is 4-, 6-, or 7-blade as required.
- See drawing R19759-00 for unit with filter cabinet.

MODEL	A	B	C	D	E	G	J	K	L	M	P ¹	R	V	W
GA-30L422	39 1/2	36 1/8	21 3/16	87	1 1/2	40 3/4	See 4	85 3/8	See 4	47	38	13 1/16	51	36
GA-36L422	45 1/2	42 1/8	24 3/16	87	1 1/2	46 3/4	See 4	85 3/8	See 4	57	44	13 1/16	61	42
GA-42L422	51 1/2	48 1/8	27 3/16	87	1 1/2	52 3/4	See 4	85 3/8	See 4	63	50	13 1/16	67	48
GA-48L422	57 1/2	54 1/8	30 3/16	93	1 1/2	58 3/4	See 4	91 3/8	See 4	71	56	13 1/16	75	54
GA-54L422	71 1/2	68 1/8	39 3/16	105	2	75 1/4	52 1/2	102 3/4	52 1/2	86	70	1 1/8	90	68
GA-60L422	78 1/2	75 1/8	42 1/16	105	2	82 1/4	52 1/2	102 3/4	52 1/2	92	77	1 1/8	96	75
GA-72M622	91 1/2	88 1/8	49 3/16	105	2	95 1/4	52 1/2	102 3/4	52 1/2	108	90	1 1/8	112	88
GA-84M622	100 3/8	96 1/8	53 3/16	105	2	103 3/8	52 1/2	102 3/4	52 1/2	116	98	1 1/8	120	96

Dimensions are not to be used for construction.

1. Applies to inlet flange. P dimension on damper is B+2 inches.



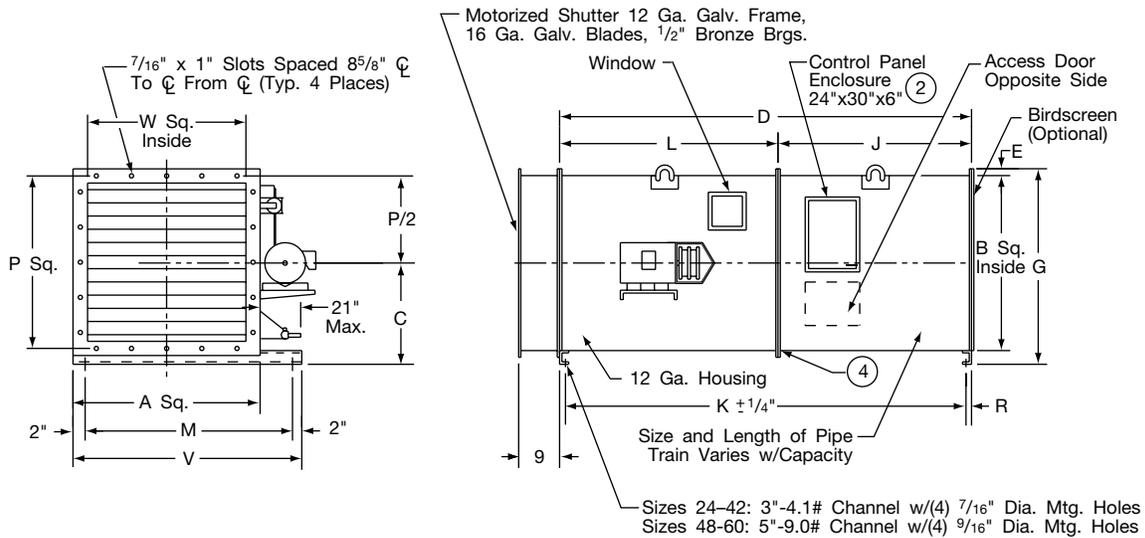
MODEL	A	B	C	D	E	F	G	H	J	M	P	W	X	Y	GA.
GA-30L422	52 5/8	49 1/2	21 1/8	42 1/8	1 9/16	1 3/16	46 3/4	7/16	33	36 1/8	38	3	8 3/4	57 3/4	14
GA-36L422	62 1/8	59	24 1/8	68 1/8	1 9/16	1 3/16	72 3/4	7/16	35	42 1/8	44	3	10 1/2	69 1/2	14
GA-42L422	62 1/8	59	27 3/16	74	1 9/16	1 3/16	78 5/8	7/16	35	48 1/8	50 1/8	3	7 1/2	72 1/2	14
GA-48L422	81 1/8	78 5/8	30 3/16	80	1 1/8	1 3/16	84 3/4	7/16	35	54 1/8	56 1/8	3	14 3/8	87 3/8	12
GA-54L422	82 1/8	78 5/8	39 3/16	94 1/2	2 1/8	1 1/8	101 3/4	9/16	35	68 1/8	70 5/8	5	7 3/8	95 3/8	12
GA-60L422	102 1/2	98 1/4	42 1/16	101 1/2	2 1/8	1 1/8	108 3/4	9/16	35	75 1/8	77 3/8	5	13 1/16	107 1/16	12
GA-72M622	122 3/4	118 1/2	49 3/16	114 3/4	2 1/8	1 1/8	122	9/16	35	88 1/8	90 5/8	5	17 3/16	127 3/16	12

Dimensions are not to be used for construction.

NOTE: For GA-84M622 dimensions, contact factory.

Model GAS Propeller Gas-fired Air Make-up Units

Super Panel Configuration



NOTES:

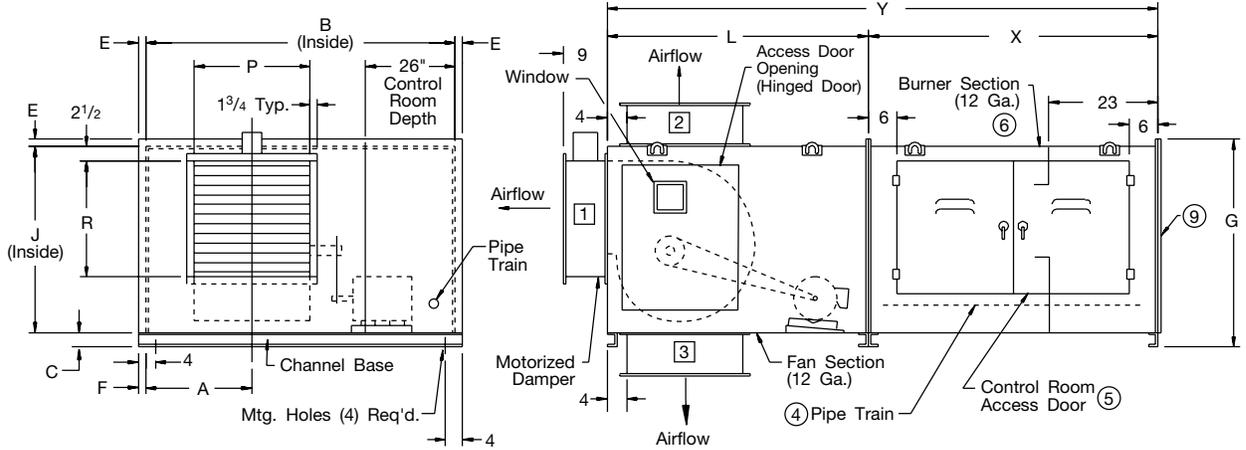
1. See Drawing #R26868-00 for weathertight construction and/or vibration isolator dimensions.
2. Panel location may vary from indicated position on various sizes, and size of enclosure may change for special modifications. Control enclosure will extend above housing on sizes 30 and 36.
3. Welded construction with internal reinforcing.
4. Flanged on all sizes.
5. NEMA 12 control panel enclosure.
6. Liquid-tight conduit.
7. Gas piping and conduit detail not shown

SIZE	A	B	C	D	E	G	J	K	L	M	P	R	V	W
GAS-21B4	39½	36½	21¾	105	1½	40¾	52½	103¾	52½	47	38	1¾	51	36
GAS-24B4	39½	36½	21¾	105	1½	40¾	52½	103¾	52½	47	38	1¾	51	36
GAS-32B4	45½	42½	24¾	105	1½	46¾	52½	103¾	52½	57	44	1¾	61	42
GAS-36B4	51½	48½	27¾	105	1½	52¾	52½	103¾	52½	63	50	1¾	67	48
GAS-42B4	57½	54½	30¾	112½	1½	58¾	52½	110¾	60	71	56	1¾	75	54
GAS-48B4	71½	68½	39¾	124½	2	75¼	52½	122¼	72	86	70	1⅝	90	68
GAS-54B4	78½	75½	42¼	124½	2	82¼	52½	122¼	72	92	77	1⅝	96	75
GAS-60B4	91½	88½	49¾	124½	2	95¼	52½	122¼	72	108	90	1⅝	112	88

Dimensions are not to be used for construction.



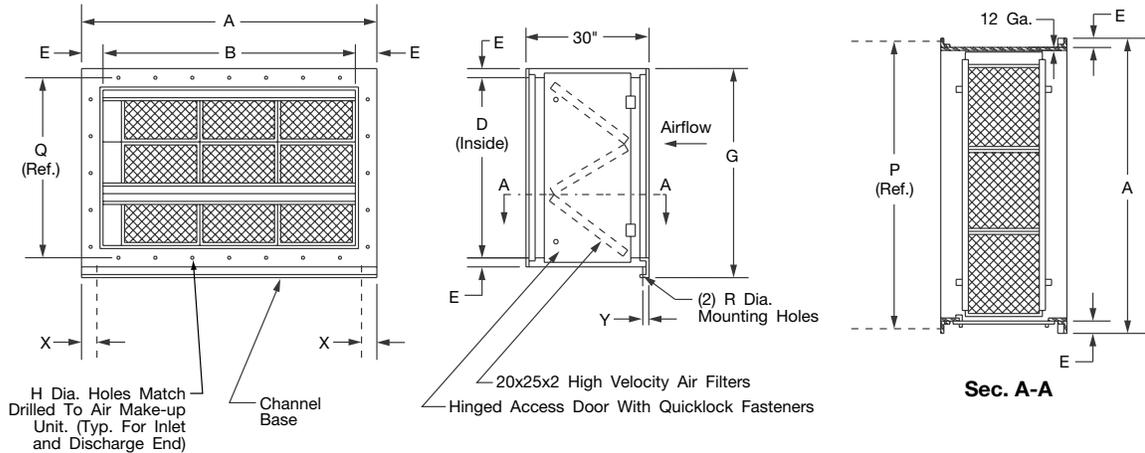
Model GACDW Centrifugal DW Gas-fired Air Make-up Units



1. Welded construction with internal reinforcing.
2. NEMA 12 control panel enclosure.
3. Liquid-tight conduit.
4. Size and length of pipe train varies with capacity.
5. Control room houses pipe train, NEMA 12 enclosure and controls.
6. Opening located on shaft centerline for shaft and wheel removal.
7. Discharge position: 1 front 2 top 3 bottom.
8. For isolator mounting dimensions see Dwg R19758-00.
9. Bird screen is optional.
10. Holding rod provided for each door.

SIZE	A	B	C	E	F	G	J	L	P	R	X	Y
GACDW-400	21 ³ / ₄	63	3	1 ⁵ / ₈	1 ¹ / ₂	44 ⁵ / ₈	40	54	24	24	56 ¹ / ₄	110 ¹ / ₄
GACDW-560	30	80	3	1 ⁵ / ₈	1 ¹ / ₂	53 ⁵ / ₈	49	64	32	32	56 ¹ / ₄	120 ¹ / ₄
GACDW-630	33 ³ / ₄	81 ³ / ₄	3	2 ¹ / ₈	2	59 ³ / ₈	54 ¹ / ₄	66	36	36	56 ¹ / ₄	122 ¹ / ₄
GACDW-710	38	98	5	2 ¹ / ₈	2	67 ³ / ₄	60 ¹ / ₂	82	42	42	60	142
GACDW-800	42 ¹ / ₄	112	5	2 ¹ / ₈	2	74 ¹ / ₈	66 ⁷ / ₈	84	48	48	60	144
GACDW-900	47 ⁷ / ₈	112	5	2 ¹ / ₈	2	81 ⁷ / ₈	74 ³ / ₈	93	54	48	60	153
GACDW-1000	53 ¹ / ₂	120	6	2 ¹ / ₈	2	90 ³ / ₈	82 ¹ / ₈	96	60	54	60	156
GACDW-1120	59 ³ / ₄	132	6	2 ¹ / ₈	2	99 ³ / ₈	91 ¹ / ₈	104	66	54	60	164
GACDW-1250	66 ¹ / ₈	144	6	2 ¹ / ₈	2	109	100 ³ / ₄	110	68	68	60	170
GACDW-1400	77 ¹ / ₂	168	6	2 ¹ / ₈	2	120	111 ³ / ₄	120	78	72	60	180
GACDW-1600	84 ¹ / ₂	195	6	2 ¹ / ₈	2	126 ¹ / ₄	118	128	88	66	60	188

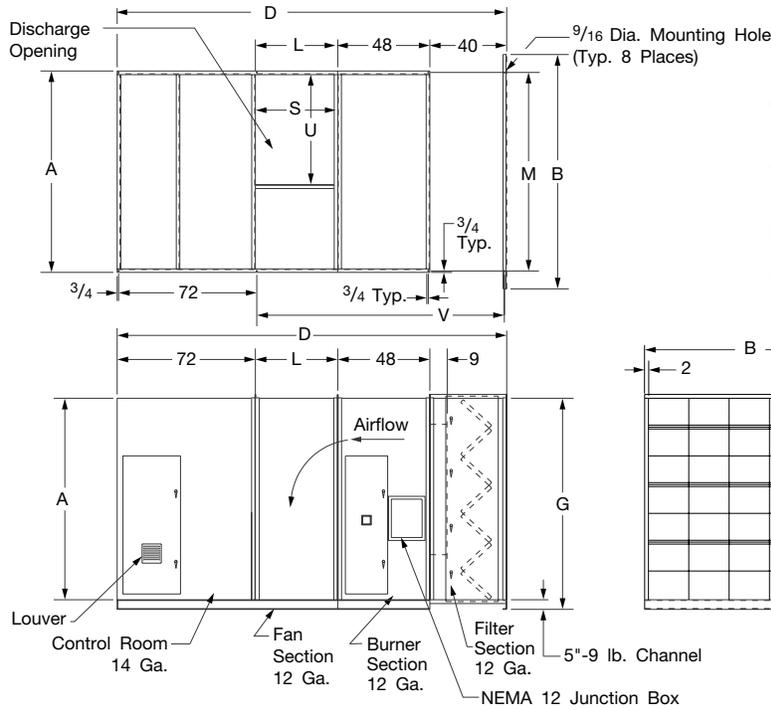
Dimensions are not to be used for construction.



SIZE	A	B	D	E	G	H	P	Q	R	W	X	Y
GACDW-400	66 ¹ / ₄	63	40	1 ⁵ / ₈	44 ¹ / ₂	7 ¹ / ₁₆	64 ³ / ₄	39 ³ / ₄	7 ¹ / ₁₆	3	3 ¹ / ₂	1 ³ / ₁₆
GACDW-560	83 ¹ / ₄	80	49	1 ⁵ / ₈	53 ¹ / ₂	7 ¹ / ₁₆	81 ³ / ₄	48 ³ / ₄	7 ¹ / ₁₆	3	3 ¹ / ₂	1 ³ / ₁₆
GACDW-630	86	81 ³ / ₄	54 ¹ / ₄	2 ¹ / ₈	59 ¹ / ₄	7 ¹ / ₁₆	84	54 ¹ / ₂	7 ¹ / ₁₆	3	4	1 ³ / ₁₆
GACDW-710	102 ¹ / ₄	98	60 ¹ / ₂	2 ¹ / ₈	67 ³ / ₈	9 ¹ / ₁₆	100 ¹ / ₄	60 ³ / ₄	9 ¹ / ₁₆	5	4	1 ¹ / ₈
GACDW-800	116 ¹ / ₄	112	66 ⁷ / ₈	2 ¹ / ₈	74	9 ¹ / ₁₆	114 ¹ / ₄	67 ¹ / ₈	9 ¹ / ₁₆	5	4	1 ¹ / ₈
GACDW-900	116 ¹ / ₄	112	74 ³ / ₈	2 ¹ / ₈	81 ³ / ₄	9 ¹ / ₁₆	114 ¹ / ₄	74 ⁷ / ₈	9 ¹ / ₁₆	5	4	1 ¹ / ₈
GACDW-1000	124 ¹ / ₄	120	82 ¹ / ₈	2 ¹ / ₈	90 ³ / ₈	9 ¹ / ₁₆	122 ³ / ₈	82 ¹ / ₂	9 ¹ / ₁₆	6	4	1 ¹ / ₈
GACDW-1120	136 ¹ / ₄	132	91 ¹ / ₈	2 ¹ / ₈	99 ³ / ₈	9 ¹ / ₁₆	134 ³ / ₈	91 ¹ / ₂	9 ¹ / ₁₆	6	4	1 ¹ / ₈
GACDW-1250	148 ¹ / ₄	144	100 ³ / ₄	2 ¹ / ₈	109	9 ¹ / ₁₆	146 ³ / ₈	101 ¹ / ₈	9 ¹ / ₁₆	6	4	1 ¹ / ₈
GACDW-1400	172 ¹ / ₄	168	111 ³ / ₄	2 ¹ / ₈	120	9 ¹ / ₁₆	170 ³ / ₈	112 ¹ / ₈	9 ¹ / ₁₆	6	4	1 ¹ / ₈
GACDW-1600	199 ¹ / ₄	195	118	2 ¹ / ₈	126 ¹ / ₄	9 ¹ / ₁₆	197 ³ / ₈	118 ³ / ₈	9 ¹ / ₁₆	6	4	1 ¹ / ₈

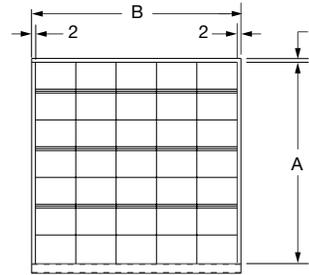
Dimensions are not to be used for construction.

Model GACSW Centrifugal SW Gas-fired Air Make-up Units



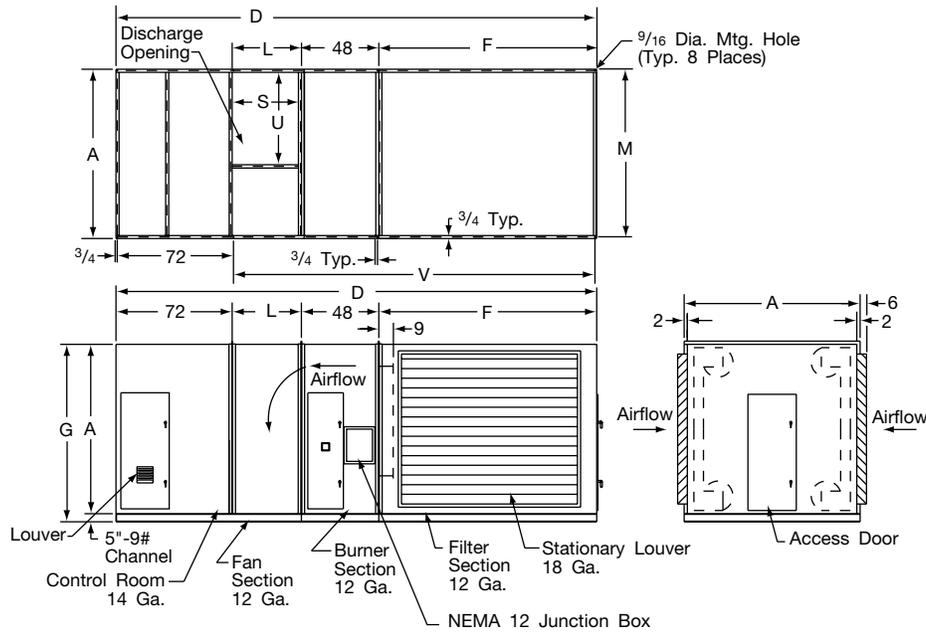
- Welded construction with internal reinforcing
- NEMA 12 control panel enclosure
- Liquid-tight conduit
- Gas piping and conduit detail not shown
- 30" wide access doors
- Positive ventilation of control room

NOTE: Filter cabinet on size 1000 is same width as basic unit. Filter cabinet on sizes 1240, 1400, and 1600 is wider than basic unit. All filter cabinets are same height as basic unit.



SIZE	A	B	D	G	J	L	M	P	S	U	X	Y	V
GACSW-1000	77	81	193 ¹¹ / ₁₆	82	153 ¹¹ / ₁₆	33 ¹¹ / ₁₆	-75 ¹ / ₂	54	31 ¹³ / ₁₆	42 ⁵ / ₈	18 ¹ / ₂	7 ⁷ / ₁₆	123 ¹³ / ₁₆
GACSW-1250	93 ³ / ₄	102 ¹ / ₂	200 ¹ / ₂	98 ¹ / ₄	160 ¹ / ₂	40 ¹ / ₂	-91 ³ / ₄	60	38 ⁵ / ₈	51 ¹⁵ / ₁₆	24 ³ / ₄	11 ³ / ₈	126 ⁵ / ₈
GACSW-1400	105	122 ¹ / ₈	204 ³ / ₄	110	164 ³ / ₄	44 ³ / ₄	103 ¹ / ₂	68	42 ⁷ / ₈	57 ³ / ₈	28 ⁷ / ₁₆	13 ¹¹ / ₁₆	130 ⁷ / ₈
GACSW-1600	113 ³ / ₄	122 ¹ / ₈	209 ³ / ₁₆	118 ³ / ₄	169 ⁹ / ₁₆	49 ⁹ / ₁₆	112 ¹ / ₄	80	47 ⁹ / ₁₆	63 ¹ / ₂	26 ⁹ / ₁₆	10 ⁹ / ₁₆	135 ⁵ / ₁₆
GACSW-1800	139	143	214 ¹ / ₁₆	144	174 ¹ / ₁₆	54 ¹ / ₁₆	137 ¹ / ₂	96	52 ³ / ₁₆	77 ¹ / ₄	33 ¹ / ₂	13 ⁷ / ₈	140 ³ / ₁₆

Dimensions are not to be used for construction.



SIZE	A	D	F	G	L	M	P	S	U	V
GACSW-1000	77	252 ¹¹ / ₁₆	99	82	33 ¹¹ / ₁₆	75 ¹ / ₂	54	31 ¹³ / ₁₆	42 ⁵ / ₈	182 ¹³ / ₁₆
GACSW-1250	93 ³ / ₄	283 ¹ / ₂	123	98 ¹ / ₄	40 ¹ / ₂	91 ³ / ₄	60	38 ⁵ / ₈	51 ¹⁵ / ₁₆	209 ⁵ / ₈
GACSW-1400	105	299 ³ / ₄	135	110	44 ³ / ₄	103 ¹ / ₂	68	42 ⁷ / ₈	57 ³ / ₈	225 ⁷ / ₈
GACSW-1600	113 ³ / ₄	316 ³ / ₁₆	147	118 ³ / ₄	49 ⁹ / ₁₆	112 ¹ / ₄	80	47 ⁹ / ₁₆	63 ¹ / ₂	242 ⁵ / ₁₆
GACSW-1800	139	324 ¹ / ₁₆	150	144	54 ¹ / ₁₆	137 ¹ / ₂	96	52 ³ / ₁₆	77 ¹ / ₄	250 ³ / ₁₆

Dimensions are not to be used for construction.

Typical Specifications

Model GA/GAS Gas-fired Propeller Air Make-up Unit

Each gas-fired propeller air make-up unit shall be manufactured by Aerovent, Minneapolis, Minnesota, as indicated on drawings and schedules and shall be of the size and capacity as indicated in the unit schedule.

PROPELLER — The propeller shall be of SC64D cast aluminum with precision airfoil blades that are dynamically and statically balanced and shall be attached to the shaft with a split taper lock bushing.

HOUSING — The housing shall be of 12-gauge steel reinforced with angle iron and equipped with visual burner inspection port, access door, lifting eyes, 16-gauge motorized damper with 12-gauge frame, plus unit support channels for mounting.

GAS PIPE TRAIN — Shall consist of SSOV valves, pilot valve, vent valve, blocking valve, high-low gas pressure switches with manual resets, heavy-duty plug cocks, pressure gauge and modulating regulator out of the airstream. Piping shall conform to (FM, IRI) standards.

CONTROL CABINET — A NEMA 12 dust-tight control cabinet shall house the fan motor magnetic starter with manual reset overload relays, control transformer, industrial duty circuit breaker, Honeywell solid-state flame sensing relay, circuit analyzer, non-recycle timer, fuse and terminal strips. Unit shall include a remote control station with summer-winter-off selection switch, power on, fan on, burner on lights and discharge temperature selector panel. The temperature control system shall be of solid-state design manufactured by the Maxitrol Company to modulate the burner in accordance with the remote control station setting. All controls on the unit are to be wired to the respective points in the cabinet with liquid-tight conduit and in accordance with the National Electric Code. The unit shall also include high and low temperature limits, airflow switch, mild weather control, positive low fire start and shutter end switch.

The circuit analyzer shall be located in the control cabinet and wired to all major control points. This will offer indication, via indicator lights, of proper functioning of these circuits.

FLAME DETECTOR — A Honeywell Ultra-Vision flame detector shall be incorporated into the unit to supervise both the pilot and main burner flame by sensing ultraviolet radiation from the flame and shall be wired in conjunction with a non-recycle timer and relay.

BURNER — The burner is a Maxon with 25:1 turndown ratio. Manifold body is heavy-duty cast iron, fully treated for rust resistance. The mixing plates are type 430 stainless steel.

FINISH — The unit(s) shall be cleaned and chemically pretreated by a phosphatizing process and shall be painted with an air-dried alkyd light gray enamel finish.

UNITS SHALL COME COMPLETE WITH:

- Vee Bank Filter Cabinet
- Inlet Hood with Vanes
- Inlet Hood less Vanes
- 90° Elbow
- Air Distributor
- Directional Discharge Grille
- Weathertight Construction
- Walk-in Weathertight Construction
- Service Platform
- Adjustable or Motorized Burner Profile Plates
- Vibration Isolators
- Tamperproof Control Station
- Push-to-Test Lights

TESTING — Unit(s) is guaranteed by the manufacturer to deliver at the rated performance levels. Unit(s) shall be completely packaged and test fired at the factory before shipment.



Typical Specifications

Model GACDW Gas-fired Centrifugal DW Air Make-up Unit

Each gas-fired centrifugal DW air make-up unit shall be manufactured by Aerovent, Minneapolis, Minnesota, as indicated on drawings and schedules and shall be of the size and capacity as indicated in the unit schedule.

WHEEL — The wheel shall be a double width (forward curved blade, backward inclined flat blade, backward inclined airfoil blade). The (BI, BIA) wheel features continuous welded backward inclined blades staggered on each side of the center plate. The forward curved wheel consists of die-formed blades assembled in heavy angular rings and plates. The wheel shall be dynamically and statically balanced and shall be attached to the shaft with split taperlock bushing. Some wheels may be furnished with straight bore hubs.

HOUSING — The housing shall be of 12-gauge steel reinforced with angle iron and equipped with visual burner inspection port, access door, lifting eyes, 16-gauge motorized damper with 12-gauge frame, plus unit support channels for mounting.

GAS PIPE TRAIN — Shall consist of SSOV valves, pilot valve, vent valve, blocking valve, high-low gas pressure switches with manual resets, heavy-duty plug cocks, pressure gauge and modulating regulator out of the airstream. Piping shall conform to (FM, IRI) standards.

CONTROL CABINET — A NEMA 12 dust-tight control cabinet shall house the fan motor magnetic starter with manual reset overload relays, control transformer, industrial duty circuit breaker, Honeywell solid-state flame sensing relay, circuit analyzer, non-recycle timer, fuse and terminal strips. Unit shall include a remote control station with summer-winter-off selection switch, power on, fan on, burner on lights and discharge temperature selector. The temperature control system shall be of solid-state design manufactured by the Maxitrol Company to modulate the burner in accordance with the remote control station setting. All controls on the unit are to be wired to the respective points in the cabinet with liquid-tight conduit and in accordance with the National Electric Code. The unit shall also include high and low temperature limits, airflow switch, mild weather control, positive low fire start and shutter end switch.

The circuit analyzer shall be located in the control cabinet and wired to all major control points. This will offer indication, via indicator lights, of proper functioning of these circuits.

FLAME DETECTOR — A Honeywell Ultra-Vision flame detector shall be incorporated into the unit to supervise both the pilot and main burner flame by sensing ultraviolet radiation from the flame and shall be wired in conjunction with a non-recycle timer and relay.

BURNER — The burner is a Maxon with 25:1 turndown ratio. Manifold body is heavy-duty cast iron, fully treated for rust resistance. The mixing plates are type 430 stainless steel.

FINISH — The unit(s) shall be cleaned and chemically pretreated by a phosphatizing process and shall be painted with an air-dried alkyd light gray enamel finish.

UNITS SHALL COME COMPLETE WITH:

- ◆ Vee Bank Filter Cabinet
- ◆ Inlet Hood with Vanes
- ◆ Inlet Hood less Vanes
- ◆ 90° Elbow
- ◆ Air Distributor
- ◆ Directional Discharge Grille
- ◆ Weathertight Construction
- ◆ Service Platform
- ◆ Adjustable or Motorized Burner Profile Plates
- ◆ Vibration Isolators
- ◆ Tamperproof Control Station
- ◆ Push-to-Test Lights

TESTING — Unit(s) is guaranteed by the manufacturer to deliver at the rated performance levels. Unit(s) shall be completely packaged and test fired at the factory before shipment.

Typical Specifications

Model GACSW Gas-fired Centrifugal SW Air Make-up Unit

Each gas-fired centrifugal SW air make-up unit shall be manufactured by Aerovent, Minneapolis, Minnesota, as indicated on drawings and schedules and shall be of the size and capacity as indicated in the unit schedule.

WHEEL — The backward inclined airfoil wheel features backward curved airfoil blades continuously welded to a front and back plate. The wheel shall be dynamically and statically balanced and shall be attached to the shaft with split taperlock bushing. Some larger wheels are furnished with straight bore hubs.

HOUSING — The housing shall be of 12-gauge steel reinforced with angle iron and equipped with visual burner inspection port, access door, lifting eyes, 16-gauge motorized damper with 12-gauge frame, plus unit support channels for mounting. A walk-in weather enclosure is standard.

GAS PIPE TRAIN — Shall consist of SSOV valves, pilot valve, vent valve, blocking valve, high-low gas pressure switches with manual resets, heavy-duty plug cocks, pressure gauge and modulating regulator out of the airstream. Piping shall conform to (FM, IRI) standards.

CONTROL CABINET — A NEMA 12 dust-tight control cabinet shall house the fan motor magnetic starter with manual reset overload relays, control transformer, industrial duty circuit breaker, Honeywell solid-state flame sensing relay, circuit analyzer, non-recycle timer, fuse and terminal strips. Unit shall include a remote control station with summer-winter-off selection switch, power on, fan on, burner on lights and discharge temperature selector. The temperature control system shall be of solid-state design manufactured by the Maxitrol Company to modulate the burner in accordance with the remote control station setting. All controls on the unit are to be wired to the respective points in the cabinet with liquid-tight conduit and in accordance with the National Electric Code. The unit shall also include high and low temperature limits, airflow switch, mild weather control, positive low fire start and shutter end switch.

The circuit analyzer shall be located in the control cabinet and wired to all major control points. This will offer indication, via indicator lights, of proper functioning of these circuits.

FLAME DETECTOR — A Honeywell Ultra-Vision flame detector shall be incorporated into the unit to supervise both the pilot and main burner flame by sensing ultraviolet radiation from the flame and shall be wired in conjunction with a non-recycle timer and relay.

BURNER — The burner is a Maxon with 25:1 turndown ratio. Manifold body is heavy-duty cast iron, fully treated for rust resistance. The mixing plates are type 430 stainless steel.

FINISH — The unit(s) shall be cleaned and chemically pretreated by a phosphatizing process and shall be painted with an air-dried alkyd light gray enamel finish.

UNITS SHALL COME COMPLETE WITH:

- ◆ Vee Bank Filter Cabinet
- ◆ Roll-O-Matic Filters
- ◆ Frame Filters
- ◆ Inlet Hood with Vanes
- ◆ Inlet Hood less Vanes
- ◆ 90° Elbow
- ◆ Air Distributor
- ◆ Directional Discharge Grille
- ◆ Service Platform for Inside Installation
- ◆ Adjustable or Motorized Burner Profile Plates
- ◆ Vibration Isolators
- ◆ Tamperproof Control Station
- ◆ Push-to-Test Lights
- ◆ Industrial Aircooler

TESTING — Unit(s) is guaranteed by the manufacturer to deliver at the rated performance levels. Unit(s) shall be completely packaged and test fired at the factory before shipment.



©1999 Aerovent, Twin City Fan Companies, Ltd.

Catalog illustrations cover the general appearance of products at the time of publication and we reserve the right to make changes in design and construction at any time without notice.

**PROPELLER FANS | TUBEAXIAL & VANEAXIAL FANS | CENTRIFUGAL FANS & BLOWERS | ROOF VENTILATORS
INDUSTRIAL AIR HANDLERS | AIR MAKE-UP | FIBERGLASS FANS | CUSTOM FANS**



AEROVENT
A Twin City Fan Company

AEROVENT 
INDUSTRIAL VENTILATION SYSTEMS

WWW.AEROVENT.COM

5959 Trenton Lane N | Minneapolis, MN 55442 | Phone: 763-551-7500 | Fax: 763-551-7501