

GPAC 500.4 Gas Phase Air Cleaner **[Installation Instructions]**

Packing and General

Each unit is supplied as one item – approximately 800 x 925 x 1970 high.

As supplied, each unit is complete with most of its adsorbent fill. It is 'topped up' after installation to account for settlement during transport etc. i.e. the unit is partly charged.

The weight of each unit is in the order of 250-300 kG. Suitable lifting and transport apparatus must be used.

Each unit is plastic wrapped and is not on a pallet. Each unit has fork lift slots in its base – these are each approximately 160 wide x 58 high and are positioned 550 apart.

Air inlet and outlet openings are fitted with approx. 20 long spigots for duct connection.

Each unit is fitted with 3 phase electrical connection made at fan motor with approx. 3 metre cable 'tail' from cable gland on left of front face of unit.

The top of the control panel has a 16 cable gland fitted for access of multicore BMS cable. BMS cable terminates at terminal strip within the control cabinet.

The base of the control panel has two 8 O.D. pipe, quick connection bulkhead fittings for connection of tubing to pressure pickup points at the ancillary particulate air filters (provided by others). Right connection serves pre-filter (filter upstream of GPAC). Left coupling serves after-filter (filter after GPAC air discharge from top of unit).

Installation - Generally

Using appropriate machinery to lift and move each unit.

Locate each unit on a horizontal surface; level the surface if required. Locate each unit where required by system design documentation.

It is NOT necessary to bolt each unit to the floor.

It is NOT necessary to put waffle pad vibration isolation under units for vibration isolation purposes - however it may be used to provide a stable horizontal orientation of the unit base if the surface, on which it sits, is uneven.

Allow minimum full width 775 deep maintenance space from the front surface of the control panel i.e. 800 from the front of the unit casing. Access for normal maintenance is NOT required at the LEFT, RIGHT or REAR of each unit. Allow for passage of maintenance persons and apparatus (including movement of spent and new adsorbent fill at approx. four yearly intervals) from the front of the unit to a building access point

Particulate Filters

It is recommended that a F5 (minimum) air filter be installed in the air supply from the unit and in the air intake at the unit. Install after-filter before first operation as unit may emit a small amount of dust on first start-up. See GPAC 500.4 OPERATING AND MAINTENANCE INSTRUCTIONS.

Electrical Installation

Comply with AS3000 and all regulatory authority requirements.

Connect the approx. 3m of power cable tail on the unit to an appropriate power supply point. Make the cable as short as is practicable.

Cable is 4 core plus earth, 1.5 sq. mm. conductor. Motor connection is 3 core plus earth.

Motor is electronically commutated (Ziehl-Abegg manufacture) type.

Anticipated unit steady state power consumption is 0.7 – 1.0 kW; maximum steady state power consumption (at maximum catalogue motor duty) is 2.5 kW.

The motor provides 24V power to the control panel.

Control Panel

The control panel contains no electrical items operating at higher than 24 Volts.

Air pressure lines in the control panel operate within +/- 1.0 kPa of atmospheric pressure.

A control/wiring diagram is located on the inside face of the control panel front access panel.

Take wiring from BMS through the cable gland on the top of the control panel and terminate at the terminal strip as indicated on the wiring diagram.

Remove and discard the M6 #3 Phillips head bolt located at the centre of the inertia plate on which the instrumentation and wiring is located. Removing this bolt permits the inertia plate to be freely suspended from 4 springs.

Run ancillary particulate filter condition pressure sensing tubing (8 OD e.g. SMC corp.) from couplings on underside of control panel to points at far side of filters. Note that second pressure pick up point for each filter is integrated into the GPAC unit. A suitable termination at duct wall at far side of filters is a 6mm barb connection screwed into a M5 or M6 thin sheet Nutsert installed from inside duct.

Setting of Airflow

Desired airflow is set at the Ziehl-Abegg three term (P+I+D) controller located in the control panel.

I and D control settings are automatic.

P (proportional band) setting of the unit is adjustable. On delivery it is set at 50%; it is recommended that this parameter NOT be adjusted unless there is a demonstrated compelling need.

Refer to Ziehl-Abegg instructions, available on their web site, when setting the airflow.

Hardcopy of instructions is provided herewith but it is suggested that it is wise to download and use the most recent version of the software instructions.

The controller is a Ziehl-Abegg UNIcon CPG-1000AV using Software version D1673A Version 1.03.

When commissioning the unit it is necessary to set three parameters at the UNIcon controller.

- Set Operation Mode to 5.01 (factory pre-set is 4.01)
- Set the fan K-FACTOR to 95 ("ninety five"). The factory default setting is 75. The 95 value corresponds to the characteristics of the actual fan installed in the GPAC 500.4.
- Set the airflow delivery, Set-point 1, to 500 l/s (=3600 M3/Hr, factory pre-set is 530 M3/Hr). Note that Set-point 2 in the controller is not used. From this point on the operating unit will deliver 500 l/s regardless (within fan capacity) of external imposed resistance to airflow.
- Do not adjust the measuring range from the factory pre-set of 0-1000 Pa
- Do not adjust the minimal output voltage from the factory pre-set of 0 volts
- Do not adjust the maximal output voltage from the factory pre-set of 10 volts
- Do not adjust the sensor calibration offset from the factory pre-set of 0 M3/Hr

Auxiliary Particulate Air Filters – Condition Indication

It is recommended that an air filter (particulate removal) be installed in/at the air supply from the unit and in/at the air intake at the unit. The unit is fitted with two instruments for sending of 0-10V differential pressure (across filter) indications to the building BMS, or to other instrumentation.

It is intended that the 0-10V signals be used to indicate, at the BMS, when filter media change is required.

At each filter one pressure is measured nearby and, for convenience, the other pressure is measured within the GPAC unit.

The pressures measured within the unit will be slightly inaccurate so the reading from each instrument will need to be calibrated.

This approach is recommended:

- With the GPAC delivering 500 l/s and both filters media temporarily removed note the indicated pressure drop across each filter
- Determine (from filter performance information) the desired increase in filter resistance from 'clean to dirty' condition
- Add the measured pressure drop to the 'desired increase' pressure drop
- For each filter set the BMS to indicate filter media replacement when the indicated differential pressure equals the combined figure determined above.