

# Installation & Maintenance Manual

**Before installing the VAV terminal units, read and observe these installation instructions!**

## PROPER APPLICATION

The VAV terminal units are suitable for use in ventilation and air conditioning systems. Particular conditions can restrict the functioning capacity and must be taken into account during the design stage:

- If the air is very dusty or contains fluff or sticky particles, e.g. extract air, access to the units for maintenance must be provided.
- Galvanized sheet steel units must not be installed in contaminated environments (e.g. acetic acid).
- To avoid noise, airflow at the inlet should not be too high than required maximum airflow from the VAV.

## PRE-INSTALLATION

### General:

Single Duct Terminal Units, Models: VA110 (Basic Unit) & VA120 (Extended Casing) are available with factory installed controls suitable for stand-alone / BMS applications.

Standard construction of VAV has the blade rotating counter-clockwise to open while the controls are installed on left hand side (if looking in the direction of airflow). The factory supplied pressure sensing tubes are color coded. Blue indicates the velocity pressure or "+ve" line which is located on the upstream side while black indicates the static pressure or "-ve" line which is located on the downstream side.

### Handling and Storage

Upon receiving the delivery, check it for any shipping damages. If any shipping damage is found, report it immediately to the delivering carrier. Store in a clean, dry and covered location and avoid over stacking. When unpacking the units, care must be taken to avoid damage to the components of the VAV boxes. **DO NOT LIFT OR HANDLE THE UNITS** by holding the aluminium tubes of the flow sensor or plastic tubes or damper shaft.

### Safety Instructions & Precautions for Installation

Installation and wiring should only be carried out by peoples who are qualified to perform that task. During installation, wiring and commissioning, the normal rules of site working, in particular the safety and accident prevention regulations, must be observed. Because of the risk of injury from edges and burrs, carry and install units only while wearing gloves. Check that construction debris does not enter the unit or ductwork. Do not operate the central-station air-handling fan without final or construction filters in place. Accumulated dust and construction debris distributed through the ductwork can adversely affect unit operation.

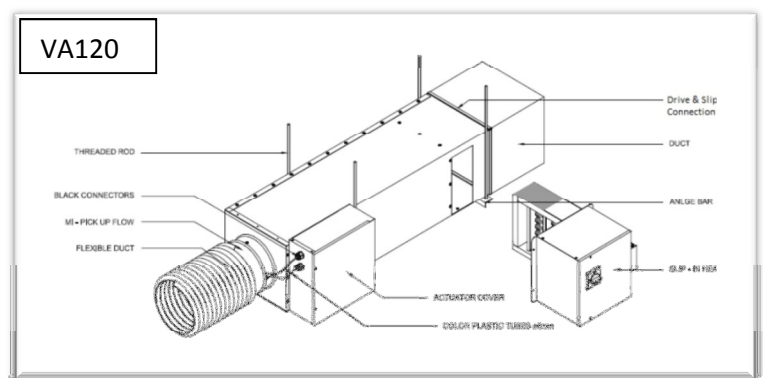
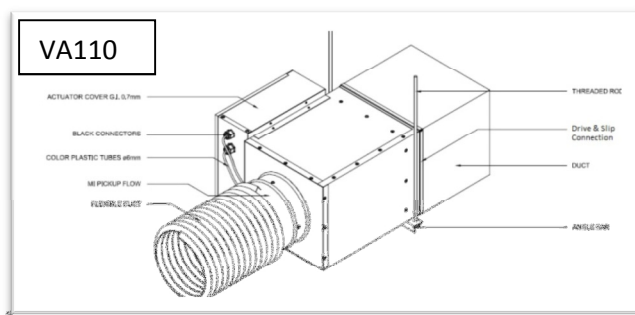
### Service Access

Single Duct Air Terminals require sufficient clearance to allow servicing of the actuator, controls and single electric power hook-up (if applicable).

## INSTALLATION

### Step 1 — Suspend VAV Terminal

1. Move the unit to installation area. Remove the unit from shipping package. Observe the handling instructions given above during the transportation of VAV in site for installation.
2. Suspend units from building structure with straps, rods, or hanger wires. Secure the unit and level it in each direction. Adjacent components and connecting ducts must be supported separately.



## Step 2 — Make Duct Connections

1. Before connecting the ducts, check the inside of the unit for any damage or loose parts and check the connecting ducts for contamination. Fully open the blade manually by pressing clutch on actuator, for air balancing purpose.
2. Slip inlet duct over the inlet collar of the terminal. Fasten and seal the connection by the method prescribed by the job specifications.

**Important:** For optimum performance there should be a minimum of three duct diameters of straight inlet duct, between the inlet and any transition, take off or fitting. Ninety-degree elbows or tight radius flexible duct immediately upstream of inlet collar should be avoided as they can affect the accuracy of airflow control.

3. The diameter of the inlet duct "ØD" in inches must be equal to the listed size of the terminal; e.g. a duct that actually measures 8 inches must be fitted to a size 8 terminal. The inlet collar of the terminal is made 1/8 inch (3mm) smaller than listed size in order to fit inside the duct.
4. The outlet end of the terminal is designed for use with **slip and drive** duct connections (flanged outlets are optional). A rectangular duct same as the size of the terminal outlet should be attached.

## Step 3 —Field Wiring Connections

1. The electrical connections must be made by an electrical engineer or a qualified electrician with observation of all safety measures and local codes requirements.
2. Use copper conductors preferably.
3. All terminal units must be properly grounded by the electrical engineer/electrician.
4. Cover of the VAV control box can be opened like a door or completely removed by removing 2 screws.
5. The control cabinet contains live electrical parts! Contacting these parts with the power applied may cause serious injury or death. The control cover must be closed prior to applying electric power to the unit.
6. If factory mounted controls were supplied by Aldes, a wiring diagram will be included either with the unit or would be submitted along with the submittal or will be available upon request and will be indicating the factory mounted components. If controls were not supplied by the Aldes then contact the supplier of controls directly for obtaining the wiring diagram.

## MAINTENANCE

Maintenance should only be carried out by specialists or qualified persons.

The control damper mechanism on the VAV terminal unit is maintenance-free. To ensure perfect functioning of the entire system, function tests should be carried out as part of the regular system maintenance.

The following criteria should be used:

1. Does the room temperature controller function?
2. Does the volume flow controller function?
3. Does the actuator turn in both directions?
4. Are the tubing connections airtight?

## REPLACEMENT OF CONTROL COMPONENTS

If faulty control components have to be replaced, the following principles must be observed:

- Spare parts must comply with the technical requirements of the manufacturer. Only use original spare parts.
- Disconnect supply voltage 24 volts or operating pressure.
- Mark wiring/tubing connections before releasing.
- Carefully remove pneumatic tubing without damaging it.
- Replace component and all connections.

When replacing controllers and transducers, they must be adjusted to suit the unit size in Aldes factory, unless confirmed otherwise.

When changing actuators, note the following:

- Mechanical rotation angle limiters on the new actuator should be set as the existing unit. A slot in the control damper shaft shows the position of the blade.
- Direction of rotation should be set as before (switch or plug setting).
- Actuator must be calibrated for minimum and maximum airflows in Aldes factory.

Wiring from CO2 sensor and main power supply to be provided by the client at site.

