

DustControl System

NCM 84378090

The Wings DustControl System impedes the emission of dust escaping from bulk-product receiving pits during unloading. The system is composed of metal modules with chutes and louvers that are installed over the entire surface of the pit (hopper) just below the pit grate at a depth of approximately 50 cm.

Without the DustControl modules, product being unloaded into a bulk-receiving pit will expel an equal volume of air – contaminated with dust- into the atmosphere above the pit grate at the same velocity as the product entering the pit.

With the DustControl, all the louvers of the modules are closed prior to unloading product and there is no free air flow into or out of the pit. As the product begins to be unloaded, the product entering the chutes accumulates until the weight is superior to the counterweights and the louvers are forced open. The air being expelled by the product entering the pit must pass through product, reducing its velocity until it can no longer carry dust, depositing the dust with the product. In essence, the product filters the air. The louvers on any modules not receiving product will remain closed.

The standard DustControl modules are made from carbon steel sheets with a minimum thickness of 3 mm. The modules are painted with dual-function synthetic enamel Sumalux DF S/B (dry thickness 140 µm), unless otherwise specified.

Operating the DustControl

The DustControl is completely automatic. Once installed, it does not need an operator. It also should not require maintenance.

Possible problems and solutions

Unloading process when pit has a hydraulic lift: platform

Warning! During the unloading process, the hydraulic platform should only be lower after all of the product below it has fallen into the pit. Otherwise, the pressure of the platform on the product might damage the DustControl modules.

Dust escaping from the pit: during unloading

1. If dust is escaping out of the pit during unloading, this may indicate that one or more of the module louvers is not opening or closing properly. Some foreign material may have stuck in the louver. Using a steel rod, push open the louver to clean residual material in the module. After chute has been cleaned, open the louver with the rod and verify that the louver opens and closes freely. (Wings includes a steel rod in its shipment to aid in clearing out the modules when product is holding open the louvers). If the rod

provided by Wings is not available, use any steel rod. (Be careful not to let the rod fall into the pit.)

2. If the louver does not open and close freely when pushed by the rod, the louver is catching against the sides of the chute. Adjustments will be required on the threaded rods that pass through each side of the module. Using two $\frac{3}{4}$ " wrenches, slightly loosen the nuts securing the threaded rods. This will allow the louver to move freely. Caution: The space between the lid and the side cannot be too great or the product itself may become lodged in the opening and not allow the louver to close.
3. If dust continues to emanate from the module, verify the quantity of residue in the chute of the module. If there only a small amount in the chute, this indicates that there is insufficient product in the module to filter the dust and more counterweight is necessary on this chute – see below.
it is recommended to add one counterweight at a time and test and only add to those modules that have dust coming out.

Counterweights

The module counterweights regulate the flow of product through the module. The more counterweights placed on the module, the more product load will be required to force the louvers to open. Because of the counterweights, there should always be a residue of product in the modules. When total cleanout is required, use the steel rod to open the louvers one by one. Wings has an optional pneumatic cleanout system, described below, which is especially important for facilities that frequently change products such as feed mills.

Modules are shipped with a predetermined number of counterweights attached to each louver according to the product(s) being received. However, there are some cases where it is necessary to remove or add counterweights, usually due to significant weight changes in product due to moisture content. Additional counterweights are shipped with the DustControl system to allow for the necessary adjustments. In these cases:

- DustControl modules retaining too much product before the louver is forced open, indicated by the slow descent of the product into the pit. Solution - remove counterweights. First determine which modules are slow in emptying product and remove one counterweight at a time from those modules and test. Remember that the operation of the DustControl system depends on always maintaining enough residual product in the chutes to prevent airflow.

To install or remove the counterweights from the module, follow these steps:

Step 1: The counterweights are installed on a screw with a self-locking nut, preventing them from coming loose during operation. You will need a $\frac{3}{4}$ " wrench and locking pliers to loosen them. With the locking pliers, grip the screw head and remove the nut from the screw with the wrench.

Step 2: Once the nut is off the screw, add or remove the counterweight from the module. Secure the counterweight in place with the nut, but loose enough to allow the counterweight to move freely.

Wings DustControl Pneumatic Cleanout System

Maintenance: The pneumatic cleaning system should be inspected monthly. While one person holds the button on the control box, a second person should use a flashlight to check that all DustControl modules are open. If they are not, or any time a hissing noise is heard, someone will need to go below the modules and check for problems of popped hoses or non-functioning cylinders.

SMC pneumatic components

Spare parts

- 8mm PU airline polyurethane tubing 5 mm internal (TU0805BU)
- Air Cylinder 25 x 50mm double action
- Connection T T/R 8X1/8 push
- Connection L T/R 8X1/4 push

Customer supplied air compressor – 10 CFM, 100-liter tank.

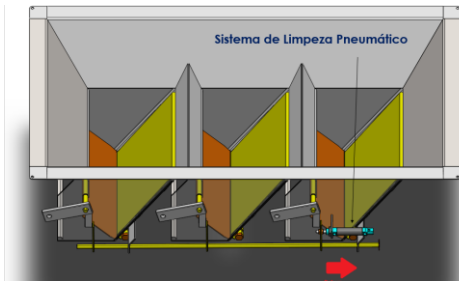
The recommended air pressure for the pneumatic cleanout system is 0.6 to 0.8 NPA.
Operating pressure 4 to 6 bar or 70 PSI 10-liter consumption per cylinder

The DustControl Pneumatic Cleanout system is an optional feature to facilitate eliminating the residue in the modules when changing between products. As the flow of product decreases at the end of unloading, louvers on the modules close, capturing a residue of product. When changing products and it is necessary to empty the modules completely of the old product, the operator can use a metal pipe to push open the louvers to allow the last residual to fall into the pit.

In cases where a quick cleaning of the modules is desired after each unloading to avoid mixing products, Wings offers a pneumatic cleanout system. A control box is positioned at one end of the pit, with air lines connected to air cylinders mounted on each module. Actuation bars open and close the louvers when the operator presses the control box button. For this cleaning system, it is necessary for the customer to have an air compressor.



Airline connections ↑ ↑



At the end of unloading, when the quantity of product is not sufficient to maintain the louver open, this small amount of product remains in the module.

When the button on the control box is pushed, the air cylinder opens the louver to empty the module chute. The pneumatic cleanout system is ideal for pits that receive different types of products that should not be mixed, as is often the case in feed mills.

