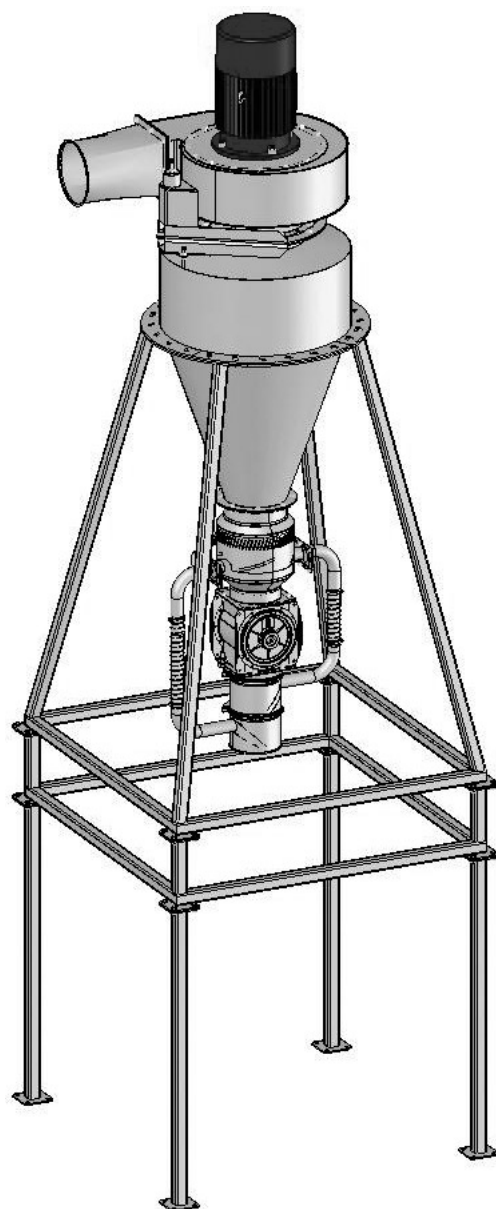


# ***AirWash 50/100/150***

## Aspirators



Manual



## Installation of the Air Wash system

- Mount the Air Wash system on a solid and plane base. Secure that the Air Wash system is protected against falling down upon installation, by mounting the frame to the base with bolts.
- Do not use the Air Wash system without the cascades mounted on the rotary valve, to prevent contact with the cell wheel during operation.
- All electrical wiring must be made by a certified electrician. Make sure that the direction of rotation of blower and rotary valve is correct (see arrow on blower and rotary valve). If a hinge is installed for the blower make sure that the electrical wire allow the blower to be turned away from the cyclone.
- Always stop the blower and rotary valve prior to maintenance and repair and avoid unintentional start of the blower and rotary valve.

## Noise rating

The noise rating is given for an Air Wash system with MTD 35 blower (with a 50 Hz rotor for paper). On the inlet of the cyclone a 1 m (3.3 ft.) OK200 silencer and a 1 m (3.3 ft.) OK200 pipe is mounted. The noise is measured 1 m (3.3 ft.) from the frame for the Air Wash system, in the same height as the diffuser

### Measuring points:

Pos. 1: At the 50 mm (2 in) piping for the cascades.

Pos. 2: At the suction side of the cyclone.

Pos. 3: At the outlet side of the blower.

Position	Closed diffuser and cascader			Open diffuser and cascader		
	1	2	3	1	2	3
dBA	88.6	83.6	89.9	90.3	85.5	89.8

## Air Wash Operating Instructions:

Thank you for purchasing a Kongskilde Air Wash System. Please read these instructions prior to operation.

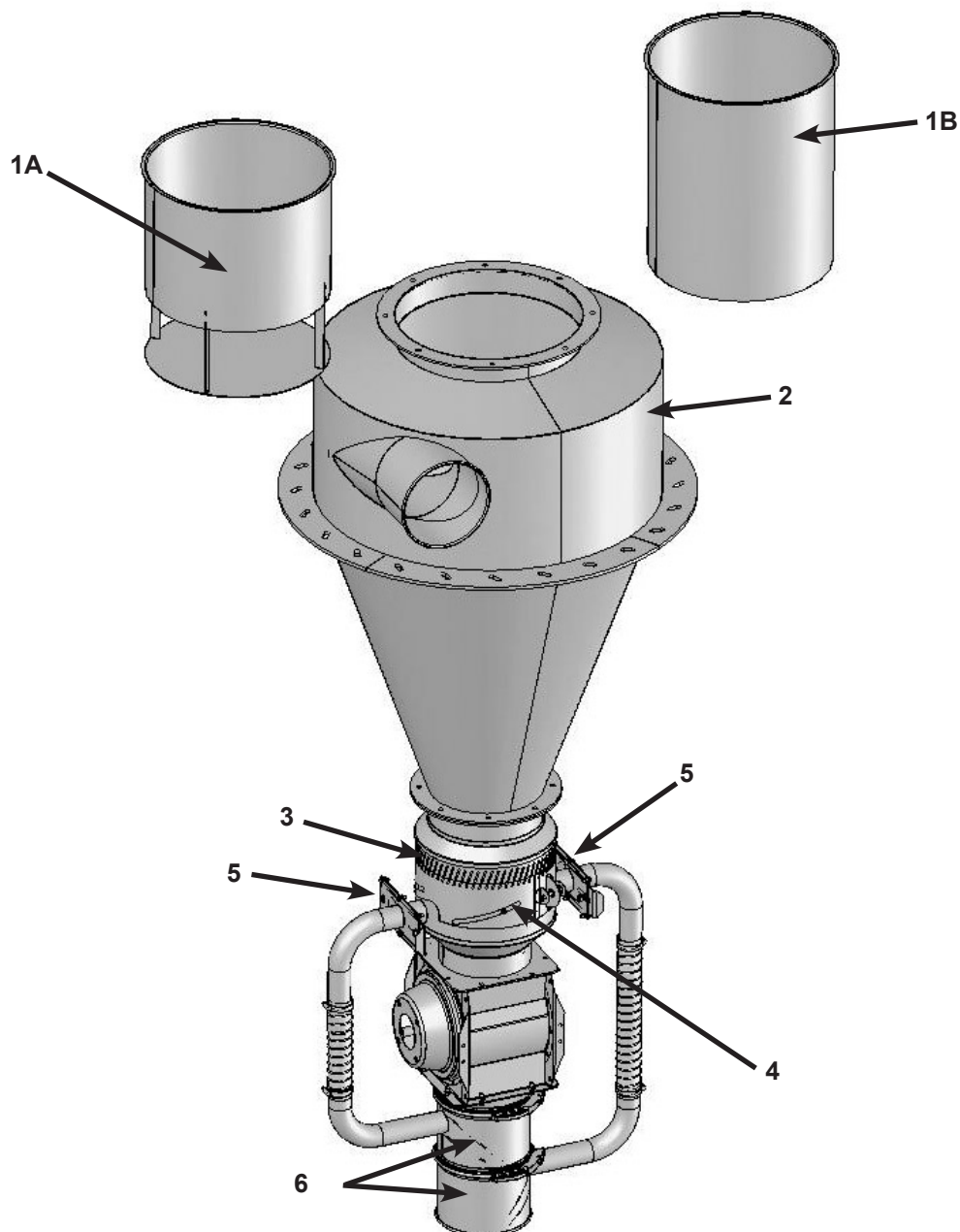
The Air Wash System has been designed to effectively remove finer and/or lighter materials from denser or heavier materials utilizing traditional cyclonic technology.

Please refer to the parts manual for the correct set up of your Air Wash. Ensure the rotation of the top mounted blower and the rotary air valve correspond to their directional arrows.

## Method of operation:

There are 6 integral parts of the Air Wash system when working together maximize the systems performance:

- Cyclone Basket (1A) and (1B)
- Cyclone (2)
- Adjustable air inlet (3)
- Air Wash diffuser (4)
- Air Wash slide gates (5)
- Air Wash cascaders (6)



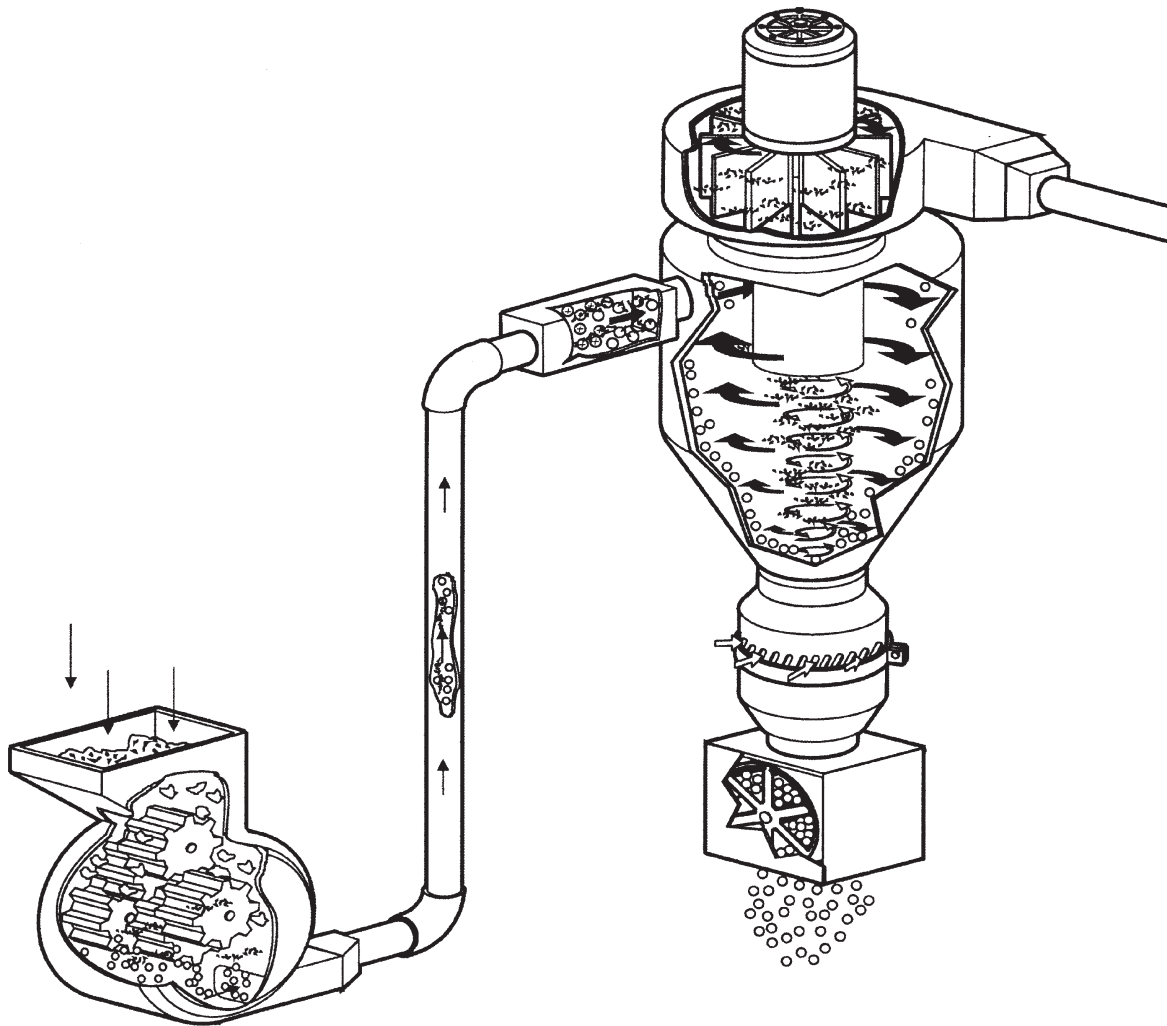
## How The Air Wash Works

The top mounted blower provides the required vacuum to convey the material from grinder/and or bin to the cyclone. The material enters the cyclone tangentially. The heavy materials are carried to the outside of the cyclone by centrifugal force. At the same time gravity is pulling the material down creating a spiraling vortex. After about 2 to 3 revolutions most of the material reaches the rotary valve.

The lighter material doesn't have enough momentum to follow the outside contours of the cyclone and has a tendency to remain airborne in the center of the cyclone. With any cyclone an inner vortex is created traveling in the upward direction.

The patent pending diffuser allows air to be injected at a variable rate at the bottom of the cyclone. By injecting air 360 degrees around the diffuser the upward traveling vortex can be enhanced both in diameter and speed. The more air introduced at the diffuser the faster and wider the inner vortex.

Since the fine and light material are lingering in the center area of the cyclone the induced air from the diffuser assists the fines to take an upward path through the cyclone basket and to the blower.



## Primary and Secondary Cleaning

The cyclone and diffuser combination assist with the primary cleaning. As discussed, the more air introduced at the diffuser the stronger the inner vortex and the more fines are removed. The adjustable air inlet can be easily adjusted up and down which will cover the air slots on the diffuser. We suggest that the initial covering of the slots start from the bottom. For example, when the slots are totally open on the diffuser, the adjustable air inlet should be positioned below the slots.

## Cyclone Basket Options

For maximum cleaning the open cyclone basket (1A) is recommended. This basket allows a free passage for the lighter material to discharge. It should be noted that some of the heavier material may become entrained in the upward vortex and exits with the lighter material. The result is a very clean regrind with some useable material existing to the dust drum. The closed cyclone basket (1B) has been designed to minimize any carry over of useable material to the dust drum. Any large particulate that becomes entrained in the upward vortex hits the bottom plate and falls back

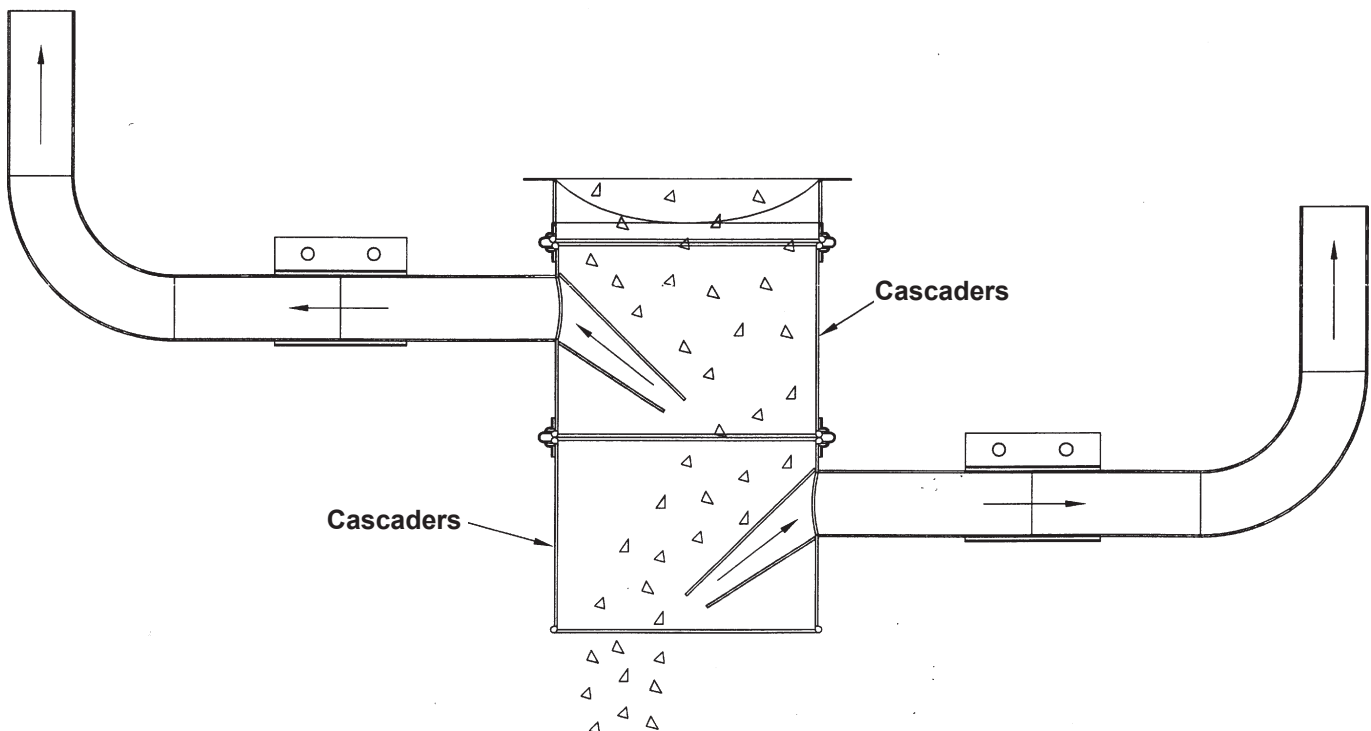
down. The lighter material travels around the bottom plate and exits to the dust drum.

Kongskilde will advise you on the best cyclone basket for your application

## Secondary Cleaning:

The Air Wash System provides secondary cleaning after the airlock. Directly underneath the rotary valve are two cascaders. The rotary valve volumetrically feeds the primary cleaned material through a set of cascaders. The cascaders have a set of baffles in them that deflect the material over a slight vacuum. The fines are vacuumed off the particulate as they pass over the baffle plates.

A set of slide gates positioned at the bottom of the diffuser allow the operator to open or close the slide gates. When secondary cleaning is not required the slide gates are to be closed. We recommend that the slide gates be fully open or fully closed. Partially closing the slide gates could lead to material settling in the pipes which will eventually block off the required vacuum.



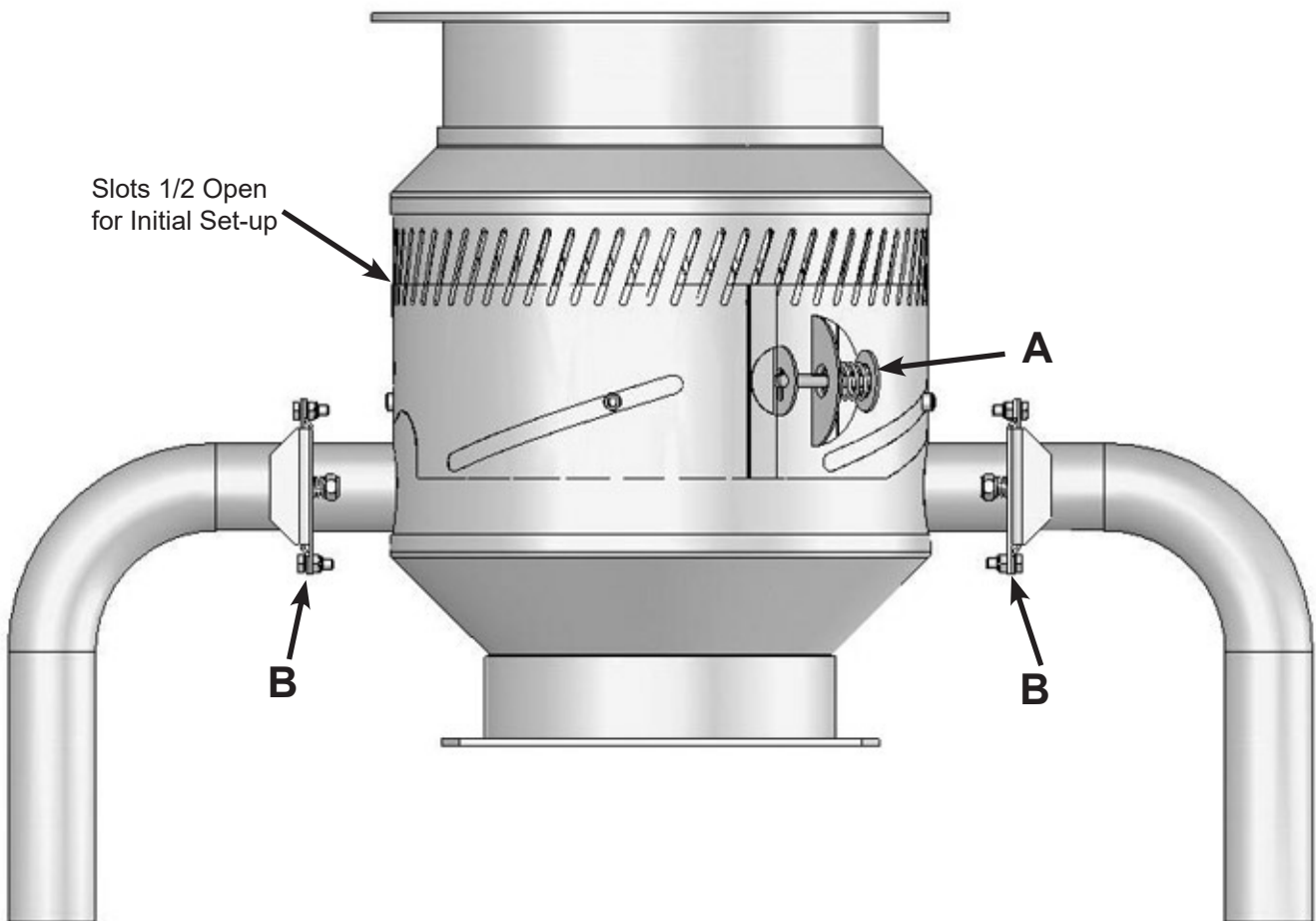
## Initial Set Up:

Once all the components of the Air Wash are installed properly and all the motors are turning in the correct rotation, we recommend the initial settings of your airwash be the following;

- 1) The adjustable air inlet A cover 1/2 of the diffuser slots
- 2) The cascader slide gates B be fully open

Ensure there is sufficient suction at the grinder and run some material. The more consistent the feed to the Air

Wash the better the cleaning of the regrind. Observe the material being discharged underneath the cascaders and the dust drum. Caution the drum will be under pressure during operation, shut down equipment prior to opening the dust drum lid. If the material is satisfactory, set the position of the adjustable air inlet. If more fines are to be removed, allow more air in at the diffuser. If useable material is present in the dust drum close off the air slots on the diffuser in 1/4 inch intervals. When fine tuning your Air Wash, be sure to change one variable at a time.



## Optional equipment:

The hinge EDP no. 123105007 is optional. If the Air Wash system needs to be cleaned inside on a regular basis, due to a demand for handling of different types of mate-

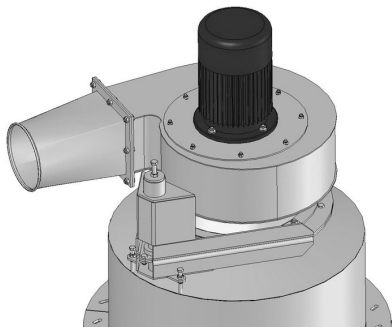
rial without risk of contamination, the hinge is used.

The hinge is installed between the cyclone and the blower inlet. By turning a few rotations on a bolt the blower is lifted slightly and thus

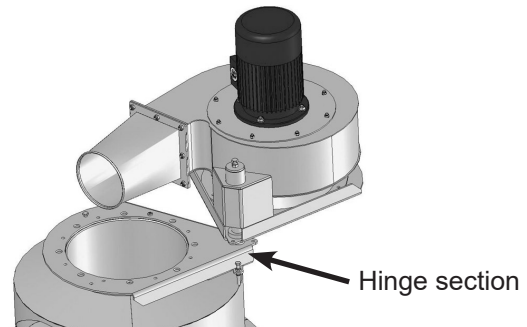
hanging on a vertical shaft making it possible to turn it horizontal away from the top outlet on the cyclone.

Access to cleaning the inside of the cyclone and the blower with a compressed air nozzle is then possible.

Closed position



Open position

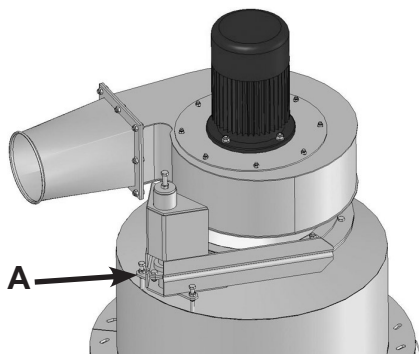


When the hinge has been installed and the motor is turned to an open position, the gravity center of the motor and the blower is inside the

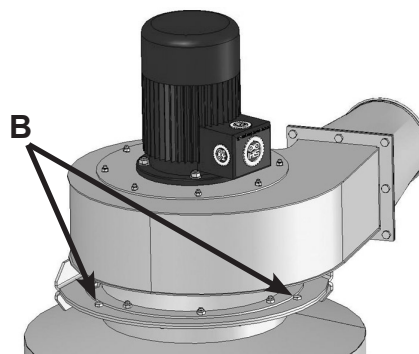
foot print of the legs on the frame work. For the purpose of stabilizing the whole set up, in case a person jumps on the system and thus

makes it unstable, it is recommended to bolt the feet on the frame legs to the floor.

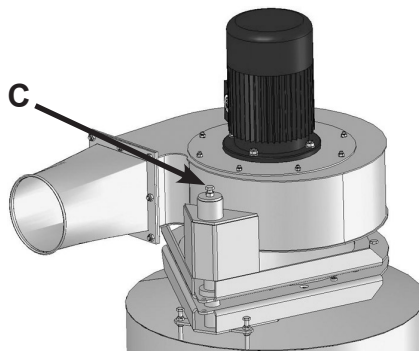
## How to use the hinge:



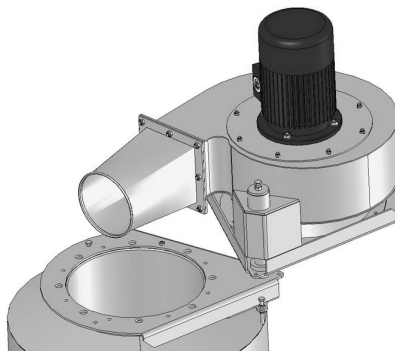
Disassemble the screw A



Disassemble the two screw B



By turning of few rotations on the bolt (C) the blower is lifted slightly



The blower can now be turned horizontal away from the top outlet on the cyclone

## Anti Static Equipment

When processing material with a tendency to get static charged, it will be an advantage to install antistatic equipment between the rotary valve and the baffle sections. The antistatic system consists of a power unit and a 0.3 m (1 ft) pipe with antistatic bars installed. The 0.3 m (1 ft) pipe has to be wired to the power supply unit.

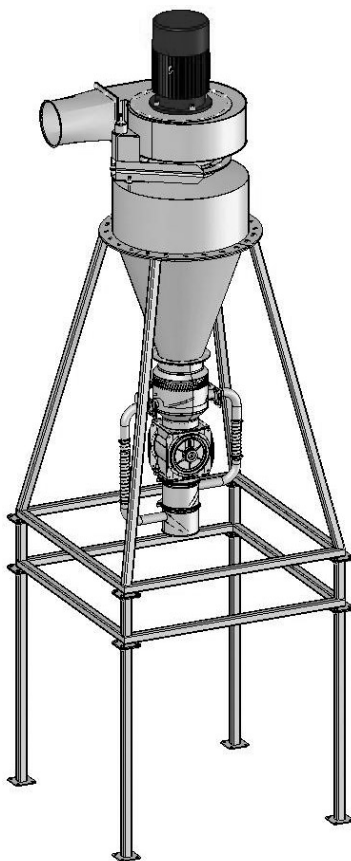
The antistatic bars in the pipe ionize the air inside the pipe in such a way that when the material falls down through the pipe the ionized air neutralizes static charge on the material particles. As the material in the following is passing through the baffles, the dust is easier to remove.

The Anti Static equipment is mounted between the rotary valve and the cascades.

## Frame extension for anti static kit

The frame extension kit increase the height of the Air Wash standard with the length of the anti static pipe in such a way that the free discharge height under the unit is app. 1.28 m (50 in)

The frame extension kit includes longer flex hoses for the diffuser.



## Pipe system

Pipes used to connect the different units and to be used, as conveying line on the suction side is the standard OK and FK piping

## Performance data:

On the Air Wash system air is going into the system both through the cyclone inlet and through the diffuser and cascades, the air flow coming out of the blower outlet is the sum of these air flows.

In the curve diagram the curves are then given for both the amount of air going into the cyclone inlet, and coming out of the blower.

The amount of air going into the unit can be used for sizing the unit to adapt to the requirement of air as example from a grinder.

The amount of air coming out of the blower can as example is required to size filtration unit.

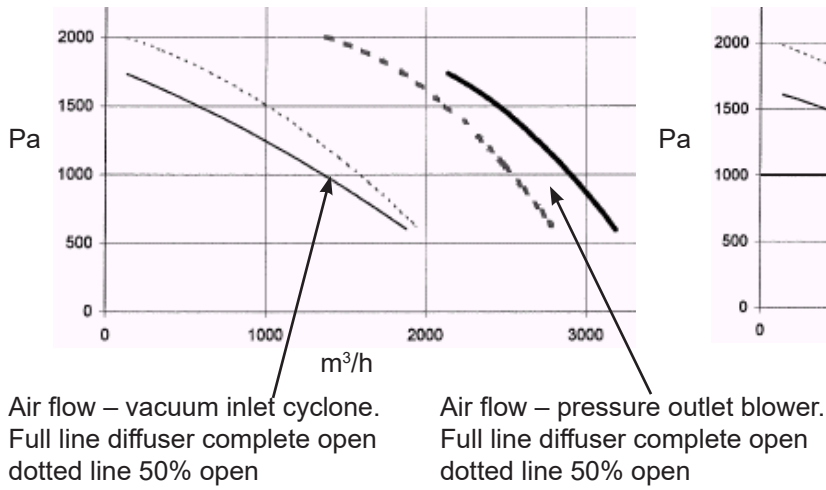
The pressure in the curves is given in Pa. As information 10 Pa equals to 1 mm WG.

The Air Wash system is able to handle up to 900 kg of material per hour.

The system pressure required is the sum of the vacuum needed on the suction side and the pressure used on the blowing side.

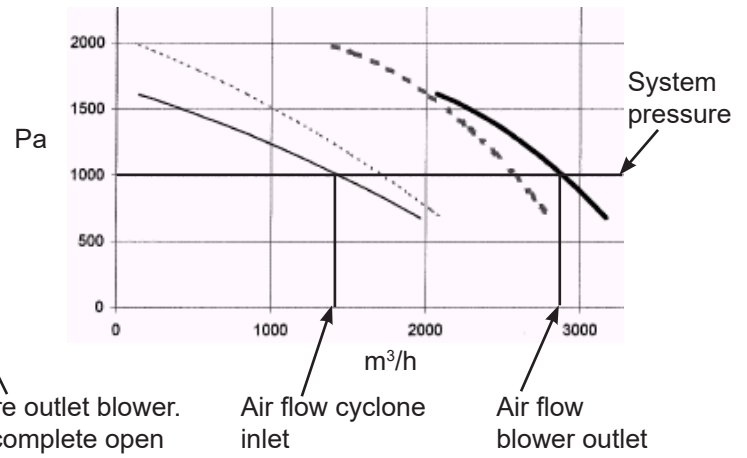
### Air Wash 50

Insert cyclone open bottom



1 in WG = 254 Pa

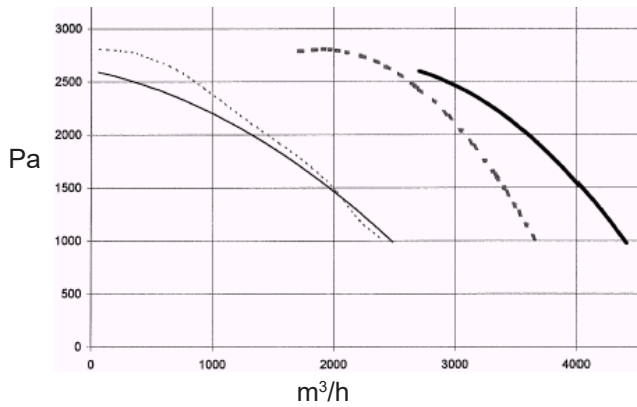
Insert cyclone closed bottom



1  $\text{m}^3/\text{h}$  = 0,59 CFM

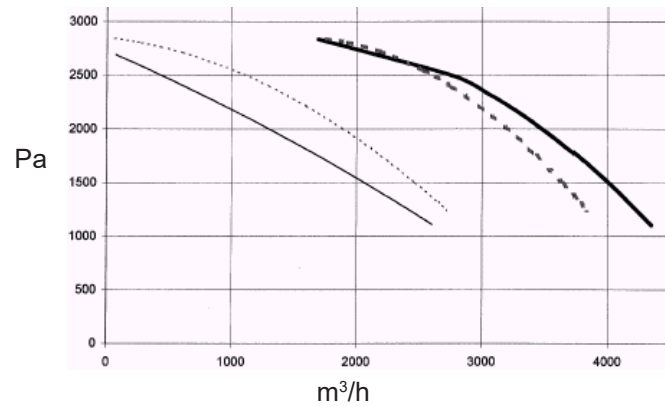
### Air Wash 100

Insert cyclone open bottom



1 in WG = 254 Pa

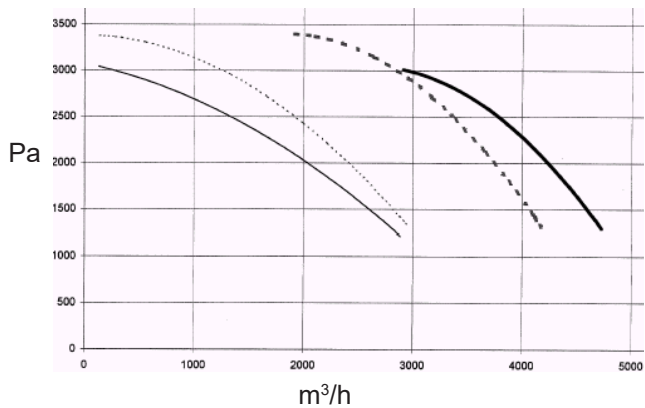
Insert cyclone closed bottom



1  $\text{m}^3/\text{h}$  = 0,59 CFM

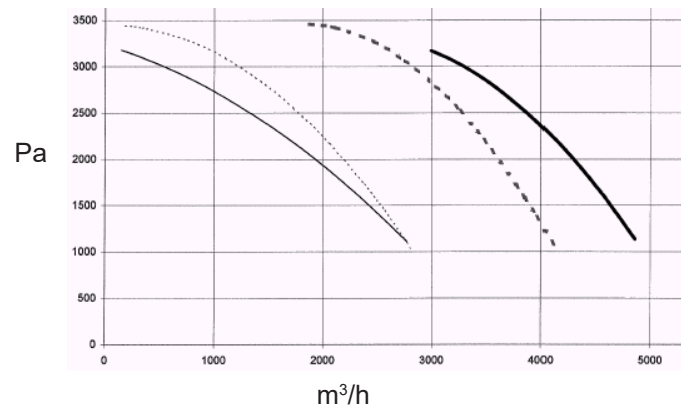
### Air Wash 150

Insert cyclone open bottom

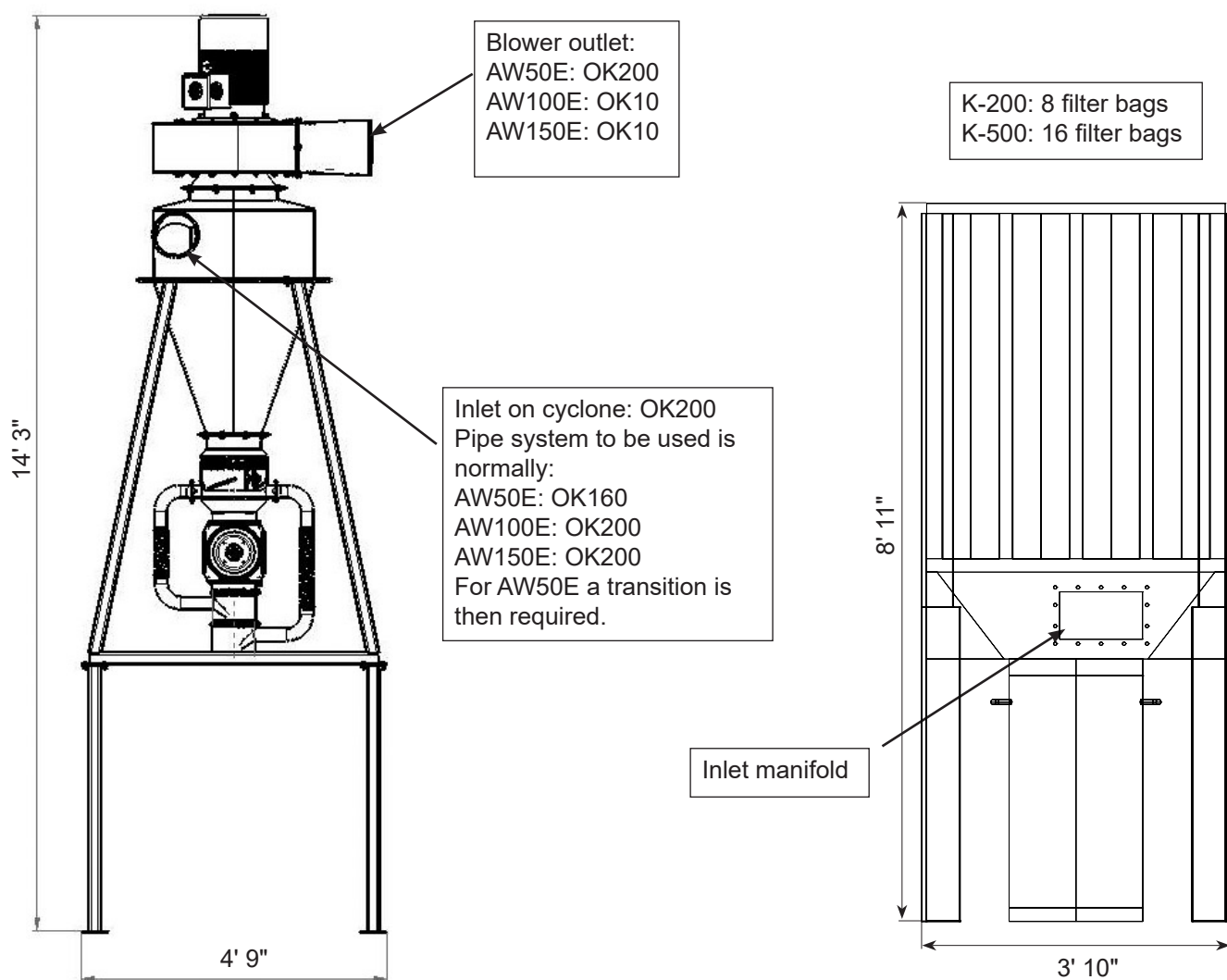


1 in WG = 254 Pa

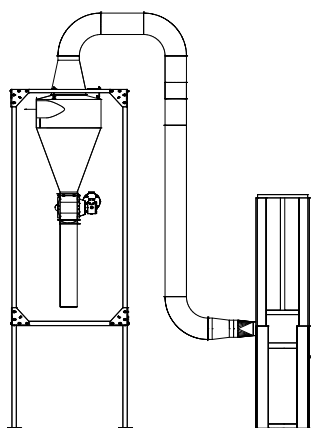
Insert cyclone closed bottom



1  $\text{m}^3/\text{h}$  = 0,59 CFM



## Solution with cyclone for dust separation



If there is a demand to have the light fraction discharged into a box or a conveying system the combined cyclone - filter arrangement for the KIA aspirators can be used instead of the filter solution alone. For AW50E the K-200 series filter is used.

For AW100E and AW150E the K-500 series filter is used.

This solution comes in consideration if there is a larger amount of the light fraction to handle, or the work with handling of light material is preferably minimized by having a larger container to collect the waste.

## Controls

No controls system is supplied with the unit. Basically, the system is only demanding start and stop functions.

If case the motors in the system stop simultaneously, there is a risk

that some material due to the after run (from the inertia) on the blower will be vacuumed into the cyclone and not discharged. The rotary valve beneath the cyclone will stop immediately after switch off of the power, which could cause some material to be accumulated in the system. To avoid this situation to

happen, a sequence system should be added into a control system in a way that first the blower motor is switched off and approx. 1-2 minutes later, the rotary valve motor is switched off.

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