

# ADVANCE

Easy Moving 

16

ASSEMBLY, USE AND  
MAINTENANCE MANUAL

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## BLACK SEPARATOR

With Autocleaner







## INSTRUCTION MANUAL

- Type: Self-discharge cyclone
- Model: Black Separator with autocleaner
- Revision 1.0.2

# BLACK SEPARATOR

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## 1 INTRODUCTION

Dear customer,  
the manufacturer would firstly like to thank you for the choice you made in buying an our product, whose technical features will certainly meet Your needs.  
Our products have been designed and manufactured in total compliance with the current regulations, by choosing the best materials to obtain durability and ease of use of the product.  
We ask you, therefore, to read this manual carefully and completely, following strictly the instructions contained herein.

### 1.1 Use of this manual

The instruction manual is a document drawn up by the manufacturer and is part of the product: it integrates the specific rules of application and general rules for people, animals and objects safety. In the event that the product is resold, handed over, rented or sold to others, it must always be accompanied by this manual; therefore, it is recommended to use and keep it with care for the entire operative life of the product.

The main objective of this manual is to make known the proper and safe way to use the equipment. No part of this manual may be reproduced, copied, or shared in any way, without the written permission of the manufacturer.

The manufacturer reserves the right to make improvements or modifications to this manual and to the equipment at any time, without obligation to advise third parties.

## 2 WARNINGS

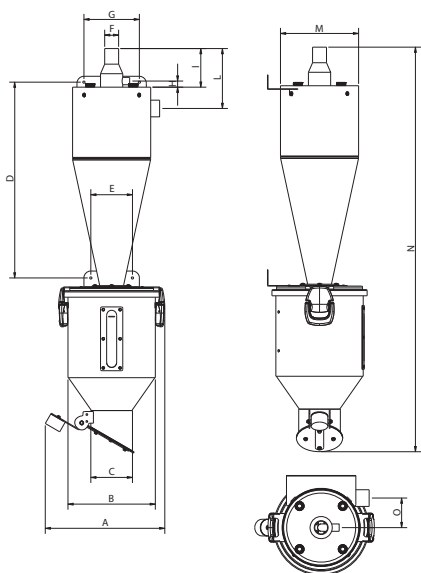
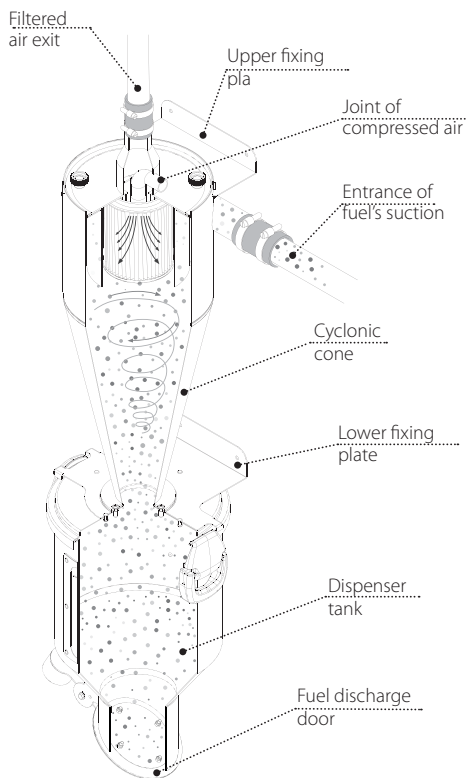
- Do not use the machine for any improper use.
- Do not let children near the machine.
- This unit must not be used by people (including children) with reduced physical, sensory or mental capabilities, or with lack of experience and knowledge, unless they are supervised or instructed in the use of the unit by a person responsible for their safety.
- Use only original spare parts.

The manufacturer declines any liability or guarantee, if the buyer or anyone makes changes or even minor modifications to the purchased product.

### 3 TECHNICAL DATA, EXPLODED VIEW DRAWINGS AND DIMENSIONS

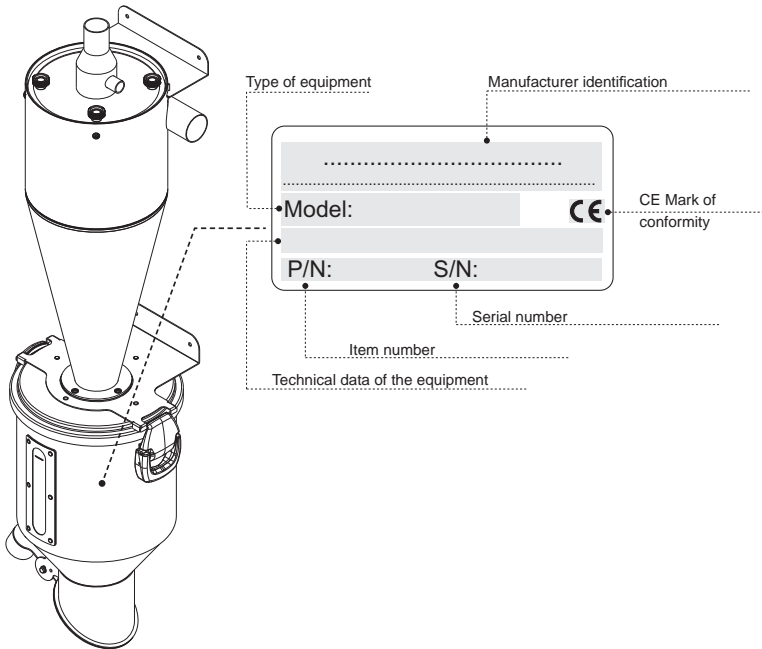
English

Black Pre Separator with autocleaner		
Article		AP3460.50.03
Dust inlet/outlet	Ø mm	60
Max capacity	l	23
Weight	kg	23
Measurement A	mm	431
Measurement B	mm	315
Measurement C	Ø mm	150
Measurement D	mm	706
Measurement E	mm	150
Measurement F	Ø mm	60
Measurement G	mm	200
Measurement H	mm	22
Measurement I	mm	139
Measurement L	mm	216
Measurement M	Ø mm	281,5
Measurement N	mm	1458,5
Measurement O	mm	106,5



### 3.1 Identification plate

The CE identification plate is attached to the cover. Do not remove or damage the plate.



### 4 PACKAGING CONTENT

After opening the packaging, do the inventory of what you have received, which will consist of:

- 1) Cyclonic dispenser with self-cleaning with autocleaner
- 2) An assembly, use and maintenance manual
- 3) Two gum sleeves
- 4) Four metal clamps

Check that the product correspond to the one ordered and that no transportation damage is evident. Should this not be the case, please contact immediately the seller.

### 5 PROPER USE OF THE PRODUCT

This cyclonic separator has been designed to be installed in central vacuum and transport systems for biomass granular fuels, where there is the need to manage the collection and the unloading of very tiny particles, which could be harmful if directly filtered by the central vacuum units.

Therefore fuels with high presence of particularly volatile powders can be vacuumed, and so can be cold ashes produced by biomasses' combustion.

It must be installed above the boiler tank or heat generator and used as a dispenser and discharge accessory in the pneumatic transport of biomass granular fuels such as pellets, olive pomace, crushed shells of dried fruit, corn and other similar fuels even very dusty.

The provided arranged autocleaner system of the filter allows the long-lasting of the filter, keeping the

filtering features unchanged, without increase the loss of charge of the vacuum circuit.

This separator may be installed without the automatic filter autocleaner too, but you must know that in this case the frequency of manual cleaning might be high and difficult.

This separator may be installed without the inner filter too, obviously most of the dusty elements of the transported product won't be held by the system and will reach the central vacuum unit.

It is therefore compulsory to protect the rotor by adequate filtration of arriving air.

## 6 POSITIONING

### Ash and dust collection

The separator must be installed above the tank for the disposal of ash and dust, possibly in the middle of it and at a height that presents the discharge door at the same level as the upper edges of **the tank**.

**Check that the discharge door is free to move.**

### Fuel transport

The separator must be installed above the tank of the boiler, possibly in the middle of it and at a height that presents the discharge door at the same level as the upper edges of the tank.

Check that the discharge door is free to move.

**The cyclonic dispenser with self-cleaning must be installed in a perfectly horizontal position with a spirit level (Fig.1)**

If it is necessary, it is possible to invert the suction inlet by rotating the separator 180° (Fig.2).

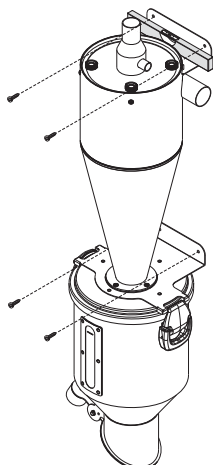


Fig.1

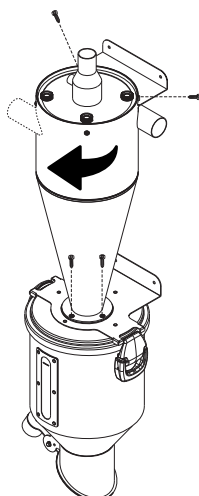


Fig.2

## 6.1 Warning for installations on controlled pressure boiler tanks

It is important to remind that pneumatic transport systems work modifying the state of pressures in the different components of the installation itself: in particular, during the functioning of our systems, the negative pressure inside the dispenser ranges from -0,080 to -0,24 bar (-1,16 to -3,48 psi).

Note: when the system is starting, an air suction from the pellet discharge flap placed on the bottom of the dosing tank may occur.

Afterwards, the same may happen during the dispenser filling phase, due to small wood particles snagged between the fuel outlet and the lower closing flap, which impede the perfect sealing.

These leakages don't prejudice system operation, but they could change the negative pressure inside the boiler tank, with a risk for boiler safety.

Is it possible to fix the situation mainly by programming the working time of the fuel transfer system only when:

- A) The brazier of the boiler is switched off and cold
- B) The loading door of the tank is open
- C) The communication channel between the fuel tank and the boiler brazier is completely closed
- D) The smoke extraction fan of boiler is working at the max power;
- E) On the boiler tank is present an electrical valve, with proper dimensions, connected to the fuel feeding transport system, which allows an easy compensation of the air sucked.



## 6.2 Connection to the piping network

To connect the Cyclonic dispenser with self-cleaning to the fuel transport system, use two sections of Ø 60 mm anti-static hose with a suitable length.

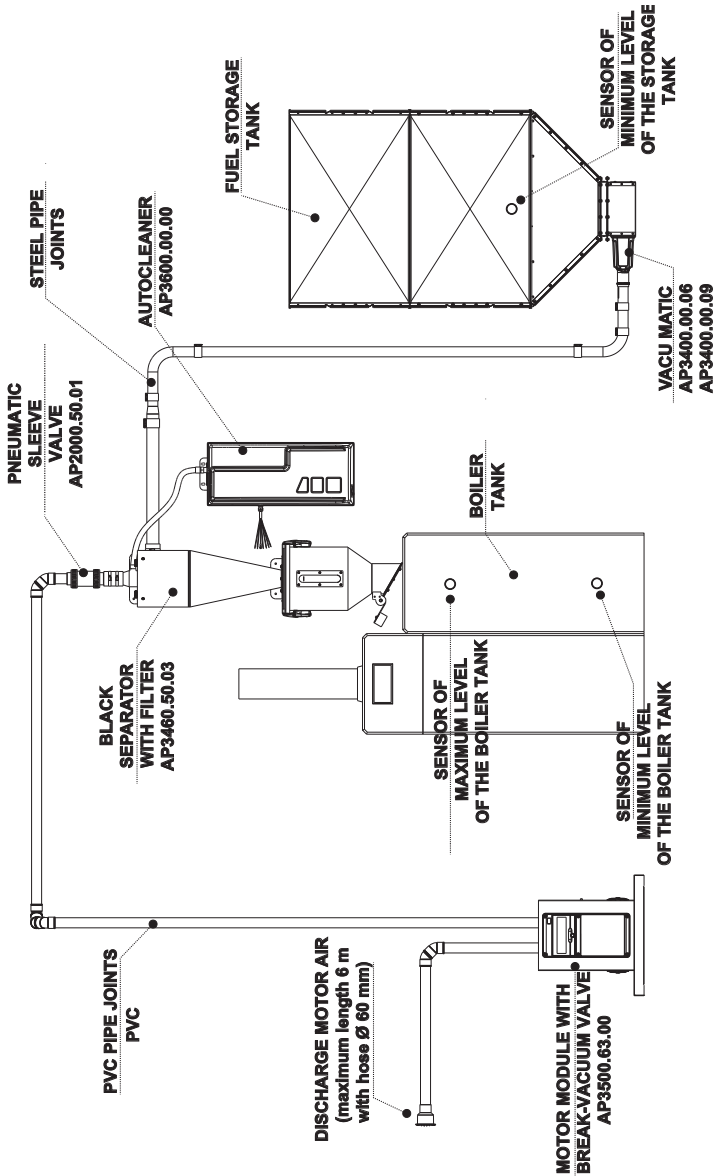
Fix the pipes to the separator with steel hose clamps, then a copper wire section inside the flexible hoses must be stripped and put into contact with a grounding network to avoid static current in the system.

**Remember that, in order to avoid annoying electrostatic charges, also the separator must be connected to a grounding network.**

The fuel transport pipe must be connected to the sleeve called "IN" while the air suction pipe must be connected to the sleeve called "OUT" in the center of the cover.

In case of presence of the autocleaner system it is indispensable to install the sleeve valve at a maximum distance of 20 cm from the coming out aspiration sleeve (OUT) placed on the top of the Cyclonic dispenser. To allow the correct operation of the autocleaner system, when it is active the sleeve valve must be closed. The other ends of the pipes must be connected to the system, which can be made with antistatic flexible hose or steel pipes for the fuel transport section; while the section where the passage of the only air can occur can also be made in PVC. All these materials are available in catalog.

### 6.3 Example of installation for fuels transport

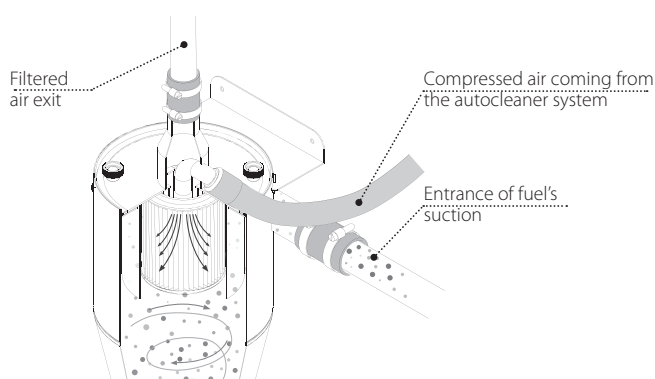


## 6.4 Connection of the autocleaner system

This separator is designed to be connected to the autocleaner system, which you can connect to a distribution network of compressed air and fed between 4 and 5 bar. You can find the autocleaner system in the catalog.

The autocleaner aims to provide the adequate compressed air reserve for the cleaning of the filtering cartridge, done by backwashing at a controlled pressure.

Connect the autocleaner system with a flexible hose of  $\frac{3}{4}$  inch to the arranged joint on the suction collector placed at the top just out of the cyclonic separator (read carefully the instructions of the autocleaner system (please read the instructions of the self-cleaning system carefully)).



The maximum pressure admitted for filter autocleaning is 3,5 bar.

The quantity, the frequency and the lasting of the autocleaning cycles are already planned and set up in the PLC control board of the system.

## 7 PRINCIPLES OF OPERATION

The separator is an integral part of a system which consists of the suction module and the PLC control board. The loading of the dispenser tank takes place thanks to the air suction inside of it, air which leave space to the fuel.

When the aspiration stops, for gravity the product falls in the collection container below; at the end of this operation, if necessary, the PLC control board restart another loading cycle of the dispenser tank.

For the setting of the tank's loading below, it is indispensable to provide the cyclonic dispenser with self-cleaning of two level sensors (minimum and maximum), that will control the suction module. The minimum level sensor will make the suction module start, while the maximum level sensor will stop the suction module so that loading cycles of the dispenser will stop too.

### 7.1 Start up and use

Before proceeding to cyclonic dispenser with self-cleaning with autocleaner start up, it is opportune to check that:

- it is firmly fixed with a spirit level;
- the connecting flexible hoses are correctly and firmly fixed
- The discharge door moves completely and easily

Proceed reading carefully also all the other manuals of the various components of the fuel's transport system, particularly the one of the PLC control board.

The regulation of the potentiometer on the PLC control board allows to load the dispenser tank with the adequate quantity of product at every operation cycle. For an optimal loading, take as reference point the line marked by the adhesive "MAX LEVEL".

In case of fillings at low levels, it won't be any consequences, while in case of fillings much more over than the optimal level, lacks or noises in the motor operation and blockage of transport piping might occur. Therefore it is recommended to regulate properly the operation time with the PLC control board, taking care of check it with a specific frequency; for this purpose we invite you to read the control panel's manual.



Now system is operational; an additional potentiometer adjustment may be necessary if you change, even a little bit, the specific weight or type of the product which has to be transported. In these cases, it is sufficient to readjust the operating time of the control panel so that it is still appropriate to fill, at each cycle, the dosing tank to the level indicated by the "MAX LEVEL" adhesive (see figure above).

## 8 MAINTENANCE AND END-OF-LIFE

**Before carrying out any maintenance operation, it is obligatory to aerate the premises in which it is installed for at least 15 minutes. Complex or long maintenance operations must be done out of fuel storage and heating unit premises.**

**Any maintenance and repair operation must be carried out by experienced personnel and authorized by the manufacturer.**

In the absence of a specific maintenance plan, a complete product inspection is recommended for each filling of the fuel storage tank.

In order to get access to the filter and to the inside of the cyclone you need to remove the cover placed on the top unscrewing the four screw-handles, after have disconnected the aspiration and autocleaner hoses. The filter is then fasten to the cover with a screw-handle (see figure 1 page 7) The filter should always be kept in perfect conditions and it must not have any cut or abrasion, and it must be possible to clean it easily. In case of rests of scaling on the filter's woven even after an accurate cleaning, it needs to be replaced with a new one.

The filter is an important component of the product: you should replace it with a new one at least once a year. The replacement should be done every 3 months in case of very tiny powders, ashes or aggressive substances.

In case of aspiration of very dusty fuel or ashes it must be checked the state of efficiency of the autocleaner, observing the condition of the filter. However, it is recommended to do the manual cleaning of the filter with compressed air or low-pressure water at least every 3 months.

### SPARE PART DESCRIPTION

Filter

#### 8.1 End-of-life

The disposal of packaging, accessories and machine must be executed in accordance with applicable laws, ensuring the recycling of any of the core components.



## 9 SAFETY REQUIREMENTS FOR FUEL STORAGE TANKS

English

### SAFETY REQUIREMENTS for pellet storage tanks with capacity up to 10 t



Keep the doors closed. Access is permitted only to authorized personnel under the supervision of a person outside



Do not smoke and approach flames or other sources of ignition.



Danger of death due to high concentrations of carbon monoxide (CO) and lack of oxygen.



In the 4 weeks after the fuel filling, enter only with a CO detector.



Aerate the storage room for at least 15 minutes before entering and keep the door open during your permanence.



Ensure an adequate and permanent aeration of the storage room through vent covers, openings or fans.



Wounding risk for moving systems



Turn off the boiler at least one hour before the pellet is delivered.



Proceed to the filling according to the requirements of the boiler manufacturer and the pellet supplier.



Protect pellets from humidity



In case of fire suspect keep the front door and any other opening of the storage room close and call the firemen.

## 10 WARRANTY

### PRODUCT LIMITED WARRANTY CONDITIONS

The Manufacturer guarantees to the original purchaser the absence of defects in material and workmanship of the product for the period stated, from the date of purchase. Except as prohibited by applicable law, this warranty is non transferable and it is limited to the original purchaser. The present warranty gives the buyer specific legal rights and the possibility to claim rights which can vary under local laws.

Read all warnings and instructions before using the product purchased.

The entire liability of the manufacturer and your exclusive remedy for any breach of warranty will be at the discretion of the Manufacturer:

(1) To repair or replace the product, or (2) refund the purchase price, provided that the product has been returned to the point of purchase, or such other place as may be specified by the manufacturer, with a copy of the sales receipt or detailed and dated receipt. The shipping and handling are not free of charge, except in cases where this is prohibited by applicable law.

To repair and replace the product, the manufacturer may, at their own discretion, use new, refurbished or used parts in good working condition. Any replacement product will be warranted for the remaining time of the original warranty period, or for any period of time that complies with the provisions of the current law.

This warranty does not cover problems or damage resulting from (1) accident, abuse, misapplication, repair, alteration or unauthorized disassembly; (2) maintenance operation, use which is not in accordance with the product instructions or connection to an improper voltage supply; or (3) use of consumables and spare parts which are not supplied by the manufacturer or authorized service center.

Valid warranty claims are generally processed through the point of purchase of the product.

Please agree this detail with the retailer where you purchased the product.

The Warranty claims that cannot be processed through the point of purchase, as well as any other product related questions, should be addressed directly to the manufacturer. Addresses and contact information for customer support can be found on our website.

Except as stated by relevant laws in force, any implied warranty or condition of merchantability or suitability for a particular purpose relating to this product is limited to the duration of the Limited Warranty period for the specific product purchased.

Some jurisdictions do not allow limitations on the duration of implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state, or from jurisdiction to jurisdiction.

Consumers have legal rights under applicable national legislation governing the sale of consumer products. Such rights are not affected by the warranties in this Limited Warranty.

No dealer, agent, or employee of the manufacturer is authorized to make any modification, extension or addition to this warranty.



## 11 DECLARATIONS OF CONFORMITY

### **Declaration of absence of harmful substances**

The manufacturer declares that their products and equipment are made with materials compliant with the current regulations regarding protection of health and the environment and does not contain substances classified as SVHC (Substance of Very High Concern) in accordance with Regulation EC 1907/2006 (REACH, or registration, evaluation, authorization and restriction of chemical substances).

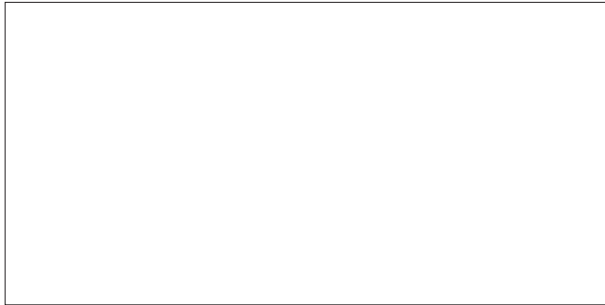
Although in the working cycles of raw materials and our products such substances are not used, their presence in the size of p.p.m. (parts per million) cannot be excluded due to micro-pollution of raw materials.

English





BLACK SEPARATOR WITH AUTOCLEANER



F0920553

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