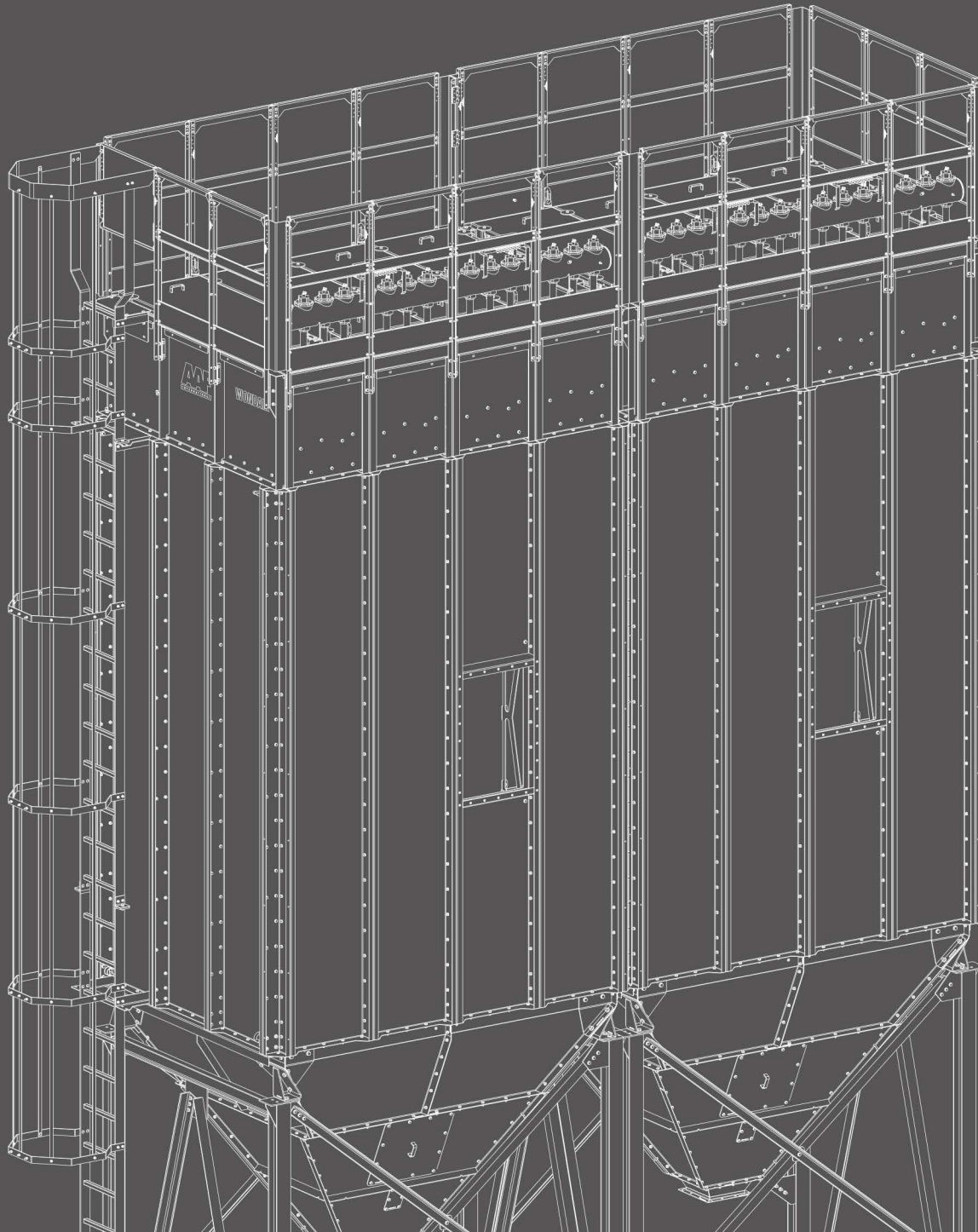


# WONDAIR™ Max

Installation and Operations Manual



POWERED BY

**RED**Clean® Media

Design | Engineering | Manufacturing | Maintenance | Spare Parts

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Bringing clean air to life.®

Meaning of the safety signs on the equipment



Do not enter. Authorised personnel only



Caution. Finger trap



Caution. Compressed air



PPE: Gloves, safety boots, face mask, hearing protection and safety glasses required

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Meaning of the symbols used in this document



**NOTE.** Additional information related to a specific operation.



**NOTICE.** Noteworthy or important information that the user must bear in mind.



**WARNING.** Warning that operation may be dangerous. Possible bodily injury or material damages.

# General safety guidelines



CAREFULLY READ THIS MANUAL PRIOR TO HANDLING AND INSTALLING THE EQUIPMENT.

AAF International will not be held responsible for improper use, or for any possible errors resulting from improper assembling/installation.

- | Personnel responsible for the installation, handling and removal of the equipment as well as conducting maintenance must be properly qualified to carry out these tasks. To accomplish this, we must be familiar with and follow all basic safety recommendations (mechanical, electrical, potentially explosive atmosphere, etc.).
- | The equipment should be operated under the conditions that are defined and recommended by the manufacturer in accordance with the order. Any equipment modification that has not been previously authorised by AAF International may alter its operation, which would entail a modification of the warranty framework and cancellation of the declaration of conformity.
- | Contact the manufacturer prior to making any modifications to the dust collector, the safety system, the process, the product or the location of the filter. Otherwise, AAF International cannot guarantee the optimum performance of the filter.
- | The filter shall be stored just as it was supplied. Remove the filter from its packaging only prior to installation.
- | The user is responsible for checking that the equipment has not suffered any damage during shipment and that the technical data that appears on the nameplate matches the information listed in the order.
- | The equipment may only be used when it is in perfect material condition as determined by a technician based on its intended use. Any faulty operation, especially when it affects the safety of the device, must be immediately corrected. Likewise, the equipment shall be used according to the instructions provided in this manual.
- | The equipment incorporates different hoisting points to facilitated unloading it. The weight and size of the unit are indicated in the drawings or documentation supplied by AAF International. Shipping as well as handling must be carried out using equipment that is suitable for handling its weight and size. The equipment must not be hoisted from the eye bolts that are installed on the components. For example, the eye bolts that are installed on the motors, which are designed for independent transport.
- | **Except in cases where the equipment has the ATEX certificate for operating in potentially explosive atmospheres (Directive 2014/34/UE), the unit must not be installed in these types of environments. Also, the equipment shall not be used in explosive applications.** It is important to note that if the ATEX condition is not expressly stated in the nameplate, the supplied unit is not suitable for use in explosive atmospheres under any circumstance.
- | In cases where the equipment is going to be used for handling potentially explosive dust or is going to be located in a potentially explosive atmosphere, **all the motors shall be connected to the thermal protective devices to prevent exceeding the maximum temperature of the surface. The electrical equipment must be compliant with category EN 60079-0.**
- | **If the dust to be removed can cause an exothermic reaction, including self-ignition, the installation must include an explosive protection system. To prevent this risk, we recommend frequently cleaning the equipment to remove any layers of dust.**
- | The equipment must be installed and anchored to a fixed based using the bolts that are supplied by the installer. The manufacturer shall not be responsible for an improper installation of the machine at its final location.
- | The maximum operating temperature of the WONDAIR™ Max oscillates between 80 and 100 °C, while capable of withstanding peaks up to 120 °C.
- | When the electrical connection is made by personnel that are not employed by AAF or any of its authorised installers, AAF International recommends paying special attention to the type of current and nominal voltage of the unit.
- | The equipment shall be connected to electrical power supplies that incorporate short-circuit and over-current protections and shall comply with the low voltage regulations of the country where the machine is installed.
- | Any work on the equipment must be carried out when the equipment is stopped and disconnected from the electrical and pneumatic power supplies as well as pneumatically depressurised (which keeps the cleaning system turned on after the power is disconnected until the manifold pressure drops to 0 bar). To disconnect the power supplies:
  - The electrical power supply will incorporate a circuit breaker installed on the outside of the user panel.
  - The pneumatic power to the manifold, provided by the user, shall have a shut-off valve.
- | These disconnect devices on the power supplies shall have a lock-out if they cannot be monitored from the maintenance areas. The lock-out tags shall be clearly labelled.
- | If an explosion occurs, a stop signal from the equipment is required.
- | Maintenance on the equipment must be carried out under the proper lighting conditions.
- | Once the maintenance is completed, the installation must be returned to its original state (fasteners, guards, locks, connections and grounds).
- | In order to maintain the warranty and the validity of the declaration of conformity, the user must make an optimum use of the equipment and carry out regular maintenance on the machine, removing any dust and inspecting the cleaning mechanism, among other tasks. AAF International recommends carrying out this practice at least once a month.
- | While maintenance is being carried out, personnel assigned these tasks must use appropriate personal protective equipment according to the nature of the task (toxicity, harmfulness, etc.).
- | If the unit is equipped with an internal fall protection screen, its condition must be inspected periodically and replaced if any damage is found.
- | To guarantee a proper operation of the equipment, only authorised parts and original spares supplied by the AAF International shall be used. Refer to the spare parts information provided for this equipment.
- | Original parts and accessories have been especially designed for this machine. Take into account that parts and accessories not supplied by the manufacturer have not been tested by them and therefore, installing these parts may negatively affect the machine's properties. The manufacturer shall not be responsible for any damage caused by non-original parts or accessories.
- | For cleaning the filtering fabric, we recommend using compressed air on those filters that can be cleaned using reverse air flow. However, if the product being treated is flammable and excessive air can be harmful in case of an explosion, we can opt for using some type of inert gas instead of air.
- | During the risk assessment of possible ignition sources in dust and gas mixtures with a low level of EMI, a risk of electrostatic discharge has been detected in accumulated dust. In these cases, safety will be based on using a conductor container, dust of an average particle size lower than 400 µm and frequent emptying.
- | We recommend using a sprinkler system in applications that involve handling explosive or flammable materials.

**The safety of the equipment may be negatively affected if any changes are made in the original design of the filter or the process without modifying the safety system. A defective or negligent maintenance can also affect the safety of the equipment.**

This unit has been designed for specific filtering conditions (flow and temperatures included in the Datasheet). If the conditions change or new filtering applications are required, AAF International recommends consulting with the manufacturer regarding other units that may be suitable for handling these new requirements.

No fan can be considered fully sealed since they are equipped with an open inlet or outlet. For this reason, the internal and external atmospheres can be the same in terms of the classification of explosive atmospheres.

Standard fan assemblies must not exceed 3000 rpm (50 Hz) in systems equipped with an inverter.

AAF International shall not be responsible in cases where in order to disassemble the equipment or its spares, these are not cleaned and disposed of in accordance with current codes and standards and it is not carried out through a manager authorised to recycle this type of waste.

As part of their commitment to protect the environment, AAF International recommends responsibly disposing of the waste elements resulting from equipment use (packaging materials and rubbish, as well as cartridges or bags that are removed to be destroyed).

The machine must be maintained and operated exclusively by qualified and authorised personnel. New personnel must be properly trained in operating the system.

The machine may be operated by a single person. In cases where more than one person is located in the installation area, the responsibility of operating the machine must be unequivocally coordinated by this personnel.

All unauthorised personnel must remain outside the machine working area.

The application software and control of the system can only be operated and modified by personnel authorised and qualified to carry out these tasks.

The system shall only be adjusted by personnel authorised and qualified to carry out this task.

Any operating mode that might place the safety of the machine at risk shall be avoided.

The stickers that are located on the equipment shall never be removed. The user must be familiar with all safety information as well as the hazards associated with the machine. This information must be kept in a legible format along with the rest of the information about the machine.

Personnel must not let their hair down, wear baggy clothing or jewellery (excluding rings, chains or collars) when they are in contact with the machine. Otherwise, bodily harm may occur as a result of the user's clothing becoming entangled in the machines moving parts. The operator must follow the safety regulations related with accident prevention at the workplace.

Regularly verify operators are familiar with the safety measures as well as the hazards in accordance with the machine documentation.

If any modifications are discovered on the machine that affect its safety or modify the way it operates, the machine shall be immediately stopped and responsible personnel shall be notified.

Original parts and accessories have been especially designed for this machine. Take into account that parts and accessories not supplied by the manufacturer have not been tested by them. Installing these parts may negatively affect the machine's properties. The manufacturer shall not be responsible for any damage caused by non-original parts or accessories.

Follow the fire prevention regulation when handling flammable products.

The fire prevention installation must be expanded and adapted to the machine's location by the user if necessary.

Immediately turn off and close the machine if a malfunction occurs. Correct the malfunction as soon as possible.

Before turning on the machine, make sure nobody is in a dangerous situation that could be injured when the machine is turned on.

The commissioning, maintenance and inspection tasks, including the replacement of parts or components, shall only be carried out by qualified personnel.

If the machine is turned off for maintenance or repair, the machine must be protected against inadvertent start-ups by opening the electrical power circuit breaker and locking it out with a padlock.

When performing maintenance on the machine to replace a component that is located above the head, use appropriate safety ladders or platforms. In no case shall operators climb on the machine or use any of its parts as a ladder.

The operator must ensure that only authorised personnel use the machine.

At least once per shift, operators must inspect the machine looking for visible defects and inform appropriate personnel if a modification is discovered affecting the safety or operation of the machine.

If safety equipment needs to be removed for the purpose of installing a component on the machine or to conduct maintenance or repairs, the safety equipment must be reinstalled and immediately inspected once the repair or maintenance task has been completed.

Machine users must ensure the workstation is properly illuminated for safety and ergonomic reasons.

When handling the equipment, make sure the external surface temperature is lower than 60°C.

Make sure the installation is equipped with a lightning arrestor.

Declarations of conformity



CE EU Declaration of Conformity

AAF-SA declares that the following product:

Designation	WONDAIR™ Max							
Bag length	6	8	10	12	14			
Size	56	88	132	176	220	264	308	352
	396	440	484	528	572	616	660	704

has been designed and manufactured in compliance with the following European Directives:

- Directive 2006/42/EC on machinery
- Directive 2014/68/EU on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment
- Directive 2014/30/EU on the harmonisation of the laws of the Member States relating to electromagnetic compatibility
- Directive 2014/35/EU on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

  
Vitoria (Spain), December 2024  
Bruno Vincent Engineering Manager




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  - Directive 2014/30/EU on the harmonisation of the laws of the Member States relating to electromagnetic compatibility
  - Directive 2014/35/EU on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
  - Directive 2014/34/EU on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres
- Being its marking (check Equipment Nameplate to see which applies):



II 2D Ex h IIIC T135°C Db


II 2G Ex h IIB T3 Gb

Technical file: LOM 06ATEX0021



II 3D Ex h IIIC T135°C Dc

II 3G Ex h IIB T3 Gc

  
Vitoria (Spain), December 2024  
Bruno Vincent Engineering Manager

The applied harmonised standards are EN ISO 80079-36 (2016), EN ISO 80079-37 (2016) and EN 1127-1 (2011). In the case of a 2DG unit, the applicable technical documentation has been provided to the Notified Body for safekeeping "Laboratorio Oficial J. M. Madariaga-LOM", with address at Eric Kandel, 1 – 28906 Getafe (Madrid), with the following codes: Supplement Number 5, with code "AAF ATEX-201014" (provided to LOM for safekeeping on 24 February 2021), of the Technical Report Custody Certificate LOM 06ATEX0021, with code "AAF ATEX 60227".

In the case of a 3DG unit, take into account that the unit referred to in this declaration has been manufactured based on the assembly comprised of a machine manufactured bag filter in compliance with Category 2, with marking Ⓢ II 2 D Ex h IIIC T135°C Db and/or Ⓢ II 2 G Ex h IIB T3 Gb (Technical Report and its 5 supplements provided to the Notified Body "Laboratorio Oficial J. M. Madariaga-LOM", with address at Eric Kandel, 1 – 28906 Getafe (Madrid), with the following codes: LOM 06ATEX0021, coded as AAF ATEX 60227), which external part and without affecting its internal part as far as potentially ignition sources is concerned, has been equipped with sub-units which, instead of being a Category 2, could be Category 3 sub-units and therefore, the marking of the resulting assembly is the one listed in this declaration; that is: Ⓢ II 3 D Ex h IIIC T135°C Dc and/or Ⓢ II 3 G Ex h IIB T3 Gc.





UK  
CA Declaration  
of Conformity

AAF-SA declares that the following product:

Designation	WONDAIR™ Max								
Bag length	6	8	10	12	14				
Size	56	88	132	176	220	264	308	352	
	396	440	484	528	572	616	660	704	

has been designed and manufactured in compliance with the following **UK Legislations**:

- | Pressure Equipment (Safety) Regulations 2016
- | The Supply of Machinery (Safety) Regulations 2008
- | Electromagnetic Compatibility Regulations 2016
- | The Electrical Equipment (Safety) Regulations 2016

is in conformity with the applicable requirements of the following applied **Standards**:

BS-EN-ISO 12100:2012	BS-EN 60204-1:2019
BS-EN-ISO 13849-1:2008	BS-EN-ISO 13850:2007
BS-EN-ISO 4414:2011	BS-EN-ISO 13857:2008

  
Vitoria (Spain), December 2024  
Bruno Vincent *Engineering Manager*




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- | Pressure Equipment (Safety) Regulations 2016
  - | The Supply of Machinery (Safety) Regulations 2008
  - | Electromagnetic Compatibility Regulations 2016
  - | The Electrical Equipment (Safety) Regulations 2016
  - | Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016
- Being its marking (*check Equipment Nameplate to see which applies*):

 II 2D Ex h IIIC T135°C Db II 2G Ex h IIB T3 Gb Technical file: LOM 06ATEX0021	 II 3D Ex h IIIC T135°C Dc II 3G Ex h IIB T3 Gc
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is in conformity with the applicable requirements of the following applied **Standards**:

BS-EN-ISO 12100:2012	BS-EN 60204-1:2019
BS-EN-ISO 13849-1:2008	BS-EN-ISO 13850:2007
BS-EN-ISO 4414:2011	BS-EN-ISO 13857:2008
EN 60079-0:2012	

  
Vitoria (Spain), December 2024  
Bruno Vincent *Engineering Manager*

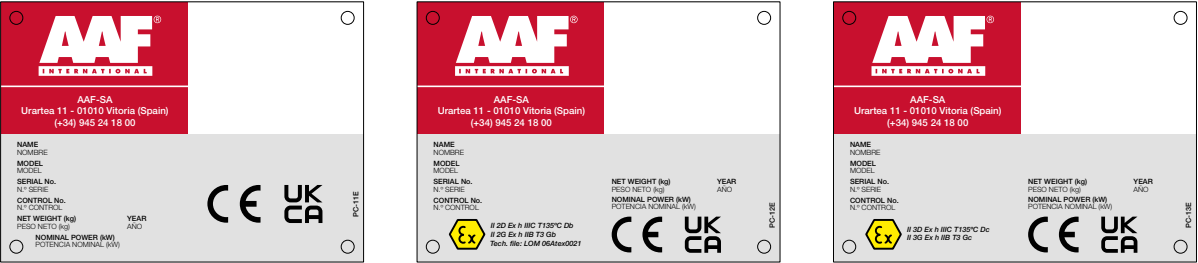
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## Nameplate

This manual contains the declarations of conformity for *ATEX* and *non ATEX* equipment. To check if your machine is suitable for use in explosive atmospheres, refer to the nameplate on your unit.

The nameplate is always placed on the same side as the manifold, on the top of the dust collector.




## Standards applicable to the design and manufacture of the machine

<b>UNE-EN ISO 12100:2021 / BS EN ISO 12100:2010</b> Safety of machinery — General principles for design — Risk assessment and risk reduction.
<b>UNE-EN ISO 13849-1:2024 / BS EN ISO 13849-1:2023</b> Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design.
<b>UNE-EN ISO 13857:2020 / BS EN ISO 13857:2019</b> Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs.
<b>UNE-EN ISO 13850:2016 / BS EN ISO 13850:2015</b> Safety of machinery — Emergency stop function — Principles for design.
<b>UNE-EN 894-1:1997+A1:2009 / BS EN 894-1:1997+A1:2008</b> Safety of machinery — Ergonomics requirements for the design of displays and control actuator. Part 1: General principles for human interactions with displays and control actuators.
<b>UNE-EN ISO 4414:2011 / BS EN ISO 4414:2010</b> Pneumatic fluid power — General rules and safety requirements for systems and their components.
<b>UNE-EN ISO 14120:2016 / BS EN ISO 14120:2015</b> Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards.
<b>UNE-EN 981:1997+A1:2008 / BS EN 981:1996+A1:2008</b> Safety of machinery — System of auditory and visual danger and information signals.
<b>UNE-EN 60204-1:2019 / BS EN 60204-1:2018</b> Safety of machinery — Electrical equipment of machines — Part 1: General requirements.
<b>UNE-EN 61439-1:2021 / BS EN 61439-1:2011</b> Low-voltage switchgear and control gear assemblies — Part 1: General rules.
<b>UNE-EN 61000-6-3:2021 / BS EN IEC 61000-6-3:2021</b> Electromagnetic compatibility (EMC) — Part 6-3: Generic standards Emission standard for residential, commercial and light-industrial environments.
<b>UNE-EN 61000-6-4:2019 / BS EN IEC 61000-6-4:2019</b> Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments.
<b>UNE-EN 61000-6-1:2019 / BS EN 61000-6-1:2019</b> Electromagnetic compatibility (EMC) — Part 6-1: Generic standards Immunity for residential, commercial and light-industrial environments.
<b>UNE-EN 61000-6-2:2019 / BS EN IEC 61000-6-2:2019</b> Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments.
<b>UNE-EN ISO 14122-3:2017 / BS EN ISO 14122-3:2016</b> Safety of machinery – Permanent means of access to machinery – Part 3: Stairs, stepladders and guard-rails.

## Logistics and delivery terms

WONDAIR™ Max is delivered in different ways depending on the size of the unit and the selected shipping method. However, in all cases, following components are always shipped separately and unassembled:

- | Bag and cages.
- | Access elements: handrails and ladders.
- | Cleaning controller.
- | Electrical components and instrumentation (if existing).
- | Compressed air unit (if existing).
- | Explosion panels (if existing).
- | Dust handling components (if existing).

 *All electrical items are always shipped unwired.*

### Truck shipping (road)

It is necessary to distinguish between 'mono-module' sizes (single module) and multi-module sizes (with the exceptions defined in the previous Chapter.

#### Mono-module size

If it is a mono-module size, the dust collector will be shipped fully assembled, with the exceptions defined in the previous Chapter.

#### Multi-module size

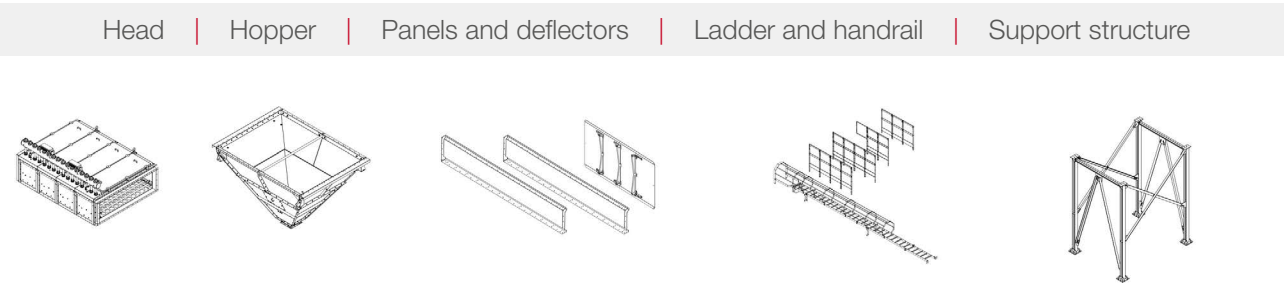
If it is a multi-module size, each module will be shipped completely assembled with the exceptions defined in the previous Chapter.


The support structure of multi-module sizes will be shipped separately and unassembled.

### Container shipping (maritime)

For maritime shipping by container, only the head and the hopper of each module will be shipped assembled.

The remaining components will be shipped disassembled to optimize the container's volume.



 *The elements can be consulted in the drawing on page 15, where they have been represented.*

# WONDAIR™ Max

WONDAIR™ Max is a best-in-class bag dust collector engineered for large airflows and high dust concentrations. Designed to handle airflow capacities ranging from 15,000 m³/h to over 150,000 m³/h, this modular system offers unmatched adaptability with the option to add additional modules as needed.

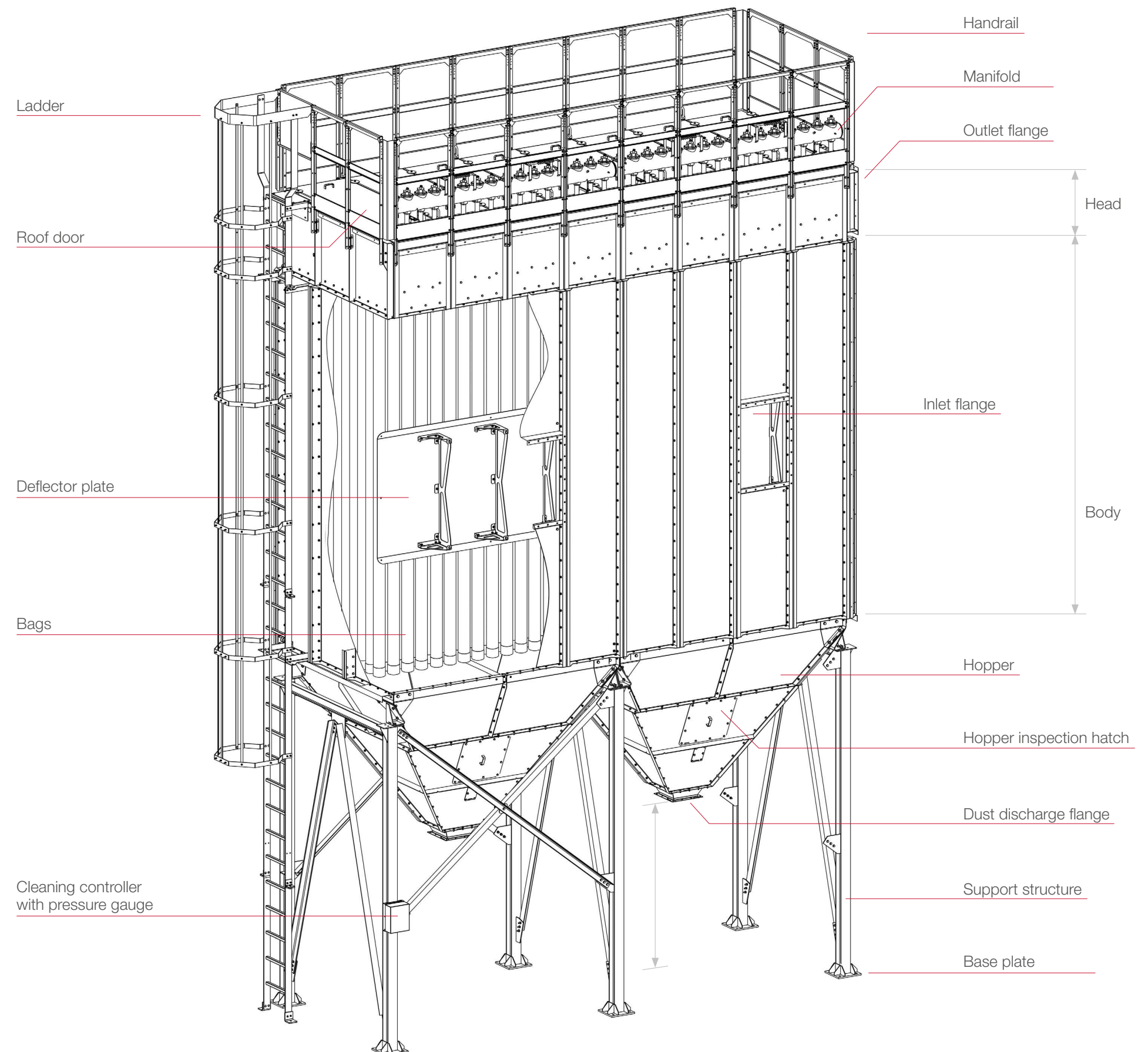
WONDAIR™ Max can be supplied in three different layouts: only the head, the complete housing without, and with support structure and hopper. This flexibility allows it to be used either as an insert-type filter or as an independent filtration unit, depending on the characteristic of the process and the application.

In challenging environments where dust particles and pollutants pose risks, WONDAIR™ Max excels in delivering superior efficiency while maintaining air quality to safeguard your industrial processes and the environment.

WONDAIR™ Max is manufactured as an On-line self cleaning dust collector, so that bags are cleaned during dust collection operation without the need of stopping it for maintenance or cleaning task. However, AAF International also provide these units as Off-line dust collector system, or either, as an hybrid solutions.

Among the different versions of the WONDAIR™ Max that are available, there are models that can be used in high temperature environments and other ones compatibles with potentially explosive atmospheres according to Directive 2014/34/EC, which meets the requirements of group II category 2G or 2D and 3G or 3D T135°C.

WONDAIR™ Max is the reliable solution for high-volume industrial application needs, combining efficiency, adaptability, and robust performance in challenging conditions.



\* For more information about the elements and technical options, refer to the equipment Datasheet.



Sizes

WONDAIR™ Max dust collector is available in the following standard sizes based on the number of bags it is equipped with, and their length.

According to its number of bags:

From 56 to 704 bags

According to the length of its bags:

12 feet

14 feet

6, 8 and 10 feet also available for small sizes

According to quantity of modules:

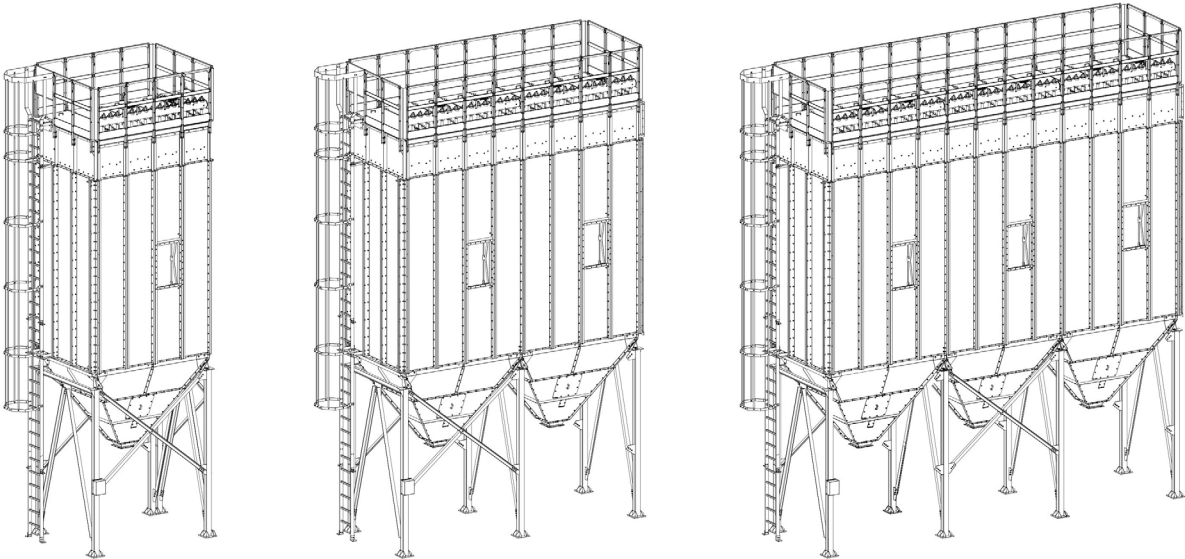
From 1 to 4 modules

The full designation of the unit includes this data based on the following definition:

WONDAIR™ Max | Bag lengths | No. of bags | Arrangement | Type

For example, a filter with 176 bags measuring 12 feet in length, head, body, hopper and structure included, would have the following designation:

WONDAIR™ Max 12-176 C (Basic version)



General dimensions

WONDAIR™ Max - Arrangement A - 12' bags

Model		Dimensions (mm)			Weight (kg)	
		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	12-88	1675	2340	1408	946	1386
	12-132	2395	2340	1408	1268	1928
	12-176	3115	2340	1408	1573	2453
2 Modules	12-220	3835	2340	1408	2033	3133
	12-264	4555	2340	1408	2355	3675
	12-308	5275	2340	1408	2660	4200
3 Modules	12-352	5995	2340	1408	2970	4730
	12-396	6715	2340	1408	3436	5416
	12-440	7435	2340	1408	3747	5947
4 Modules	12-484	8155	2340	1408	4057	6477
	12-528	8875	2340	1408	4362	7002
	12-572	9595	2340	1408	4833	7693
5 Modules	12-616	10315	2340	1408	5144	8224
	12-660	11035	2340	1408	5449	8749
	12-704	11755	2340	1408	5759	9279

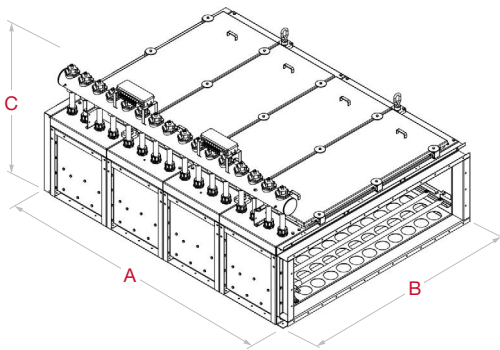


Illustration model:  
WONDAIR™ Max 12 176 A

WONDAIR™ Max - Arrangement A - 14' bags

Model		Dimensions (mm)			Weight (kg)	
		A Height	B Length	C Depth	Net Weight*	Total Weight*
1 Module	14-88	1675	2340	1408	946	1474
	14-132	2395	2340	1408	1268	2060
	14-176	3115	2340	1408	1573	2629
2 Modules	14-220	3835	2340	1408	2033	3353
	14-264	4555	2340	1408	2355	3939
	14-308	5275	2340	1408	2660	4508
3 Modules	14-352	5995	2340	1408	2970	5082
	14-396	6715	2340	1408	3436	5812
	14-440	7435	2340	1408	3747	6387
4 Modules	14-484	8155	2340	1408	4057	6961
	14-528	8875	2340	1408	4362	7530
	14-572	9595	2340	1408	4833	8265
5 Modules	14-616	10315	2340	1408	5144	8840
	14-660	11035	2340	1408	5449	9409
	14-704	11755	2340	1408	5759	9983

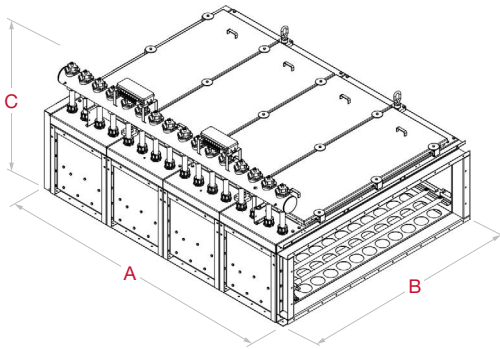


Illustration model:  
WONDAIR™ Max 14 176 A

WEIGHTS and DIMENSIONS in this table may contain some minor inaccuracies: General Arrangement Drawing will provide the accurate weight and dimensions.

Net Weight refers to weight without cages nor bags. Total Weight refers to weight with cages and bags.

WONDAIR™ Max - Arrangement B - 12' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	12-88	1675	2450	5566	2381	2821
	12-132	2395	2450	5566	2967	3627
	12-176	3115	2450	5566	3542	4422
2 Modules	12-220	3835	2450	5566	4284	5384
	12-264	4555	2450	5566	4870	6190
	12-308	5275	2450	5566	5440	6980
	12-352	5995	2450	5566	6015	7775
3 Modules	12-396	6715	2450	5566	6733	8713
	12-440	7435	2450	5566	7320	9520
	12-484	8155	2450	5566	7895	10315
	12-528	8875	2450	5566	8464	11104
4 Modules	12-572	9595	2450	5566	9189	12049
	12-616	10315	2450	5566	9769	12849
	12-660	11035	2450	5566	10344	13644
	12-704	11755	2450	5566	10919	14439

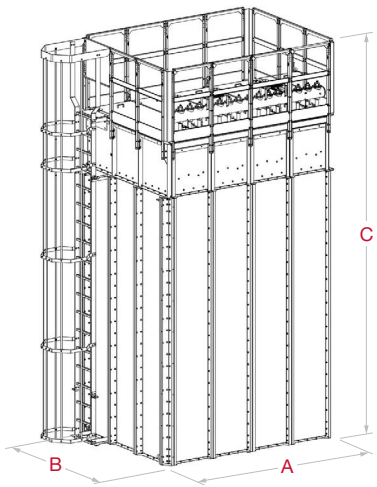


Illustration model:  
WONDAIR™ Max 12 176 B

WONDAIR™ Max - Arrangement C - 6', 8', 10' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	6-56	1675	1735	7230	3150	3590
	8-56	1675	1735	7830	3270	3710
	10-56	1675	1735	8450	3404	3844
	8-88	1675	2453	7830	3534	3974
	10-88	1675	2453	8450	3684	4124

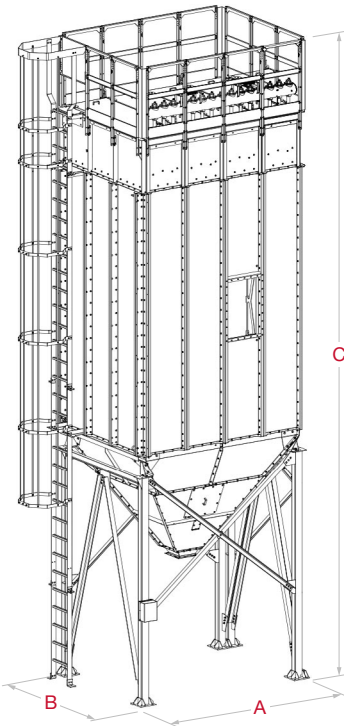


Illustration model:  
WONDAIR™ Max 14 176 C

WONDAIR™ Max - Arrangement B - 14' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	14-88	1675	2450	6326	2628	3156
	14-132	2395	2450	6326	3260	4052
	14-176	3115	2450	6326	3876	4932
2 Modules	14-220	3835	2450	6326	4658	5978
	14-264	4555	2450	6326	5284	6868
	14-308	5275	2450	6326	5905	7753
	14-352	5995	2450	6326	6532	8644
3 Modules	14-396	6715	2450	6326	7285	9661
	14-440	7435	2450	6326	7912	10552
	14-484	8155	2450	6326	8539	11443
	14-528	8875	2450	6326	9160	12328
4 Modules	14-572	9595	2450	6326	9919	13351
	14-616	10315	2450	6326	10546	14242
	14-660	11035	2450	6326	11167	15127
	14-704	11755	2450	6326	11793	16017

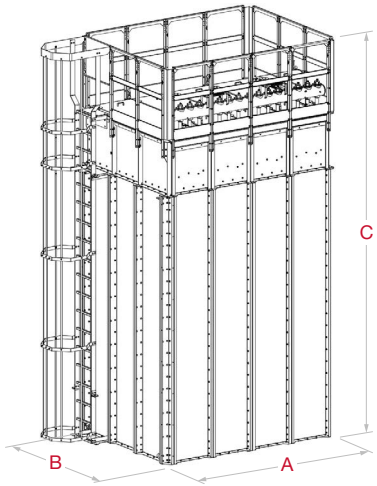


Illustration model:  
WONDAIR™ Max 14 176 B

WONDAIR™ Max - Arrangement C ATEX - 6', 8', 10' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	6-56	1675	1735	7230	3350	3790
	8-56	1675	1735	7830	3470	3910
	10-56	1675	1735	8450	3604	4044
	8-88	1675	2453	7830	3834	4274
	10-88	1675	2453	8450	3984	4424

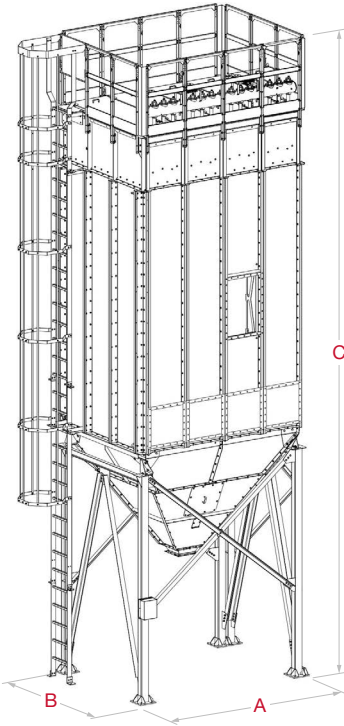






Illustration model:  
WONDAIR™ Max 14 176 C ATEX

 **WEIGHTS and DIMENSIONS** in this table may contain some minor inaccuracies: General Arrangement Drawing will provide the accurate weight and dimensions.

 **Net Weight** refers to weight without cages nor bags. **Total Weight** refers to weight with cages and bags.

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WONDAIR™ Max - Arrangement C - 12' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	12-88	1675	2450	8876	3784	4224
	12-132	2395	2450	8876	4485	5145
	12-176	3115	2450	8876	5152	6032
2 Modules	12-220	3835	2450	8876	6572	7672
	12-264	4555	2450	8876	7280	8600
	12-308	5275	2450	8876	7935	9475
	12-352	5995	2450	8876	8579	10339
3 Modules	12-396	6715	2450	8876	10028	12008
	12-440	7435	2450	8876	10684	12884
	12-484	8155	2450	8876	11351	13771
	12-528	8875	2450	8876	11989	14629
4 Modules	12-572	9595	2450	8876	13438	16298
	12-616	10315	2450	8876	14111	17191
	12-660	11035	2450	8876	14755	18055
	12-704	11755	2450	8876	15399	18919

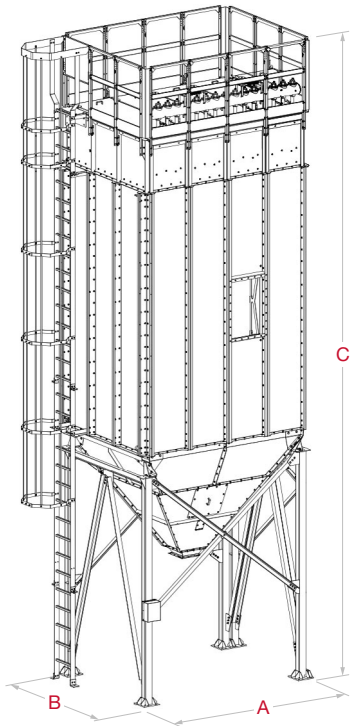


Illustration model:  
WONDAIR™ Max 12 176 C

WONDAIR™ Max - Arrangement C ATEX (Case3) - 12' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	14-88	1675	2450	9636	4221	4749
	14-132	2395	2450	9636	5008	5800
	14-176	3115	2450	9636	5762	6818
2 Modules	14-220	3835	2450	9636	7251	8571
	14-264	4555	2450	9636	8039	9623
	14-308	5275	2450	9636	8792	10640
	14-352	5995	2450	9636	9534	11646
3 Modules	14-396	6715	2450	9636	11040	13416
	14-440	7435	2450	9636	11782	14422
	14-484	8155	2450	9636	12547	15451
	14-528	8875	2450	9636	13283	16451
4 Modules	14-572	9595	2450	9636	14789	18221
	14-616	10315	2450	9636	15554	19250
	14-660	11035	2450	9636	16290	20250
	14-704	11755	2450	9636	17032	21256

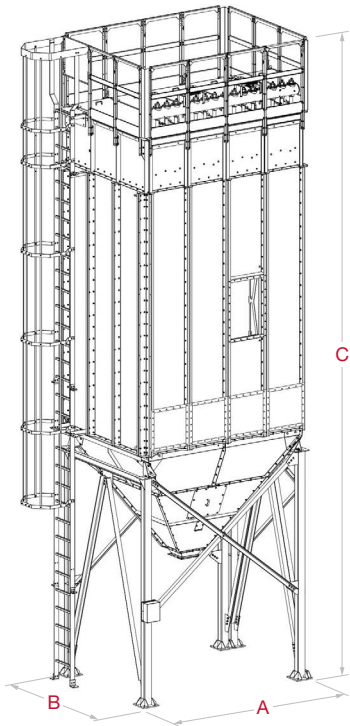


Illustration model:  
WONDAIR™ Max 12 176 C ATEX

WONDAIR™ Max - Arrangement C - 14' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	14-88	1675	2450	9636	4031	4559
	14-132	2395	2450	9636	4778	5570
	14-176	3115	2450	9636	5486	6542
2 Modules	14-220	3835	2450	9636	6946	8266
	14-264	4555	2450	9636	7694	9278
	14-308	5275	2450	9636	8401	10249
	14-352	5995	2450	9636	9097	11209
3 Modules	14-396	6715	2450	9636	10580	12956
	14-440	7435	2450	9636	11276	13916
	14-484	8155	2450	9636	11995	14899
	14-528	8875	2450	9636	12685	15853
4 Modules	14-572	9595	2450	9636	14168	17600
	14-616	10315	2450	9636	14887	18583
	14-660	11035	2450	9636	15577	19537
	14-704	11755	2450	9636	16273	20497

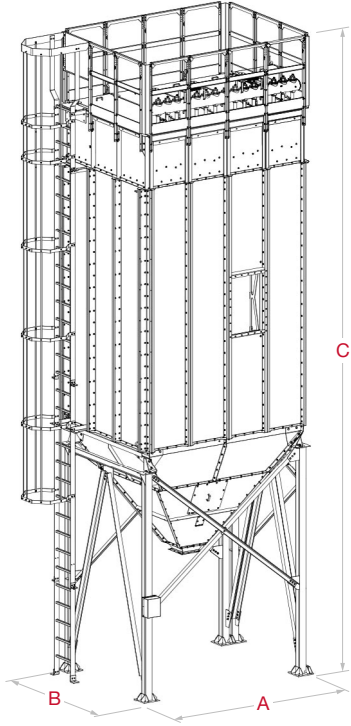


Illustration model:  
WONDAIR™ Max 14 176 C

WONDAIR™ Max - Arrangement C ATEX (Case1) - 14' bags

		Dimensions (mm)			Weight (kg)	
Model		A Length	B Width	C Height	Net Weight*	Total Weight*
1 Module	14-88	1675	2450	9636	4221	4749
	14-132	2395	2450	9636	5008	5800
	14-176	3115	2450	9636	5762	6818
2 Modules	14-220	3835	2450	9636	7251	8571
	14-264	4555	2450	9636	8039	9623
	14-308	5275	2450	9636	8792	10640
	14-352	5995	2450	9636	9534	11646
3 Modules	14-396	6715	2450	9636	11040	13416
	14-440	7435	2450	9636	11782	14422
	14-484	8155	2450	9636	12547	15451
	14-528	8875	2450	9636	13283	16451
4 Modules	14-572	9595	2450	9636	14789	18221
	14-616	10315	2450	9636	15554	19250
	14-660	11035	2450	9636	16290	20250
	14-704	11755	2450	9636	17032	21256

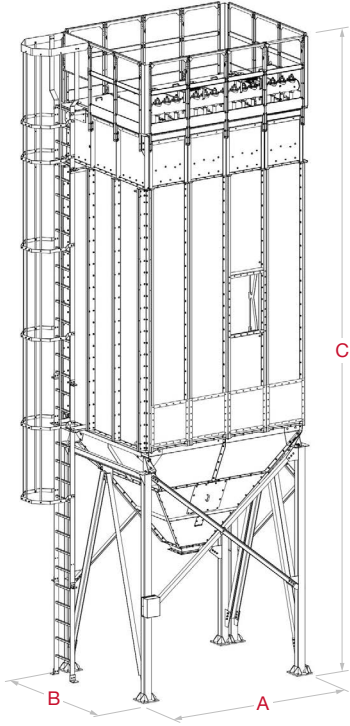


Illustration model:  
WONDAIR™ Max 14 176 C ATEX

WEIGHTS and DIMENSIONS in this table may contain some minor inaccuracies: General Arrangement Drawing will provide the accurate weight and dimensions.

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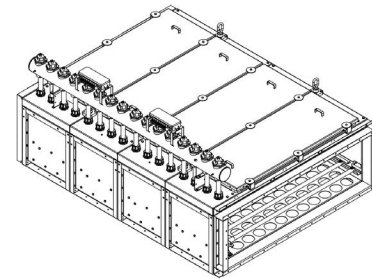


## Constructive elements

### Dust collector head

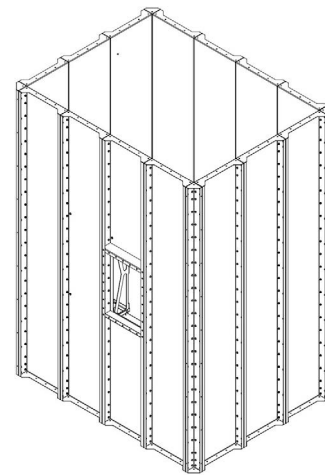
The head of the filter is the most important component of the dust collector. It houses the tube sheet steel plate at its lower section, where the filtering bags are suspended.

Additionally, the cleaning system, including the blowing pipes and compressed air manifold, is also located within the head.



### Dust collector body

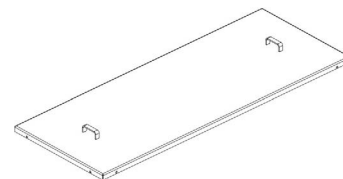
The body or housing is comprised of folded sheet metal panels that provide the necessary mechanical strength to protect the filtering bags and their supporting cages.



### Roof doors

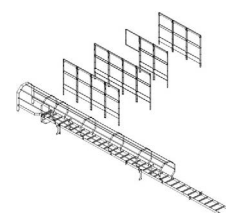
Roof doors provide access to bags, to the upper part of the dust collector, enabling maintenance and inspection of components located on the clean side of the tube sheet.

Made from 3 mm sheet metal, these doors are both lightweight and robust. They also serve as a stable platform for performing maintenance tasks, including work on the blowing valves.



### Handrails and access ladder

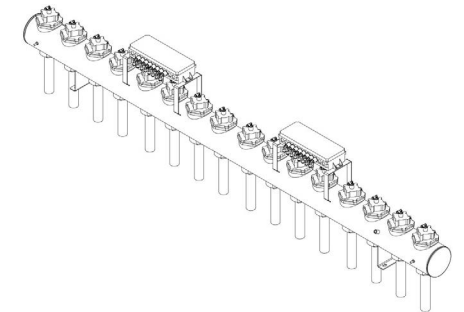
The roof of the dust collector can be accessed via a vertical ladder, to reach the blowing valves, the roof doors, the bags and the cages. The roof of the dust collector is protected by steel handrails to ensure that maintenance personnel can continue their job in a safe way.



### Compressed air manifold

Compressed air manifold is placed on top of the dust collector HEAD, which collects compressed air for self-cleaning of the filter bags.

Blowing valves are placed on top of the manifold, are “full immersion” for an optimal compressed air distribution and reduced consumption. These blowing valves are sequentially triggered from an electronic device (the cleaning controller), and they shot a compressed air jet into the filter bags. Each blowing valve is controlled by an individual solenoid valve. Solenoid valves are organized in boxes, with each box containing 8 or 12 solenoid valves.



**\*** Following sockets are available on each manifold:

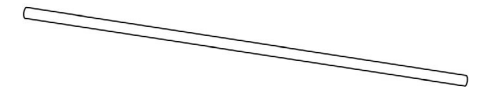
*1" BSPP Fem. (2 un.) for Compressed Air feeding (1 un. to be chosen).*

*1/4" BSPP Fem. (1 un.) for general purpose.*

### Compressed air blowing pipes

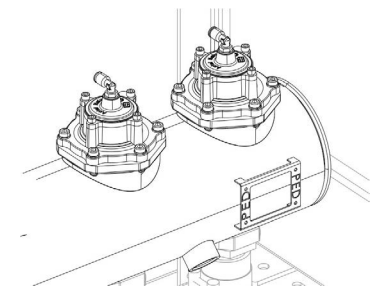
The blowing pipes are located above the tube sheet. Each blowing pipe is aligned with a row of bags.

The blowing pipe has a little hole just on top of each bag; that hole is the outlet for the compressed air, when bag cleaning time arrives.



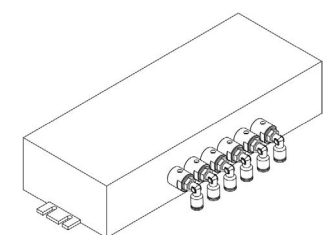
### Blowing valves

The blowing valves are installed directly on the compressed air manifold following the full immersion design system. These are blow valves with membrane aperture technology and are controlled by a solenoid valve box that commands the blow sequence.



### Solenoid valve box

The solenoid valve box transmits the commands from the cleaning controller to the different blowing valves. Each box contains 8 or 12 solenoid valves.





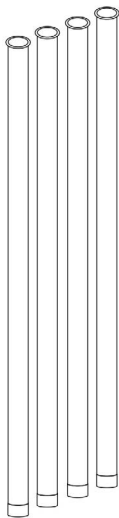
Bags

The filtering bags are the core of the WONDAIR™ Max dust collector. Bags can be made from different materials, so filtration can be perfectly adjusted to any type of industrial process, gas or dust.

Bags are available in the following materials:

- Anti-static acrylic
- Anti-static polyester
- Anti-static polyester, Teflon-coated
- Polyester
- Polyester, Teflon-coated
- Polyester with membrane
- Polypropylene
- Teflon-coated acrylic

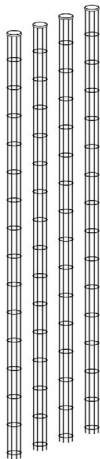
There is also the possibility of studying each special case and designing a tailor made bag for each process. For more information please contact AAF International.



Supporting cages

The cages are installed inside the filtering bags, to prevent bags collapsing when suction is applied on its outside face. This way, the bags are kept in optimum shape to ensure a maximum efficiency filtration.

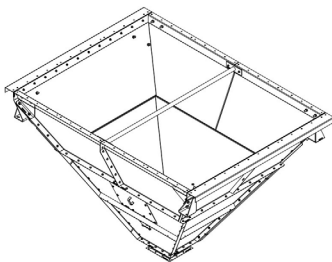
The cages are made from galvanised carbon steel, but they can also be supplied epoxy coated or in stainless steel.



Hopper

The hopper is only included in WONDAIR™ Max equipment with arrangement C.

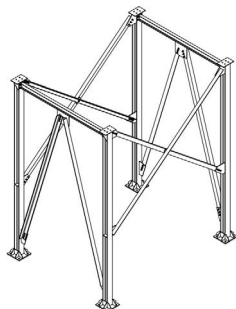
The hopper is equipped with a discharge flange at the bottom and includes a dedicated access hatch for reaching inside.



Support structure

The support structure is included only when arrangement C of the dust collector is selected. Several clearances from the hopper discharge flange to ground level are available for selection.

The support structure is a bolted design, eliminating the need for on-site welding.



Options

Arrangements

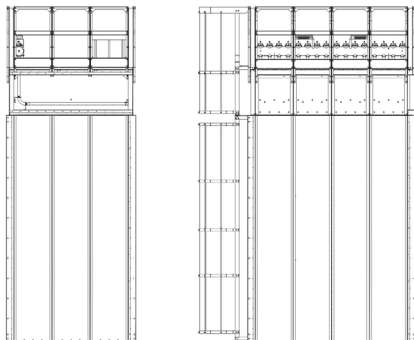
The standard versions of WONDAIR™ Max dust collector are available in three different arrangements: A, B and C. These arrangements are available for each WONDAIR™ Max size, with the size defined based on the number of bags and their lengths.



Arrangement A

Only **head** of the dust collector is supplied

It is an insert type unit, where the bags are hanging down from the dust collector and are fully inserted into the system.

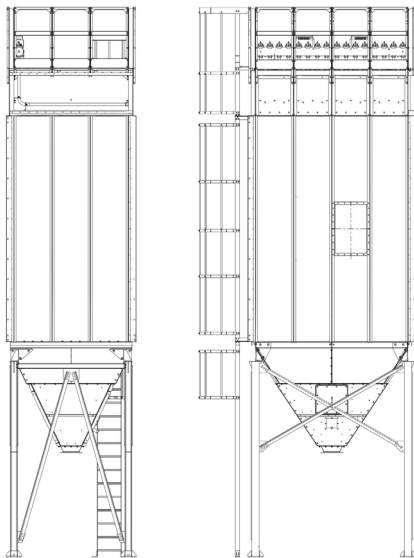


Arrangement B

Only **head + body** of the dust collector are supplied.

It is an insert type unit, where the bags are protected by a metal body, which helps to homogeneously distribution of the gas flows and the dust into the bags.

The connection flange is located in the lower part of the body of the dust collector.



Arrangement C

A complete dust collector is supplied.

As a complete and independent unit that includes a dust collection hopper and a supporting structure. Allows locating the unit in the best location, where it does not interfere with the process and where it is easier to access to remove the extracted dust.

The inlet flange that connects to the system is located on the body of the dust collector.

## Height

Arrangement C of the WONDAIR™ Max has a hopper discharge flange, which could be of different standard internal dimensions:

300x300 mm. | 200x200 mm.

### Discharge flange of 300x300 mm

When the internal dimensions are 300x300 mm, the following standard clearances heights are available, measured from the base plate of the support structure:

1220 mm. | 1525 mm. | 1970 mm. | 2500 mm.

### Discharge flange of 200x200 mm

When the internal dimensions are 200x200 mm, the standard heights are 100 mm shorter than those for the 300x300 mm flange. The available clearances heights are:

1120 mm. | 1425 mm. | 1870 mm. | 2400 mm.

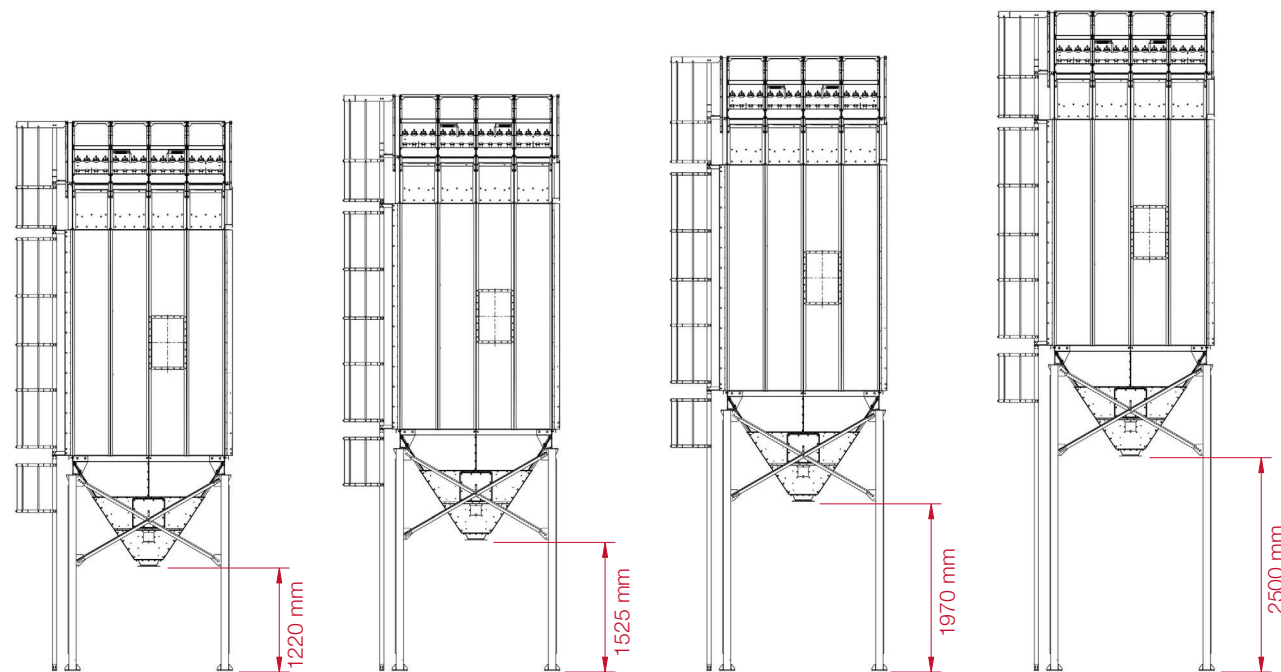
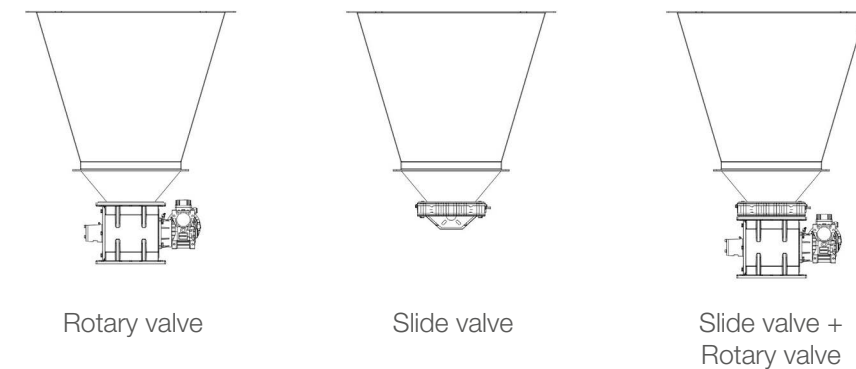


Illustration model:  
WONDAIR™ Max with a discharge flange of 300x300mm

**\*** For exact dimensions, check the General Arrangement Drawing.

## Dust handling systems

Following dust handling systems are available, as a standard:



**\*** To request other types of special discharges, please contact AAF International.

## Construction for explosive atmospheres

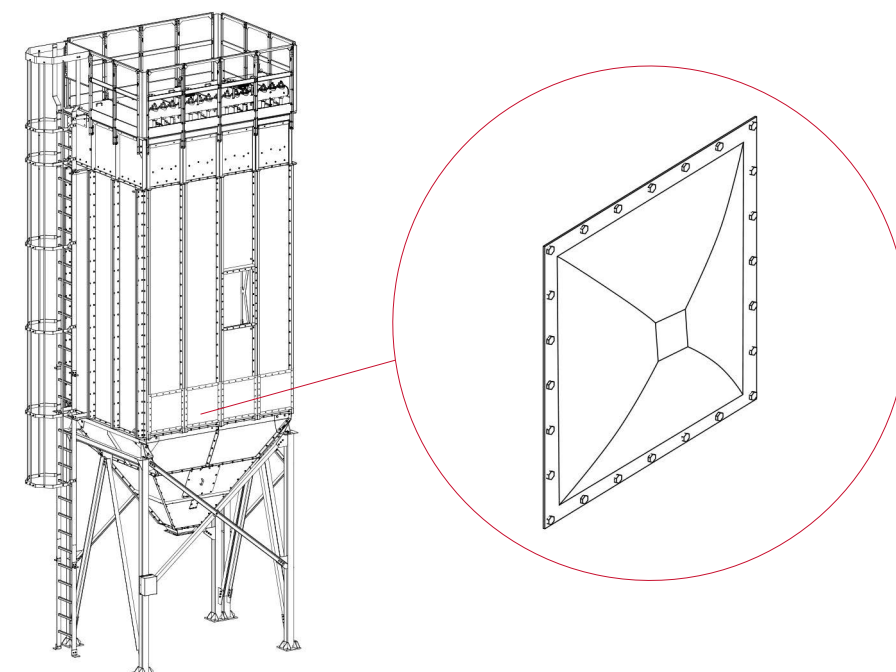
### Venting panel

WONDAIR™ Max units may be supplied ready for operating in explosive gas environments. If this is the case, explosion venting panels will be included in the scope of supply.

The end user and/or the person responsible for the installation is ultimately responsible for all the explosive atmosphere protection systems. The installer or user must make sure that all the systems are properly installed and meet the applicable ATEX directives and requirements.

### Safety distance

The materials discharged during a vented explosion must be directed outdoors. A sufficient horizontal safety distance must be maintained to protect personnel from the explosion burst. This distance must be calculated and it typically between 15 m and 30 m.



**\*** Please refer to the specific manual for the explosion venting panels for detailed installation instructions.

# Principle of operation

Dust loaded air or gases enter the unit through the dust inlet flange located at the front face of the dust collector. A deflector panel distributes these gases throughout the body of the unit where the filtering bags hang.

The bags are supported by metal cages inside, preventing collapse during suction. Each bag is secured to the tube sheet with a snap band ring, ensuring a tight seal between the dirty and clean gas chambers.

The cages are inserted into the bags until the upper collar rests on the tube sheet. They keep the bag fabric in place during suction.

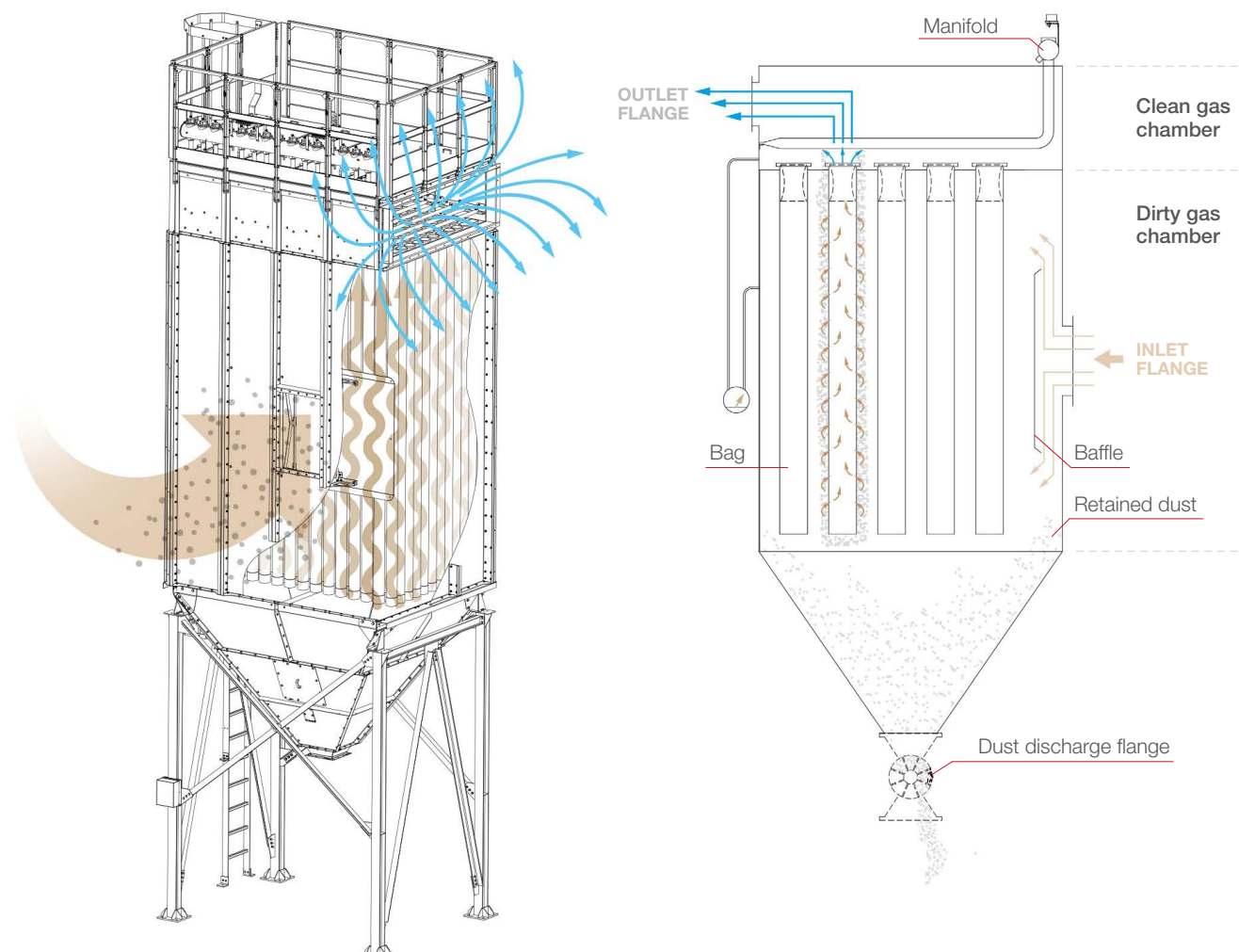
Once dust loaded gases pass through the filtering bags, dust is arrested on the bags outside surface and gas becomes clean. Now clean gas travels up through the inside of the bag, and reaches the clean chamber placed on the upper part (head) of the dust collector.

The clean gas is now ready for leaving the dust collector through the outlet flange.

As dust accumulates on the bags, the differential pressure increases. When it reaches a set point, the self-cleaning system activates. This system is controlled by an electronic cleaning controller, which motions the differential pressure through tubes connected above and below the tube sheet.

The self-cleaning system uses clean, dry compressed air stored in a manifold at the top of the collector. Diaphragm blowing valves release bursts of air to clean the bags. Each valve opens briefly in a sequence, sending a jet of air through each row of bags to reduce the differential pressure.

Once the bags differential pressure drops to a lower set point, the cleaning sequence stops. Dust released from the bags falls into the hopper below, which must be connected to a dust handling system to remove dust continuously. The hopper should not be used as a storage area, as compacted dust can hinder future extraction.



## Basic self-cleaning principle

The cleaning process of the bags is carried out as follows:

Step 1 → Step 2 → Step 3 → Step 4

Compressed air accumulates within a manifold placed on the upper part of the dust collector.

The diaphragm blowing valves are inserted in the manifold and their function is to generate an instantaneous jet of compressed air into the bags (through the blow tubes).

Each diaphragm blowing valve (normally closed) is piloted from a solenoid valve box that is connected to a cleaning controller. An electrical pulse on the solenoid valve actuates the opening of the diaphragm blowing valve, which generates an instantaneous jet of compressed air into the filtering bags.

The jet of compressed air inside the bag generates a pressure wave that shakes the filtering fabric, from up to down of the whole bag length. Thus makes dust to be released from the bags outer surface, and drop down into the hopper.

The cleaning electrical pulses are generated by the Cleaning Controller (REDClean® GammaPulse), and are sent to the Solenoid Valves, which pilot the Blowing Valves. The Cleaning Controller is equipped with a digital pressure gauge, which reads the differential pressure on the filtering bags in a continuous way.

## Online cleaning

- 1 | When a differential pressure "high" set point is reached on the bags, then the Cleaning Controller (REDClean® GammaPulse) triggers the dust collector self-cleaning system in an automatic mode, until the differential pressure on the bags reduces until a "low" set point. The Cleaning Controller also has an option for self-cleaning in a continuous mode, performing just as a timer. In this case a cleaning shot is produced every several seconds or minutes. In both cases "automatic" or "timer", solenoid valves are sequentially activated and each one of them pilots its diaphragm blowing valve, which is located on the top of the compressed air manifold. Each time that a diaphragm blowing valve is activated, a strong burst of compressed air goes into its corresponding blowing pipe, and a jet of compressed air bursts inside its row of eleven (11) bags.
- 2 | This burst of compressed air inside the bag turns into a shock wave that moves all along the bag length, from up to down.
- 3 | The shock wave removes the dust cake from the bag surface.
- 4 | The dust settles down on the hopper.



**Remember to disconnect the controller from the electrical grid prior to conducting any type of maintenance.**

# Installation and assembling

For the installation and assembly of the WONDAIR™ Max dust collector, the annex "Installation and Assembling" is available, addressing all aspects related to its setup. This annex includes the following Chapters:

## Annex - Installation and Assembling

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1	Nomenclature and terminology.....	page 3
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4	WONDAIR™ Max versions.....	page 8
5	Airtightness importance.....	page 9
6	Airtight sealing on steel plates.....	page 10
7	Foundations and anchors.....	page 18
8	Forecasts prior to start mechanical assembly.....	page 19
9	Mechanical assembly.....	page 20
10	Suction ducts and accessories.....	page 24
11	Installation of the bags and cages.....	page 25
12	Compressed air feeding to the manifold.....	page 32
13	Cleaning control system.....	page 35
14	Electrical connection to the blowing valves.....	page 39
15	ATEX versions.....	page 39
16	ATEX protection versions: specific cares.....	page 44
17	Final statements.....	page 45

## Additional documentation

Additionally, following materials, drawings and documentation must be available at site prior to start the installation:

- | *Drawings*: check that all the drawings referenced in the general arrangement drawing are accessible on-site.
- | *Materials*: confirm that all materials listed in the bill of materials are available for use.
- | *Electrical Wiring sketch*.
- | *Cleaning Controller Manual* (REDClean® GammaPulse).
- | *Foundation Drawing*.

Also, following Instruction Manuals must be available at site prior to start the installation:

### Manuals of the following instrumentation and ancillary components (if existing):

- | *Compressed air manifold (including its blowing valves and solenoid electrovalves)*.
- | *Hopper level probe instruction manual*.
- | *Pin vibrator and ancillary components instruction manuals*.
- | *Rotary valve instruction manual*.
- | *Slide valve instruction manual*.
- | The instruction manual for any other existing instrument or additional component.

### Combustion Process Installations

If the WONDAIR™ Max is installed within a combustion process, then the following AAF International Instruction must be followed:

- | *Start-up & Shut-down (Filters for Combustion Processes)*.

### ATEX Version Installations

If the WONDAIR™ Max is an ATEX version, then special attention must be given to the specific manuals related to:

- | *Explosion Venting Panels and associated instrumentation*.

**\*** If any of the documentation/manuals mentioned above are not available, please contact AAF International so they can provide it.

**\*** The standard steel grade for the support structure is JR (S275JR). If low atmospheric temperatures are expected during the night or winter, and if there is a risk of mechanical impact, protective mechanical elements must be considered and installed to safeguard the support structure from mechanical strikes.



# Commissioning and adjustment



Verify the status of the described tasks prior to commissioning the equipment.

Prior to commissioning the equipment, a final inspection shall be conducted of the inside and outside of the collector. To accomplish this we recommend turning on the electrical equipment and verifying if it is operating properly.

- ☐ Check that the mechanical connection between the filter and rest of the installation is correct, that the equipment is properly fastened and the joints are properly sealed.
- ☐ Check that the bags are properly installed. Close the roof doors and ensure they are firmly fixed.
- ☐ Check that the compressed air supply is connected to the compressed air manifold. Open the compressed air valve towards the manifold and check that no leaks are detectable in the different valve connections and fittings.
- ☐ Verify that pressure is present in the manifold. The maximum recommended pressure is 7 bar.
- ☐ Check the fittings and for continuity in the electrical wiring. Check that the cleaning control system is properly connected and is receiving electrical power
- ☐ Check that the fan is wired correctly and verify that it is turning in the right direction.
- ☐ Ensure that foreign objects are not located inside the fan.
- ☐ Open the compressed air valve towards the manifolds and check that no leaks are detected in the different valve connections and fittings.
- ☐ Ensure that hopper discharge system is operating properly.

AAF International recommends following the instructions and indications provided by the manufacturer at all times.

If any additional instrumentation or ancillary components have been supplied as annexes to the WONDAIR™ Max., their specific manuals must be followed for commissioning. A non-exhaustive list of possible manuals to consult can be found in the previous Chapter under "Installation and Assembly."



With very small amounts of dust, the changes in differential pressure may not be noticeable for days.



The dust collection hopper is not a storage hopper although it may serve this purpose under certain circumstances. The frequency with which it is emptied will depend on the hours of operation and the amount of dust that is collected.

## First start-up of the installation

WONDAIR™ Max must be connected to a dust handling system. It is advisable to verify that the dust discharge is controlled and does not generate any problems during the operation of the unit.

Carry out the following steps to turn on the equipment:

- 1 If the unit has an automatic dust discharge system, turn it on from the start.
- 2 Connect the cleaning control system and conduct a test cycle.
- 3 Listen to the triggering of the Solenoid Electro-valve (pilot) and the Blowing Valves (diaphragm) to check that they are operating properly. Then, check and verify that each time a Pilot (solenoid) Valve is activated, a small amount of air is discharged through the diaphragm valve's air relief port.
- 4 The lower the bags pressure drop is the higher the gas volume suctioned by the fan will be: when first start-up of the dust collector with a new set of bags, that newly installed bags are completely clean, whin no dust at all inside the pores of the bags fabric... so newly installed bags will have a very low pressure drop (some 10 to 30 daPa). Such a low pressure drop implies a very high gas volume suctioned by the fan through those newly installed bags.

It is not good to have a very high gas volume through the newly installed bags, because dust smallest particles would enter too deep inside the bag fabric, through their pores... reducing the bag fabric permeability for the whole bag life span.

AAF recommends installing a butterfly valve on the duct in between the dust collector and the fan: during the first start of the newly installed set of bags, AAF recommends to partially close the butterfly valve. That will cause an additional pressure drop on the gas circuit, which will reduce the gas volume suctioned by the fan.

In the case that the before said butterfly valve is not available, then AAF recommends to insert in the fan inlet flange a provisional steel plate which will be taken to perform as a provisional "slide valve".

That provisional "slide valve" (or butterfly valve if available) will be open a at approx. 25% during the first start of the fan, when newly installed set of bags: that provisional "slide valve" (or butterfly valve) will introduce an additional pressure drop which will reduce the gas volume suctioned by the fan during the first start of a newly installed set of bags, which will prevent that some small dust particles will enter too deep inside the bag fabric.

With that provisional "slide valve" (or butterfly valve) opened at approx. 25%, then you can switch on the fan, and allow the dust entering into the dust collector.

Now, the pressure drop on the bags will naturally increase little by little.

When pressure drop on the bags reaches three times its initial pressure drop value, then you can assume that a correct dust cake has been built up on the bag surface: now you can switch off the fan, remove the provisional "slide valve" (or fully open the butterfly valve), switch on the fan again, and allow the fan suctioning to its full capacity.

The value displayed at the Cleaning Controller indicates the pressure drop through the bag media plus the dust cake on the bag surface. A rising differential pressure indicates that the dust is reaching the Dust Collector and is accumulating on the bags surfaces.

## General start-up of the installation

General start-up of the installation will be the same as "first" start-up of the installation with the only difference that now you are allowed to switch on the Fan at 100% of its suction capacity, with no worries about the cleanness of the Bags: If you Bags are "old" Bags (no "newly installed bags"), then you need to take no special cares for them.



It is important to follow these indications when turning off the equipment so that when dust is no longer being suctioned, the cleaning system will continue to operate to leave the bags as clean as possible and at the same time, the discharge system will completely remove the material from the hoppers, preventing the material from accumulating on the hopper as well as future clogging problems.

## Adjustement

The adjustment of the cleaning system is essential for a proper operation of the unit. Also, a proper adjustment of the cleaning parameters will ensure an optimum air consumption is achieved. Also, the service life of the bags will be extended as much as possible when the cleaning pulses are properly programmed. We recommend consulting with the manufacturer and properly adjusting the parameters as soon as the filter is commissioned.

The adjusting of the time of the compressed air cleaning shot (PULSE TIME) and especially, the time between two consecutive cleaning shots (INTERVAL TIME) is directly related with the bag pressure drop.

On the other hand, this pressure drop indicates the resistance provided by the bag, which is loaded with dust and preventing gas from passing through it. Therefore, the greater the pressure drop is the greater amount of dust will be adhered to the bags surface.

As a general rule, Cleaning Controller display must indicate a pressure drop between **90 and 120 daPa** (after the bags have been into operation for a while).

AAF Cleaning Controller INTERVAL TIME (time between every two consecutive shots) has a pre-set time of **30 seconds** (by default), meaning "2 burst per minute".

If the pressure drop displayed on Cleaning Controller is not within those values, then before said pre-set 30 second INTERVAL TIME must be modified: Decrease that INTERVAL TIME for decreasing the pressure drop values, or increase that INTERVAL TIME for increasing the pressure drop value.

If not able to maintain the pressure drop between the before said values, then consult with your AAF International representative.

When bags become old their pressure drop will naturally increase, because dust smallest particles accumulate inside the bag fabric, reducing the bag permeability: When pressure drop value displayed at the Cleaning Controller reaches 180 daPa, then the bags life is finished, and they must be replaced.


As a rule, please note:

- An **increment in the INTERVAL TIME** between consecutive cleaning shots will increase the pressure drop on the bags.
- A **decrement in the INTERVAL TIME** between consecutive cleaning shots will decrease the pressure drop on the bags.
- Excessive cleaning shots frequency may prematurely deteriorate the bags, which may negatively affect the filtering efficiency and the bag life span.

If after setting the **INTERVAL TIME** as 25-30 seconds you can not keep your pressure drop under **150 daPa**, then please check the following items:

- ☐ Make sure the compressed air pressure is correct (5.5-7 bar).
- ☐ Make sure the cleaning control system is operating properly.
- ☐ Make sure the pilot solenoid valves are energised.
- ☐ Make sure the solenoid valves are working properly.
- ☐ Make sure the compressed air is blown normally through the diaphragm valves.
- ☐ Make sure no compressed air leaks are detected.
- ☐ Make sure inside of the bags filter, with the fan stopped, air is felt blowing on the bags.

If all these checks are found to be good and the unit is still not responding, please contact the Technical Department of AAF International.

 **Never adjust the duration of the blow cycles without previously consulting with AAF International.**

## Shut down of the installation

Carry out the following steps to turn off the equipment:

- ➊ Turn off the fan.
- ➋ After some time, the cleaning control system will be turned off. Consult with AAF International regarding the recommended time delay since it will vary depending on the application.
- ➌ Finally, and after a second time delay, the dust discharge system will be turned off in cases where the unit has a rotary valve or other automatic system installed. Consult with AAF International regarding this interval since, like in the previous case, it will depend on the application.

## Noise level

The weighted noise level of WONDAIR™ Max is very low. Although the noise level is high during "pulse time" (due to bursts of compressed air), this pulse time is extremely brief, lasting only about 100 milliseconds or 0.1 seconds. Since every two consecutive pulses are separated by an "interval time" (lasting several seconds), it can be concluded that the total weighted noise level of the WONDAIR™ Max is very low.

## Maintenance

### Periodic inspections

AAF International recommends conducting periodic inspections of the units as a measure to guarantee the optimum operation of the units as well as to extend their useful service life. This practice will contribute to minimising lost time resulting from failures or improper operation of the equipment, which is considered especially critical in filters that are operating 24/7 to prevent the production from being affected.

The bags must operate under a proper cleaning air pressure. Excessive pressure may cause irreparable damage to the filter units; also, insufficient pressure may result in inefficient cleaning and cause an improper operation of the filter.

It is essential that personnel are properly trained and are qualified to conduct maintenance on the equipment. This is the only way we can guarantee that proper maintenance is carried out as well as an optimum operation of the system. AAF International has a high quality maintenance service available for its clients, which is led by technicians with a vast experience carrying out corrective, predictive and preventive maintenance. Consult the terms with AAF International.

**Daily or weekly** – We recommend recording the pressure drop across the bags during the first 30 days of operation. After starting up the unit, the pressure drop will be gradually increased until reaching its normal operating level. For learning about pressure drop normal operating level please refer to “commissioning” Chapter here up in this Manual.

Check the two flexible Pipes 8 mm. which takes a continuous reading of the Pressure Drop on the Bags: Check that their connections points are clean, with no settlement of dust within their fittings.

Certain temperature-humidity conditions of the process gas may slowly smother the bags, which will cause the differential pressure to increase (above 180 daPa). Sometimes, we just need to stop the fans for a certain period of time in order for the bags to regain their porosity.

A high-pressure drop may be reduced by reducing the cleaning interval time or by increasing the compressed air pressure (up to 7.5 bar).

We recommend monitoring the pressure drop of the bags weekly.

Check that there are no obstructions at the dust discharge system: An obstruction on the dust discharge system means a dust accumulation on the hopper. Hopper is not a dust continuous storage. Dust must be discharged from the hopper in a continuous way to avoid a dust clogging on the hopper.

Sometimes, when a security grid is installed at the dust discharge hole, the grid becomes dirty due to the falling dust mixed with the atmospheric humidity: Cleanness of the security grid must be checked with a convenient periodicity. **Do not use your fingers** for checking the discharge security grid in the case you have a Rotary Valve (or any other moving component) upstream of your security grid.


**Monthly** – The access doors must be open to conduct an internal inspection every 30 days. We recommend purging the manifold to remove any condensation and check that the compressed air supply maintains the recommended quality. AAF International recommends conducting a monthly inspection of the hopper discharge elements to verify their operation and sealing. Additionally, we recommend conducting a general visual inspection of the filter once a month.


**Every six months** – The dust collector inlet and outlet ducts must be inspected for possible obstructions at least once every six months. The following inspections shall also be carried out:


- ☐ Inspect the bags.
- ☐ Check for condensation of dust inside the clean gas chamber of the dust collector.
- ☐ Check that all the electrical components are operating properly.
- ☐ Check that the solenoid electro-valve (pilot) as well as the blowing valves (diaphragm) valves are operating when they are switched on by the cleaning controller.
- ☐ We recommend inspecting the general condition of the fan and periodically check its consumption.
- ☐ Check the air discharge conditions and for signs of dust emission.
- ☐ If your dust collector is an Atex version, then check the correct EARTHING of the steel housing and all the electrical components.

**Annually** - We recommend conducting a general inspection of the filter and its components.

- ☐ Check the general condition of the dust collector, housing, support structure and accesses.
- ☐ Check the condition of all the access doors and their sealing gaskets. Check that they fit properly.
- ☐ Check the general condition of the bags and the cages, ensuring that they are properly installed and fitted.
- ☐ Check the general condition of the blowing pipes and ensure the blow holes are clean and in good condition.
- ☐ Inspect the general condition of the compressed air manifold and verify that all the installed components are in good material condition and are no leaks are detected.
- ☐ Inspect all the pneumatic connections.
- ☐ Check that humidity is not present inside the compressed air circuit.
- ☐ Inspect all the electrical connections.

 **Prior to conducting any maintenance we recommend disconnecting the main electrical power supply and check that the unit is properly isolated pneumatically and depressurised.**

 **If the unit is located inside an explosive atmosphere, we must follow all the safety measures that are recommended in these cases.**

 **To guarantee an optimum operation of the equipment, AAF International recommends only using parts that are recommended by the manufacturer.**

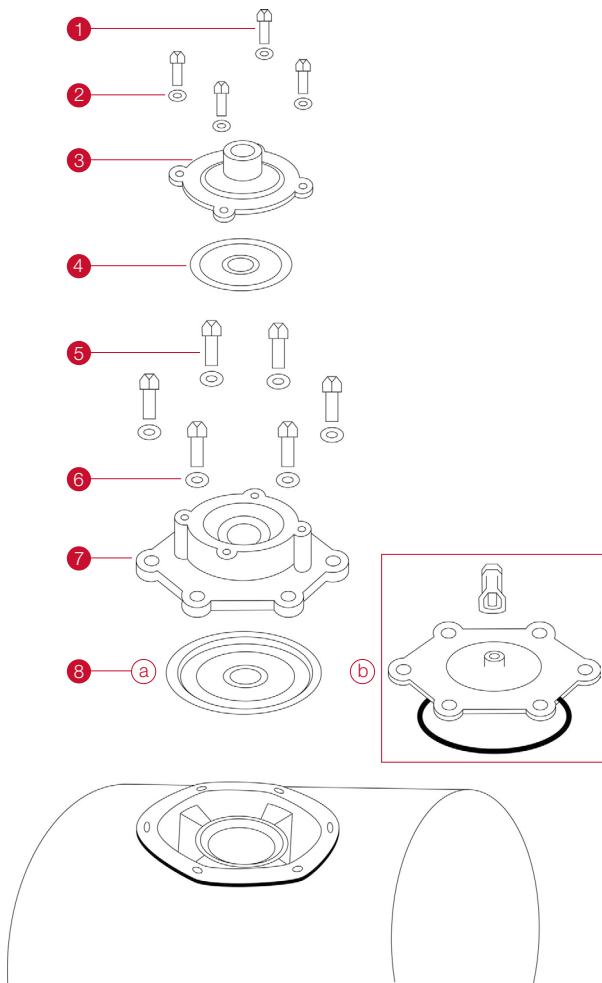
## Replacement of the cleaning valve

If a cleaning valve membrane needs to be replaced, we recommend using the AAF International spare parts kit.

### Manifold with 1½” valve

#### To replace the pilot membrane (4):

- 1 | Loosen the screws (item 1) on the cover (item 3) of the valve.
- 2 | Lift the cover of the assembly (item 3) to access the membrane (item 4).
- 3 | Replace the damaged membrane with a new one.
- 4 | Reinstall the cover (item 3) and adjust it with the screws and washers (items 1 and 2).



#### To replace the blow membrane (8):

- 1 | Loosen the screws (item 5) on the main cover (item 7) of the valve.
- 2 | Lift the cover of the assembly (item 7) to access the blow membrane.
  - a. For standard type membranes, replace the membrane with a new one.
  - b. For high temperature membranes replace the entire kit, including the O-ring, membrane and spring.
- 3 | Reinstall the cover (item 7) with its screws and washers (items 5 and 6).

## Replacement of bags and cages

Please refer to Chapter 11 of the Installation and Operations Manual Annex: Installation and Assembly, where you will find a detailed explanation of how to perform the appropriate replacement of bags and cages.

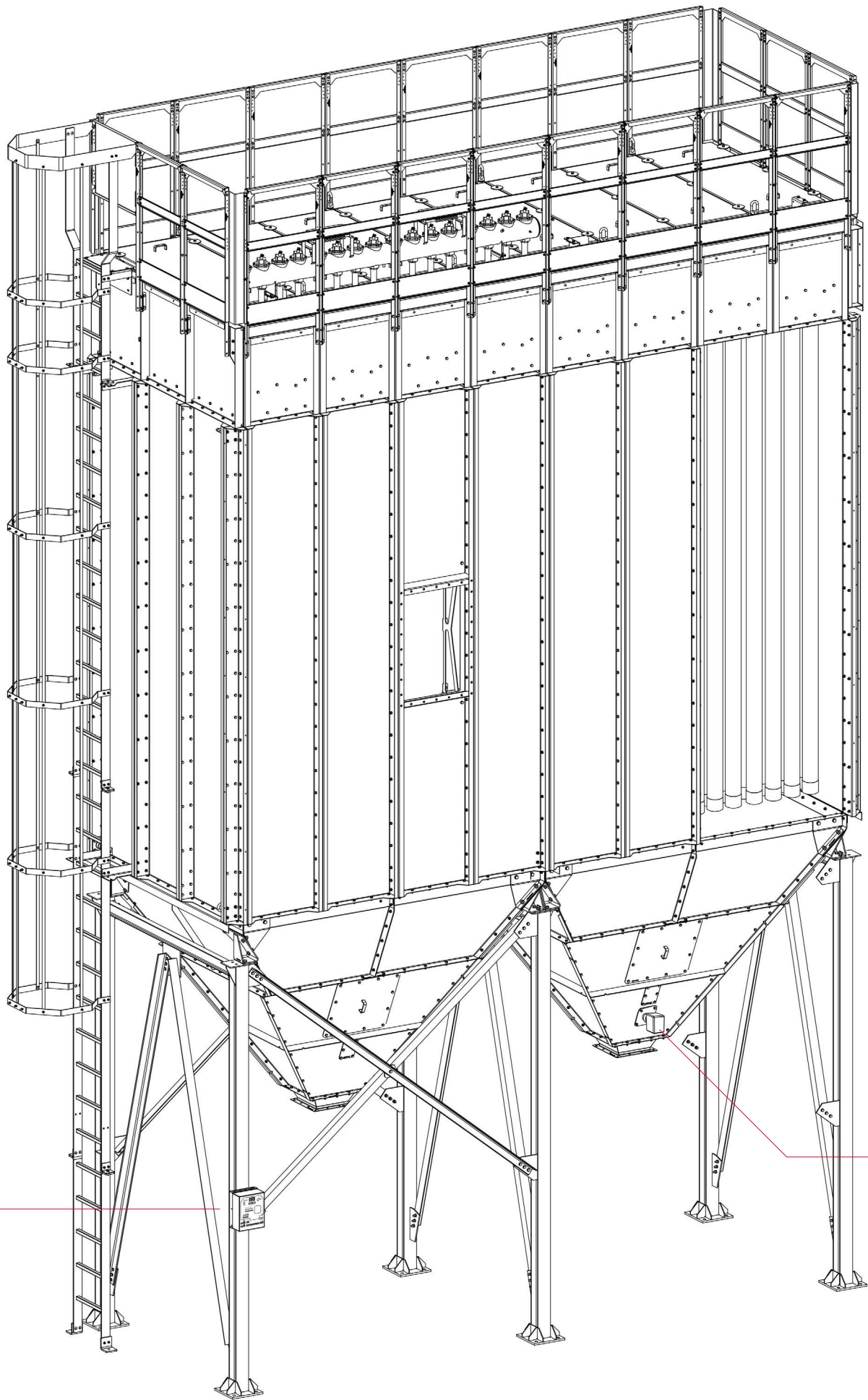
Troubleshooting

Total or partial loss of suction	
Excessive pressure drop	
Probable cause	Possible solution
Problem derived from the compressed air supply to the cleaning system	Inspect the compressed air supply to the compressed air manifold, checking that the service pressure is correct.
	Make sure no leaks are present in the blowing valves caused by a defective membrane or a deteriorated or broken tubing that connects the solenoid electro-valve box to the blowing valve.
Partial or total clogging of the filtering elements	Check that the quality of the compressed air supplied to the cleaning system is good and meets what is specified in the manual. If the problem is caused by this, correct the compressed air quality problem and replace the filtering elements.
	Change the cleaning times on the Cleaning Controller to achieve a more efficient cleaning (reduce the interval time between cleaning shots).
Problem caused by an improper operation of the cleaning system.	Verify that the electrical power supply to the Cleaning Controller is correct: check the power supply voltage and the connections.
	Check the proper operation of the blowing valves: <ul style="list-style-type: none"><li>Check the proper operation of the moving elements of the solenoid electro-valves: internal spring and internal membrane.</li><li>Check the exhaust of the blowing valves to verify that there is no foreign matter obstructing the air exhaust when the blow valves are operating.</li><li>Check the membranes of the blowing valves verifying that they are not stuck or in poor material condition.</li></ul>
	Check the defined parameters of the Cleaning Controller: interval time between consecutive blowing shots and state of the rest of parameter values of the unit (check that none of the parameters affecting the blowing of the valves is disabled).

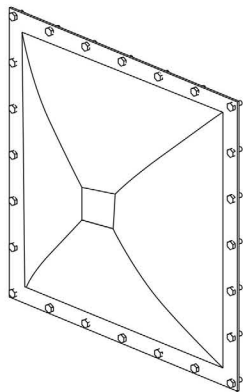
Total or partial loss of suction	
Problems derived from an improper operation of the fan	
Probable cause	Possible solution
The fan is not rotating properly	Make sure the motor is properly connected, that it rotates in the proper direction and check the power supply to the motor.
	Make sure that mechanically, there is no type of resistance preventing the impeller from rotating.
Increase in static pressure of the fan	Check that there is no an inlet or outlet valve partially closed.
Migration of dust to the air outlet	
Improper sealing of the filtering elements (cages and bags)	
Probable cause	Possible solution
Improper sealing of the filtering elements	Make sure the filtering element seals are not leaking and repair if necessary.
Filtering bags in poor condition	Replace the bags.
Improper sealing of the tube sheet plate	Make sure that the tube sheet plate seals are not leaking and repair if necessary.



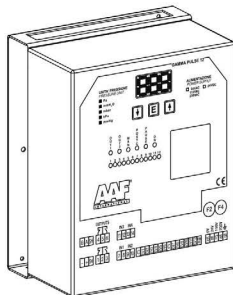
# WONDAIR™ Max spare parts



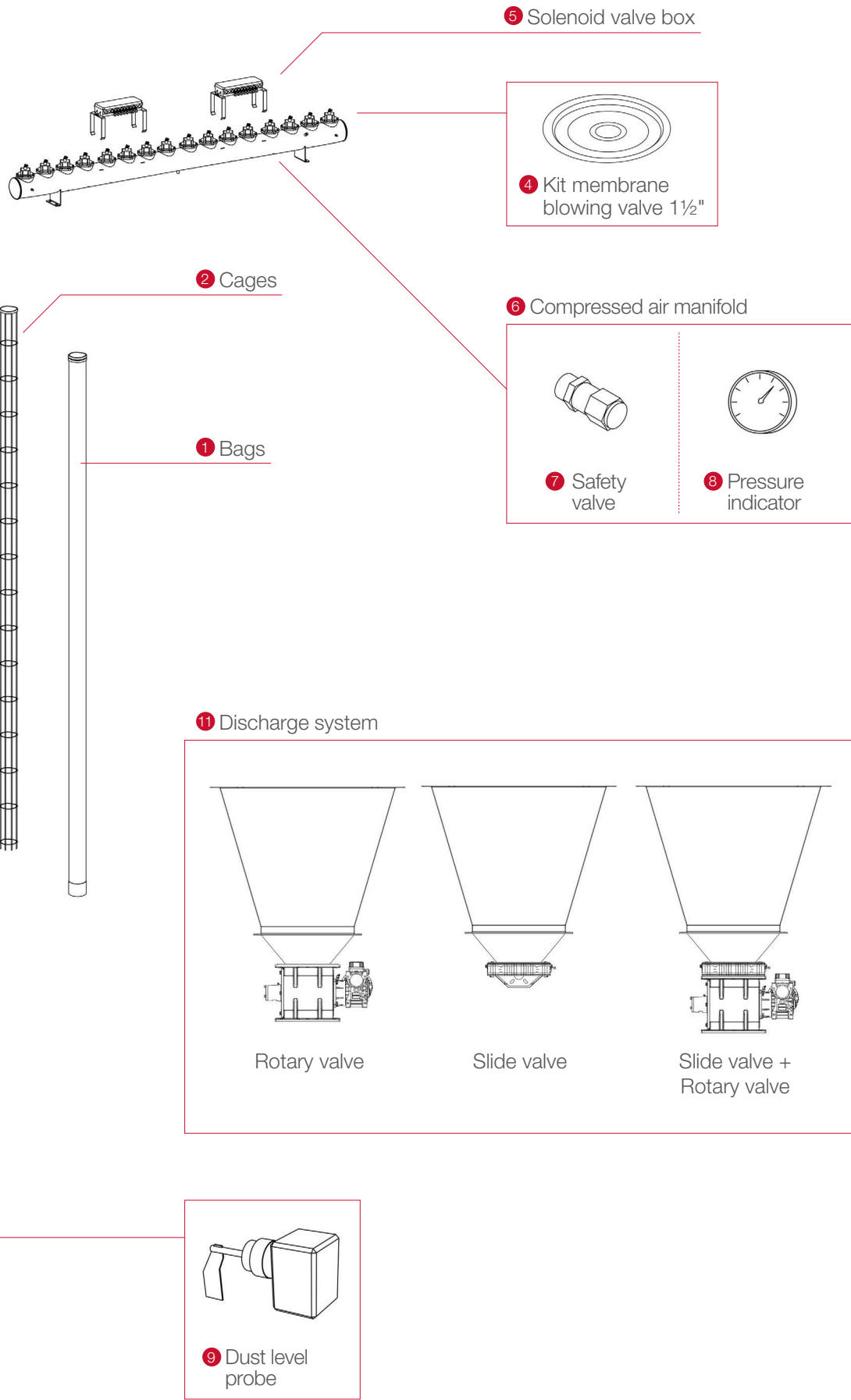
Explosion safety devices



10 Venting panel



3 REDClean® GammaPulse (Cleaning controller)



5 Solenoid valve box

4 Kit membrane blowing valve 1 1/2"

2 Cages

1 Bags

6 Compressed air manifold

7 Safety valve

8 Pressure indicator

11 Discharge system

Rotary valve

Slide valve

Slide valve + Rotary valve

9 Dust level probe

WONDAIR™ Max spare parts

1 Bags

	6'	8'	10'	12'	14'
Polyester	A000811	A000816	A000791	A000796	A000801
Polyester with water + oil repellent treatment	A000815	A000820	A000795	A000800	A000805
Polyester with PTFE membrane	A000814	A000819	A000794	A000799	A000804
Polyester antistatic	A000812	A000817	A000792	A000797	A000802
Polyester antistatic with water + oil repellent treatment	A000813	A000818	A000793	A000798	A000803
Acrylic homopolymer	A000773	A000776	A000761	A000764	A000767
Acrylic homopolymer with water + oil repellent treatment	A000775	A000778	A000763	A000766	A000769
Acrylic homopolymer antistatic	A000774	A000777	A000762	A000765	A000768
Polypropylene	A000825	A000826	A000821	A000822	A000823
Nomex	A000787	A000789	A000779	A000781	A000783
Nomex with water + oil repellent treatment	A000788	A000790	A000780	A000782	A000784
Fiberglass with PTFE membrane	A000759	A000760	A000755	A000756	A000757
Teflon 100% with PTFE membrane	A000831	A000832	A000827	A000828	A000829

2 Cages\*

Monoblock	6'	8'	10'	12'	14'
Galvanised 10 rods	A001023 + A014842	A001029 + A014843	A001035 + A014844	A000838 + A014845	A000850 + A014846
C° steel without surface treatment 10 rods	A001025 + A014842	A001031 + A014843	A001037 + A014844	A000842 + A014845	A000854 + A014846
Galvanised 16 rods	A011260 + A014842	A011262 + A014843	A010174 + A014844	A010175 + A014845	A010176 + A014846
C° steel without surface treatment 16 rods	A011261 + A014842	A011263 + A014843	A011264 + A014844	A011255 + A014845	A011257 + A014846

Articulated	6'	8'	10'	12'	14'
Galvanised 10 rods	-	-	-	A000840 + A014845	A000852 + A014846
C° steel without surface treatment 10 rods	-	-	-	A000844 + A014845	A000856 + A014846
Galvanised 16 rods	-	-	-	A014571 + A014845	A011258 + A014846
C° steel without surface treatment 16 rods	-	-	-	A011256 + A014845	A011259 + A014846

\* All the cages of the WONDAIR™ Max are included with packing.

3 REDClean® GammaPulse - Cleaning Controller

REDClean® GammaPulse 12-VAC	A001745
REDClean® GammaPulse 12-Vdc24	A001747

4 Kit membrane blowing valve 1½"

Kit membrane blowing valve 1½"	A001893
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5 Solenoid valve box

EV 8 ATEX 22- 220 VAC	A001899
EV 8 ATEX 22 -24 Vdc	A001901
EV 12 ATEX 22 -220 VAC	A001902
EV 12 ATEX 22 -24 Vdc	A001904

6 Compressed air manifold

Manifold 8V	A009475
Manifold 12V	A009474
Manifold 16V	A009473
7 Safety valve 1/4"	A001825
8 Pressure indicator	A001826
Pressure reducer + filter	A001854
Pilot system + clip for spv box ATEX	A001930

9 Dust level probe

Level probe 230 VAC non ATEX up to 80° + rod	A009975
Level probe 24 Vdc non ATEX up to 80° + rod	A009976
Level probe 230 VAC ATEX + rod	A009977
Level probe 24 Vdc ATEX + rod	A009978

Hopper pneumatic pin vibrator

Pin vibrator non ATEX	A007831
Set of complements for pin vibrator non ATEX	A017114

EXPLOSION SAFETY DEVICES

Venting panel

10 Venting panel 610x610	A000472
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Break detector for venting panel

Kit break detector: 1x Break detector for venting panel xckd3906p16ex, 1x support, 2x nuts and 2x screws	A006881
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11 DISCHARGE SYSTEM

Rotary and slide valves

Rotary valve 200x200 non ATEX	A001855
Rotary valve 200x200 ATEX	A001860
Rotary valve 200x200 ATEX flameproof	A001861
Rotary valve 200x200 non ATEX high temperature 150°	A001864
Rotary valve 200x200 non ATEX high temperature 200°	A001866
Rotary valve 300x300 non ATEX	A001862
Rotary valve 300x300 ATEX	A001863
Rotary valve 300x300 ATEX flameproof	A001856
Rotary valve 300x300 non ATEX high temperature 150°	A001865
Rotary valve 300x300 non ATEX high temperature 300°	A001867
Slide valve 200x200	A001875
Slide valve 200x200 non ATEX high temperature	A001879
Slide valve 300x300	A001876
Slide valve 300x300 non ATEX high temperature	A001880



Bringing clean air to life.®

A light gray world map is centered in the background of the page, showing the continents of North America, South America, Europe, Africa, Asia, and Australia.

## AAF International

Filtration has been at the heart of our business since 1921 and thanks to the high calibre of our products and services, we are trusted by many of the world's leading power and industrial companies. We provide our customers with the expertise, the solutions and the best available filtration technology to increase operational performance. Bringing clean air to life, our products provide the highest levels of indoor air quality, the lowest environmental emissions and the optimum safety conditions for employees and the wider community.

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