TRM FILTER®

cartridge dust collector

ECOCOMPACT®

Perfection in dedusting.

TRM Filter is an innovative company, characterised by its tradition, constancy and progress. It all started in 1982. In over one decade we have switched from producing filter elements to the development and production of advanced dust collectors and systems for the most demanding applications in the pharmaceutical, chemical and food processing industry.

Using unique solutions for the ECO-COMPACT dust collectors' development, we are setting the new benchmark regarding energy efficiency, modular flexibility, explosion safety and conformity to the ATEX Directive.

Our mission is:

- *to ensure a clean and healthy working environment*
- *to ensure safety concerning potentially explosive atmospheres*
- *nature protection and conservation*

ECO-COMPACT dust collectors are characterised by their compact design, which is the result of unique construction solutions. The most advanced filter cleaning system ROTATRONIC, easy maintenance, energy efficiency and easy replacement of filter elements are the achievements of our innovative approach to development.

ECO-COMPACT dust collectors are ideal for the:

Pharmaceutical industry

Chemical industry

Food processing industry

Electronics industry

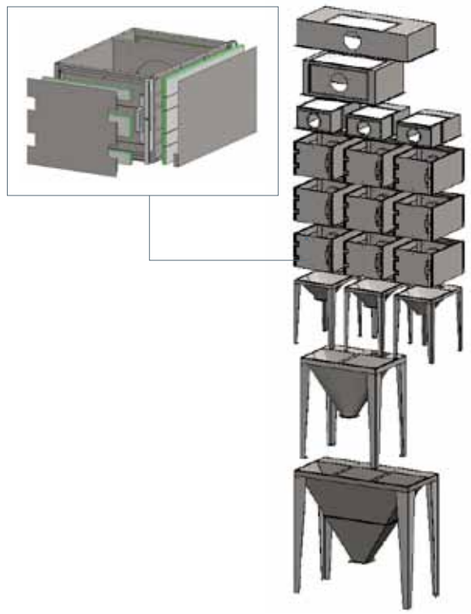
Other industries

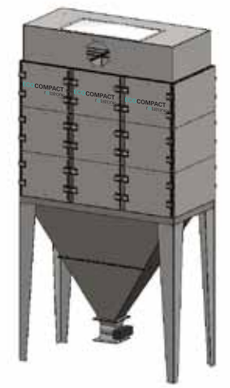
Modular concept

ECO-COMPACT dust collectors are modularly designed. This concept allows a high degree of flexibility and an easier upgrade.

The dust collectors modular design allows the customer to easily adapt to spatial constraints, application – specific parameters and requirements relating to explosion proof protection.

Advanced supervision and control of individual system modules allows the optimum dust collector efficiency.





ECO-COMPACT dust collector characteristics

- adaptation to spatial constraints and upgrade options
- energy efficiency
- easy control and maintenance
- compact and quality production
- long filter element lifetime

Extraordinary efficiency

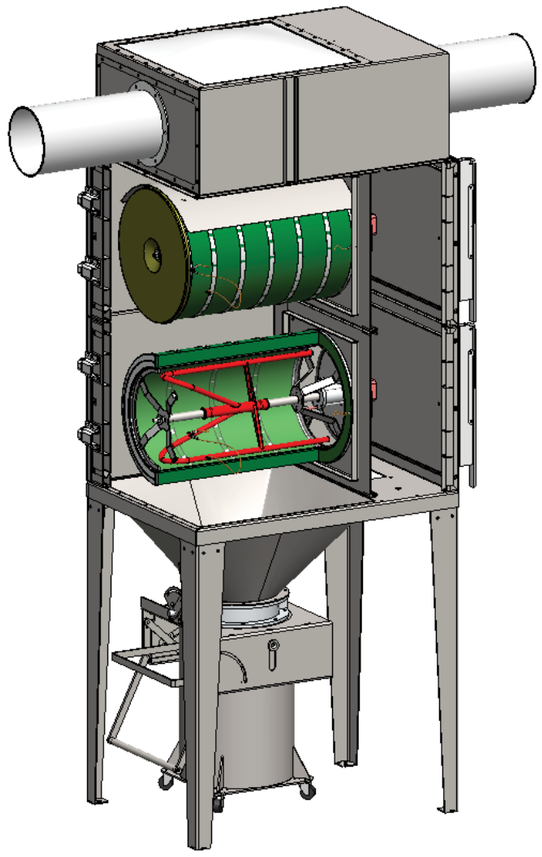
ECO-COMPACT is equipped with the innovative system ROTATRONIC for monitoring and cleaning the filter elements.

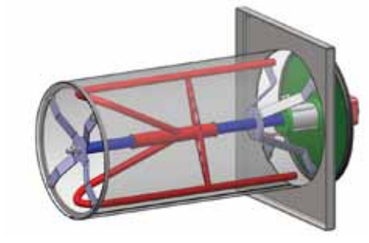
ROTATRONIC consists of special rotational nozzles with valves on the outlet filter openings, different sensors and a micro-processing monitoring/control unit with an advanced user interface.

With regard to specific conditions of individual applications, the use of the ROTATRONIC system can be extended by additional sensors for critical parameters of individual process monitoring (e.g. moisture, temperature, emissions, flow, etc.). The complete process is monitored by an intelligent program, which adapts the parameters for optimum operation, according to individual applications.

The filter cleaning technology is the result of our knowledge, long-term experience and continuous development. The ROTATRONIC system is one of its kind on the market, ensuring maximum filter cleaning and consequently contributes to a low-cost operation.

rotatronic



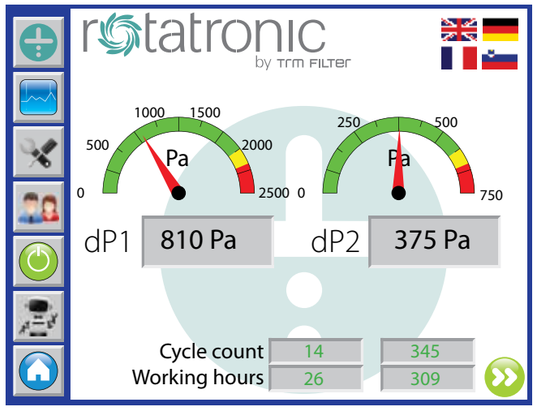


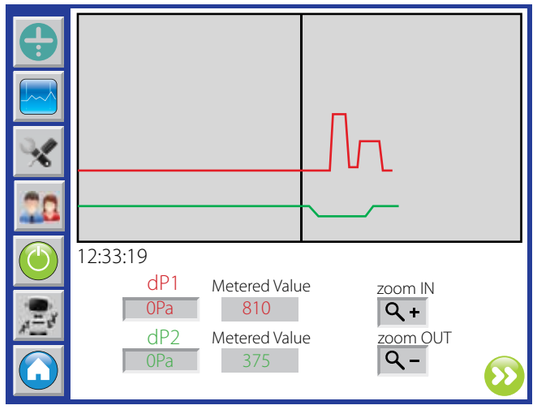
The most advanced filter cleaning system.

Advantages

› control over the operational costs
› longer filter elements lifetime
› energy efficiency (compressed air, electric power)
› easy control
› open connection to central control systems
› operational parameters overview and history register

Advanced technology





The ROTATRONIC system enables numerous functional possibilities. The user does not have to ensure the optimum operational parameters setting, because the intelligent program automatically adapts it according to the individual application.

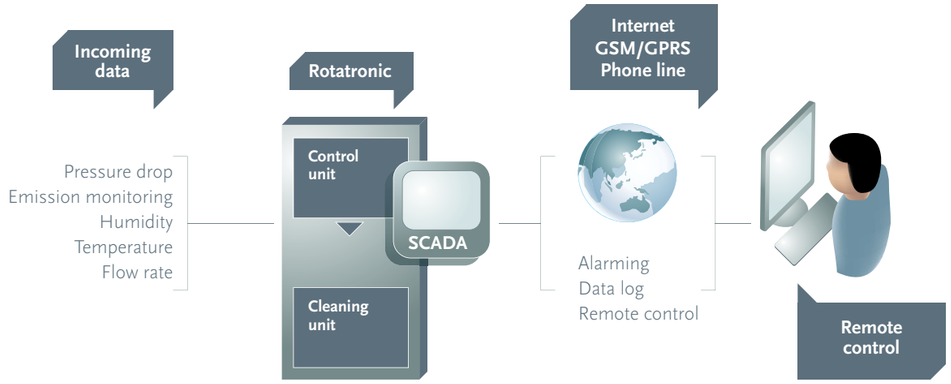
An easy control and operation overview is enabled by a user-friendly interface (touch screen), where the important parameters can also be shown in a diagrammatic form. Value added for the user is the ability to monitor the operational costs.

ROTATRONIC enables numerous possibilities regarding upgrading and connection:

• Connection with the controlling and operating systems of an individual production process or a company's central system (SCADA) is therefore possible.

• By connecting additional sensors, we can monitor and register the following parameters: emissions at the exit of a filter, moisture, temperature and airflow.

• Possibility of a remote start-up enables the connection with other devices in the process. Possible remote control and operation is also possible.



Options

› monitoring of additional parameters (temperature, moisture, emission, etc.)
› flow measurement and regulation
› frequency regulation
› remote control
› alarm system, warning of defects in the operation
› remote start-up

Environmentally friendly

A characteristic which places ROTATRONIC filter elements above competitive, similar products on the market is the fact that they are environmentally friendly.

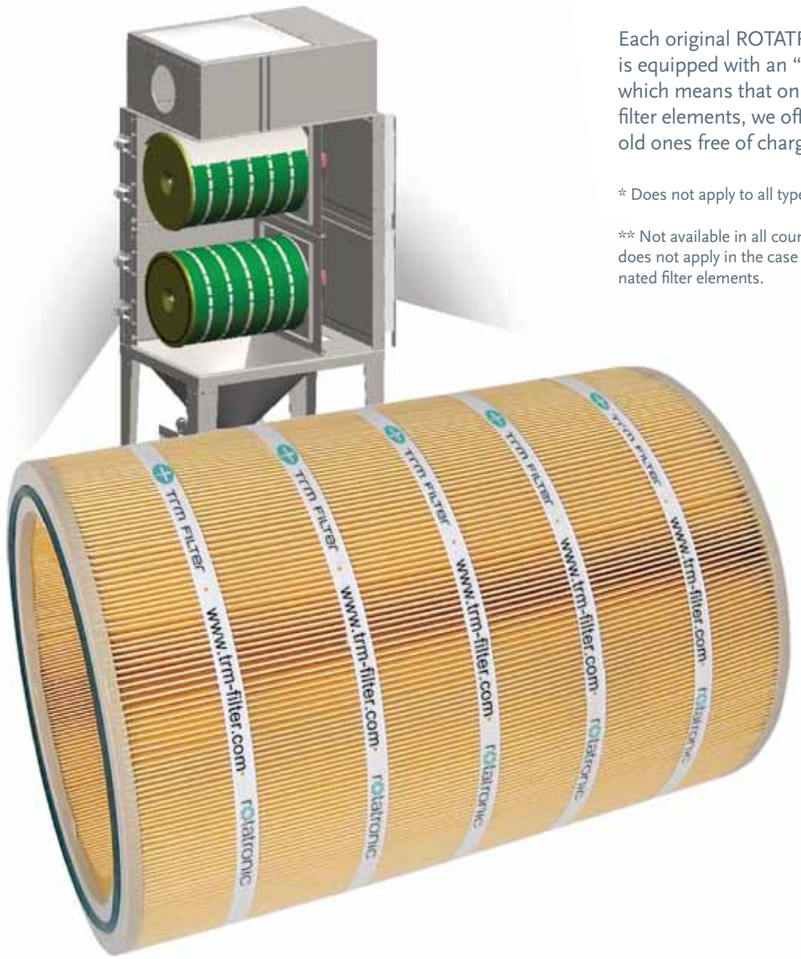
Filter elements are made completely metal-free*, as the supporting frame is permanent and integrated into the housing.

Disposal of such filter elements is therefore quite simple; it also represents a significantly smaller environmental burden.

Each original ROTATRONIC filter element is equipped with an “ecological bonus”, which means that on the purchase of new filter elements, we offer the disposal of the old ones free of charge**.

* Does not apply to all types.

** Not available in all countries. The ecological bonus does not apply in the case of dangerously contaminated filter elements.



Advantages of ROTATRONIC filters

› excellent sealing due to a specially formed double seal
› the area of the used material may be adjusted to the requirements of individual applications
› optimum geometry of the filtering medium
› durability and mechanical resistance
› wide range of materials for dust of classes “L”, “M” and “H” (EN 60335-2-69)
› filtration efficiency of up to 99.995%

The right filtration material for each application

Materials listed below represent only a part of our range. The choice of filtration material depends on the conditions in which individual application is operating.

cellulose / polyester mixture
- appropriate for nonabrasive, dry dust
- high air permeability
- attractive price

100 % Polyester
- high flexibility and mechanical resistance,
- high air permeability ensures low pressure drop and low energy consumption,
- good cleaning characteristics,
- oil-hydro phobic variety available,
- washable

PPS, resistant to temperature up to 160°C
- high flexibility and mechanical resistance,
- washable,
- high air permeability ensures low pressure drop and low energy consumption,
- maximum working temperature 160°C.

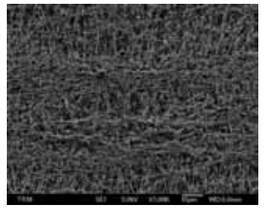
100 % polyester, antistatic
- high flexibility and mechanical resistance,
- high air permeability ensures low pressure drop and low energy consumption,
- Good cleaning characteristics,
- antistatic

polyester, with micro fibers
- high flexibility and mechanical resistance,
- high air permeability ensures low pressure drop and low energy consumption,
- very good cleaning characteristics, very high effectiveness

polyester with PTFE membrane
- high flexibility and mechanical resistance,
- long lifetime
- washable,
- antistatic variety available

The choice of appropriate filtration material is of great importance for successful filtering. Difference in the structure of individual materials is clearly seen from microscopic photographs.

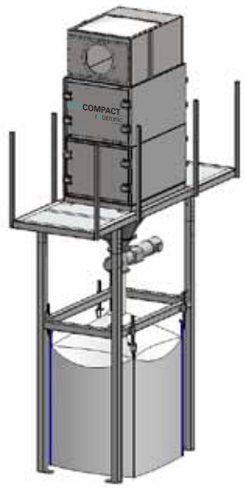
100% polyester



polyester with PTFE membrane

The picture on the left shows enlarged structure of ordinary polyester material where you can see quite large pores from which dust of certain granulation cannot be blown. The picture on the right shows an enlarged polyester structure with a special PTFE membrane which has, as can be evident, extremely fine structure and consequently very small pores. The finest dust stays on the filtration material surface, from where it is – with the assistance of ROTATRONIC system – simply blown off. The polyester with a PTFE membrane is specially recommended in applications where we deal with fine problematic dust. The choice of the right filtration material is of utmost importance for effective and reliable operation. Our professionals will advise you with pleasure regarding the choice of the most appropriate filtration material for your application. For additional information please contact our experts.

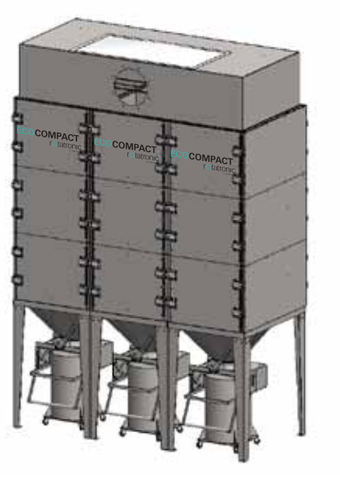
Configuration examples



Type ECB-2P1-S-N-N-M-ExN
Type with a rotary vane feeder and big-bag for collecting dust.

Type ECB-3P1-S-N-N-M-ExN
Type with a dust container on wheels and an easy dust container closing system.

Type ECB-3P2-C-N-N-M-ExN
Type with a common dust cone, a dust container on wheels and an easy dust container closing system.

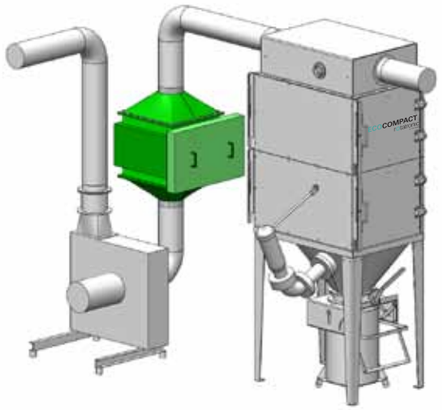


Type ECB-3P3-S-N-N-M-ExN
Type with individual dust cones, a dust container on wheels and easy dust container closing system.

Secondary filtration options

To achieve the maximum safety and the strictest requirements regarding emissions, you can choose between various types of secondary filtration.

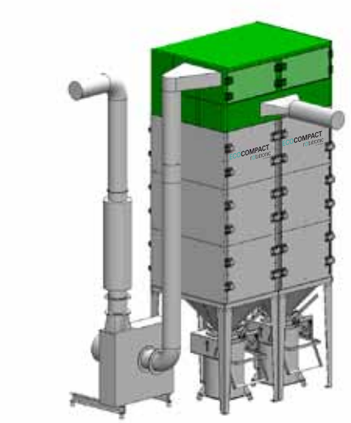
With various housings and filter elements we cover the entire area, from main applications, where cellulose protection filters are used, to the most demanding applications, where tested HEPA filters or activated carbon filters are required.



Single HEPA filter housing, self-standing construction. Different filter types and efficiencies are available (H13, H14, activated carbon).

Double HEPA filter housing, self-standing construction. Different filter types and efficiencies are available (H13, H14, activated carbon).

Integrated construction of secondary filter for size XP1. Limited range of filtration efficiency. Not available for EX version of the housing.



Integrated construction of secondary filter for size XP2. Limited range of filtration efficiency. Not available for EX version of the housing.

Explosion safety

Dust extraction in potentially explosive atmospheres requires an approach which is in accordance with the ATEX Directive 94/9/EC.

Atex types of ECO-COMPACT dust collectors are our company's high-technology achievement, which on the one hand meet the requirements set by legal regulation, but on the other hand present a unique answer to all the growing market needs of such applications.

Atex types of ECO-COMPACT dust collectors are available for dusty and hybrid potentially explosive atmospheres, but according to the application, we can choose between various possibilities of explosion protection. To choose the optimum type of explosion protection for your application, contact our professionals.

Numerous functionalities and options are adapted to the usage in the most demanding operations.

The whole construction is subject to explosion safety, however, the most important feature remains - ROTATRONIC – the most advanced filter control and cleaning system.

ATEX

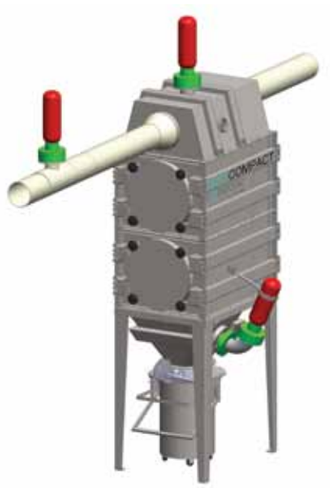
Options

› housing made from stainless steel
› clean system of filter replacement "bag in, bag out"
› emptying of the dust container without contact with contaminants
› electronic indication of the dust level in the dust containers
› secondary filtration available
› various systems which prevent the spread of an explosion

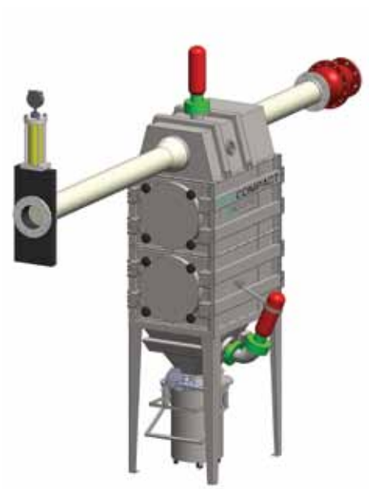
Explosion protection examples

Explosion vent with or without an explosion relief channel
With the increase of the pressure, the system safely reliefs the pressure through an explosion vent. Explosion isolation is performed using the explosion diverter.

Flameless venting
Special mechanical protection prevents the explosion flames from entering the room. Explosion isolation is performed using the explosion isolation valve.



Explosion suppression
Precise sensors detect the creation of an explosion at the very early stage and triggers the mechanism for explosion su¬ppression. Explosion isolation is ensured by a chemical barrier.



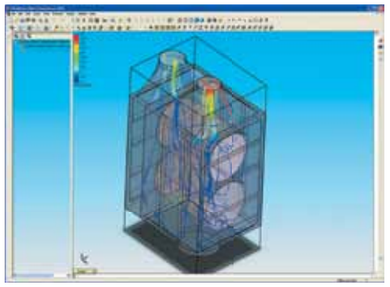
Explosion suppression
Precise sensors detect the creation of an explosion at the very early stage and triggers the mechanism for explosion su¬ppression. Explosion isolation is ensured by explosion isolation Slide Valve, and with a »ventex« valve on the clean side of the filter.

Professional project preparation

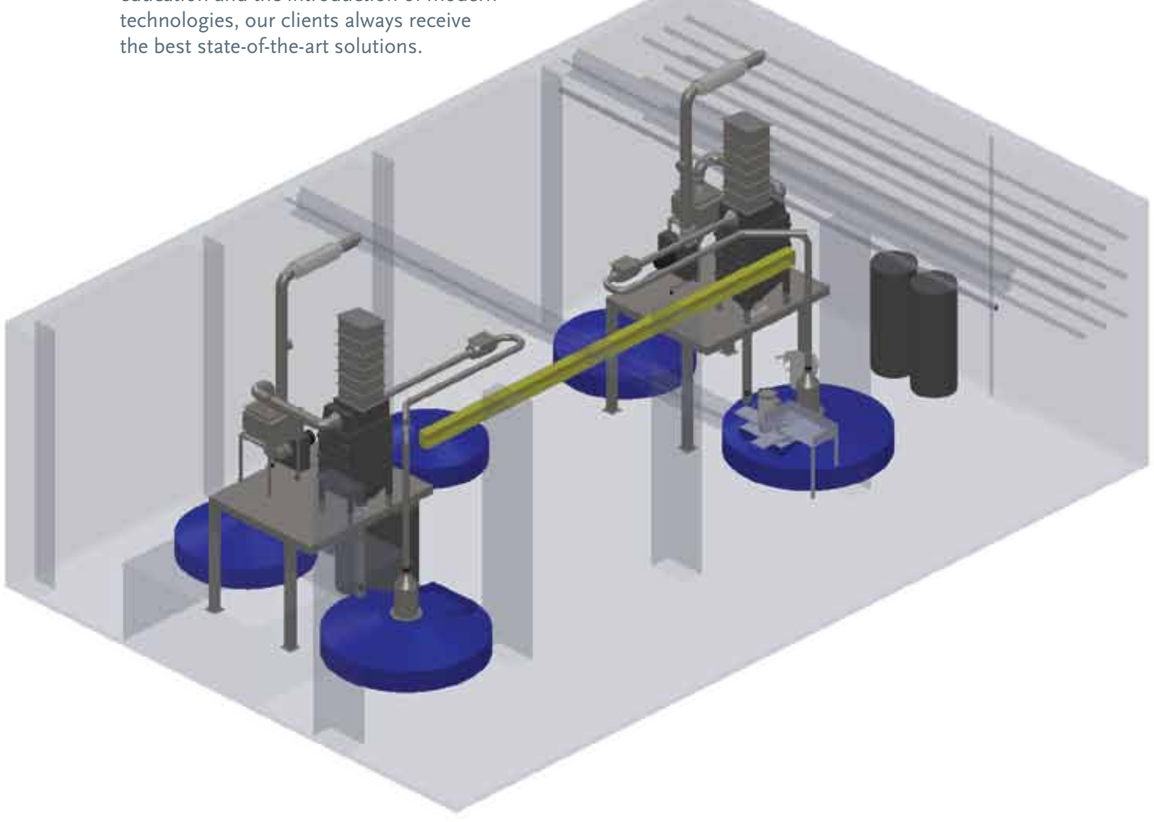
The fear of purchasing an inappropriate device is unnecessary. Our professionals carefully examine all entered information needed for the right project preparation. According to the need, measurements of the concentration the pollutants, laboratory testing, calculation of the cost-effectiveness of the operation and a computer simulation of the operation are carried out.

All of the above ensures a reliable and economical operation of the filtering unit for which a 100% functional guarantee is applied.

Project engineers are provided with all the necessary support and cooperation in project preparation.
With a professional attitude, continuous education and the introduction of modern technologies, our clients always receive the best state-of-the-art solutions.



- measurements of the concentration of the pollutants
- laboratory testing
- calculation of the cost-effectiveness of operation
- computer simulation of the operation



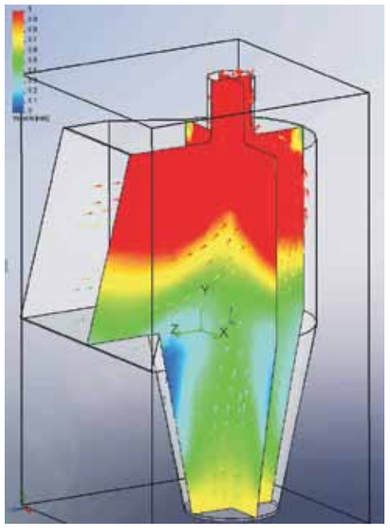
Customized solutions

Our research and development center is highly qualified and always ready to help customers to find the best possible solution for specific and »nonstandard« applications.

With a professional attitude, continuous education and the introduction of modern technologies, our clients always receive the best state-of-the-art solutions in all the areas of dust extraction and filtering.

»Customized« products are a challenge, which we enjoy to meet. Our long-standing involvement in this field allows us to work with different partners, which in the case of difficult projects help us create interdisciplinary groups to find optimum solutions to a specific problem and to perform the whole project, from project concept stage, to system start-up.

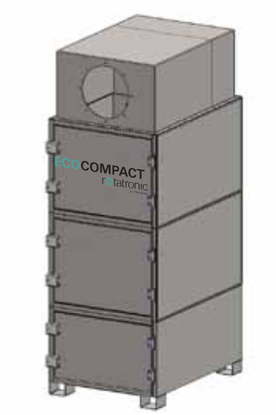
Solution propositions are normally supported with computer simulations and conversions, and are also practically checked on the test line.



To be able to cover complete range of requirements we have developed four standard varieties of ECO-COMPACT dust collectors.

ECB

– standard up to 21.600 m3/h – device with dislocated fan, boosted up with high flexibility, wide range of different fans, upgrade and additional equipment available. Very small floor area needed for installation.

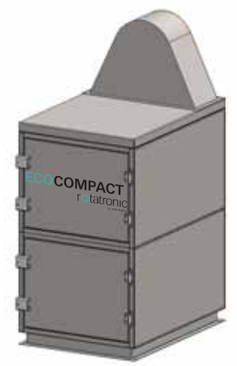


ECF

– standard up to 9.600 m3/h, - compact “all in one” construction. The fan and dust container are integrated into the housing.
Very quick and simple installation, limited upgrade options.

ECM

– standard up to 2.400 m3/h, mobile filter unit on wheels. Robust »all in one« construction.



ECU

– standard up to 14.400 m3/h – inlet of the air from below. This type of devices is suitable for installation on top of silos, conveyers, storage bunkers, reactors, etc.

Designation of ECO-COMPACT devices:

Varieties of devices:
ECB – dislocated fan
ECF – compact “all in one” construction (only for size 1P1, 2P1 and 2P2)
ECM – mobile unit on wheels (only for 1P1 and 2P1)
ECU – inlet of the air from below

No. of modules in vertical direction: 1P, 2P, 3P, 4P

No. of modules in horizontal direction : P1-P20 (Configurations from 4 to 20 should be treated individualy considering all specifications of the project.)

Type of hopper:
C - common hopper for complete system
S - separate hoppers for horizontal modulus
(For types ECB-XP1, ECM and ECU only S type is available.)

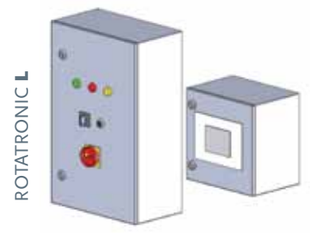
Housing material:
N - plain carbon steel, powder coated
NC - plain carbon steel, zinc primer and powder coated
V2A - stainless steel
V4A - stainless steel chemically resistant

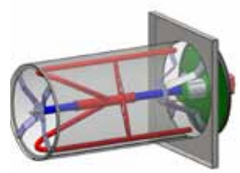
Filter replacement:
B – bag-in-bag-out
N - normal

Type of cleaning:
M - Rotatronic controlled by touch panel
S - Rotatronic controlled by switches
L - Rotatronic controlled by touch panel + switches B – without filter closing valves (limited functionality)
N - none

Zone type:
/ - not ATEX system
ExN - inside: 20/22, outside: no zone
ExD - inside: 20/22, outside: 22
ExGN - inside: 2 and 20/2 and 22, outside: no zone
ExGD - inside: 1 and 20/1 and 22, outside: 1 and 22

ECB-XPX-X-X-X-X-X

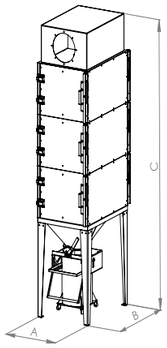




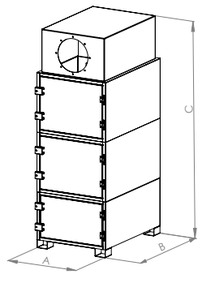
Technical data:

					Dimensions		
Type	**Size**	**Flow m3/h**	**No. cartridges**	**Filtering area m² [1]**	**A**	**B**	**C [2]**
ECB	1P1	do 2400	1	20	800	1100	2170
	2P1	1600-4800	2	40	800	1100	2890
	2P2	3200-9600	4	80	1600	1100	2990
	2P3	4800-14400	6	120	2400	1100	3140
	3P1	2400-7200	3	60	800	1100	3560
	3P2	4800-14400	6	120	1600	1100	3710
	3P3	7200-21600	9	180	2400	1100	3810
ECF	1P1	do 2400	1	20	900	1200	1550
	2P1	1600-4800	2	40	800	1200	2270
	2P2	3200-9600	4	80	1600	1200	2370
ECU	1P1	do 2400	1	20	750	1000	1100
	2P1	1600-4800	2	40	750	1000	1820
	2P2	3200-9600	4	80	1500	1000	2020
	2P3	4800-14400	6	120	2400	1100	2220
ECM	1P1	do 2400	1	20	800	1200	1200
	2P1	1600-4800	2	40	800	1200	1820

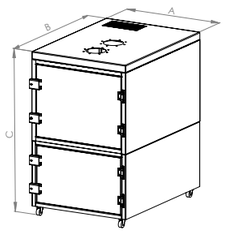
[1] Filtering area of standard filter cartridge is 20 m2 and can vary from 10-35 m2 depending on application demands.
[2] The height is only of informative nature, stated for standard inlet/outlet connection and in ECB version with butterfly valve and 80L dust container. Actual height varies depending on configuration.



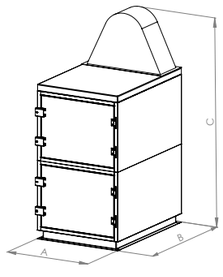
ECB



ECF



ECM



ECU

Table for [1] informative system sizing							
	Size of filter device – flow [m3/h]						
Size of device / Material – application	1P1	2P1	2P2	2P3	3P1	3P2	3P3
ceramic, quartz, spices, granular plastic, steel and brass grinding, granite dust, etc.	2400	4800	9600	14400	7200	14400	21600
coffee, tobacco, aluminium dust, frit, borax, perlite,...	1800	3600	7300	11000	5500	11000	16400
clay, gypsum, leather, sugar, cacao, chocolate, flour, plastic dust, lime-stone, different chemical and pharmaceutical dusts, etc.	1400	2800	5600	8400	4200	8400	12600
Fatty metal dust (polishing etc.), asbestos, laser cutting (SS) different chemical and pharmaceutical dusts, milk powder, soap, detergent, rubber dust, etc.	1000	2000	4000	6100	3100	6100	9200
Welding of fatty pieces, graphite dust, rubber grinding, laser cutting of plexiglass, pigments, toner dust, different chemical and pharmaceutical dusts, etc.	800	1600	3200	4800	2400	4800	7200

[1] The above table should only be used for informative purposes. Proper sizing depends on many different factors (application, temperature, humidity, particle size, dust concentration, etc.) For assistance and additional information please contact our experts.

Additional equipment

piping segments, bends

Piping elements are available in zinc-plated, color painted and stainless steel version.

variants: angle 5°–90°, R=1D–5D
thickness: 1–3 mm
diameters: DN 80–630 mm

pipes

Piping elements are available in zinc-plated, color painted and stainless steel version.

lengths: 50,200,500,1000,2000 mm
thickness: 1–3 mm
diameters: DN 80–630 mm

clamps

Clamps are available in zinc-plated and stainless steel version. 100% tightness of the piping system is assured.

diameters: DN 80 – 630 mm

rest of the programme

Our programme also includes various tools for integral solutions for pipelines: flaps, reducers, splitting elements, etc. The material is available in zinc-plated, color painted and stainless steel version.

flexible arms

Different types available, also the EX version.

Lenght: from 2 to 7 m
Diameter: from DN80 to DN200

explosion isolation valves

two-way symmetrical and asymmetrical valves

cyclone pre-separators

rotary vane feeders

Different types available, also the EX version.

pipe-throttle valves

Please contact our experts to help you choose appropriate equipment.


ECOCOMPACT


rotatron

production AV Studio, photo archive TRM Filter, version 3.1 | EN

cartridge dust collector

ECOCOMPACT®

Perfection in dedusting.

rotatronic®

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