

Dry separator VARIO eco



Standard for clean air

**For the highly effective, energy efficient
dry separation of fine, free-flowing dust**

The VARIO eco series is characterized by its low filter resistance with very high separation efficiency.



The VARIO eco units are of modular construction in order to meet different requirements, such as dust characteristics or the volume of exhausted air.



Separation of fine dust

The Task

Keller Lufttechnik plans, engineers and fabricates systems to keep air clean in all industrial sectors in which air pollutants are collected, transported and separated. Innovative filter technologies and a systematic equipment design ensure optimal separation results.

The VARIO eco series is particularly suitable for separation of fine dust. Nearly all types of dust can be successfully separated, such as those created in metal processing, polymer processing, and in chemical, pharmaceutical and ceramic industries, as well as non-metallic minerals.

The VARIO eco units are of modular construction in order to meet different requirements, such as dust characteristics or the volume of exhausted air. Sturdy and low-noise units allow for reliable 24-hour operation with constant air flow.

Examples of applications

Mechanical and thermal processes during which dry, airborne dust is created.

- Turning
- Drilling
- Milling
- Grinding
- Brushing
- Welding
- Blasting
- Fettling
- Painting
- Mixing
- Weighing
- Recycling

eco = as much energy as necessary

The VARIO was further improved to minimize energy consumption. Savings are achieved by using more efficient fans as well as reducing compressed air consumption during filter element cleaning. Lower filter resistance by

state-of-the-art KLR filters results in additional savings, since use of the fan can be significantly decreased.

Advantages

- Reduced sound with integrated sound insulation for sizes VARIO 1 - 3 eco
- Flexible design
- Flexible setup
- Integrated deflection design for protection against wear and improved air distribution
- Easily accessible inspection doors



VARIO 6 eco with chip pre-separation

Function

The dust-laden air flows through the dirty air inlet into the filter unit. A baffle plate slows down and deflects the dust particles to protect the filter elements from direct impact. An air down-flow is created between the filter elements, allowing the dust par-

ticles to drop. A fan in the clean air chamber draws the polluted air through the filter elements, depositing the dust particles onto the filter surface. Because the filter elements are cleaned continuously by compressed air pulses during operation,

the air flow remains constant. The cleaned air exits through the top of the unit and in most cases can be re-circulated into the work area or vented outdoors. The separated dust falls into the dust collector containers.

Filter elements

Cartridges or plate filters are used, depending on the application, for enhanced separation efficiency and ser-

vice life. All filter elements used are of high quality and easy to clean.

Cleaning the filter elements

The pulse cleaning cycle can be adjusted for each application by means of an integrated control unit. The air flow of the fan remains nearly constant. The cleaning operation is

activated either by a differential pressure regulator while in operation, or by a programmable downtime cleaning cycle.

Features of the VARIO eco

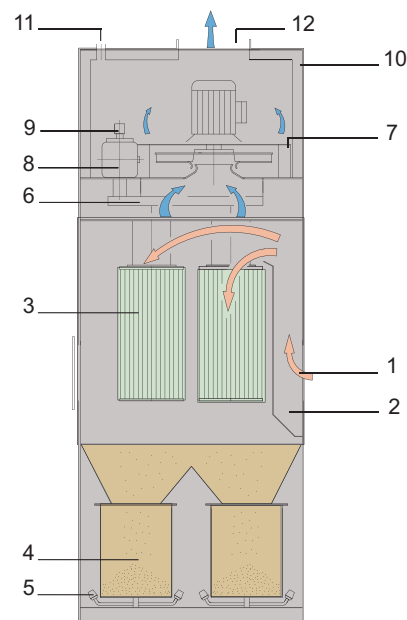
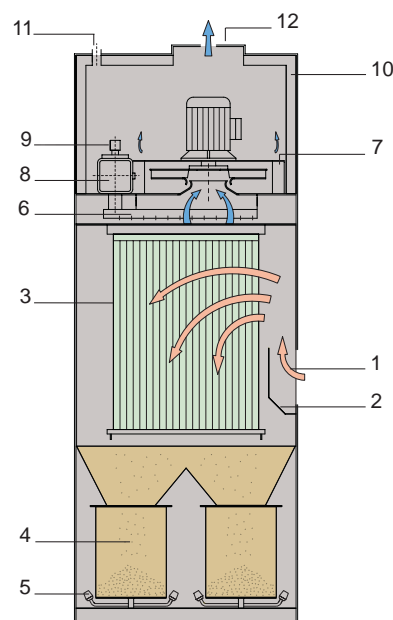


Diagram and description of VARIO eco

- 1 Dirty air inlet; on optional sides of the unit
- 2 Baffle plate; at the dirty air inlet
- 3 Filter elements
- 4 Waste disposal bin
- 5 Clamping mechanism for disposal bin
- 6 Jet piping to clean the filter elements

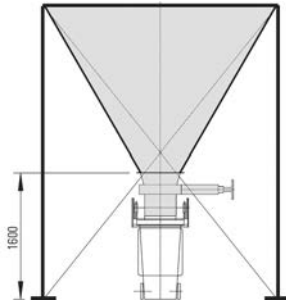
- 7 Radial fan (VARIO 1-3 eco)
- 8 Compressed air tank
- 9 Diaphragm valves; electromagnetic
- 10 Sound absorbent lining
- 11 Compressed air connection
- 12 Clean air outlet; pipe connection possible

Waste disposal and safety

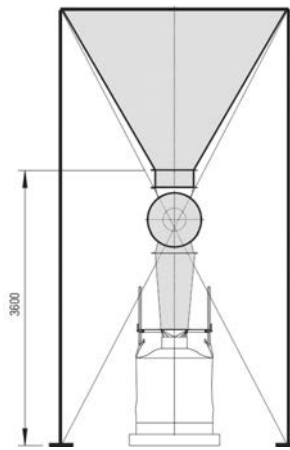
Waste disposal

Standard: The air-tight and dust-tight disposal bins are connected to the filter's hopper with a clamping device, simplifying the exchange of dust collector containers.

For larger dust volumes or in 24-hour operations, the waste disposal is continuous via rotary valves, into disposal tanks or Big Bags. Additional alternatives are available.



Waste disposal 1
- gate valve (optional)
- 220-liter container



Waste disposal 2
- rotary lock
- Big-Bag/container

Safety

It is possible to equip the VARIO eco units with security technology if combustible or explosive dusts are created during the manufacturing process.



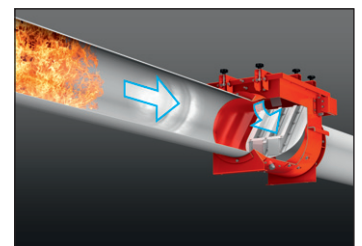
Flameless explosion pressure relief for installation indoors



Burst disk for explosion pressure relief outdoors



Explosion suppression by automatic entry of extinguishing agent



ProFlap back pressure flap for explosion decoupling of clean air and dirty air pipes

For additional information regarding explosion protection see: www.exschutz.net

Fan section

The direct-drive radial fan is very silent. Depending on the size of the filter unit, the fan is either integrated, top-mounted or placed next to it.

Placement

Installation outdoors is possible if weather protection is provided and is within noise limit requirements.

Venting outdoors of re-circulation

Clean air return (return air) is usually feasible during separation with our high quality filter elements. The cleaned air can be ducted and channeled (even with heat exchangers) to the outdoors, or re-circulated back

into the workplace. Alternate venting or recirculation can be accomplished by activating a switch within the exhaust duct. We will be pleased to furnish you with detailed information regarding the feasibility of a recircu-

lation system, ensuring compliance with your local rules and regulations.



VARIO 6 eco with chip preseparator and fan including exhaust silencer

Technical data



Unit type	VARIO 1	VARIO 2	VARIO 3	VARIO 4	VARIO 5	VARIO 6
Max. air flow (m ³ /h)	2.300	6.600	9.800	14.500	19.600	29.000
Motor (kW)	3,0	4,0 - 7,5	11,0 - 15,0	15,0 - 22,0	30,0 - 37,0	32,0 - 40,0
Number of filter elements (Stk.)	8	12	14	20	28	40
Filter surface (m ²)	30,7	93,8	131,7	188,2	236,4	367,4
Dimensions (L/W/H) (mm)	1000 x 860 x 2635	1350 x 1050 x 3255	1472 x 1472 x 3953	1544 x 1544 x 3390*	2400 x 1542 x 3390*	1544 x 3084 x 3390*

*1 Without top-mounted fan

Subject to modifications



VARIO 1 eco as a central vacuum system



VARO 2 eco for the extraction of chips at an assembly line



VARIO 5 eco with spark preseparator and heat recovery system



Extraction of a grinding booth by a VARIO 3 eco

References



All VARIO eco systems are modular in design. Paint particles are separated here in three modules



Two VARIO 6 eco units with a total air flow of 40.000 m³/h condition the exhaust air following combustion with a renewable thermal oxidation process



With GREEN BALANCE Keller Lufttechnik GmbH + Co. KG commits to reliable, far-sighted treatment of all resources – to bring into line technological progress, operational issues and social targets in order to protect the environment.

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