

PT FILTER UNITS - SEPARATION OF FINE DUST PARTICLES

THE TASK

Keller plans, engineers and manufactures air pollution control systems for the capture, removal and separation of airborne particles for all types of industry. High filtration efficiency is achieved with the use of innovative filtration technology and efficient design. Suitable exhaust systems offer solutions to individual problems at high levels of quality.

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

The PT filter 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 problem-free 24-hour operation with constant air flow. Short delivery times and competitive pricing are possible because of series production planning.

SCOPE OF APPLICATIONS

Mechanical processes:

- lathe work, drilling, milling, grinding
- bulk material transport
- blending
- measuring, weighing
- preparation, processing

Thermal processes:

- laser cutting
- welding



OPERATION

The PT series operates according to the downflow principle. The dust laden air enters via the air inlet into the upper section of the filter housing and flows around the filter elements from top down. The polluted air is sucked through the filter elements that are fixed to the slotted wall and the dust collects on the surface of the filter elements. Cleaning of the filter elements is achieved by means of compressed air pulses during online operation. Thus, the air volume of the fan remains constant. The clean gas (cleaned air) exits through the top of the unit and in most cases can be re-circulated into the work area or is ducted outdoors. The separated dust falls into the dust collector section.

ADVANTAGES

- high quality, high value filter element
- compact construction
- large filtration area
- low filter resistance

FILTER ELEMENTS

The SINBRAN filter elements, a combination of sintered polyethylene and laminated GORE-TEX® membrane, combine the advantage of membrane filtration (low pressure loss with high filtration efficiency) with a long-life rigid frame construction. These elements are reusable, have BGIA test certification according to DIN EN 6035-2-69, appendix AA (08/99) and meet the requirements of dust class "M", formerly known as categories U, S, G. and C. Alternative filter elements such as Multitube cartridge filters and Y-filters are also available.

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

WASTE DISPOSAL

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

For large dust quantities or during 24-hour operation, continuous disposal is achieved by means of an air lock.



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.

SAFETY

The PT filter unit can be equipped with additional safety precautions when processing combustibile or explosive dusts.

VENTING OUTDOORS OR RE-CIRCULATION

Air recirculation is often possible with the use of high-quality SINBRAN filter elements. The cleaned air can be ducted and channeled (even with heat exchangers) to the outdoors, or can be recirculated 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 recirculation system, ensuring compliance with your local rules and regulations.

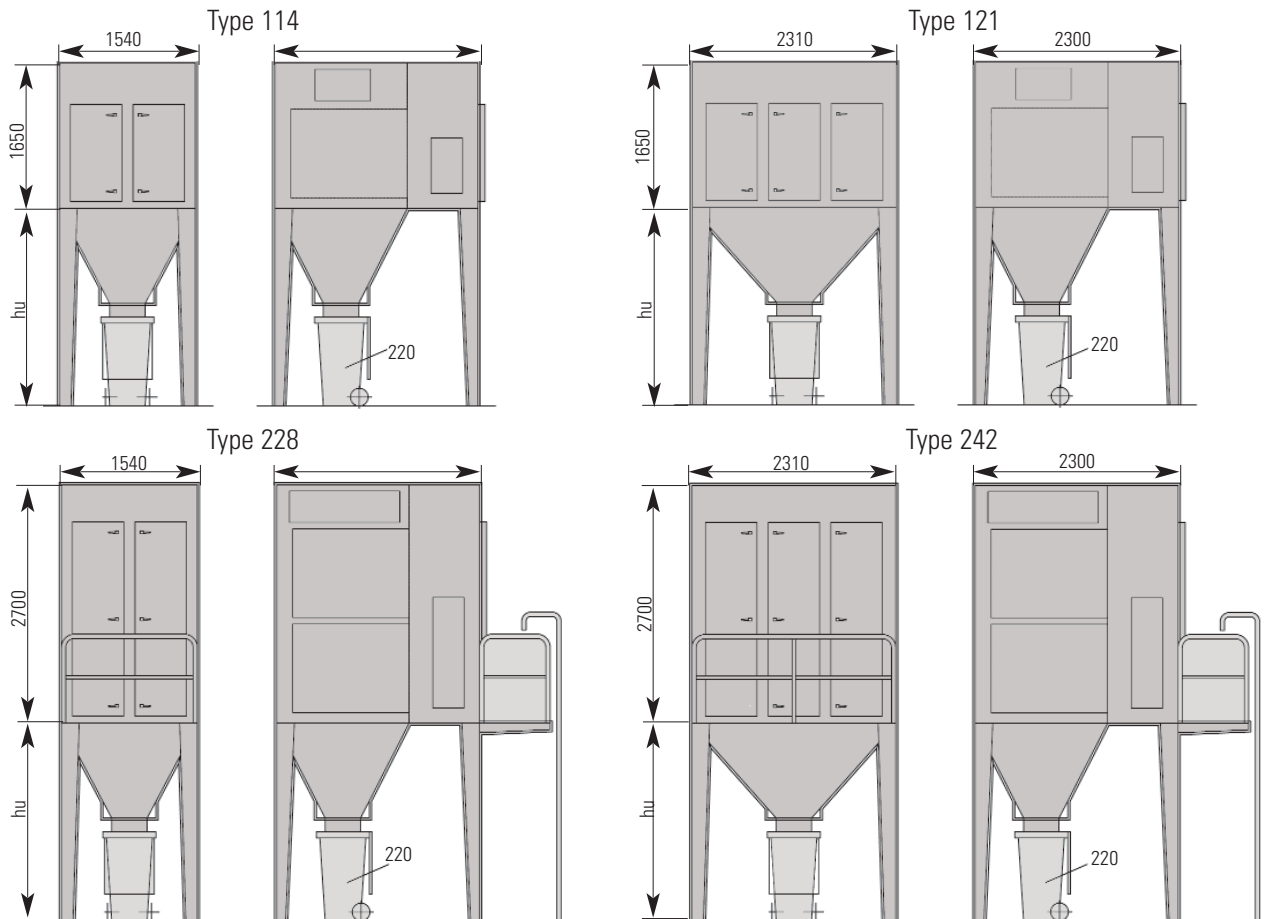
PLACEMENT

The PT filter unit is suitable for indoor and outdoor placement as well.



PT FILTER UNIT TYPES

The PT filter series is available in different sizes and designs. Calculating the air flow to be exhausted (m³/h) in consideration of the dust characteristics is essential for selecting the right unit. Different variations are available.



hu = 2000 mm; standard support structure suitable for 220 L waste disposal bins

S / MT = SINBRAN / Multitube equipment

Y1 = 1 x folded for large volumes of dust

Y2 = 1,5x folded for thermal processes, B value max 80 m/h

PT		single storied								double storied			
		114		121				228		242			
		S	MT	Y1	Y2	S	MT	Y1	Y2	S	MT	Y1	Y2
filter elements	pcs	14	14	21	21	28	28	42	42				
filter surface	m²	63	106/154	94	159/231	126	212/308	189	318/462				
motor output	kW	-	-	-	-	-	-	-	-				
burst panels ¹⁾	pcs	1	1	1	1	2	2	3	3				
sound intensity ²⁾	dB (A)	-	-	-	-	-	-	-	-				
tank number ³⁾	pcs	2	2	3	3	2 (4)	2 (4)	3 (6)	3 (6)				
solenoid valve ⁴⁾	pcs	14	14	21	21	14 (28)	14 (28)	21 (42)	21 (42)				
compressed air consumption ³⁾	NL/min	33	33	33	33	33	33	33	33				
weight	kg	1220	1220	1620	1620	1840	1840	2440	2440				

1) calculated according to VDI 3673 page 1 (July 1995) for explosion classification St1.

Subject to modification

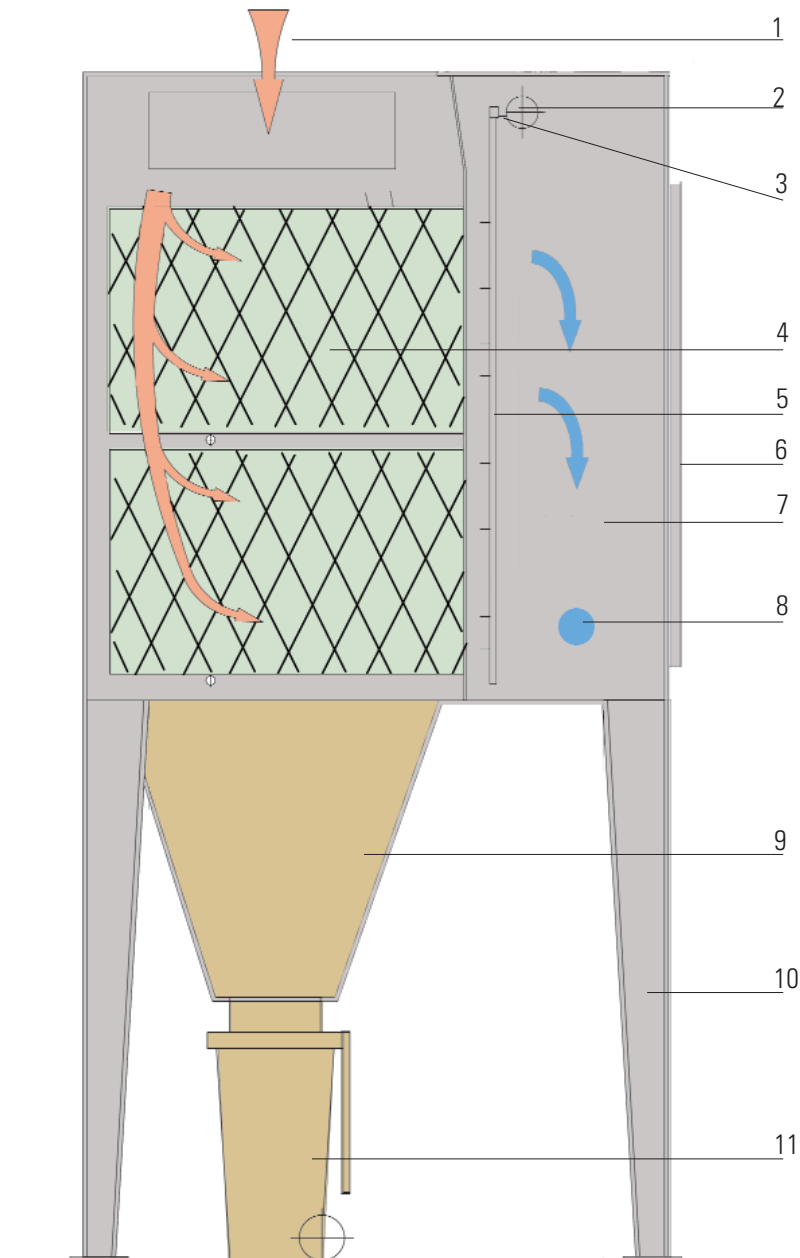
reduced explosion pressure $p_{red} = 0,2$ bar; stat. pressure $p_{stat} = 0,1$ bar; relief surface $0,5$ m² each burst panel

3) Nominal pressure 6 bar. Consumption in litres under standard conditions if the pulse pause is 3 min between the pulses. These are estimated values and can differ according to dust quantity and dust quality

4) Values are valid for standard cleaning. Values indicated in brackets are valid for thermal processes that require an additional charge.



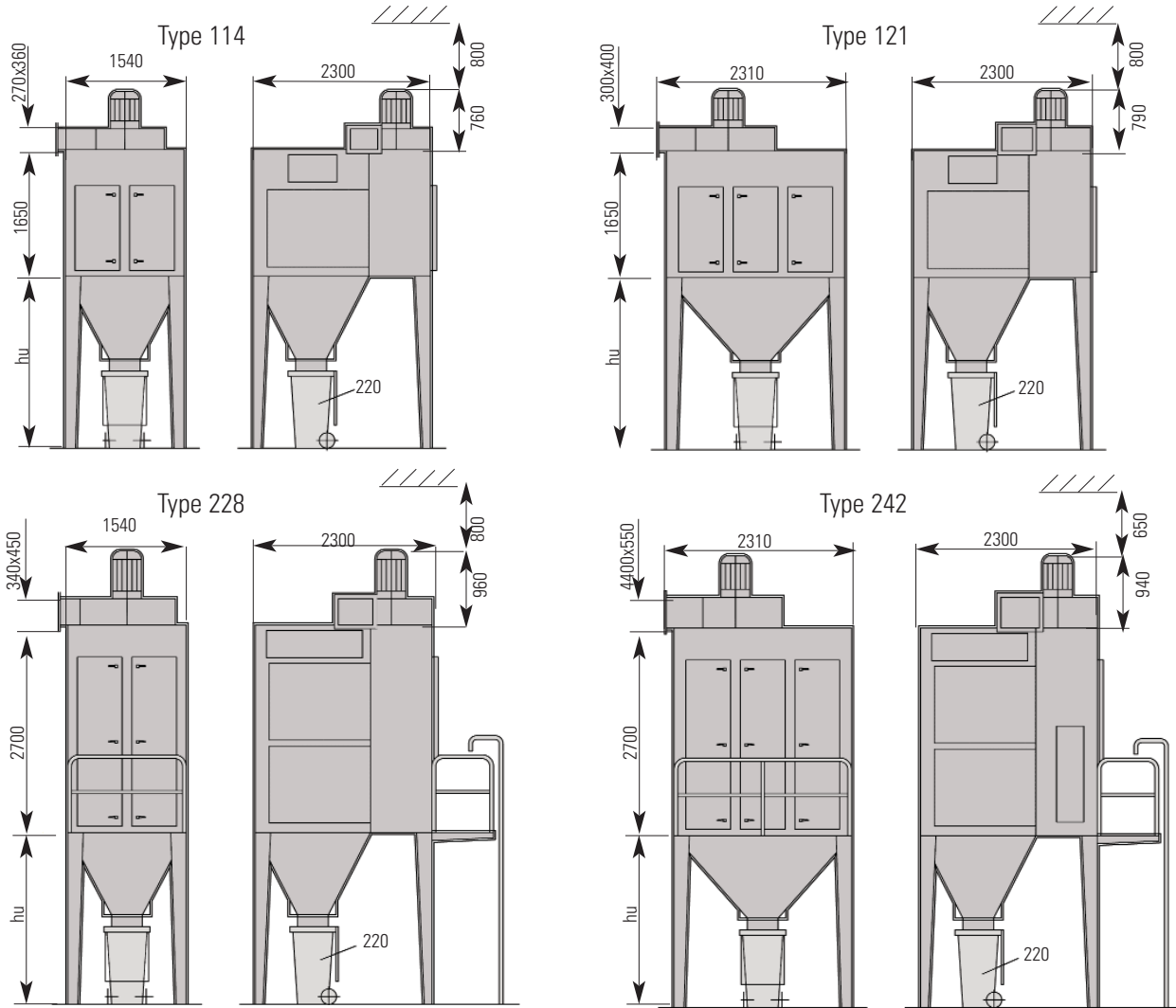
PT FILTER STRUCTURE



- 1 crude gas (dust laden air) inlet
- 2 compressed air tank
- 3 diaphragm valve, electromagnetic
- 4 filter elements
- 5 blast pipes
- 6 inspection door
- 7 clean gas channel
- 8 clean gas outlet
- 9 hopper
- 10 support structure
- 11 dust collection bin 200 L



PT FILTER WITH TOP-MOUNTED FAN



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PT		single storied								double storied							
		114				121				228				242			
		S	MT	Y1	Y2	S	MT	Y1	Y2	S	MT	Y1	Y2	S	MT	Y1	Y2
filter elements	pcs	14		14		21		21		28		28		42		42	
filter surface	m ²	63		106/154		94		159/231		126		212/308		189		318/462	
motor output	kW	-		-		-		-		-		-		-		-	
burst panels ¹⁾	pcs	1		1		1		1		2		2		3		3	
sound intensity ²⁾	dB (A)	-		-		-		-		-		-		-		-	
tank number ³⁾	pcs	2		2		3		3		2 (4)		2 (4)		3 (6)		3 (6)	
solenoid valve ⁴⁾	pcs	14		14		21		21		14 (28)		14 (28)		21 (42)		21 (42)	
compressed air consumption ³⁾	NL/min	55		55		75		75		55 (110)		55 (110)		75 (150)		75 (150)	
weight	kg	1520		1520		2180		2180		2965		2965					

¹⁾ calculated according to VDI 3673 page 1 (July 1995) for explosion classification St1; reduced explosion pressure: $P_{red} = 0,2$ bar; stat. pressure $p_{stat} = 0,1$ bar; relief surface 0.5 m² each burst panel Subject to modification

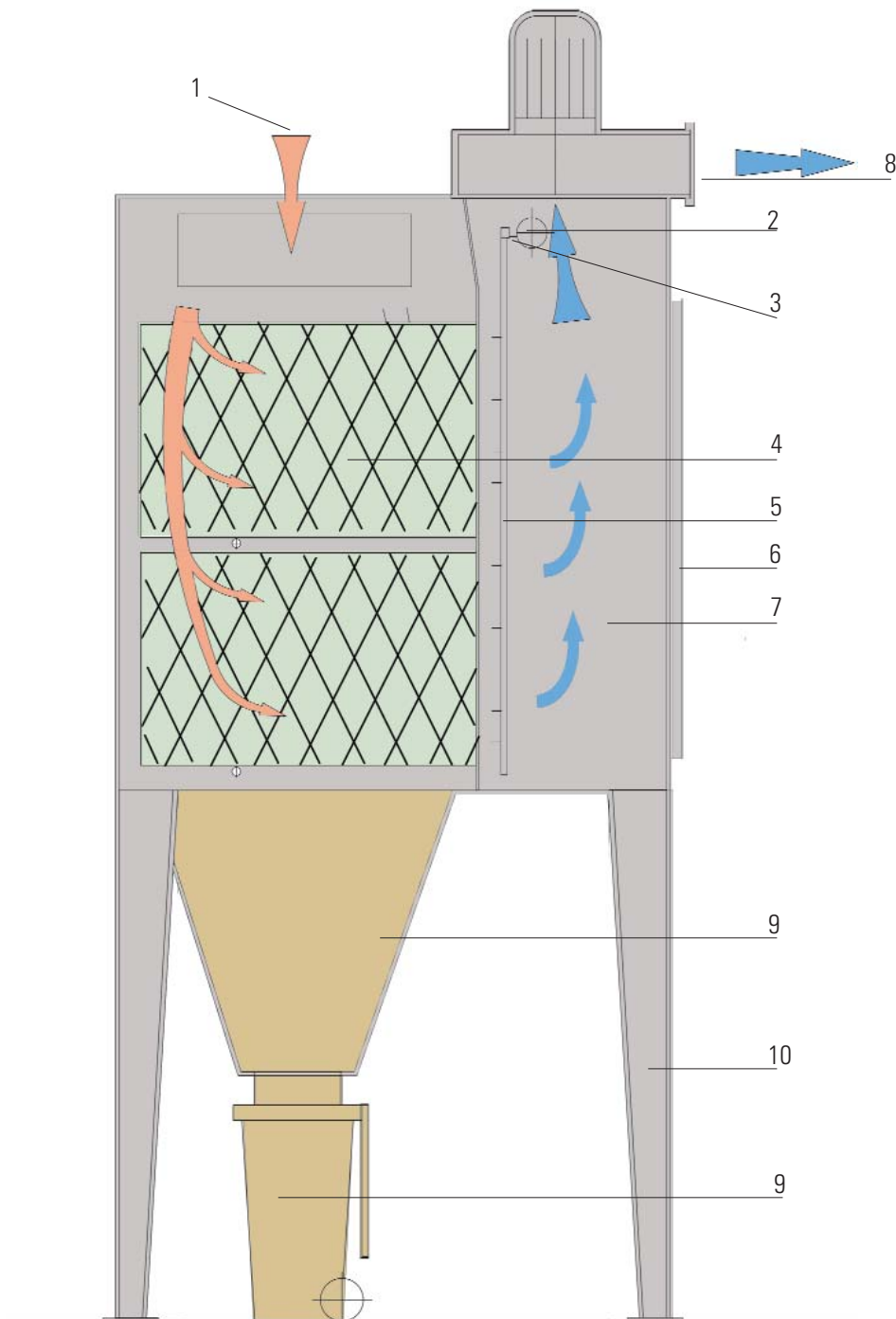
³⁾ Nominal pressure 6 bar. Consumption in litres under standard conditions if the pulse pause is 3 min between the pulses

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AIR FILTRATION SYSTEM SOLUTIONS



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