



ZAKŁAD TECHNIKI ODPYLANIA

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DEDUSTING INSTALLATIONS SINCE 1985

- ◆ Vertical Pulse Jet Filters with filter surface of 6,4 m² to 2240 m²
- ◆ Horizontal Pulse Jet Filters with filter surface of 4,2 m² to 505 m²
- ◆ Cyclone Filters with filter surface of 6,4 m² do 519 m²
- ◆ Cartridge Filters with filter surface of 10 m² do 520 m²
- ◆ Portable Filters system
- ◆ Filters in accordance with ATEX requirements
- ◆ Dedusting of coal boiler
- ◆ Cyclons and cyclone batteries
- ◆ Rotary valves and screw conveyors
- ◆ Design, construction and installation of dedusting equipment including ATEX version
- ◆ Industrial central vacuum cleaning systems also in ATEX version
- ◆ Modernization of electrostatic filters and bag filters with mechanical regeneration into pulse jet filters with compressed air regeneration



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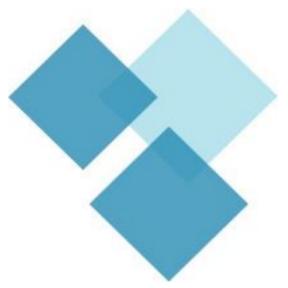
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Vertical Pulse Jet Filters

Vertical pulse jet filters are the most popular dust collectors, which are characterized by vertical arrangement of the bags in the filtration chamber. Possibilities of purifying contaminated gases are here very large- even above 225 000 m³ / h. Filters are designed individually to customer needs so the filter area may be higher or lower when needed.

They can be made of ordinary steel quality, corrosion proof or stainless steel. Bags used in these type of filters are usually round with a diameter of 153 mm and length 2050 mm, 2550 mm, 3050 mm, 4050 mm, 5050 mm (for bags exchanged from the bottom) and 2010 mm, 2510 mm, 3010 mm, 4010 mm, 5010 mm (for bags exchanged from the top).

Pulse jet filters are designed for dedusting air from dry and not sticky dust .

Zakład Techniki Odpylania has on offer filters in ATEX version which can be used for dedusting explosive mixtures of dust and air.

Regeneration of filter bags in pulse jet filters is operated by the following types of control cabinets:

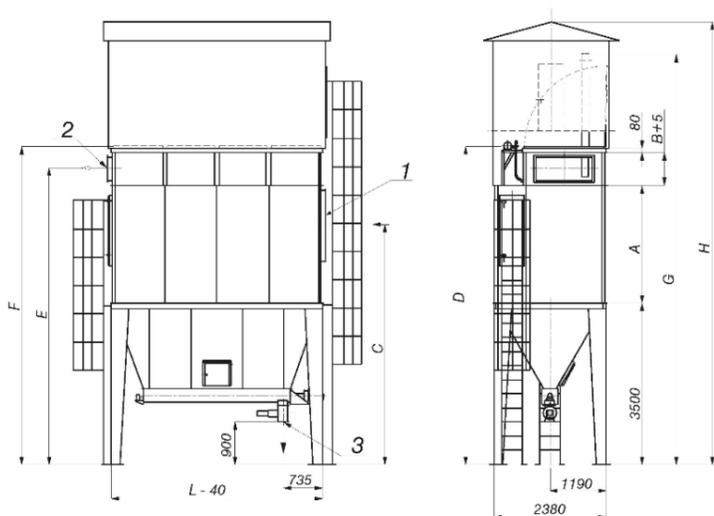
- * with time control in which the pulse duration and regeneration frequency are set up
- * with Δp control in which filter bag regeneration depends on resistance of air flow through filter bags

ZTO produces following types of vertical Pulse Jet Filters:

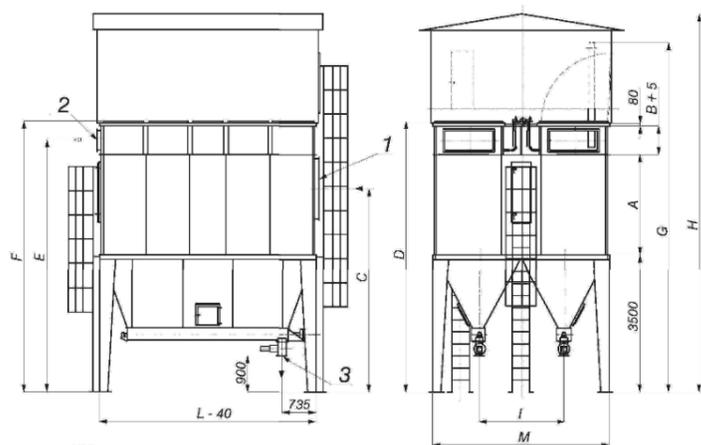
- PULSE JET FILTER TYPE GF**
- PULSE JET FILTER TYPE MR**
- PULSE JET FILTER TYPE ZF**

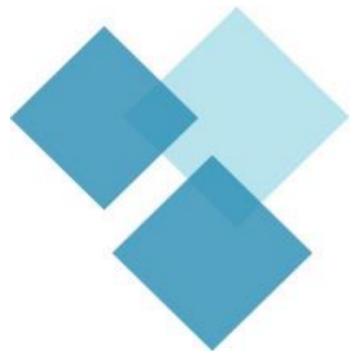
TECHNICAL DATA- PULSE JET FILTER TYPE GF	
Inside diameter of the filter bag	153 mm
Inside length of the filter bag in mm: bag replacement from the bottom bag replacement from the top	2050, 2550, 3050, 4050, 5050 mm 2010, 2510, 3010, 4010, 5010 mm
Quantity of the bags in a row	8 pcs.
Maximal dust concentration at the filter inlet	100 g/m ³
Permissible pressure	6000 Pa
Filter velocity	0,02 ÷ 0,06 m/s
Dedusting effectiveness	99,80%
Dust concentration at the filter outlet	Below 20 mg/m ³
Control cabinet	0,05 kW, 230 V, 50 Hz
Gear motor of the rotary valve	0,55 kW, 1,5 kW, 400 V, 50 Hz
Control range of the valve opening time	0,1 ÷ 1,2 s
Control range of the interval time between following impulses	1 ÷ 270 s
Required air for regeneration of the bags	water and deoiled air with pressure 0,6 ± 0,1 MPa
Quantity of required air for regeneration	Approximately 10-20 litres on normal conditions for regeneration of one bag
Recommended level of air flow resistance through the filter bags	1300 ÷ 1600 Pa
Filtration velocity applied most frequently	0,025 ÷ 0,03 m/s
Diameter of the screw conveyor	250 mm, 315mm, 400 mm- depended of amount of dust

SINGLE ROW PULSE JET FILTER TYPE GF



DOUBLE ROW PULSE JET FILTER TYPE GF





HORIZONTAL PULSE JET FILTERS

Horizontal pulse filters are second group of filters characterized by a filter bags in horizontal arrangement in the filtering chamber. They can be used in low spaces and low height halls.

Due to horizontal arrangement of filter bags, the filtering chamber is lower comparing to filters with vertical bags. The lenticular shape of the filter bag and cage ensures bigger filtering surface in a filter of small overall dimensions. In result, these filters can be used wherever the height of the room does not allow you to install vertical pulse jet filter.

Devices can work both indoors and outdoors. For each dust installation system ZTO is idywidually selecting filter type, filtration and regeneration parameters and type of non-woven filter.

Horizontal filters type HF are available in 200 sizes and 2 following options:

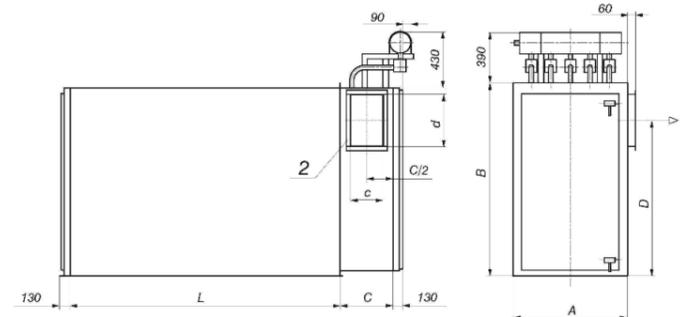
- Option I** – a purified air chamber with a filtering chamber and bags.
- Option II** - a purified air chamber with a filtering chamber and bags, chute with a conveyor and a rotary valve.



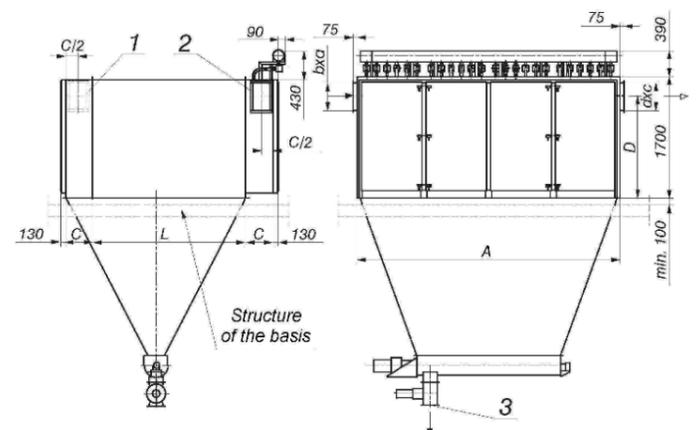
TECHNICAL DATA- PULSE JET FILTER TYPE HF

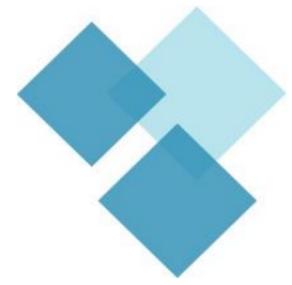
Inside length of the filter bag:	1500 mm, 2000 mm, 2500 mm
Maximal dust concentration at the filter inlet	50 g/m³
Permissible pressure	4000 Pa
Filter velocity	0,02 ÷ 0,06 m/s
Dedusting effectiveness	99,80 %
Dust concentration at the filter outlet	below 20 mg/m³
Control cabinet	0,05 kW, 230 V, 50 Hz
Control range of the valve opening time	0,1 ÷ 1,2 s
Control range of the interval time between following impulses	1 ÷ 270 s
Required air for regeneration of the bags	water and deoiled air with pressure 0,6 ± 0,1 MPa
Quantity of required air for regeneration	approximately 10-20 litres on normal conditions for regeneration of one bag
Recommended level of air flow resistance through the filter bags	1300 ÷ 1600 Pa

OPTION I



OPTION II





CYCLONE FILTERS

Cyclone filters are bag filters which are combination of cyclone and pulse jet filter. It's operation is based on two-stage separation of solid particles. Dusty air enters the interior of the housing cyclone filter where coarse fractions are precipitated in the lower part on the centrifugal force which makes them move downward from where they are disposed on the outside. Dust particles will settle on the surface of the filter bags forming a layer of dust on them. Dust is removed from bags by compressed air pulses directed to each bag.

For explosive dust-air mixtures, filters are prepared in accordance with ATEX requirements and are equipped with safeguards appropriate for a given dust type, such as:

- * earthing of filter bags made of an appropriate electricity conducting unwoven fabric
- * pressure relief openings closed with a flap or an attested explosion vent panel.

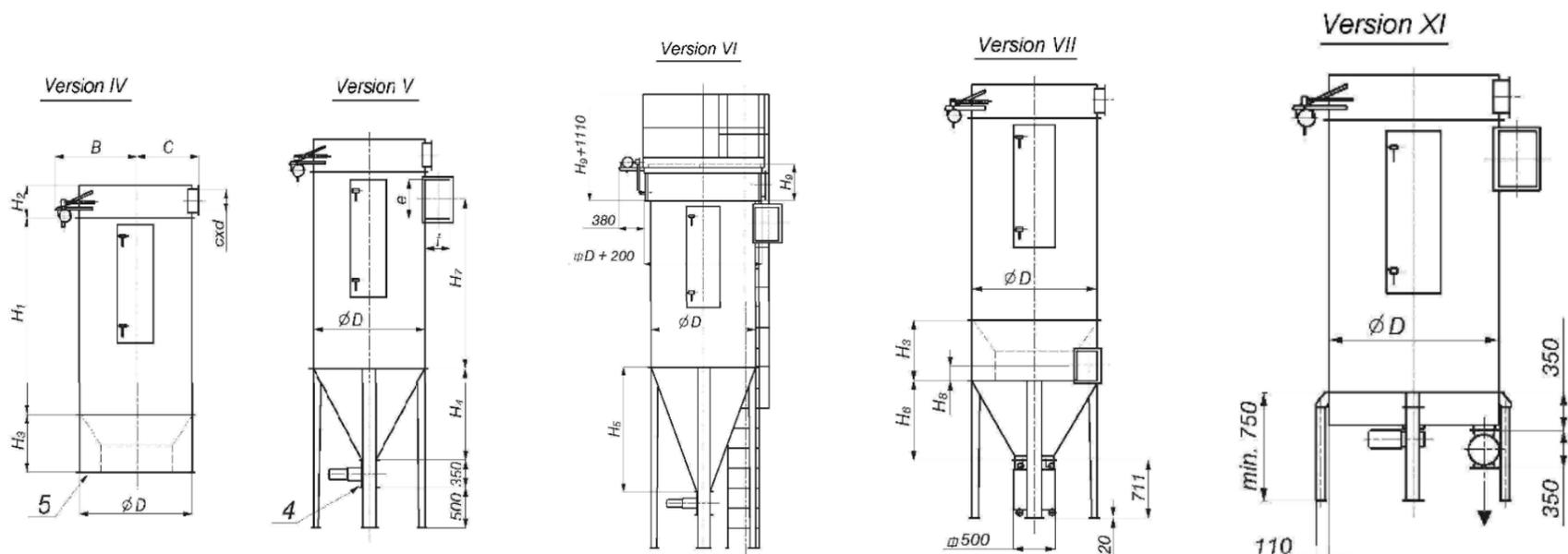


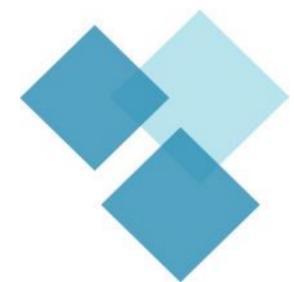
The modular design optimizes transport costs. It also facilitates the installation of the dust collector and the adjustment to the existing equipment and buildings
Cyclone filters type MF consists of the following main parts:

- * purified air chamber
- * filtering chamber
- * filter bags assembly with cages
- * chute with cyclone inlet, a rotary valve, a dust container, etc.,
- * support structure
- * wiring system with a control cabinet

Cyclone filters type MF are available in 36 sizes and in 13 following options:

- ◆ I. a purified air chamber with filter bags and automatics (as in option VII),
- ◆ II. a purified air chamber with a filter chamber (without a cyclone component) and filter bags and automatics (as in option VII),
- ◆ III. a purified air chamber with a filter chamber (with a cyclone inlet in the upper part) and filter bags and automatics (as in option V),
- ◆ IV. a purified air chamber with a filter chamber (with an internal cone) and automatics
- ◆ V. a complete cyclone filter with a cyclone inlet in the upper part, with a rotary valve, with a chute with a normal angle of inclination
- ◆ VI. a complete cyclone filter with a cyclone inlet in the upper part, with a rotary valve, with a chute with an acute angle of inclination
- ◆ VII. a complete cyclone filter with a cyclone inlet in the lower part, with a dust container (shown on the drawing),
- ◆ VIII. as option V but without feet,
- ◆ IX. as option VI but without feet,
- ◆ X. as option VII but with a rotary valve,
- ◆ XI. a complete cyclone filter with a cyclone inlet in the upper part, with a rotary valve, with a flat bottom and a rotary rake
- ◆ XII. as in option V but with a dust container,
- ◆ XIII. as in option VI but with a dust container.





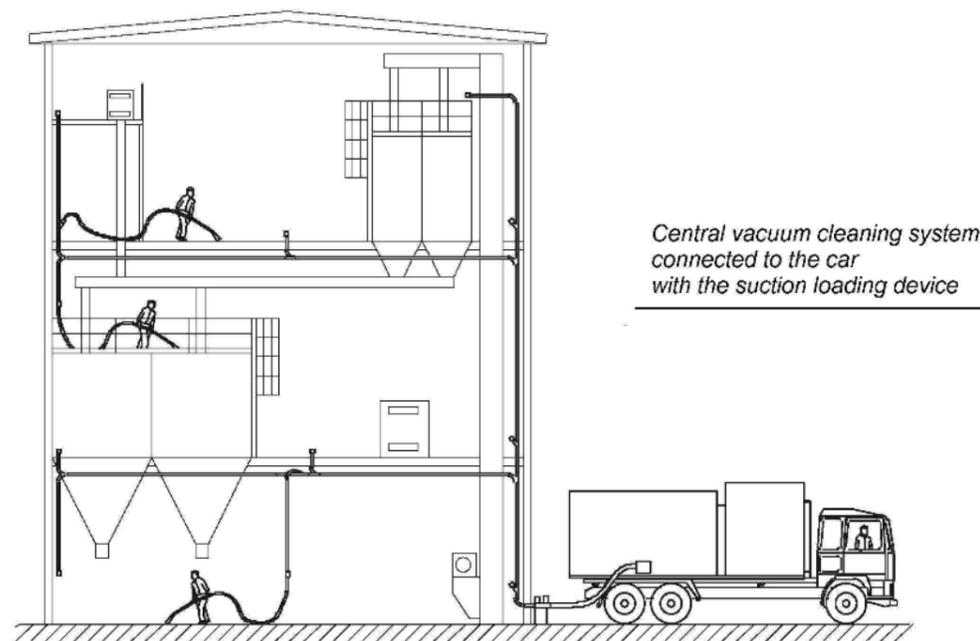
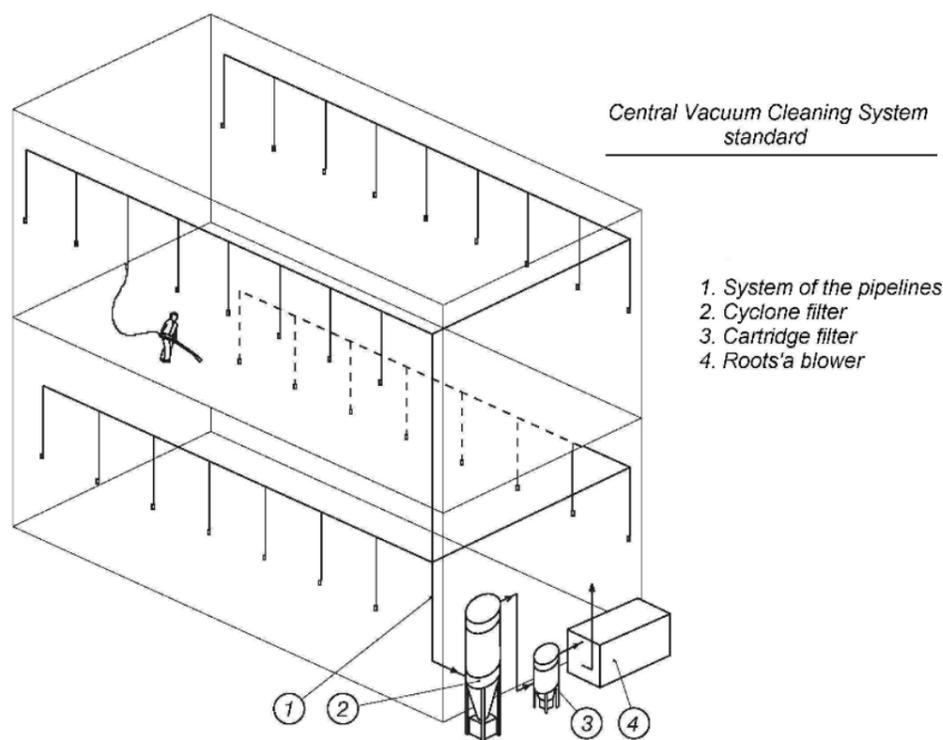
INDUSTRIAL CENTRAL VACUUM CLEANING SYSTEM

Industrial vacuum cleaning systems projected by ZTO are designed to work in heavy industries and tough environments where necessary is efficient and powerful equipment for cleaning excessive amounts of dust. This installation works well at cleaning huge amount of thick materials such as wood chips or metal

The central vacuum cleaning system is provided in two standard options:

In option I the system consists of a device that generates high negative pressure (ca. 0.5 bar), which is most frequently a Roots rotary blower operating in negative pressure, a cyclone filter that collects dust, a cartridge filter that protects blower pistons, and a pipeline system with branches ended with small flap closures. The cyclone filter is equipped with a control cabinet driven with Δp .

In option II the central vacuum cleaning system consists of a size-duct fan, which generates negative pressure (ca. 0.2 bar), operating in negative pressure, a filter that collects dust, and a pipeline system with branches ended with small flap closures





CARTRIDGE AND STATIONARY FILTERS

Cartridge filters refer to a class of pleated filters, which are used in installations for dedusting air from dry and non-adhesive dust.

This type of filters work well where it is necessary to take into account large filter area and small cartridge size.

If needed, filter cartridge filters can be:

- isolated 50 mm mineral wool
- made of stainless steel
- equipped with security for dedusting of gases from explosive dust (according to ATEX requirements)

Cartridge filters are manufactured in 9 sizes and 3 following versions:

- version with dust container
- version with rotary valve
- version with screw conveyer

Cartridge Filter type FP

Type	Filter surface	Number of filter cartridges	Number of dust container	L	S	I	a	b	c	d	P ₁	P ₂
	m ²			pcs.	mm							
FP-2x4	40	8	1	840	630	0	250	600	500	250	3	3
FP-3x4	60	12		1140	930	0	250	600	500	250	3	3
FP-4x4	80	16		1440	1230	0	250	800	700	250	5	4
FP-5x4	100	20	2	1740	1530	0	250	800	700	250	5	4
FP-6x4	120	24		2040	1830	1300	250	900	800	250	6	5
FP-7x4	140	28		2340	2130	1600	300	900	800	300	6	5
FP-8x4	160	32		2640	2430	1900	300	900	800	300	6	5
FP-9x4	180	36	3	2940	2730	2200	300	900	800	300	6	5
FP-10x4	200	40		3240	3030	2500	300	900	800	300	6	5

Stationary filters are compact pulse jet filters.

In the standard version stationary filters are equipped with a medium pressure centrifugal fan, a fan switch and a control cabinet for solenoid valves. They are normally used for dedusting technological stands where dust emissions are dry and non-adhesive

ZTO produces following types of stationary filters:

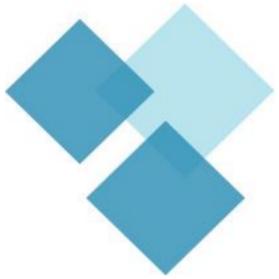
- Stationary filters type FS - standard version
- Stationary filters type F0 – for small installation of central vacuum cleaning system
- Stationary filters type HF - standard version with horizontal bag arrangement
- Stationary filters type HF- in version for mounting on the silo conveyor or dumping

Zakład Techniki Odpylania also produces rotary valves intended for reception of dust from dedusting systems and from different kinds of storing containers and screw conveyors intended for conveying dust collected from containers such as: silos, tanks

Rotary Valve

Type	Output	Rotor speed	Engine power
	m ³ /h		
DG 200 x 200 Ex	16	26	0,55
DG 300 x 300 Ex	28	26	1,1
DG 300 x 300	55	26	1,5





QUALITY



• **ISO Certificates**

- In September 2005, company Zakład Techniki Odpylania (ZTO) was granted the Quality Management System Certificate in accordance with PN-EN ISO 9001:2001, which brought new work standards and improved quality of company operation.
- The certificate proves that the Quality Management System implemented by ZTO was assessed and considered as in conformity with quality standards as well as the range of activity i.e. design, production and assembly of dust collection plants and industrial central vacuum cleaning systems.
- Personnel of the company comprise of employees with high qualifications, specialist education and long-term professional experience, ensuring the highest quality of plants provided.

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