PRODUCT CATALOGUE

Systems and equipment for vacuum dust cleaning

SovPlym

- Development
- Manufacturing
- Designing
- Supply
- Installation
- Warranty and maintenance servicing
- Legal documentation

SovPlym

Working in the industrial ventilation field for over 30 years, we know for sure what our customers need: high quality durable equipment, fast responses to their inquiries, timely delivery and qualified service support. That is exactly what we offer.

SovPlym

SovPlym - the leading manufacturer and supplier of equipment for industrial ventilation and cleaning of air, aspirations systems, dust and gas removal and vacuum cleaning systems.

We offer the most advance solutions for air cleaning inside industrial facilities, providing protection of staff member's health, protection of the environment and improving the quality of manufactured products.

Founded in 1989, today SovPlym is an international company with head office in Saint-Petersburg (Russia). Russia remains a major market for SovPlym, where company holds approximately 60% share of industrial ventilation market.

Services

We offer full range of services on development, designing, supply, installation and start-up, warranty and after sales service and maintenance.

Why working with us:

- wide range of energy saving solutions;
- increasing of efficiency of industrial processes
- fulfilling the industrial safety requirements
- staff health protection
- fulfilling the environmental protection requirements

Our key argument

Over 30 000 companies have chosen SovPlym as a professional and reliable partner. Feedbacks of our happy customers are the best arguments to cooperate with us.

The present brochure fintroduces you the vacuum cleaning systems manufactured by SovPlym Ltd. for various industrial fields

Vacuum dust cleaning systems

Stationary systems for vacuum dust cleaning are the most progressive way to clean industrial facilities with a number of advantages:

- Collection of material by vacuum system prevents secondary dusting during cleaning process
- Cleaning operator is not involved into transportation of collected material to the place of storage or recirculation into the technological process
- Vacuum systems provides maximum possible speed of cleaning of industrial facilities, which is not reachable with alternative methods of cleaning including aquous washing
- Equpment for vacuum cleaning is very simple and durable
- Maintenance (1-2 per annum) does not require highly qualified specialists

Technical characteristics and parameters of products, listed in the present catalogue, might be changed withour prior notice.

Stationary systems for vacuum dust cleaning for industrial facilities have the capacity in the range from 100kg/h to 10g/h.

Cleaning tasks with load below 100kg/h can be successfully perfomed by staff members without special qualification, using mobile vacuum cleaners and floor washing machines with small bag or container for dust collection.

When required capacity of cleaning exceeds 100kg/h, it comes to a question of not only collection of the dust from the floor, but mostly of transportation of collected dust to the place of utilization of recirculation into the technological process.

Requirements of industrial factories for the systems with capacity more than 10t/h, usually indicates problems in technological process or abscense of aspiration systems at sources of dust formation.

Application

Material: metal crust, abrasive
Surgut city. Considered winter temperature -47 °C.

Material: coal
Tagil city. Explosion protected equipment.

Material: metallurgic charge
Actobe city, republic of Kazakhstan

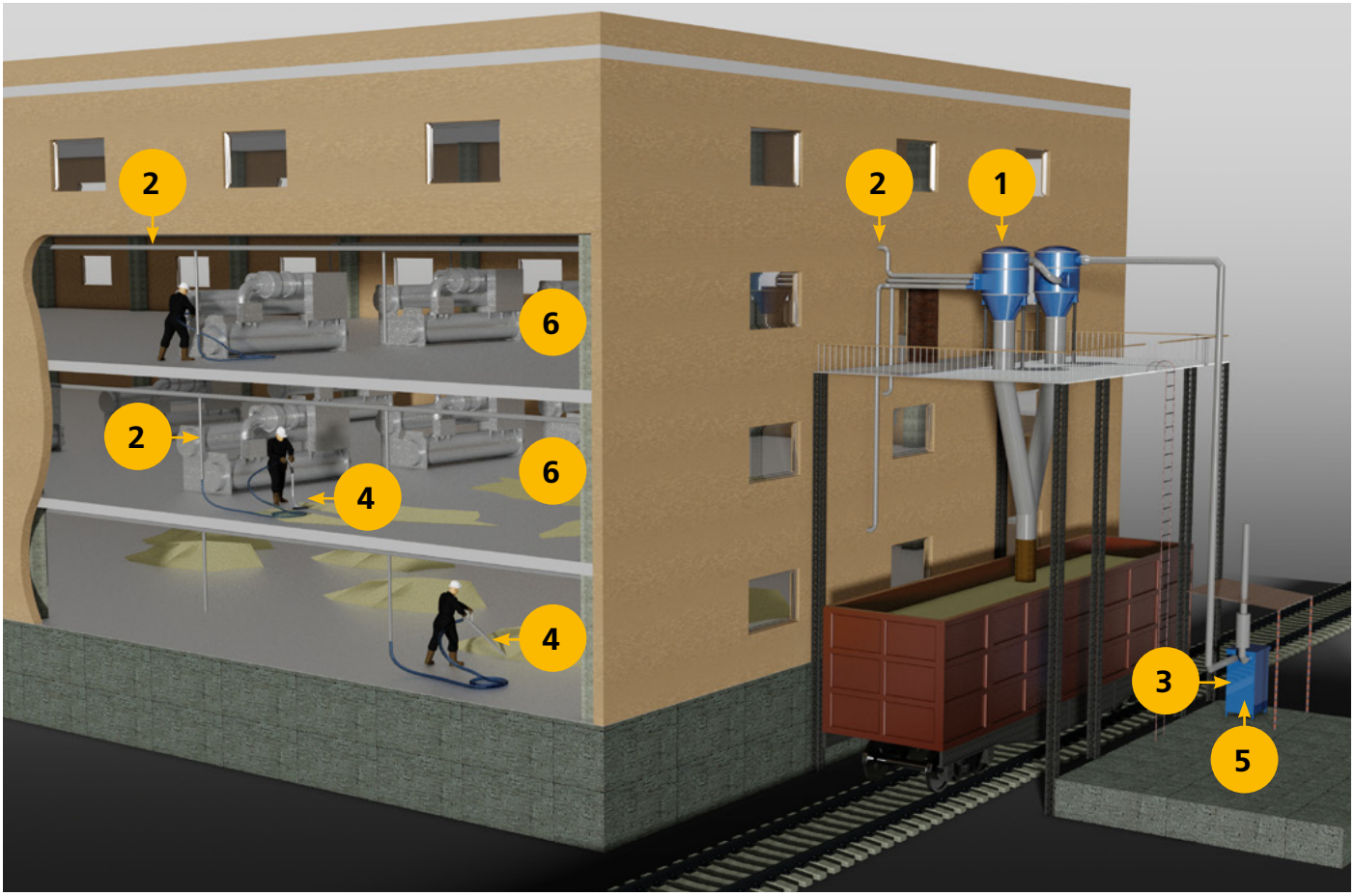
- Metallurgy
- Cement production
- Construction materials manufacturing
- Mineral fertilizing manufacturing
- Mining industry
- Chemical industry
- Food industry
- Farma industry
- Machine building industry

Filtration equipment, offered by us, is capable of capturing following types of dusts and aerosols:

- Metal oxides
- Cement, glass, coal
- Dry construction mixes
- Mineral fertilizes
- Wool, sand
- Coloring agents
- Flour, tea, tobacco
- Abrasive, textile
- Various types of salts
- Farma components
- Washing powders etc.

Stationary system for vacuum dust cleaning

Sample of installation



Major components of the system:

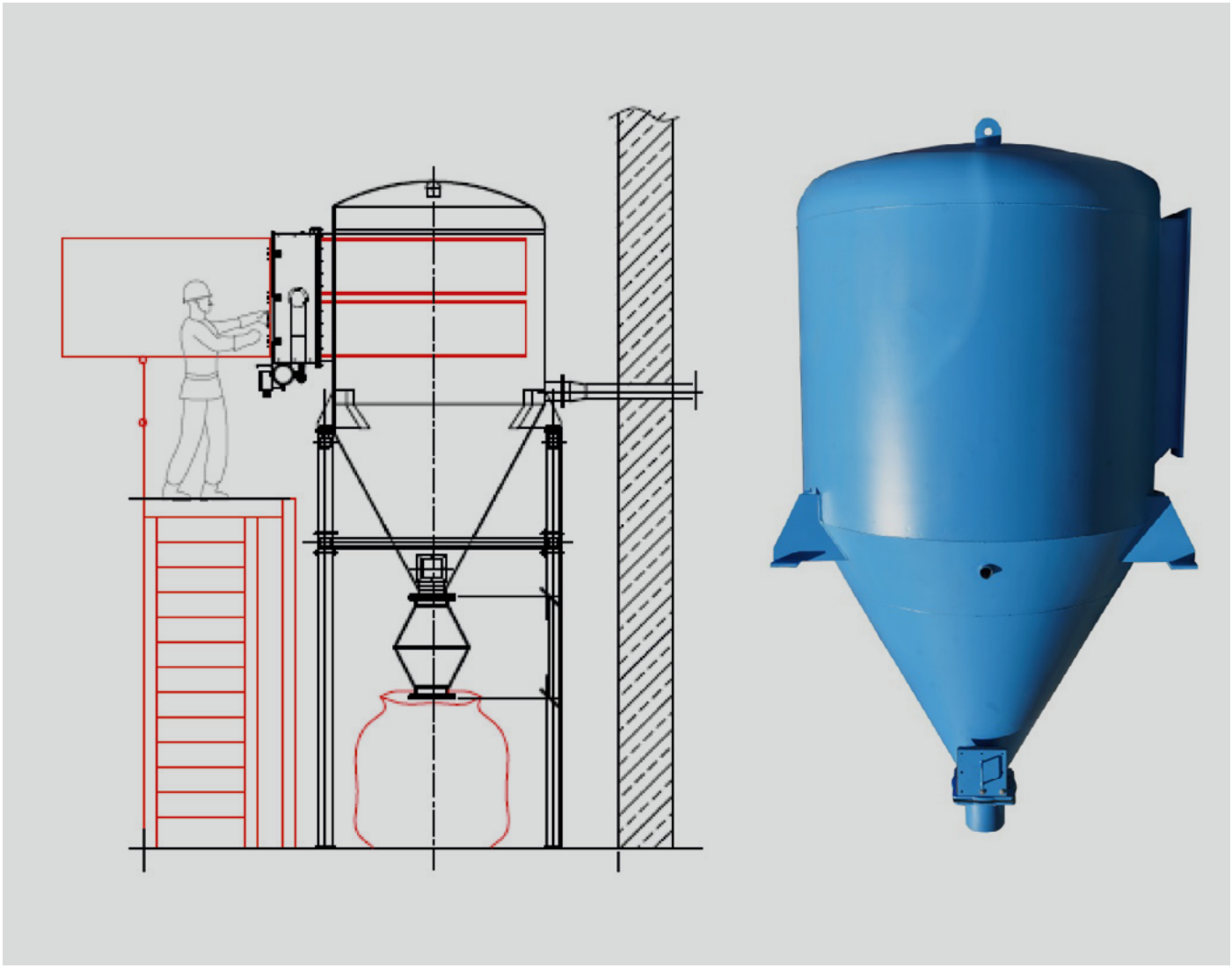
1. Filter-separator
2. Vacuum pipeline network with pneumatic sockets for connection of cleaning hoses.
3. Roots vacuum pump
4. Set of hoses and acessories for cleaning
5. Stationary vacuum cleaning system control box
6. Local control boxes for switching the system on/off, located at each floor

Description

Stationary vacuum system is a centralized system for cleaning the whole industrial building. Branched network of vacuum pipelines with cleaning hose connection posts (pneumatic sockets) located at each floor. Installation of pipelines and pneumatic sockets is done in a way to provide coverage of full production area, which is supposed to be clean, with the hose length of the cleaning accessory. All lines of vacuum pipelines are directed to filter-separator, which captures and unloads collected material. Suction in dust collecting systems is provided by the Roots pump, offering necessary airflow and negative pressure for material transportation.

Filter-separator

Working principle

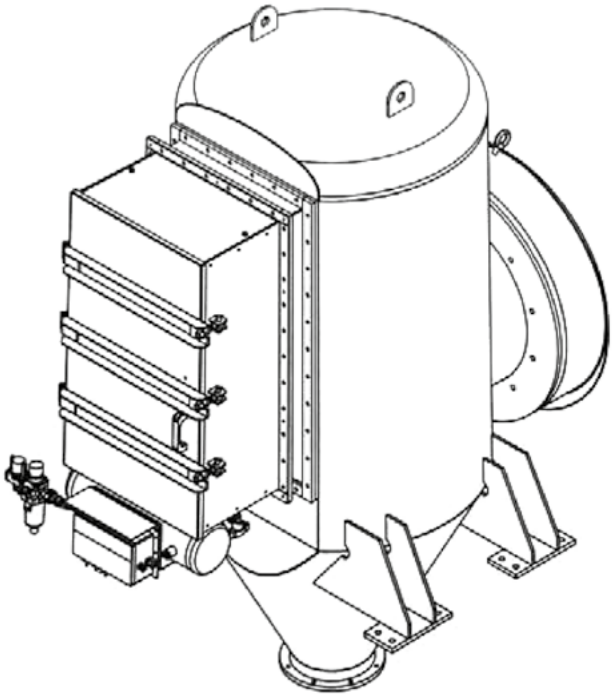


Filter-separator is being installed on the support frame in the place, determined by the project documentation. Filter-separator is a pocket filter with flat filtration elements.

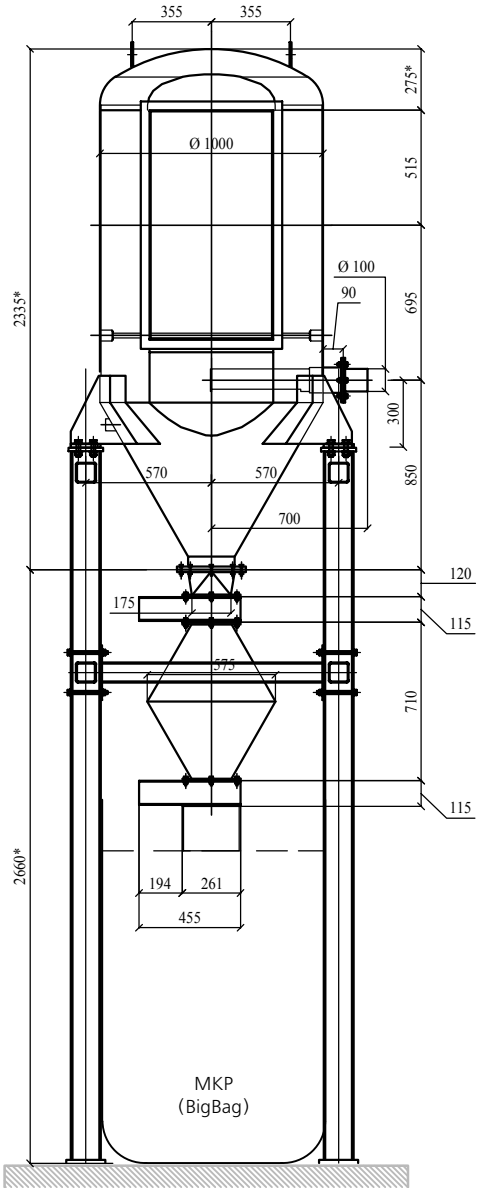
Regeneration of filtration elements is done on-line during working process, consequently in automatic mode (and also after switching the system off) by pulse purging by compressed air at 4-7 bar pressure. Activation of regeneration process is done on the basis of the pressure drop value betwee dirty and clean chambers of the filter. Number and length of pulses is being set up on the control panel.

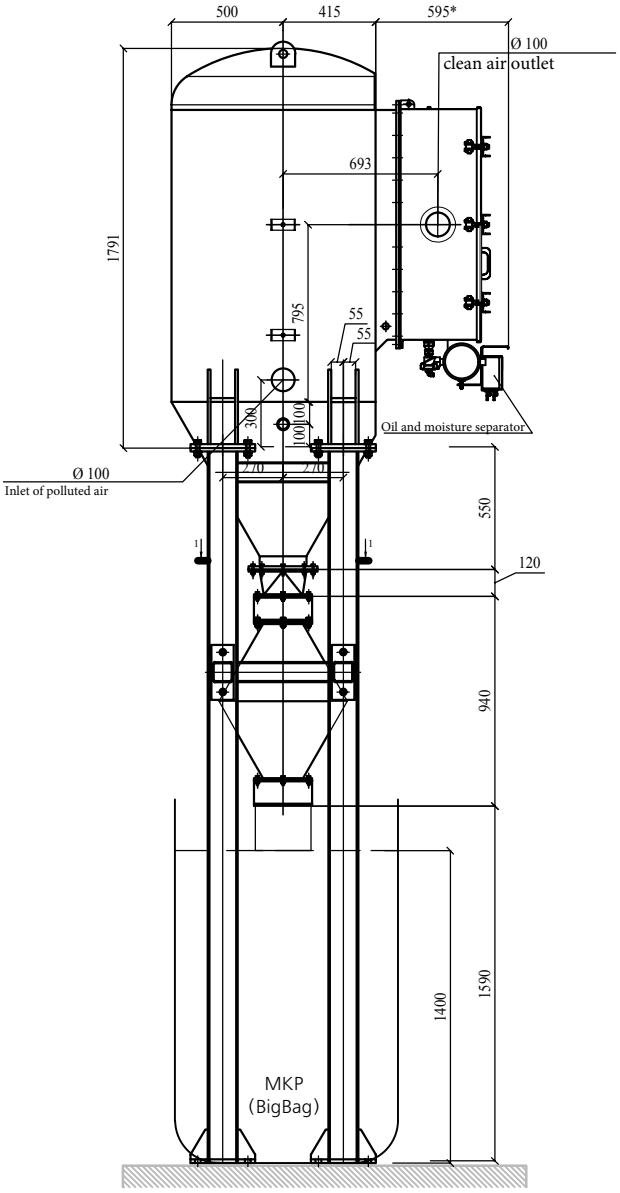
Cleaning efficiency of the dust capturing unit is 99.95%. Unloading of material, collected and captured in filtration module, is done continuously with lock chamber feeder or double cutting damper.

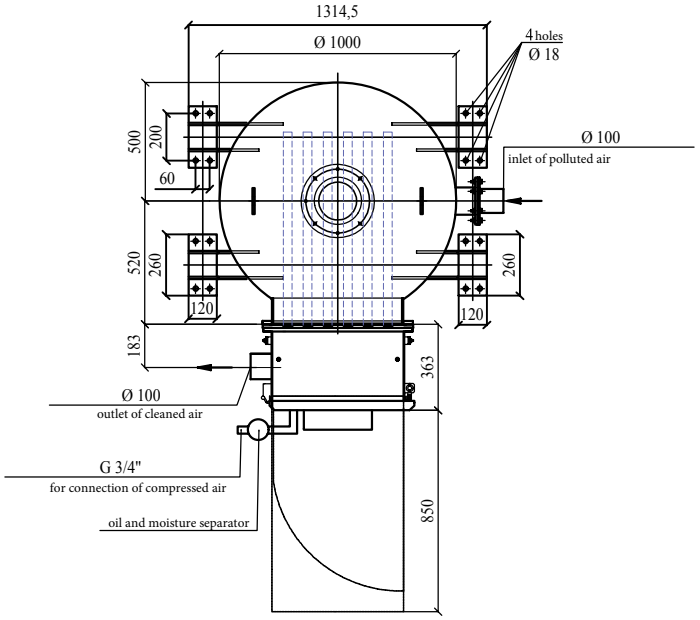
Lock chamber feeder and double cutting damper provide portional unloading of collected dust, without additional suction of air or stoping of the system.



Basic technical drawing of pocket filter SFV-104



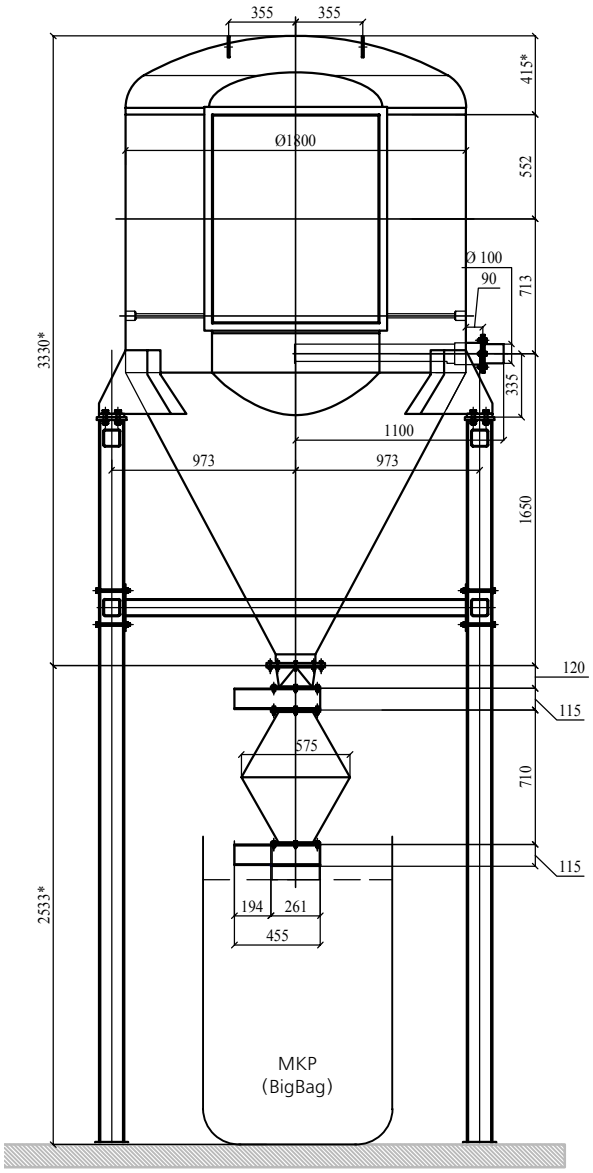


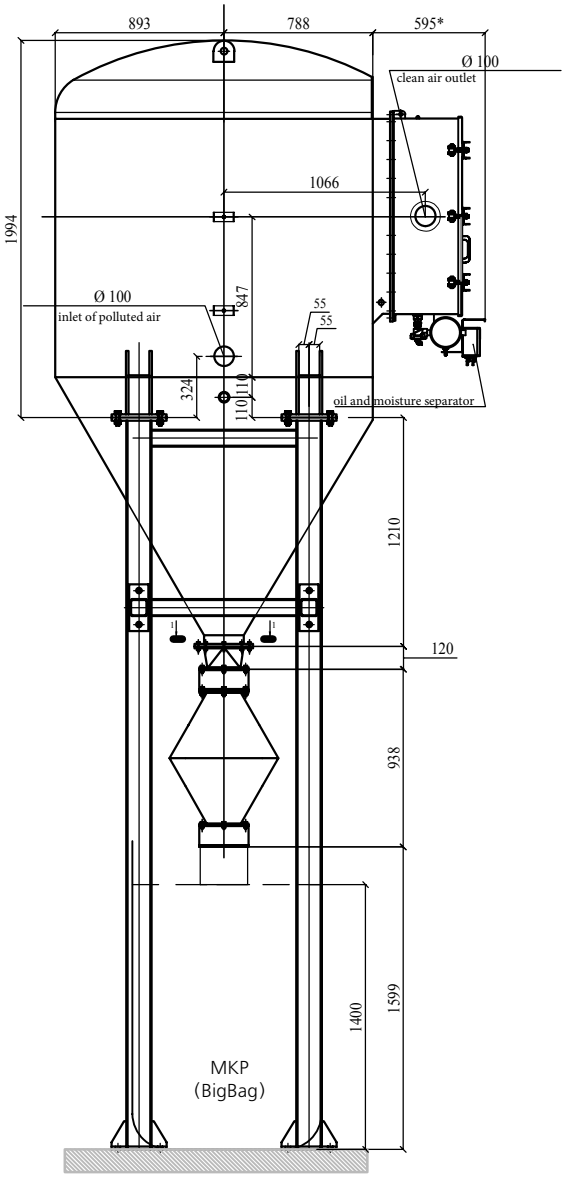


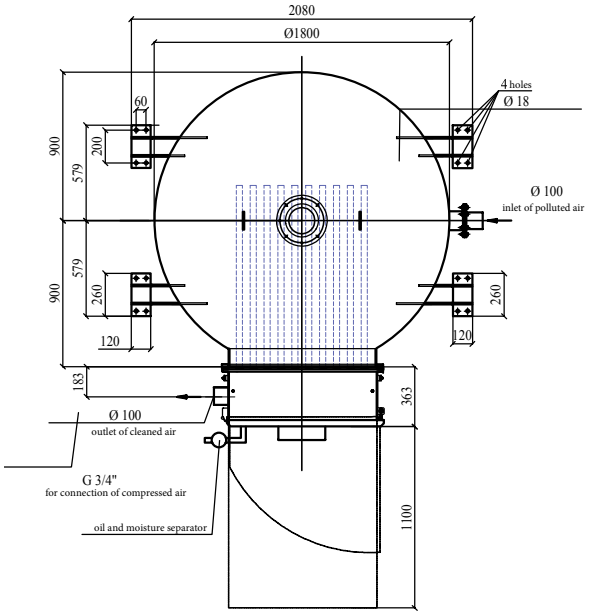
Parameters of SFV-104 filter

Capacity	up to 1200cmh
Filter reinforcement	-0.5 bar
Control box	1 pcs
Box with integrated magnetic valves	1 pcs
Residual dust concentration	less than 10mg/m^3
Standard operating temperature	from -20 °C to +80 °C
Optional operating temperature	from -40 °C to +80 °C
Temperature of inlet airflow	up to +150 °C
Filtration elements	10 sleeves
Material of filtration elements	non woven polyester
Filtration surface area	10 m^2
Power voltage	230 V, 50 Hz
Double cut damper/lock chamber feeder ZS200	1 pcs
Oil and moisture separator	1 pcs
Consumption of compressed air	7 m^3/h
Pockets removing	to the side
Maximum operating weight	1300 kg

Basic technical drawing of pocket filter SFV-204

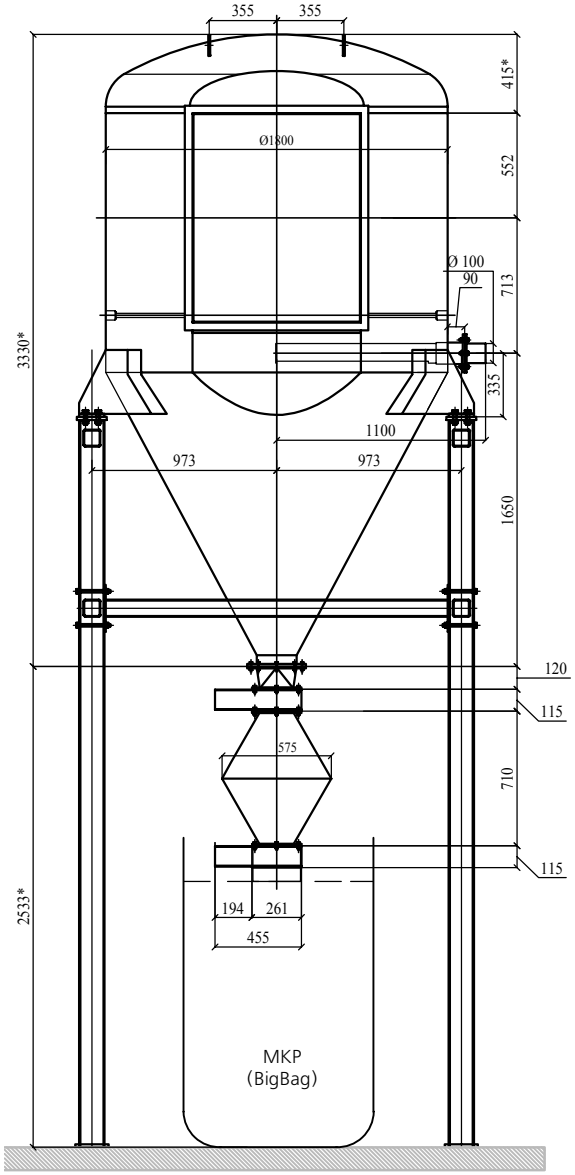


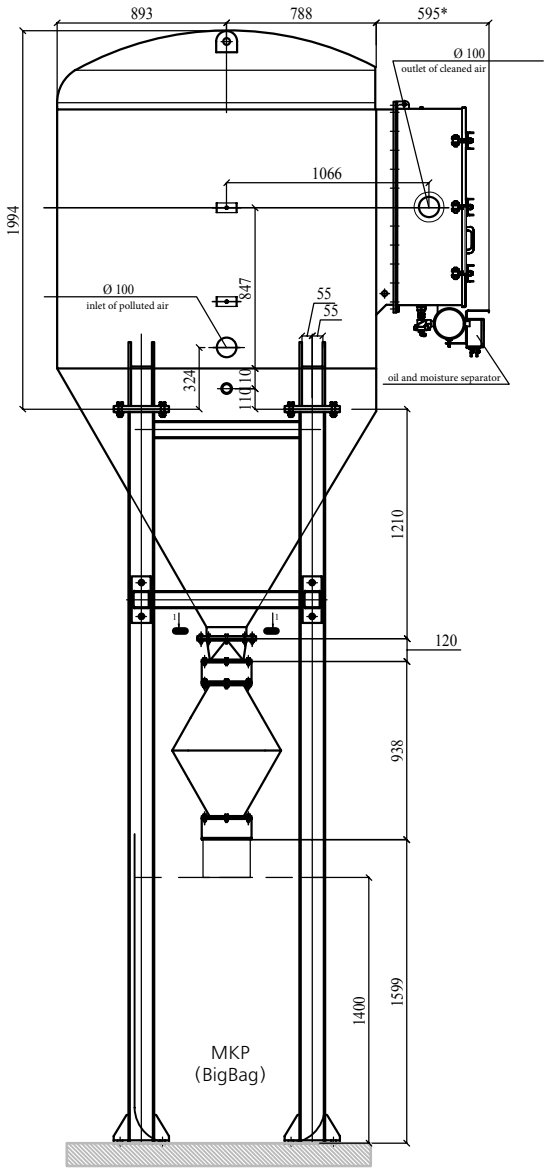


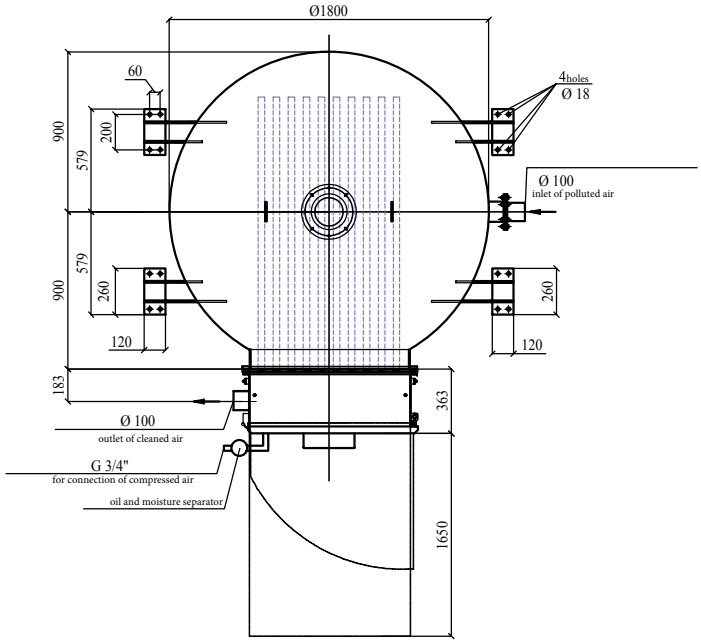


Parameters of SFV-204 filter	
Capacity	up to 2000 cmh
Filter reinforcement	-0.5 bar
Control box	1 pcs
Box with integrated magnetic valves	1 pcs
Residual dust concentration	less than 10mg/m^3
Standard operating temperature	from -20 °C to +80 °C
Optional operating temperature	from -40 °C to +80 °C
Temperature of inlet airflow	up to +150 °C
Filtration elements	20 sleeves
Material of filtration elements	non woven polyester
Filtration surface area	20 m^2
Power voltage	230 V, 50 Hz
Double cut damper/lock chamber feeder ZS200	1 pcs
Oil and moisture separator	1 pcs
Consumption of compressed air	7 m^3/h
Pockets removing	to the side
Maximum operating weight	1500 kg

Basic technical drawing of pocket filter SFV-304







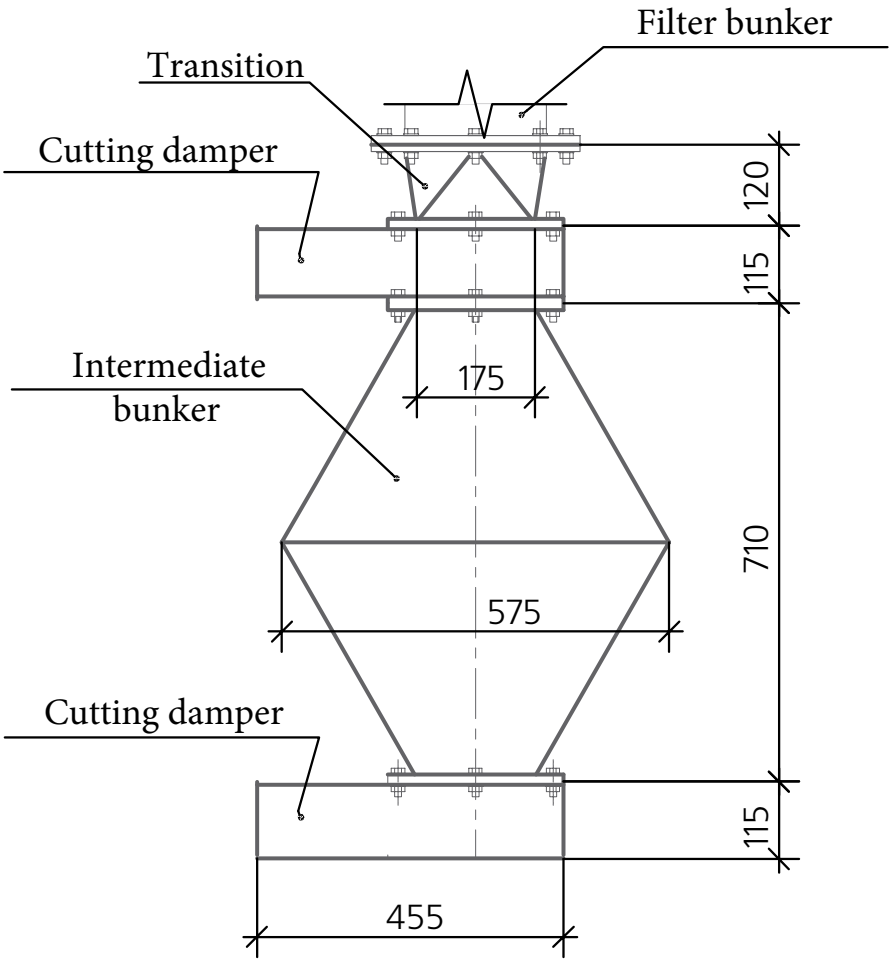
Parameters of SFV-304 filter

Capacity	up to 3000 cmh
Filter reinforcement	-0.5 bar
Control box	1 pcs
Box with integrated magnetic valves	1 pcs
Residual dust concentration	less than 10 mg/m^3
Standard operating temperature	from -20 °C to +80 °C
Optional operating temperature	from -40 °C to +80 °C
Temperature of inlet airflow	up to +150 °C
Filtration elements	20 sleeves
Material of filtration elements	non woven polyester
Filtration surface area	30 m^2
Power voltage	230 V, 50 Hz
Double cut damper/lock chamber feeder ZS200	1 pcs
Oil and moisture separator	1 pcs
Consumption of compressed air	7 m^3/h
Pockets removing	to the side
Maximum operating weight	1600 kg

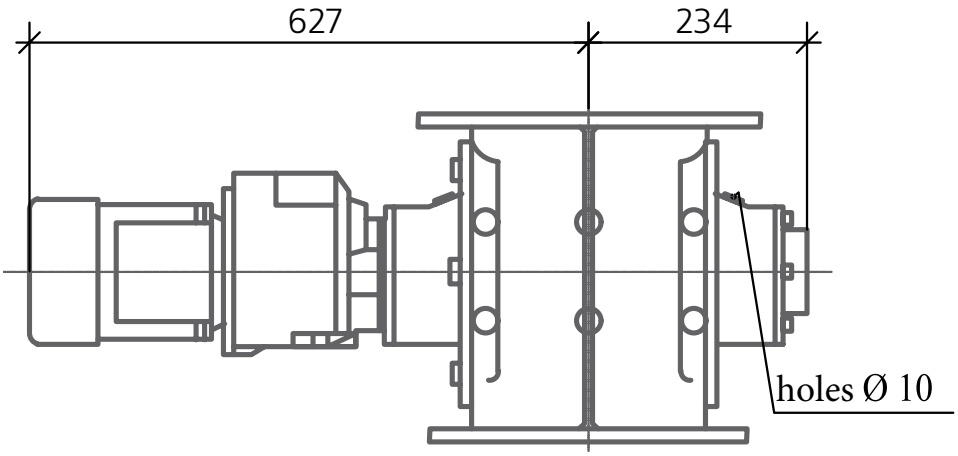
Unloading devices

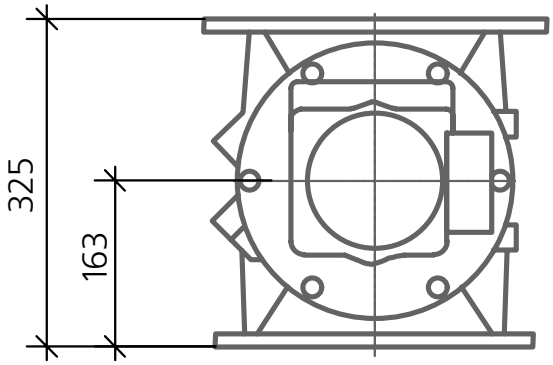
General technical drawing

Double cut damper



Lock chamber feeder





Roots vacuum pump

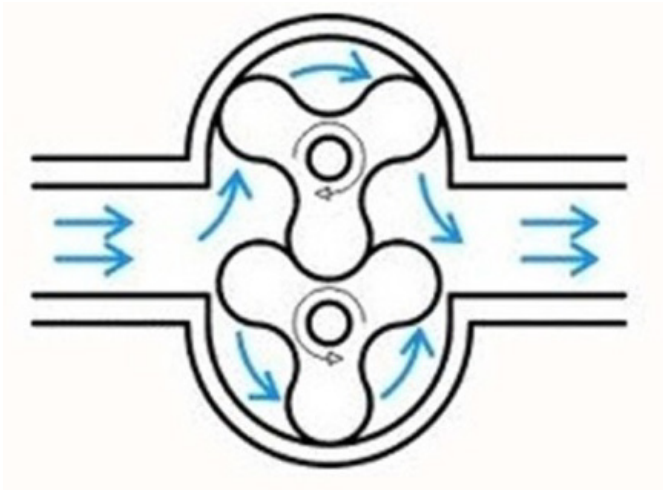
Working principle

Underpressure for suction in the vacuum dust cleaning systems is created by Roots vacuum pump.

High underpressure created by it allows providing necessary airflow in flexible hoses and pipelines.

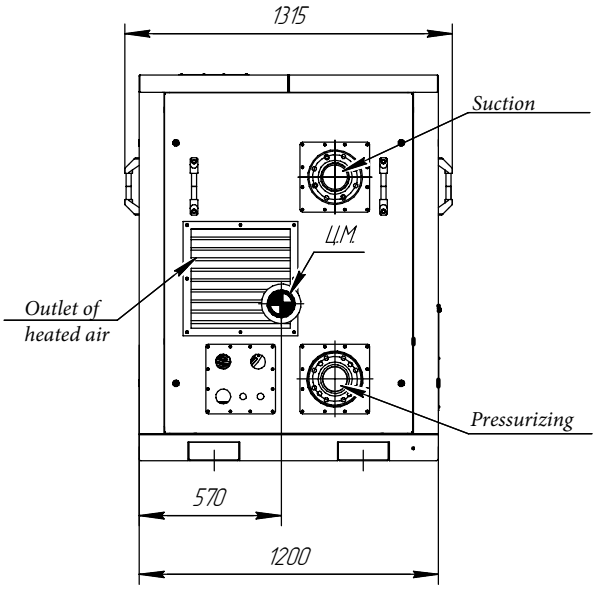
Working principle of Roots compressor is in rotation of two identical rotors with flaps in compressing surface, working as a rotating piston.

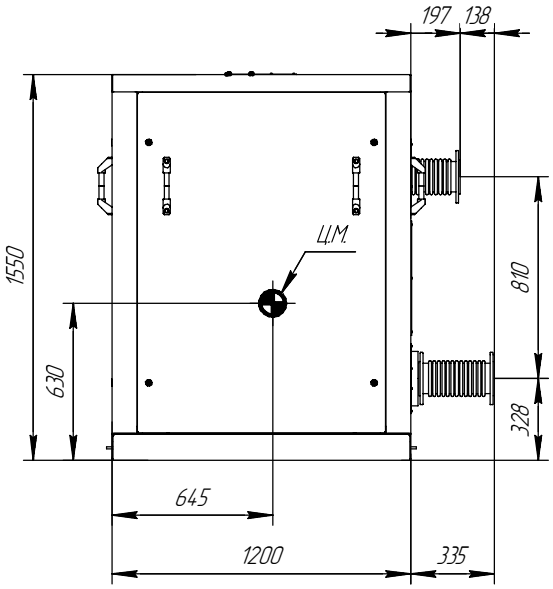
When rotating, they capture incoming flow of gas from suction inlet, gradually isolate it in openings between flaps and body, compress and move it towards pressurizing pipe, pushing through outlet opening.

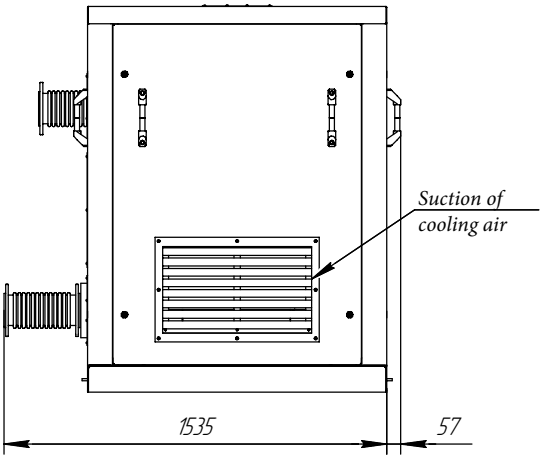


Basic technical drawing of vacuum pump VPR-185, VPR-300

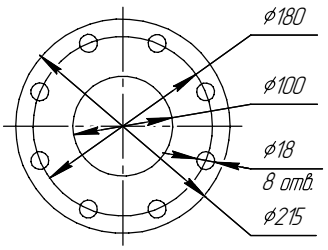
In noise reduction casing



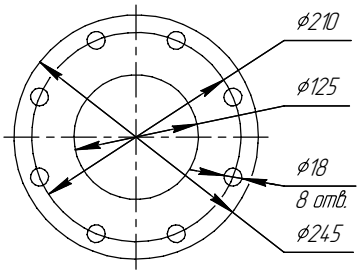




For pump HB-185
2 parts



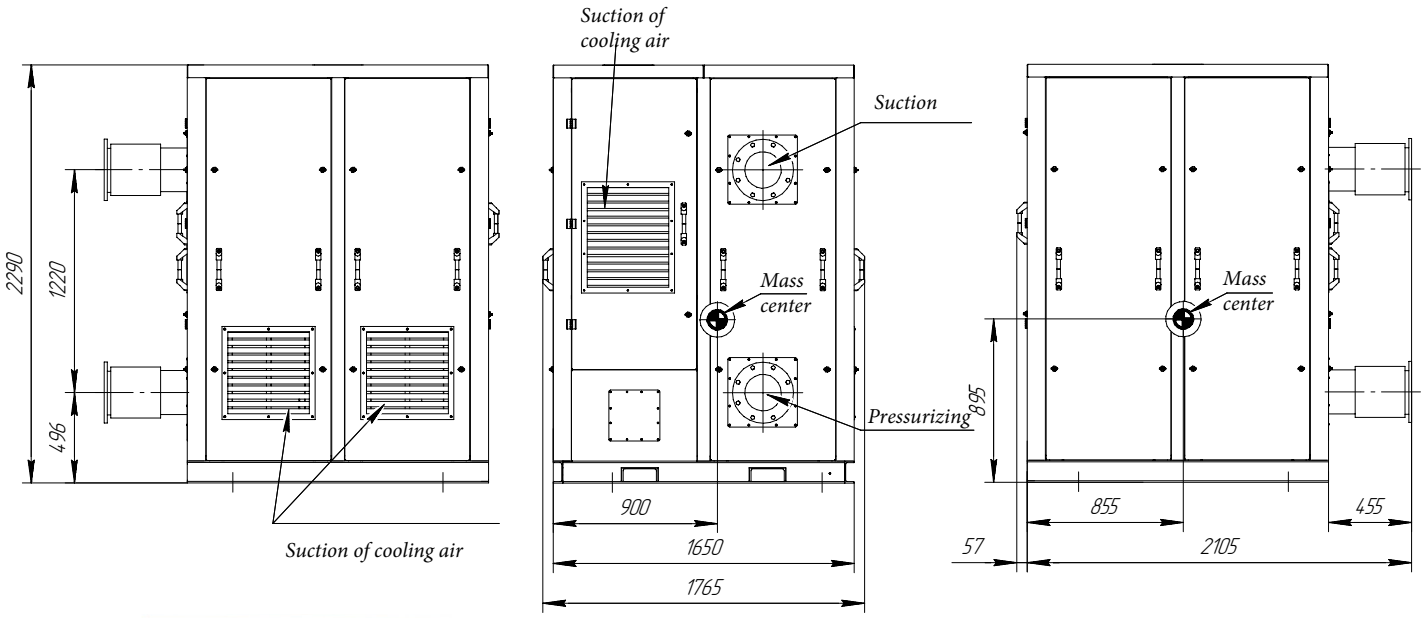
For pump HB-300
2 parts

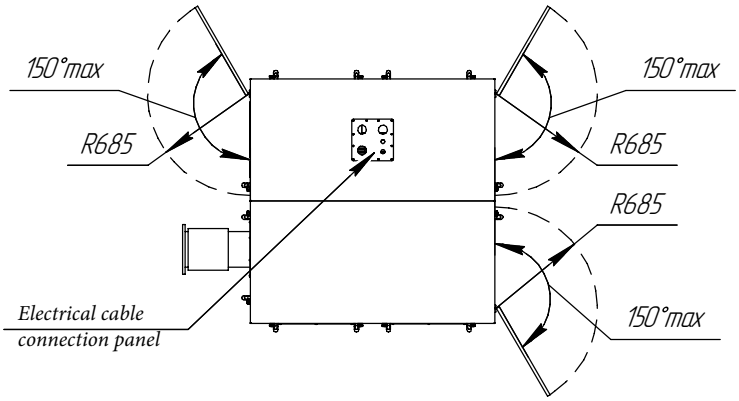


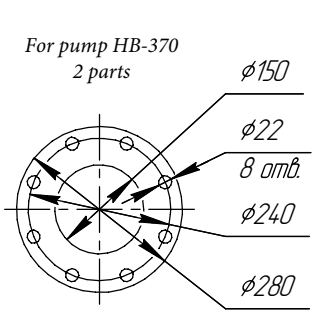
Parameters	VPR-185	VPR-300
Capacity	875 m^3/h	1300 m^3/h
Negative pressure	-50 kPa	-50 kPa
Power	18,5 kW	30,0 kW
Suction flange diameter	100 mm	125 mm
Weight	730 kg	800 kg

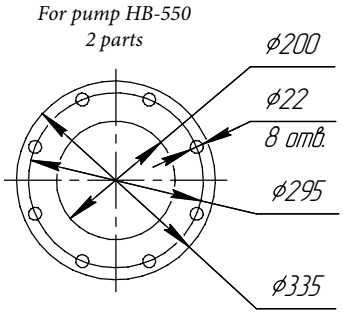
Basic technical drawing of vacuum pump VPRE-370, VPR-550

In noise reduction casing





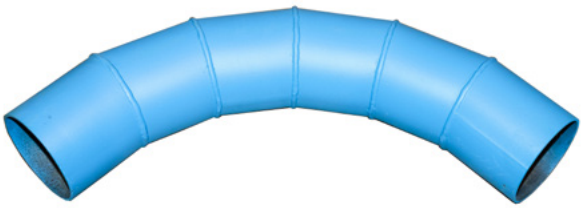


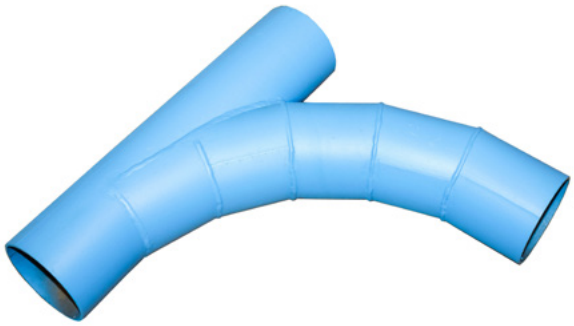


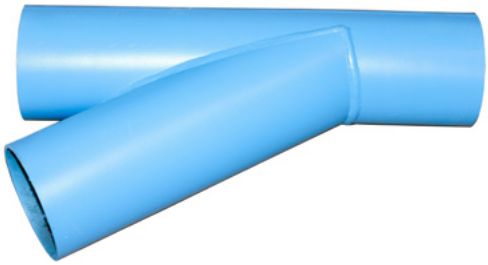
Parameters	VPR-370	VPR-550
Capacity	1960 м³/час	2930 м³/час
Negative pressure	-50 кПа	-50 кПа
Power	37,0 кВт	55,0 кВт
Suction flange diameter	150 мм	200 мм
Weight	1650 кг	1800 кг

Vacuum pipe lines

A network of vacuum pipe lines is being installed and fixed to existing facilities of industrial premises. Connection pieces (bends, t-joints etc) are used with a bend radius, equal to three diameters of the pipe line. Vacuume pipe lines are installed considering the features of industrial facility. Fast clamping design allows to dismantle separate parts of the ducting within short time period for any maintenance, repair works or cleaning of emergency blockings. Connection sockets are located for maximum convenience in connection of cleaning hoses.

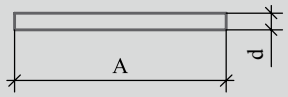
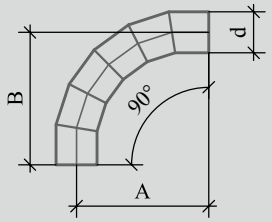
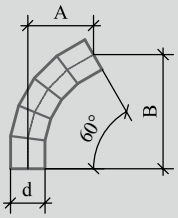
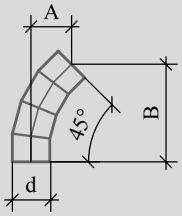
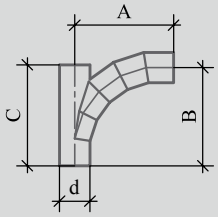
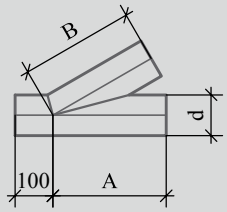
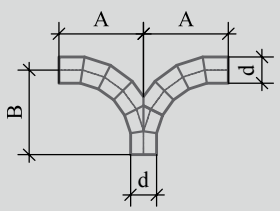






Pipes and connection pieces

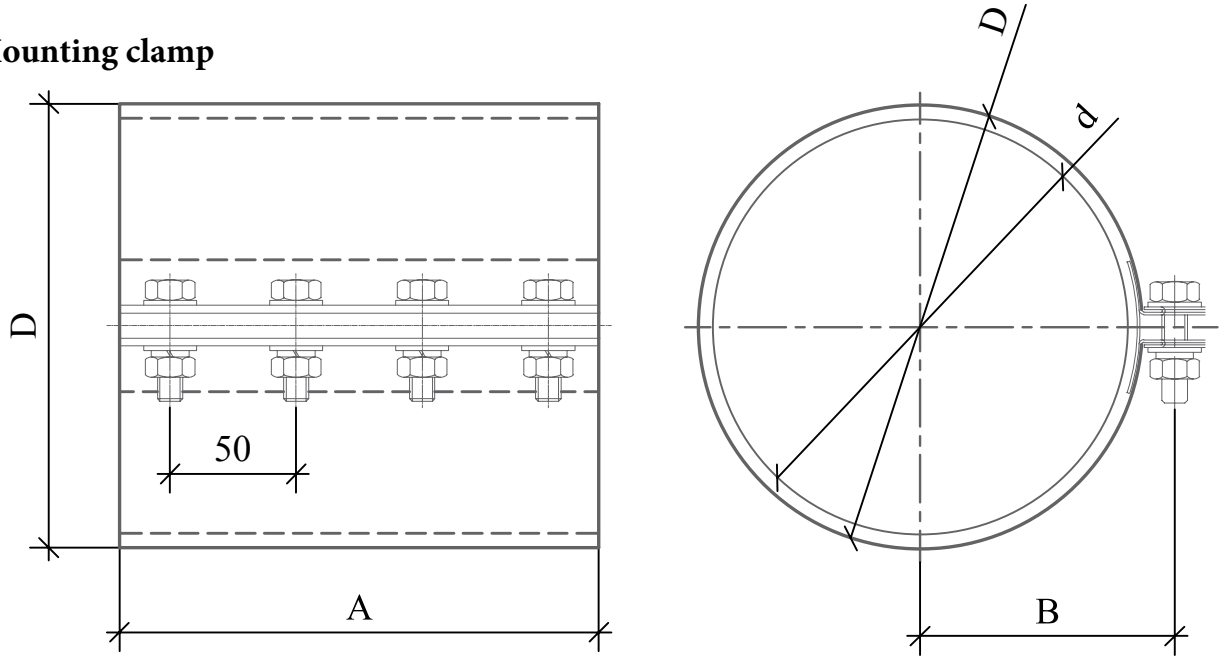
Manufactured of regular or stainless steel

Name	Sketch	Sizes, mm				Wall thickness, mm	Weight, kg
		d	A	B	C		
Ducting		76	2800			2	10,3
		102	2800			2	13,8
		133	2800			3	26,8
		159	2800			4	42,8
Side bend O1 a = 90°		76	250	250		2	1,68
		102	350	350		2	2,96
		133	460	460		3	7,66
		159	550	550		4	14,6
Side bend O3 a = 60°		76	144	250		2	1,26
		102	194	335		2	2,2
		133	250	440		3	5,7
		159	300	520		4	10,9
Side bend O4 a = 45°		76	80	190		2	0,84
		102	120	255		2	1,48
		133	140	330		3	3,83
		159	150	400		4	7,30
T-piece T1		76	260	260	270	2	1,8
		102	350	350	360	2	3,2
		133	460	460	480	3	7,9
		159	550	550	625	4	15,2
T-piece T2		76	230	230		2	1,7
		102	300	300		2	2,9
		133	400	400		3	7,7
		159	550	550		4	16,8
T-piece T3		76	260	260		2	3,0
		102	350	350		2	5,5
		133	460	460		3	14,0
		159	550	550		4	27,5

System components

Connection fixing clamps

Mounting clamp

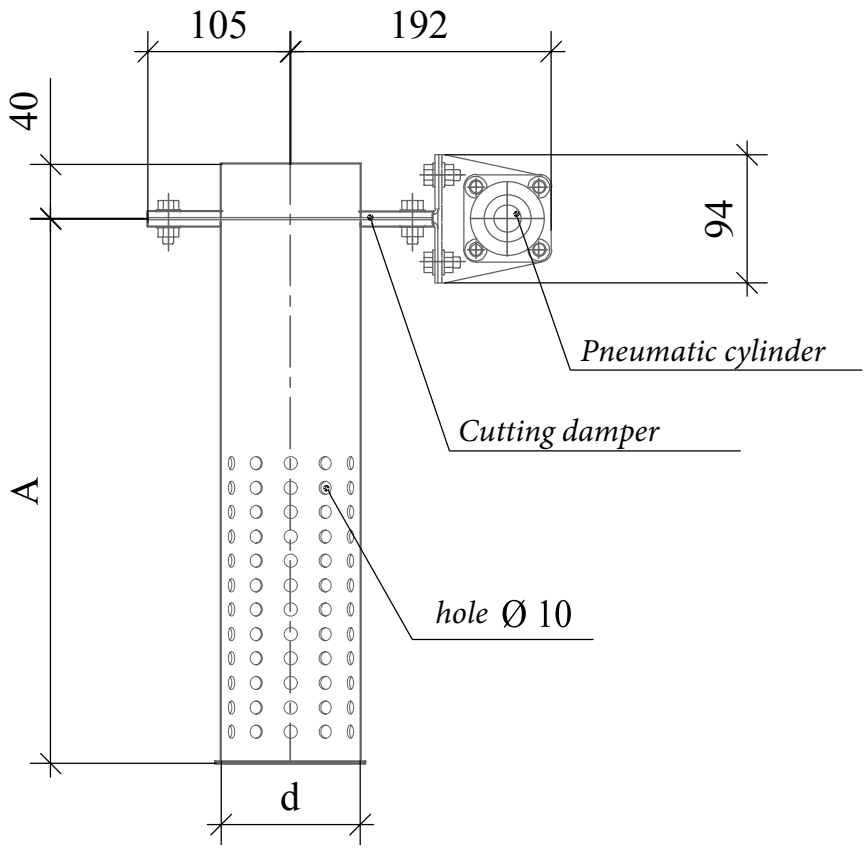


Clamp parameters

Sizes, mm				Weight kg/m
d	D	A	B	
50	60	70	45	0,4
70	80	100	55	0,5
100	110	140	68	0,75
159	176	190	101	1,4

System components

Purging valve



Parameters of purging valve

Sizes, mm		Weight kg/m
d	A	
70	420	8
100	600	11

MAIN CONTROL PANEL FOR STATIONARY VACUUM SYSTEM CONTROL AND LOCAL CONTROL BOXES

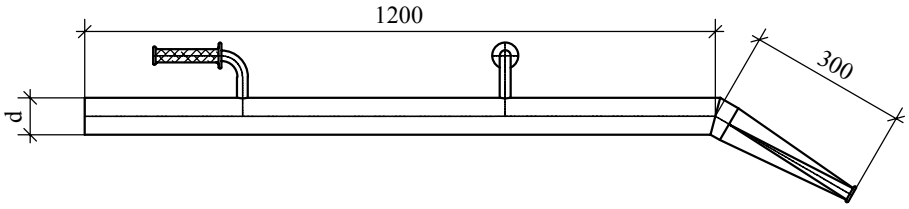
Controlling of the system is done through main control panel, which activates logical controller, starting and commutation equipment. When adjusting of rpms of the motor is required during working process of the system, control panel is being equipped with frequency invertor.

Technical characteristics and parameters of products, listed in the present catalogue, might be changed withour prior notice.

Cleaning accessories

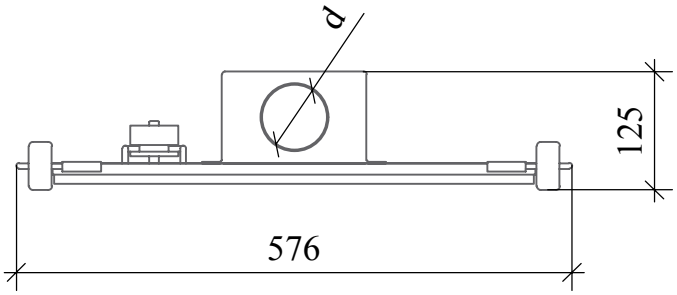
Slotted nozle for cleaning of large amounts of material (emergency spillages, piles...)

Intended for picking up the material from the pile. Available in several sized starting from 50mm to 125mm

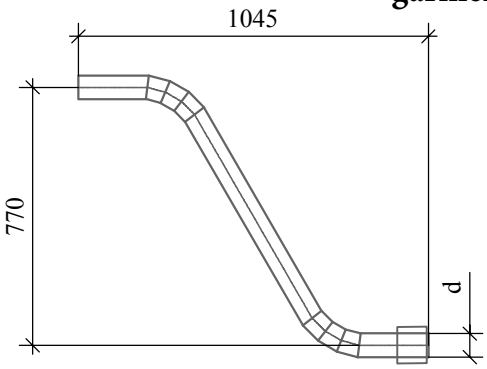


Floor nozzle for cleaning of thin and thick layers of dust from the floor and equipment

Intended for cleaning the dust from the floor and equipment.
Manufactured in various diameters, starting from 32 to 85mm, for various capacity.



Holder for floor nozzle



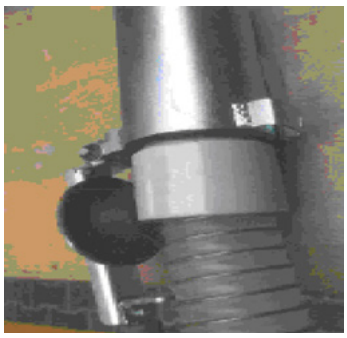
Nozzle for cleaning of outer garments and small surfaces

Name	Diameter d, mm	Material
Slotted nozzle for cleaning of large amounts of material	70	aluminium
		stainless steel
	100	aluminium
		stainless steel
Nozzle for cleaning of thin and thick layers of dust from the floor and equipment	50	aluminium
		stainless steel
	70	aluminium
		stainless steel
Nozzle for cleaning of outer garments and small surfaces	40	
Holder for floor nozzle	50	aluminium
		stainless steel
	70	aluminium
		stainless steel

Fast clamping connections

Pneumatic socket

Connection of hose to pneumatic socket



Abrasive resistant polyurethane hoses Master-PUR-H, Master-PUR L

Hoses parameters

Name	Inner diameter, mm	Excessive pressure, bar	Vacuum, mm Hg	Bend radius, mm	Outer diameter, mm	Weight, kg/m	Article number	Standard length, m
Master-PUR L	51	1,68	5250	58	58	0,45	111-051-401	10 / 15
Master-PUR H		2,9	8000	87	61	0,71	111-051-401	10 / 15
Master-PUR L	70	1,12	3750	78	78	0,68	111-070-401	10 / 15
Master-PUR H		2,25	6750	117	80	0,97	111-070-401	10 / 15
Master-PUR L	102	0,84	2250	110	110	0,95	111-102-401	10 / 15
Master-PUR H		1,5	4500	165	112	1,48	111-100-401	10 / 15

Threaded polyurethane muff

Muff parameters

Inner diameter, mm	Connection size dA, mm	D, mm	Length, mm	Weight, kg/pcs	Article type L	Article type H
50	51,2	59	90	0,11/0,1	540-050-107	541-050-107
70,5	70	79	100	0,19/0,17	L/H	
102,1	100	112	120	0,36/0,30	L/H	

Questionnairy

For development of centralized cleaning system

Company name	
Postal address	
Contact person (name, position)	
Phone number, e-mail	
Date of filling	
Name of the object for cleaning	

General task description choice

☐

1. Dust, settled down from the air, forms thin layer on the floor and construction surfaces.
Accessory - roller brush nozle

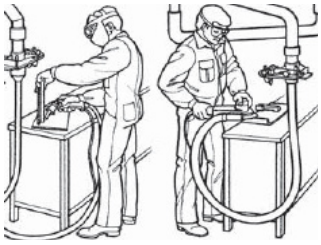
- Layer thickness formed betwee cleaning
  ☐ up to 0.25mm min ☐ up to 0.5mm ☐ up to 1.0mm
  ☐ up to 2.0mm ☐ up to 4.0mm ☐ up to 8.0mm max
- Total area for cleaning _____m^2.
- Number of cleaning operators working simultaneously _____people.
- Required duration of cleaning _____h.

☐

2. Dust of spillage of bulk material laying in piles at the source of formation.
Accessory - slotted nozzle.

- Required capacity in material per operator:
  ☐ up to 0.1cmh ☐ up to 0.2cmh ☐ up to 0.4cmh
  ☐ up to 0.8cmh ☐ up to 1.6cmh ☐ up to 3.2cmh
- Number of cleaning operators working simultaneously _____people.
- Required duration of cleaning _____ h.

3. Material is being collected from under the suction casing at the source of formation (welding torch with suction/abrasive dust work place).



☐

- Airflow, determined by the manufacturer of local extraction device (connection diameter):
  ☐ 100-150cmh (Ø 32mm) ☐ 200-250cmh (Ø 38mm)
  ☐ 300-350cmh (Ø 50mm) ☐ 500-600cmh (Ø 70mm)
- Number of suction points/operators connected to the sistem simultaneously _____ people.

Questionnairy

Description of the environment

Temperature and humidity of the air in the place of cleaning °C, %. Explosion and fire hazardness category of the premises.	
Surrounding air	☐ dry ☐ humid ☐ oily ☐ dusty
Temperature and humidity of the air in the place of equipment installation °C, %. Explosion and fire hazardness category of the premises.	
Required degree of protection for electrical equipment	IP_____/EEx_____

Description and parameters of collected material

Name of the material	
Bulk density:	☐ light p<1.0 t/m³ ☐ average 1.0<<2.0 t/m³ ☐ heavy 2.0<p<5.0 t/m³ ☐ very heavy>5.0 t/m³
Dispersion:	☐ fine <1.0mm ☐ medium 1-10 mm ☐ coarse 10 -30 mm ☐ bulky 30-50 mm
Characteristics of collected material:	☐ dry ☐ moist ☐ abrasive ☐ oily ☐ liquid ☐ aicid ☐ toxic ☐ greasy ☐ sticky ☐ conductive ☐ dielectric
Fluidity of the material:	☐ good ☐ poor _____-liquidity angle
Temperature of the material:	☐ cold <0°C ☐ hot 50-100°C ☐ normal 0-50°C ☐ very hot > 100°C
Explosiveness:	☐ explosive ☐ non explosive Kst max = _____
Required type of equipment:	☐ acid proof ☐ general industrial ☐ antistatic ☐ explosion protected

Disposal of collected dust and processed air

Collecting method for picked up material	☐ BigBag ☐ container ☐ 200l barrel ☐ collecting bunker for unloading into trucks or wagons
Recirculation into the industrial process	☐ continuously, into the existing bunker/silo ☐ through recepient bunker onto the conveyor ☐ pneumatic transportation to stand alone silo
Output of cleaned air	☐ into the workshop ☐ into the atmosphere Requred residual concentration _____ mg/m³

Questionnairy

Delivery scope

Energy carriers, supplied by the customer	☐ Dry compressed air with due point below -20 °C ☐ Electrical supply 380V. Power limitations _____kW ☐ Include compressors into the delivery scope
Delivery set must include	☐ Vacuum pump, filter-separator ☐ System control panel ☐ Ducting system including pipes, bends, connection pieces ☐ Cleaning accessories and hoses ☐ Set of documentation: user manuals, installation instructions) ☐ Project documentation ☐ Installation supervision ☐ Start-up works ☐ Staff training

Questionnairy should be added with construction plans of premises, which has to be cleaned, showing the areas for cleaning, points of spillatege, dust formation or work places, equipped with local extraction ventilation. Drawings should state the proposed place for installation of the equipment and point of returning of collected dust into the technological process.

Additional information:

Notes

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