TECHNICAL CONDITIONS

CIPRES FILTR BRNO s. r. o.	**CUMA range filters**	Registation number: TP-5-001-
		Date of issue: 01.01.2004

1.GENERALLY

CUMA range filters are custom designed stationary units with mechanical or semi-automatic regeneration of filtration media especially designed for suction of wood-working machinery. Due to simple design they are suitable mainly for medium size woodworking shops and for machines not fully utilized machinery from time point of view.

Design system allowing determining many groupment variations and sizes of such filters.

2. APPLICATIONS

CUMA filters are applied for suction of dust particles for sources of dust especially in wood-working sector, metalworking sector and plastic industry.

Filtration tubes are produced from non-woven textiles PES 501. PES 501 resists against temperatures up to 150°C of dry dust air mass and is registered in class of filtration EU5 (according EUROVENT) and F5 (according to ČSN EN 779).

Guaranteed exit concentration is 10 mg/m³ of suctioned air mass. Practical results proved that real concentration is from 1 – 5 mg/m³.

3.FUNCTION OF FILTER

CUMA D-ST – variation with mechanical regeneration

Air mass saturated with dust is driven by radial transport fan (typically part of delivery) to separator, where is divided into vertical tubes, through which clean air is passed into space. On internal diameter of filtration tubes is settled dust, that is falling in to the containers /bags collecting dust or is moved away by screw conveyer.

Filter has to be switched on before work will start on any machine and switch off when all work is finished or when is a need for regeneration of filtration media.

To provide regeneration of filtration media work on all machines has to be stopped and filter has to be switched off and brought to (wait for) quiescent state.Then by clapping on

tubes by hand or edgeless bar few times on few places dust will fall down. Then equipment can be switched on again.

Time of regeneration is determined subjectively according to experience or by significantly decreased suction power. Quit often CUMA filter is connected to not fully utilized machines From time point of view and then regeneration is provided before work start.

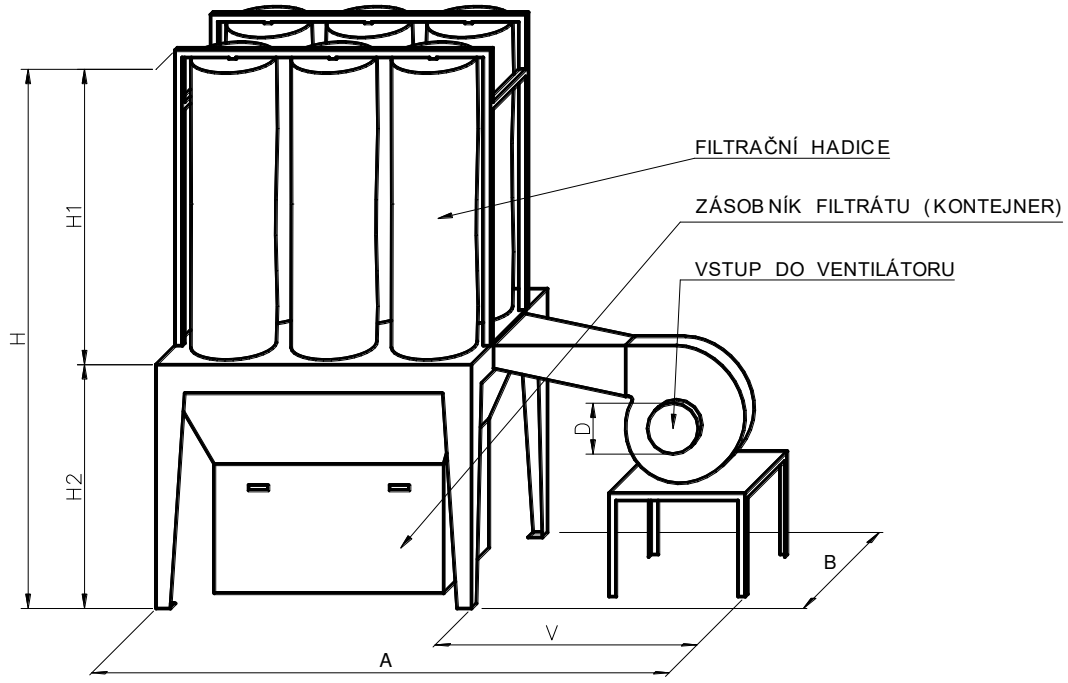
To take away full container filter has to be switched off and after emptying or exchange of container has to be connected correctly back to filter before filter can be switched on.

4. MARKING OF CUMA RANGE

CIPRES FILTR BRNO s. r. o. producing range:

CUMA D-ST

Are custom designed stationary filtration units with mechanical regeneration of filtration media. In sheet metal paneling execution can be located out side environment, fitted with explosion panels, fire hoses etc. See point 6-Design options.



FILTRAČNÍ HADICE = FILTRATION TUBE
ZÁSOBNÍK FILTRATU (KONTEJNER)=STORAGE OF FILTRATE(CONTAINER)
VSTUP VENTILATORU=FAN INLET

CUMA D-ST

Dimension and technical data basic variants

Type of filter	øD mm	A mm	B mm	H1 mm	H mm	Q m^3/min	ΔP Pa	P kW
CUMA D-ST 2/2/60/20 F10T	280	3100	1400	2000	3700	85	2500	7,5
CUMA D-ST 2/2/60/25 F10T	280	3100	1400	2500	4200	85	2500	7,5
CUMA D-ST 2/2/60/30 F10T	280	3100	1400	3000	4700	85	2500	7,5
CUMA D-ST 2/3/60/20 F11T	355	3700	1400	2000	3700	125	2500	11,0
CUMA D-ST 2/3/60/25 F11T	355	3700	1400	2500	4200	125	2500	11,0
CUMA D-ST 2/3/60/30 F11T	355	3700	1400	3000	4700	125	2500	11,0
CUMA D-ST 2/4/60/20 F17T	355	4400	1600	2000	3700	140	3150	15,0
CUMA D-ST 2/4/60/25 F17T	355	4400	1600	2500	4200	140	3150	15,0
CUMA D-ST 2/4/60/30 F17T	355	4400	1600	3000	4700	140	3150	15,0
CUMA D-ST 2/5/60/20 F16T	400	5100	1600	2000	3700	180	3150	18,5
CUMA D-ST 2/5/60/25 F16T	400	5100	1600	2500	4200	180	3150	18,5
CUMA D-ST 2/5/60/30 F16T	400	5100	1600	3000	4700	180	3150	18,5

Dimensions of variant

length A [mm]
width B [mm]
height H [mm]
length of filtration tubes H1 [mm]
height of support H2 [mm]
number of row R
number of tube in row N
diameter of filtration tube S [mm]
fan + connection V [mm]

V = 1600 for fans up to do 15 kW
V = 1800 mm for fans over 15 kW

A = R x S + (R+1) x 100 [mm]

B = N x S + (N+1) x 100 [mm]

According to location of fan it is necessary to add to one of dimensions of A or B dimension V.

H = H1 + H2 [mm]

Dimension H2 respond to sum of optional equipment

Height of optional equipment

		[mm]
Fan connection		400-800
cones (according to steep gradient 60°)	split	Approx. 550
	solid	800-1000
Screw conveyer		415
Rotary feeder		455
Winter/summer operation		600
Container 250 l		750

Exact total dimension of designed equipment should be discussed with production

5. START UP OF MOTORS

For fans up to 3 kW – Y start with IP 65

For fans above 3 kW and options CUMA D – soft start

6. OPTIONS OF DESIGN

- Sheet metal paneling for location outside of building
- Total explosion proof system–explosion proof system PÚSM 450x800 from RSBP s.r.o., for more see TP-2-001-90, fire tube HH ¾“ from company RSBP s.r.o., for more see TP-4-001-52,
- Cones for filtrate fitted with screw conveyer and rotary feeder
- Dust can be supplied to filter by a few fans (suction branches/circuits),
- Different types of storage/collecting systems: container, Big-Bag, PVC bags, screw conveyer…
- Summer and winter operation
- Self supporting structure

7. OPERATION INSTRUCTIONS

7.1 Generally

Before putting filter to operation the operating personnel has to be aware of operating conditions, maintenance and prospects/sketches/drawings.

Filter is designed from:

- Filter range CUMA
- Radial medium pressure transport fan

Guarantee is offered for 12 months. Guarantee does not covering wear and tear of filtration media by damage or by filtration not suitable dust.

Service is available and recommended is long term service contract with our organization.

7.2 Before putting in operation it is necessary to check and undertake the following:

a) Correct direction of turning the impeller(follow arrow)
b) Sealing ability of each connection
c) During exchange of collection bag please check out leakage and correct connection
d) If fan is vibration for example material can be stick to impeller if that is the case then take off the cover and clean up impeller
e) Condition of filtration tube-pressure loss of filtration media(should not be depending on the type of dust and specification of that particular filter-between 600-1800 Pa-value is determined by manometer or in case of need to arrange exchange(average is 1x 1-3 year)

7.3 After fulfilling points 8.2a – 8.2e it is possible to start operating the filter. After starting operation is necessary to check out the following:
-check out collection bag /container and arrange to emptying it or changing is accordingly
-arrange regeneration of filtration media according to work load.

7.4 In case the suction power is decreased at source of dust is necessary check out the following:
-pressured difference of filtration media see 8.2e
-check out flaps on suction and exit size of tubing
-check out the tubing if is not blocked for example by news paper, cloth etc
-check out exit tubing including filtration bags determined for returning of clean air back to working place.

7.5 Part of operation instructions is Operating procedure and maintenance of filter **CUMA D-ST** is combined from two separate parts:

1) From filter CUMA D-ST including self supporting structure, separator and collection bag/container
2) Radial medium pressure transport fan

Filter combined with fan is independent system connected by tubing to source of dust for example wood-working machinery. In case filter is outside location the sheet metal paneling and security system is according to PUSM 450x800.

Filter has two outside exits for take air mass out of the filter:

a) First exit
- with flap providing exit to out side –flap is controlled manually

b) Second exit
- is blocked and or is fitted with mechanical flap and being utilized for returning air to work shop in winter.
For this task is necessary to fulfill all conditions and requirements from safety and fire security point of view.

c) Other location of exit has to be approved by producer of filter or projector

Operation of filter:
Filter is put in operation switching on fan. Electric motor has to be connected according to appropriated standards specified in guide of application of radial fans.

If filter is supplied with sheet metal paneling it is necessary that one of the exits is always opened.

IT IS FORBIDEN manipulation (opening or closing) flaps when fan is running.

ATTENTION: in case both flaps are closed even for short period of time , filtration chamber will be pressurized and explosion proof membrane will be ruptured. In this case cost of exchange of membrane will paid by the customer.

Maintenance of filter:
Maintenance of filter consist in regeneration of filtration media in quiescent state.That means that fan has to be switched off and operating personnel will wait until impeller is stopped. Then by clapping on tubes by hand or edgeless bar few times on few places (around circumference) and dust will fall down=regeneration of filtration media. If filter is designed for outside application- sheet metal paneling is around tube bags the regeneration of filtration bags is provided by wires on both sides of filter by pulling-releasing wire.
Regeneration of filtration media can be done also by vibrator(s).

Cleaning of filtration media is recommended each two-four hours or longer according to need.
Maintenance guide is also provided for:
- fan
- vibrator

For safety system PÚSM 450x800 is provided also guide, which is part of technical conditions TP-2-001-90(page 10-12/12).