

Dust filter cartridge

Advantage of conical dust filter cartridges

1. Features

Star-pleated Filtration Group dust filter cartridges are used to separate very fine particles from air and gases in nearly all industrial branches. Cylindrical and conical cartridges are offered as standard. The conical geometry offers clear advantages in comparison to cylindrical designs. Conical Filtration Group cartridges improve the performance of a system with only minimal effort.

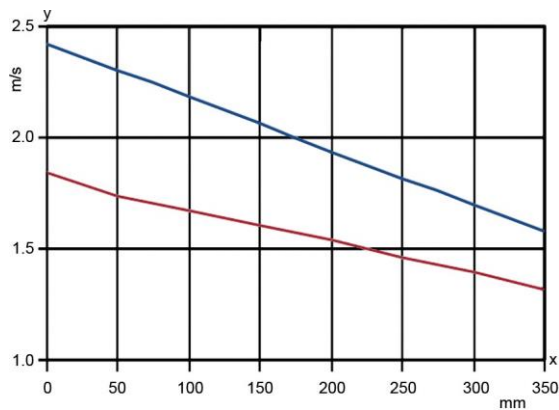
Characteristics

- 30% larger surface means better dust sedimentation
- Uniform cleaning all the way down to the bottom
- Higher mechanical strength facilitates a more compact system
- Lower filter surface load due to the reduced inflow velocity
- Improved cleaning action extends the cartridge life



2. Course of flow on dirt side

Upstream velocity in dirt side area $V = 1200 \text{ m}^3/\text{h}$, 8 cartridges, diameter of filter housing 530 mm



The conical design of the cartridge shows a high reduction of the upstream velocity in the area of the bottom end cap. Through it the element is much better to clean off, especially in use of light dust. The dust can sediment better.

Higher flow from approximately 30 % at compact filter housing is possible.

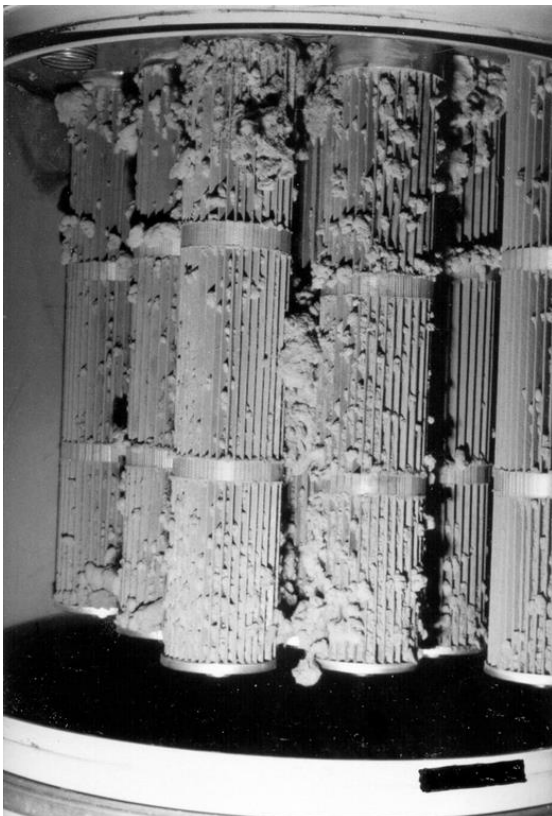
x = Distance to the bottom end cap in mm

y = Velocity in m/s

Cylindrical cartridge

Conical cartridge

3. Effects in practice – example suction of rare dust



Cylindrical cartridge after 1,170 working hours.
Upper area of cartridges is not cleaned well.



After changing to conical filter cartridges and 4,600 working hours..
Cartridges cleaned over the whole length.

4. Technical Data

For example sand blasting, $V = 1200 \text{ m}^3/\text{h}$, diameter of housing 530 mm

Cartridge diameter in mm	120	120	115
Cartridge design	conical	cylindrical	cylindrical
Connection	RD 72	RD 72	RD 60
Filter area per cartridge in m^2	1.6	1.6	1.3
Filter area complete in m^2	12.8	12.8	10.4
Filter surface load in m/min	1.56	1.56	1.92
Free area in %	82	59	62
Velocity between bottom end caps in m/s	1.84	2.56	2.42
Velocity on top end cap (RD connection) in m/s	7.15	7.15	14.75
Volume, clean side, cartridge in l	3.23	6.08	3.63

Subject to technical changes without prior notice.



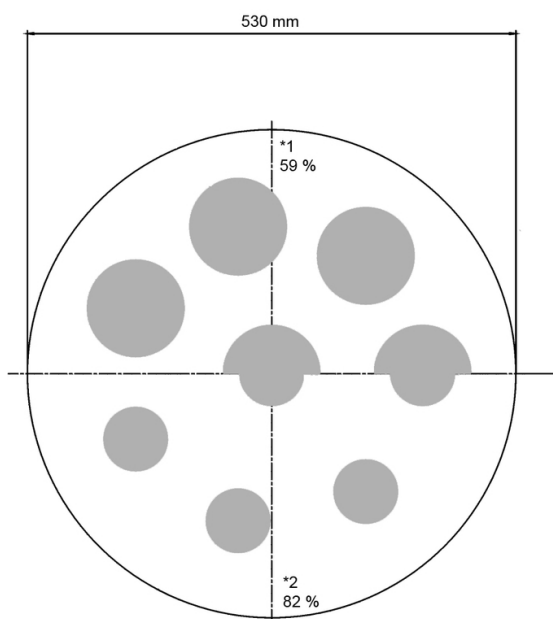
Out of these values the following advantages for the conical cartridges result:

High capacity
(approx. 19 % more filter surface in comparison to cylindrical cartridges with diameter 115 mm)

Better dust sedimentation
(smaller area of the bottom end caps)

More efficient cleaning
(lower volume in comparison to the cylindrical cartridge)

Less flow resistance
(an increased outlet area size at the upper end cap in comparison to cartridges with RD 60 connection)



*1 = Cylindrical cartridges with 59 % free area

*2 = Conical cartridges with 82 % free area

Filtration Group GmbH
Schleifbachweg 45
D-74613 Öhringen
Phone +49 7941 6466-0
Fax +49 7941 6466-429
industrial.sales@filtrationgroup.com
industrial.filtrationgroup.com
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