ScandSorb C Refillable Cartridge Carbon Filter System

CLEAN AIR

POWER GENERATION

CLEAN ROOM

INDUSTRIAL

The growing importance being placed upon protecting employees‘ and customers‘ health from the dangers of hazardous substances, makes it increasingly necessary to install appropriate filtering measures for the purification of incoming, outgoing and ambient air flows.

Filled with either a variety of differing quality activated carbons, Purotex or another media, the ScandSorb C refillable cartridges provide a great deal of flexibility. When ScandSorb C is combined with filters for the elimination of particles, ideal combinations for a wide variety of applications can be achieved.

KEY FACTS

- Elimination of odours and gas substances: Diminishes the causes of sick building syndrome
- Both physisorption and chemisorption varieties available: For gases which are difficult or impossible to eliminate with standard carbons
- Refillable cartridges: Lowers cost of ownership and reduces impact upon the environment
- Available in a variety of activated carbons and mediums. To suit the wide array of odours and gas substances
- Also available for the removal of radioactive and hazardous gases: Suited to even the most demanding of applications

ScandSorb C
Activated Carbon

PHYSISORPTION - CHEMISORPTION

In most cases, contact times of around 0.1–0.2 seconds within the filter cartridge efficiently eliminate hazardous substances from the airflow. (Please find the formula for ascertaining the contact time in the technical data)

Cartridges are primarily filled with moulded carbons made from peat, coconut shells or hard coal with a specific surface of around 1,000 m^2/g. Moulded carbons – carbon rods – have a relatively high resistance to abrasion and a low resistance to air, which is advantageous for supplementary mechanical filtering and for the overall efficiency of the installation.

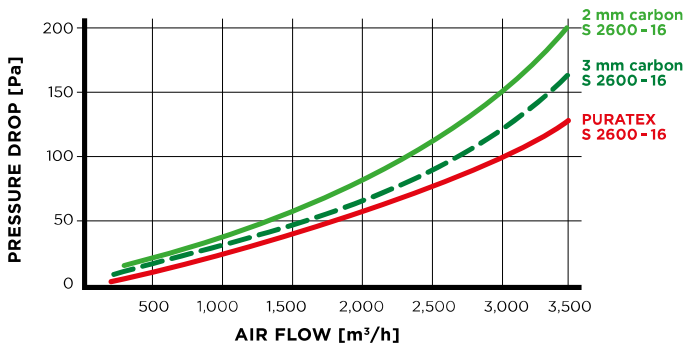
For the design of an activated carbon filter installation the following information regarding the air ow to be filtered is required:

- Hazardous gas or hazardous gas combinations
- Hazardous gas(es) concentration
- Temperature
- Relative humidity

As these parameters influence each other, no definitive values for the design of an optimum filter installation can be prescribed. The following details should, accordingly, be regarded only as rough guideline values for non-impregnated standard activated carbons:

- Airflow temperature up to a maximum of 70 °C
- Relative humidity of the airflow up to a maximum of 70 %
- Contact time of the hazardous gases in adsorption of 0.1 seconds minimum

PRESSURE DROP
for a filter unit with 16 cartridges



Taking these details into account, the air volume for a filter unit with 16 cartridges (Type 2600) should not exceed 2,000-3,000 m^3/h. Please find pressure drop information in the diagram below.

For gases which are difficult or impossible to eliminate with standard activated carbons, impregnated carbons or Puratex are used. The hazardous substances are eliminated on contact with impregnated carbons by chemical adsorption (chemisorption). ScandSorb C is available with several types of impregnation on activated carbon for removing specific gases such as acids (HCl, HF, NO_x, SO_2) and bases (NH_3, amines).

If several hazardous substances are to be eliminated simultaneously, then among other possibilities, a multi-step filter installation with various gas adsorption media can be provided.

For radioactive gases, special types of carbon are required. We recommend that our engineers be consulted prior to designing a filter installation.

ScandSorb C Puratex

CHEMISORPTION

A feature of Puratex is that due to its composition, a large number of hazardous chemical substances are transformed into gases free of hazardous substances by molecular modification. In this process the entire mass, not just the surface of the pellets, is utilised for the chemical reaction.

The optimum temperature range for the reaction processes lies between -29 °C and +49 °C. Relative humidity should be within the range of 15 %– 95 %. The contact time of the hazardous substances in the filter medium should be no less (where possible) than 0.2 seconds.

Where hazardous gases with a high molecular weight would normally be eliminated with activated carbons, in the case of lower molecular mass, Puratex provides the ideal solution.

Depending on the application, activated carbons and Puratex can be used in combination or, in the case of single-step filter installations, as a mixture. Gassorption and chemisorption need to be tested carefully in each case.

Puratex is a gas filtration substance in bead form and eliminates hazardous gaseous substances at the low-ppm level by chemical oxidation.

Puratex consists of activated alu-minium oxide (Al_2O_3) and potassium permanganate ($KMnO_4$) and:

- Is non-flammable
- Is non toxic
- Does not allow bacteria or fungi to develop
- Can be analysed quantitatively and qualitatively for residual potassium permanganate content and thus for its reactive capability

ScandSorb C
Technical Data

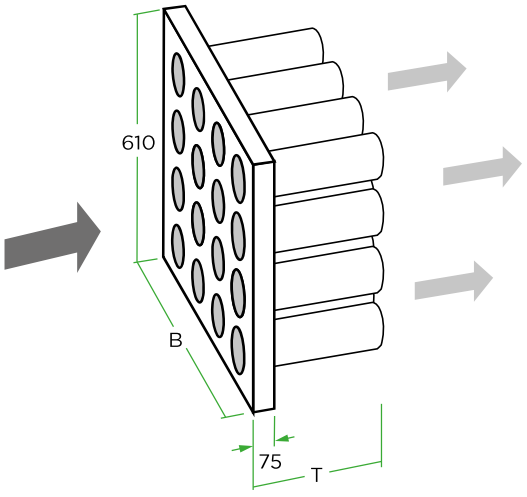
Cartridge type	2600	1000
Length (mm)	457	265
Wall depth (mm)	26	26
Carbon Load (l)	4,25	2,5

The air volumes given on the right are only guideline flows. They do not refer to hazardous substance adsorption in the purification of exhaust air. Please consult our office.

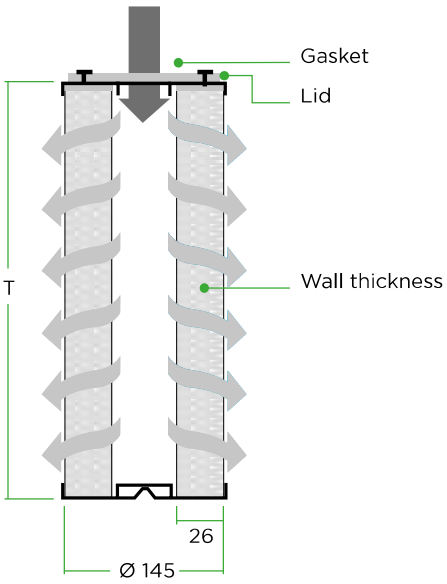
Cartridge installation frame

Type	S-66	S-56	S-36
Dimensions	610 x 610 x 75	508 x 610 x 75	305 x 610 x 75
Number of Cartridges	16	12	8
Carbon Volume (l)			
Type 2600	68	51	35
Carbon Volume (l)			
Type 1000	40	30	20
Air Flow (m^3/h)			
Type 2600	up to 3,400	up to 2,550	up to 1,700
Type 1000	up to 1,900	up to 1,420	up to 950

FRAME FORMAT



CARTRIDGE CONSTRUCTION



CONTACT TIME OF HAZARDOUS GASES WITH THE CARBON

The calculation is obtained from the carbon volume and the volume flow

$$tK[s] = \frac{\text{Carbon Volume } [m^3]}{\text{Volume Flow } [m^3/h]} \times 3{,}600$$