



## **Activated carbon filters and its applications**



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## Activated argon filters and its applications

**Activated carbon filters** are filters which contain activated charcoal as a functional separator. Such filters are used for the treatment and purification of gases. Purpose is the removal of interfering substances such as dust, heavy metals or all unwanted and sometimes toxic chemicals. During filtering and adsorption, the substances to be removed are adsorbed and accumulated in the carbon mass of the activated carbon.

### Advantages

- ❖ 99,9% deposition of pollutants
- ❖ a BIG-BAG® allows easy emptying of the filter
- ❖ filter material as bulk material → low costs for filter changes
- ❖ large filter surface
- ❖ modular designs

The cost-effectiveness compared to similar products is significantly improved due to the simple filter change and the disposal with established packaging and disposal methods. Activated carbon can be regenerated and therefore offers a very environmentally friendly circulation of the filter material. The adsorption properties of the filter material are selected according to individual requirements.



Fig. 1: Activated carbon filter for odour reduction for max. 2.500 m<sup>3</sup>h raw gas

## Activated carbon filter for separating gaseous air constituents

PlasmaAir activated carbon filters are used to reduce gaseous pollutants.

Adsorbable substances are organic and inorganic airborne substances such as

- ❖ chlorinated hydrocarbons
- ❖ highly volatile organic solvents
- ❖ benzene
- ❖ volatile aromatic hydrocarbons
- ❖ hydrogen sulphide
- ❖ alcohol

### Areas of application

- ❖ exhaust air from gluing stations
- ❖ exhaust air from plastic production
- ❖ exhaust air from ovens or sintering processes
- ❖ exhaust air from cleaning stations
- ❖ odour reduction

### Advantages

- ❖ deposition rate up to 99,9%
- ❖ compliance with limit values depending on the substance class
- ❖ simple change of the activated carbon due to horizontal construction
- ❖ space-saving horizontal two-chamber construction

PlasmaAir adsorption filters are designed and manufactured in different sizes for exhaust air volume flows. Exhaust air volume flows of the order of 200–10,000 Bm<sup>3</sup>/h have already been implemented by PlasmaAir. Higher volume flows could be achieved on request depending on the problem.

### Operating lifetime

After a certain time for activated carbon filters, the adsorption capacity of the activated carbon is exhausted. The old activated carbon must then be exchanged for new activated carbon. The so-called lifetime depends essentially on the type and amount of organic matter.

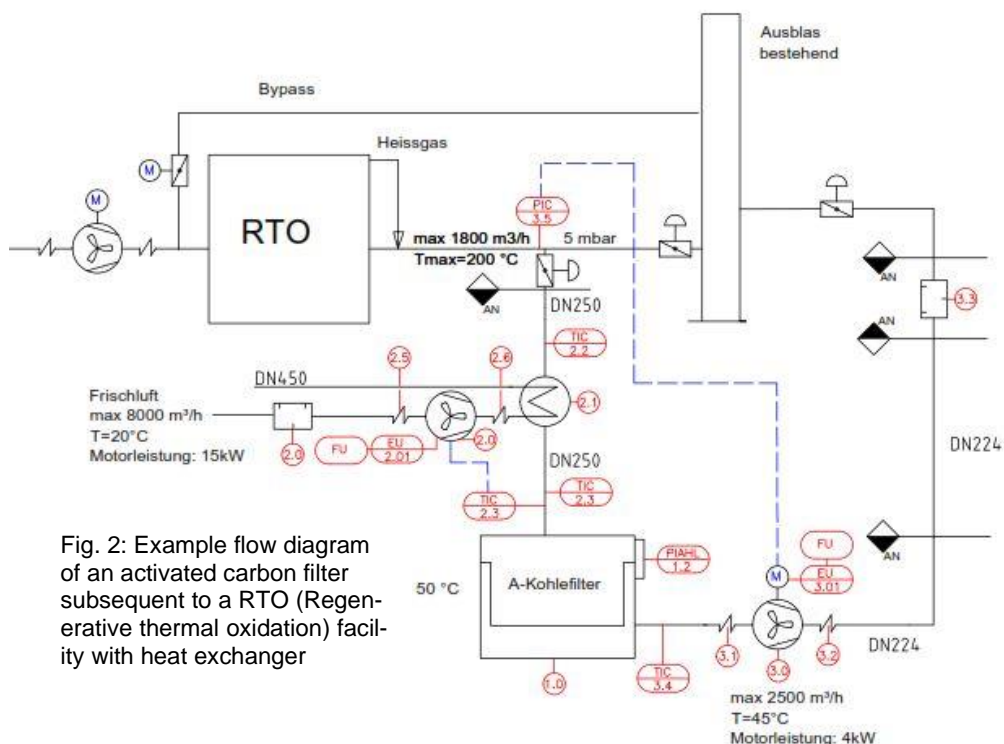


Fig. 2: Example flow diagram of an activated carbon filter subsequent to a RTO (Regenerative thermal oxidation) facility with heat exchanger

**Specific solution:  
Activated carbon filter as afterfilter of a  
combustion plant**

**Problem Description:**

The exhaust air after post-combustion is odour-contaminated. The exhaust air temperature is in the range of 200–400°C.

**Solution:**

Use of a heat exchanger for cooling the air and a downstream activated carbon filter for odour reduction.

**Accessories / Equipment**

- ❖ filter housing
- ❖ integrated condensate drain
- ❖ PLC operated control unit
- ❖ MSR device for automatic operation of the system according to customer specifications
- ❖ temperature monitoring
- ❖ differential pressure monitoring
- ❖ extraction hoods
- ❖ clean gas line, chimney
- ❖ raw gas line to the emission source
- ❖ ventilator, baffle



Fig. 3: Activated carbon granules