FAKA STAINLESS STEEL

SILOXA

Stationary gas cleaning

Stainless steel activated carbon adsorbers for biogenic gas cleaning

Product information

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High corrosion resistance

SILOXA stainless steel FAKA gas cleaning filters are highly effective, stationary systems available in single-chamber, two-chamber, or TWIN activated carbon adsorber configurations.

A stainless steel (1.4301) FAKA activated carbon adsorber is essential for meeting engine manufacturers' fuel gas limit values.

The gas in the adsorber is purified using activated carbon, which effectively removes pollutants, including H_2S, VOCs, and siloxanes. Once the activated carbon reaches its maximum absorption capacity, the spent carbon can be easily discharged into BigBags via the cone-shaped container base. Fresh activated carbon can then be added from a BigBag at the top of the container. A platform with a fixed ladder or a work platform (DIN EN ISO 14122) ensures safe and comfortable operation in compliance with applicable occupational health and safety regulations. Our stainless steel FAKAs are equipped with an integrated crane and an electric chain hoist, enabling effortless lifting of BigBags over the filter.

SILOXA offers a complete activated carbon replacement service, which includes:

- Delivery using our dedicated service vehicles
- Quick and efficient on-site replacement by trained professionals
- Removal and proper disposal of the spent activated carbon

The optimal time for replacing spent activated carbon can be determined through measuring points located at the bottom of the FAKA container. Gas samples taken from these points can be analyzed to monitor the carbon's uptake and accurately identify when replacement is needed.

Our unique two-chamber system

In the two-chamber FAKA (K2), the separation between the chambers allows spent carbon to be emptied from the lower chamber, while fresh activated carbon is released from the upper chamber. This design ensures maximum utilization of the activated carbon in the lower filter chamber, extending its service life by approximately 15%.

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Technical specifications

Features

- The filter system ensures a long service life for downstream plant components
- Significantly extends the maintenance intervals of the CHP
- Prevents deposits in the combustion chamber
- High gas utilization availability, operational reliability, and low maintenance requirements
- Additional options can be retrofitted
- Easy activated carbon replacement using BigBags

Consumption costs

- Activated carbon consumption is determined by impurities and gas quantity
- The adsorber is optimized for quick and easy activated carbon replacement, minimizing labor costs and downtime
- Large adsorber volumes reduce the specific costs of activated carbon replacement: the greater the amount of carbon replaced, the lower the relative costs for transport, labor, and downtime
- Using BigBags for transferring activated carbon ensures low transport costs
- The TWIN FAKA allows operations to continue even during activated carbon replacement

Fully equipped stainless steel FAKA

- Stainless steel (1.4301) construction
- Two gas connections (inlet and outlet) DN 200/200 PN10
- Inspection opening (manhole cover) DN 500, with an additional handhole cover DN 200
- Connection points with ball valves for inertization and gas sampling
- Butterfly valve for activated carbon removal DN 150
- Measuring point on the substructure for determining uptake status at three different filter heights using a gas analyzer (not included)
- Ladder with back protection and platform or work platform with railing
- Thermal insulation with 50-mm mineral wool and an aluminum sheet jacket
- Crane system with a geared trolley and an electric chain hoist (650 kg load capacity)
- Galvanized steel support frame

Fully equipped stainless steel TWIN FAKA

- Includes all features of the Fully Equipped Stainless Steel FAKA
- Extended work platform with railing for a seamless connection
- Crane system with a geared trolley and an electric chain hoist (1,000 kg load capacity)

Technical documentation

- Operating instructions, installation/configuration drawings
- P&ID, circuit diagrams, and unit lists
- Documentation available in German, English, French, or Italian (other languages available at an additional charge)

Operating instructions

When using activated carbon adsorbers for hydrogen sulfide removal, please observe the following: The gas must have an oxygen content of at least 0.5% and no more than 2% by volume for effective hydrogen sulfide removal. The exact minimum oxygen content required depends on the hydrogen sulfide load and can be determined in consultation with Siloxa Engineering AG. The operating company is responsible for monitoring the performance of the adsorbers. SILOXA Engineering AG is not liable for any damage resulting from insufficient monitoring of adsorber operation.

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Additional options

Deflagration arrester

- Equipped with 2 flame arresters
- EC type examination certificate in accordance with Directive 2014/34/EU (ATEX 95) and EN 12874.
- Includes a PT100 resistance thermometer.

Gas heating

- Flanged tube bundle heat exchanger for biogas heating; all gas-contact parts made of 1.4571 stainless steel
- Pressure resistance: gas side up to 0.5 bar (gauge); jacket side up to 6 bar (gauge)
- Gas connection depends on the volume flow
- 1” heating connection
- Heating water supply: 700 kg/h at 70–90°C (provided by the customer)
- Integration into the gas supply pipe is the customer’s responsibility

H_2S online analysis

- 0–100 ppm gas sensor
- Includes condensate trap
- Evaluation unit with 4 potential-free contacts and analogue output, Illuminated 4-line display, 2 alarm thresholds, buzzer, and fault relays
- Power supply and communication must be connected and evaluated by the customer
- Suitable for both indoor and outdoor installation

Air metering unit (for gas containing less than 0.5 vol% O_2)

- Diaphragm pump
- Flow rate indicator with regulating valve
- Controlled by the customer
- TÜV safety test report provided

Installation / Commissioning

- The activated carbon adsorber is installed on a foundation provided by the customer
- Commissioning and operational instruction services are available

Safety temperature monitor

- Continuous temperature monitoring
- Protects against overheating and material damage
- Enhances safety and prevents accidents
- Enables early detection of malfunctions

Safety pressure relief valve

- Protects against overpressure and excessive pressure
- Prevents system and equipment damage
- Reduces the risk of explosions or bursting
- Automatically relieves pressure when it exceeds safe levels
- Improves operational safety
- Extends plant service life