MOLTEN SULPHUR FILTRATION SOLUTIONS

Efficient and reliable filtration solutions for the sulphur industry.
Typical Sulphur Filtration Process

- Sulphur recovery during oil refinery
- Sulphur recovery during natural gas purification
- Sulphur underground deposit (Frasch process)
- Sulphur storage (ash, dust and organic impurities)
- Sulphur melter
- Main filtration of impurities by high pressure long-life filter
- Safety/polishing filtration by cartridge filter
- Mixer
- Burner
- Converter (catalyst bed)
- Absorption tower
- Dilution tower
- Sulphuric acid
The removal of solids from molten sulphur is generally done by pressure leaf filters. For over 60 years amafilter – LFC Lochem (Filtration Group Process Systems) designs, engineers and manufactures pressure leaf filters for the filtration of molten sulphur. Over the years over 15,000 pressure leaf filters have been delivered in various industries to customers worldwide.

In molten sulphur filtration amafilter – LFC Lochem is the undisputed market leader. With our extensive experience we are able to optimize your total process performance.

Impurities have a negative impact on a trouble-free continuous production of sulphuric acid.

When the catalyst in the burner / converter is progressively polluted by impurities the pressure drop will increase quickly and which will result in shorter operating cycles. Shorter operating cycles result in longer downtime, lower production capacity and higher production costs.

A similar problem is faced in the production of carbon disulphide, in which process reactor tubes are susceptible to blockage by dirt with the same end result.

The elemental sulphur needs to be filtered from impurities that can be present in the molten sulphur. The impurities are ash, dust and organic particles.

Filtration of molten sulphur is the best solution to lower the maintenance interval of the Sulphur burners, catalyst beds, and pipe reactors significantly from 3-6 months to 2 years.

Sulphur filters can be found in the following industries:

- Fertilizer industry
- Sulphuric and phosphoric acid industry
- Oil refinery industry
- Mining industry

amafilter – LFC Lochem designs, engineers, manufactures, delivers, commissions and services pressure leaf filters for molten sulphur filtration.

amafilter – LFC Lochem molten sulphur filter systems are designed as a two stage filtration system. The first stage is the main filtration of the molten sulphur for reaching a sulphur quality up to max. 10 ppm solid impurities. The second stage is polishing filtration for reaching a sulphur quality up to max. 5 ppm of solid impurities.

Key advantages amafilter – LFC Lochem sulphur filters.

- Mechanical design of the highest standard, leading to longer operation durability of the filters resulting in low operating expenses.
- Experience-based filtration cycle algorithms to optimize your total process performance.
- Extensive process support for commissioning and servicing and local design requirements.
- Advanced operator training and testing guidance.
- ISO9001-2015 quality assurance system and certification according to many design codes possible.

Learn more:
www.filtration.group/sulphur-filtration/
HORIZONTAL PRESSURE LEAF FILTER SYSTEMS

amafilter - LFC Lochem designs, develops and manufactures advanced vertical and horizontal pressure leaf filters. A pressure leaf filter is a filter with a large filtration area thanks to the shape of the filter elements. A pressure leaf filter produces high filtrate clarity after the clarification run.

Thanks to the hermetic closed system together with it’s pressure energized self-sealing system it is the perfect solution in sulphur filtration.

The Horizontal Pressure Leaf Filter is a closed filtration system and can be automated upon customer request. This filter produces high filtrate clarity after the clarification run and is suitable for most filter aids. The regeneration time between the filtration cycles is short which increases productivity.

Key characteristics

- Large filtration area thanks to the shape of the filter elements
- Robust rectangular filter screens, double sided and easy to clean
- Heating jacket to maintain high process temperatures
- Horizontal pressure leaf filters can be delivered as tandem units to save floor space
- Pressure Leaf Filters can be automated upon customer request
- The pressure leaf filter itself has no rotating parts, keeping maintenance to a minimum
- The filter leaf spacing is 125 mm to allow precoat and longer filtration times
- The filter leaves are mounted on a manifold for easy removal and mounting.
- Heavy duty filter screens with five layers of wiremesh and reinforced bindings to protect the rim during manual cake removal
- Matching guidance energy chain transport system for electrical wiring and steam hose (retractable shell models)
- Exchangable inlet manifold side bars on each side of the filter elements to ensure easy accessibility
- Teflon scraper blades for easy cake removal
- Hydraulic bayonet closing system

Compliance

amafilter - LFC Lochem can engineer, design and build pressure leaf filters compliant with many design codes like: (PED) 2014/68/EU ; ASME U-stamp or CRN ; EN13445 ; AD2000 ; TRCU32 ; British Standard ; NR13 ; AS 1210 ; CODAP ; SELO and others.

Learn more / watch demo video: www.filtration.group/pressure-leaf-filter/
**amaCera Ceramic Filter cartridges**

The amaCera ceramic PC filter cartridge is specifically designed for the safety / polishing filtration of molten sulphur.

These rugged porous ceramic cartridges are manufactured by fusing aluminium oxide grains using a porcelain bond to form a strong, uniform porous and homogeneous structure.

The ceramic PC cartridges are cleanable after every cycle by steam. This results in longer lifespan and less maintenance.

When the cartridges are not cleanable anymore by steam due to saturation some other methods of cleaning are backwashing, solvent and ultrasonic cleaning.

**VC Cartridge filter**

The amafilter - LFC Lochem cartridge filter is used as a safety / police filter to prevent precoat material pass through during filtration by the horizontal pressure leaf filter due to operation errors, insufficient precoat or strong changes in flow.

This filter is also used as a polishing filter for the removal of fine ash and other particles after the main filtration step. After the main filtration step solid content in sulphur has decreased to 10-20 ppm.

The cartridges are mounted on the septum plate and the septum plated is mounted between the cover flange and the tank flange. This allows for quick and easy exchange with a new stack of filter cartridges.

amafilter-LFC Lochem cartridge filters are placed downstream of the horizontal pressure leaf filter and filtrate storage tanks. It has a heating jacket in order to maintain the required elevated temperature.

With a amafilter - LFC Lochem cartridge filter the impurities content reduces to less than 5 ppm for particles larger than 5 μm which improves burner durability.
Our services

amafilter - LFC Lochem relies on its in-depth understanding of a customer’s process and liquid filtration requirements to deliver comprehensive filtration solutions. Consumables (ongoing) service and customized engineered systems to optimize the customer’s process.

amafilter – LFC Lochem has developed a broad range of technologies and has leading application expertise in the specific process filtration markets.

Optimization
In a 2 day test observations are made to optimize the filtration process on:

- The correct filter type
- The correct filter aid
- The correct dosing
- The correct filter cloth or drain

Process Engineering Package (PEP)
With our Process Engineering Package (PEP) amafilter – LFC Lochem provides you with all relevant information to your specific filtering process.

Programmed control system
Control your filtration system with a fully programmed control system designed by amafilter – LFC Lochem.

This service can be supplied with several days on site support.

Software upgrade/optimization
If a control system is installed on your filter system then amafilter – LFC Lochem can upgrade / optimize it when required.

Skid
If you are looking for a turn-key solution, we can offer a total solution for your filtration challenge.

Commissioning
We offer on-site support during the commissioning of your filter so you can start using your system immediately. amafilter – LFC Lochem can also provide a (first) process optimization.

Research & Development Partnership
If an entirely new filtration process must be developed we can do it for you.

Rescreen and repair services
amafilter – LFC Lochem offers the best in filter leaf rescreen and repair services for your used or damaged pressure leaf filter screens. Our state of the art manufacturing center and dedicated and experienced craftsmen in the Netherlands allows for the inspection, rescreen, repair or replacement of our 5 ply screens available in the marketplace today.

Learn more
www.filtration.group/service
Active since the 1930's and now part of Filtration Group’s Industrial Technologies division, amafilter® and LFC Lochem® key activity is the design and manufacturing of filter installations aimed at separating solids from liquids. These filter systems are sold and serviced worldwide. Filtration Group Process Systems provides an extensive product range for your filtration challenges. Our assortment of products and services ranges from fully operational plug-and-play filtration systems to components such as filter bags, filter cartridges, filter housings and spare parts.

1930 amafilter®

In the 1930’s Mr. L. Benjamins started a company in the Netherlands which sold filtration consumables and parts.

After WW2 Mr. L. Benjamins and his son started importing and not much later the manufacturing of “Niagara filters” branded as “Amsterdamse Machine- en Apparatenfabriek” (amafilter®). The main products were vertical pressure blades for the food & beverage industry. Soon after amafilter started exporting it’s products worldwide.

Due to rapid growth amafilter® moved from Amsterdam to Alkmaar. The new location in Alkmaar expanded multiple times to offer more production capacity. In those years many filter types were developed. Many filters were added to the amafilter scope of products.

The amafilter® brand is a well established name in the global market for solid-liquid filtration serving customers worldwide.

1979 LFC Lochem®

In 1979, three employees of Machine Factory Arnhem in the Netherlands started their own company to manufacture pressure leaf filters and named the company “Liquid Filtration Consultants” or “LFC Lochem®”.

The company quickly gained an outstanding reputation as an innovative engineering and manufacturing company that specialized in liquid filtration technology.

Over the years, LFC Lochem® developed and perfected many filtration products. This resulted in a high quality, comprehensive standard range for widely diverging industries.

LFC Lochem® has an excellent reputation in the field of filtration technology and on its ability to quickly respond to specific customer requests.

LFC Lochem® joined forces with amafilter when both companies were joined together in Amafiltergroup together with Eurofiletec (France), Vanpipe (UK) and Falban Filtri (Italy) and Nowata (USA).

2016 Filtration Group®

the Amafiltergroup was acquired by MAHLE in 2008 and joined together with its filtration division.

In 2016 MAHLE industrial filtration was acquired by Filtration Group. With Filtration Group the amafilter® and LFC Lochem® brands returned under the umbrella of “Filtration Group Process Systems”.

7200 employees in 26 countries and 107 locations strive together to make the world safer, healthier and more productive.

In various manufacturing plants Filtration Group Process Systems designs, engineers and manufactures various filters like pressure leaf filters, plug-and-play filtration systems, consumables and parts that meet the highest level of quality standards.

Filtration Group® offers a combined experience in filtration of over 500 year.
Together we are making the world safer, healthier and more productive