

# Filtration with candle filter



# Filter and fly ash washing (LCV) the core of AIK systems Secondary raw material recovery

Due to mechanically robust, static filtration elements, operating and maintenance costs are economically low. Fully automatic filtration and dewatering of suspensions and slurries results in low personnel costs. The automatic control system continuously measures the turbidity of the filtrate. Thus, the operator has a high degree of certainty at all times with regard to solids breakthrough and is alerted immediately in the event of deviations.

## Solid/liquid separation by means of cartridge filter

AIK cartridge filters are used to filter solids from acidic, neutral or alkaline liquids. The AIK cartridge filters are particularly suitable for the filtration and dewatering of inorganic substance mixtures. Due to the small pore size of the filter cloths, the cartridge filters are particularly suitable for achieving minimum residual solids contents «suspended solids» of < 5 mg/liter. The solids content at the inlet can vary from about 0.01 to 2%. A cartridge filter system can be operated fully automatically. This significantly reduces the operating effort and makes filtration extremely interesting from an economic point of view.

## The AIK candle filters

The AIK cartridge filters essentially consist of a pressure housing made of rubberized steel or optionally of high-quality steel. The internals are made of PP or stainless steel. Depending on the required filter area, the cartridge filters are equipped with three to 30 individual filter cartridges in a register arrangement.

The filter area per filter cartridge is about 0.5 m<sup>2</sup>. Depending on the application, special round-woven filter cloths with different permeabilities made of PP or PTFE are applied. The filter cake is discharged wet or dry, depending on the design. In the case of dry discharge, the cartridge filter empties itself via a large discharge flap.

## Functionality

The liquid mixed with solids is pumped into the cartridge filters. The liquid flows through the filter cartridges from the outside to the inside (outside-in method). This causes a filter cake to form on the filter surface. This filter cake also acts as a filter medium. After a certain flow rate or a defined filtration pressure has been reached, filtration is interrupted and the resulting filter cake is blown off the inside of the filter cartridge with compressed air. In the case of dry discharge, the cartridge filter is emptied by means of compressed air before being blown off. When the candle filter is dry, the ejected filter cake falls through the discharge flap directly into the

container, big bag or bin provided. In the case of wet discharge from the candle filter, the filter cake is discharged through diaphragm valve via the discharge line for dewatering.

## Characteristics AIK cartridge filter

- Solids removal rate > 99.9 %
- Filtration capacity nominal - 2 m<sup>3</sup>/m<sup>2</sup>h
- Max. Filter area per cartridge filter 15 m<sup>2</sup>
- Filter can be used in acid and alkali



# Best economic and ecological utilization

AIK Technik AG is your partner when it comes to implementing demanding requirements. With our knowledge and experience we can offer you a sustainable solution for your challenge. We are at your disposal for your specific inquiries. Please contact our specialists.

## Fields of application

AIK Technik AG owns cartridge filter pilot plants in which new application areas can be tested on site under field conditions. In this way, the various configuration options are optimized. The AIK cartridge filter can thus be tested for functionality before the system is modified, checked before the plant is rebuilt. Short interruptions during a renewal are thus achievable.

The cartridge filters are mainly used for filtration of sludges with

- Gypsum
  - Hydroxides
  - Activated carbon
  - Dust
- used.

## Reference plants

- Ragnsells/HZI Stockholm (SE) 2021
- GEVAG Trimmis 2019
- Müve Biel 2018
- AVAG Thun 2018
- ERZO Oftringen 2015
- ERZ Zürich 2014
- REAL Luzern 2013
- KEBAG AG Zuchwil 2013
- Energie Wasser Bern Forsthaus 2012
- MVA Ingoldstadt Ingolstadt (DE) 2010
- Azienda Cantonale Rifiuti ACR Giubiasco 2009
- Trondheim Energieverk Troheim (NO) 2008
- TRIDEL Lausanne 2005

