



# CEMENT, LIME, AGGREGATES

DUST EXTRACTION – FILTRATION – NEUTRALIZATION

# INSTAL-FILTER SA

Leader in industrial air protection systems.

We provide comprehensive services with respect to air protection installations for the cement, lime and aggregates industry. Our company complies with all restrictive environmental standards applicable in Europe.



## Benefits of working with INSTAL-FILTER SA

- > Top efficiency in limiting emission of pollution to the atmosphere.
- > Low maintenance costs.
- > Simple and ergonomic servicing thanks to in-house structure and smaller sizes of devices.
- > Support of a team of specialists with long-term experience in the industry.

## Strategic thinking is a priority for us.

Devices offered by our company offer a possibility of future extension at minimum cost and interference in the existing infrastructure. Our offer is flexible and every project is individually tailored to the needs and expectations of our clients.

Development of products and technologies takes place on the basis of research work of the Development Division, as well as searching for innovative solutions on international markets, purchase of licences and their further development as part of own production.

**99,9%**  
Independent researches confirm high efficiency of the INSTAL-FILTER SA installation

# You can count on us...

at every stage of investment realization.

## DESIGN

Every work of INSTAL-FILTER SA is preceded by accurate analysis of client's needs. After detailed research of a task there comes designing stage. Adjustment of relevant devices, connections and structures is a key element of the process and this is why we trust it to the best experts.



## PRODUCTION

Own production infrastructure enables us to complete individual and non-standard orders. Since key elements of an installation are manufactured in our plant we may offer the best quality at competitive prices.



## INSTALLATION

Proper conduction of works assures unproblematic start-up and long-lasting, proper operation of the system. Our systems are installed in Poland and abroad.



## SERVICE

INSTAL-FILTER SA provides professional warranty service but also it has a great offer of service of units after the term of the warranty. We also service installations and dust extracting units of other manufacturers.



# Product offer:

- > Vertical and horizontal bag filters
- > De-dusting installations
- > Integrated Air Protection System with Energy Recovery
- > Equipment and systems for dust removal from explosive air-dust mixtures in execution with ATEX
- > Cyclones and multi-cyclones
- > Industrial fans
- > Dust collection and transport system
- > Ducts, expansion joints, damping valves, supportive structures
- > Central vacuum cleaners
- > Gas coolers



# Dust extraction installations

for technological processes in the industry sectors:



## Cement

- > De-dusting systems for limestone crushing lines
- > De-dusting systems for aggregate transport installations
- > De-dusting systems for clinker raking and transporting systems
- > De-dusting systems for smoke dusts containers
- > De-dusting systems for cement storage tanks and homogenization containers
- > De-dusting systems for raw material scales
- > De-dusting systems for ready product loading stations
- > De-dusting systems for ready product packing stations
- > De-dusting systems for sinter drying rooms
- > De-dusting systems for cement mill
- > De-dusting systems for sinter baking furnace
- > De-dusting systems for cement furnace bypass



## Aggregates

- > De-dusting systems for raw material crushing process installations
- > De-dusting systems for aggregate transport installations
- > De-dusting systems for raw material sieving and sorting
- > De-dusting systems for aggregate drying process
- > De-dusting systems for aggregate grinding process
- > De-dusting systems for aggregate weighting process
- > De-dusting systems for ready product loading stations
- > De-dusting systems for ready product packing stations



## Lime

- > De-dusting systems for limestone crushing lines
- > De-dusting systems for lime aggregate transport installations
- > De-dusting systems for limestone grinding lines
- > De-dusting systems for lime flour storage
- > De-dusting systems for lime hydration process
- > De-dusting systems for ready product loading stations
- > De-dusting systems for ready product packing stations



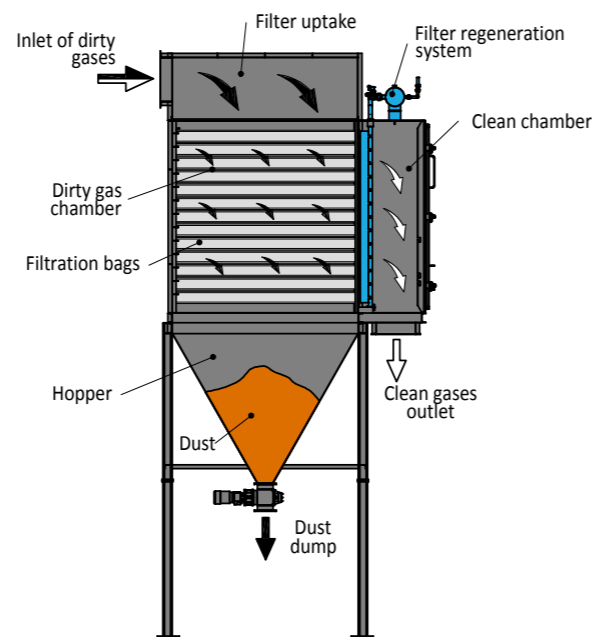
Each of our realizations is different, just like the different are our Customers' needs.

# Horizontal bag filters

Horizontal module bag filters are modern devices met technical condition which is high efficiency of the de-dusting process, and the economic one which concerns low capital expenditures and operational costs.

## Benefits:

- > Direction of gas flow has a great impact on the life span of the filtrating bags, consumption of compressed air, operational costs as well as flow resistances in the unit
- > Comfort and safe service of the filter via large side door of a clean chamber
- > Provision of proper and stable system of the bags in a filtrating chamber by their double-side fastening
- > Unique, flat shape of the bag enables optimal usage of space which substantially affects dimensions of the filter
- > Application of short bags ensures perfect regeneration at their entire length and ergonomic maintenance service
- > Modern Twin-Jet regeneration system
- > Gas flow: standard range from 1000 to 1 200 000 m<sup>3</sup>/h



Scheme of horizontal bag filter

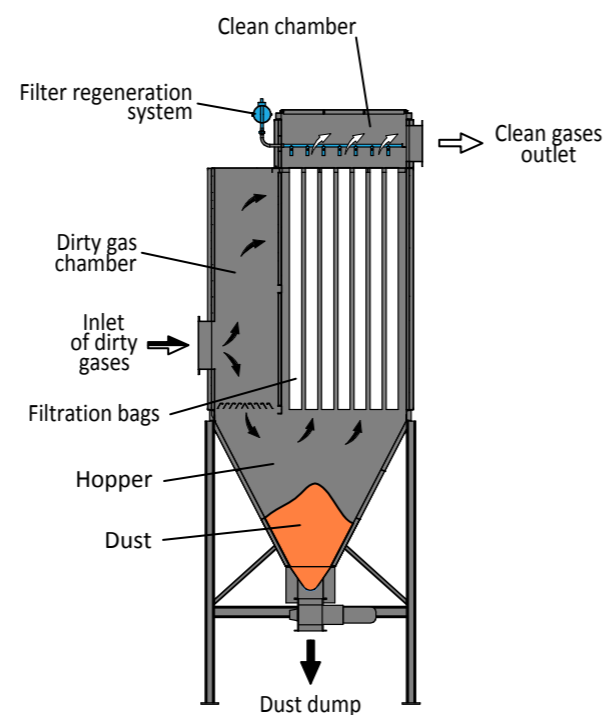


# Vertical bag filters

Module structure of filters enables us to configure them in the way that they assure required efficiency and they meet requirements in the field of their height (low filters, high filters, twin-filters).

## Benefits:

- > An advanced way gases are entered ensures their uniform flow into all of the bags.
- > Downstream direction of certain quantity of gases supports falling of the dusts in the filter's chamber.
- > Both-side filtrating bags positioning and preventing them from their displacement eliminates effect of mechanical wear in case ends of bags contact each other.
- > Modern regeneration system - Twin-jet enables applying of purified gas originating from the filter clean chamber to carry out this process. In this way efficiency of regeneration grows up and, at the same time, compressed air consumption goes down.
- > Gas flow: standard range from 20 000 to 1 500 000 m<sup>3</sup>/h



Scheme of vertical bag filter



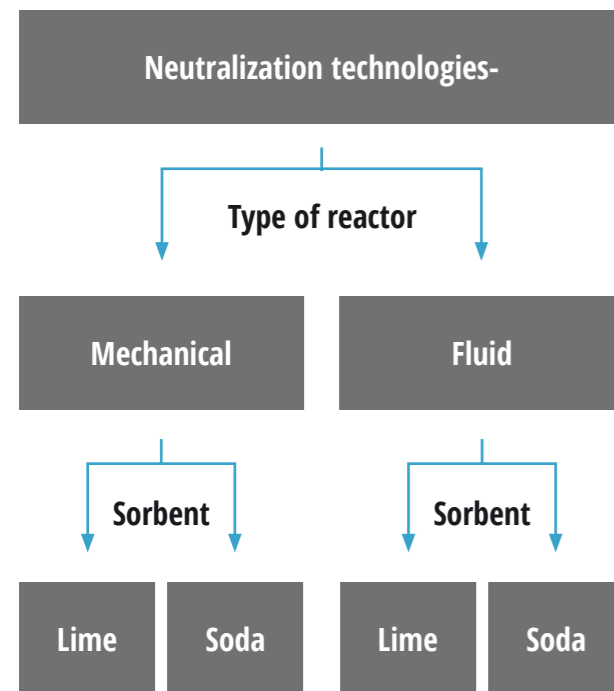
# Neutralization systems

for harmful compounds

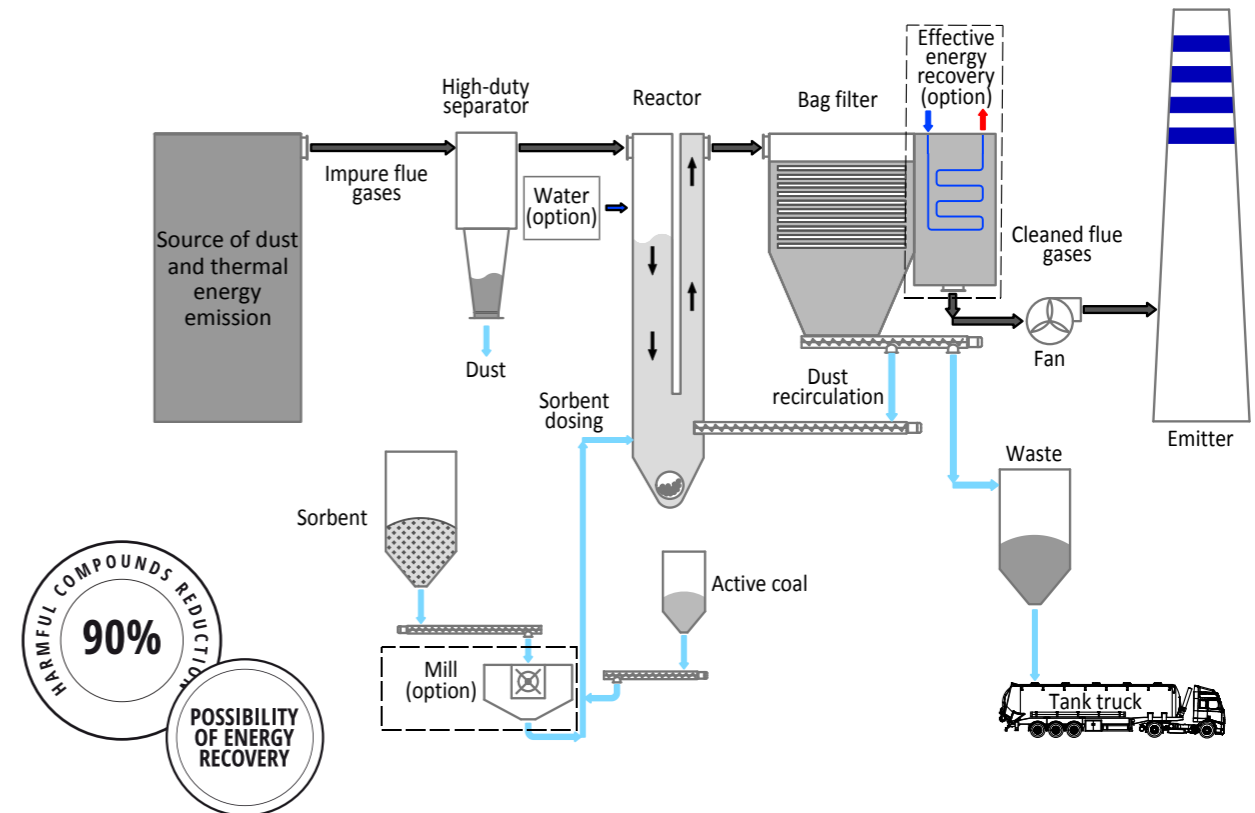
INSTAL-FILTER SA offers comprehensive neutralization technologies with innovative methods. Depending of used technologies, we propose You mechanical or fluid bed reactor. In each of them the sorbent used may be lime or soda and active carbon. In addition to the reduction of acidic compounds such as SO<sub>x</sub>, we also reduce NO<sub>x</sub>, heavy metals, dioxins and furans.

### Benefits:

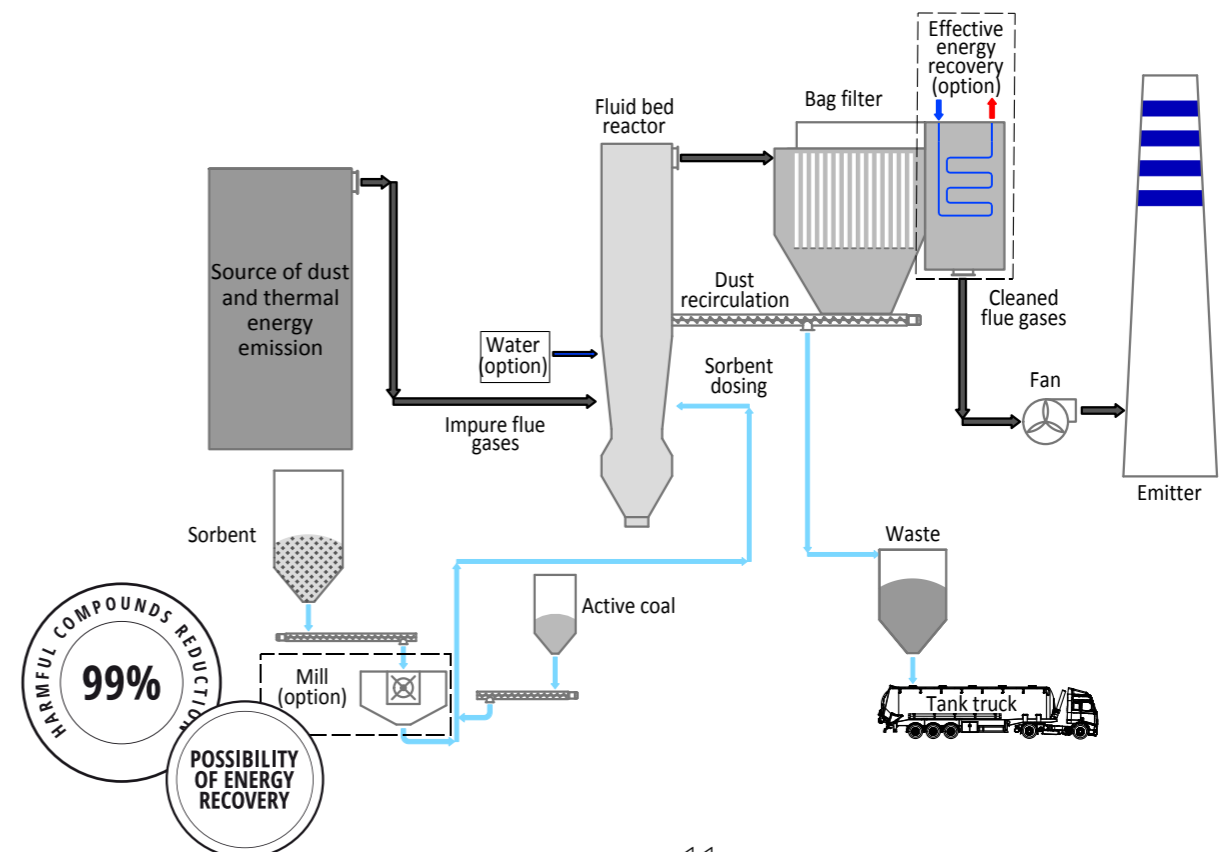
- > Guarantee the highest neutralization efficiency by using innovative methods and various sorbets.
- > Meets the requirements of UE
- > High flexibility of system operation
- > Low costs of operation
- > High availability



## Installation with mechanical reactor



## Installation with fluid bed reactor



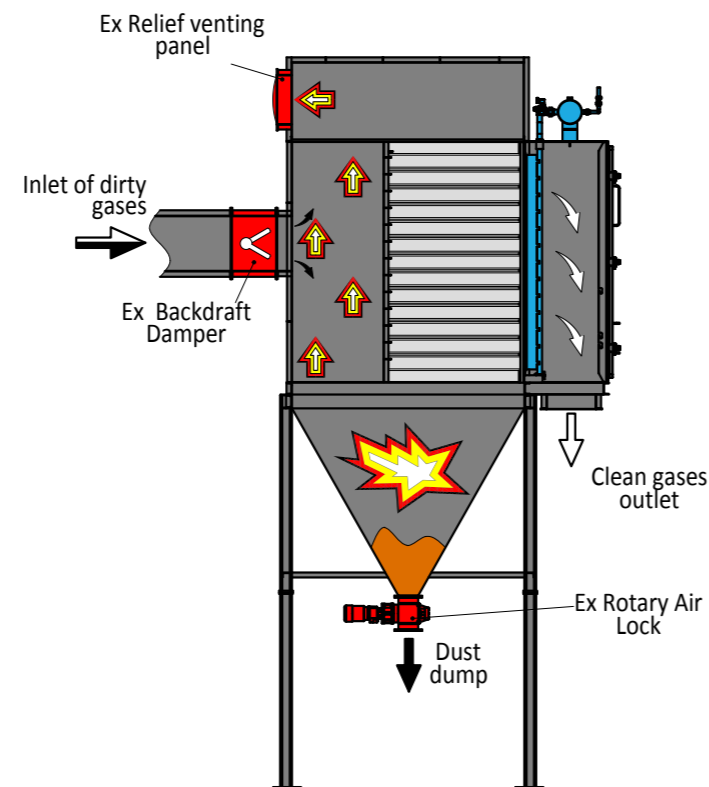
# ATEX devices and installations

To de-dust air & dust explosive mixtures we offer devices and complex installations performed acc. to binding ATEX Directive (2014/34/UE). They can be used to extract dusts belonging to St 1 and St 2 explosiveness class.

Our filtration systems belong to 3 D category. It means they can be erected in any location classified as a non-explosive zone and in 22 zones, which are explosive.

### Benefits:

- > Only proven devices and systems
- > All devices have required certificates issued by an authorized notified body in the area of the European Union.
- > Optimal selection of de-dusting devices as well as devices and protective systems for a particular application.



### In order to protect the units we propose two basic methods:

- > Explosion damping method
- > Explosion discharge method

Additionally, on the grounds of explosion hazard zones within a particular installation, all of its parts and sub-assemblies will be adjusted in such a way that they are not a reason for dust ignition source.



# Integrated Air Protection System with Energy Recovery

This technology developed by INSTAL-FILTER SA enables the recovery of energy in the cleaning of hot gases.

The compact set of devices, because of its small external dimensions, fastening it within existing infrastructure.

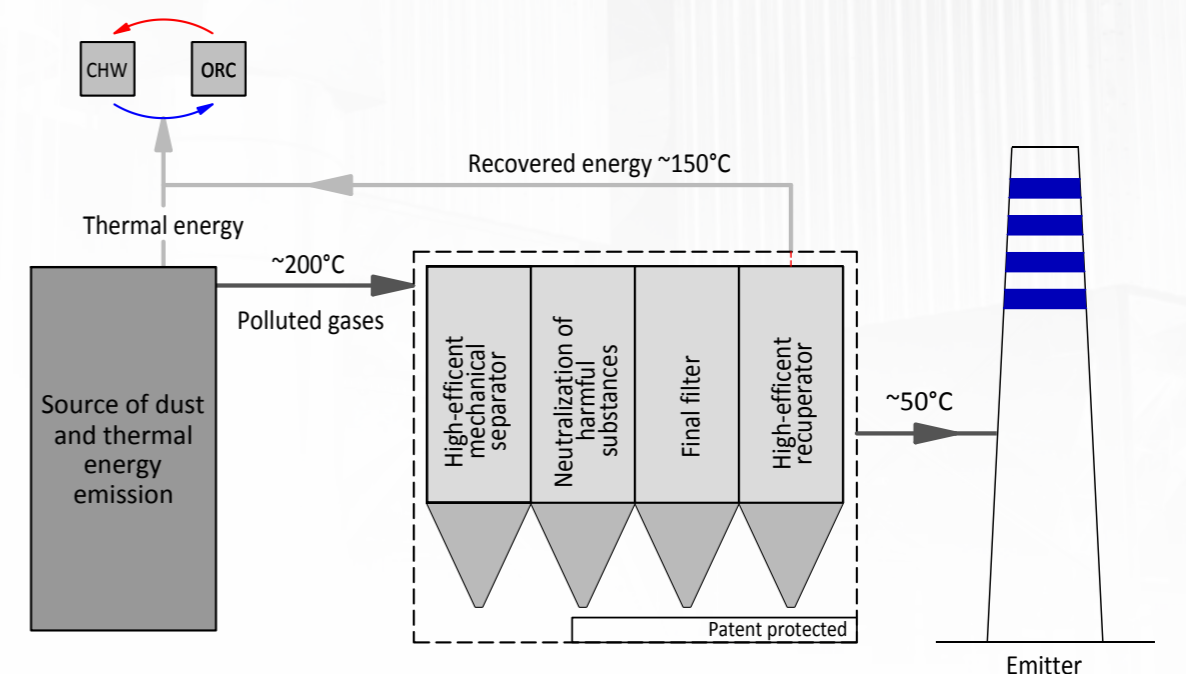
At the first stage, it separates solid pollutants in order to reduce post-reaction wastes.

At the second and the third stage there is supplied sorbent and there takes place reduction of acid compounds as well as final separation of solid particles.

De-dusted and neutralized fumes are subject to the fourth stage where there takes place a deep recovery of thermal energy.

Optionally, the system may be equipped with NO<sub>x</sub>, heavy metals, dioxins and furans reduction system.

Innovation of the system is complex cleaning of gas and residue energy recovery in the framework of a single compact device located between a heat source and an emitter.

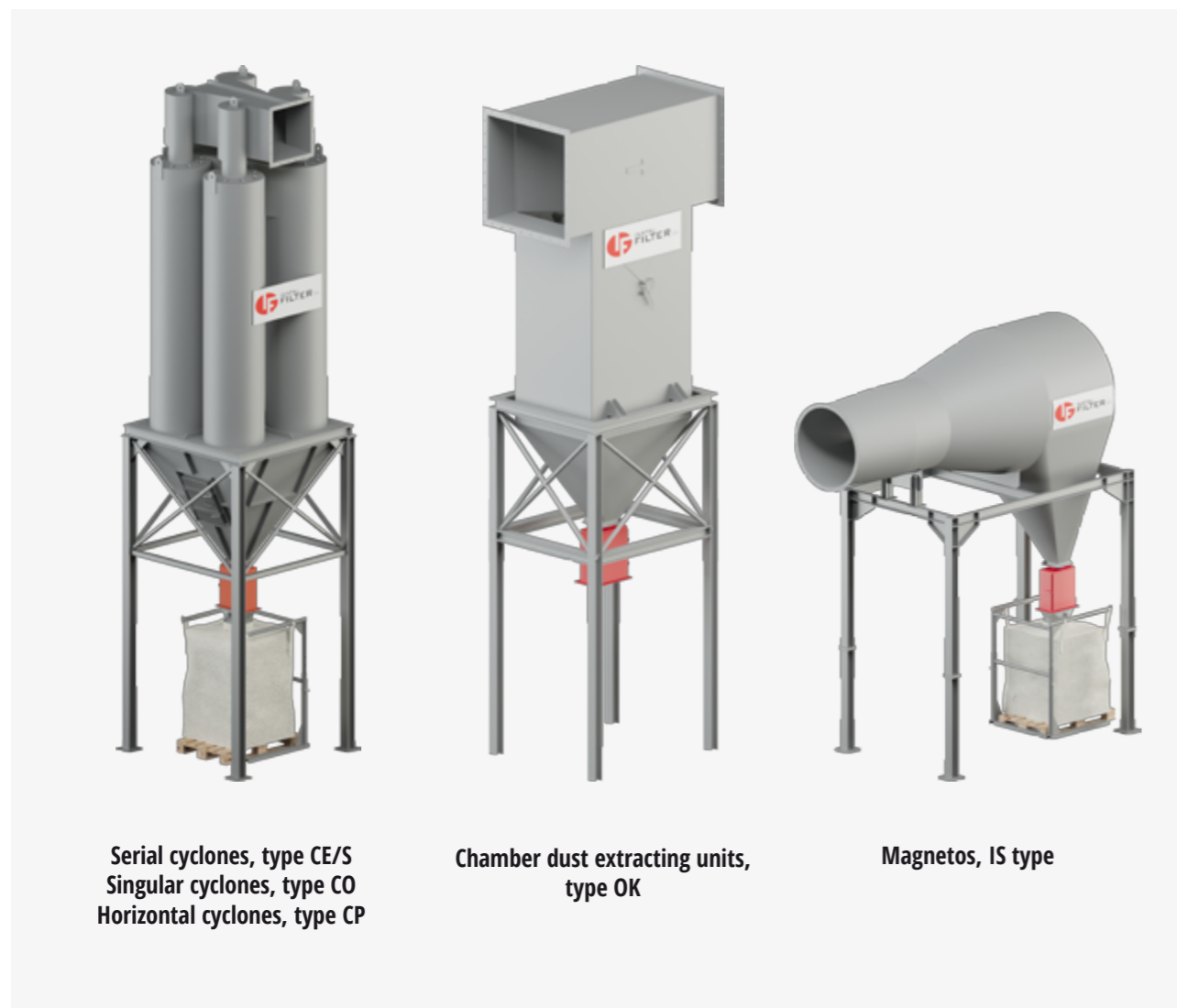


Scheme of integrated air protection system with energy recovery

# Mechanical de-dusting units

Mechanical dust extracting units are widely applied in the industry because of simple and compact structure, no moving parts as well as capability to operate in high temperatures and under high pressures.

Presently, among our products there are the following mechanical dust extracting units:



Serial cyclones, type CE/S  
Singular cyclones, type CO  
Horizontal cyclones, type CP

Chamber dust extracting units,  
type OK

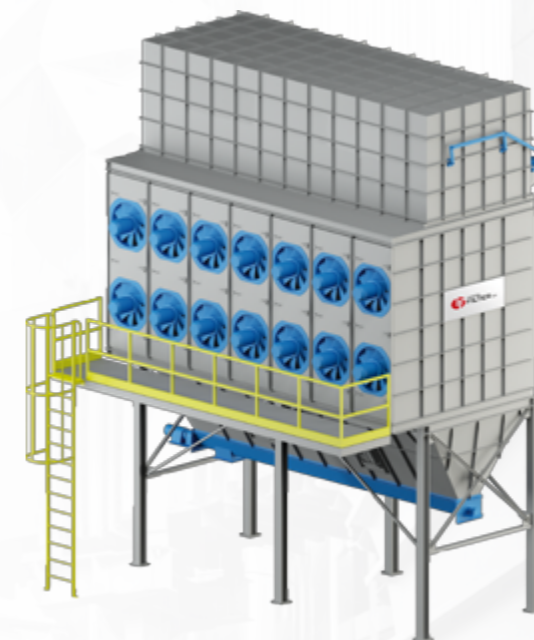
Magnetos, IS type

They are widely applied as a preliminary de-dusting stage system in installations which need to satisfy restrictive emission rates. They ensure separation of thick, erosional fractions of dusts.

# Gas coolers

In order to lower the temperature to a level acceptable for bags that is up to 260 °C, we offer gas cooling systems.

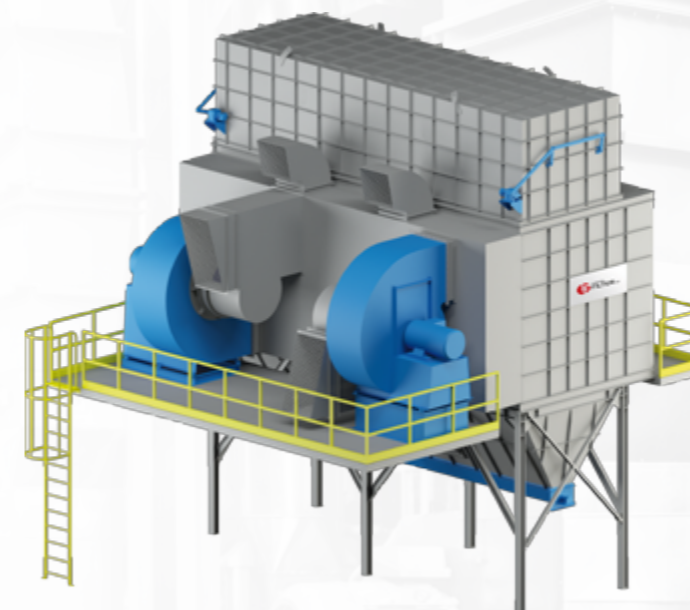
Depending on cooling agent circuit, coolers applying gas as a cooling agent are divided into the following types:



## KLN type

without cooling air re-circulation

Temperature of cooled down gas can be regulated only by switching on relevant quantity of cooling down fans. There is no option of cooling down temperature adjustment (ambient air is sucked).



## KLR type

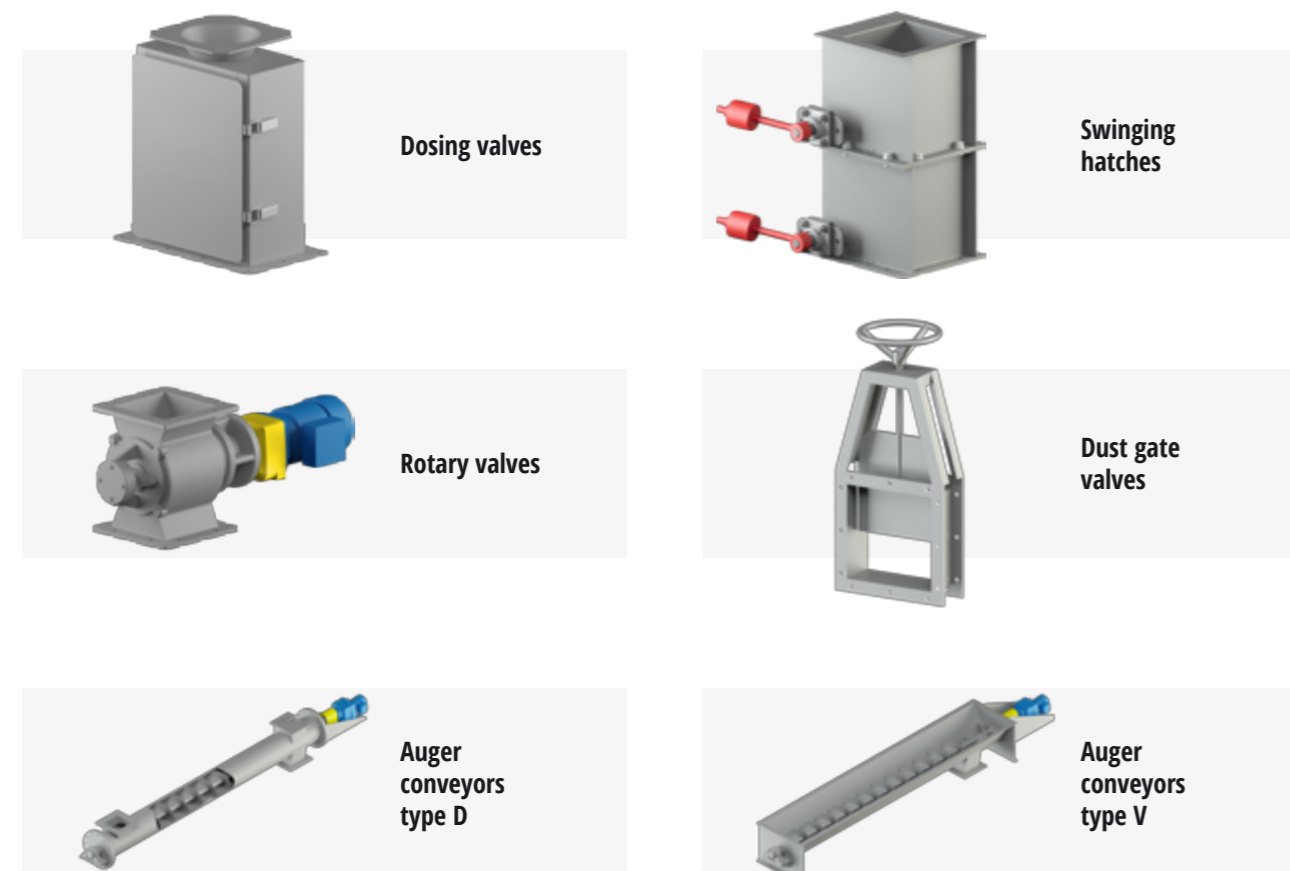
with cooling air re-circulation

Since the cooling down air re-circulates it is possible to regulate its temperature before it re-enters the exchanger.



## Dust collection system

Dust reception (collection) systems are necessary equipment of each dust-extracting installation. They are intended to remove dusts from chutes of the devices operating at pressures different from the atmospheric one. They enable emptying them without decompression or tight closure of a containers with dust. We assure proper selection of a device adjusted to particular application.



### Benefits:

- > Simplicity of service and maintenance.
- > Modern structural solutions assuring great reliability and low noise emission rates.
- > Some of the devices can be offered in ATEX version.

## Installation elements

In order to erect a complete de-dusting system, apart from designing and manufacturing of devices a lot of other elements are required. Choosing our company client does not have to worry about anything since all of them are available in our range of products.

Ducts, damping valves and supportive structures are manufactured by INSTAL-FILTER SA acc. to typical types of series and in untypical dimensions adjusted to individual needs of our clients.



## Service support

The condition pre-determining long and failure-free operation of air protection devices and installations is performance of relevant inspections, maintenance work and use of proper consumables and spare parts.

Our company provides professional warranty service for offered products and services but also it has a great offer of service of units also after the term of the warranty.

We also offer full range of high-quality spare parts and materials for devices and installations at attractive prices. Using proper spare parts and materials prevents unplanned downtimes of systems.

**We invite you to use our services implemented based on professional equipment and well-experienced personnel.**



## Quality and innovation

are our company's distinguishing characteristics.

Taking care of top standards and focusing on further development, our company received DEKRA certificate in the area of ISO standards. We are a partner whom you can trust.



"The investment covered the execution of a professional project, the delivery, assembly and commissioning of the installation. The level of services provided by INSTAL FILTER SA assured us about the good choice of the Contractor for the performance of the task entrusted."

Supervision Inspector Cementownia Odra (Odra Cement Factory)

"The cyclone separator works properly on the rotary dryer dedusting at the bituminal mass plant and meets the expectations. On the basis of existing cooperation, we recommend INSTAL FILTER SA as a recognized and reliable Contractor in the implementation of this type of equipment."

Director of the Construction Factory in Poznań

"The order was completed with due care and in accordance with the deadline, completely fulfilling our expectations. We recommend the services of INSTAL FILTER SA and recommend the Contractor to future Investors."

Head of Renovation Department Grupa Ożarów S.A. (Ożarów Group S.A.)

**Top standards... are our standards!**

# INDUSTRIAL AIR PURIFICATION SYSTEMS



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