



# ENERGY AND HEAT ENGINEERING

DUST EXTRACTION – FILTRATION – NEUTRALIZATION

# INSTAL-FILTER SA

Leader in industrial air protection systems.

We provide comprehensive services with respect to air protection installations for energy industry and heat engineering. Our company complies with all restrictive environmental standards applicable in Europe by reducing the emission of harmful compounds into the atmosphere to trace amounts.



## 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
- > Meeting the standards for all solid fuels: bituminous coal and lignite, biomass, sludge, RDF

## 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.



## Our offer

for energy and heat engineering:

- > Fumes de-sulfuring systems
- > NO<sub>x</sub> reduction installations
- > Harmful compounds neutralization systems: HF, HCl, dioxins, furans and heavy metals
- > De-dusting installations
- > Integrated Air Protection System with Energy Recovery
- > Vertical and horizontal bag filters
- > Cyclo-filters standard and hybrid
- > Equipment and systems in execution with ATEX
- > Industrial fans
- > Dust collection and transport system
- > Ducts, expansion joints, damping valves, supportive structures



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

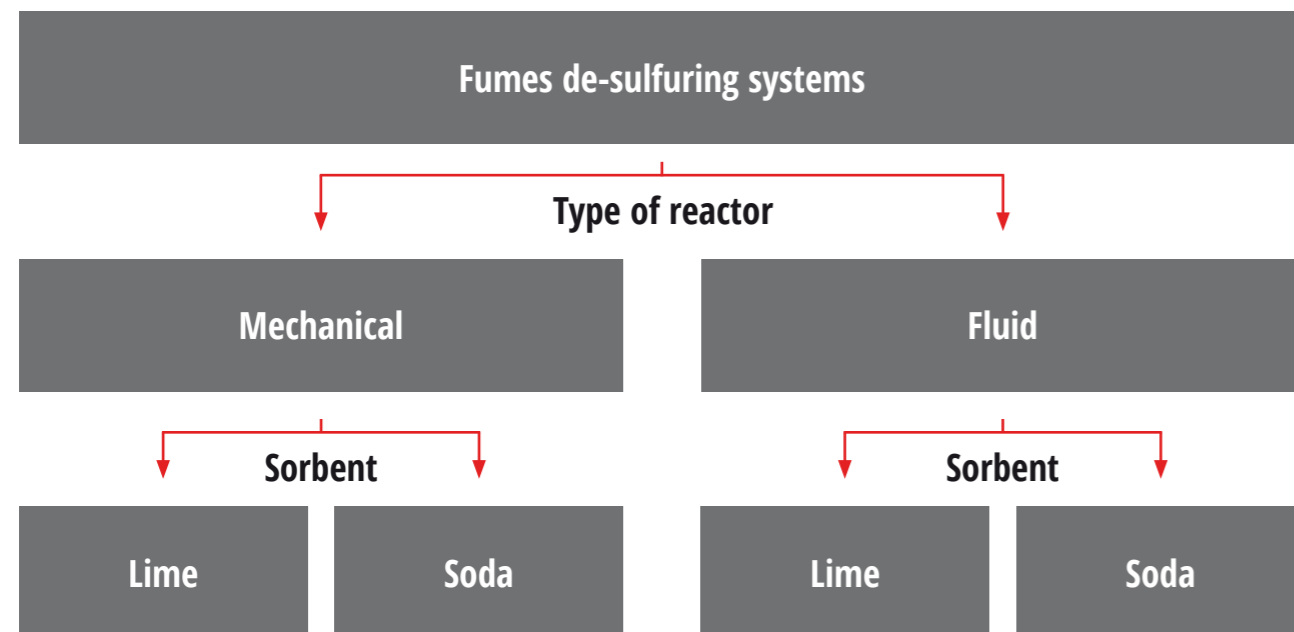
# Fumes de-sulfuring systems

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

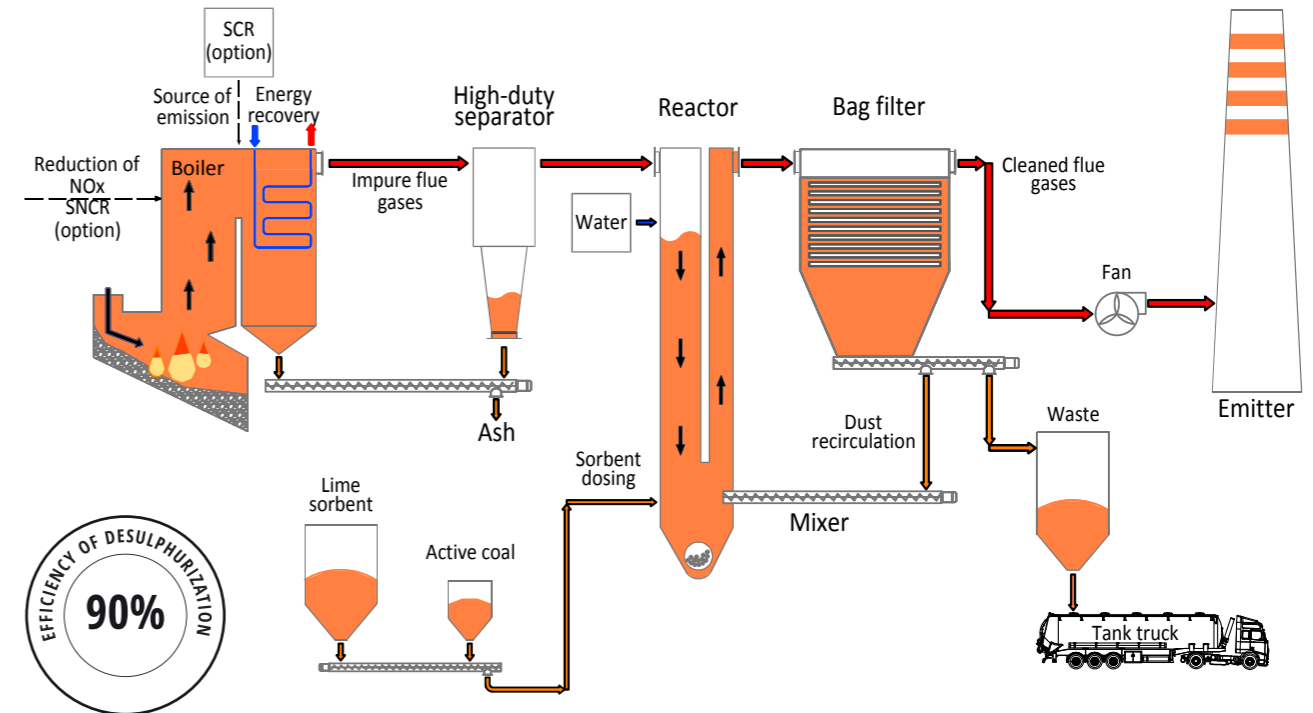
The solutions based on mechanical reactor are dedicated to small and medium capacity boilers, while system with fluid bed reactor is a perfect solution for customers with medium and large boiler units.

### Benefits:

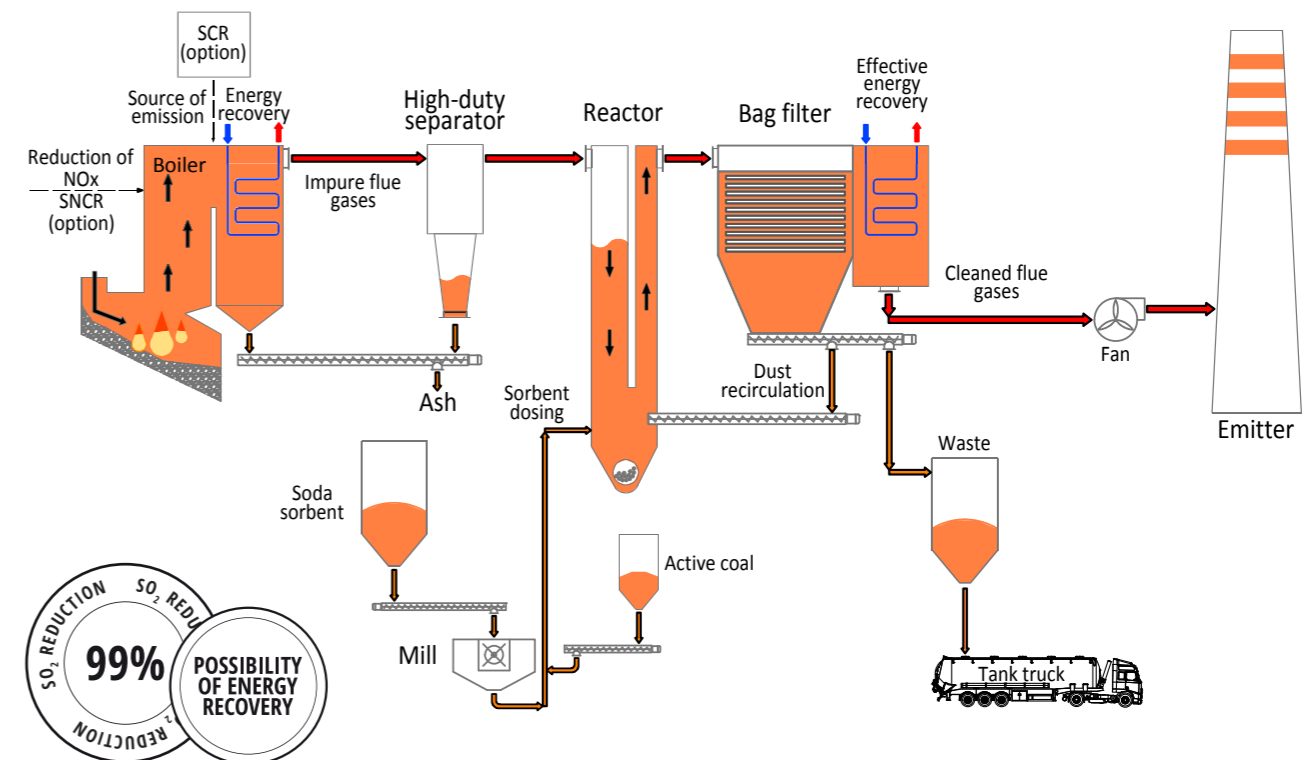
- > Guarantee the highest desulphurisation efficiency by using innovative methods and various sorbets.
- > Meets the requirements of BAT conclusions and IED Directive for fuel of any quality.
- > High availability
- > High flexibility of system operation
- > Low costs of operation
- > Individual selection of desulfurization method according to customer needs



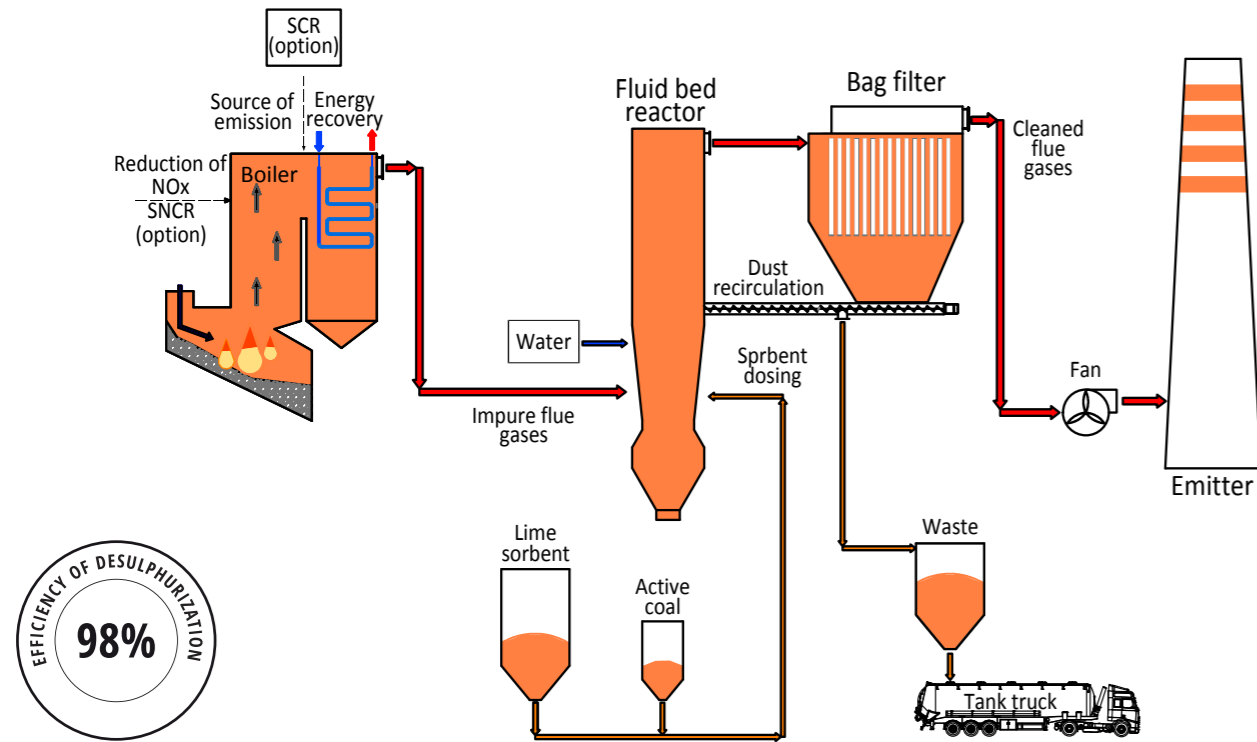
## Installation with mechanical reactor with lime sorbent



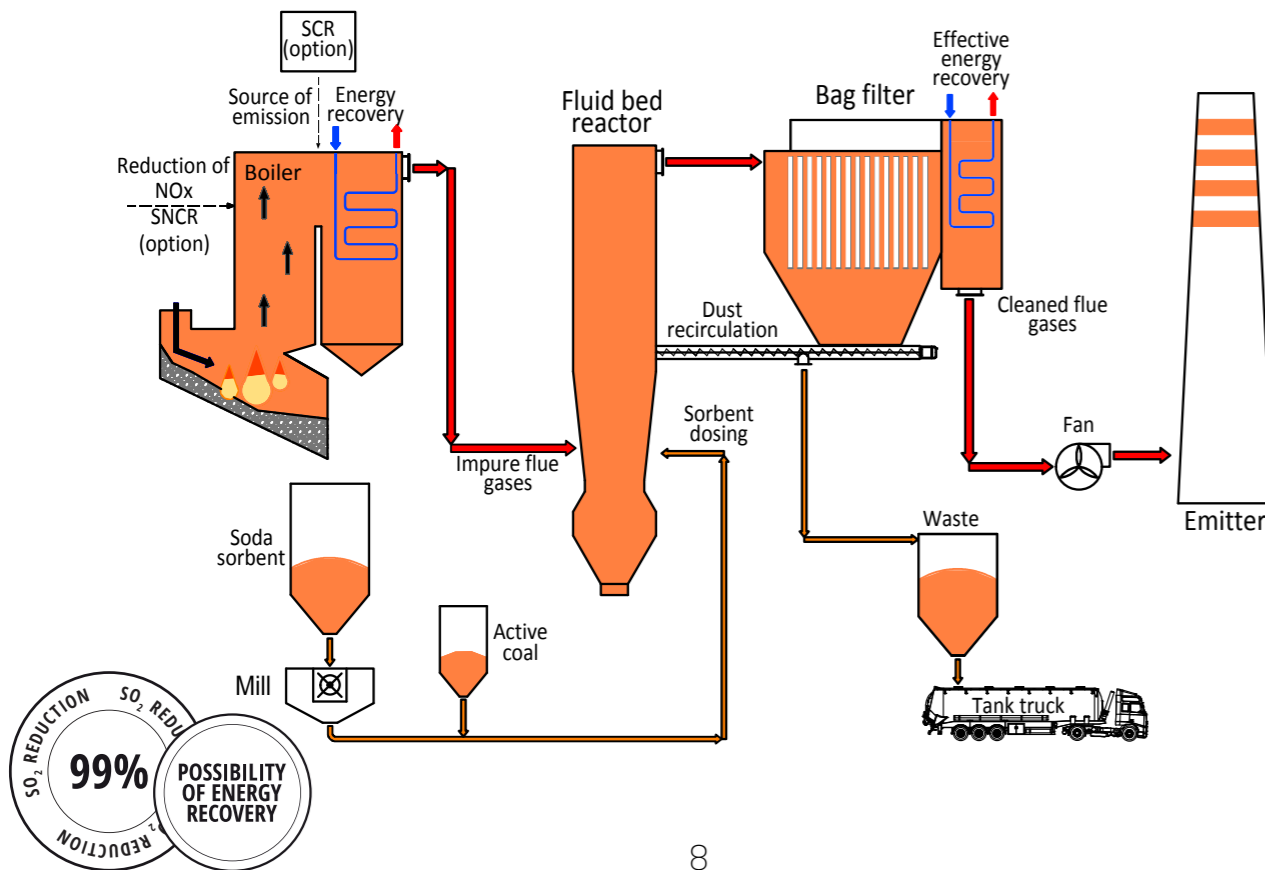
## Installation with mechanical reactor with soda sorbent



➤ Installation with fluid bed reactor with lime sorbent



➤ Installation with fluid bed reactor with soda sorbent



# NO<sub>x</sub> reduction in fumes

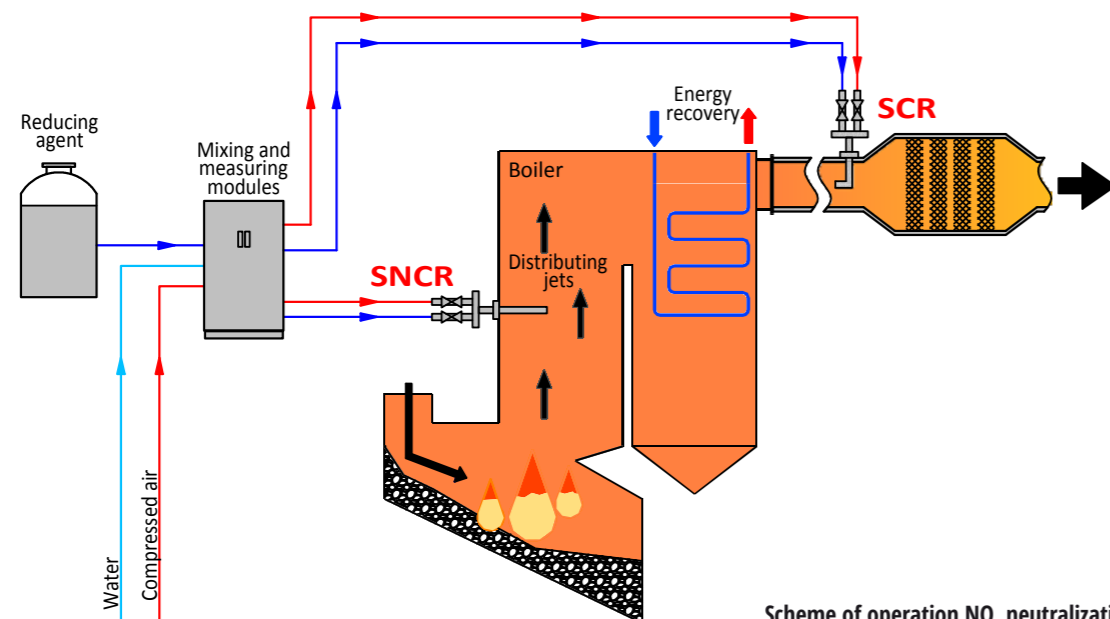
Depending on customer needs and the flue gas temperature, we eliminate the emission of nitrogen oxides by different methods. We use urea or ammonia water as the NO<sub>x</sub> reducing agent.

**Our offer includes the following NO<sub>x</sub> reduction technologies:**

<p><b>SNCR</b></p> <p>Selective, non-catalytic reduction method applied in high fumes temperatures of gases</p>	<p><b>SCR</b></p> <p>Selective, catalytic reduction method applied in low temperatures of gases</p>	<p><b>COMBINED METHOD</b></p> <p>Combination of SNCR and SCR methods</p>
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## Benefits:

- > Effective NO<sub>x</sub> reduction systems are combination of proven technologies based on long-term experiences and innovative technology.
- > Low cost consumption and high availability

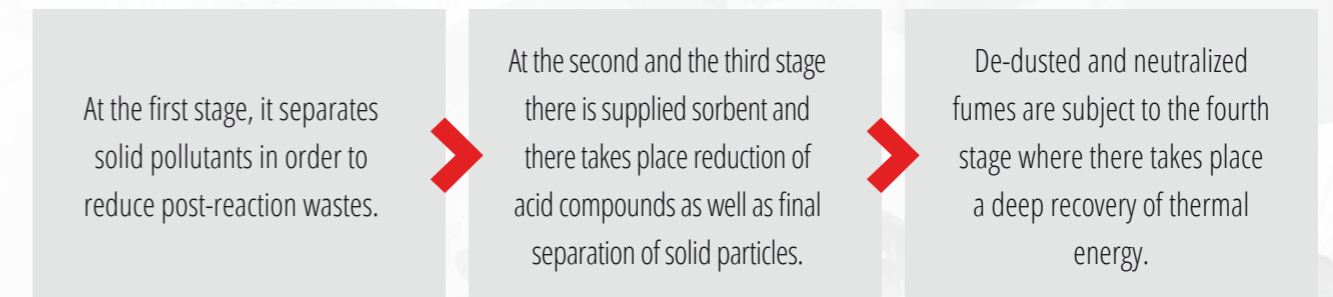


Scheme of operation NO<sub>x</sub> neutralization system

# Integrated Air Protection System with Energy Recovery

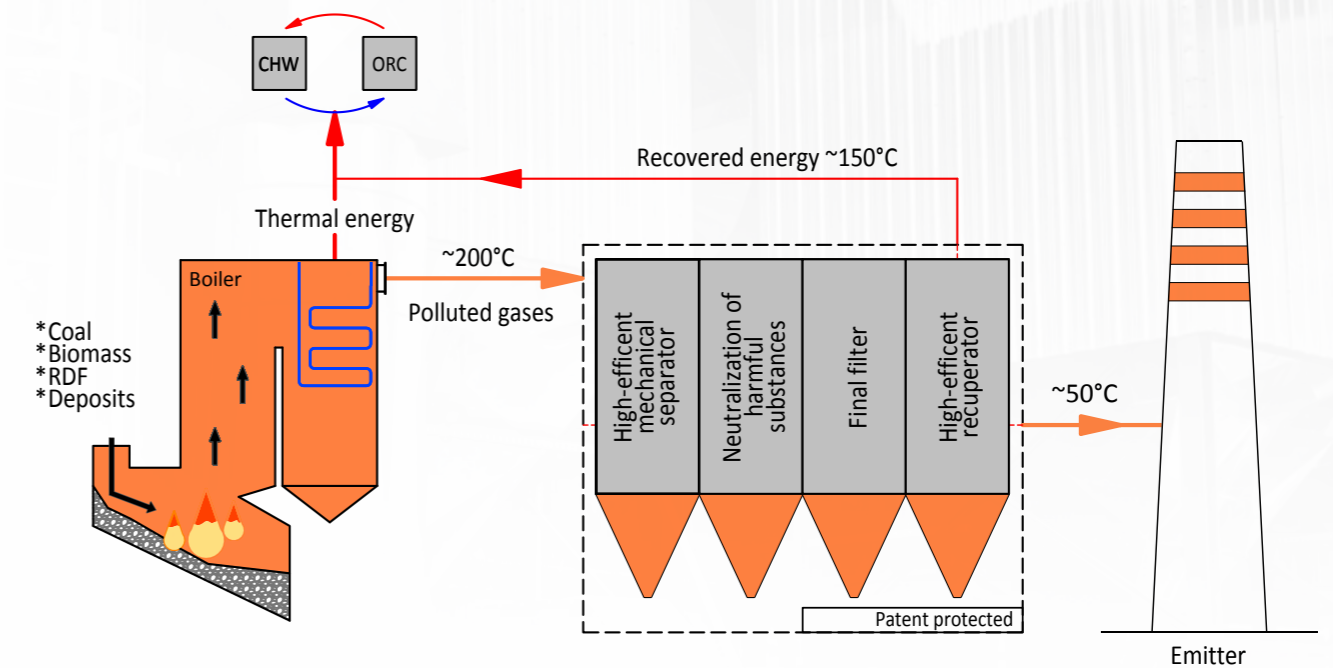
This technology developed by INSTAL-FILTER SA enables the recovery of energy when solid fuels (coal, biomass, RDF, sludge) are combusted.

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



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 fumes and residue energy recovery in the framework of a single compact device.**



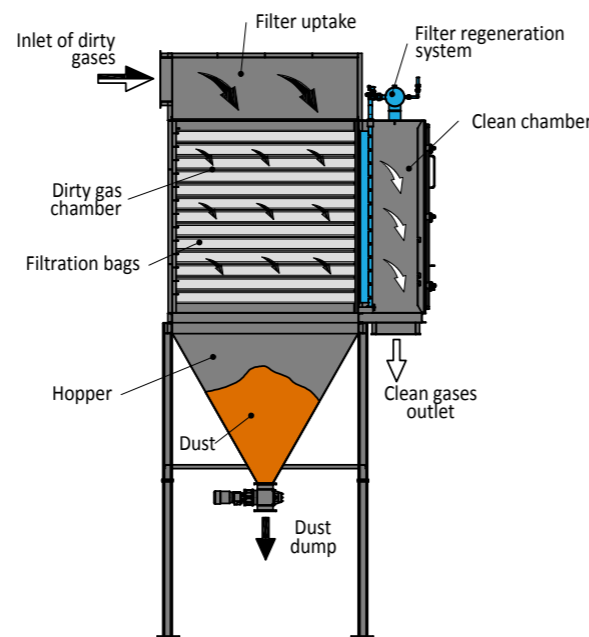
Scheme of integrated air protection system with energy recovery

# 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

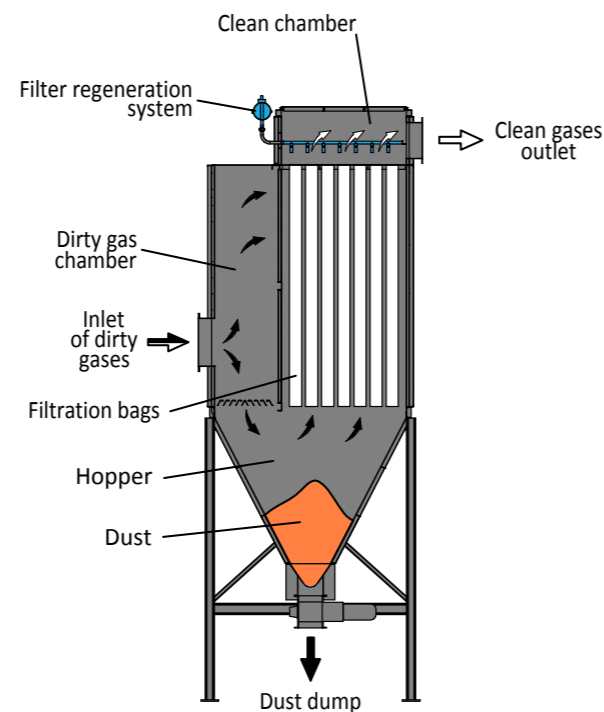


# Vertical bag filters

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



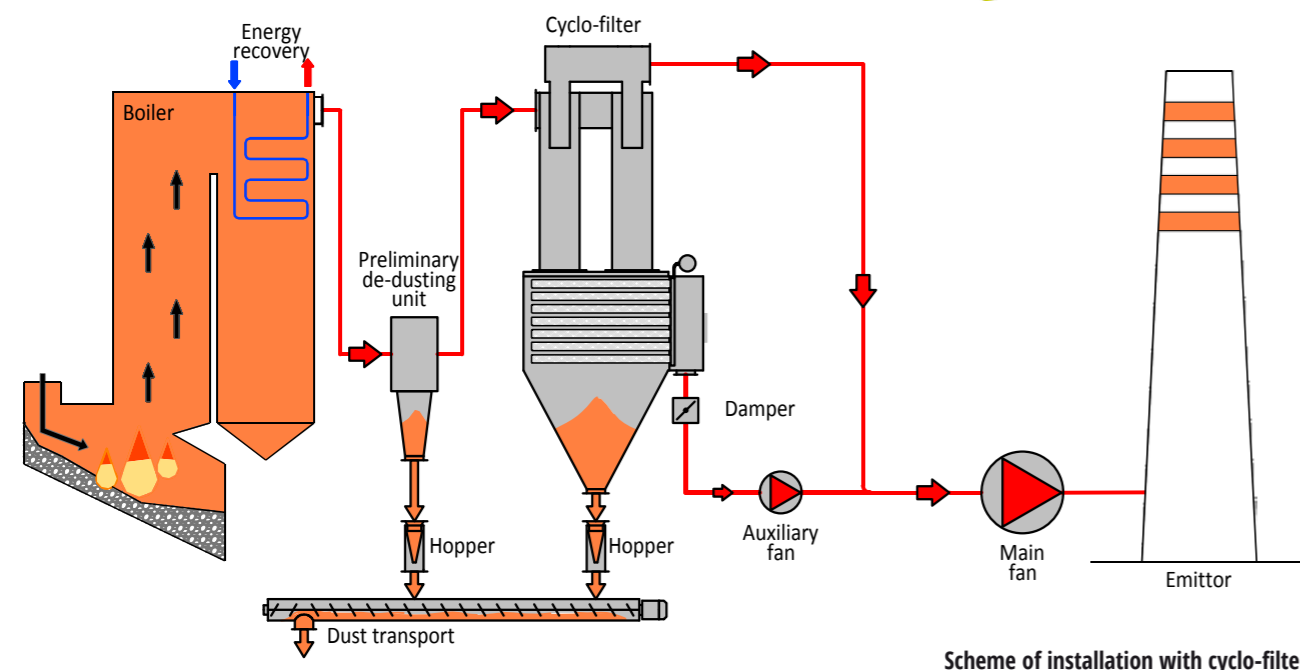


# Cyclo-filters

They combine the advantages of mechanical devices unproblematic operation and high efficiency of bag filters.

Cyclo-filters eliminates the imperfections of mechanical de-dusting units by “passing” fine dust particles as a result of entrainment during the so-called reverse the vortex at the bottom of the cyclones. This defect was effectively removed by using a filter module.

The unique construction of the bag filter with flat horizontal bags, allows the placement of the filter chamber in the space between the hopper and the cyclone. Enforced flow through the filtrating bags takes place acc. to so called support stream. Fumes from the filter’s clean chamber, via the support stream fan, are directed into the main stream (channel before the main fan).



## Benefits:

- > Low investment and operational costs compared to bag filters and electro-filters
- > The highest quality elements characteristic for horizontal bag filters (baskets, bags, regeneration system)
- > High efficiency of de-dusting
- > Long shelf-life of a unit
- > Possibility of partial re-circulation of purified fumes to a boiler in order to reduce on O<sub>2</sub> and NO<sub>x</sub>
- > Possibility of extension to bag filter
- > Multi-stage completion of an investment



## 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. Moreover, we service installations and equipment of third-party manufacturers.

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.



“Comprehensive and professional service, which led to success, makes we certainly recommend INSTAL FILTER SA from Kościan as a reliable and honest Contractor.”

Senior Project Manager ArcelorMittal Polska

“When implementing the investment, the Contractor showed his broad technical knowledge and a professional approach to the Customer”

Deputy President of the Management Board ZEC Katowice

“INSTAL FILTER SA provided a comprehensive realization, from the technical design, through the delivery of components and equipment, to the assembly of the installation and commissioning. All work specified in the Contract completed as intended, and the conducted warranty testing have confirmed the achievement of guaranteed emissions of pollutants into the atmosphere”

President of the Management Board Megatem Lublin

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

# INDUSTRIAL AIR PURIFICATION SYSTEMS



## INSTAL-FILTER SA

ul. Północna 1A, 64-000 Kościan  
Poland

tel. +48 65 535 12 00, fax +48 65 619 45 45  
e-mail: [biuro@instalfilter.pl](mailto:biuro@instalfilter.pl)

[www.instalfilter.com](http://www.instalfilter.com)