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**ЭНЕРГОМАШ**  
Э К О Л О Г И Я



Cleaner production - investment in the future



KAZENERGOMASHECOLOGY

[www.kaz-eme.kz](http://www.kaz-eme.kz)

## Founder in

2003 (part of CONSORTIUM ENERGOMASHECOLOGY)

- Design and engineering center
- Production

## Structure

- Montage

## We built plants for

- particle separation from air and / or flue gases
- semi-dry chemisorption of crude gases such as HF, HCl, SO<sub>x</sub>
- SO<sub>2</sub> - removal with wet scrubber

## Developed equipment

- ESP
- Fabric (bag) filter
- Reactor for semi-dry chemisorption of crude gases
- “Wet” scrubber
- Other

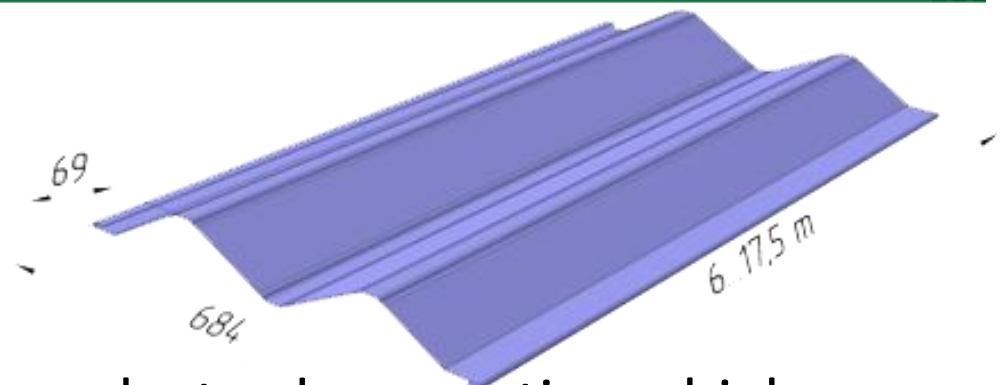
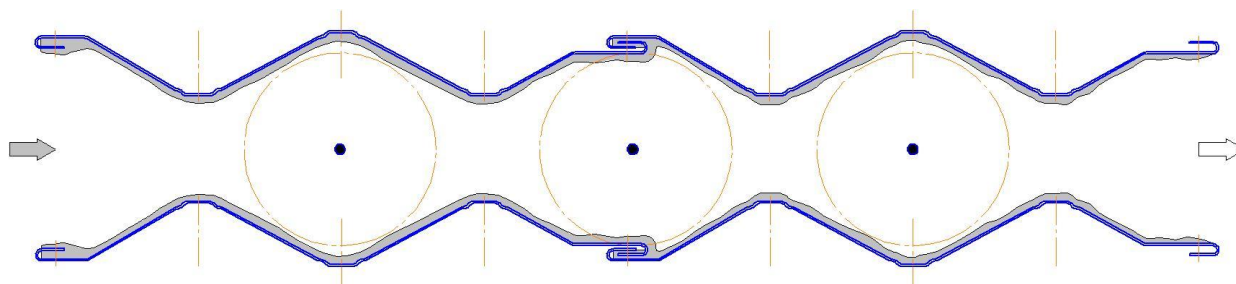
## Partners

- STEULER-KCH GmbH (Germany)
- LUEHR FILTER GmbH & Co. KG

**Our core activity is the forward-looking and innovative development of our products and procedures for the separation of particulate and gaseous substances from the air and/or process gas.**

Our plants give the following benefits:

Reliable observance of required emission levels



There are special forms of precipitation and corona electrodes, creating a high-performance electric field

Reliable equipment and components

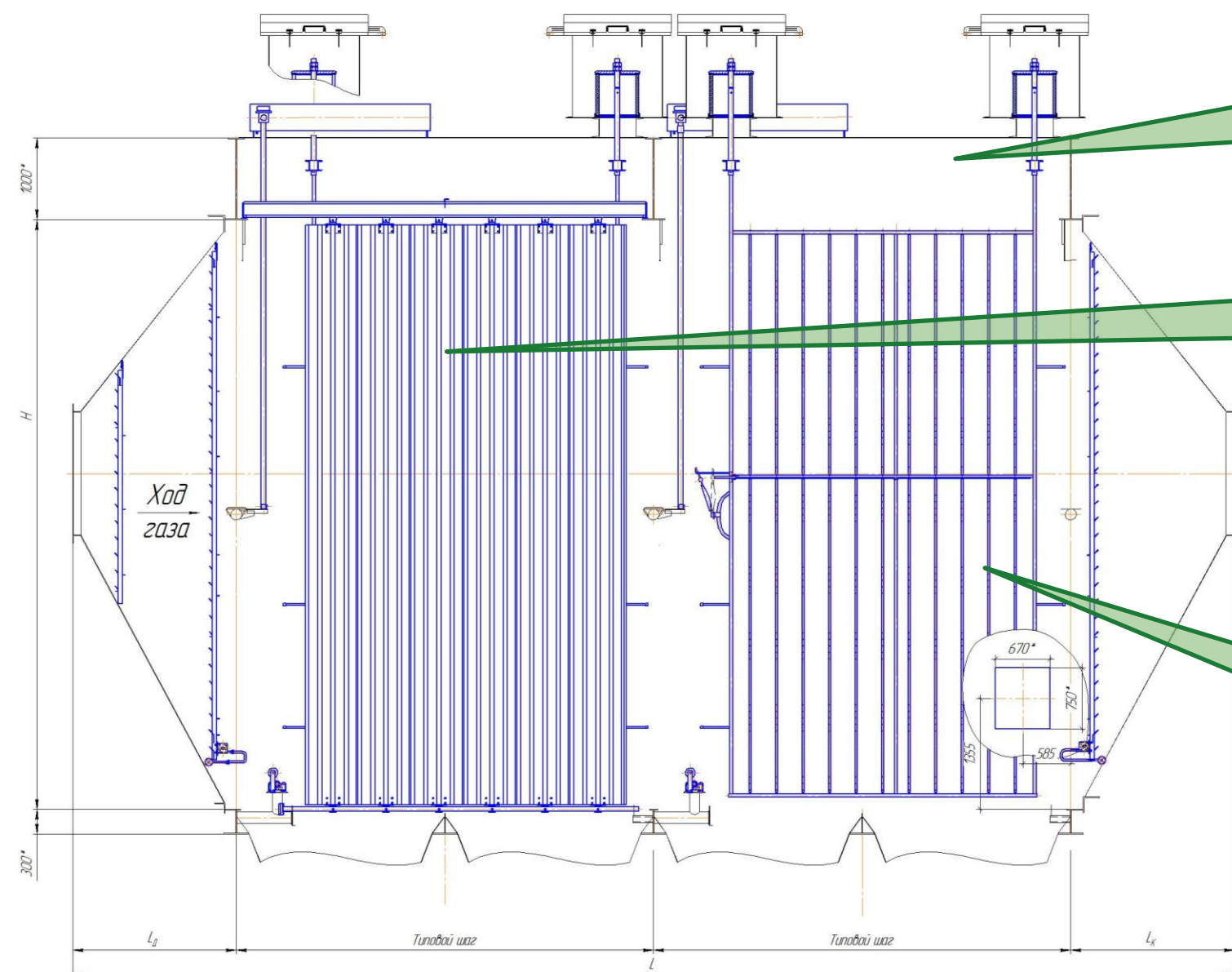
Very long bag life

Low maintenance



# Electrostatic precipitator

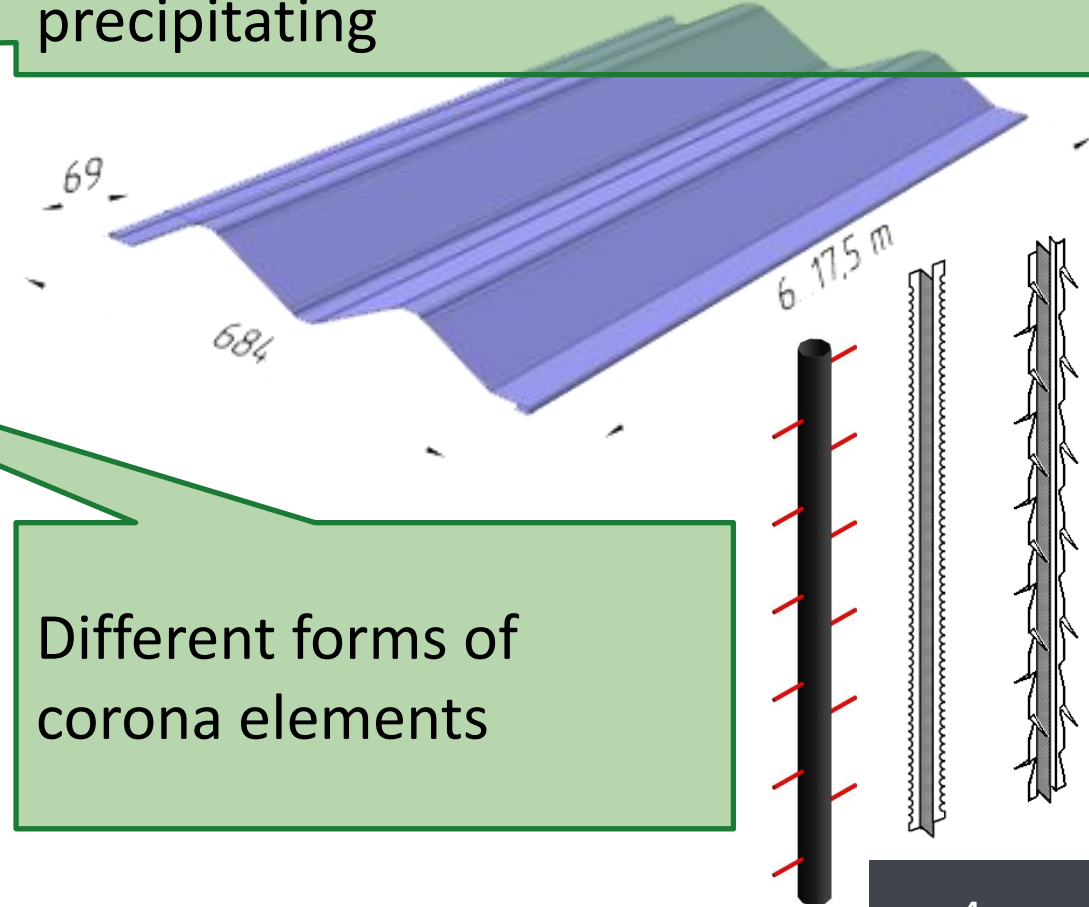
## High capture efficiency



Maximum use of the internal volume of the case

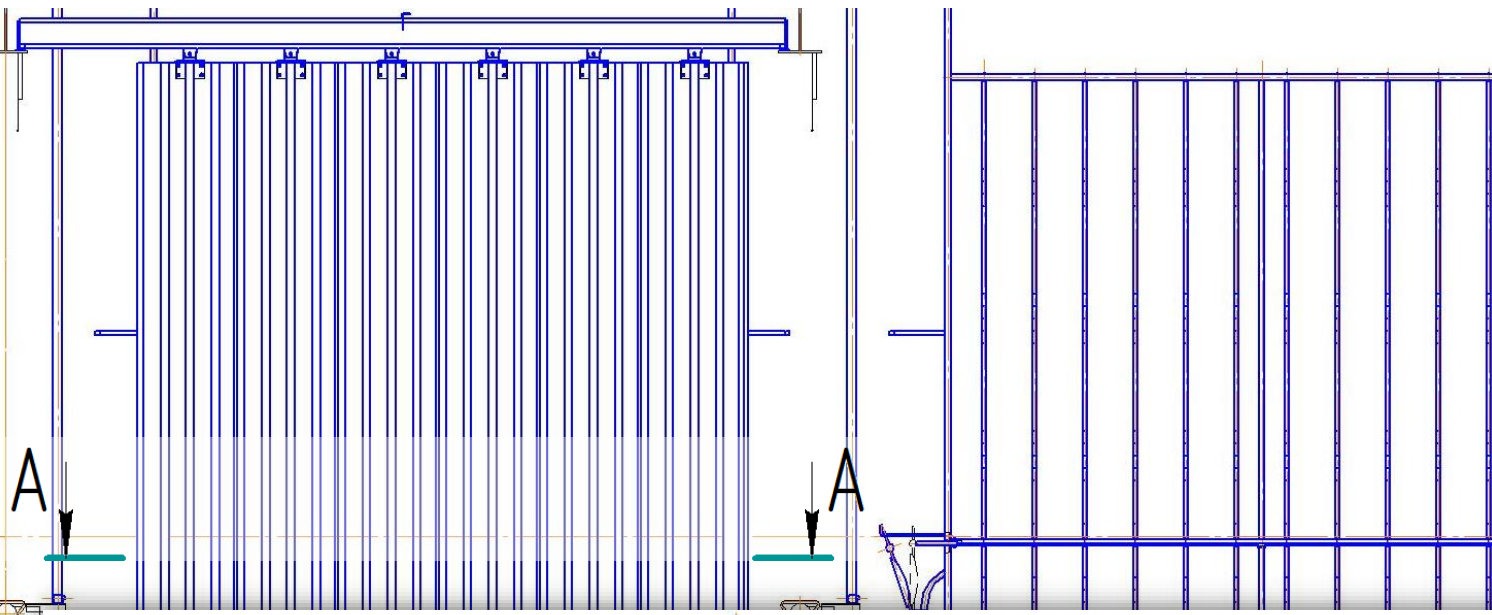
The special form of the element of precipitating

Different forms of corona elements

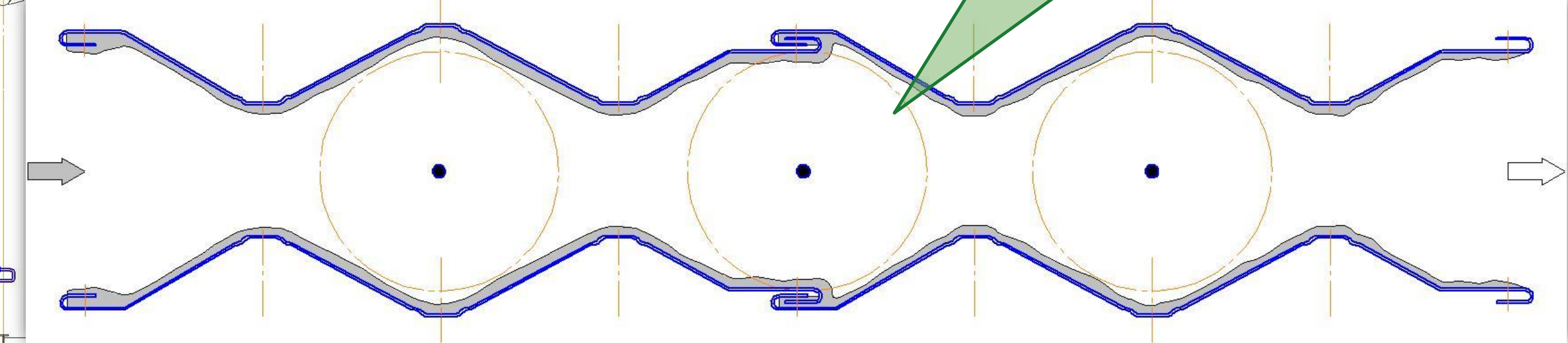


# Electrostatic precipitator

High capture efficiency



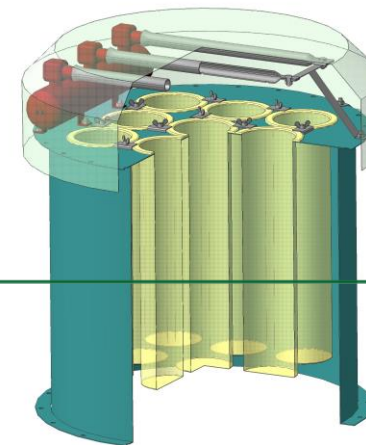
High-efficiency electric field with a constant current density.  
Low secondary carry-over.



Cleaning of gases: no more than 20 mg/m<sup>3</sup> (on request no more than 1 mg/m<sup>3</sup>).

Our specialists have developed 4 groups of standard sizes of filters:

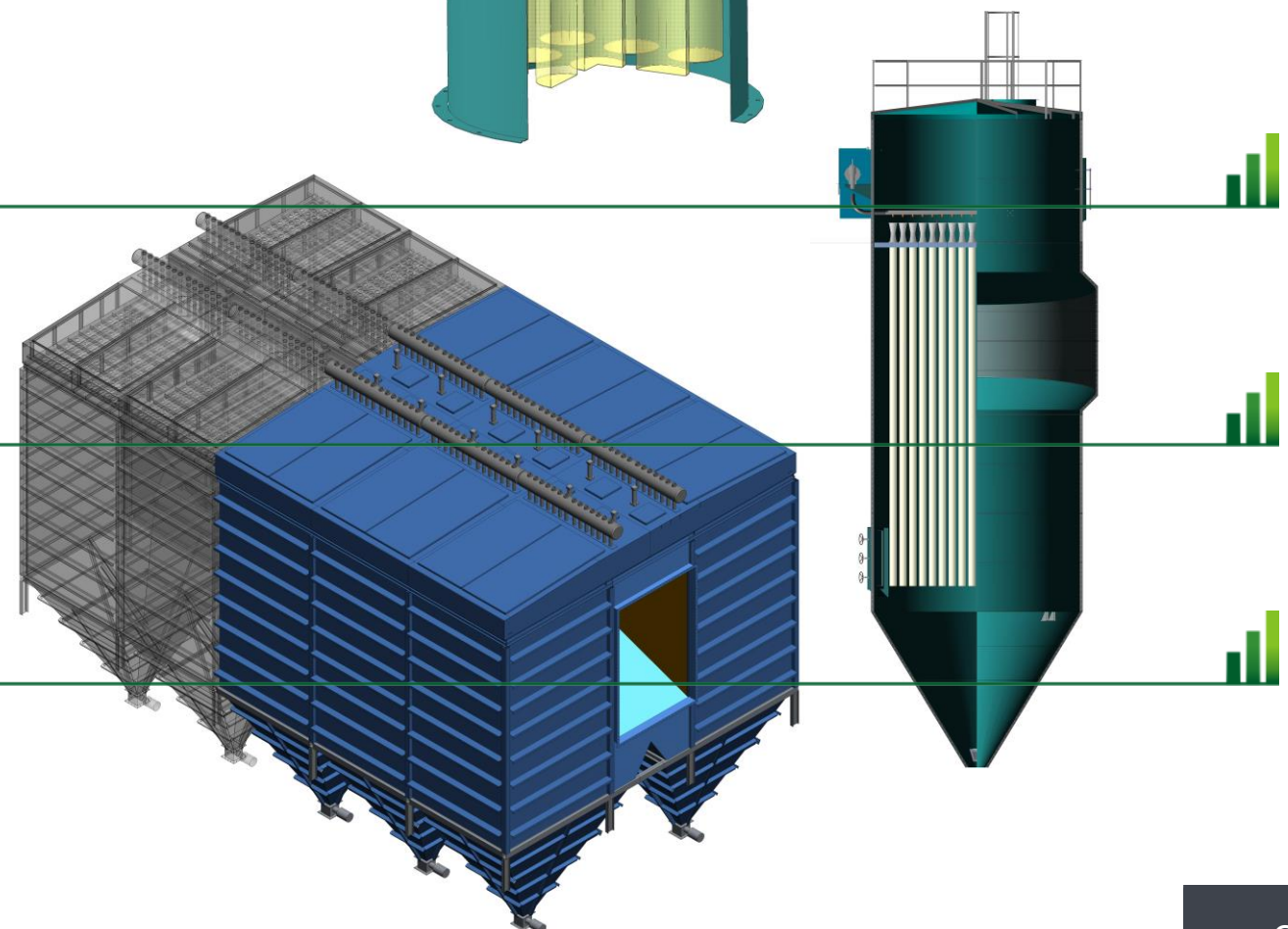
- Local (silo filter and product overflow places)



- Hose filters with tangential inlet

- Bag filter (module)

- Bag filter (high productivity)

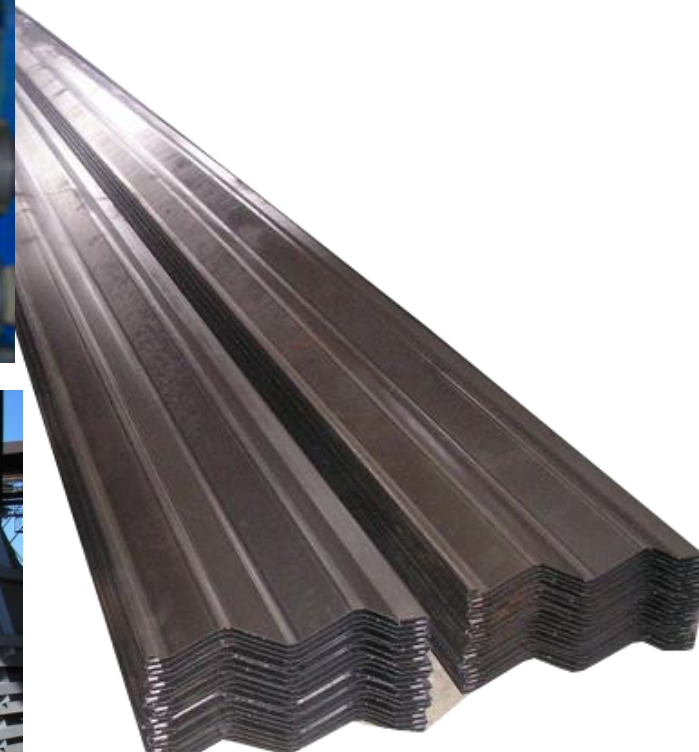


# PRODUCTION

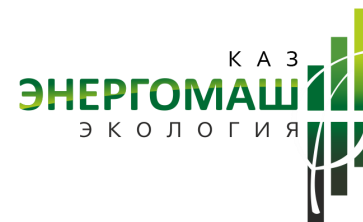


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Our main plant is situated in Zaporozhye, Ukraine.



# DESULFURIZATION FLUE GASES



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We offer installation of wet scrubber with our partners STEULER-KCH GmbH (Germany)





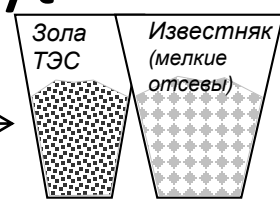
## Typical sorbent (Ca(OH)<sub>2</sub>) preparation process

Commodity CaCO<sub>3</sub> – 15-25 \$/t  
(fraction 40-120 mm)

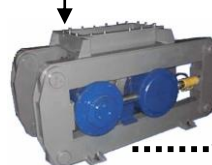
CaO – 120-150 \$/t

## Sorbent preparation process – DALSICA

screening CaCO<sub>3</sub> – 3-5 \$/t  
(fraction 0-20 mm)



Mixer



Granulator



The gas generator and furnace in one unit

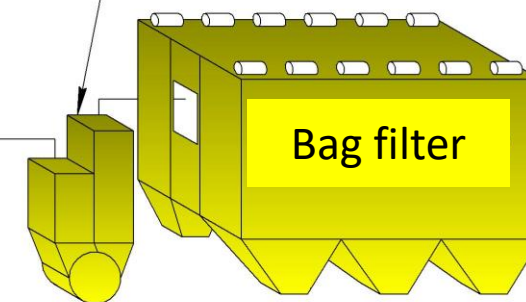


Смеситель

Ca(OH)<sub>2</sub>



Reactor








Bag filter

**Sorbent DALSICA**

We offer the installation of a semi-dry gas desulfurization system with our DALSICA sorbent production system.

DALSICA give the following benefits:

- Improving the efficiency of desulphurization systems 
- Low operating costs for gas cleaning 
- ROI – 2-3 years 
- Disposal (sale) wastes 
- and other 

**DALSICA** – method for obtaining cheap sorbent

# References

Off gas cleaning & Roomdedusting



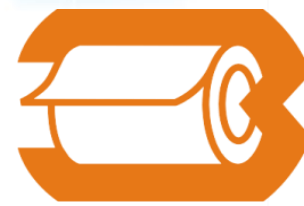
ESP

- Crude gas quantity 690 000 m<sup>3</sup>/h
- Take - over temperature 80°C



2xESP

- Crude gas quantity 800 000 m<sup>3</sup>/h
- Take - over temperature 80°C



## 2xESP

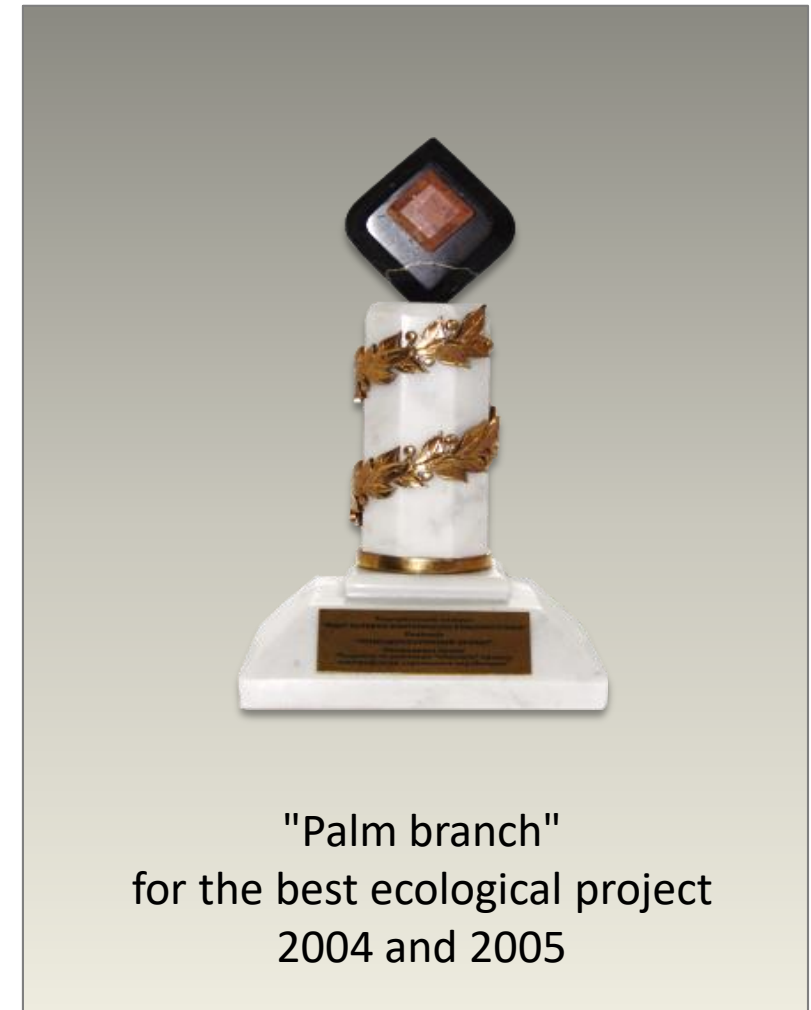
- Crude gas quantity 1 600 000 m<sup>3</sup>/h
- Take - over temperature 80°C



## Стахановский завод ферросплавов Stakhanov Ferroalloy Plant (Ukraine)



Bag filter for ferroalloy furnaces №5 and 6



"Palm branch"  
for the best ecological project  
2004 and 2005

### 6xESP for unit №9, 10, 11

- Crude gas quantity 1 560 000 m<sup>3</sup>/h – 1 unit
- Take - over temperature 160°C





**Здолбуновский цементный завод  
«Волынь-цемент»  
«Volym-Cement» cement factory**



**ESP**

- Crude gas quantity 400 000 m<sup>3</sup>/h
- Take - over temperature 190°C



ESP

- Crude gas quantity 270 000 m<sup>3</sup>/h
- Take - over temperature 150°C

# PULP AND PAPER MILL



## Кохавинская бумажная фабрика Kohavinskaya paper mill



### Bag filter

- Crude gas quantity 30 000 m<sup>3</sup>/h
- Take - over temperature 150°C



2xESP

- Crude gas quantity 80 000 m<sup>3</sup>/h
- Take - over temperature 250°C

## OUR CLIENTS



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### **ENERGY**

Burshtyn TPP  
Slavyanskaya TPP  
Kurakhovskaya TPP  
Ivankov TPP-1, Kiev region.  
Darnitskaya TPP, Kiev  
TPP Cherkasy

### **METALLURGY**

Stakhanov Ferroalloy Plant  
Zaporizhstal  
Alchevsk Iron and Steel  
Pobuzhsky Ferronickel Plant  
Magnitogorskiy MP  
Zaporizhzhya Refractory Plant  
Plant of weighting (Konstantinovka)

### **BIO-ENERGY**

Oil Extraction Plant Liskinsky  
Kuban company "Elite-oil"  
Solombalsky PPM  
Nevinnomyssk Oil Extraction Plant  
Slavuta Malt  
Zaporozhye Oil and Fat Factory

### **CEMENT**

Volyn-Cement, Zdolbunov, Rivne region.  
Nikolaevcement, Nikolaev, Lviv region.  
Yugcement, urban settlement Olshansky, Mykolaiv region.



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**THANK YOU FOR YOUR  
ATTENTION**