



Industrial Minerals

INDUSTRIAL MINERALS DIVISION PRESENTATION



Industrial Minerals

Content

- è **SCHEUCH Products for the Cement Industry**
- è **High Performance EMC Cleaning System**
- è **EMC Evolution Step 1 -> 8m bags**
- è **EMC Evolution Step 2 -> 10m bags**
- è **Story of Success**



Industrial Minerals

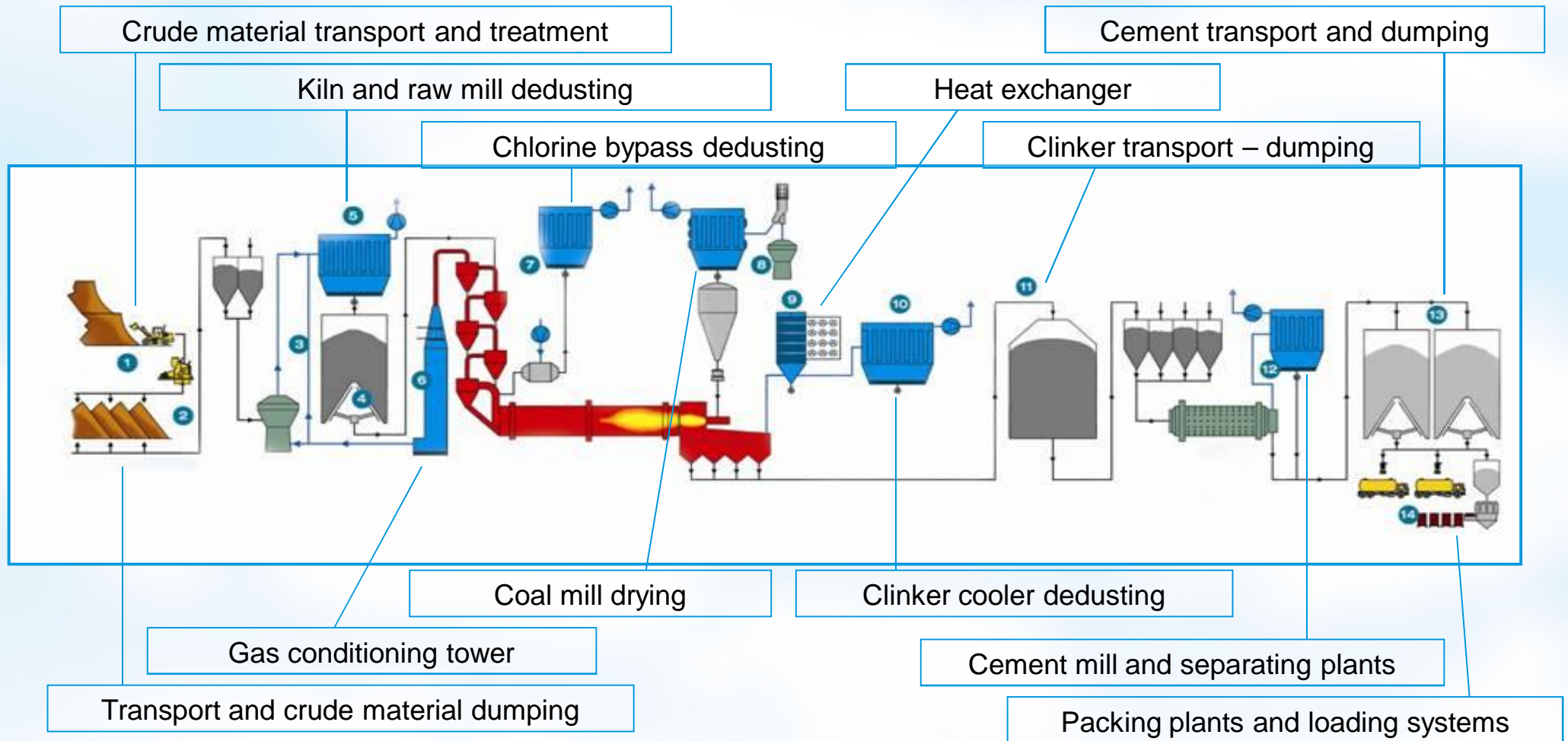
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Products for the Cement Industry

From quarry to cement loading





Products for the Cement Industry



Compact Pulse Jet Bagfilter

Standard filter bag Ø 100 mm
Airflow 600 – 20.000 m³/h





Products for the Cement Industry

 **Compact Pulse Jet Bagfilter**





Products for the Cement Industry

 **Pulse Jet Bagfilter**

**Standard filter bag Ø 165 mm
filters with bag length up 6.000 mm**





Products for the Cement Industry



Pulse Jet Bagfilter (low pressure low volume)

process filter bag Ø 165 mm
filters up to 2.5 Mio m³/h
bag lengths up to 10.000 mm

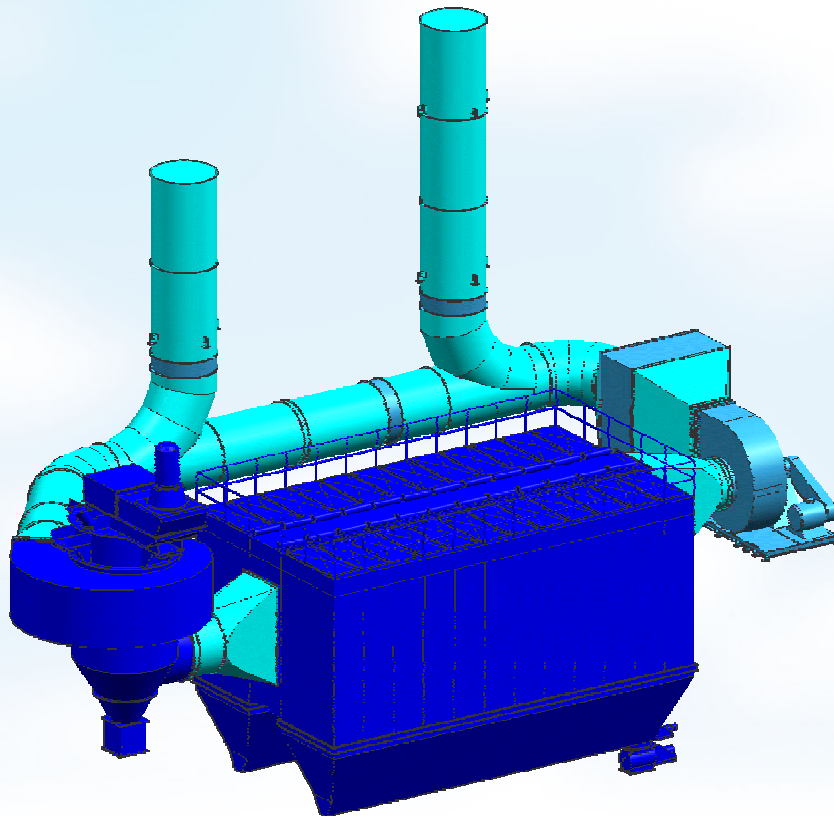




Products for the Cement Industry



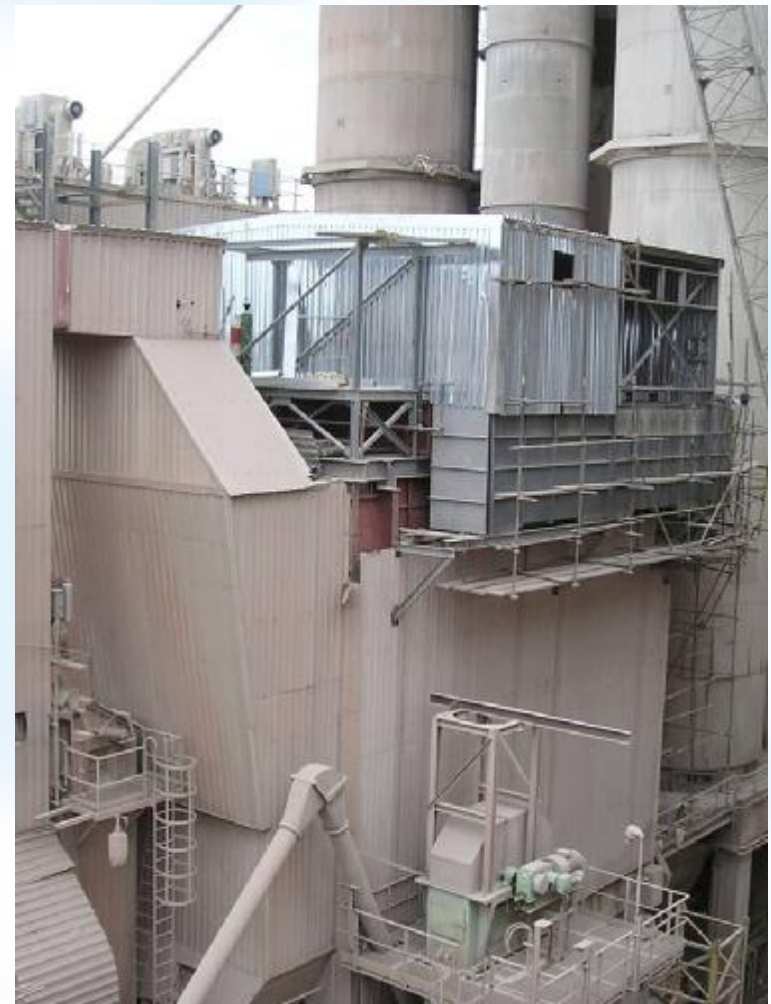
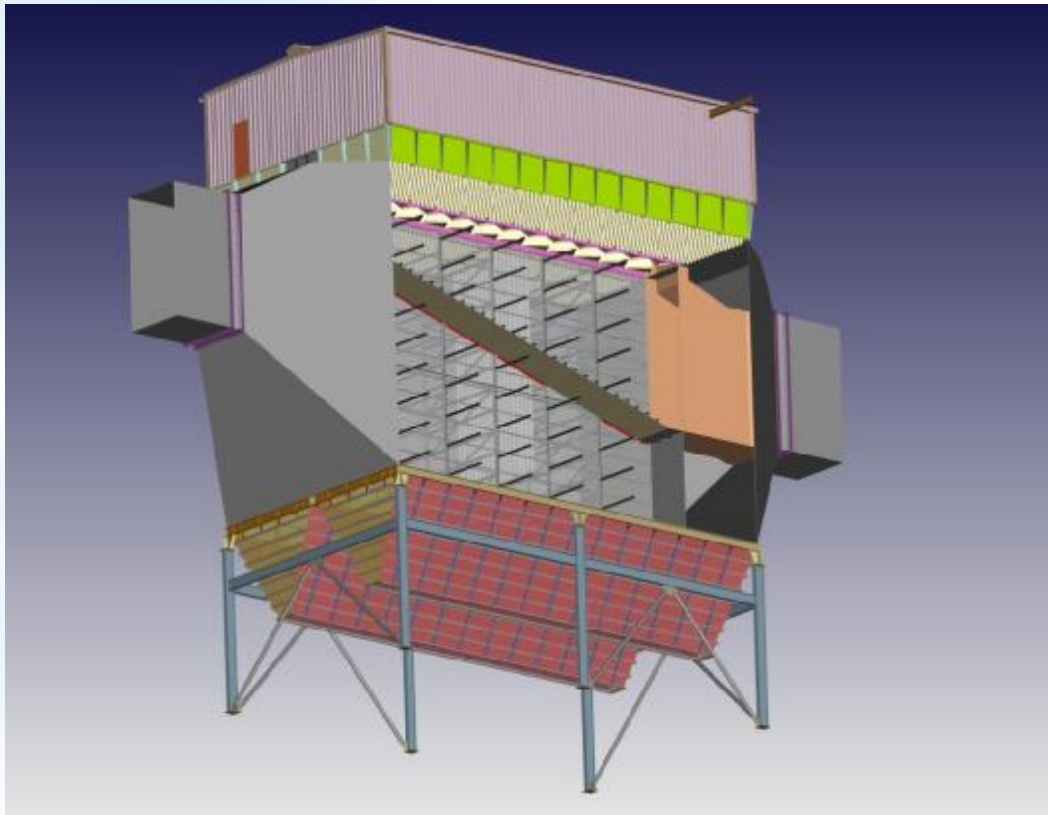
**filters with high airflows and dust loads
f.e. separator dedusting / vertical roller mills**





Products for the Cement Industry

è EMC Retrofit of old ESPs
ENERGY MINIMIZING CONCEPT





Products for the Cement Industry

è SCHEUCH Clean Air Fans

radial fans up to 700.000 m³/h ; high pressure fans up to 20.000 Pa

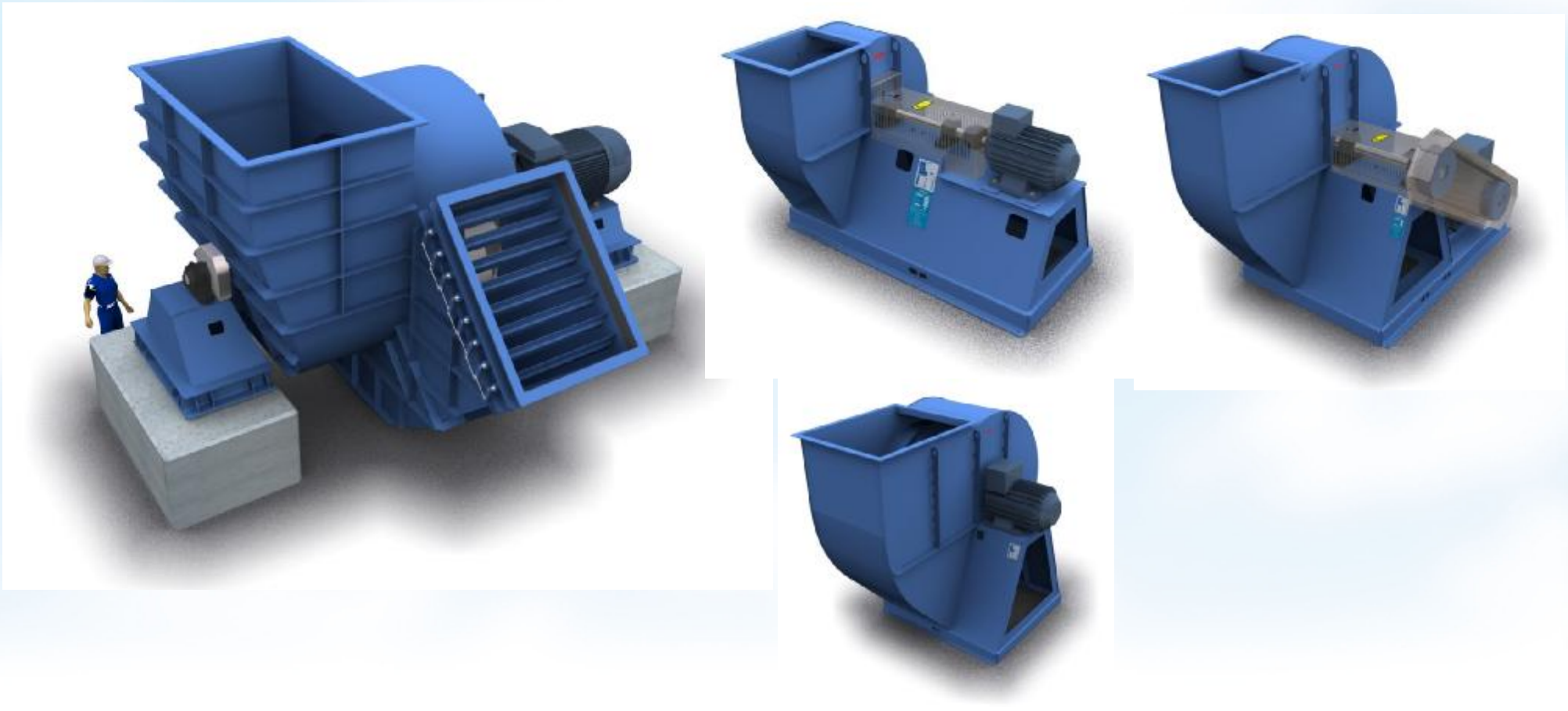


**3,000 fans
per year**



Products for the Cement Industry

è **SCHEUCH Radial Fans -> wide type range**





Products for the Cement Industry

è **SCHEUCH Dust Loaden Fans with wear protection**

process fans for cement separator circuits





Products for the Cement Industry

è SCHEUCH Dust Handling Systems

screw conveyors up to Ø 1.000 mm
rotary valves up to Ø 800 mm
double pendulum flaps

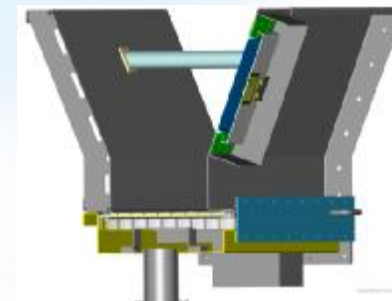
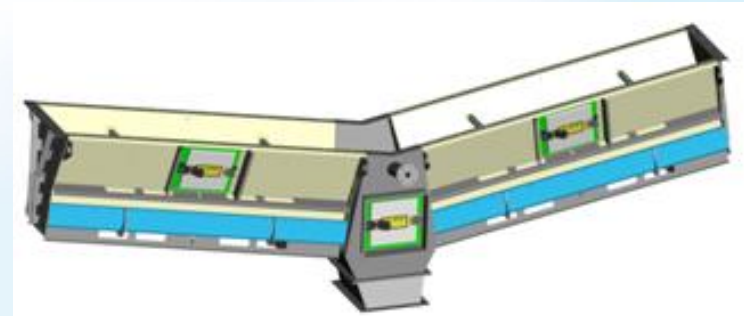




Products for the Cement Industry

è SCHEUCH Dust Handling Systems

integrated filter airslides

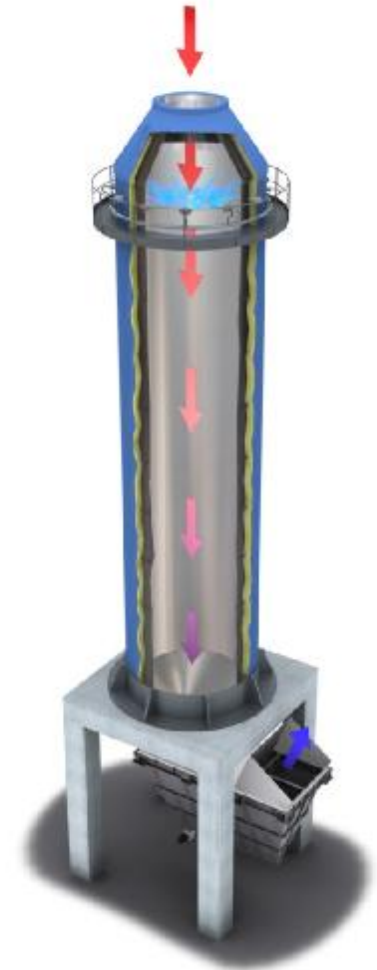
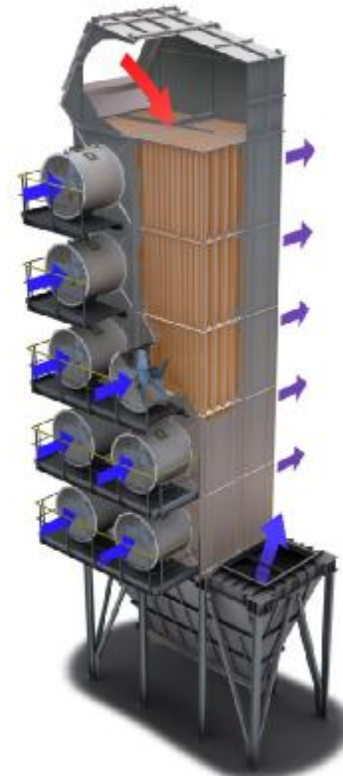




SCHEUCH Products for the Cement Industry

è SCHEUCH Gas Cooling Systems

gas cooling towers
air/air – heat exchangers
fresh air cooling systems





Products for the Cement Industry

è SCHEUCH Gas Cooling Systems





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High Performance **EMAC** Cleaning System





High Performance **EMC** Cleaning System



è What is EMC ?



= patented SCHEUCH **Semi Offline**
Low Pressure / Low Volume
Pulse Jet Cleaning System





High Performance **EMAC** Cleaning System

EMAC
ENERGY MINIMIZING CONCEPT





High Performance **EMAC** Cleaning System



è Comparison: ONLINE / OFFLINE

	Online	Offline
Advantages	<ul style="list-style-type: none">• Constant filter differential pressure	<ul style="list-style-type: none">• Small filter differential pressure (cleaning without counter-pressure)• Small cleaning pressure and compressed air demand• Higher lifetime of the filter bags
Disadvantages	<ul style="list-style-type: none">• Constant increasing filter differential pressure• Early ageing of the filter bags• High energy demand for the cleaning process	<ul style="list-style-type: none">• High variation of the filter differential pressure• Negative effects on auf primary processes and product quality



High Performance **EMC** Cleaning System



combines advantages of : ONLINE / OFFLINE

	Online	Offline
Advantages	<ul style="list-style-type: none"> • Constant filter differential pressure 	<ul style="list-style-type: none"> • Small filter differential pressure (cleaning without counter-pressure) • Small cleaning pressure and compressed air demand • Higher lifetime of the filter bags
Disadvantages	<ul style="list-style-type: none"> • Constant increasing filter differential pressure • Early ageing of the filter bags • High energy demand for the cleaning process 	<ul style="list-style-type: none"> • High variation of the filter differential pressure • Negative effects on auf primary processes and product quality



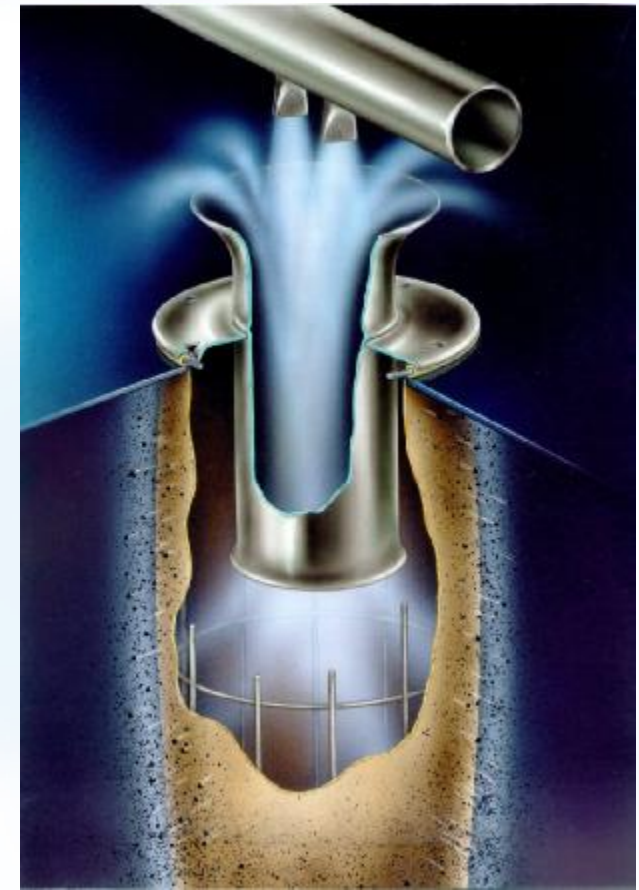
High Performance **EMAC** Cleaning System Features

ENERGY MINIMIZING CONCEPT

- è **Efficient and soft cleaning because there appears no counter-pressure**
- è **Less cleaning pressure and small compressed air demand**
- è **Decrease of the cleaning frequency**
- è **Less mechanical load of the filter bags**
- è **Noticeably longer bag lifetimes**

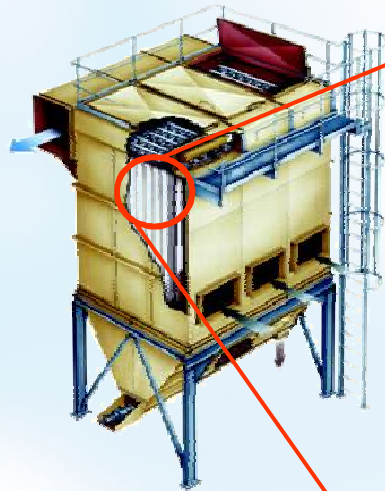
High Performance **EMAC** Cleaning System SCHEUCH Double Jet Nozzle

- è High content of secondary air
- è Constant cleaning effect over the hole bag length
- è Constant cleaning effect over the hole length of the jet pipes due to the modification of the nozzle profile
- è Constant recovery of all bags
 - à less consumption of compressed air and constant ageing

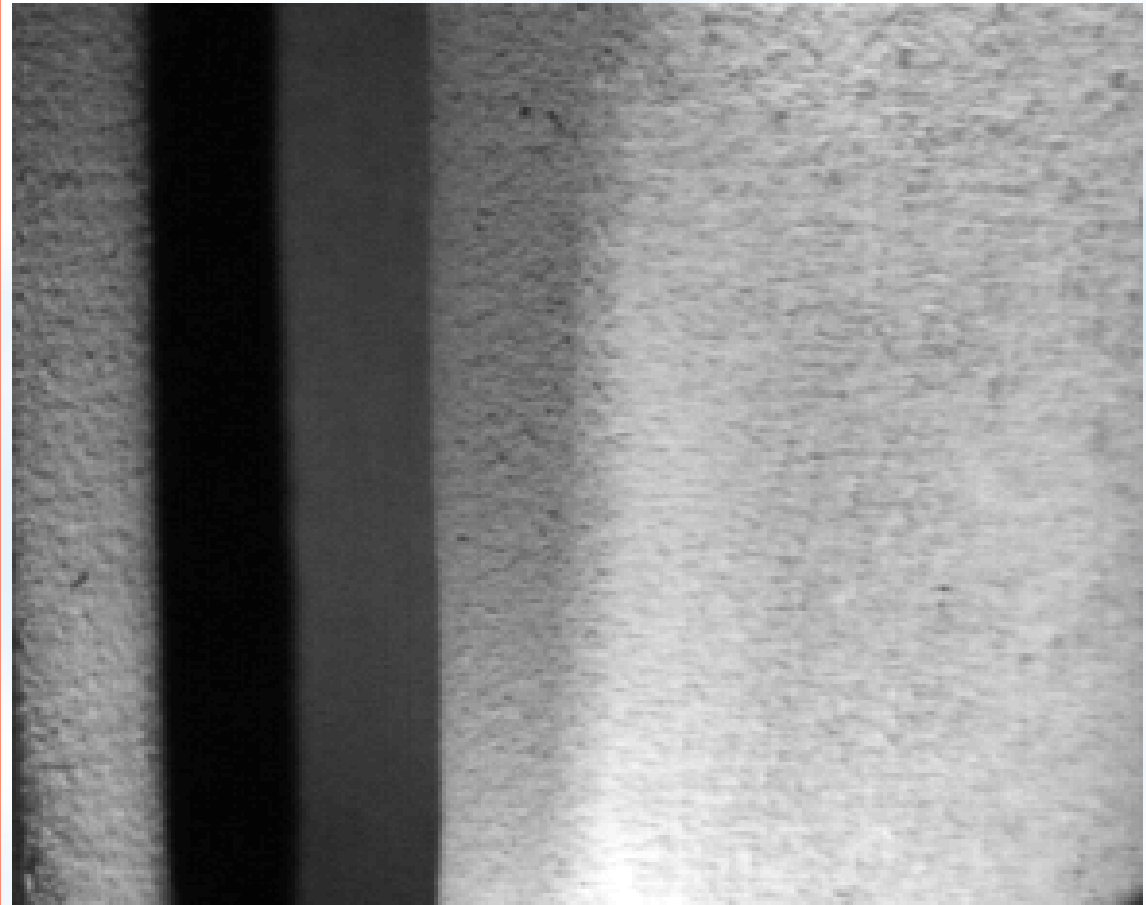




High Performance **EMAC** Cleaning System Cleaning Effect I



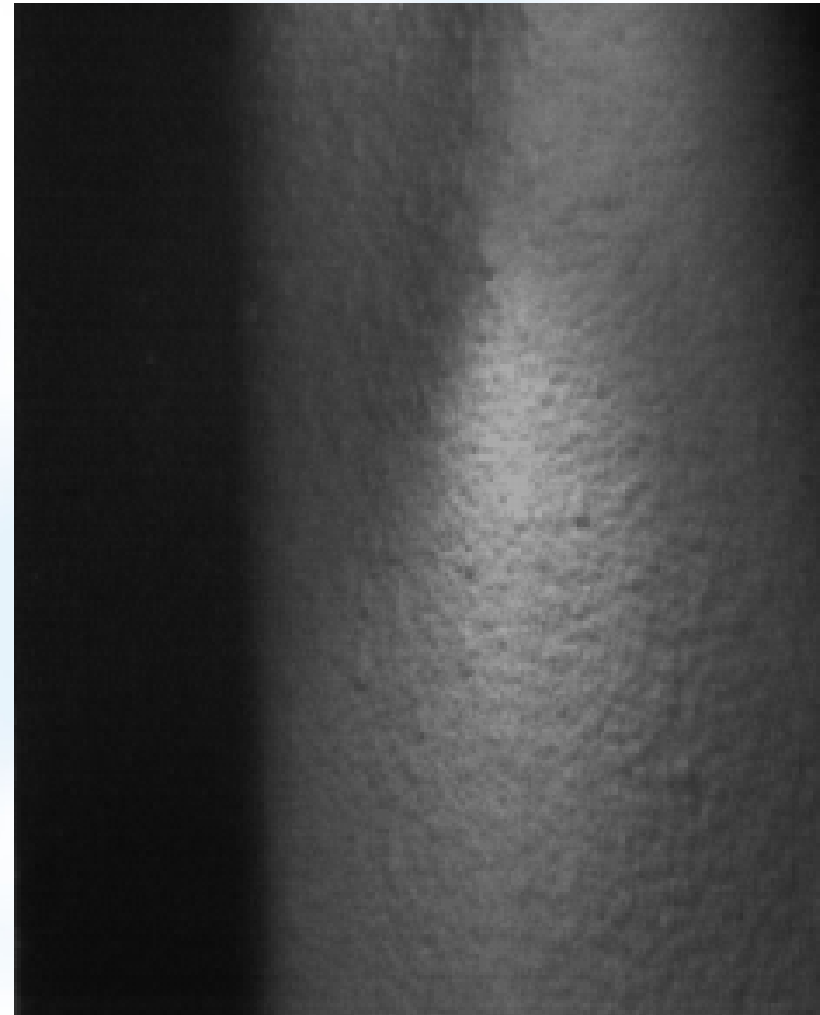
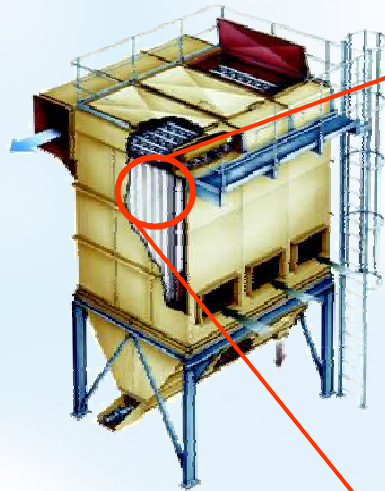
MAPULS
PULSE JET-FILTER SYSTEM



23.08.01 14:51:29 1820 3758.0l/m³ MOCAM-1000 cam3 500 Hz
Test Plant at Scheuch Technikum II Online 5,0 bar with dust



High Performance **EMAC** Cleaning System Cleaning Effect II



23.08.01 11:42:54 0787 1623 8lms1 MDCAM-1000 cam3 500 Hz
Test Plant at Scheuch Technikum IEMC 1,0 bar wight dust e2



EMAC - Filter Working Principle

ENERGY MINIMIZING CONCEPT





EMC - Optimization of Life Cycle Costs

Content

- è Minimum Operating Costs**
- è Minimum Investment Costs
- è Lowest Life Cycle Costs



Minimum Operating Costs

- è **due to optimum operating point and correct filter design**

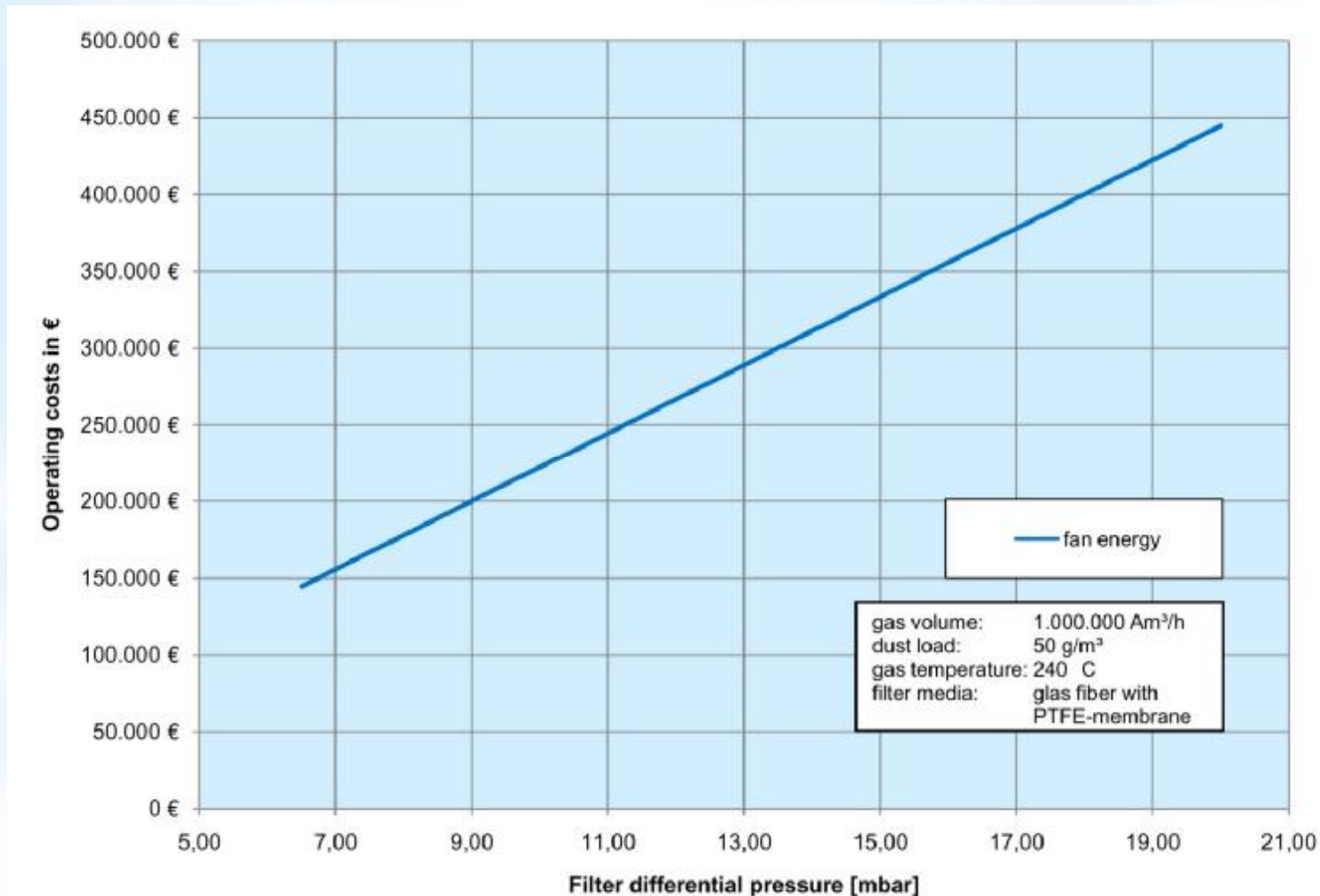
- è **3 main cost factors:**
 - è **Fan power consumption**
 - è **Filter bag costs and**
 - è **Compressed air costs**

- è **cost factors:**
 - è **behave interdependently**
 - è **dependently on filter pressure difference.**



Minimum Operating Costs

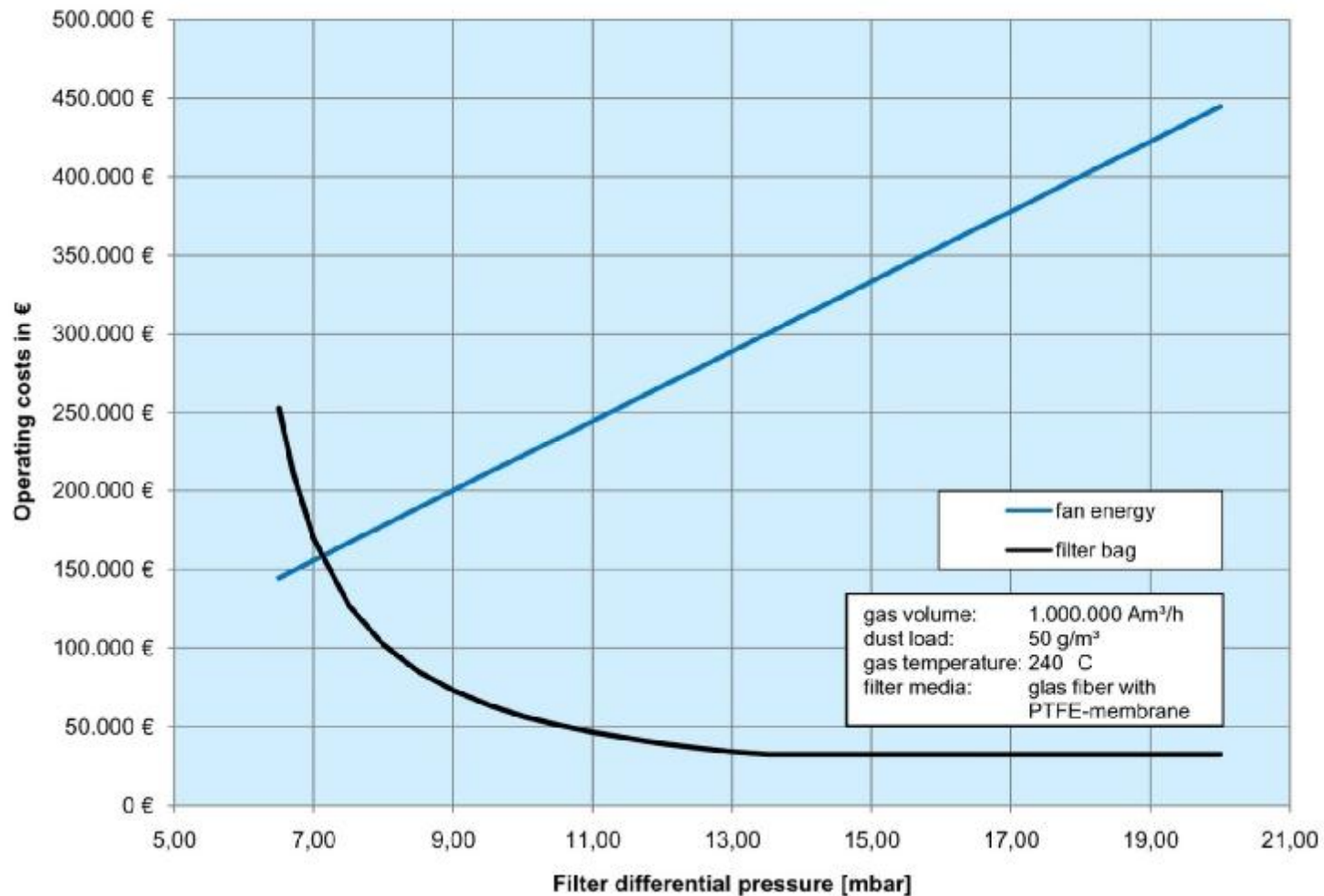
EMC Filter for kiln dedusting





Minimum Operating Costs

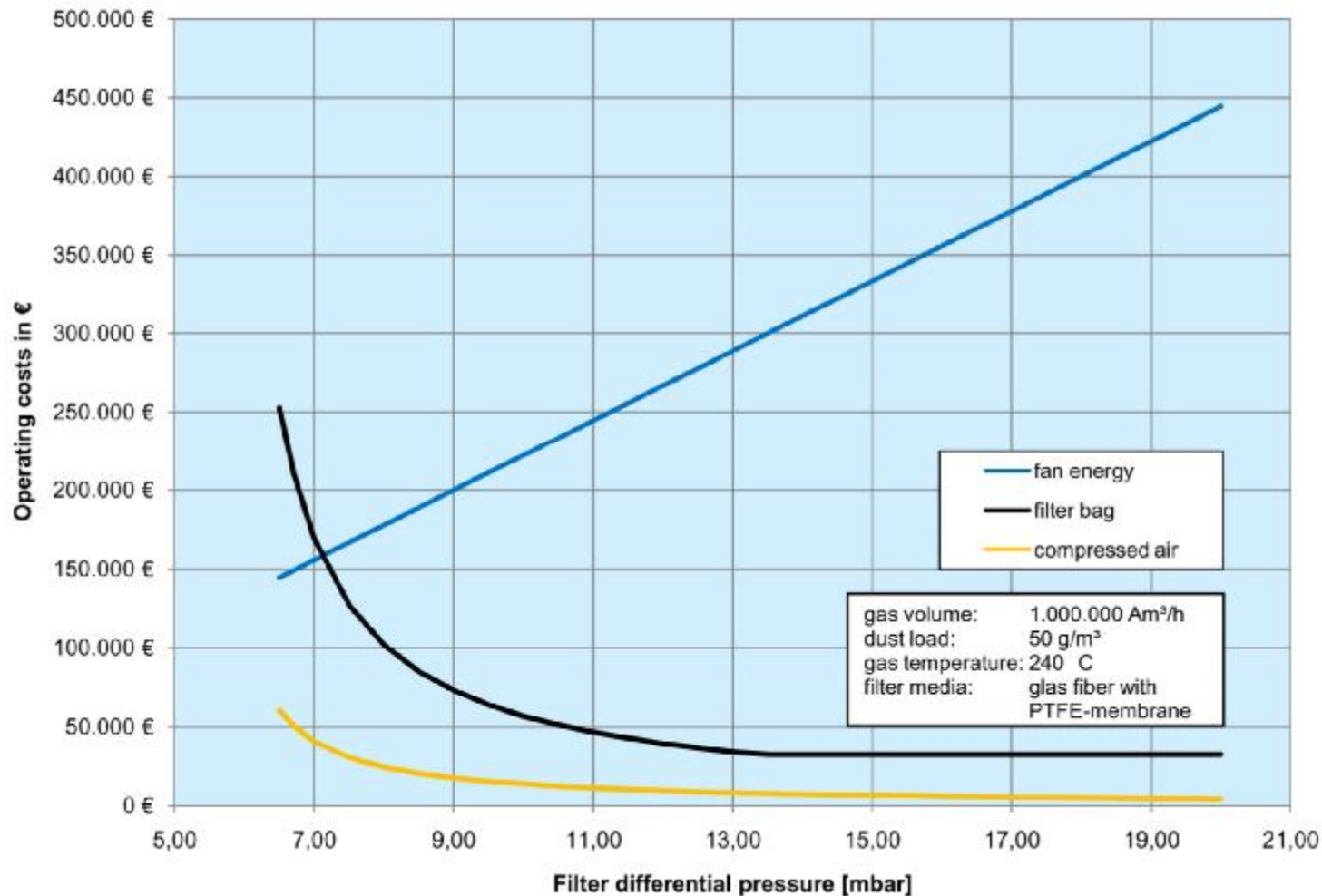
EMC Filter for kiln dedusting





Minimum Operating Costs

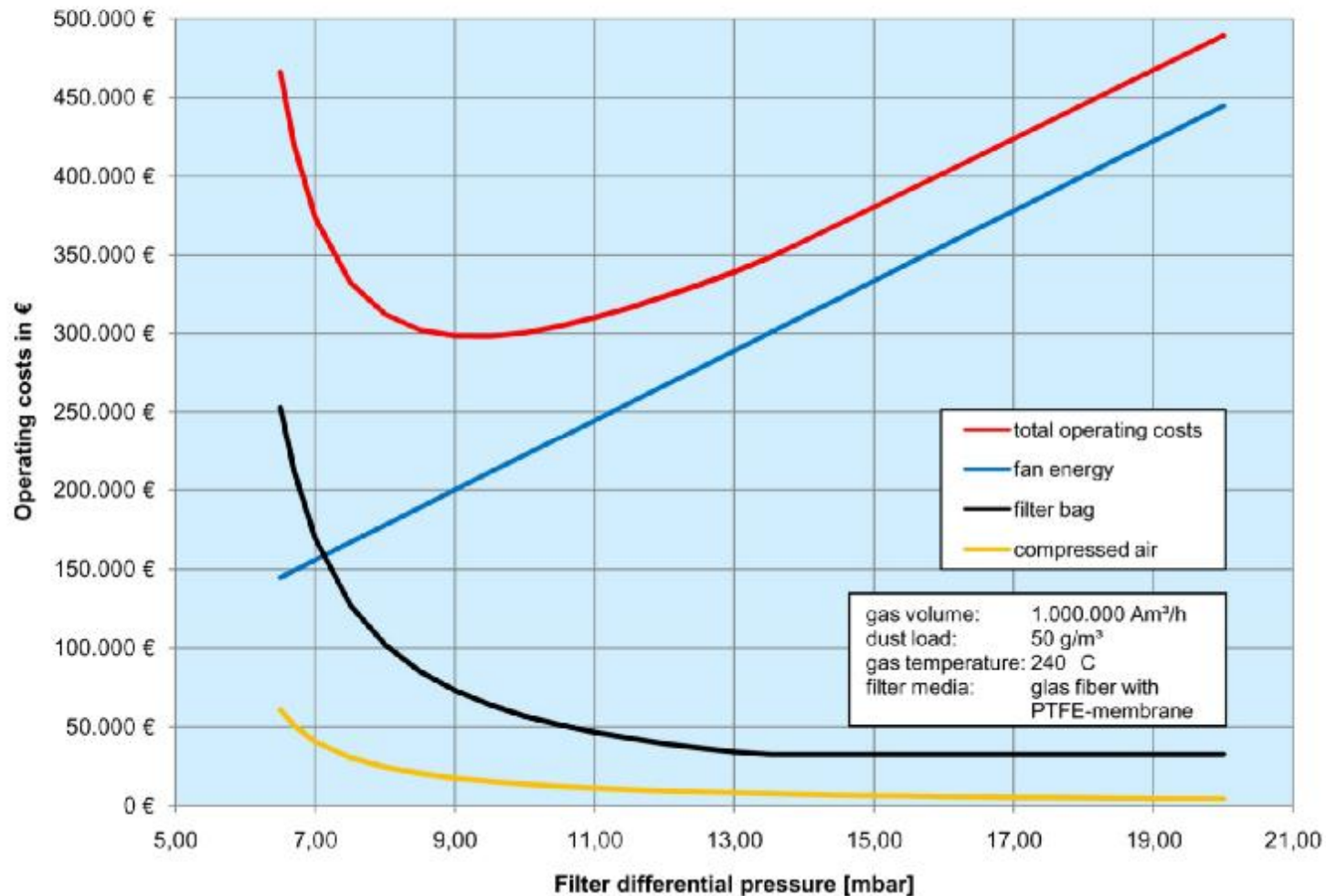
EMC Filter for kiln dedusting





Minimum Operating Costs

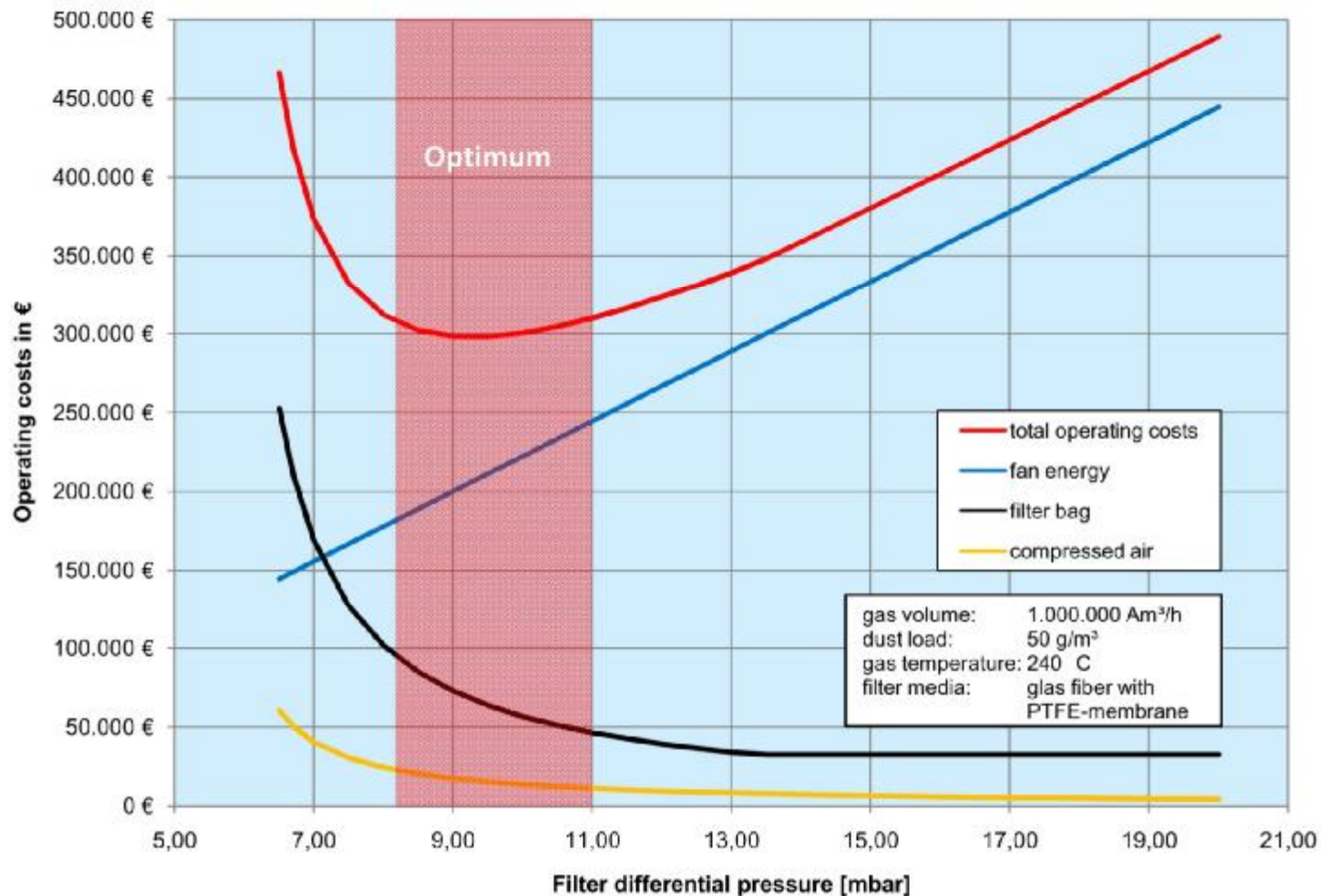
EMC Filter for kiln dedusting





Minimum Operating Costs

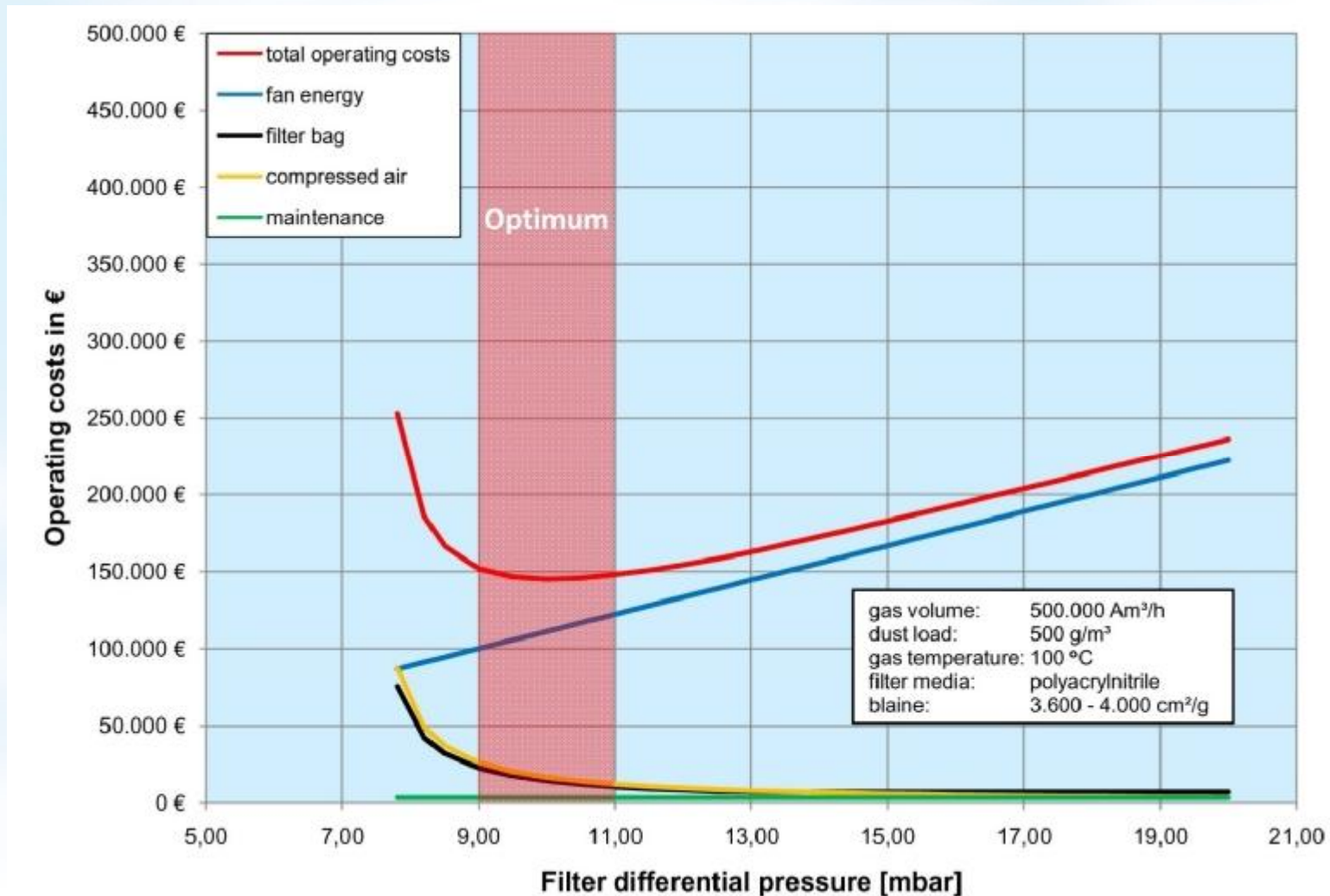
EMC Filter for kiln dedusting





Minimum Operating Costs

EMC Filter for cement mill





EMC - Optimization of Life Cycle Costs

Content

è Minimum Operating Costs

è Minimum Investment Costs

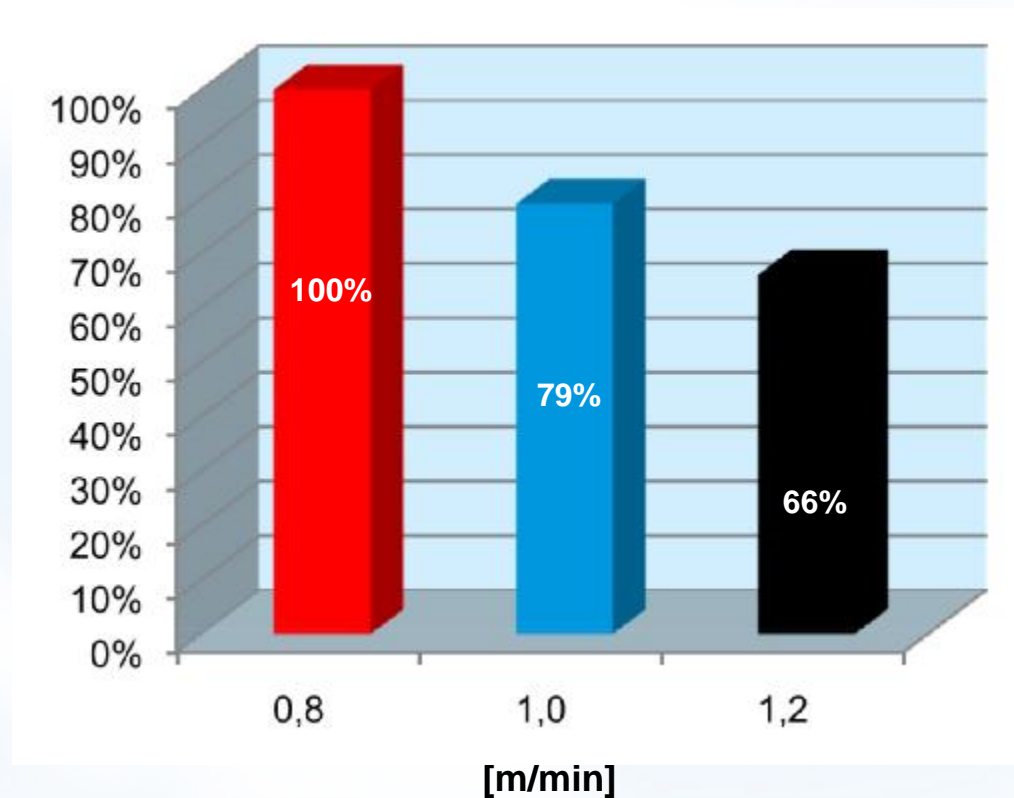
è Lowest Life Cycle Costs



Minimum investment costs depending on filter area loading

A higher filter area loading enables:

- è Reduction of the filtration area
- è Less size of the filter unit
- è Less secondary investment costs (filter support construction or building, form works)

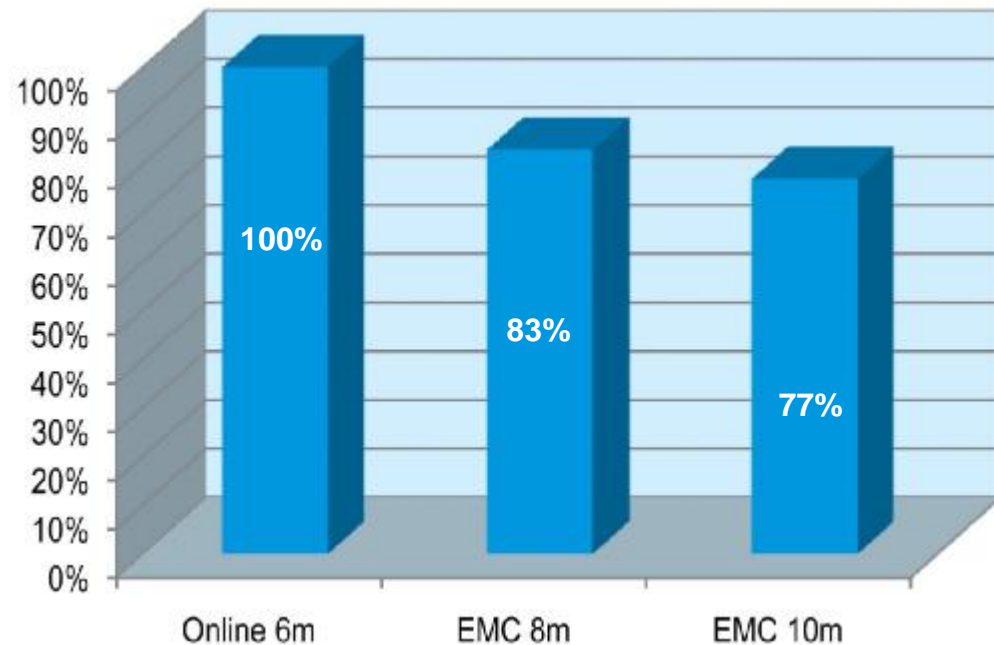




Minimum investment costs depending on filter bag length

Longer filter bags enables:

- è **Less size of the filter unit**
- è **Less secondary investment costs (filter support construction or building, form works)**





EMC - Optimization of Life Cycle Costs

Content

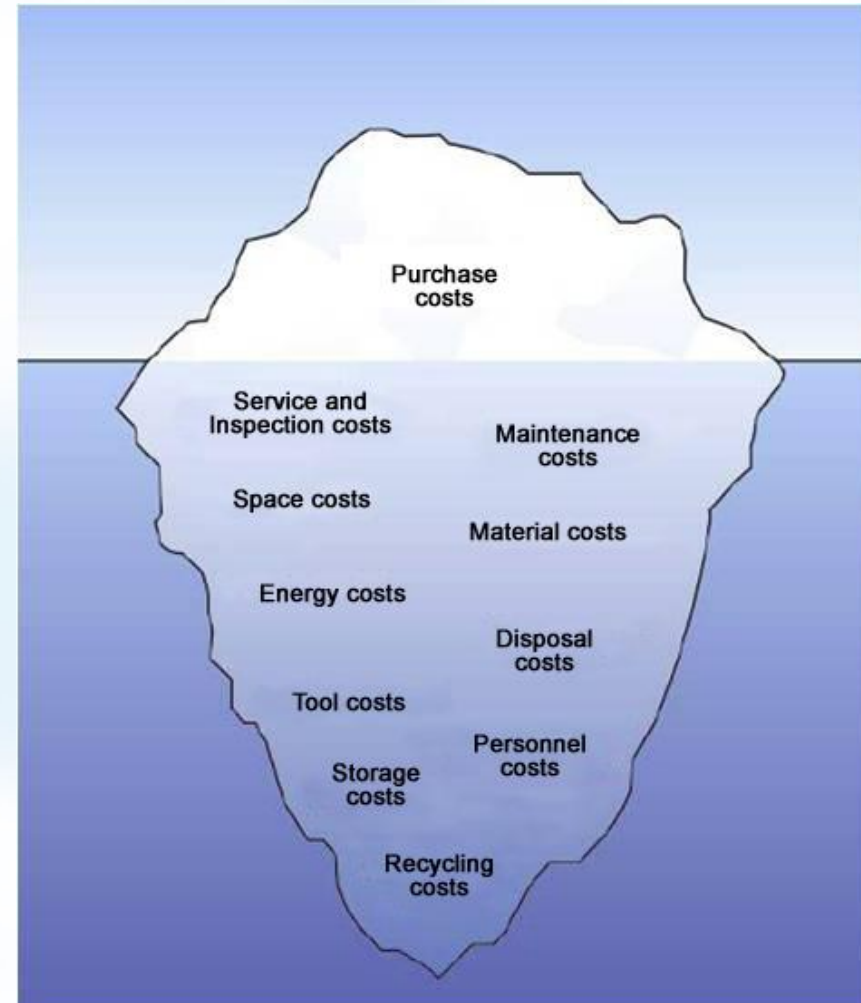
- è Minimum Operating Costs
- è Minimum Investment Costs
- è Lowest Life Cycle Costs**



Lowest Life Cycle Costs

The operating costs are many times higher than the investment costs

- è **Minimal operating costs**
- è **Energy saving**
- è **Utilization of process heat**

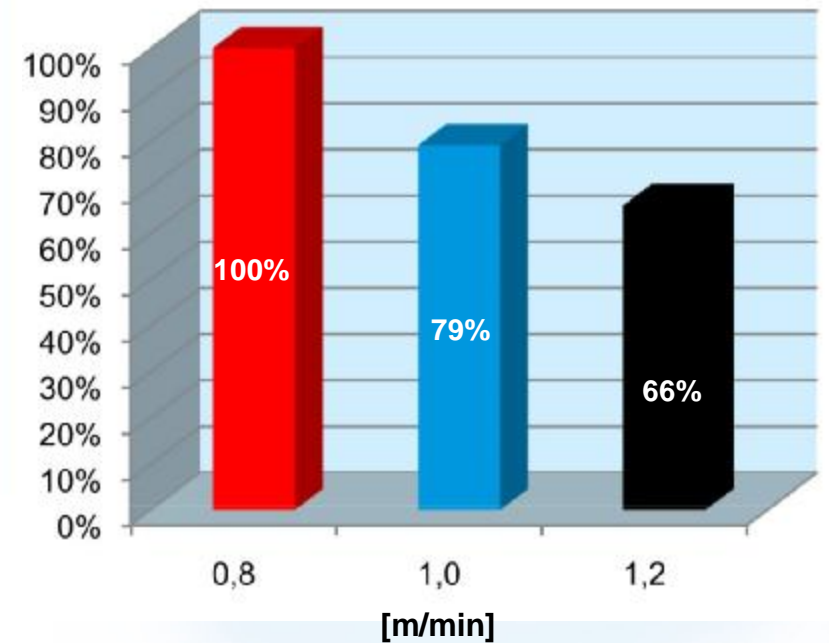
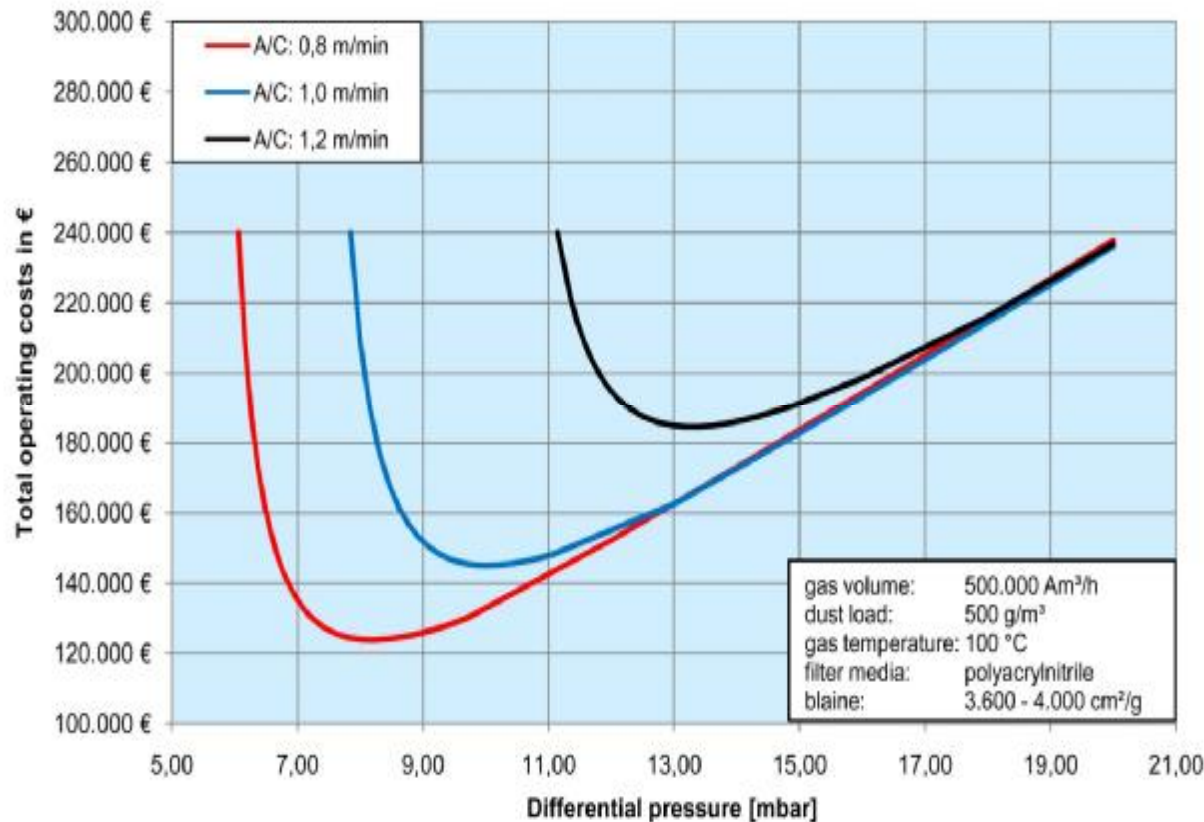




Lowest Life Cycle Costs

low operating costs à high investment costs
low investment costs à high operating costs

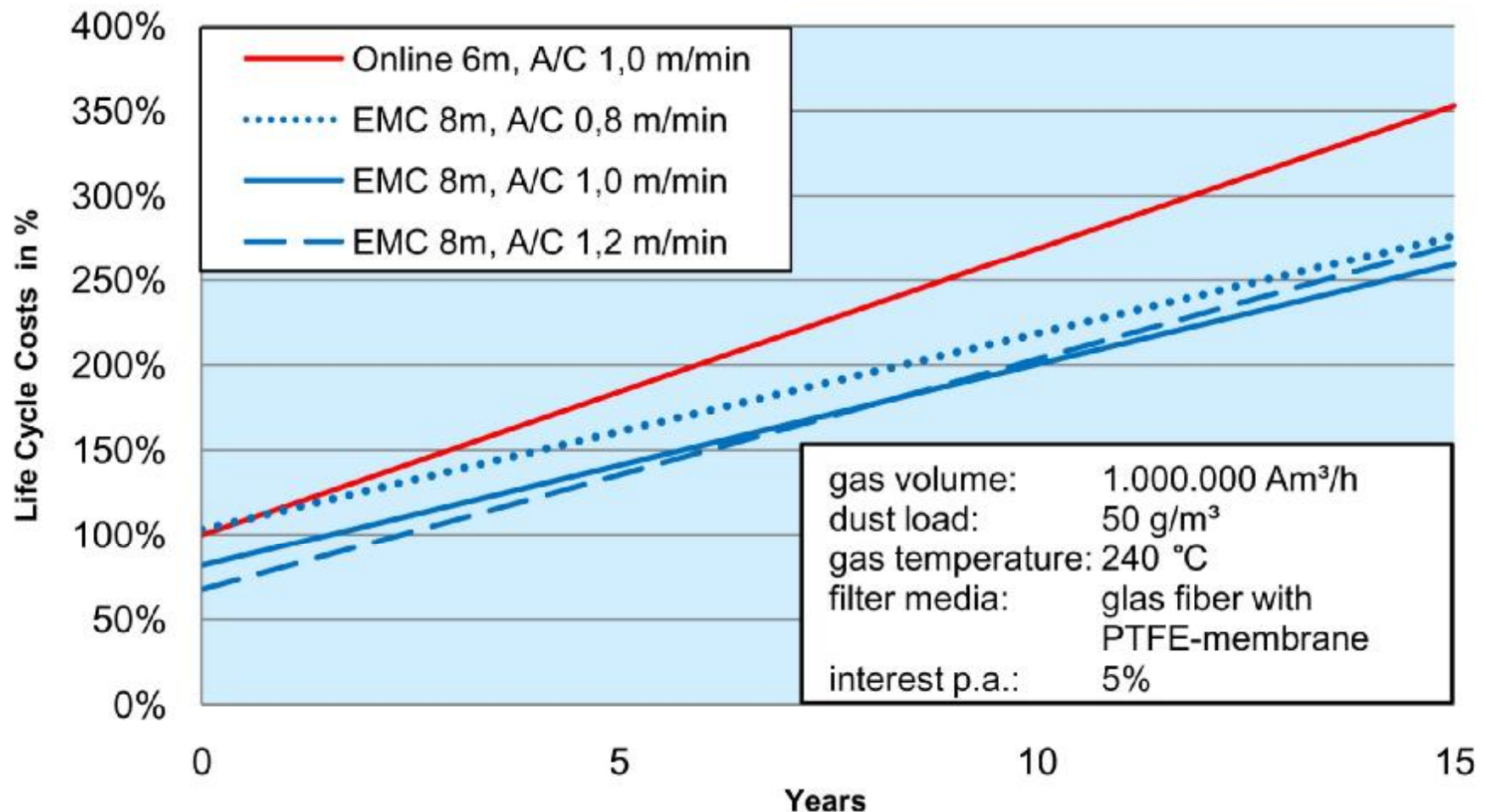
Optimum ?





Lowest Life Cycle Costs

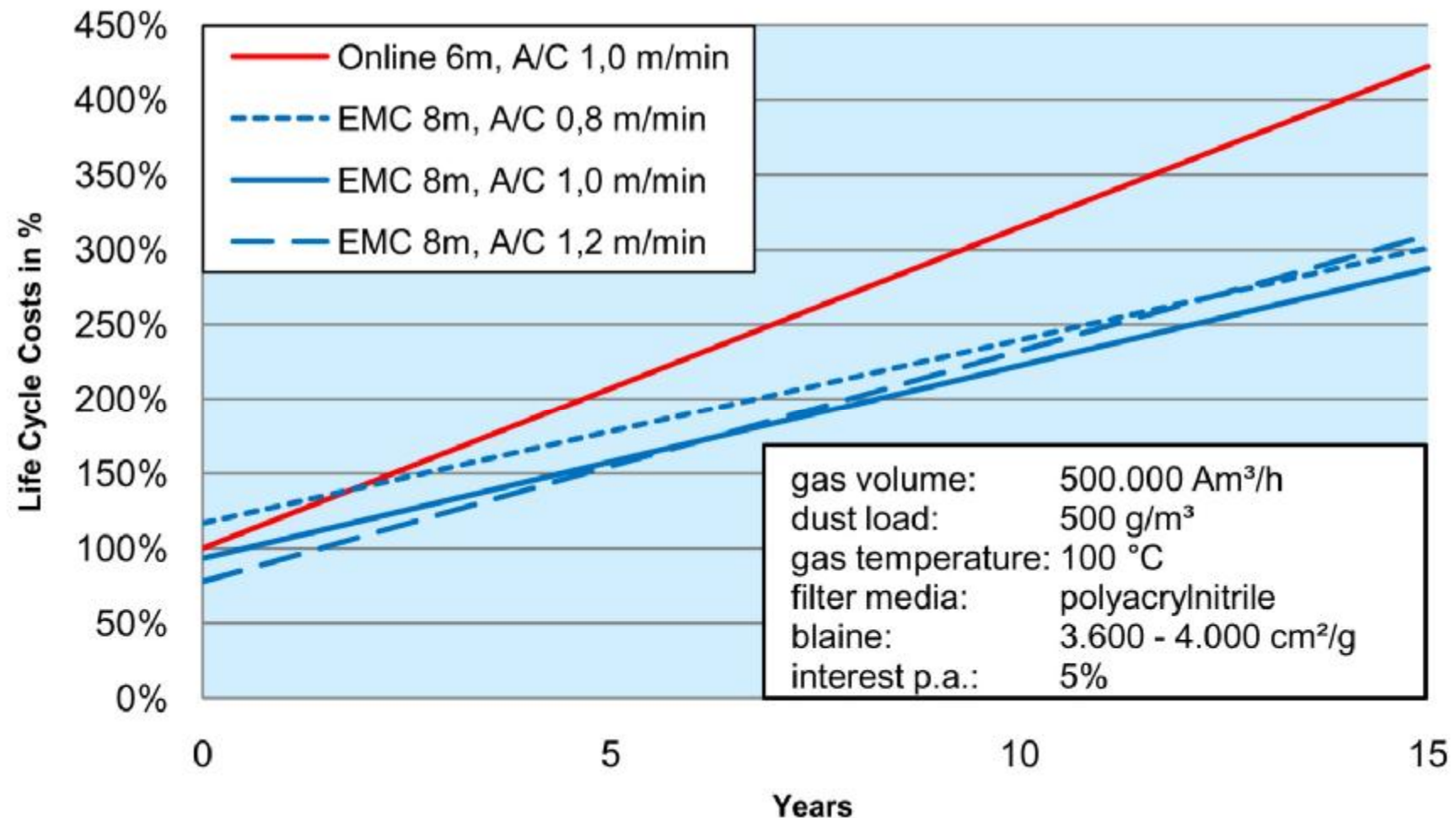
Comparison kiln dedusting of Online and EMC





Life Cycle Costs

Comparison mill dedusting of Online and EMC





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EMC Evolution Step 1 -> 8m bags

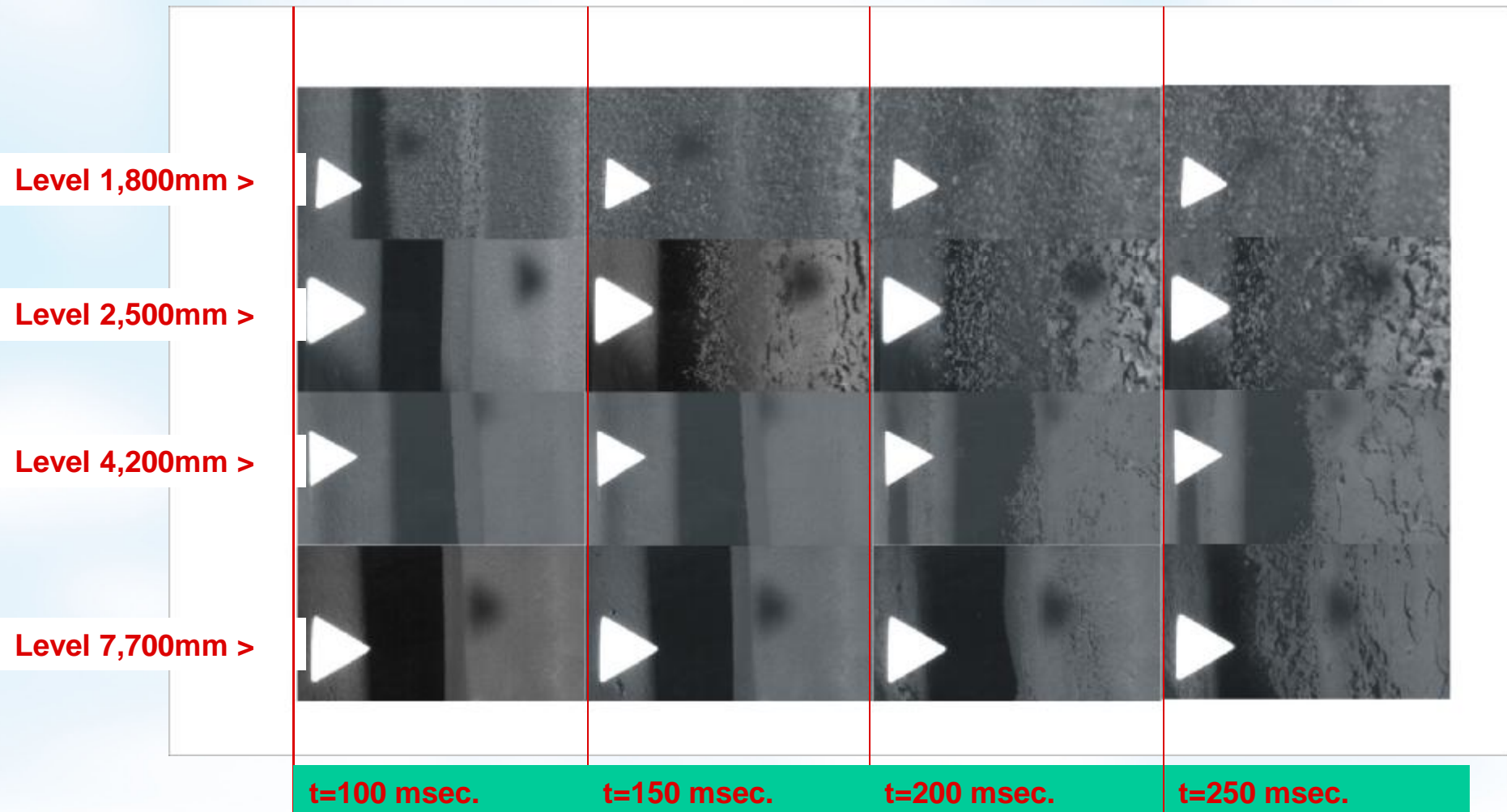


**Evolution Step 1:
8 m long bags**



High Performance **EMAC** Cleaning System 8,000 mm bags

ENERGY MINIMIZING CONCEPT





Benefits EMC 8m-Filter

Case Study 6 m à 8 m

Customer:

HOLCIM

Thi Vai / Vietnam

Application:

Dedusting of a vertical roller mill for cement with high dust load and 6,000 mm long bags

Technical data:

$V = 622,000 \text{ Am}^3/\text{h}$

$m = 322 \text{ g/m}^3 = 200 \text{ t/h}$

Start-up:

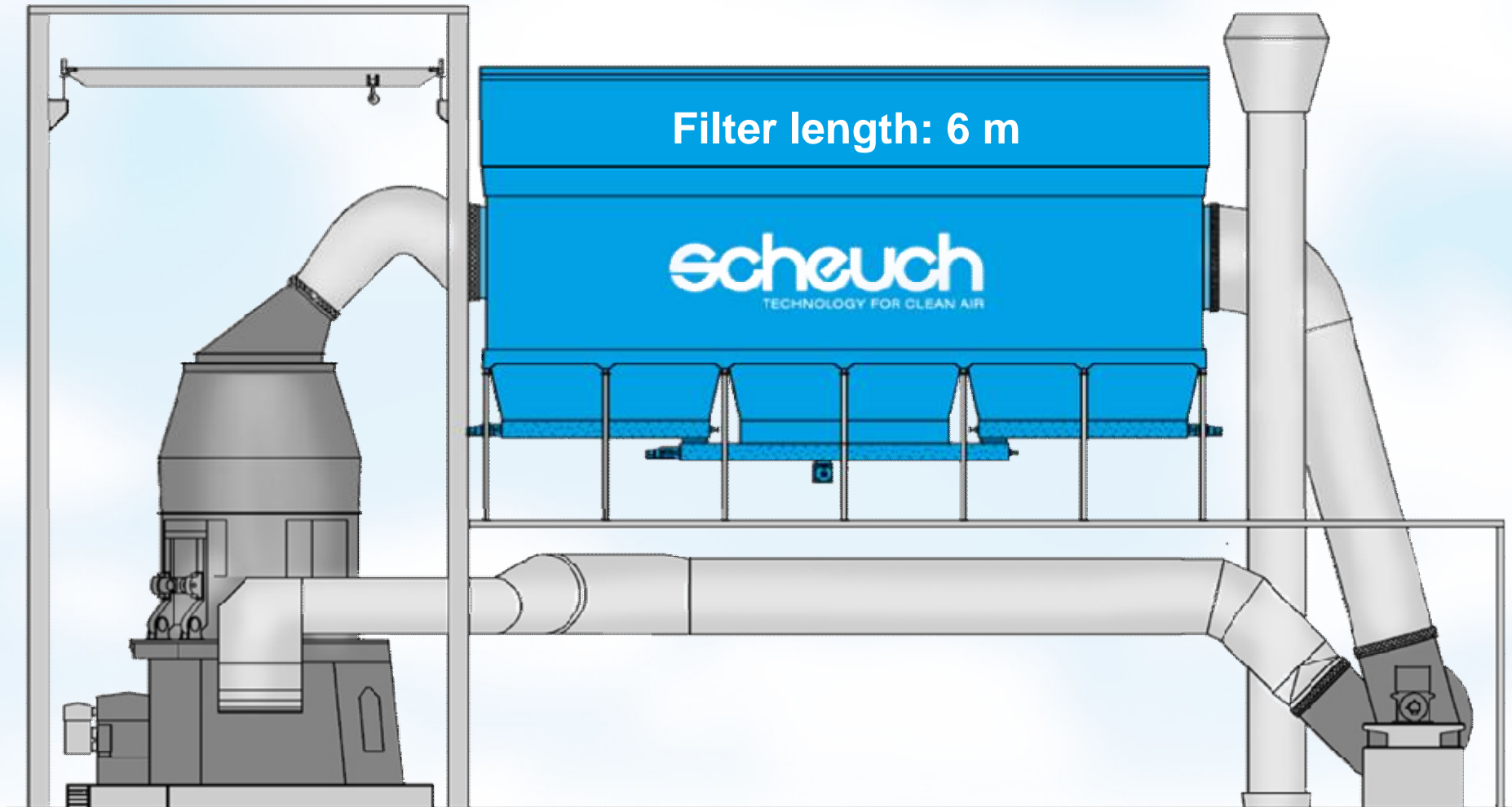
2004





Benefits EMC 8m-Filter

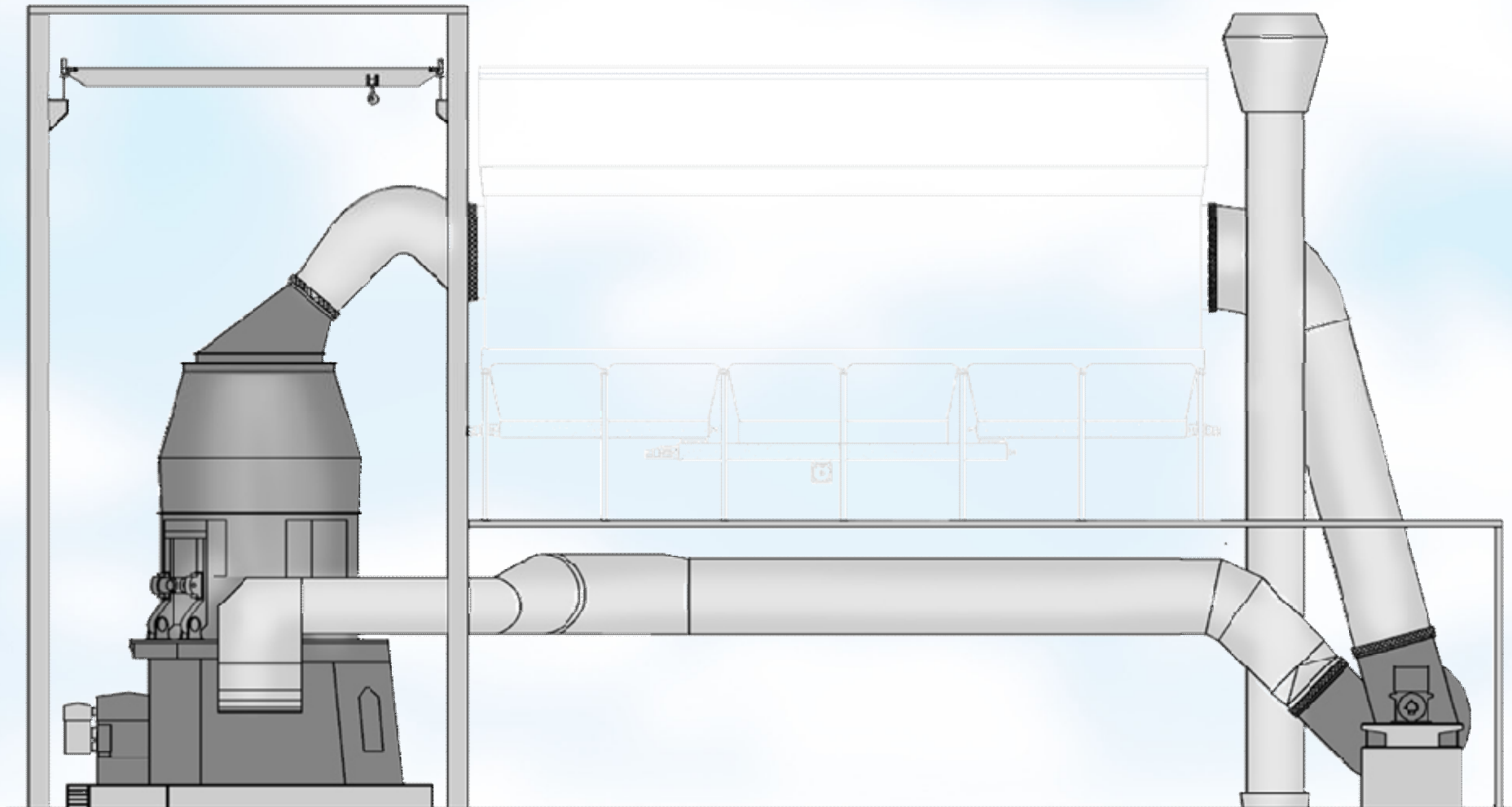
Case Study 6 m à 8 m





Benefits EMC 8m-Filter

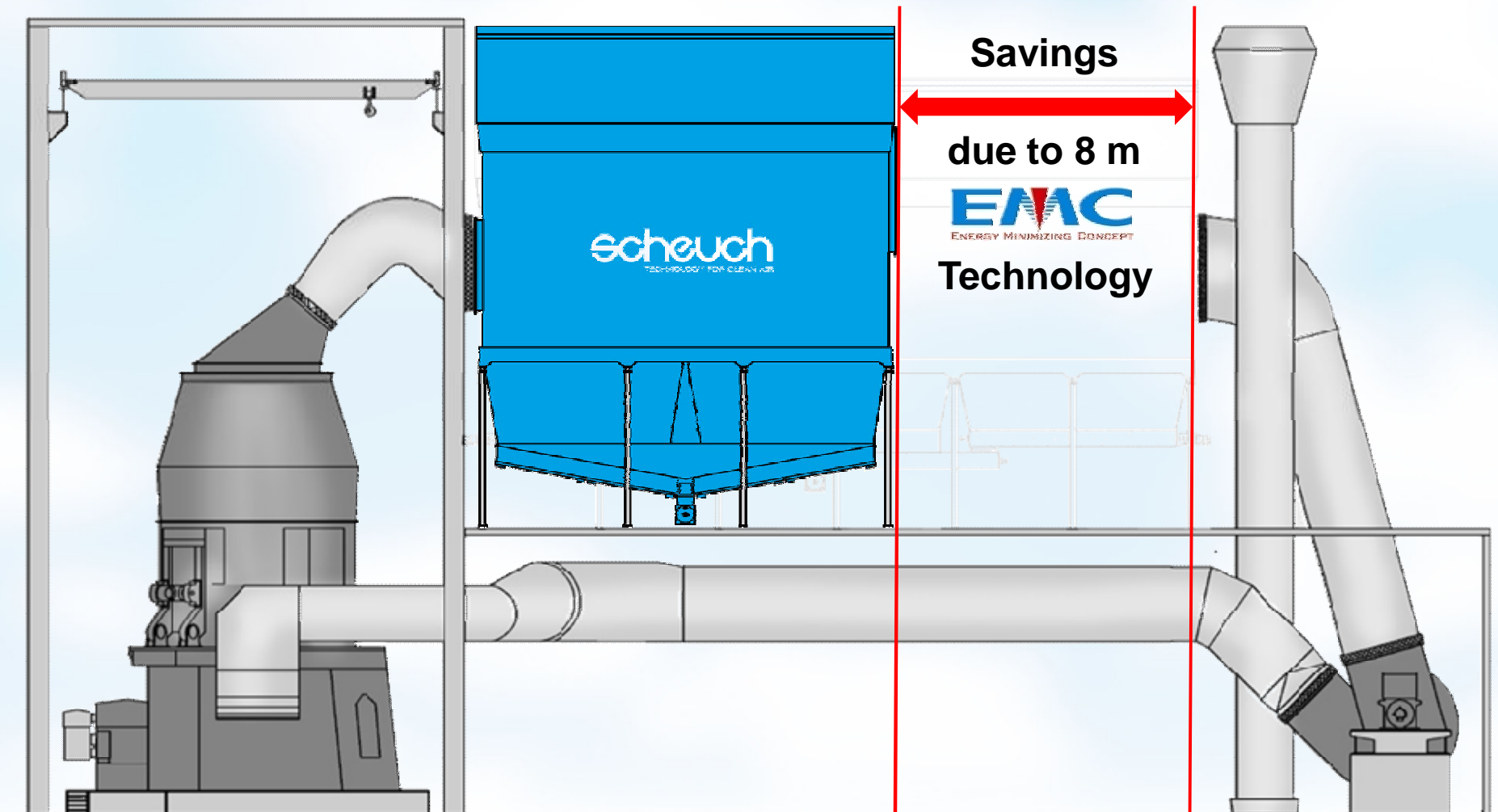
Case Study 6 m à 8 m





Benefits EMC 8m-Filter

Case Study 6 m à 8 m





Benefits EMC 8m-Filter

Case Study 6 m à 8 m

Due to the compact filter arrangement significant cost reductions can be achieved:

- è less foundation works**
- è low building costs**
- è shorter distances for dust extraction systems**
- è shorter ductwork, less insulation works**





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EMC Evolution Step 2 -> 10m bags

EMC
ENERGY MINIMIZING CONCEPT

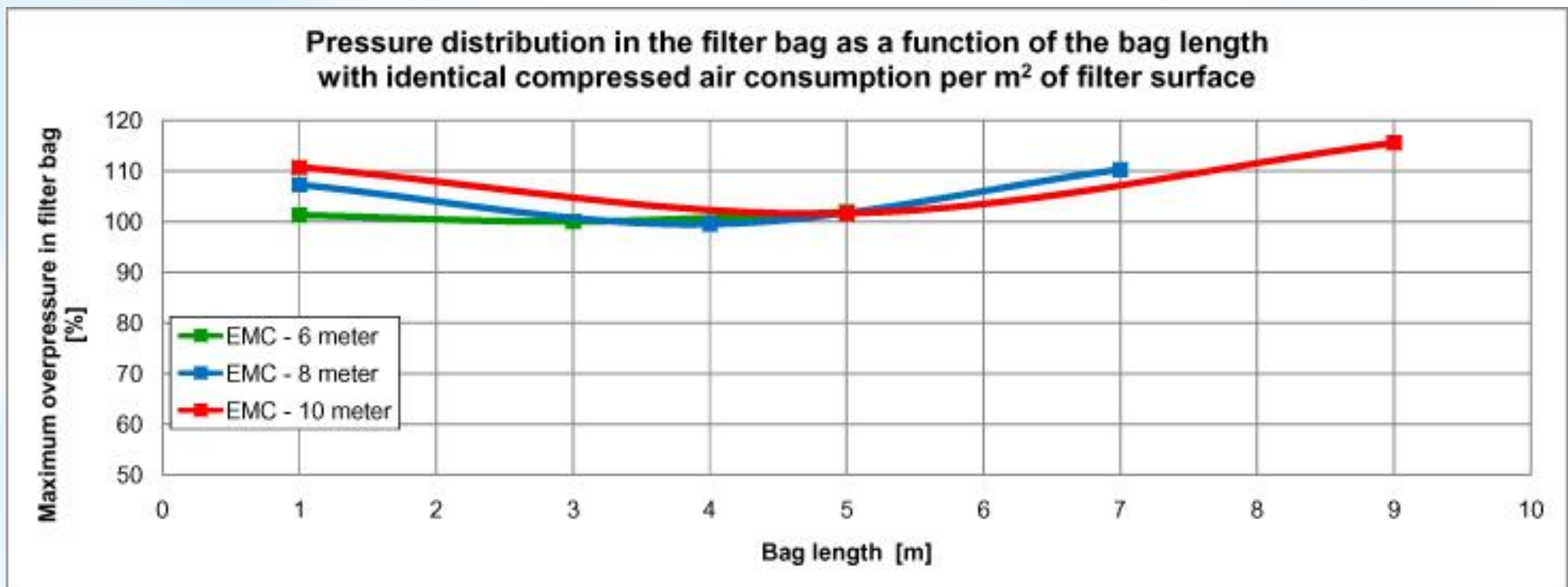
**makes it possible:
10 m long bags**



High Performance **EMC** Cleaning System 10,000 mm bags

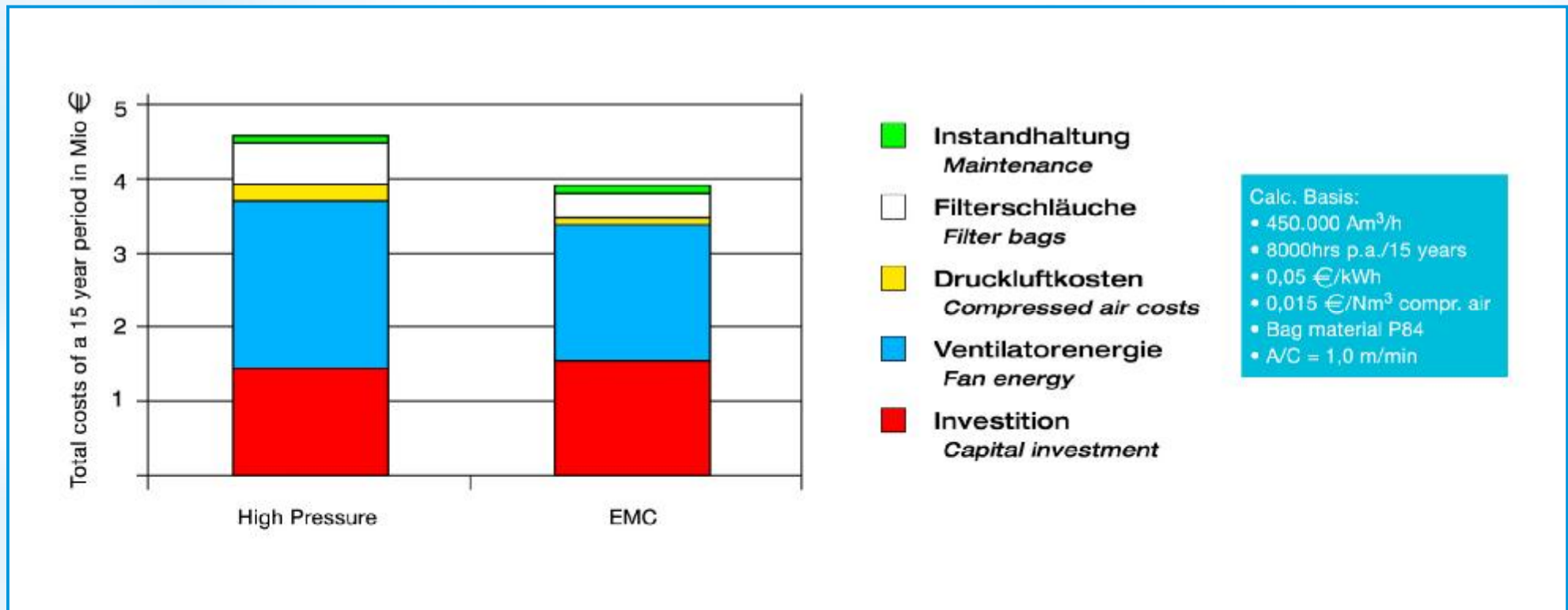
ENERGY MINIMIZING CONCEPT

è 2008: Research project for 10m bags finalized





EMC: The most efficient technology





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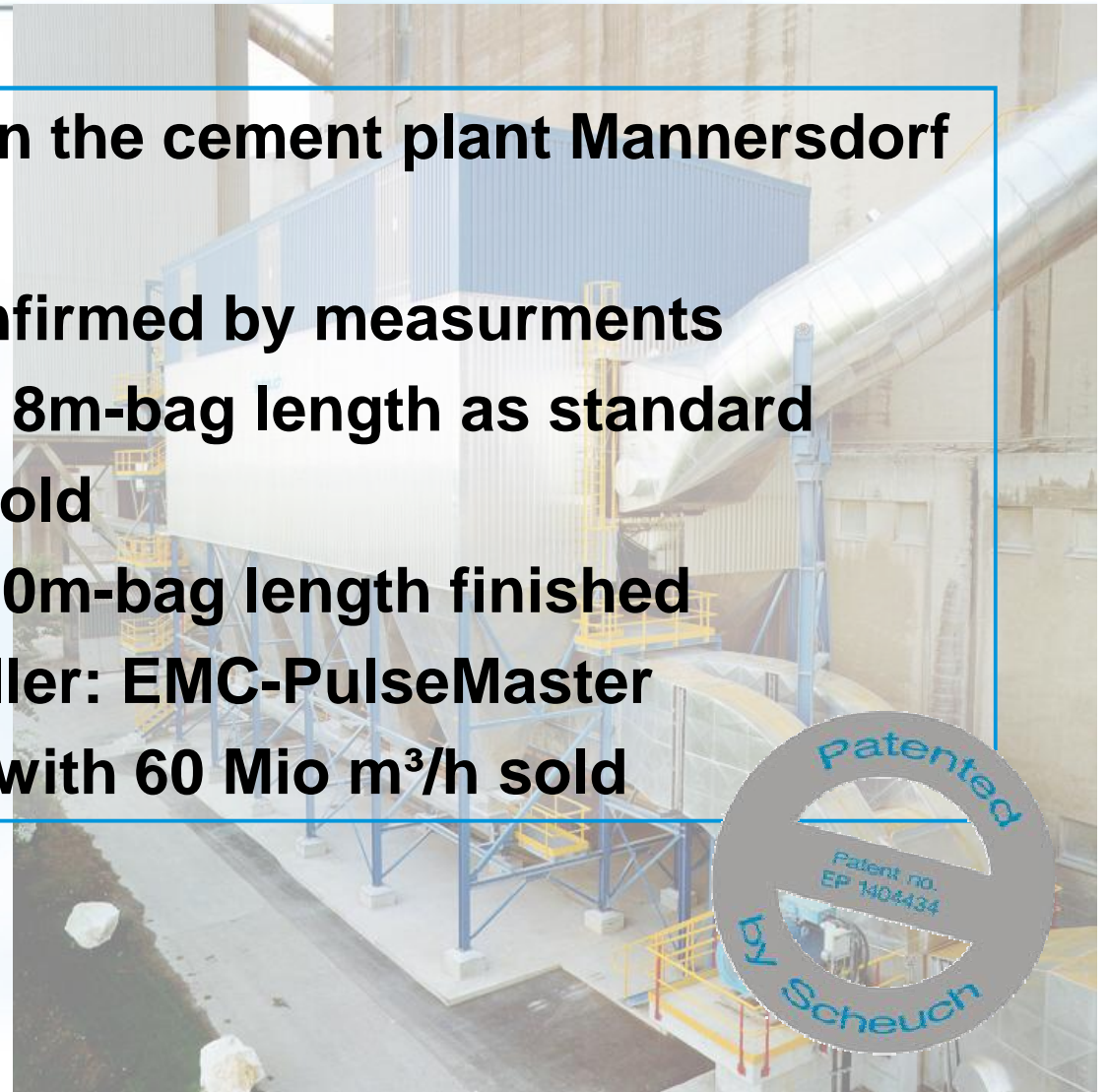
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- è **Story of Success**



EMC the story of success

- è 2001: First EMC-Filter in the cement plant Mannersdorf
- è 2003: Patent received
- è 2004: EMC savings confirmed by measurements
- è 2005: EMC established 8m-bag length as standard
- è 2007: 100. EMC-Filter sold
- è 2008: F&E-project for 10m-bag length finished
- è 2009: New filter controller: EMC-PulseMaster
- è Today: 153 EMC-Filter with 60 Mio m³/h sold



**Thank you for your
attention!**



scheuch
TECHNOLOGY FOR CLEAN AIR