ANHUI YUANCHEN ENVIRONMENTAL PROTECTION SCIENCE & TECHNOLOGY CO., LTD

FLUE DUST TREATMENT SYSTEM

Filter And DeNOx Solutions

Hefei, China  August 2018
Introduction

01 | Company Introduction
02 | Top-ranking Production Equipments
03 | Advanced Testing And R&D Equipments
04 | Domestic And Overseas Performance
05 | Fabric Selection Scheme In Different Industry
Company Introduction

Profile

Founded in 2005, it has become a comprehensive service provider for management of air pollution solutions and control.
Business Scope

Covering environmental engineering design and manufacturing, producing dust filter fabric and bags, SCR catalyst manufacture, recycle and regeneration.
Enterprise honors

Special funds project for the development of Anhui enterprises in 2015

Anhui Province by the letter: 2014 special funds for the development of energy conservation and comprehensive utilization of resources enterprises

National Development and Reform Commission, Ministry of Industry and Information Technology: 2015 industrial revitalization and technological transformation Special Fund Hefei "double thousand project" project

National Development and Reform Commission: 2015 environmental protection and resource conservation within the central budget Investment funds
Enterprise Honors

- Safety Production Standardization Certificate
- Anhui Quality Award
- Postdoctoral research station
- Anhui New Product Certificate
- National class A taxpayer
- Intellectual Property Demonstration Enterprise
- high-tech enterprises
• Hazardous waste management license
• Environmental management system certification
  ISO14001:2004
  ISO9001:2008
  OHSAS18001:2007
• CNAS Laboratory
• CE Certificate
Anhui Yuanchen currently has **25** authorized *invention patents*, **75** utility *model patents*, has been accepted by 67 invention patent.
Authoritative Certificate:

Issued by China Industrial Textile Industry Association:

Anhui Yuanchen's products market share in the domestic high-temperature filter material industry are 2.8%, 4.3%, 5.5%, in China high-temperature filter material industry, we rank **the top five**, in Anhui Province we rank **the first**.
Top-ranking Production Equipments
Quality Advantage
Invest 7.5 million dollars imported from Germany, 6 million square meters output per year. 

weight, thickness, width On-line automatic calibration, CV≤1.5%.

The most advanced filter production line and first automatic needle change equipment in the world
Electromagnetic induction heating roller

- Temperature deviation ≤4-10°C
  - electromagnetic heating——cost decrease
- Wider heating area: 240cm
- Higher heating temperature: 380°C
Advantages

- avoid fabric abrasion
- decrease production cost
- Keep fabric clean
- improve production efficiency
Setting

- Tank chain structure:
  Smooth surface and force balance
- Big width: 60cm—240cm
- Cross air supply: Heat transfer uniformity
- Temperature: 1% deviation
5. Catalyst Production Process

Honeycomb SCR Catalyst production workflow:

Raw materials → Mixing → Molding

Drying → Sintering → Finished Products
Quality Control  
(CNAS LABORATORY)
Research centre (CNAS laboratory)

- Provincial enterprise technology center
- Industrial air pollution control research center
- Denitration catalyst research center
- Provincial engineering technology research center
Research centre (CNAS laboratory)
Our Laboratory has obtained the qualification and certificate of the Third-party inspection agency.

CMA represents China Metrology Accreditation. The CMA logo indicates that the agency has passed metrological certification by the metrological administrative department of the people's government at or above the provincial level. The report can be used for product quality evaluation, results and forensic examination, and has legal effect.
Domestic And Overseas Performance

Four
Overseas Markets

Latvia
Bolivia
Colombia
Brazil
Chile

Turkey

Russia
Vietnam
Kazakhstan
Pakistan
India
Philippine

China (Yuanchen)

Customer Distribution Network
Fabric

How to choose?

Flue gas
- temperature
- Acidity-Alkalinity
- dust concentration
- filtration velocity

Nature of dust
- viscosity
- humidity
- size distribution
- reaction to fire

Dust clean
- pulse-jet cleaning
- reverse flow cleaning
- clean pressure

Equipments
- running resistance
  ......
**NOMEX**

204-240°C, wear-resisting, Good performance for acid and alkali-resistant, hydrolysis resistance is not good.

**Polyaimide**

Good performance for acid and alkali-resistant, high dust filtration concentration, 150-260°C.

**PPS**

Good performance for acid and alkali-resistant, wear-resisting, 130-170°C, oxygen content <8%.

**PTFE**

260-280°C, Good performance for acid and alkali-resistant, high chemical stability.

**Acrylic**

High chemical stability, resist to oxidation.

**Polyester**

130-150°C, high chemical stability, resist to oxidation, hydrolysis resistance is not good.
1. Dust removal system - filter wind speed

Filtering speed and emission concentration selection criteria

<table>
<thead>
<tr>
<th>No.</th>
<th>Emission concentration (mg/m³)</th>
<th>Filter wind speed (m/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt; 20</td>
<td>≤ 1.1</td>
</tr>
<tr>
<td>2</td>
<td>&lt; 10</td>
<td>≤ 1.0</td>
</tr>
<tr>
<td>3</td>
<td>&lt; 5</td>
<td>≤ 0.8</td>
</tr>
</tbody>
</table>

The filtration efficiency is inversely proportional to the filtration wind speed and is proportional to the particle size of the dust.
1. Dust removal system - structural design

Failure due to uneven distance between filter bags

• Bumping on the bottom can cause damage.
• The bottom dust is easy to bridge to form the bottom paste bag;

Filter bag center distance: \( a, b + (40-60)\text{mm} \)

Two adjacent channel widths: \( S = d + (600-800)\text{mm} \)

The distance between bag and bag is more than 2/5 (not less than 50mm) of the diameter of high-quality dust board.

The dust collector board must withstand the negative pressure of the system as well as the weight of the filter bag, dust layer and bag cage.
2. Effect of dust removal

The combination of SOx, NOx and water in the flue gas causes acid corrosion to the filter media; when the O2 and O3 content is high, it will cause oxidation damage to the filter bag.
3. System, filter bag - installation, leak detection, pre-spray

Phosphor leak detection

No pre-spray

Phosphor is injected into the front of the precipitator and checked with fluorescent light to mark the point of the dust bag leakage

Phosphor leak detection
Filtration process
Filtration and cleaning

Filter status

Clean state

Blowing device
# Selection Scheme For Power Plant

<table>
<thead>
<tr>
<th>Product Name</th>
<th>100% PPS</th>
<th>PPS/PTFE</th>
<th>PTFE Composition</th>
<th>PTFE Composition</th>
<th>100% PPS With PTFE Membrane</th>
<th>PTFE Composited With PTFE Membrane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>PPS</td>
<td>PPS</td>
<td>PTFE + PPS</td>
<td>PTFE + P84</td>
<td>PPS</td>
<td>PTFE + PPS</td>
</tr>
<tr>
<td>Scrim</td>
<td>PPS</td>
<td>PTFE</td>
<td>PTFE</td>
<td>PTFE</td>
<td>PPS</td>
<td>PTFE</td>
</tr>
<tr>
<td>Weight (g/m²)</td>
<td>580</td>
<td>600</td>
<td>650</td>
<td>650</td>
<td>580</td>
<td>650</td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous</td>
<td>160</td>
<td>160</td>
<td>170</td>
<td>260</td>
<td>160</td>
<td>170</td>
</tr>
<tr>
<td>Peak</td>
<td>190</td>
<td>190</td>
<td>200</td>
<td>280</td>
<td>190</td>
<td>200</td>
</tr>
<tr>
<td>(N/5*20cm) Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warp</td>
<td>&gt; 900</td>
<td>&gt; 900</td>
<td>&gt; 800</td>
<td>&gt; 800</td>
<td>&gt; 900</td>
<td>&gt; 800</td>
</tr>
<tr>
<td>Weft</td>
<td>&gt; 1200</td>
<td>&gt; 1200</td>
<td>&gt; 1000</td>
<td>&gt; 1000</td>
<td>&gt; 1200</td>
<td>&gt; 1000</td>
</tr>
<tr>
<td>Elongation At Break%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warp</td>
<td>&lt; 30</td>
<td>&lt; 30</td>
<td>&lt; 30</td>
<td>&lt; 30</td>
<td>&lt; 30</td>
<td>&lt; 30</td>
</tr>
<tr>
<td>Weft</td>
<td>&lt; 50</td>
<td>&lt; 50</td>
<td>&lt; 50</td>
<td>&lt; 50</td>
<td>&lt; 50</td>
<td>&lt; 50</td>
</tr>
<tr>
<td>Air Permeability (m³/m²*min)</td>
<td>10~15</td>
<td>10~15</td>
<td>10~15</td>
<td>10~15</td>
<td>2~5</td>
<td>2~5</td>
</tr>
</tbody>
</table>

**Applications**

- Low-sulfur coal, the temperature < 160 °C, lower oxygen content
- Medium-sulfur coal, temperature < 165 °C (higher instant temperature, higher oxygen content)
- High-sulfur coal, corrosive and occasions with high oxygen content, improve the use of temperature, oxidation resistance, and cost-effective
- High dust content, higher oxygen content, higher temperature, corrosive gas field of flue gas dust.
- Emission Required high efficiency, low-sulfur coal, the temperature < 150 °C, lower oxygen content, improve the use of temperature, oxidation resistance, and cost-effective
- High-sulfur coal, corrosive and occasions with high oxygen content.
Top 1 market share for above 600MW units for coal-fired power plants in China.
typical case: SPIC-Pingwei 1000MW Unit

Dust emission concentration is 8.7mg/m³

typical case: Datang-Sanmenxia 1000MW Unit

Dust emission concentration is 6.1mg/m³
Case 2: BRAZIL---PMAPA Coal-Fired Power Plant

Unit: 1*300MW Unit

Temperature: 160---210°C

Type Of Filter Bag: 160*8250mm

Material: P84+PTFE/PTFE

Finishment: PTFE Impregnatin

SOx <500mg/Nm3
Case 5: Jordan--- coal fired power plant

Unit: 2*235MW

Temperature: 220~260°C

Type Of Filter Bag: 160*8200

Material: PTFE

Finishment: PTFE Impregnation, singeing, calendering
Case 4: Philippines --- coal fire power plant

Unit: (3+1)*135MW

Temperature: 169°C

Type Of Filter Bag: 129*8065mm

Material: PPS + PTFE

Finishment: PTFE Impregnation, singeing
Cement cases

- CONCH Cement Group
- Sunnsy Group 5000t/d kiln tail
- CEEC Gezhouba Group 4800t/d kiln tail
- Tapai Group Kiln head and tail
- Wanji Group 5000t/d Kiln head and tail
- Shaoxing Cment 2500t/d kiln tail
- Lingchuan Cment 3000t/dKiln tail
- Jincheng Cement 5000t/d kiln tail
- Haitian Program 5000t/d kiln tail
## Selection Scheme For Cement Plant

<table>
<thead>
<tr>
<th>Product Name</th>
<th>NOMEX</th>
<th>P84 Composited Material</th>
<th>P84</th>
<th>FMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>NOMEX</td>
<td>NOMEX+P84</td>
<td>P84</td>
<td>P84+Fiberglass</td>
</tr>
<tr>
<td>Scrim</td>
<td>NOMEX</td>
<td>PTFE</td>
<td>PTFE</td>
<td>Fiberglass</td>
</tr>
<tr>
<td>Weighth (g/m²)</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>850</td>
</tr>
<tr>
<td>Continuous Temperature (℃)</td>
<td>204</td>
<td>210</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>Peak Temperature (℃) Peak</td>
<td>230</td>
<td>230</td>
<td>280</td>
<td>300</td>
</tr>
<tr>
<td>(N/5*20cm) Break Strength</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warp</td>
<td>&gt;800</td>
<td>&gt;900</td>
<td>&gt;800</td>
<td>&gt;2400</td>
</tr>
<tr>
<td>Weft</td>
<td>&gt;1000</td>
<td>&gt;1200</td>
<td>&gt;1000</td>
<td>&gt;2400</td>
</tr>
<tr>
<td>Elongation At Break%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warp</td>
<td>&lt;30</td>
<td>&lt;30</td>
<td>&lt;30</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Weft</td>
<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;10</td>
</tr>
<tr>
<td>(m³/m²*min) Air Permeability</td>
<td>10~15</td>
<td>10~15</td>
<td>10~15</td>
<td>10~15</td>
</tr>
<tr>
<td>(m/min) Filtration Velocity</td>
<td>&lt;1.2</td>
<td>&lt;1.2</td>
<td>&lt;1.2</td>
<td>&lt;0.8</td>
</tr>
<tr>
<td>Application</td>
<td>Good corrosion resistance, wear resistance, applicable to large and medium-sized cement kiln head</td>
<td>Good corrosion resistance, wear resistance, easy to dust remove, applicable to large and medium-sized cement kiln head and tail</td>
<td>Good corrosion resistance, wear resistance, applicable to large and medium-sized cement kiln tail</td>
<td>High-temperature corrosion resistance, bad wear-resisting performance, apply filtering wind speed is low, medium and small cement kiln.</td>
</tr>
</tbody>
</table>
### Cement Kiln Fabric

**Kiln head**: superfine fiber NOMEX/PTFE fabric
- **Fiber**: superfine NOMEX fiber + NOMEX fiber
- **Finish treatment**: PTFE Membrane
- **Sew thread**: PTFE sewing thread

**Features**: High filtration concentration, emissions is less than 10 mg, Generally 1000-5000T / D kiln applications.

**Kiln tail**: P84 fiber + NOMEX/PTFE scrim
- **Scrim**: PTFE
- **Fiber**: 30% P84 fiber + 70% NOMEX fiber
  - **finish treatment**: PTFE Membrane
  - **sew thread**: PTFE sewing thread

**Features**: high stability, effectively improve the filtration accuracy, less than 10 mg emissions, Generally 1000-5000T / D kiln application.
Jinfeng cement kiln tail

Output: 8x5000T/D; 6x4500T/D; 1x2500T/D

emission concentration: <10mg/Nm3

Filter bag service life: 3+1years;

Fabric: P84/P84 Compound with PTFE MEMBRANE;

Inlet dust concentration: ≤80g/Nm3

filtration velocity: 1.06m/min

Temperature: 110~150℃, Peak:260℃
Sunnsy Group 5000t/d kiln tail

**Output:** 5000t/d kiln tail

**Fabric:** Fiberglass high temperature resistance dust filter fabric;

**Filter bag size:** 133 x 2450cm

**Temperature:** 260~280°C, Peak:280°C
CONCH Cement Group

Width Of Filter Fabric: 950mm to 960mm

Material: Polyester filter felt PTFE memberane;

Finishment: PTFE Impregnation, Singeing,

Heat setting, Calendering

Temperature: 130~150°C
## Selection Scheme For Steel Plant

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Acrylic With PTFE Membrane</th>
<th>NOMEX Composited Material</th>
<th>PTFE Composited Material</th>
<th>PTFE</th>
<th>FMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>Acrylic</td>
<td>NOMEX+P84</td>
<td>PTFE+P84</td>
<td>PTFE</td>
<td>P84+Fiberglass</td>
</tr>
<tr>
<td>Scrim</td>
<td>Acrylic</td>
<td>PTFE</td>
<td>PTFE</td>
<td>PTFE</td>
<td>Fiberglass</td>
</tr>
<tr>
<td>Weigh (g/m²)</td>
<td>580</td>
<td>550</td>
<td>650</td>
<td>800</td>
<td>850</td>
</tr>
<tr>
<td>Continuous Temperature (°C)</td>
<td>120</td>
<td>210</td>
<td>260</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>Peak Temperature (°C) Peak</td>
<td>140</td>
<td>230</td>
<td>280</td>
<td>280</td>
<td>300</td>
</tr>
<tr>
<td>(N/5*20cm) Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strength</td>
<td>Warp &gt;800</td>
<td>&gt;900</td>
<td>&gt;800</td>
<td>&gt;750</td>
<td>&gt;2400</td>
</tr>
<tr>
<td></td>
<td>Weft &gt;1000</td>
<td>&gt;1200</td>
<td>&gt;1000</td>
<td>&gt;750</td>
<td>&gt;2400</td>
</tr>
<tr>
<td>Elongation At Break%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warp &lt;30</td>
<td>&lt;30</td>
<td>&lt;30</td>
<td>&lt;20</td>
<td>&lt;10</td>
</tr>
<tr>
<td></td>
<td>Weft &lt;50</td>
<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;20</td>
<td>&lt;10</td>
</tr>
<tr>
<td>(m³/m²*min) Air Permeability</td>
<td>2~5</td>
<td>10~15</td>
<td>10~15</td>
<td>1.5--5</td>
<td>10~15</td>
</tr>
<tr>
<td>(m/min) Filtration Velocity</td>
<td>&lt;0.8</td>
<td>&lt;1.2</td>
<td>&lt;1.0</td>
<td>&lt;0.85</td>
<td>&lt;0.8</td>
</tr>
</tbody>
</table>
TATA Steel Co., Ltd

Temperature: 180--210 degree
Dust concentration: 1.321g/Nm3
Nox concentration: <730 mg/Nm3
Sox concentration: <540 mg/Nm3
H2O content: 9--18 %
Material: PTFE/PTFE PTFE Membrane
Measurement of Bag: 160*6500mm
Panzhihua Gangchen Group

Temperature : 210--260 degree
Inlet concentration : 5g/Nm³
Outlet concentration : <15mg/Nm³
Material: PTFE/PTFE PTFE
Membrane
Measurement of Bag: 160*7000mm
Total Volume smoke gas: 2217312Nm³/h
Temperature: 186°C
Running Resistance: 800-1300 Pa
Inlet dust content: 11--27g/Nm³
Filtering wind speed: 0.99 m/min
Filtration Area: 37260m²
Material: PTFE+P84 / PTFE
## Selection Scheme For Waste Incineration

<table>
<thead>
<tr>
<th>Product Name</th>
<th>100% PTFE With PTFE Membrane</th>
<th>100% PTFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>PTFE</td>
<td>PTFE</td>
</tr>
<tr>
<td>Scrim</td>
<td>PTFE</td>
<td>PTFE</td>
</tr>
<tr>
<td>Weight (g/m²)</td>
<td>800</td>
<td>750</td>
</tr>
<tr>
<td>Continuous Temperature (°C)</td>
<td>260</td>
<td>260</td>
</tr>
<tr>
<td>Peak Temperature (°C) Peak</td>
<td>280</td>
<td>280</td>
</tr>
</tbody>
</table>

| (N/5*20cm) Break Strength | Warp   | > 800     | > 800   |
|                           | Weft    | > 800     | > 800   |
| Elongation At Break%      | Warp   | < 20      | < 20    |
|                           | Weft    | < 30      | < 30    |
| (m³/m²*min) Air Permeability |          | 2~5       | 10~15   |
| (m/min) Filtration Velocity | < 1.0   | < 1.2     |

| Application | High temperature and oxidation resistance, excellent acid-base corrosion resistance, high humidity and filtration accuracy |
|            | High temperature and oxidation resistance, acid-base corrosion resistance, high humidity, and low filtration accuracy |
Package and delivery
Exhibitions And Customer visit

Attending in Germany, Russia, India, Taiwan, Turkey, South Africa and Hongkong exhibition, etc.
Leadership

Hui Xu
Chairman
Natural science researcher, Senior Economic Manger Senior Economist. Previous work as Technical engineer of Hefei Agricultural Pharmaceutical Factory and Chairman of Hefei Yuanchen Environmental Protection equipment fittings Factory. Now chairman of the company and External Professor of Tung Wah University.

Yan Liang
General manager
Peking University EMBA. Previous work as general manager of Hefei Yuanchen Environmental Protection equipment fittings Factory. Now general manager of Yuanchen Environmental Protection Science & Technology Co., Ltd.

Zhi Chen
Vice-general manager Marketing Director
Shanghai Jiao Tong University EMBA. Now work as Vice-general manager Marketing Director of the company.

Wenxian Zheng
Vice-general manager Marketing Director
Graduated from Southwestern University of Finance and Economics. Previous work as manager of China Life Insurance Hefei Branch. Now Vice-general manager Marketing Director of the company.
Public welfare and charity

Green always natural choice
Annual Meeting
Public benefit activities

Everyone broadcast green everywhere love to enjoy US environment
Welcome to you!

Website: www.shychb.com/en
www.ycfiltration.com