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FOCUSING ON
TECHNOLOGICAL
INNOVATION

IMPROVING HUMAN
ENVIRONMENT



安泰环境工程技术有限公司
AT&M ENVIRONMENTAL ENGINEERING TECHNOLOGY CO., LTD.

CONTENTS

About Us	03-10
Industrial Filtration & Purification	11-16
Clean Energy Engineering	17-24
Advanced Intelligent Manufacturing	25-30





Based on rigorous spirit in scientific research and advanced technology accumulation, we utilize intelligent innovative thinking to explore the forefront of green engineering.



ABOUT US

AT&M Environmental Engineering Technology Co., Ltd.

AT&M Environmental Engineering Technology Co., Ltd. (AEET), founded in 2015, is merged by former Filtration Materials Branch and Engineering Technology Division controlled by Advanced Technology & Materials Co., Ltd., and meanwhile completed its wholly-owned acquisition of Ningbo Research & Design Institute of Chemical Industry.

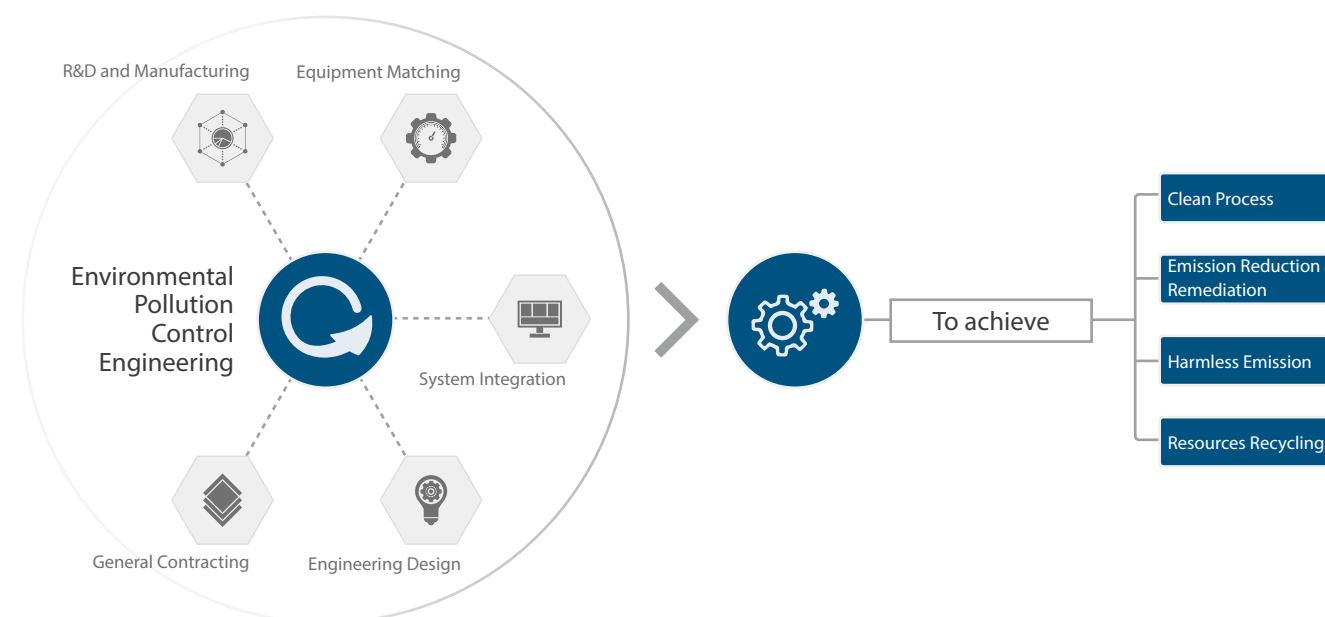
AEET has set up three business segments, including Industrial Filtration & Purification, Clean Energy Engineering and Advanced Intelligent Manufacturing, covering: R&D and manufacturing of advanced porous materials and components, developing filtration, separation, concentration and coalescence technologies in gas-liquid-solid three phase, as well as designing and producing its integrated equipment; project design and general contracting in areas of clean energy, clean and comprehensive utilization of coal, sulfur recovery, environmental protection & resources recycling, hydrogen energy utilization, VOCs treatment and so on; and developing new processing technology for advanced materials, designing and integrating its equipment, as well as building digital factory.

Controlling Shareholder

Advanced Technology & Materials Co., Ltd. (AT&M) was established by China Iron & Steel Research Institute Group (CISRI) (former Central Iron & Steel Research Institute) in December 1998. It underwent a successful IPO issuing 60 million of A shares on Shenzhen Stock Exchange in May 2000 (stock code: 000969).

AT&M is specialized in metallic materials and provides its global high-end customers with the advanced metallic materials, products and solutions to their materials technology problems in businesses covering Amorphous & Nano-crystalline Materials & Products, Refractory Materials & Products, Powder Materials & Products, Magnetic Materials & Products, Welding Materials & Products, Filtration Materials & Environmental Protection Engineering, High Speed Steel and Diamond Tools. The products has been recognized by many well-known enterprises worldwide and exported to more than 50 countries and regions.

Focusing on energy cleaning utilization and clean energy technology, AEET is an integrated Environmental Pollution Control Service Provider with full competency of product R&D and manufacturing, equipment matching, system integration, engineering design and general contracting, aimed to realize clean process, emission reduction & harmless treatment, and resources recycling in industrial fields.



HISTORICAL EVOLUTION



1952

Central Iron and Steel Research Institute (CISRI)
Powder Metallurgy Division / Pressure Processing Division
R&D Base of New Metal Materials / Innovation Base of Key and Common Technology in Metallurgical Industry

1958

Ningbo Research & Design Institute of Chemical Industry

1998

Advanced Technology & Materials Co., Ltd.
Advanced metal materials / products and solutions
High-tech enterprise

2015

AT&M Environmental Engineering Technology Co., Ltd.
Integrating advantages/ new start after reorganization
Integrated environmental pollution control service provider

60

years' research in materials and engineering technology

17

years of industrialization

Focusing on environmental pollution control technologies and applications, providing critical materials/high-end components, advanced equipment and process packages, and integrated systems engineering based on these core technologies and products.

120⁺

Professional R&D team

50⁺

Patented technologies

HIGH-PROFILE CLIENTS

Energy/manufacturing and many other fields

CERTIFICATION

Technology/engineering authority



We have been continuously investing in and exploring advanced technology for environmental pollution control engineering.



QUALIFICATION

- + High-tech enterprise
- + Standards implementation certification of the management system of integration of industry and information technology of MIIT
- + Innovation demonstration unit in energy-saving and environmental protection industry
- + Member of the National Technical Committee for Standardization of Separation Machinery
- + Deputy group leader of the professional group of VOCs control technology in petrochemical industry
- + Top-100 supplier in petrochemical industry
- + Class A qualification in engineering design
- + Class B in chemical, petrochemical and pharmaceutical industries; Class C engineering design qualification in municipal industry (city's gas engineering and thermal engineering)
- + Pressure pipeline design qualification
- + Pressure vessel design qualification
- + Quality management system certification
- + Certification of health and safety environment management system



PATENTS

Industrial Filtration & Purification

11 invention patents
3 patents for utility models
3 software copyrights

Clean Energy Engineering

17 invention patents
9 patents for utility models
1 software copyrights

Advanced Intelligent Manufacturing

3 invention patents
2 patents for utility models
3 software copyrights



31
Invention
Patents

14
Patents for
Utility Models

7
Software
Copyrights





Energy



Aerospace



Metallurgy



Machinery



Medical

OUR CLIENTS

We provide professional solutions to numerous international clients in energy, aerospace, metallurgy, machinery, medical and other fields and have established long-term and stable relationship with them.



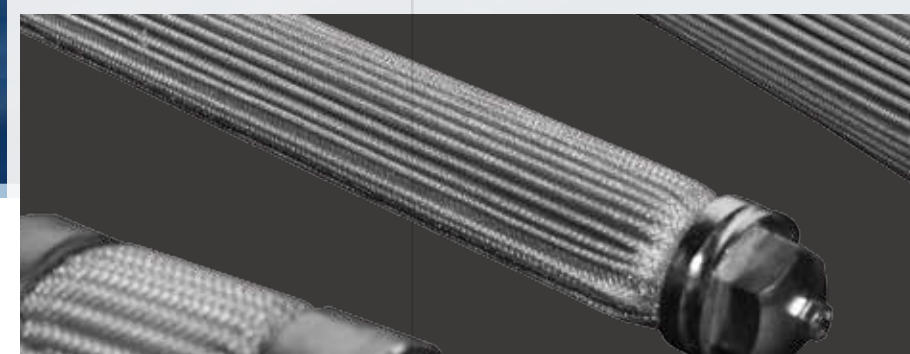
中航工业



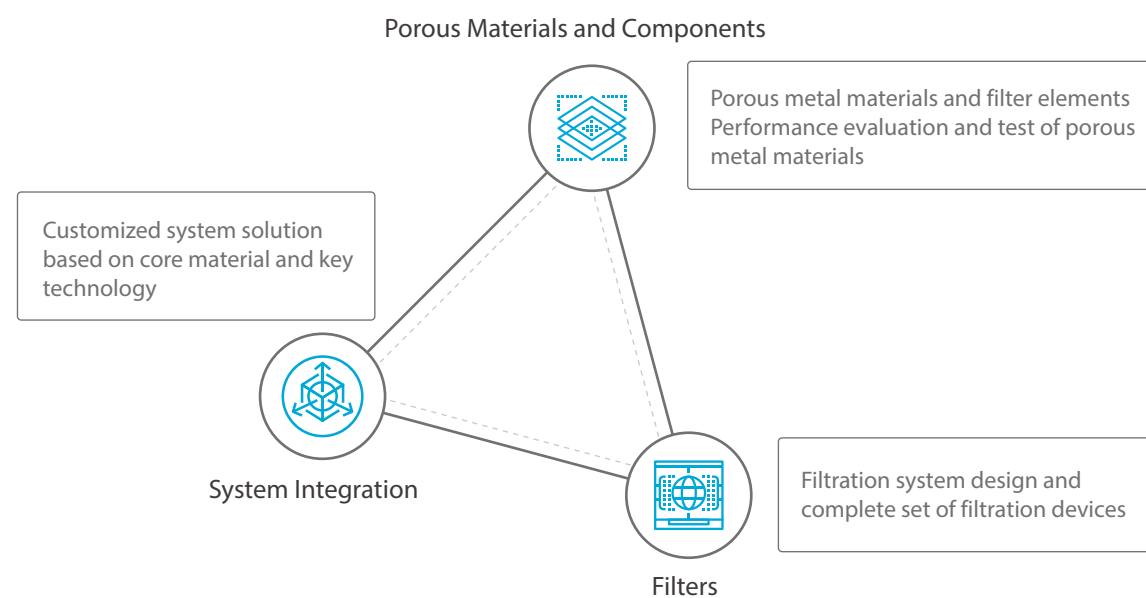
INDUSTRIAL FILTRATION & PURIFICATION ENGINEERING

We provide key filtration materials and components with excellent performance and competitive water, gas and solid filtration and separation process control programs for industrial fields.

The business derives from the powder metallurgy division of CISRI and started the first pilot production line of metal membrane materials in 1960. Depending on the technology and experience advantages in manufacturing sintered metal micro-porous materials and the group company's comprehensive supporting capability in engineering design, complete sets of mechanical and electrical equipment and pressure vessel design, AEET has formed a service system integrating research and evaluation of porous filtration materials, mechanical and electrical equipment matching and engineering.



Business Fields



Porous Sintered Metal Materials and Components

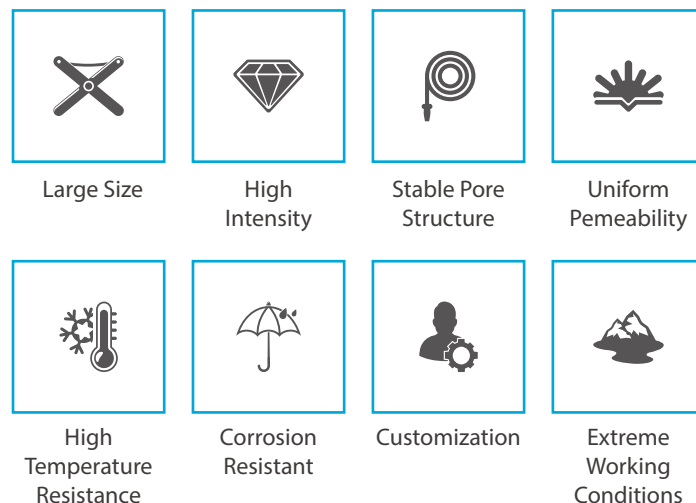
The porous metal materials and components developed and produced independently by AEET are characterized by high strength, high temperature resistance, corrosion resistance, stable pore structure, uniform permeability and so on and can be applied to the extreme working conditions through customized development.

Efficient Filtration and Separation Equipment and Systems

AEET owns filtration & separation, cross-flow concentration, on-line back-flushing of gas-assisted liquid, automatic backwash and other professional technologies. Our high efficiency filtration and separation equipment and system designed and manufactured by ourselves have been widely used in liquid filtration, dust removal and flow distribution of petrochemical industry, coal chemical industry, bio pharmacy, aerospace, ship engineering, machinery manufacturing, etc.

ADVANTAGES

of Sintered Metal Materials and Components



APPLICATION FIELDS

of Liquid Filtration & Purification | Hot Gas Filtration Fluid Flow Distribution | Gas-Liquid-Solid Separation

- + Coal Chemical Industry
- + Petrochemical Industry
- + Biotech
- + Aerospace
- + Ship Engineering
- + Machinery Manufacturing



We Have

- Filtration & separation technology
- On-line automatic backwashing technology
- Cross-flow concentration technology
- Self-designed and manufactured high-efficiency filtration and separation equipment and system

Our Awards

- First Prize of National Invention
- 13 National Science and Technology Progress Awards
- 25 Patents

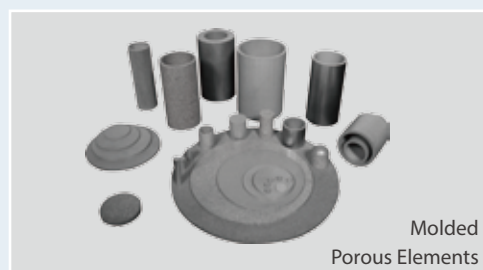
Production Capacity

- One of the largest sintered metal porous materials manufacturing base with complete production lines and advanced equipments
- The annual output of porous materials is over 60,000m²

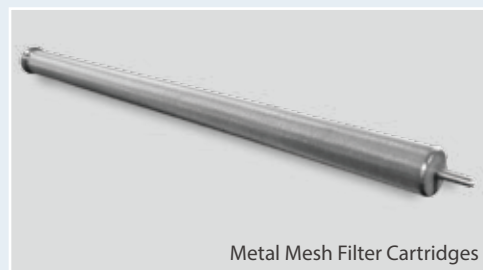
PRODUCTS AND APPLICATIONS



Stainless Steel
Powder Filter Cartridges



Molded
Porous Elements



Metal Mesh Filter Cartridges



High Flux
Metal Membrane
Filter Cartridges



FeAl Filter Cartridges
(1.5-2m, weldless)



Petrochemical Industry Filtration Engineering

- + Feedstock oil backwashing and purifying system for hydrogenation unit
- + FCC slurry oil filtration and automatic backwashing system
- + Acetic acid filtration system
- + HEPA system for catalytic reforming and gasoline desulfurization unit



Filtration & Purification Engineering

- + Gas-liquid separation coalescer
- + Liquid-liquid separation coalescer
- + Coalescence filter element
- + Separation filter element



Coal Chemical Filtration Engineering

- + High pressure nitrogen & steam filter
- + Diesel oil, circulating water and other liquid filters
- + High temperature and high pressure synthetic gas filter
- + Low temperature methanol washing filter
- + High and low pressure pulverized coal convey system
- + Filter system for Fischer-Tropsch synthesis unit reactor



Other Industrial Filtration Engineering

- + Wastewater treatment system
- + Ocean ballast water treatment system
- + Application of metal membrane ultrapure purification filter element for civil nuclear power
- + Application of porous Titanium gas diffusion layer in fuel cell

CLEAN ENERGY ENGINEERING



Business Fields

Based on deep understanding of green engineering and dynamic coordination of diversified business, we provide qualified general contracting and operation management services with professional design for our clients in the field of environmental pollution control engineering.

C Cleaning and Comprehensive Utilization of Coal

Coal-liquefied residue extraction and recycling
Coal tar hydrogenation

S Sulfur Recovery

Dry desulfurization
Wet desulfurization

E Environmental Management and Resource Recycling

VOCs Treatment
Continuous carbonization of organic solid waste
Waste heat and pressure utilization & power saving management solutions

H Fuel Cell and Utilization of Hydrogen Energy

Key materials and Fuel Cell Stack R&D
Turn key solutions for H₂ Production Unit(HPU) and H₂ Refueling Station(HRS)
Technical consulting service for H₂ Energy Ecosystem building

ENGINEERING DESIGN AND GENERAL CONTRACTING



Through integration of diversified business including materials, components and engineering equipment, we provide clients with environment-friendly and professional EPC engineering solutions and project operation services based on our own technical qualifications, rich system engineering experience and professional management team.



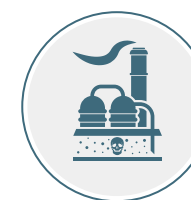
Wholly-owned subsidiary of AEET

Ningbo Research & Design Institute of Chemical Industry: Established in 1958.

- + Professional class A qualification in chemical engineering as well as petroleum and chemical products storage and transportation
- + Undertook and completed over 1000 sets of chemical engineering design project
- + Formed a series of deep processing technology of high-end fine chemical products
- + Independent technical property rights, mature process package technology, reliable and perfect data, stable industrial demonstration unit and solid technical foundation in key process engineering
- + Won the Project Design Excellence Award many times and passed the ISO9001:2015 quality management system certification and the health and safety environment management system certification



Core Competencies



Chemical Engineering

Coal tar hydrogenation unit
Coal gasification unit
Synthetic ammonia unit
Fine chemical unit



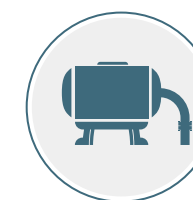
Environmental Engineering

Sulfur recovery unit
Wet desulfurization technology
Flue gas desulfurization unit
Chemical wastewater treatment unit
VOCs treatment technology



Petroleum Refining Engineering

Atmospheric and vacuum distillation unit
Hydrofining unit
Hydrogenation fission technology
Needle coke unit
Dissolution unit
Reforming unit
Asphalt unit
Coking unit
Oil slag treatment unit



Storage and Transportation Engineering

Tank engineering
Oil transportation engineering
Gas transmission engineering
Hydrogen refueling station design
Gas station design

Demonstration Project of Cleaning and Comprehensive Utilization of Coal

General contracting of Shenhua Ordos pilot project for industrial extraction of liquefied coal oil residue of 350000 t /year

It adopts oil residue extraction process, which can realize high additional value utilization of liquefied coal oil residue while reducing environmental pollution



Overcame Great Technological Difficulty



First in China



Leading in the world

Professional Class A qualification in chemical engineering, petroleum and chemical products storage and transportation

Independent property right, mature technology in process package; reliable and perfect data and stable operation

Professional team, full equipped, strong technical force; design qualifications of over 1,000 sets of chemical engineering

18 patents, 9 inventions and 1 National Torch Plan

A series of proprietary technologies such as coal tar hydrogenation, oil residue hydrogenation and ethylene glycol from coal

Other Cases

Mongolia Wuhai 100,000 tons/anthracene oil hydrogenation upgrading project

General contracting of Gansu Huasheng Fine Chemicals' 500000 tons/year coal tar hydrogenation project design

EPC of Inner Mongolia Mengxing's 10 million tons / year low-rank coal quality-based cleaning application project

EPC of phase I of Inner Mongolia Huanghe Group's 300000 tons /year anthracene oil hydrogenation project

General contracting of Jinchangyuan's 200,000 tons/year medium-temperature coal tar hydrogenation project in Zhangye, Gansu

Environmental Management and Resource Recycling Engineering

With rich manufacturing experience and technology accumulation, we provide customers with low-cost, professional, and efficient VOCs & industrial solid waste treatment, utilization of waste heat, pressure and gas as well as multi-field customized energy-saving service, thus making contribution to the environment-friendly economic development!

VOCs Treatment



AEET provides turn-key service to clients basing on technologies of off-gas treatment. We own the know-how of incineration technology by integrating adsorption concentration, gas scrubbing, wet electrostatic precipitation, DeNOx (SNCR/SCR), heat recovery system, etc..

AEET ensure clients' satisfaction and guarantee that our systems will fulfill the strictest requirements of national and local emission standards.

System Supplier

Turnkey Project

AEET'S
VOCs
Treatment

State-of -the-Art
Technology

Environmental Protection
Safe & Stable
Emission minimum
Energy saving

Continuous Carbonization Treatment of Organic Solid Waste



Continuous carbonization treatment automatically converts industrial waste fatlute, municipal sludge, domestic waste, animal waste, agricultural and forestry straw into harmless carbon without Dioxin in exhaust gas, which meets emission standards.

Waste Heat and Pressure Utilization & Power Saving Management Solutions

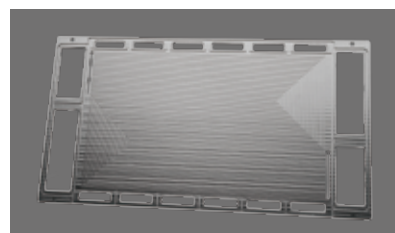


We recycle and reuse waste heat and pressure, dispersive combustible gas etc. of industrial, commercial and municipal projects to make customized electricity management solutions through frequency conversion technology and intelligent control technology, so as to enable users to obtain the maximum power saving benefits.

Fuel Cell and Hydrogen Energy Utilization

Based on deep foundation of material R & D, industrialization and engineering design qualification, we explore constantly clean energy front-end technology to provide clients with key materials of hydrogen fuel cell and hydrogen energy infrastructure design and engineering services.

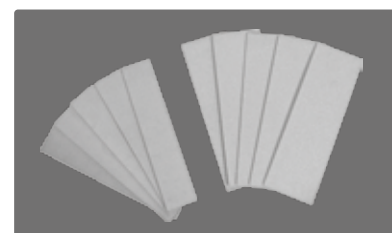
Key Materials and Products of Fuel Cell



Metal Bipolar Plate



Fuel Cell Stack



Gas Diffusion Layer

Business Fields >>

- Porous titanium gas diffusion layer:
Advanced technology ensures high strength, high permeability, corrosion resistance and excellent water and gas management performance;
- Metal bipolar plate product design, processing and coating services:
Customized size is available;
Good conductivity and thermal conductivity, low contact resistance and excellent performance;
- Fuel Cell Stack:
5KW, 10KW, 10KW, 20KW, 30KW, 60KW series of metal fuel cell stack and graphite fuel cell stack below 30KW is available;

Application Fields >>



Transportation:

- + Delivery vehicles, light duty vehicles, forklifts, drones
- + Passenger cars, heavy duty trucks, ships, aircraft



Stationary Field:

- + Backup power
- + Power station
- + CHP



Portable Power:

- + Mobile power
- + Auxiliary power unit

Hydrogen Energy Infrastructure Design and Engineering Services

We provide a complete set of solutions of reliable and efficient hydrogen generation, hydrogen refueling and technical consulting service for H₂ Energy Ecosystem building:

- + Flexible solutions for different need of H₂E applications
- + Key HRS equipments
- + EPC projects for HPU and HRS
- + Technical service for operation & maintenance of HPU and HRS



Owning hydrogen refueling station design qualifications and a professional team

Participating in hydrogen energy application demonstration project design of the 2022 Olympic Winter Games



ADVANCED INTELLIGENT MANUFACTURING

As a medium and high-end metallurgical equipment and new processing equipment integrator in China, we have more than 50 years of research and development experience and have succeeded in designing, building and operating hundreds of precision cold rolling and fluid automation production lines.

Metallurgical Equipment

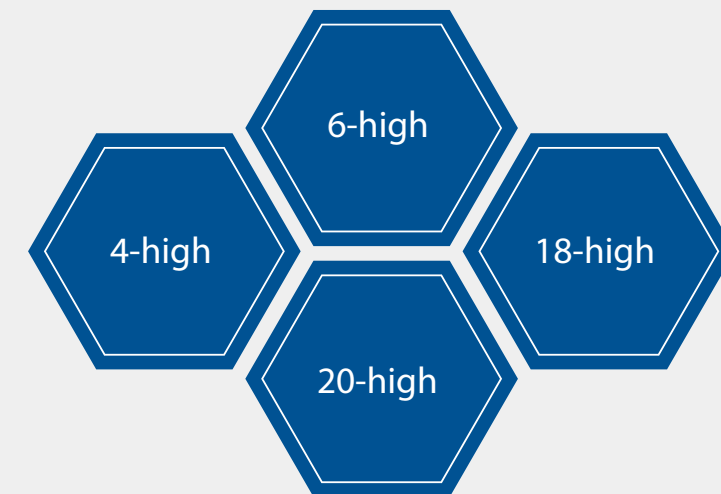
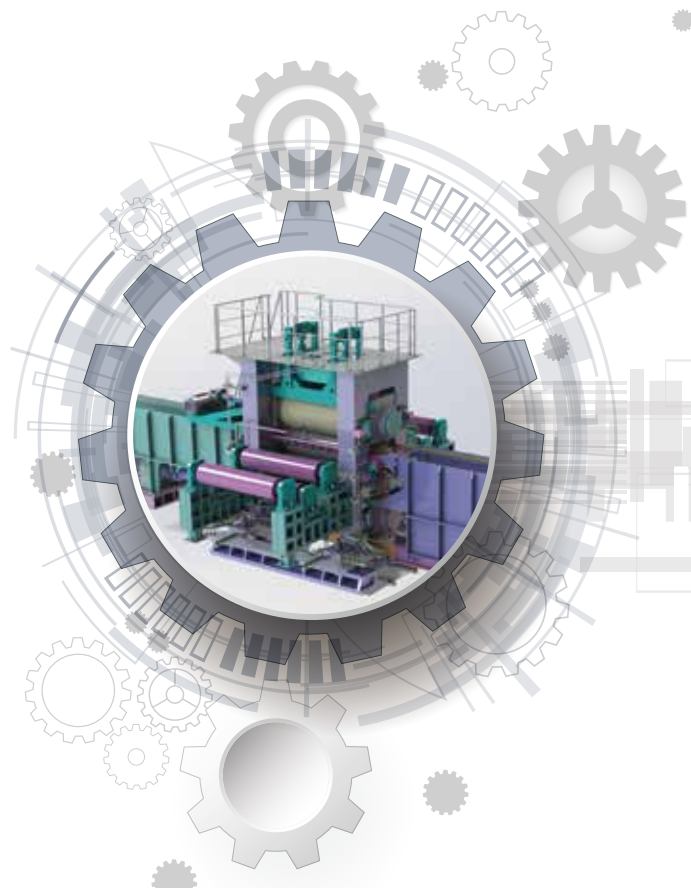
- + Cold rolling mill
- + 4-high rolling mill and composite mill
- + Temper mill
- + Hydraulic AGC

Industrial Big Data Cloud

- + Big data platform for the Internet of industrial things
- + MES system solution
- + Collaboration platform
- + Intelligent plant

Metallurgical Equipment

Specialized in design and manufacture of precision cold rolling mill and temper mill, we can provide more than 20 types of single stand reversible or continuous rolling equipment with the width of 250mm to 1780mm, 4-high / 6-high / 18-high / 20-high and have put more than 200 sets of various types of machines into production.



Single stand reversible or continuous rolling mill

20⁺

Designed and developed models

200⁺

Sets of types of machines put into production

Self-developed control system for temper mill

Rolling force fluctuation $\leq \pm 1$ ton, constant elongation control precision $\leq \pm 0.1$, which helps greatly improve the yield and economic benefits and allows the products to be widely used in China and exported overseas.

Hydraulic AGC and metallurgical servo control engineering technology is leading in China. AGC oil cylinder has replaced imported oil cylinder because of its excellent performance and been widely used by customers. We can also provide oil cylinder upgrading service to increase its performance and service life.

Industrial Big Data Cloud and Intelligent Plant

Aimed to promote lean production and excellent operation, we have set up a new digital, automatic and intelligent production, operation and management model on the basis of providing industrial cloud to help clients optimize resource allocation, reduce cost, improve quality and increase efficiency.

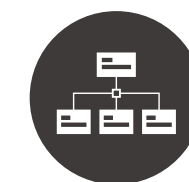


We provide big data platform service for industrial Internet of things, which enables enterprises to achieve the following goals through data collection and storage, big data analysis and decision analysis support:

- WEB** The process state is visible and event investigation can be conducted from any Web browser
- KPI** Define, track, analyze and improve KPI for performance management
- Monitor** Monitor plant performance and equipment health
- Capture** Capture and store real-time process and event data in the enterprise



Utilizing collaborate platform
to realize



MES platform

It is designed to build intelligent visual plant to ensure the system's practicability, reduce software cost and meet production demand.



Intelligent plant

Based on analysis and prediction of the big data, it can achieve intelligent and convenient decision support, accurate and safety production management and control, standardized and efficient operating management, advanced and reliable automation control and green and energy-saving IT infrastructure.