FINSEN RITTER

INDUSTRY 4.0 TURNKEY SOLUTIONS

2022-23

We At Finsen Ritter Are Experts At High Tech Turnkey Engineering Projects And Offer State Of The Art Products & Services Across Industries.

OUR PRODUCTS & SERVICES

PSA OXYGEN PLANT

VPSA OXYGEN PLANT

PSA NITROGEN PLANT

BIO CNG PLANTS

DESICCANT DRYER

CIVIL STRUCTURE DESIGN CONSULTANCY

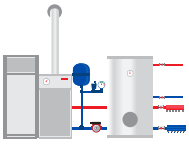
SYN GAS REFINING PLANTS

SCREW CHILLERS & HEAT PUMPS

H2S & CO2 SCRUBBER

INDUSTRIAL AUTOMATION 4.0

GAS BLENDING SKIDS



PULSE JET BAG FILTERS

ABOUT THE COMPANY

WE SPECIALISE IN INDUSTRIAL TURNKEY SOLUTIONS. WE HAVE DEVELOPED OUR IN-HOUSE TECHNOLOGIES IN THE DESIGN, SUPPLY, INSTALLATION AND TESTING OF CHEMICAL AND GAS PLANTS.

WE HAVE BUSINESSES IN EUROPE, AFRICA AND INDIA. OUR DESIGN CENTRE IS IN AMSTERDAM.

WE HAVE EXPERTISE IN OXYGEN, NITROGEN, HYDROGEN, ANA, UVGI EQUIPMENT, WATER TREATMENT, BREWING EQUIPMENT, SOLAR POWER PLANT, MILK CHILLER PLANTS, CHLORINATION PLANT, BIOGAS PLANT, BIO CNG PLANT, NOISE MONITORING DEVICES ETC

WE FOLLOW THE STATE OF THE ART INDUSTRY 4.0 STANDARDS ACROSS ALL OUR EQUIPMENT AND PLANTS DELIVERING THE BEST OF EQUIPMENT TO OUR CLIENTS.

OUR CORPORATE CLIENTS

GRASIM ADITYA BIRLA GROUP
AVANTHA
IMPETUS
JAYPEE GROUP
BHARAT OMAN REFINERIES LIMITED
AJAY DEEP Electro Medical
CHARTERED
Bengaluru INTERNATIONAL AIRPORT
LOGOMAN
awfis where work meets life
MVJ MEDICAL COLLEGE & RESEARCH HOSPITAL VES
PM PROJECTS
SAIMS
NAVODAYA MEDICAL COLLEGE
murugappa

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INDUSTRY 4.0 NITROGEN & OXYGEN PLANTS

2022-23

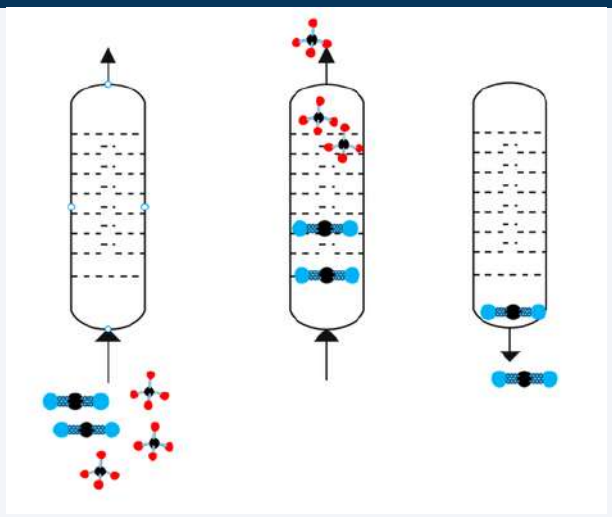
Technology: Pressure Swing Adsorption

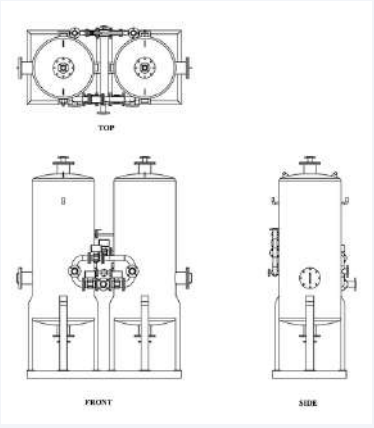
Overview: Nitrogen Or Oxygen from atmosphere is concentrated using high pressure compression and molecular sieves. This is a physical process which increases the concentration of nitrogen or oxygen.

PSA-VPSA
OXYGEN & NITROGEN GENERATOR

Working Principle

- Adsorbents like Zeolite Molecular Sieve adsorbs nitrogen and oxygen at different rates
- On increasing the pressure Nitrogen gets adsorbed on the surface of the Molecular Sieve
- Oxygen Passes through
- On purging cycle the Nitrogen is flushed out





99.9% Purity

Highest Quality Material

Faster Payback

Fully Automated

Low Energy Cost

IOT based Online Monitoring

Produce As Per Demand

Eliminate Safety Risk Associated With Handling High Pressure Cylinders

Faster Payback Period Within 1 Year And Lesser

Avoid Logistics & Management Problem

Avoid Cylinder Availability Issues

Completely In House Design Of Plant Providing Reliable After Sales Support

Use Of State Of The Art Quality Equipment Like Siemens PLC, Festo Valves And Fittings, SS 304 Piping, Honeywell Sensors

Very High Recovery Rate Of 99% Allowing Almost All Methane To Be Recovered With Minimal Wastage

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INDUSTRY 4.0 DESICCANT DRYER

2022-23

Technology

1. Pressure Swing Adsorption
2. Thermal Swing Adsorption
3. Thermal Regeneration

Overview: Dessicant Dryers use Activated Alumina or Molecular Sieves to achieve the pressure dew point upto -70 Degree Celsius. These are robust as compared to refrigerant dryers.

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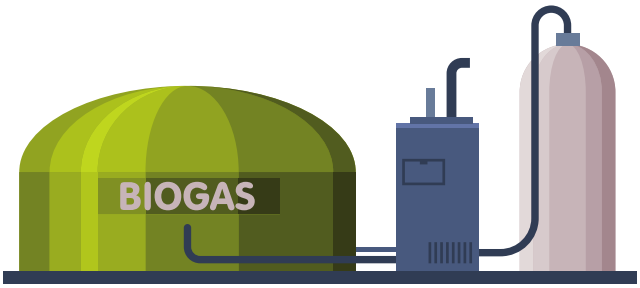
THERMOPHILIC INDUSTRY 4.0 BIO CNG PLANT

2022-23

Technology: Anaerobic Digestion + Thermophilic Plant + High Purity & High Recovery Bio CNG with High Pressure Vacuum Pressure Swing Adsorption + High Pressure Cylinder Filling

Synopsis: Raw Biogas can be obtained from Biomass aerobic digestion. The raw biogas contains 50-60% methane which is to be concentrated more than 96%. This can be compressed into the high pressure cylinders for easy transport.

PLANT OVERVIEW



Synopsis: Energy From Biowaste Can Be Recovered By Biologic Metabolism Of Bio Waste To Methane.
Raw Biogas Contains 40-60% Methane With Contamination Of Hydrogen Sulphide

The Usable CNG Has To Be Hydrogen Sulphide Free With Methane Concentration Of More Than 96% For High Calorific Value And To Be Suitable For Industrial Purposes

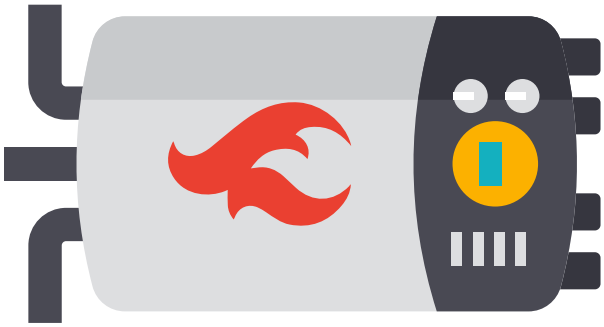
Solution & Scope: The Bio CNG Plant Provides End To End Conversion Of Bio Waste To CNG With Complete Automation

PROCESS FLOW

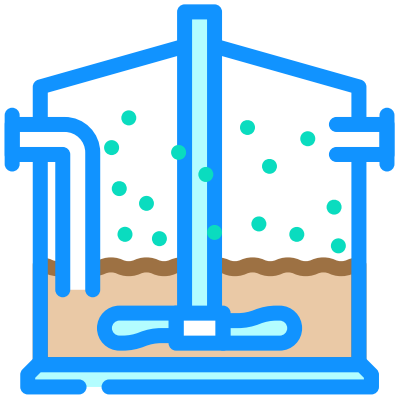
RAW MATERIAL HANDLING

The raw material will have to be transported from the storage area to the vessels and pre digesters. Different raw material will have different kinds of systems for handling.

PROCESS FLOW 2/3



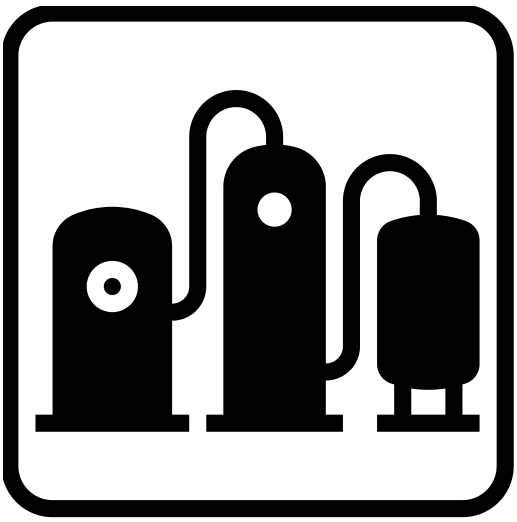
HEATING OF THE SLURRY FOR THERMOPHILIC DIGESTION



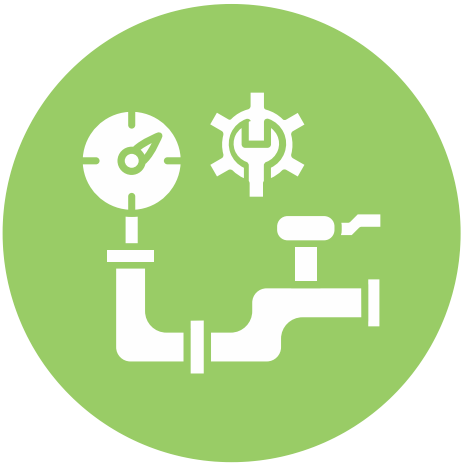
HEATED ANEROBIC DIGESTER

BIO GAS HOLDER

PROCESS FLOW 3/3



BIOGAS REFINING
WATER SCRUBBING + HIGH PRESSURE FILLING



COMPRESSION & FILLING IN CASCADES

VARIOUS COMPONENTS

DIGESTERS

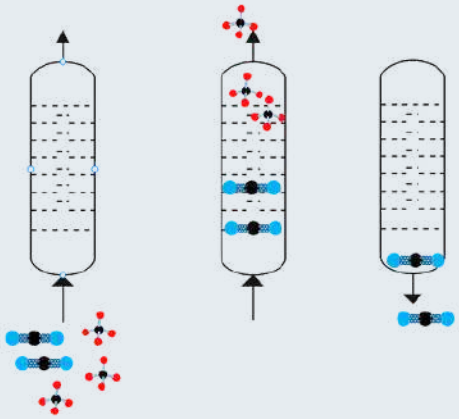
Digester is a tank of cylindrical form (for better mixing during the fermentation). It is made of Mild Steel. For heat conservation and reduction of heat energy consumption, the digester walls, overlap and bottom are insulated outside with 100 mm slabs of extruded polystyrene foam if necessary.

It is designed for anaerobic digestion of the raw material to produce raw bio gas.

AGITATOR

Agitator is made of stainless steel which keeps the substrate in motion and doesn't allow heavy substrate to settle down.

BIO GAS PURIFICATION UNIT



Vacuum Pressure Swing Adsorption Gas Separation

- Adsorbents like 5A Molecular Sieve selectively adsorbs Methane and Carbon Dioxide
- On increasing the pressure Carbon Dioxide gets adsorbed on the surface of the Molecular Sieve
- Methane Passes through
- On purging cycle the Carbon Dioxide is flushed out

Safe design with all electronic sensors and redundant control systems

High Reliability manufacturing with Shot Blasting and Refinery standard piping

SCADA integration (Optional)

Use of state of the art quality equipment like Siemens PLC, Festo Valves and fittings, SS 304 Piping, Honeywell sensors

Complete sturdy structure and weather proof design

Energy Efficient Design due to smart control

Fully Automated PLC Controlled Plant

Completely in house design of plant providing reliable after sales support

WATER & SLURRY PUMPS

Slurry Pumps are used to transport slurry and water from one vessel to the other

DECANTER

Decanter separates the water and solids from the slurry. The water is recycled into the digesters for efficient use of fresh water.

FLARE UNIT

Flare unit burns the methane from the exhaust to convert it to carbon di oxide. Carbon Di Oxide has much lower global warming potential than methane.

GAS HOLDERS

Gas holders hold the gas at near atmospheric level pressures in double Membrane PVC gas holder.

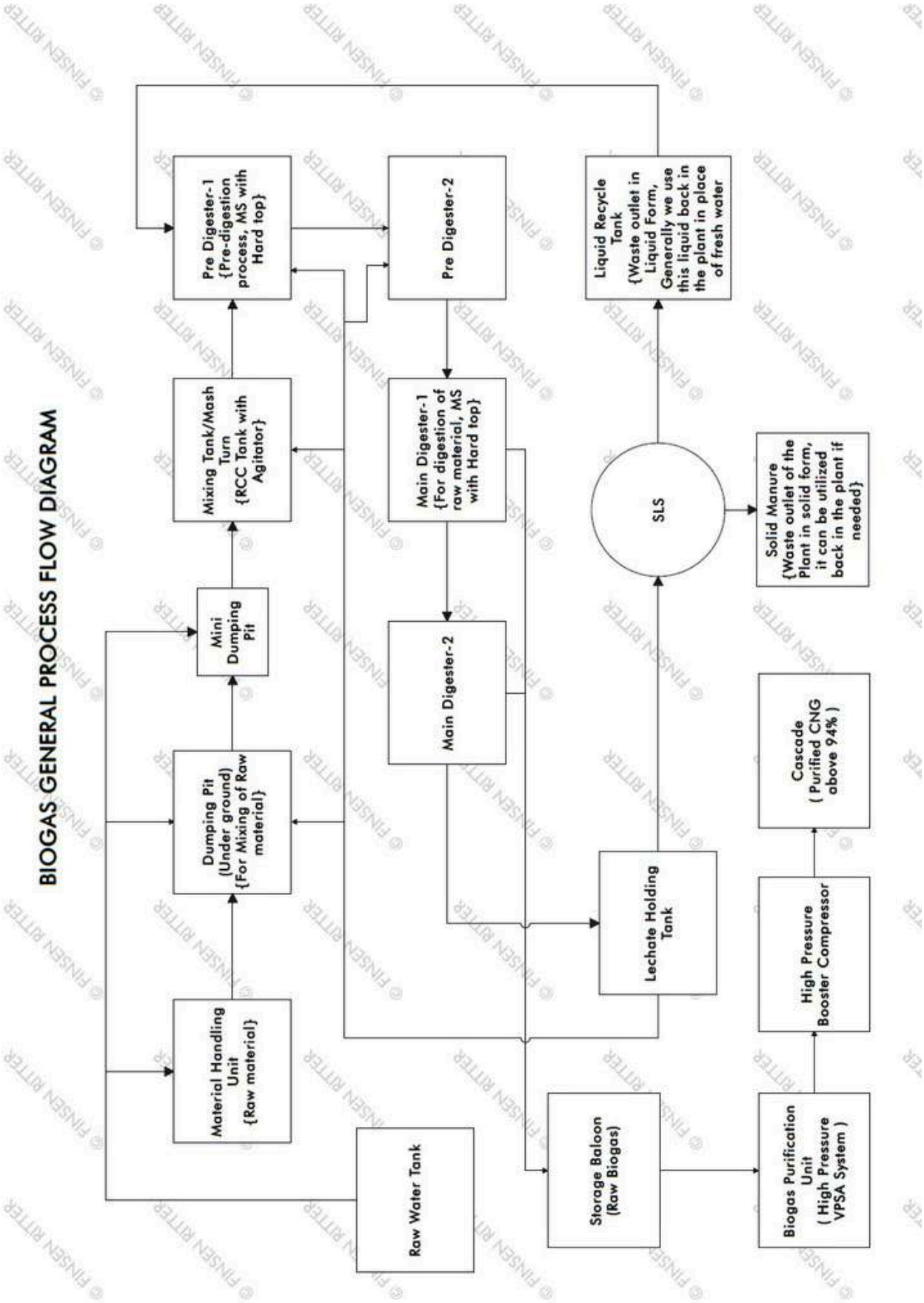
HIGH PRESSURE BOOSTER

High Pressure Booster Compressors will convert the Refiled Bio Gas from pressure of 0.3 bar to 250 bar

CNG CYLINDER CASCADES

Cascades store the gas at high pressure of 250 bar. They comply with the high pressure standards for safety.

BIOCNG PROCESS FLOW



FINSEN RITTER BIO BNG PLANT VS OTHERS

IN HOUSE TECHNOLOGY

FIRE SAFE STANDARDS WITH HIGH FACTOR OF SAFETY

INDUSTRIAL GRADE PIPING & REAL TIME MONITORING

INDUSTRY 4.0 ENABLED

	FINSEN RITTER	OTHERS
	IN HOUSE TECHNOLOGY WITH PNEUMATICALLY CONTROLLED VALVES	EXTERNALLY DEPENDENT
	SELF MONITORING	USE OF MAN POWER TO MONITOR
	97% PLUS METHANE PURITY	NO SUCH SUPPORT
	INTERNET OF THINGS ENABLED	NOT ALWAYS PRESENT

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HYDROGEN, NATURAL GAS & OXYGEN BLENDING SKID

2022-23

Technology

1. Blends Hydrogen 0-100% v/v
2. Natural Gas 0-100% v/v
3. Oxygen 0-100% v/v

This is used to blend various gases in accurate proportions. Used especially in furnaces especially when hydrogen is blended with natural gas. This increaes the flame speed of the furnace.

Advantages:

1. Accurate Blending
2. Accurate Output Pressure Control
3. Output: 50-10000 Nm3/hr flow

HYDROGEN SULPHIDE SCRUBBER

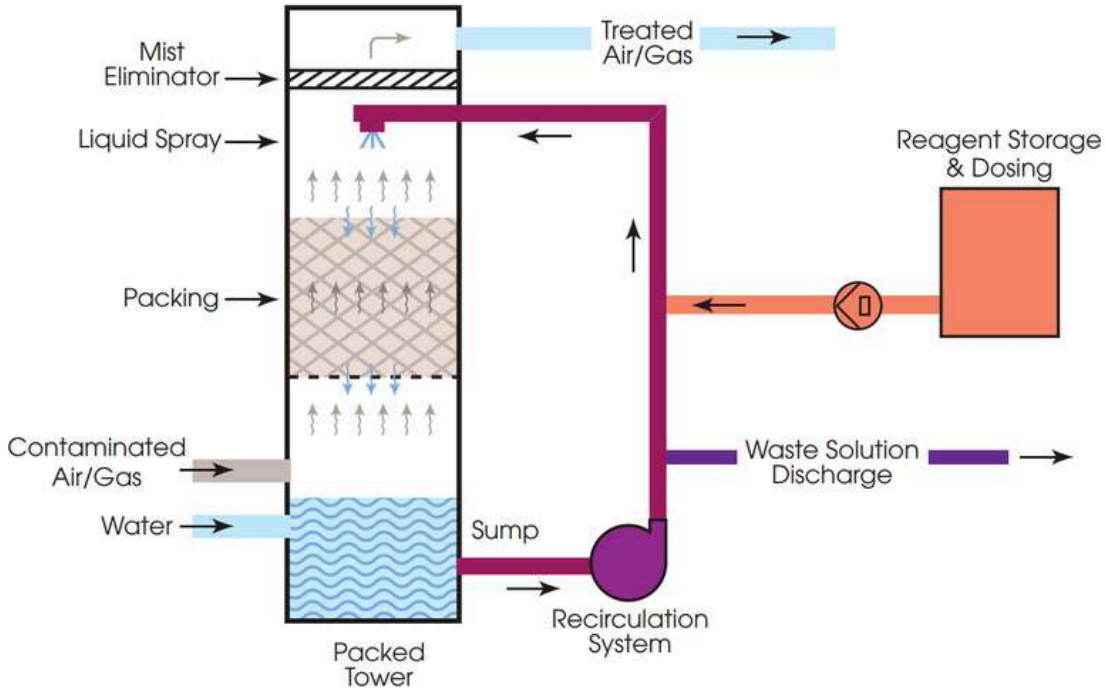
2022-23

Hydrogen sulfide (H_2S) is a harmful gas commonly found in industrial emissions, including biogas, natural gas, and refinery gases. It poses significant health and environmental risks, requiring efficient removal solutions to ensure safe and compliant operations.

H_2S

HOW IT WORKS

- Gas Inlet: Contaminated gas enters the scrubber.
- Water Scrubbing: The gas is passed through a water column where H_2S is dissolved.
- Biochemical Reaction: Thiobacillus bacteria, naturally occurring and safe, convert H_2S into elemental sulfur and sulfate through biological oxidation.
- Clean Gas Outlet: The purified gas exits the scrubber, meeting stringent environmental standards.



KEY FEATURES

- High Efficiency: Achieves over 99% H_2S removal, ensuring clean gas output.
- Eco-Friendly: Utilizes natural bacteria, eliminating the need for hazardous chemicals.
- Cost-Effective: Low operational costs due to the regenerative nature of the biological process.
- Scalable Design: Suitable for various industrial applications, from small-scale biogas plants to large refineries.
- Minimal Maintenance: Simple operation with minimal maintenance requirements, reducing downtime and operational costs.

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INDUSTRIAL PULSE JET BAG FILTERS

2022-23

Technology: High Temperature Pulse Jet Air Bag Filters

Overview: Air Bag filters can remove the particles from the air. The bag filters are effective ways to combat air pollution.

KEY FEATURES

Safe design with all electronic sensors and redundant control systems

High Reliability Steel with MIG Welding for best durability

SCADA integration (Optional)

Use of state of the art quality equipment like Siemens PLC, Festo Valves and fittings, Rigid Piping, Honeywell sensors

Complete sturdy structure and weather proof design

Energy Efficient Design due to smart control

Fully Automated PLC Controlled Plant

Completely in house design of plant providing reliable after sales support

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THANK YOU, AND WE LOOK FORWARD TO WORKING WITH YOU.