AIRGRID
ENGINEERING

HVAC & CLEANROOM SOLUTIONS

STRUCTURED AIR.
SMART ENGINEERING.

www.airgridengineering.in

Airgrid Engineering – HVAC & Cleanroom Solutions

Airgrid Engineering is a specialized engineering company delivering end-to-end HVAC and Cleanroom solutions for controlled and critical environments.

We provide comprehensive services covering design, engineering, project execution, system integration, and validation, ensuring performance, compliance, and long-term reliability.

Backed by strong technical expertise and execution excellence, Airgrid Engineering supports projects across pharmaceuticals, healthcare, laboratories, hospitals, electronics, and industrial facilities. Our approach combines precise engineering, quality materials, and industry-aligned practices to meet stringent operational and regulatory requirements.

We are committed to delivering efficient, compliant, and sustainable solutions, with a focus on client satisfaction, safety, and system performance.

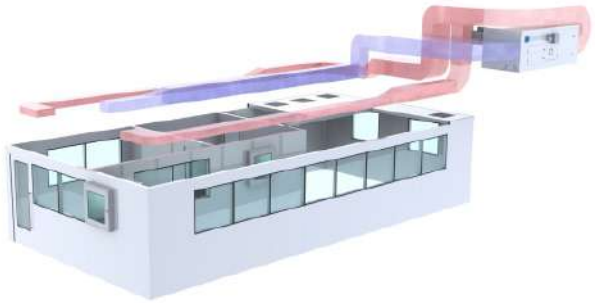
Our Products & Services

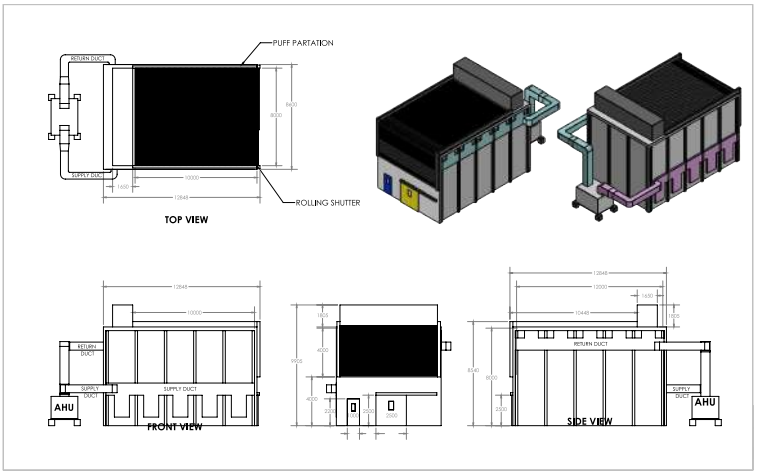
- Design & Project Execution
- HVAC Systems
- Cleanroom Solution
- Cleanroom Equipment
- Furniture Solutions

ISO 9001:2015 CERTIFIED COMPANY

Design & Project Execution

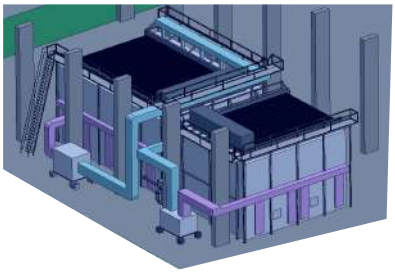
Airgrid Engineering is a specialized engineering firm engaged in the design, engineering, supply, installation, testing, commissioning, and validation of HVAC and cleanroom systems for regulated and controlled environments.





We provide comprehensive turnkey solutions covering:

- HVAC load calculations and system design
- Air distribution system planning and ducting layout
- Equipment selection (AHU, HEPA filtration, diffusers, control systems)
- Cleanroom layout design and zoning
- Modular partition and ceiling design & execution
- Electrical control panel installation
- Testing, Adjusting & Balancing (TAB)
- Cleanroom validation and documentation support



Our systems are designed to achieve:

- Controlled temperature and humidity conditions
- Differential pressure management
- Specified air changes per hour (ACH)
- Particle count compliance as per cleanroom classification
- Energy-efficient and low-leakage performance

We are also designing layout for new pharmaceutical company Surgical manufacturing companies as per current requirements like WHO Pics EU GMP.

Air Handling Units (AHU)

An **Air Handling Unit (AHU)** is the core component of an HVAC system, designed to regulate, filter, and circulate air within a controlled environment. It ensures proper temperature control, humidity management, ventilation, and air purification to maintain optimal indoor air quality.

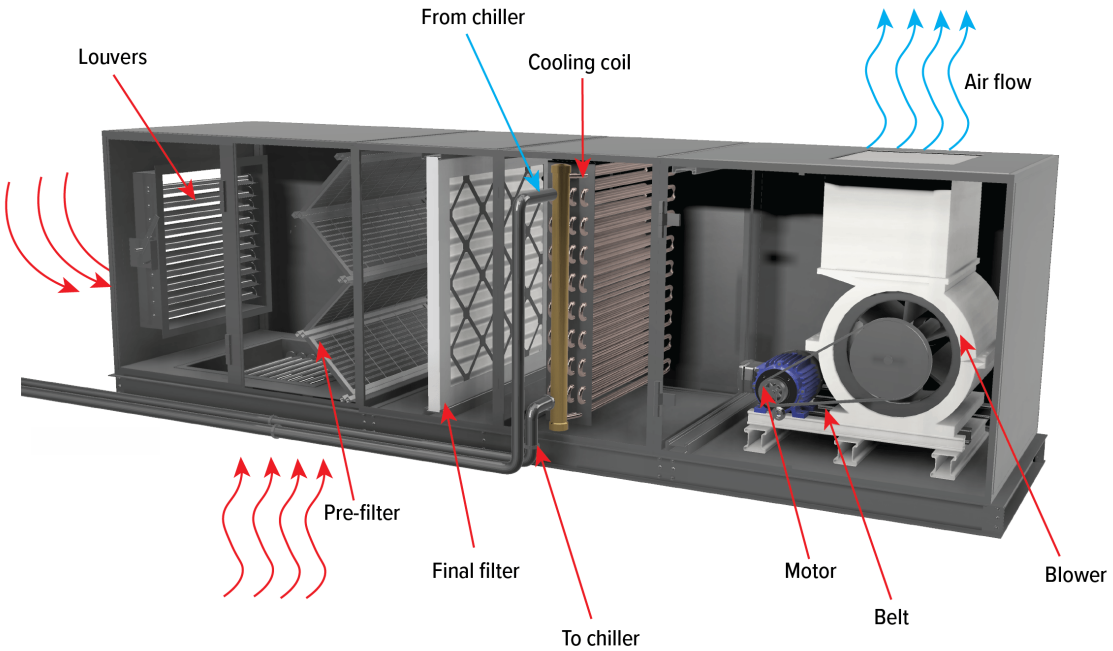
At Airgrid Engineering, our AHU solutions are engineered for high efficiency, durability, and compliance with industry standards. We provide customized AHU systems suitable for pharmaceutical facilities, hospitals, laboratories, commercial buildings, and industrial applications.

AHU working Diagram

- Precise temperature and humidity control
- High-efficiency air filtration (including HEPA options)
- Energy-efficient performance
- Reliable and low-maintenance operation
- Compliance with cleanroom and regulatory requirements

With robust construction and performance-focused engineering, our AHUs ensure consistent airflow, controlled environments, and long-term operational reliability.

AHU working Diagram



DHU (Dehumidification Unit):

DHU systems are designed to control and maintain precise humidity levels in controlled environments.

They remove excess moisture from the air to prevent condensation, microbial growth, and product deterioration, ensuring stable and compliant operating conditions.

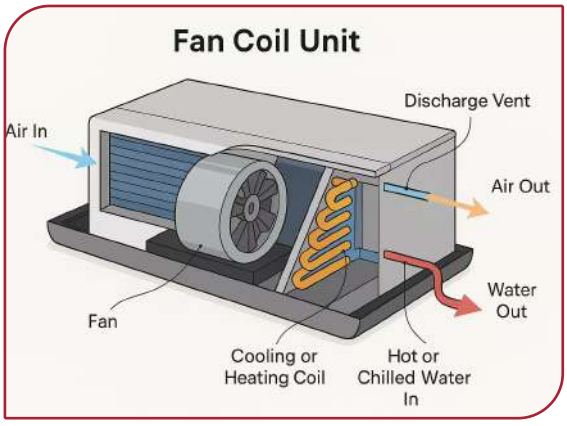
Applications:

- Pharmaceuticals, cleanrooms, food processing, cold storage, laboratories, and industrial facilities.

Precision humidity control system ensuring stable and contamination-free environments.

FCU (Fan Coil Unit) – Localized Temperature Control

FCU is a terminal HVAC unit that conditions air using a fan and chilled/hot water coil to maintain desired room temperature. It is widely used in commercial buildings, hotels, hospitals, and residential spaces for efficient zone-wise temperature control.



Key Features:

- Compact and energy-efficient design
- Individual zone temperature control
- Low noise operation
- Easy installation and maintenance

Efficient zone-based air conditioning unit for precise temperature control.

HVAC Ducting

HVAC ducting forms the backbone of an air distribution system, ensuring efficient and balanced airflow throughout the facility. Properly designed and installed duct networks are essential for maintaining temperature control, ventilation efficiency, and indoor air quality.

At Airgrid Engineering, we provide precision-engineered ducting solutions designed for optimal airflow performance, minimal leakage, and long-term durability. Our duct systems are fabricated and installed as per industry standards, ensuring:

- Uniform air distribution
- Reduced energy loss
- Low noise levels
- Structural stability and durability
- Compliance with HVAC and cleanroom standards

We deliver ducting solutions for pharmaceutical plants, hospitals, laboratories, commercial spaces, and industrial facilities.

Thermal XLP & Nitrile Insulation

Thermal and acoustic insulation plays a critical role in enhancing HVAC system efficiency and operational comfort. Proper insulation minimizes heat loss or gain, prevents condensation, and reduces system noise, ensuring optimal performance and energy savings.

Airgrid Engineering provides high-quality insulation solutions that offer:

- Improved energy efficiency
- Condensation prevention
- Temperature stability
- Noise reduction and vibration control
- Long-term system protection

Our insulation systems are carefully selected and installed to meet regulatory requirements and deliver reliable performance in controlled and critical environments.

HVAC / Cleanroom Filter

Pre Filter (10–20 Micron):

Primary stage filter that removes larger dust particles, lint, and debris.
Extends the life of downstream filters.

Fine Filter (3–5 Micron):

Secondary stage filter that captures smaller suspended particles and improves overall air quality before HEPA filtration.

HEPA Filter (0.3 Micron):

High-Efficiency Particulate Air filter
removing ≥99.97% of particles at 0.3 micron size.
Used in cleanrooms, OT, pharma, and sterile zones.

Multi-stage micron-based filtration ensuring superior air purity and contamination control.

HVAC / Cleanroom Damper

Volume Control Damper (VCD):

A manually or motorized operated damper installed in HVAC ducting to regulate and balance airflow within the system. It ensures proper air distribution and system efficiency.

Adjustable airflow control | Galvanized / Aluminum construction | Manual or motorized operation | Used for air balancing

Fire Damper (FD):

A fire-rated safety device installed in ducts to prevent the spread of fire and smoke. It automatically closes when high temperature is detected.

Thermal fusible link activation | Fire-rated construction | Automatic closure during fire | Compliance with fire safety standards

VCD controls airflow, while Fire Dampers ensure fire safety within HVAC duct systems.

HEPA - Filter & Housing

HEPA (High-Efficiency Particulate Air) filters and housing systems are designed to remove fine airborne particles and contaminants, ensuring high-level air purity in controlled environments. The housing unit provides secure sealing, leak-proof performance, and easy maintenance access, making it suitable for cleanrooms, pharmaceutical facilities, hospitals, and laboratories.

Air Diffusers

Air diffusers are critical HVAC components designed to distribute conditioned air evenly throughout a space, ensuring uniform airflow, temperature balance, and occupant comfort. Properly selected and installed diffusers help maintain air quality, reduce drafts, and optimize system efficiency in commercial, industrial, and cleanroom environments.

Return Air Risers

Return air risers are vertical duct systems designed to collect and channel return air from different floors or zones back to the Air Handling Unit (AHU).

They ensure balanced airflow, maintain pressure differentials, and support efficient air recirculation in HVAC and cleanroom environments.

Electrical Control Panels for AHU

Airgrid Engineering designs, manufactures, and installs Electrical Control Panels for Air Handling Units (AHU) to ensure safe, reliable, and efficient operation of HVAC systems.

Our AHU control panels are engineered to manage and monitor critical parameters such as fan motors, temperature control, humidity control, pressure monitoring, and filtration systems. Each panel is designed in accordance with project specifications and electrical safety standards to deliver stable and energy-efficient performance.

Scope & Features

- Motor starter panels (DOL / Star-Delta / VFD-based systems)
- Integration with Variable Frequency Drives (VFD) for energy optimization
- Temperature & humidity controller integration
- Differential pressure monitoring
- HEPA filter pressure indication
- Overload, short-circuit, and phase protection
- Emergency stop and safety interlocks
- Digital display and monitoring systems

HVAC System Validation

Comprehensive testing and verification of HVAC systems to ensure proper airflow, temperature, humidity control, pressure balance, and filtration performance in compliance with design specifications and regulatory standards.

Modular Cleanroom Solution

Prefabricated cleanroom systems designed for fast installation, contamination control, and compliant controlled environments.



Cold Room

Temperature-controlled storage solutions engineered for reliable cooling performance and product preservation.



Operation Theatre (OT)

Specialized HVAC systems designed to maintain sterile conditions through controlled airflow, HEPA filtration, positive pressure, and precise temperature and humidity control for safe surgical environments.



Industrial Panels (Progressive Male-Female Section Panels)

These interlocking panel systems feature a progressive male-female joint mechanism for strong alignment and airtight installation.

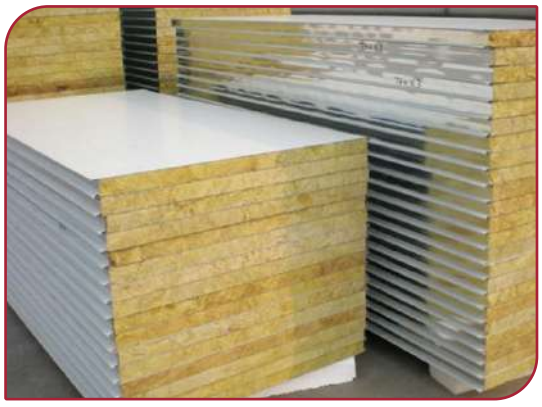
- Strong mechanical interlocking system
- Fast and efficient installation
- High structural stability
- Reduced air leakage
- Suitable for industrial & controlled environments

Cleanroom Panels

Cleanroom panels are specially engineered modular wall and ceiling systems designed to create controlled, contamination-free environments. Built with smooth, non-porous, and easy-to-clean surfaces, these panels ensure airtight sealing, structural stability, and compliance with cleanroom standards. They are widely used in pharmaceutical, healthcare, laboratory, and industrial applications.

Rockwool Panels

Rockwool panels are insulated sandwich panels with a high-density mineral wool core, designed to provide excellent thermal insulation, fire resistance, and sound absorption. These panels offer superior structural strength, moisture resistance, and safety compliance, making them ideal for cleanrooms, industrial buildings, HVAC enclosures, and fire-rated partitions.



Key Benefits:

- High fire resistance (non-combustible core)
- Excellent thermal insulation
- Superior acoustic performance
- Strong and durable construction
- Moisture and mold resistance

Cleanroom Doors

Airtight, hygienic doors designed to maintain pressure integrity and contamination control in cleanroom environments.

GI Powder Coated Metal Doors | Stainless Steel (SS) Doors | High Pressure Laminated Doors
Automatic / Semi-Automatic / Siding Doors | Fire Proof Doors | Aluminium Powder Coated Metal Doors

GI Single Door

GI Double Door

SS Door

Emergency Door

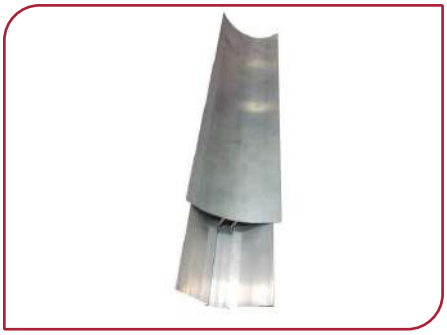
Sliding Door

Glass Vision Panels

Partation View Panel

Brick wall window

COVING ANGLE



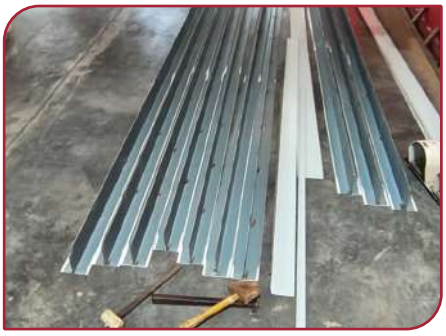
COVING TOP

DUCT SUPPORT

3D CORNER

2D VERTICAL

2D CORNER



T SUPPORT

GI C CHANNEL

L FLUSHING

Cleanroom accessories are critical components that enhance contamination control, operational efficiency, and regulatory compliance within controlled environments. Designed with smooth, non-porous, and easy-to-clean surfaces, these accessories support airflow management, personnel movement, and material transfer while maintaining pressure integrity and hygiene standards.

Cleanroom Lights (24W / 36W / 48W)

Energy-efficient LED cleanroom lighting fixtures designed for flush installation in cleanroom ceilings, ensuring uniform illumination with minimal heat generation and contamination risk.

Key Benefits:

- CRCA powder-coated housing
- Stainless Steel (SS) frame construction
- Top and bottom openable design for easy maintenance
- Airtight gasket sealing
- Compatible with cleanroom ceiling panels

Flush-mounted, contamination-safe LED lighting solutions for controlled cleanroom environments.

Epoxy Flooring

Epoxy Flooring:

Seamless, chemical-resistant, and dust-proof flooring ideal for cleanrooms, pharma, and industrial areas. Durable, hygienic, and easy to maintain.

Floor Coving:

Rounded floor-to-wall finish that prevents dust accumulation and ensures easy cleaning in controlled environments.

Seamless, hygienic flooring solution for contamination-controlled facilities.

Pass Box

Static Pass Box:
Non-ventilated chamber with interlocking doors for transfer between similar clean zones.

Dynamic Pass Box: HEPA-filtered unit maintaining airflow and cleanliness between different cleanroom classes.

LAF (Laminar Air Flow Units):

HEPA-filtered systems providing unidirectional airflow to maintain sterile and contamination-free environments.

Types:

- **Horizontal LAF**
- **Vertical LAF**
- **Ceiling Suspended LAF** (for OT & critical zones)
- **Reverse Laminar Air Flow** (for personnel protection)

Air Shower:

A high-velocity HEPA-filtered air system designed to remove surface contaminants from personnel before entering cleanroom areas, maintaining contamination control and pressure integrity.

Bio-Safety Cabinet (BSC):

A HEPA-filtered containment unit designed to protect personnel, products, and the environment during handling of infectious or hazardous biological materials. Ensures controlled airflow, contamination prevention, and regulatory compliance in laboratory and healthcare settings.

SS Furniture

SS Shink Table

Cross Over Banch

SS Cupboard

SS Movable Trolley

SS Tool-box Kit

Laboratory Steel Cabinate

Stainless Steel Table

Dining Table

SS Tools Trolley

SS Chair

SS Round Chair

SS Palate

Lab Furniture

Ergonomically designed and chemically resistant laboratory furniture built for durability, safety, and efficient workflow. Manufactured using high-grade materials such as powder-coated steel, SS, or HPL to withstand corrosive environments and heavy usage in laboratories, pharma, and research facilities.

Includes:

Laboratory Workbenches | Storage Cabinets | FUME Hood
Reagent Racks | Sink Units | Instrument Tables

Signages

Specialized identification and safety signages designed for pharmaceutical plants and cleanroom facilities to ensure compliance, safety awareness, and controlled area management.

Types of Signages:

- Area Classification Boards (ISO Class / Grade A, B, C, D)
- Entry Protocol Signages (Gowning Instructions)
- Safety Warning Signs (PPE Mandatory, No Entry, Hazard Alerts)
- Equipment Identification Labels
- Emergency Exit & Fire Safety Signs
- Pressure Differential / Room Status Indicators

Area Classification

Gowning Procedure

Safety & PPE Signs

Equipment Labels

Emergency Exit Signs

Pressure Indicator

Key Benefits:

- Non-shedding, easy-to-clean materials
- Chemical and moisture resistant
- Clear, durable, and compliance-focused design
- Suitable for sterile and controlled environments

Compliance-driven area and safety signages for controlled pharma and Cleanroom environments.

Photos Gallery












Built with Accuracy.

Delivered with Commitment.

Airgrid Engineering delivers specialized HVAC and Cleanroom solutions across diverse industries requiring precision-controlled environments, contamination management, and energy-efficient systems.

Industry we serve

- Pharmaceutical & Microbiology Lab
- Biotechnology & Life science
- Hospitals & Medical
- Food Processing Industries
- Cold Storage
- Solar Manufacturing
- Electronics Industry
- Dairy Plant
- Plastic & PVC Manufacturing
- Textile Industries
- Mall & Multiplex
- Hotel & Resort

With technical expertise and compliance-focused execution, we provide customized, high-performance solutions tailored to each industry's operational and regulatory requirements.

Engineering Clean Air with Precision

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