

Gigafactories

 **Precision Environments[®]**

Gigafactory Division

GIGAFACTORIES

One-Stop Source for World-Class Design-Build Gigafactory Cleanrooms

**SINCE
1989**

DELIVERING TOP QUALITY CLEANROOM ENVIRONMENTS

The gigafactory market is currently experiencing rapid growth due to the increasing demand for electric vehicles, sustainable energy solutions, and advanced battery technologies. Gigafactory cleanrooms require extremely low humidity levels designed to ensure precise and safe manufacturing conditions for sensitive components like lithium-ion batteries. In gigafactories, manufacturers must maintain ultra-high levels of cleanliness to prevent contamination of the products being produced. To achieve this, gigafactory cleanrooms and dryrooms use specialized air filtration systems, impressive temperature and humidity controls, and stringent safety protocols.

Cold Rooms for Battery Production

Battery Production Cold Rooms allow for extremely finite measurements and are instrumental for developing innovations in electric vehicle safety, fuel efficiency, and aerodynamics. Precision Environments designs and engineers custom battery production cold room environments that meet stringent specifications for:

- **Temperature Control:** Maintaining a specific temperature range is critical for the quality and consistency of battery production.
- **Storage:** Battery materials are stored at specific temperatures to prevent degradation or evaporation.
- **Safety:** Cold rooms are used to safely store hazardous battery materials.
- **Testing:** Cold rooms are used to test battery performance in extreme conditions.



Dry Rooms for Battery Production

Battery Production Dry Rooms are designed to control the level of humidity and moisture in the air during the production of batteries. Precision Environments' humidity controlled dry rooms adhere to strict specifications for quality, consistency, and safety of the battery product:

- **Moisture Control:** Batteries contain materials that are affected by humidity including electrolytes and separators.
- **Safety:** Battery materials can react with moisture, causing corrosion, degradation, or dangerous chemical reactions.
- **Consistency:** Variations in humidity can affect the physical and chemical properties of battery materials, leading to inconsistencies.
- **Quality Control:** Proper humidity control is necessary for ensuring the quality, performance and reliability of the finished battery.

END-TO-END GIGAFACTORY CLEANROOM SERVICES

Precision Environments' end-to-end gigafactory cleanroom service offering covers the entire cleanroom implementation process, from concept to certification, followed by ongoing maintenance to ensure safety and performance. With over 30 years of experience, we will support you where you need us most by assisting in any phase of the cleanroom development process.

Maintenance & Service

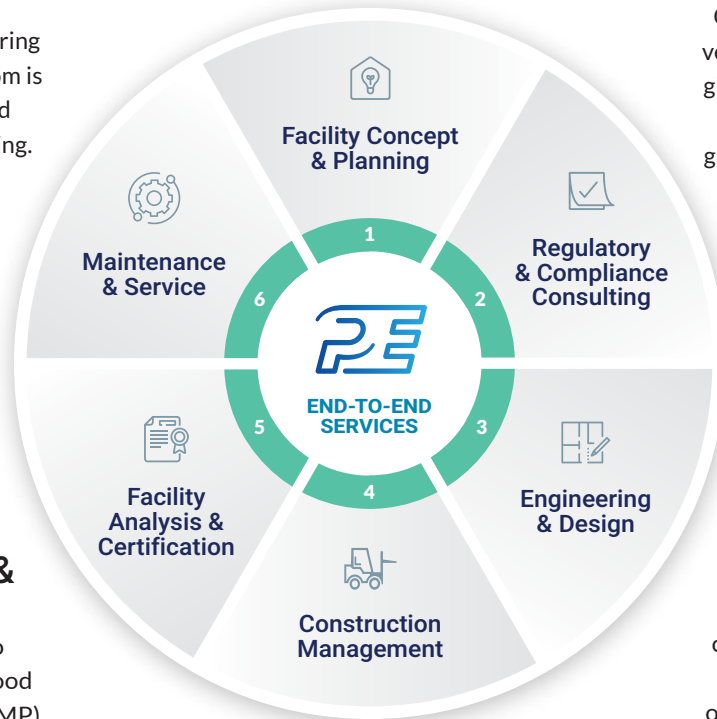
Our team is dedicated to ensuring that your gigafactory cleanroom is maintained, and reliable and efficient operations are ongoing.

Facility Concept & Planning

There are many components to operating an EV production facility that Precision Environments considers during the planning phase, especially moisture control, due to how reactive lithium is with moisture in the air.

Regulatory & Compliance Consulting

Our subject matter experts are well versed in regulatory requirements for gigafactory cleanroom environments. Our team ensures that your gigafactory cleanroom is built to your industry's specifications and meets regulatory requirements.



Facility Analysis & Certification

Our team is committed to compliance with Current Good Manufacturing Practices (cGMP), Institute of Environmental Sciences Technologies (IEST), and International Organization for Standardization (ISO).

Construction Management

Precision Environments assigns a highly skilled cleanroom construction management team to manage all aspects of the project from concept through certification. Our team ensures that construction protocols, cleaning procedures, safety, training, quality control management, and certifications process are incorporated into the design and construction of a gigafactory cleanroom.

Engineering & Design

Structural design elements are critical in Precision Environments' gigafactory design process and often incorporate large wall panels, stack joints, supplemental steel support, seismic considerations, bracing, hangers, expansion joints, guard rails, and parapets walls.



Contact us to learn more about how our team of professionals can help you and your company design and build a world-class gigafactory cleanroom. To get instant access to our request form, scan the QR code with the camera on your mobile device, then click on the URL.

GIGAFACTORY DIVISION

GIGAFACTORY CLEANROOMS FOR BATTERY PRODUCTION

Precision Environments' gigafactory cleanrooms are specialized, controlled environments that ensure optimal production conditions for high-tech manufacturing processes such as electric vehicle batteries and semiconductors. We work closely with our clients to ensure that the gigafactory cleanroom design meets their specific requirements, whether it's for a single room or an entire facility. We use state-of-the-art equipment and materials to ensure that our gigafactory cleanrooms meet the exact specifications for cleanliness, humidity, temperature, and air exchange, ensuring that your gigafactory controlled environment remains stable, consistent, and operating at full capacity.

BUILT FOR COMPLIANCE

All gigafactory cleanrooms designed, built, and warranted by Precision Environments are compliant with ISO 14644-1 standards, cGMP standards, GMP European Standards for Sterile Injectables, and FDA CFR 21 Part II.

PERFORMANCE GUARANTEE

We guarantee that our gigafactory cleanrooms meet your project requirements and exceed your expectations for quality and service.



Precision Environments is a A2LA 17025 Accredited
Controlled Environment Design/Build Company



We design, build, and certify controlled environments
according to ISO standards.

4440 Lake Forest Drive Suite 120
Cincinnati, OH 45242
513-847-1510

Sales@PrecisionEnvironments.com