

CAD Services Our Engineers Can Provide

1. 3D Modeling & Design

- Creation of 3D models for laboratory test rigs and equipment
- Parametric design of aerodynamic components (ducts, nozzles, diffusers)
- Spray chamber and visualization rig design (including optical access windows)
- Design of customized fixtures, mounts, and adapters for measurement setups

2. Detail Engineering & Drafting

- 2D manufacturing drawings with tolerances and material specifications
- Assembly drawings and exploded views for technical manuals
- BOM (Bill of Materials) generation directly from CAD models
- Sheet metal and welded structure detailing for test benches

3. Simulation-Ready CAD Models

- Geometry preparation for CFD (Computational Fluid Dynamics) simulations
- Models optimized for flow analysis (boundary conditions, simplifications)
- Spray nozzle and injector models for spray patternation studies

4. Prototyping & Rapid Design

- CAD files prepared for 3D printing or CNC machining
- Design iterations for prototype test chambers and flow meters
- Reverse engineering of legacy equipment into CAD models

5. Visualization & Communication

- Photorealistic rendering of test rigs for proposals and manuals
- Animated CAD walkthroughs of spray visualization systems
- Assembly/disassembly animations for training and maintenance support

6. Customer-Specific Customization

- Tailor-made CAD designs of rigs to fit customer lab setups
- Adaptation of standard equipment to unique aerodynamic test cases
- Integration of third-party sensors and flow meters into existing rigs

7. Documentation & Compliance

- CAD-based documentation aligned with ISO/ASTM testing standards
- Technical drawings for certification and quality assurance
- Integration of safety and ergonomics requirements in CAD designs