Rahul Sharma

Mechanical Design Engineer

Professional Summary

Mechanical Design Engineer with 2 years of professional experience in 3D modeling, assembly design, and product development for industrial and automotive applications. Skilled in SolidWorks, Creo, UG NX, and AutoCAD with expertise in GD&T, DFM, and PLM systems. Adept at delivering innovative, manufacturable, and cost-effective solutions while collaborating with cross-functional teams in fast-paced engineering environments.

Agenda

- About me
- Skills & Expertise
- Work Experience
- Key Projects
- Research & Publications
- Software Proficiency
- Certifications & Achievements
- Open to Internship/Jobs Work
- Contact Details & Closing Slide

About Me

Mechanical Design Engineer with 2 years of specialized experience in 3D modeling, assembly design, and product development for industrial and automotive applications. Proficient in SolidWorks, PTC Creo, UG NX, and AutoCAD, with advanced expertise in GD&T (ASME Y14.5), Design for Manufacturing (DFM), and Product Lifecycle Management (PLM) systems. Adept at translating complex requirements into robust, manufacturable mechanical design solutions while ensuring compliance with engineering standards. Skilled in collaborating with cross-functional teams to drive product performance, optimize workflows, and meet project deadlines in dynamic, fast-paced environments.

Skills & Expertise

- 3D CAD Modeling
- Assembly Design
- GD&T (ASME Y14.5)
- SolidWorks
- PTC Creo
- UG NX
- AutoCAD
- Teamcenter PLM
- Design for Manufacturing (DFM)
- Product Development
- Sheet Metal & Casting Design
- BOM
- Tolerance Analysis
- Tolerance Stack-up
- Technical Documentation

Work Experience

DesignTech Systems Pvt. Ltd., Bangalore — Technical Service Engineer (Sep 2024 – Present)
- Created 3D CAD models and assemblies using SolidWorks and UG NX adhering to design intent and functional requirements.
- Generated detailed 3D drawings with GD&T, as per ASME Y14.5 standards.
- Performed tolerance stack-up analysis using Tolerance Analyst for RSS.
- Designed sheet metal, machined, and plastic components incorporating DFM principles.
- Collaborated with manufacturing and testing teams to ensure manufacturability and product performance.

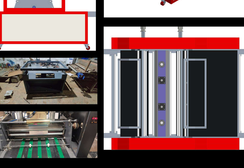
A.M Techno Pvt. Ltd., Faridabad, Delhi — Fabrication Design Engineer (Jun 2024 – Jul 2024)
- Designed custom industrial furnaces and conveyor systems ensuring thermal and structural efficiency.
- Developed 3D CAD models and fabrication drawings of sheet metal structures and frames.
- Optimized BOMs to reduce material waste and fabrication time.
- Generated detailed BOMs for procurement and costing.
- Collaborated with production teams for design-to-fabrication validation.

Mars Technocraft Pvt. Ltd., Vadodara — Design Engineer (Aug 2023 – Dec 2023)
- Designed Special Purpose Machines (SPM) as per client automation requirements.
- Created detailed 3D models and manufacturing drawings using PTC Creo.
- Conducted design reviews and resolved manufacturability issues.
- Collaborated with procurement and production teams to ensure on-time project completion.
- Supported assembly and commissioning of machines ensuring design compliance.

Key Projects

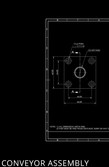
FAN GUARD MACHINE

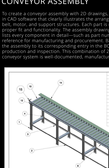
To develop the concept of a fan guard machine, a detailed 3D model was created using PTC Creo, a powerful computer-aided design (CAD) software widely recognized for its precision and versatility in mechanical engineering. The modeling process involved defining the structural framework of the fan guard, incorporating safety features, and ensuring that the design adhered to industry standards for durability and efficiency. By leveraging Creo's parametric modeling capabilities, the design team was able to visualize the assembly, simulate movements, and refine the design to ensure optimal performance and ease of manufacturing. The detailed 3D model provided not only a realistic representation of the fan guard machine but also served as a foundation for further analysis, manufacturing planning, and eventual product development.

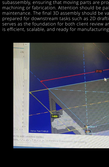


PRINTING MACHINE (FOLING MACHINE)

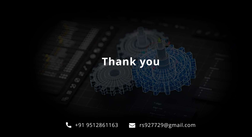
To design and modify a folding machine, a comprehensive engineering process was undertaken that involved creating detailed 3D models and subsequently generating manufacturing drawings using PTC Creo, a powerful CAD software. Each component—such as rollers, frames, bearings, and heating units—was modeled individually to ensure dimensional accuracy and functionality. The design process included defining the structural framework of the folding machine, ensuring proper alignment and clearances, and optimizing the mechanical interactions and refine the design for efficiency and safety. An assembly drawing was prepared to illustrate the overall configuration, supported by a Bill of Materials (BOM) that listed every component with its specifications, material, and quantity. This structured documentation facilitated seamless communication between design and manufacturing teams but also ensured that the folding machine could be fabricated, tested, and optimized with precision.







MECHANISM DESIGN TO PICK AND PLACE A PRODUCT.



MANIFOLD

To design a manifold for manufacturing using CNC technology in AutoCAD, the process begins with creating a precise 3D model that incorporates all required dimensions, tolerances, and thread specifications as outlined in the manufacturing drawing. The manifold typically features multiple ports and internal channels for fluid flow through holes, threaded ports (NPT/BSP), and surface finishes are accurately represented. Once the CAD model is complete, it can be translated into CNC-compatible toolpaths, allowing for efficient machining of the stainless steel (SS316) material. The design should also account for deburring, breaking sharp edges, and maintaining a defect-free surface, ensuring the final component meets both functional and quality standards. By leveraging AutoCAD for design and CNC for production, the workflow ensures precision, repeatability, and manufacturability of the manifold.

CONVEYOR ASSEMBLY

To create a conveyor assembly with 2D drawings, the process begins by developing a complete assembly layout in CAD software that clearly illustrates the arrangement of all major components, including the frame, rollers, belt, motor, and support structures. Each part is represented with accurate dimensions and tolerances to ensure proper fit and functionality. The assembly drawing should include a bill of materials (BOM) that lists all components with unique part numbers, material specifications, and quantities—providing a clear reference for manufacturing and procurement. Special care is required in the design to ensure that each part in the assembly is correspondingly entry in the BOM, making it easy to identify and track components during production and assembly. By combining 2D drawings with a well-structured BOM, the overall workflow ensures the conveyor system is well documented, manufacturable, and ready for efficient assembly and quality control.

MESH WIRE MATTE MACHINE

To design a 3D model of a mesh wire matte machine, the process begins by conceptualizing the full mechanical workflow—from wire feeding and tensioning to weaving, cutting, and stacking. The model should include key components such as the wire spool holders, tensioning rollers, servo-driven weaving mechanism, cutting blades, and a discharge tray or conveyor. Each part should be accurately dimensioned and positioned to reflect real-world functionality. The assembly should be built in CAD software, with attention to kinematic motion and collision detection, ensuring that moving parts are properly constrained and that tolerances are suitable for CNC machining or fabrication. Attention should be paid to material selection, fastener placement, and accessibility for maintenance. The final assembly should be evaluated for motion, interference, and load-bearing capacity, and documented with clear 2D drawings and a bill of materials (BOM) for manufacturing. This 3D model not only serves as the foundation for both client review and production planning, ensuring the mesh wire matte machine is efficient, scalable, and ready for manufacturing.

Thank you

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