

DIEGO ALQUEZAR

Mechanical Engineer | Product Development Engineer | Project Engineer

diego@kezareng.com | [linkedin.com/in/diego-alquezar](https://www.linkedin.com/in/diego-alquezar) | diegoalquezar.com | kezareng.com

EXECUTIVE PROFILE

Mechanical Engineer with 18+ years of experience in pressure vessels, industrial filtration systems, hydraulic units, CAD/CAE, ASME BPVC and EN 13445 based design, supplier-facing documentation, and manufacturing support. Proven record in cost reduction, schedule recovery, technical clarification, and manufacturable design. Differentiated by a rare mechanical + digital engineering profile, building web/database tools and automation workflows that improve engineering quality, traceability, and execution speed.

CORE CAPABILITIES

Mechanical / Pressure Vessels: ASME BPVC and EN 13445 based vessel design, industrial filtration systems, vessel internals, nozzles, supports, BOMs, materials, tolerances/GD&T, design calculations, manufacturing support.

CAD / CAE / Analysis: Autodesk Inventor, AutoCAD, SolidWorks, CREO, Solid Edge, PVELite, Ansys FEA, 3D-driven drawings, preliminary structural assessment and design validation.

Digital Engineering: Nuxt/Vue, Node.js, MongoDB, JavaScript, Python, engineering web apps, databases, dashboards, AI-assisted review concepts, automation workflows, Power BI, SharePoint.

Quality / Execution: Design review, FMEA, NCR support, 5-Whys, Pareto, technical bid evaluation, comment resolution sheets, standard work, templates, project trackers and vendor clarification.

PROFESSIONAL EXPERIENCE

Pall Corporation

Mechanical Engineer

Diadema, SP, Brazil

March, 2024 – Present

- Deliver mechanical engineering documentation for industrial filtration and pressure-vessel projects: 3D models, fabrication/customer drawings, calculations, data sheets, specifications, procedures, BOMs and supplier-facing packages.
- Create manufacturable, maintainable designs aligned with customer specifications, quality requirements, supplier capabilities, local/international legislation and project schedule expectations.
- Created 3D-driven vessel drawings in Autodesk Inventor 2026 with sections, isometrics, internals, filter plates, support plates, standpipes, adapters, guide plates, materials, weights, nozzle lists, design conditions and notes.
- Delivered two complex vessel drawings in ~18 hours versus an internal estimate of ~60 hours using traditional AutoCAD-based methods, demonstrating a repeatable 3D-driven workflow that attracted interest from another engineering team.
- Proposed a flange recovery solution by machining existing male/female flanges to raised-face configuration, reducing estimated cost from ~EUR 6k to ~EUR 1.5k and schedule impact from ~8 weeks to ~10 days.
- Created Active Drainage Filter technical sketches comparing vessel height and internal-configuration options, clarifying ambiguous decisions for cross-functional stakeholders.
- Built standard-work templates and digital engineering concepts for Drawing Review, First Check, TBE, CRS, weekly reviews, Task Tracker, Engineering Comments Intelligence, TBE Quality Gate, risk registers and pressure-vessel reference databases.
- Support technical clarification, vendor communication, supplier/manufacturing problem solving, preliminary FEA discussions and continuous-improvement initiatives focused on traceability, quality and right-first-time execution.

3M

Product Development Engineer

Sumaré, SP, Brazil

July, 2014 – November, 2022

- Led and supported industrial filtration product development, equipment upgrades and cost-reduction projects, managing cost, quality, deadlines, supplier interfaces and customer requirements.
- Designed a ~USD 500k automated self-cleaning filter for seawater service on an offshore platform, including fabrication drawings, 3D model, engineering documents and calculation report; helped reduce disposable cartridge usage and recurring operating cost.
- Worked with Supply Chain to identify, evaluate and technically approve local and international suppliers, negotiating price and delivery while improving quality, lead time and cost competitiveness.
- Acted as engineering interface between vendors, Quality, Regulatory and internal stakeholders to ensure products met 3M standards, documentation requirements and customer expectations.
- Led engineering activities in a cost-reduction initiative to import industrial filters from Europe and Asia, evaluating manufacturing capability, cost, lead time and technical approval requirements.
- Improved industrial filter products based on customer and vendor feedback, contributing to cost savings, reduced recalls and better manufacturability.
- Built an internal Engineering Project Management application in Java to replace Excel/Access workflows, reducing errors and enforcing peer review, naming conventions and structured engineering practices.
- Visited customer plants to understand field conditions, measure installation areas, identify interferences and reduce complaints during installation and commissioning.

Prestcad Engenharia

Mechanical Designer

Vinhedo, SP, Brazil

April, 2007 – July, 2014

- Worked as outsourced engineering support for GE Hydro, Andritz Hydro, Metso, Alstom and Bardella on hydraulic units, hydro turbine equipment, pressure vessels and industrial mechanical systems.
- Created 3D models, mechanical drawings and hydraulic diagrams for hydroelectric power-plant hydraulic units used to control turbine speed, supporting vendor fabrication and customer installation.
- Used FluidSIM to simulate and validate hydraulic diagrams, reducing project errors and improving communication with customers and internal engineering teams.
- Developed 3D models and design checks using AutoCAD, SolidWorks, Autodesk Inventor and Solid Edge to support engineering decisions, assembly planning and interference checks.
- Visited hydraulic-unit and pressure-vessel suppliers in Brazil to follow fabrication and testing, reducing errors and nonconformities before delivery.
- Self-developed ASME BPVC-based pressure-vessel calculation and drawing capability, reducing dependency on external engineering support and lowering project cost.
- Supported the lead engineer in developing a reliable mechanical overspeed device for hydro turbines, improving equipment safety and remaining in use across multiple turbine applications.

ENTREPRENEURIAL & DIGITAL ENGINEERING PORTFOLIO

Kezar Engineering – Pressure Vessel Engineering Services & Web Application

Owner / Founder

Site: <https://kezareng.com>

- Created and maintain Kezar Engineering, a pressure-vessel engineering website and platform focused on fabrication/customer drawings, mechanical calculations, quality documentation, manuals, datasheets and engineering consultancy.
- Built a pressure-vessel design web application using Node.js, Nuxt and MongoDB with ASME-based calculation workflows for early-stage sizing, documentation and engineering automation; deployed on DigitalOcean.
- Structured application modules and knowledge areas around MarsCalc, MoonDB and JupiterQMS concepts, including calculation workflows, materials/database logic, documentation outputs and quality-management ideas.
- Authored public technical articles and specifications on pressure-vessel design, drawing standards, documentation priority, leg supports, FEA and engineering practices.

Diego Alquezar Portfolio – Personal Engineering Portfolio

Site: <https://diegoalquezar.com>

- Designed and launched a professional portfolio positioning my work at the intersection of mechanical engineering, pressure vessels, industrial filtration, 3D-driven documentation, digital workflows and automation.
- Showcases pressure-vessel drawings, engineering projects, experience, skills and availability for remote, relocation or international opportunities.

EDUCATION, CERTIFICATIONS & LANGUAGES

Bachelor of Mechanical Engineering - Universidade Sao Francisco, Campinas, SP, Brazil, completed on Aug 2013

Certifications & Training: Project Management; Power BI; NR-10; Basic Course for Offshore Platform Safety - CBSP/HUET; Hydraulic Systems Design; Anticorrosive Painting; Python and JavaScript programming training and applied self-development.

Languages: Portuguese native; English fluent.