Jorge Enrique Filipigh

Mechanical Design Engineer · FEA Specialist

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Innovative mechanical engineer with **18+ years of experience** in product design, structural optimization, and multidisciplinary engineering across automotive, industrial, and elevator industries. Expert in **FEA**, **CAD modeling**, **plastic injection**, **metal stamping**, and **PCB-housing integration**. Recognized for delivering cost-effective, reliable solutions in high-demand environments.

PROFESSIONAL EXPERIENCE

Sr. Mechanical Design Engineer (FEA) — Otis Elevator Company Jan 2023 – Present · Florence, SC

- Lead structural optimization studies to reduce costs under VAVE schemes.
- Conduct FEA simulations for sheet metal assemblies, brackets, hydraulic jacks, and elevator systems.
- Drive engineering change meetings and support dimensional stack-up analysis.
- Deliver drawings, tolerance reports, and simulation support to global teams.

Sr. Mechanical Design Engineer — Marquardt Switches Jan 2020 – Feb 2022 · Rochester Hills, MI

- Designed complex plastic parts, key fobs, and PCB housings in Siemens NX.
- Performed FEA, Moldflow, and DFM analysis; delivered risk assessments for validation.
- Created GD&T drawings and managed customer PLM (Agile/SAP).
- Collaborated on prototypes and supplier negotiations to ensure manufacturability.

Sr. Mechanical Design Engineer — Xdin Inc. (ALTEN Group) Jan 2019 – Jan 2020 · Greensboro, NC

- Designed Class A/B surfaces and mechanisms for Volvo & Mack Trucks (CATIA V5/V6).
- Performed finite element analysis and prepared CAE documentation.
- Managed customer PLM (PTC Windchill) updates and design approval workflows.

Sr. Mechanical Design Engineer — Harman International May 2016 – Dec 2018 · Novi, MI / Japan

- Designed injection-molded and metal-stamped parts for automotive sound systems.
- Interfaced with OEMs (Toyota, Lexus) through resident engineers in Japan.
- Delivered CAD models, FEA reports, and PPAP documentation to schedule.

Mechanical Design Engineer — Continental Automotive AG Apr 2011 – May 2016 · Guadalajara, MX

- Supported ECU unit design: plastic & metal housings, PCB layout integration.
- Managed engineering changes in Teamcenter & WERS; cross-functional coordination.
- Awards: **Great Achiever** (2012, 2013) for >180% annual goal attainment.

HVAC Mechanical Design Engineer — Frimax S. de R.L. Mar 2009 – Apr 2011 · Guadalajara, MX

- Designed HVAC systems: thermal loads, ducting, piping, and PLC control integration.
- Delivered SolidWorks/AutoCAD models, feasibility studies, and project estimates.

Mechanical Elevators Design Engineer — Interlift de México · Ascensores Volta

2005 – 2008 · Mexico & Argentina

- Designed and supervised residential/commercial elevator systems (gearless traction, brakes, safety mechanisms).
- First industry experience with **dies & injection molding** for elevator components.

EDUCATION

- **B.S. Mechanical Engineering** — Universidad Nacional del Nordeste, Argentina (2005). Thesis: Tower Crane Design / 1000HP Hydraulic Pump System.
- **Mechanical & Electrician Technician** — ENET 1, Argentina (1994).

LANGUAGES

- Spanish: Native
- English: Professional proficiency

PATENT

Interchangeable Connectivity Modules — MX2016013231A. Modular connectivity in vehicle instrument panels and consoles.

CERTIFICATIONS & TRAINING

- CATIA V5 Surfacing (TATA Technologies, 2016)
- ANSYS CFD Analysis (UNAM, 2018)
- PDMLink & Kola PLM (Volvo Trucks USA, 2019)
- IATF 16949 Transition Awareness (2018)
- Problem Solving & Audit Readiness (2017–2018)
- Business Development Diploma — UdG & Gov. of Jalisco (2012)
- Wind Energy & Turbine Design — CNEA (2006)

TECHNICAL SKILLS

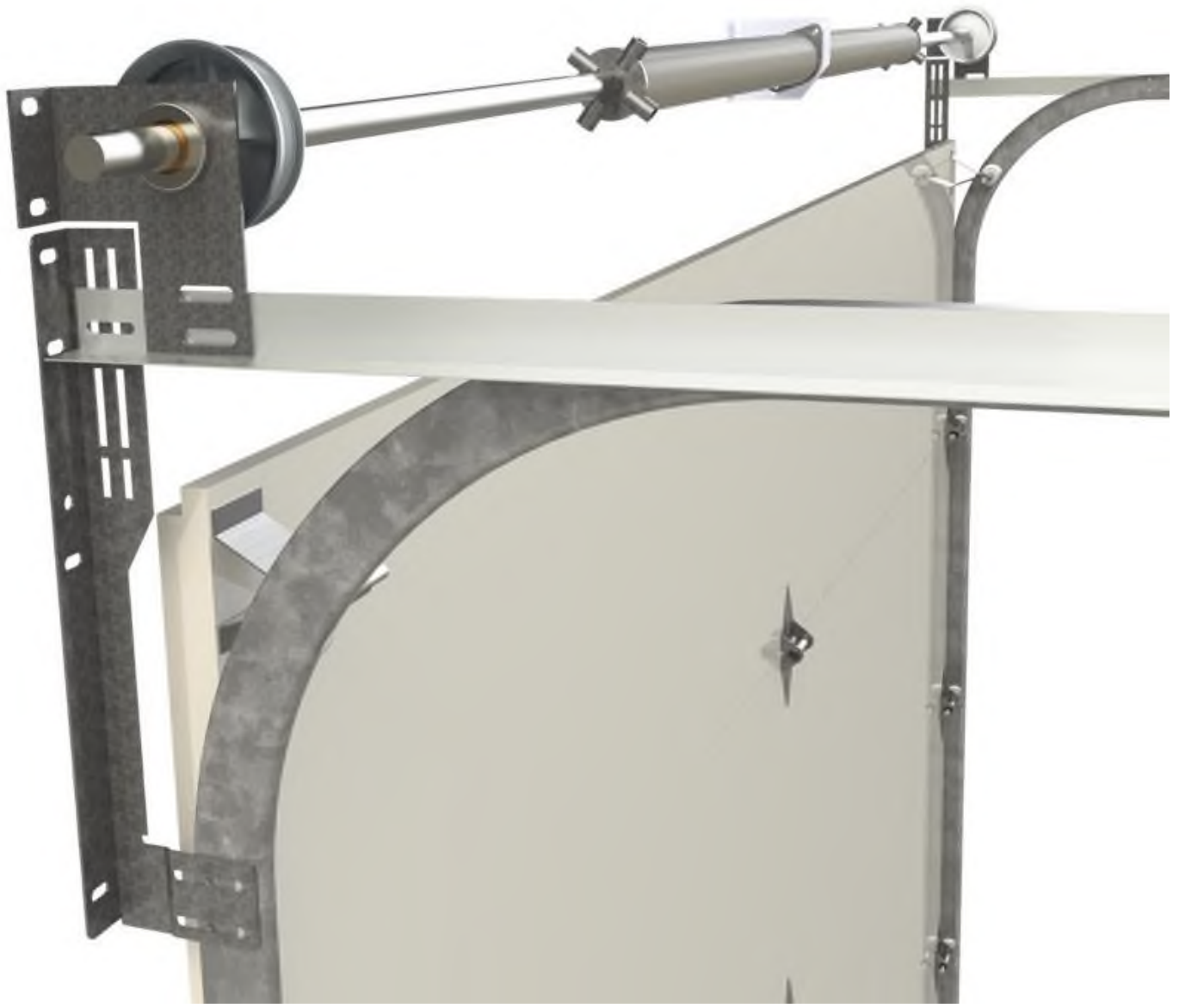
CATIA V5/V6 · Siemens NX · SolidWorks · Inventor · AutoCAD · ANSYS · Moldflow · DFM / GD&T · Teamcenter · Windchill · SAP / Agile · Class A Surfaces · Kinematics · PCB Integration · HVAC · Microsoft Project

ADDITIONAL

Musician (guitar & piano), avid reader, and animal protection activist. Experience in RF/electronics: PCB design (OrCAD, SolidWorks), VHF/UHF antennas, and linear amplifiers.

MECHANICAL ENGINEER - JORGE FILIPIGH

PORTFOLIO



In the realm of mechanical design, we find a captivating symphony of disciplines intertwining with unparalleled grace. At its heart, mechanical design is the art of crafting elegant machinery, an intricate dance of gears, levers, and systems that resonate with precision and purpose.

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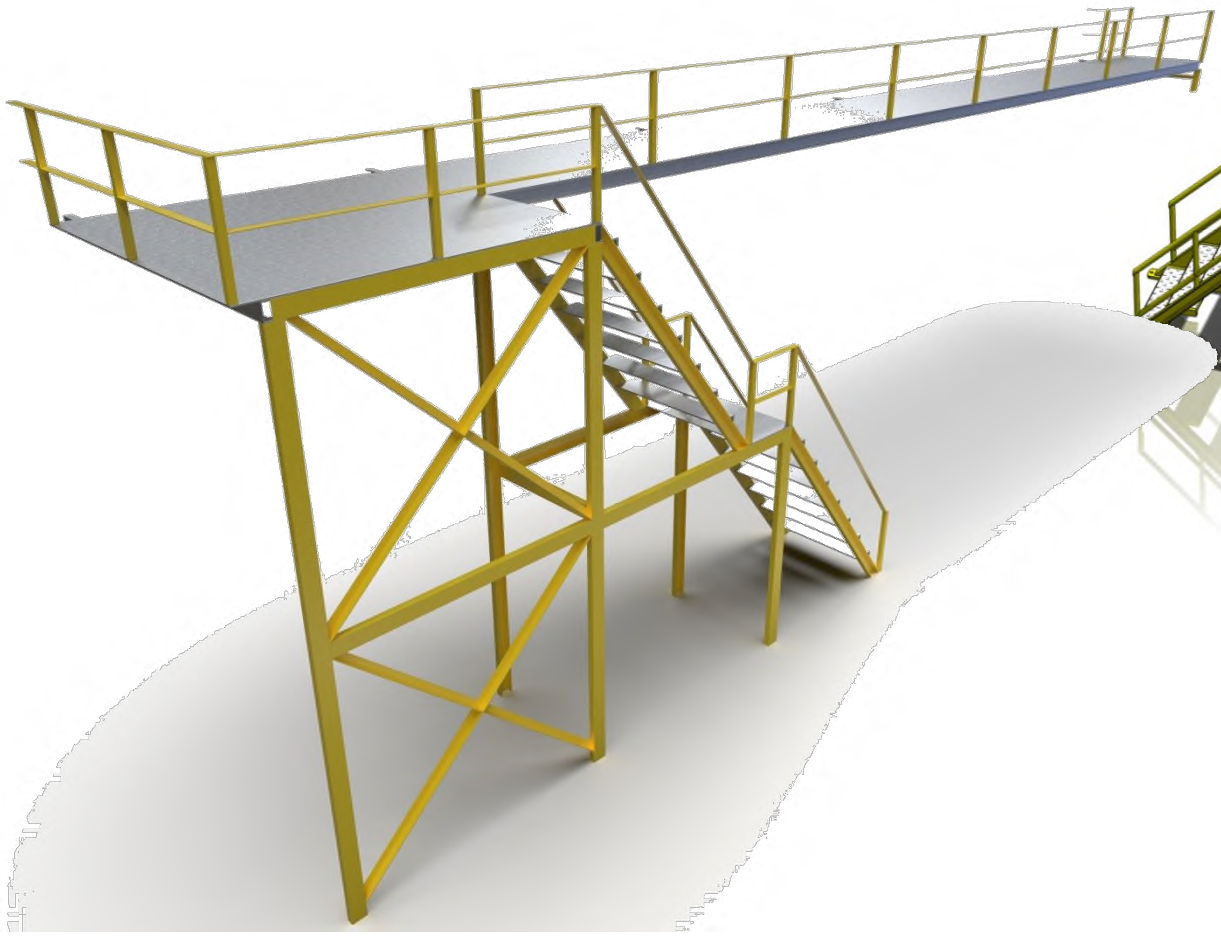
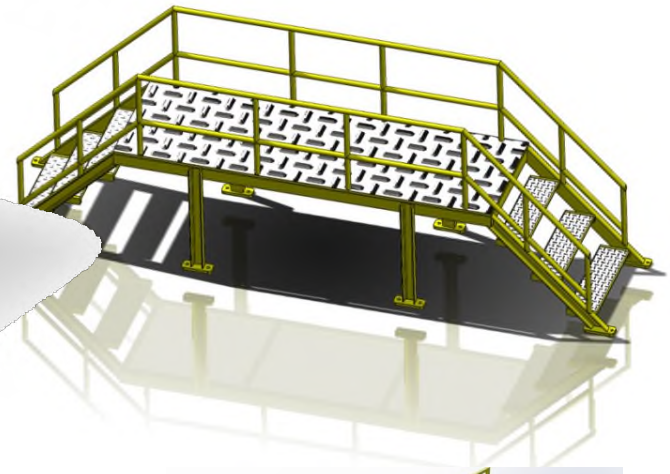
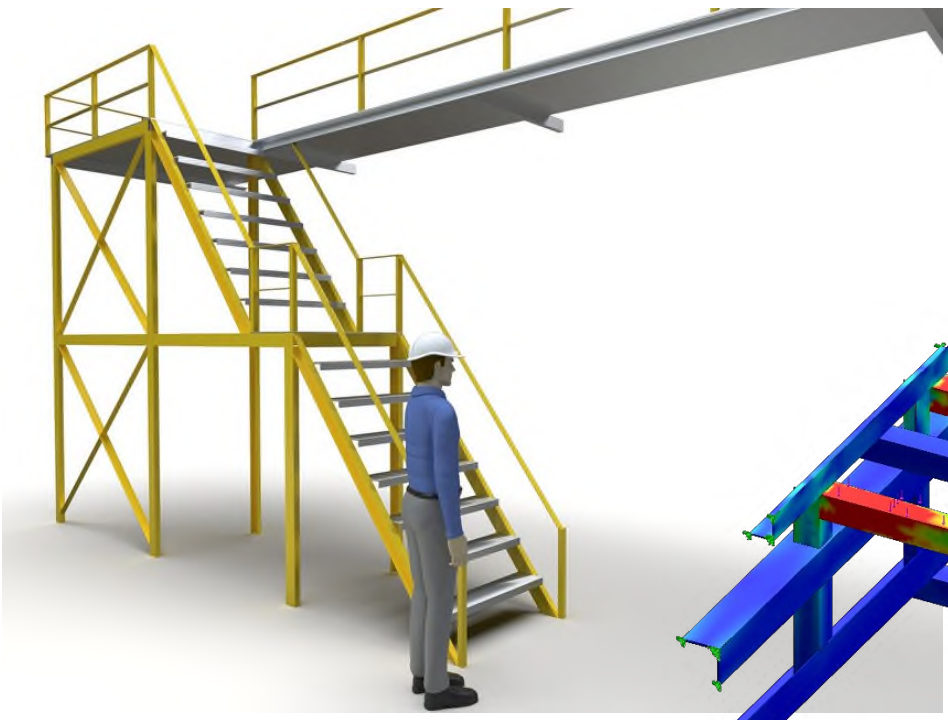
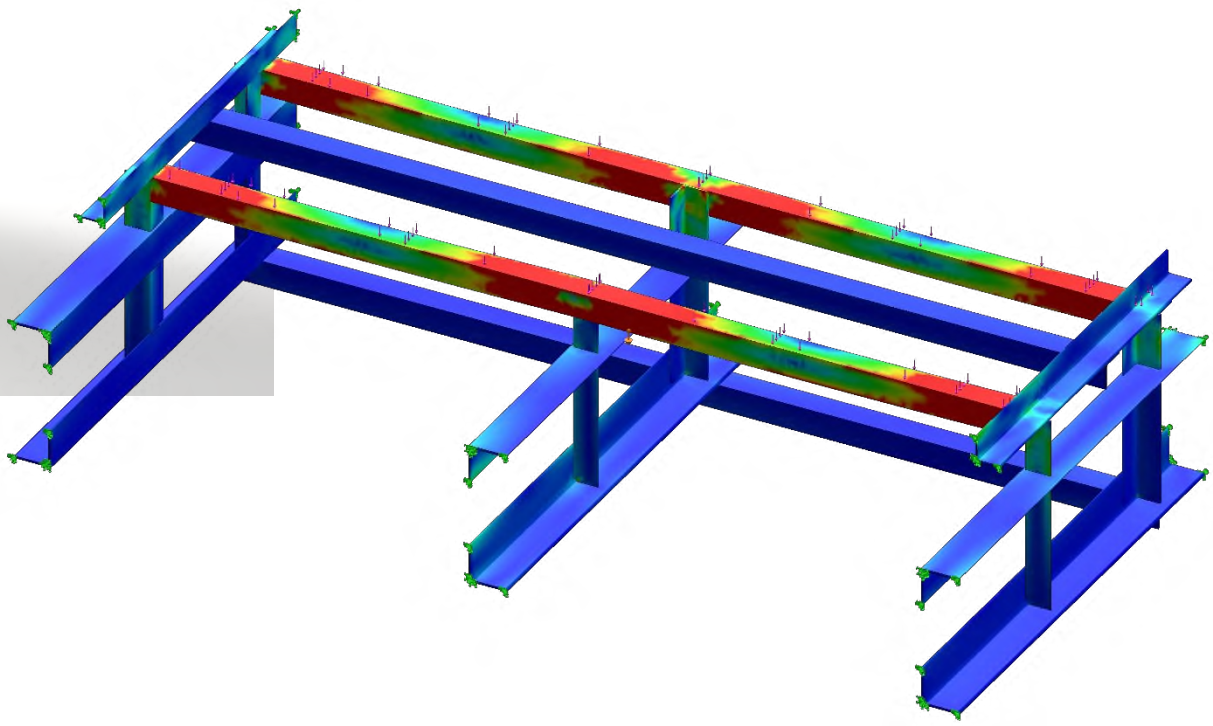
DESIGN ENGINEERING

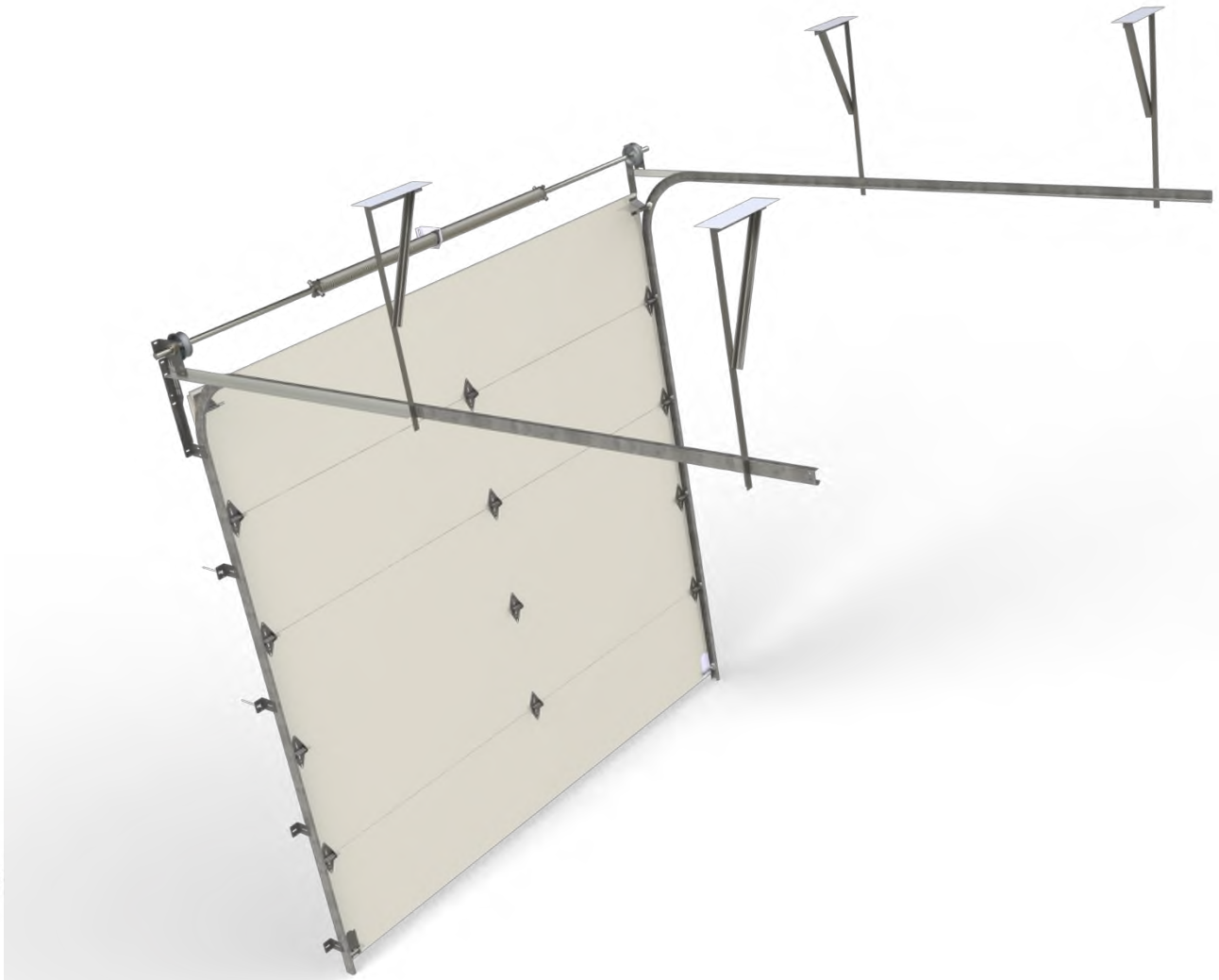


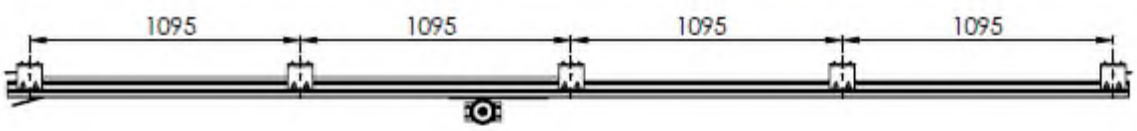






With FEA, we take our mechanical designs beyond the realm of theory and into the world of virtual experimentation. It's where mathematical algorithms and computational power combine to simulate how our creations will behave under the most demanding conditions. FEA is the bridge that connects imagination to reality, providing insights that guide us towards optimal solutions.

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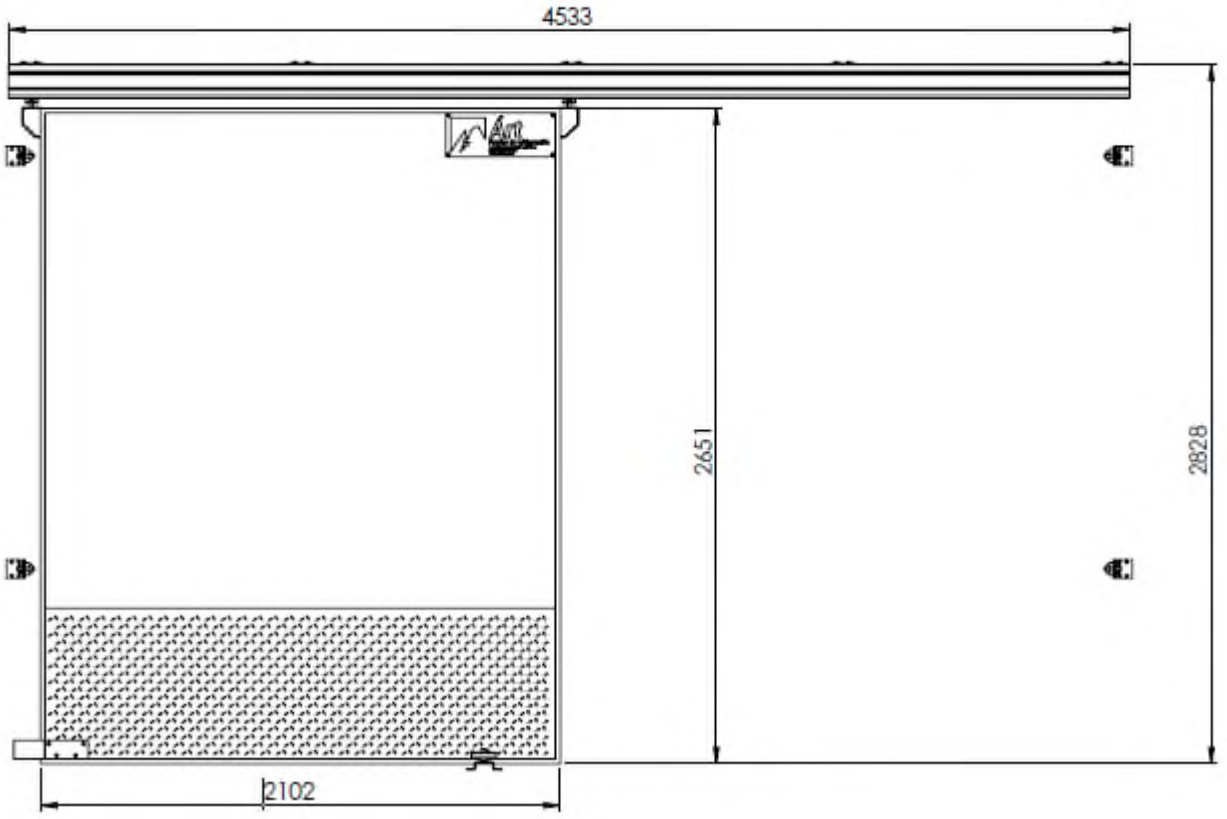
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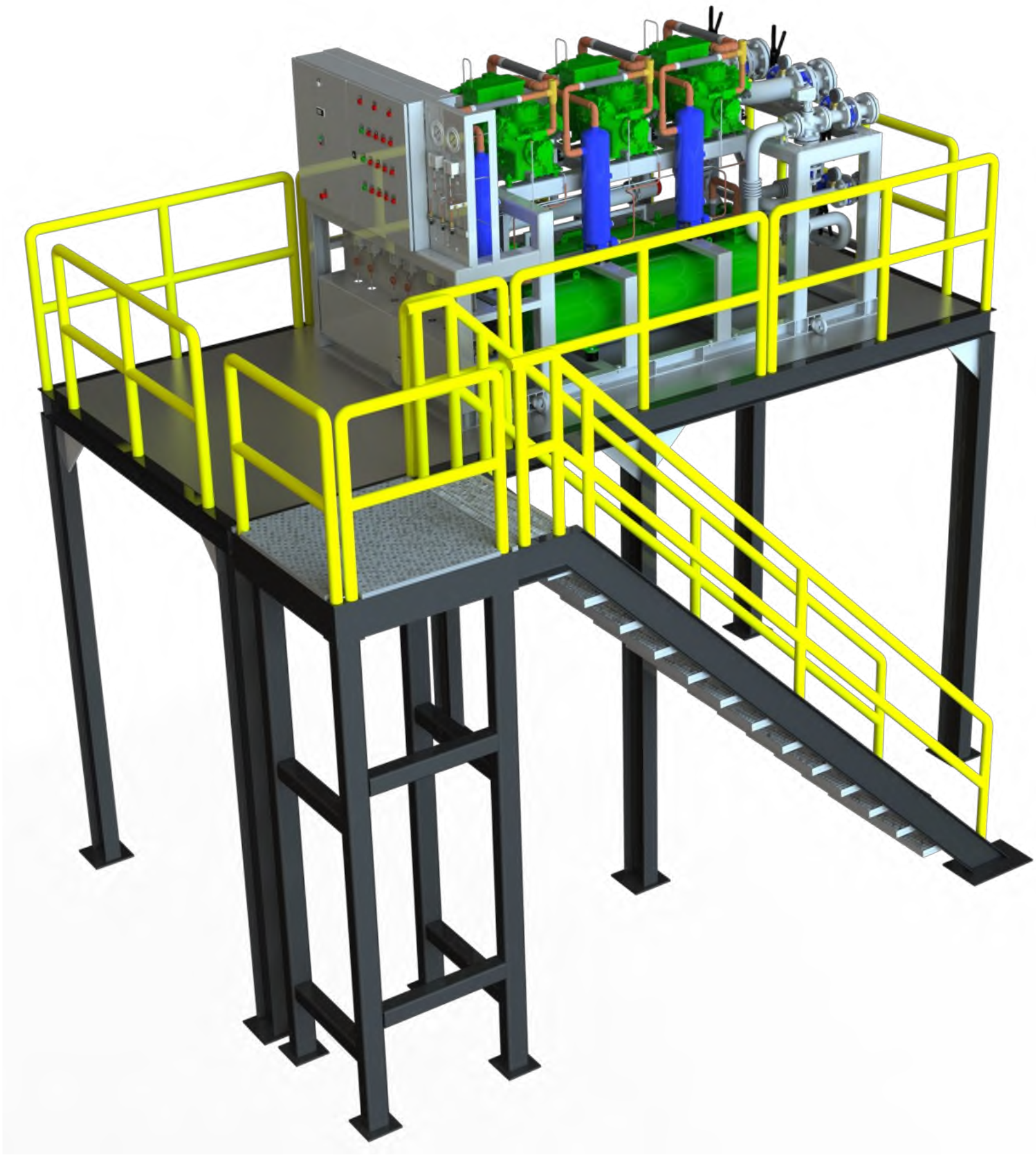
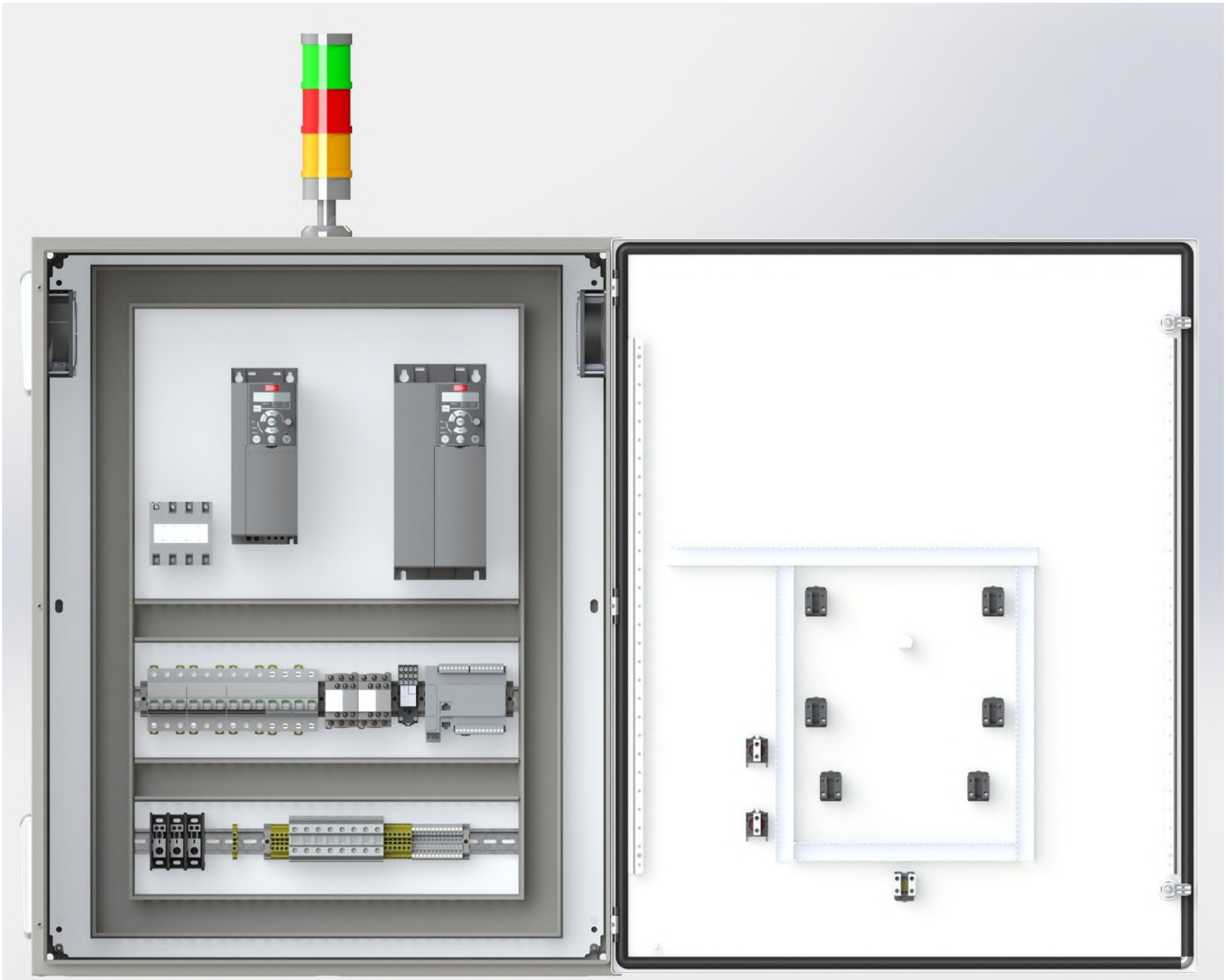
HVAC Condenser structural mezzanine with maintenance access.



Electrical control box.

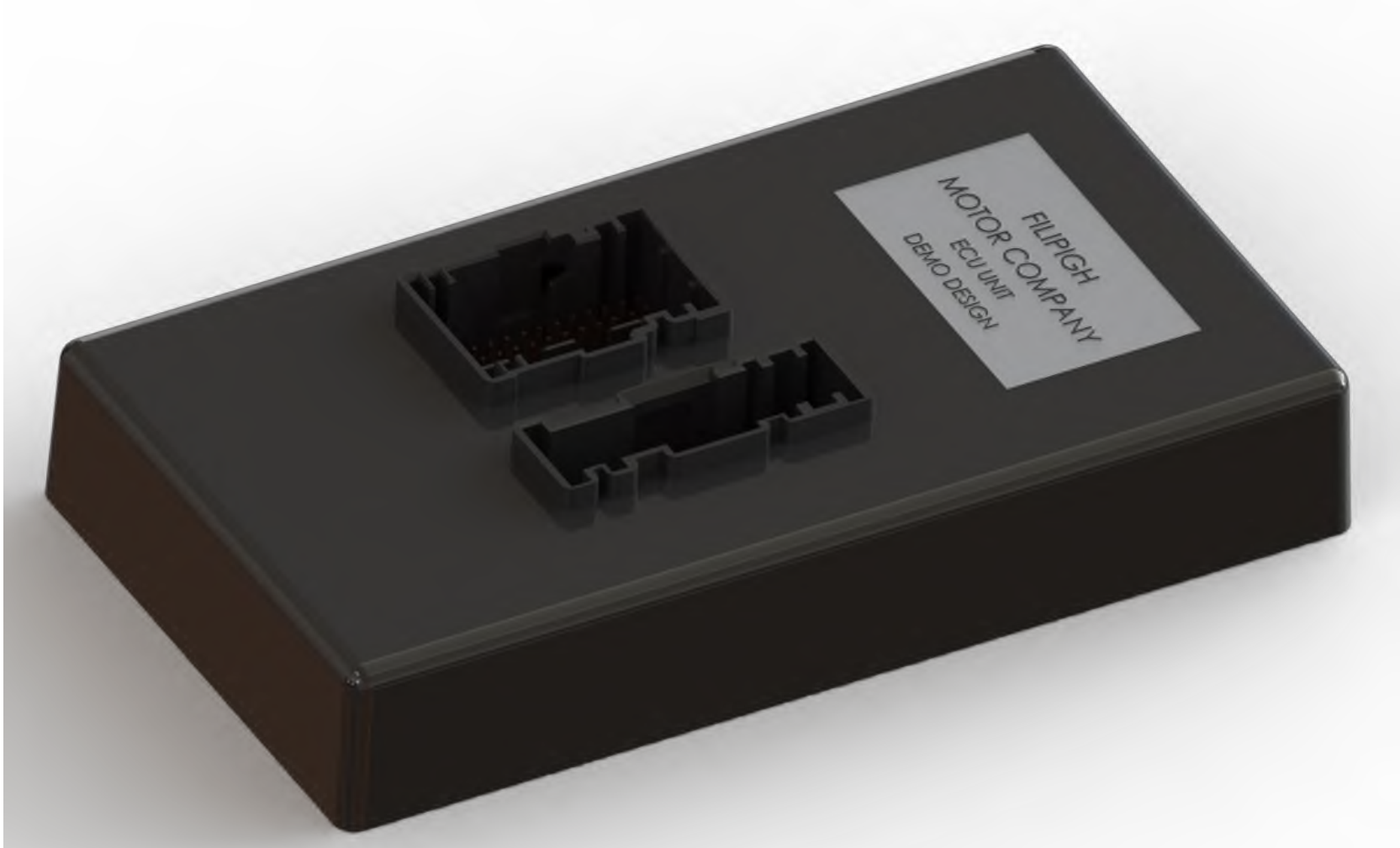


Electrical box control for a pre cooling process in the food industry.
Two inverters control fans and a PLC controls the condenser unit and the evaporator.

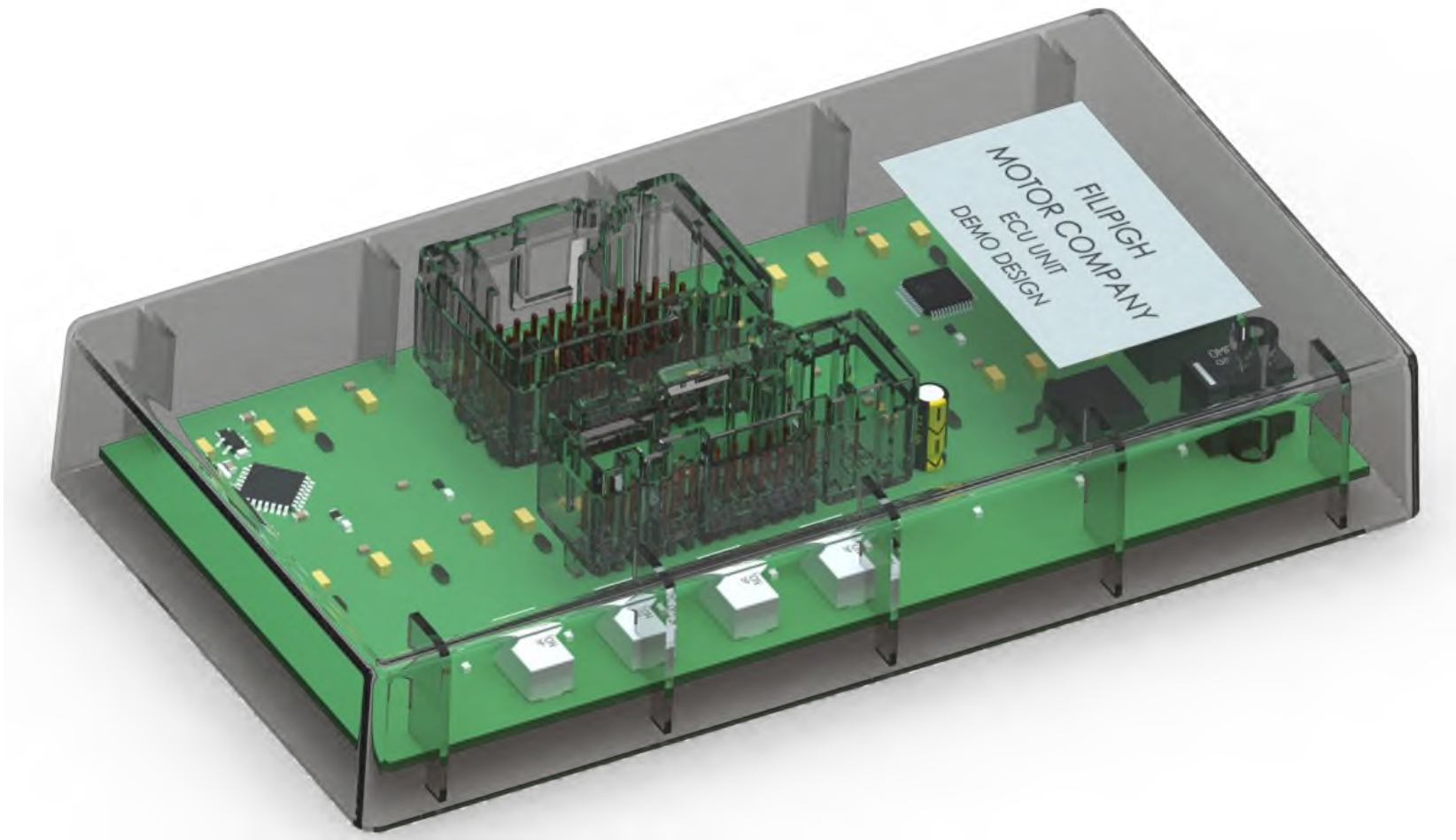
Tube amplifier

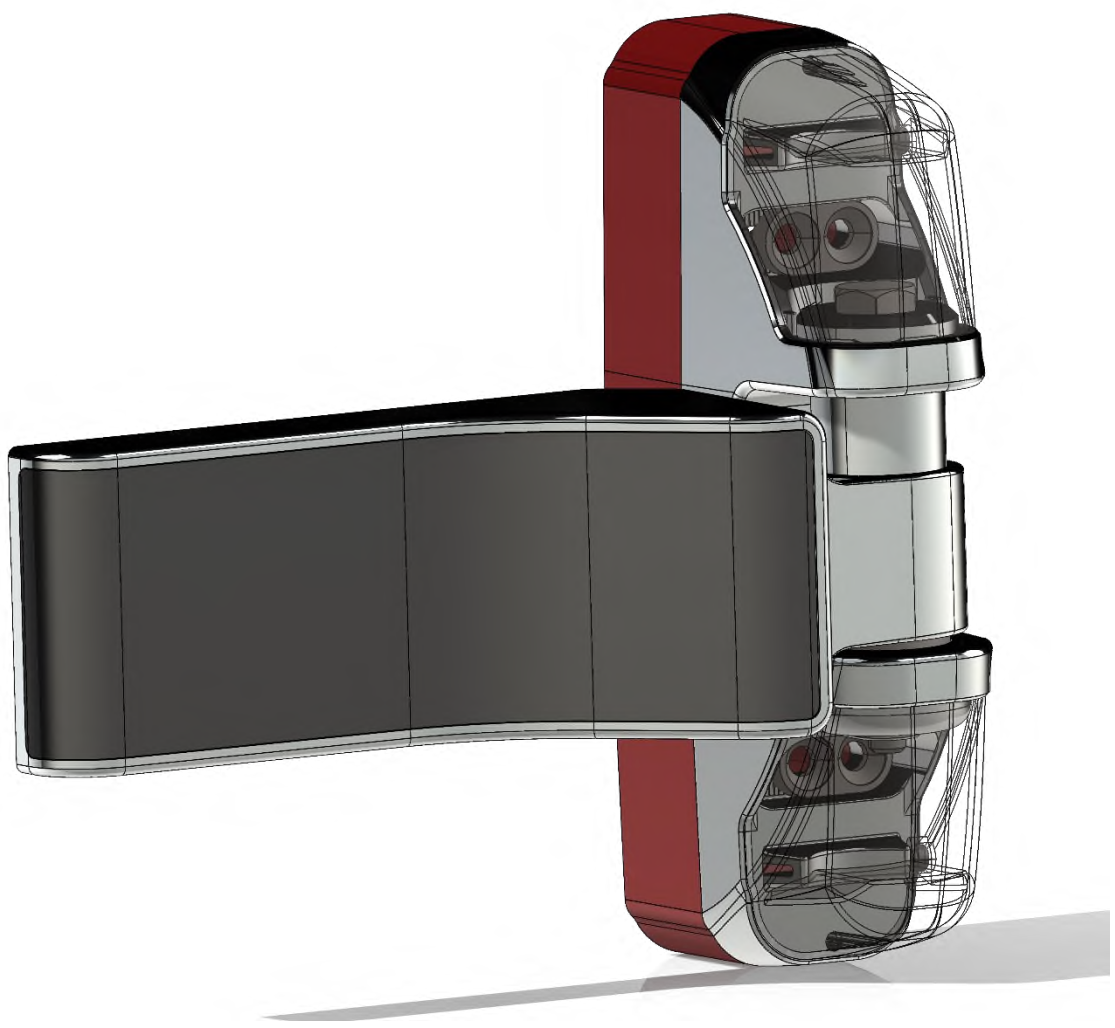
This tube amplifier is engineered with meticulous attention to technical detail and performance. It features a quartet of EL84 tubes, renowned for their exceptional audio characteristics, providing a warm and vintage sound signature.
The amplifier’s output is supported by a dual-sided toroidal transformer configuration, delivering efficient power while minimizing electromagnetic interference, thereby ensuring optimal signal integrity.
For operational convenience, the amplifier incorporates a side-mounted volume control, allowing for precise adjustments at your fingertips.
In terms of construction, advanced plastic injection molding techniques have been employed to achieve structural durability, while a carefully applied coat finishing not only enhances the amplifier's visual aesthetics but also serves as a protective shield for its internal components.
This amplifier is a testament to the fusion of classic tube technology with modern engineering expertise, resulting in a formidable audio component that meets the most exacting technical standards.

ECU Unit example. Integration of PCB board and plastic housing.



Electrical and electronic components breathe life into these mechanical marvels, infusing them with intelligence and vitality. It's the fusion of form and function, where wires and circuits gracefully converge with pistons and cogs. The union of these disciplines creates a harmonious ballet, where every movement, every interaction, is meticulously orchestrated.

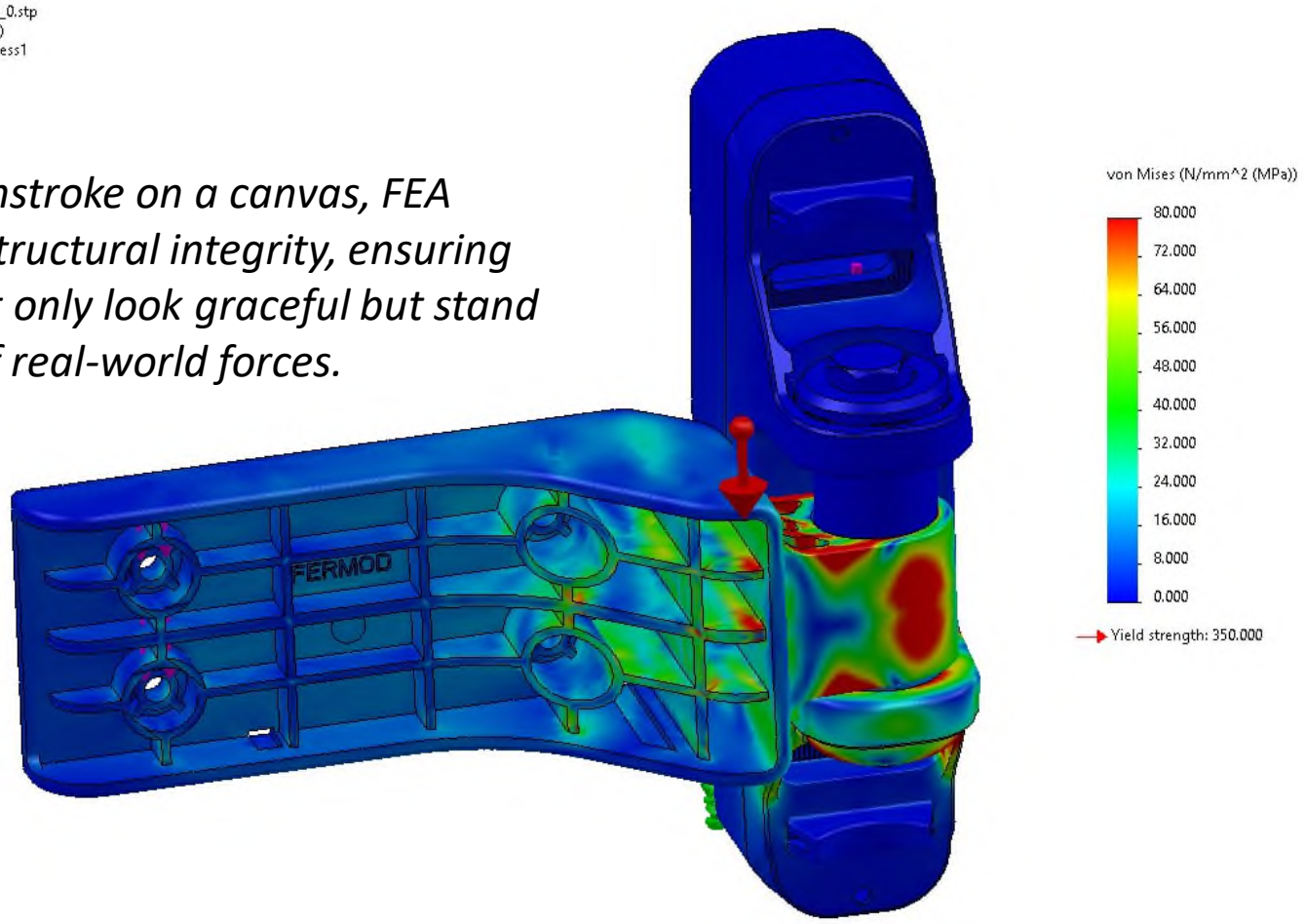




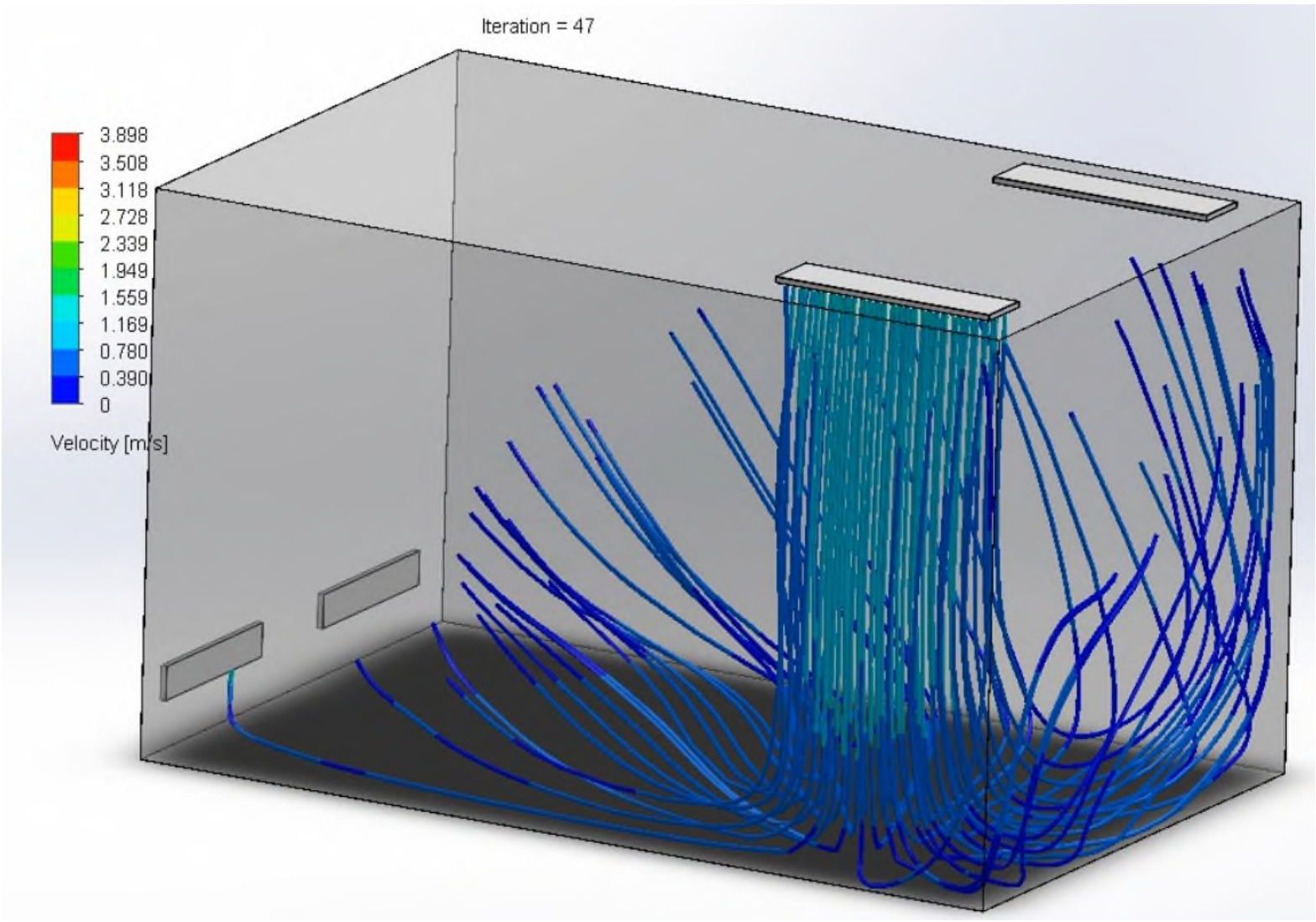
FEA (Finite Element Analysis) is the virtuoso within the mechanical design orchestra. It breathes life into our creations by revealing the hidden secrets of stress, strain, and performance.

Model name: bisagra_1473_dec_0.stp
Study name: Static 1(-Derecha-)
Plot type: Static nodal stress Stress1
Deformation scale: 1

Like an artist's brushstroke on a canvas, FEA paints a picture of structural integrity, ensuring that our designs not only look graceful but stand strong in the face of real-world forces.



Airflow distribution inside an stability chamber.



Limited simulation capabilities due to a demo license availability. However, the real distribution in the chamber, measured with anemometer point to point manually, did match pretty close in average, with this simulation

PORTFOLIO

DESIGN ENGINEERING

- This portfolio contains my work and all these pictures and designs belong to me.
- Modelling, render and simulations were performed with my Fury G17 and my Solidworks License.

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