

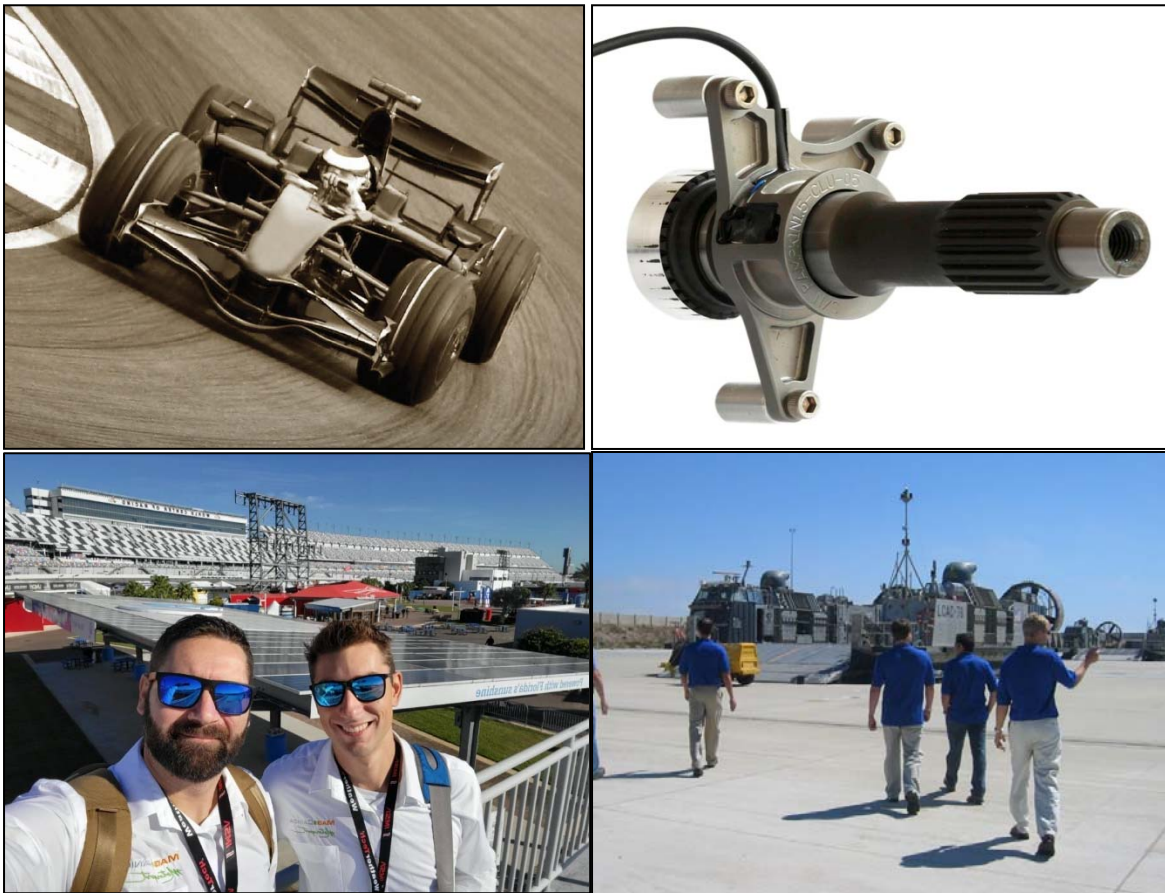
# MAG CANICA

4204 JUTLAND DRIVE  
SAN DIEGO, CA 92117  
USA

[WWW.MAGCANICA.COM](http://WWW.MAGCANICA.COM)

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## HIGH-PERFORMANCE WIRELESS TORQUE SENSING



## JOB DESCRIPTION

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MECHANICAL DESIGN & APPLICATION ENGINEER  
Full-Time Position

## COMPANY OVERVIEW

MagCanica, Inc., a leading provider of non-invasive torque sensor systems to the motorsport, aerospace, and energy sectors, is actively seeking new members to join our San Diego based team as we expect continued growth during 2023 and beyond. Since the Company's inception, MagCanica has focused its efforts on the development and commercialization of its non-contact torque sensor technology which is used to measure the torque generated by high performance powertrains racecars, rotorcraft, and power plants of all kinds. MagCanica is the global market leader in motorsport torque sensing and powertrain performance monitoring across a variety of automotive racing series including Formula 1, Formula E, World Endurance Championship (WEC), IMSA, NASCAR, Australian Supercars, and Cross-Country Rally Cars. Additionally, MagCanica provides hardware, support services, and technology to the US Navy, US Army, and US Air Force as well as to Lockheed Martin and Vericor Power Systems. Leveraging its leading position in motorsport torque measurement, and having acquired a proven track record in solving some of the most challenging torque measurement problems facing the automotive, aerospace and energy industries, MagCanica is poised to expand further in its existing markets as well as into new markets such as high performance road cars, electric and autonomous vehicles, and robotics.

## JOB DESCRIPTION

As MagCanica designs and produces products that measure mechanical parameters and provide electrical analog and digital output signals, the successful MagCanica Mechanical Design & Application Engineer will typically require a multidisciplinary (mechatronics) approach. Such an approach will involve a combination of mechanical design and support, as well as some aptitude for issues specific to the electrical interfaces of sensors and instrumentation, such as digital communication protocols (e.g. CAN), and data acquisition systems. Typical design tasks involve the design of sensor housings, mechanical enclosures, laboratory testing machines, fixturing, electrical interfaces, junction boxes, and customized test setups. Additional tasks include conducting experiments and validation testing, interacting with suppliers, liaising with clients, and carrying out internal mechanical engineering projects to support manufacturing and calibration of the product line. Client support tasks, which constitute a sizable portion of this job, include leading vehicle installation integration and packaging studies, ensuring compatibility of client requirements with MagCanica specifications, regular correspondence regarding mechanical hardware, electrical hardware, digital communication interfaces, and field support. Field support tasks include attending track tests, dyno tests, racing events, or flight tests as appropriate to assist our clients in best installing and utilizing our systems in service, analyzing data, as well as direct involvement in failure investigation, analysis, and documentation. MagCanica's mechanical engineers have the opportunity to apply their varied skills and to be intimately involved in several aspects of the engineering product cycle: design engineering and CAD, application engineering and product integration, manufacturing engineering, experimental testing and calibration, continuous client support, and field support including failure analysis. The tasks a MagCanica Mechanical Design & Application Engineer will be responsible for carrying out are listed below.

### Sample Client-Facing Tasks:

- Design and integrate torque sensor solutions into customer installations for various automotive, racing, aerospace, and energy applications. Operating environments in these installations typically involve significant thermal, vibrational, and/or electromagnetic interference challenges.

- Carry a product from packaging integration to final testing and release for production including both the product itself and associated test fixturing.
- Manage motorsport application engineering projects in Formula 1, WEC, Formula E, IMSA and other series with a view to proper installation, product quality tracking and improvement, data evaluation, continuous client support, and failure tracking.
- Work regularly with clients to answer questions, agree on interface requirements, explain proper usage, identify potential integration issues, and provide any technical support needed.
- Coordinate project progress, interfacing regularly with vendors to ensure timely delivery of components and compliance with drawings, and interacting directly with clients to agree on installation and usage.
- Conduct initial bench testing, carry out in-vehicle validation, and support the product in the field and through continuous communication with the client.
- Investigate and document failures that occur in the field including root cause analysis and compilation of results, ultimately capturing root causes in detail by drafting and completing detailed failure reports.
- Support the MagCanica product line in the field including attending dyno tests, racecar track tests, or helicopter flight tests at client sites across the globe, frequently including locations in Europe, Asia, and North America.

#### Sample Internally-Facing Tasks:

- Continuously assist in generating and updating application notes and operating guidelines, logistical documentation, and in-house manufacturing & assembly documentation.
- Develop and document test plans, procedures, and best practices for use in production processes and/or to capture the intent of upcoming research and development testing.
- Conduct inspections on third party vendor deliverables and returned client parts and communicate any required action to the relevant groups within MagCanica.
- Work with other MagCanica departments and/or outside failure analysis laboratories as appropriate to help identify root causes of failures and take remedial actions whether they be design-related, manufacturing-related, or both.
- Design and implement new test fixtures, test platforms, junction boxes, and enclosures for test and production equipment related to torque sensor system validation and testing.
- Analyze data and results from internal production processes and internal R&D tests.
- Assist in maintaining and upgrading infrastructure currently used during sensor processing, testing, and calibration.
- Continuously provide support as needed to the MagCanica manufacturing team across sensor assembly and calibration process functions.
- Validate internally generated product and process data during calibration to streamline production.

## **COMPENSATION AND BENEFITS**

For this position, MagCanica offers very competitive compensation including competitive base salary ranging from \$90,000 - \$110,000 depending on the candidate's credentials and experience level, a yearly performance-based bonus, yearly merit salary raise, 3 weeks of paid vacation, and 10 paid holidays per year. Benefits include medical, dental, workers' compensation, disability, and life insurance as well as a 401K program with matching and a profit-sharing program. The Company works hard to allow employees the greatest possible personal flexibility while achieving our engineering and business objectives. The position requires mostly in-person attendance with some ability to occasionally work remotely as appropriate.

### Job Qualifications

A Bachelor's degree in mechanical engineering or aerospace engineering is required for this position. A concentration in mechatronics, control systems, or sensors and actuators is preferred. At least four years of professional engineering experience are preferred; only outstanding applicants with less experience will be seriously considered. Experience with CAD and engineering drawing standards is required. In general, being comfortable with both mechanical aspects / packaging design, and having some familiarity with the electrical and software aspects of embedded systems, is very important.

### The Type of Person We Are Looking For

We are looking for self-motivated and committed engineers who have the ability to learn quickly and possess outstanding interpersonal *and* technical skills. Our approach to engineering is highly interdisciplinary and involves a unique combination of theory and execution. We are also looking for engineers who are flexible by nature and are comfortable "wearing a lot of hats" including design and CAD, product engineering, process engineering, testing and calibration, and field support. MagCanica application engineers contribute to several aspects of the product cycle across a broad range of relevant technical disciplines, all the way from designing the product, securing the associated manufacturing fixturing and processes, to actual field support and servicing of the product in the field. We are looking for individuals who are highly motivated and flexible, can fulfill multiple roles, and can work effectively even with limited supervision, while at the same time thriving in a dynamic multidisciplinary team environment. Successful candidates will have the ability to communicate effectively and interact positively and with clients, vendors, and colleagues from all over the world.

### The Unique Experience We Offer

MagCanica is a small and focused, yet truly global company serving some of the leading and most prestigious companies across the globe, providing them with high performance powertrain sensing solutions for some of their most critical applications. We work on cutting-edge technology and provide innovative solutions worldwide to such clients as Scuderia Ferrari, Mercedes AMG Formula 1 Team, Red Bull Technology, McLaren Formula 1 Team, Porsche Motorsport, Audi Sport, Toyota Motorsport, Honda Racing, Sikorsky Aircraft Corporation, and Honeywell Aerospace to name but a few. For this position, travel throughout the world, can be expected. The position offers unusually high levels of responsibility and visibility with actual clients early in one's career.

## **CONTACT INFORMATION**

Please send your resume **in PDF format with the file name containing your full name** to [recruiting@magcanica.com](mailto:recruiting@magcanica.com)

**MAGCANICA IS AN EQUAL OPPORTUNITY EMPLOYER AND WILL CONSIDER ALL APPLICANTS WITHOUT REGARD TO RACE, COLOR, RELIGION, SEX OR NATIONAL ORIGIN.**