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# TyreTrends

Treading New Terrains



*Ralf Berres,  
CEO of Altracon*

**ALTRACON MARKS  
40 YEARS  
AS A LEADER IN TYRE  
TESTING TECHNOLOGY**

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**TAILORING SOLUTIONS FOR  
EVERY TYRE MANUFACTURER**







# TAILORING SOLUTIONS FOR EVERY TYRE MANUFACTURER



From its humble beginnings as a small electronics lab in 1984 to its current status as a global leader in tyre testing technology, Altracon's journey has been marked by a relentless pursuit of innovation and excellence. This 40-year journey has seen the company evolve from a local provider of audio-visual solutions to a pioneer in cutting-edge measurement and control technology. Through strategic expansion, technological advancements and a deep commitment to customer satisfaction, Altracon has established itself as a trusted partner to the world's leading tyre manufacturers.









**A**ltracon's expertise lies in providing tailored solutions to meet the diverse needs of tyre manufacturers across various industry segments, including passenger cars, off-road vehicles and more. The company's tyre test benches are meticulously designed to accommodate the specific requirements of different tyre segments, featuring varying sizes and advanced technologies to adhere to industry standards.

While industry standards play a crucial role, Altracon's solutions are ultimately driven by the strategic alignment of individual manufacturers and their R&D-based requirements. Understanding these unique needs allow Altracon to provide test stands that precisely meet each client's specific demands.

### A COMPREHENSIVE PRODUCT PORTFOLIO

Altracon offers a comprehensive range of products categorised into three key areas:

- **Homologation equipment:** Altracon provides essential test benches for various homologation purposes, including endurance, high-speed endurance, rolling resistance, high-speed uniformity, wear, road hazard, stiffness, plunger and bead unseating tests, as well as tyre burst testers.

- **Friction and grip testing equipment:** For R&D purposes, Altracon offers advanced solutions such as the High-Speed Linear Function Tester (HSLFT) and the Industry Grip Testing System (IGTS), based on a trailer or build in to a motor vehicle for dry and wet grip testing on roads.





DTTM in preparation



#### • Assistive technologies:

Altracon supports tyre manufacturers with assistive technologies like water-jet tyre-cutting systems and various automation and control retrofits for aged test stands, regardless of brand.

"Finally, we offer various services for all this equipment, including maintenance, spare parts or relocation," says Ralf Berres, CEO of Altracon. Beyond its standard product offerings, Altracon excels in developing customised solutions for individual requirements. From the high-performance demands of Formula 1 tyres to the specialised needs of aircraft tyres, Altracon's expertise extends to any application where friction or function is a critical factor.

Tyre complexity alone does not necessarily drive the need for more testing. Instead, it is the increasing number of demands that tyres must

meet. Creativity in test stand design is crucial to test tyres under these evolving conditions efficiently. Innovative test benches can enhance testing effectiveness and shorten the overall process by optimising handling time and changeover between setups. "The e-mobility requests multiple new demands for tyre testing. Actual test benches don't cover high torque and heavy loads at high speed to fulfill the labelling performance. Altracon new generation of test stands cover all actual and as a modular design also future needs under considering of the technical or physical requirements," says Berres.

### EXPANDING PRODUCT PORTFOLIO

Beyond the TBR side force fatigue test stand, Altracon offers a diverse range of core products and services to the tyre testing market. The TBR side force fatigue test stand is a prime example of Altracon's innovative approach to developing new tyre performance measurement methods. This specialised test stand replicates heavy-duty fatigue under specific conditions, providing valuable insights into tyre durability.

Another area of focus is Altracon's newly developed high-peak load aircraft tyre test bench. This unique testing machine simulates the high-precision pre-loaded landing load impact experienced by aircraft tyres, accurately reproducing the wear patterns associated with such conditions.



TBT PC setup

Altracon has developed a specialised tyre burst tester to address the various stressful situations that tyres encounter during use. This innovative tool analyses stress and provides real-time feedback during the pre-burst phase, enabling early detection of potential carcass fractures.

### A PARTNER, NOT JUST A SUPPLIER

Companies seek complete solution providers rather than mere product suppliers in today's competitive landscape. Altracon has recognised this need from the outset, offering comprehensive solutions that extend beyond the delivery of testing equipment.

From customised development to installation, training and ongoing service, Altracon provides a complete package tailored to meet each customer's specific requirements. With its remote service capabilities, Altracon ensures immediate assistance whenever needed, solidifying its position as a true partner rather than simply a supplier of test stands.

"Altracon is continuing to strengthen their presence in the main markets





by increasing personnel for local assistance and services to allow native speaking contacts and easy access to customer needs," says Berres.

### ENERGY-EFFICIENT TESTING SOLUTIONS

Altracon's commitment to innovation extends beyond its core products. The company is a pioneer in implementing energy-saving concepts within its testing equipment. The Altracon EPCM system, for example, ensures significant energy reductions by around 30 percent through advanced hydraulic loading and AC drive systems.

This dedication to energy efficiency benefits the environment and provides tangible cost savings for customers. Altracon's leadership in this area positions the company as a trailblazer in the industry, setting new standards for sustainable and efficient testing solutions.

### PIONEERING THE FUTURE OF TYRE TESTING

Altracon is at the forefront of research and development initiatives aimed at advancing tyre testing technology. One exciting project involves developing a new early failure detection system with specialised sensors for endurance test benches. This innovative technology will enhance both physical and visual failure analysis, providing valuable insights into tyre performance.

Another groundbreaking project focuses on developing new drive systems with energy-recovering functionality and loss-free gear ratio transmission. These advancements will further optimise the sustainability of tyre testing. Leveraging artificial intelligence (AI), Altracon aims to ensure optimal power and cost efficiency throughout the testing process.



Production area

### A TECHNOLOGICAL REVOLUTION: THE HSLFT

Altracon's 40-year journey has witnessed countless technological advancements that have reshaped the landscape of tyre testing. Among these innovations, the High-Speed Linear Function Tester (HSLFT) stands out as a pivotal force, revolutionising the industry with its groundbreaking capabilities.

### A LEADER IN INDUSTRY 4.0

Altracon has also been at the forefront of Industry 4.0, embracing emerging technologies and automation to drive innovation in its product development. The company's early adoption of these trends has positioned it as a leader in the field, ensuring its offerings remain cutting-edge and aligned with the latest industry advancements.

### ESSENTIAL SKILLS AND EXPERTISE

As the tyre industry evolves, the ability to analyse and evaluate vast amounts of data will be crucial for success. The increasing complexity of information and data requires sophisticated methodologies to extract actionable insights for tyre manufacturing. "In this regard, the post-processing of the measured data will place even higher demands on the data processing in the future than is the case today," says Berres.

### CAREER IN TYRE TESTING AND DEVELOPMENT

According to Berres, tyre testing and development offer a unique and exciting opportunity for aspiring professionals seeking a rewarding and challenging career. This field continually presents engineers with new and complex challenges that often extend beyond traditional product development and improvement.

The growing demand for electric vehicles, low emissions, reduced noise and enhanced wear resistance are just a few examples of the evolving trends that drive innovation in tyre testing and development. These challenges provide a stimulating environment for engineers to contribute to advancing tyre technology. "In order to work in this area, it is essential to keep an eye on the market and find out what changes will be required in the future due to environmental and legal requirements," adds Berres.

### GOING FORWARD

Altracon envisions a future where tyre testing equipment delivers even more precise and reproducible results, incorporating new and expanded measurement methods. This advancement will empower tyre manufacturers to differentiate themselves more effectively in the competitive market. "A good example of the need is the development order for our recently introduced sidewall fatigue measurement machine for TBR, which can also be used for other applications through modular expansion, e.g. about the requirements for tyres for electromobility," says Berres. ■



# JOURNEY OF INNOVATION AND EXCELLENCE IN **TYRE TESTING**



Fuel Tester



Electrical motor tester



## FROM HUMBLE BEGINNINGS TO GLOBAL LEADERSHIP

Altracon is a mid-sized technology company celebrating its 40th anniversary this year. The company's journey, marked by innovation, technical excellence and a relentless pursuit of customer-oriented solutions, has transformed it from a small electronics lab into a globally recognised leader in multiple specialised industries.

It all started with a small electronics lab specialising in the high-frequency technology business. Founded in 1984 by Ralf Berres under Kom-tron, Altracon initially focused on developing and installing lighting and sound systems. "Initially focused on developing and installing lighting and sound systems, Successful projects laid the foundation for regional expansion, making the company a sought-after partner for modern technical solutions," reminds Berres.

## A NEW CHAPTER: ALTRACON'S SERVICE CENTRE

In 1987, Altracon opened the 'Bitburg Audio-Visual Studio Service Center', marking a significant expansion of its portfolio. This new venture positioned the company as a leading regional provider of sales and services for TV, video, industrial and IT technology.





Retrofit

The region's service expert departments turned to Altracon because of its well-stocked inventory of electronic components and well-equipped service workshop. By guaranteeing the prompt availability of replacement parts, the business created the foundation for its future success as a retrofit partner for industrial machinery and control systems.

### ALTRACON'S INNOVATION SURGE

In the 1990s, Altracon embarked on an innovation journey, focusing on developing measurement and control technology. The transition to specialised hardware and software solutions rapidly garnered recognition among domestic and international businesses.

"One notable achievement was the development of testing systems for endurance and performance testing of drive components in the automotive and electric motor industries," says Berres. "These products were marketed globally, establishing the company as a leading provider in this sector. These innovative solutions contributed significantly to Altracon's success and were marketed globally, establishing the company as a leading provider in this sector," adds Berres.

### A SOARING SUCCESS: ALTRACON'S AEROSPACE VENTURES

Altracon's successful collaboration with the American Air Force Base in Bitburg was a significant milestone in history. As a development partner, Altracon created the first digital, visualised control centre for one of the fighter squadrons stationed there.



Bitburg Airfield

After rigorous testing and implementation, this innovative system was adopted internationally. Building on this success, Altracon developed and serviced a test stand for F-16 engines for many years. These aerospace projects showcased the company's ability to meet the highest standards of quality and innovation. "This complex system and its maintenance underscored the company's ability to overcome technical challenges and integrate aerospace industry quality standards into its processes," adds Berres.

The success of Altracon's aerospace projects paved the way for further ventures in the industry. The company collaborated with the Ariane Group, developing manufacturing robots and their controls for rocket stage components. This ambitious project showcased Altracon's ability to contribute to cutting-edge aerospace technology.



Jet test stand

### A NEW HOME FOR INNOVATION: ALTRACON'S RELOCATION

Altracon's continued growth and expanding projects necessitated a larger manufacturing and assembly facility. The withdrawal of the American Air Force from Bitburg in 1994 presented an opportunity, and Altracon acquired a property at the site.

After extensive renovations, the company moved into the new facility in 1996. The existing technical infrastructure enabled the operation of test systems up to 500 KW, supporting Altracon's focus on projects in the electric motor industry. From this new base, the company developed test systems for leading manufacturers in the underwater motor industry in Italy and America, catering to their global operations.



## COVER STORY



Electrical motor tester

### A NEW FRONTIER: ALTRACON'S TYRE TESTING EXPERTISE

At the dawn of the new millennium, Altracon turned its attention to elastomer and tyre testing technology. The company breathed new life into existing testing machines through numerous retrofit projects worldwide, enhancing their functional capabilities.



Driven by this success and the growing demand for innovative tyre testing machines, Altracon established a dedicated construction and development department. Recognising untapped market opportunities, the company accelerated the development of new testing methods and corresponding machines, solidifying its position as a leader in the field. "This led to the creation of the High-Speed Linear Function Tester (HSLFT), which set global standards in the tyre industry with its capabilities," says Berres. Altracon's decades of experience in retrofit projects and deep technological expertise have positioned the company as a master of a highly specialised niche. With innovative testing machines, Altracon catered



Production ATS, Germany

to the needs of leading tyre manufacturers worldwide, offering solutions that set new industry standards.

### A STRATEGIC SPLIT: ALTRACON'S EVOLUTION

In 2009, Altracon underwent a strategic restructuring, splitting into two divisions. The Luxembourg-based company, Altracon, took over sales and development, while production continued at the former Bitburg site under ATS-device. Both companies remained under the leadership of founder Ralf Berres, who served as CEO of Altracon and managing director of ATS-device.

To meet the increasing demands of its growing product range and production volume, Altracon expanded its Bitburg facility in 2015. The expansion added 2,000 square metres of production space, bringing the total to approximately 3,000 square metres. The new space accommodated construction, electrical and software development departments and a tooling centre. A customer centre equipped with testing and training rooms was also established, providing customers with a dedicated space for in-depth testing and evaluation.

### A GLOBAL LEADER IN TYRE TESTING

Today, Altracon is a globally recognised expert in system solutions for the tyre industry. The company's cutting-edge testing machines, which replicate real-world road conditions in a laboratory setting, have set new industry standards. These advanced tools empower leading tyre manufacturers to test and rigorously improve their products under extreme conditions. "Altracon's customised solutions are the result of deep industry knowledge, experience and an unwavering drive for innovation," says Berres.

### ALTRACON'S CORNERSTONES: QUALITY, INNOVATION AND TEAMWORK

Altracon's success is built upon the foundation of its talented and dedicated team. The company's culture fosters innovation and collaboration, consistently meeting the highest quality standards and setting new benchmarks in the industry.

"As a special milestone, Dr Dieter Barz joined our team in 2015 in the search for specialised and experienced employees. His technical know-how and expertise from the automotive, sensor and tyre industries enabled us to achieve a high level of specialisation and coordination of our products for our customers. Since the beginning of our collaboration, he has successfully managed our sales and extensive technical communication in analysis and order coordination at customer level. Dr Barz has been known to our customers for many years through his excellent presentations and specialist articles," says Berres.

"Altracon stands for progress and innovation worldwide, giving its customers in the tyre industry a decisive competitive advantage," adds Berres.

### THE FUTURE OF ALTRACON: INNOVATION AND GROWTH

A commitment to continued innovation and growth marks Altracon's future. The company aims to strengthen its leading position in the tyre industry while venturing into new markets. A key focus is the integration of advanced analysis technologies to enable rapid and automatic data evaluation. Additionally, Altracon plans to leverage AI to network machines and testing locations, significantly reducing development time and costs. ■







# ALTRACON MARKS 40 YEARS AS A LEADER IN TYRE TESTING TECHNOLOGY

**Altracon, a key player in tyre testing technology, is marking its 40th anniversary. Over the past four decades, the company has been at the forefront of innovations, enabling manufacturers to fine-tune and enhance tyre performance.**

**Ralf Berres, CEO of Altracon, reflects on the company's journey, key milestones and future outlook. Throughout its history, Altracon has maintained a strong focus on innovation and a deep understanding of industry requirements. By providing advanced solutions, the company has allowed tyre manufacturers to stay competitive and meet the growing demands of the global market.**



Ralf Berres, CEO of Altracon

## **What are some of Altracon's proudest milestones achieved throughout its 40-year history?**

We are proud that our company has survived multiple crises, such as 2008 and the Corona crisis, with continuous growth. Our target-oriented and unique technology for the rubber industry is another important technological and economic benefit.

## **Looking back, what would you consider Altracon's most significant contribution to tyre testing?**

We are growing with the retrofitting of any brand's machines to focus our own expertise and develop the best pathfinding machinery. The wide range of analysing existing testing methods and technology allows us to create new and non-existing technological solutions.

**As Altracon moves forward, it remains committed to delivering the cutting-edge technologies that have defined its role as an industry leader.**

## **Where do you find a better position – indoor or outdoor testing? And how do you see the future demands?**

The majority of Altracon products are made for indoor tyre testing. For years, the focus on sustainability in testing and the ecologic mindset has influenced the tyre industry to shift tyre testing to the lab. This process is important for Altracon, and we are very successful in contributing to our systems, such as HSLFT. This machine is increasingly shifting outdoor measurements to the laboratory with better repeatability results. Sustainability will also be important for tyre testing in the future.

## **What trends will fuel demand for your products?**

The ongoing development of EVs is, of course, influencing tyre development and tyre testing. Material properties are of increasing importance in this field. Thus, the interest in function and friction testing of materials with our HSLFT to develop highly efficient compounds is fuelling the demand for such machines, and this is being observed globally. Altracon has developed this technology over the years and is the only company that can offer it. This machine is standard and the only one to measure grip and tread block function under almost every realistic environmental condition in the lab. It is a considerable step to shorten the development process of tyres and minimise their cost.

## **In which geographical regions has Altracon established a strong presence? Are there plans for further global expansion?**

Altracon is established around the globe. Our strongest markets are currently India and China, in addition to Europe. The current situation with the wars in various regions of the world makes it difficult to focus on new markets. However, we aim to improve our footprint in the US and Southeast Asia.

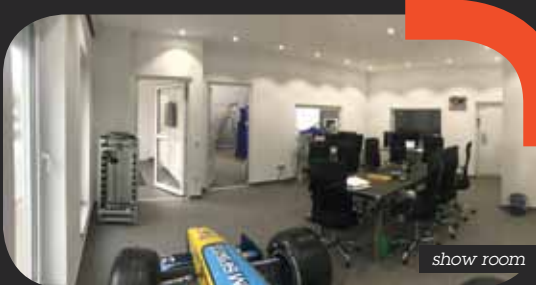
## **What are the biggest challenges the tyre testing industry faces in the coming years? How is Altracon preparing to address these challenges?**

The development departments in the tyre industry must be optimised so that the data depth of the measurement results can be generated quickly with high reproducibility and relatively low financial investment. This includes, among other things, the test procedure that Altracon developed with the HSLFT, which is now considered the standard in the performance development of tyres.

One of the biggest challenges for us in the future will also be to find and employ qualified personnel.

## **As Altracon celebrates its 40th anniversary, is there anything specific you want to share with your customers, partners and the wider industry community?**

A big thanks to all of our colleagues, partners and customers that we had the chance to be a part of this industry. They have been very loyal to us over the years, and we, as well as the next generation, look forward to continuing our good cooperation. ■



show room



In today's fast-paced world of product and quality assurance, a robust Computer-Aided Test Management (CATM) system is indispensable. However, many companies face the challenge of outdated equipment, leading to time-consuming and error-prone processes. Altracon has emerged as a solution provider, offering comprehensive retrofits that modernise ageing test machines, enhancing efficiency and reliability.

### THE CASE FOR RETROFITTING

While the temptation to replace ageing equipment might be strong, retrofits offer several advantages. They can significantly reduce costs compared to purchasing new machinery, extend the lifespan of existing assets and minimise downtime. Furthermore, retrofits can ensure compliance with industry standards and regulations, safeguarding a company's reputation.

### ALTRACON'S RETROFIT SOLUTION

Altracon's approach involves thoroughly assessing the existing equipment to identify areas for improvement. Based on the experience of successfully completed projects, the company then develops tailor-made retrofit solutions incorporating the latest measurement and control technologies. This modernisation can include upgrades to electrical components, control systems, hydraulics and mechanical elements.

### KEY BENEFITS OF ALTRACON'S RETROFITS

- **Enhanced efficiency:** Retrofits streamline processes, reduce manual labour and improve overall productivity.
- **Improved accuracy:** Modernised equipment delivers more precise measurements and data, leading to better quality control.
- **Data integration:** Altracon's retrofits often include integrating CATM systems, enabling seamless data management and analysis.
- **Cost-effectiveness:** Retrofits offer a financially viable alternative to purchasing new equipment, especially for companies with limited budgets.
- **Extended lifespan:** Retrofits can significantly extend the service life of existing machinery by replacing outdated components and incorporating modern technology.

# BREATHING NEW LIFE INTO AGEING TEST EQUIPMENT



OLD Control System



New GUI System



OLD PLC cabinet



NEW Drive cabinet

### ALTRACON'S EXPERIENCE AND EXPERTISE

With over 35 years of experience in industrial machinery retrofitting, Altracon has a proven track record of successfully modernising test equipment in various industries, including automotive and tyre manufacturing. The company's expertise and commitment to customer satisfaction have made it a trusted partner for businesses seeking to optimise their operations.

- Any type and brand of dynamic and static test benches. Retrofit and performance upgrade on drum testing machines.
- Automotive testing equipment: Altracon has successfully retrofitted various types of automotive testing equipment, including engine dynamometers and wide range of performance test stand.
- Aerospace testing equipment: The company has also modernised aerospace testing equipment, such as fatigue testing machines and environmental chambers.

### BEYOND TECHNICAL UPGRADES

Altracon's retrofit solutions go beyond technical upgrades. The company also provides comprehensive support services, including installation, training and ongoing maintenance. This ensures that customers can fully leverage the benefits of their modernised equipment.

### CONCLUSION

Altracon's retrofit solutions offer a compelling alternative to the costly and disruptive process of replacing ageing test equipment. By breathing new life into existing machinery, Altracon helps companies improve efficiency, enhance accuracy and ensure compliance with industry standards, ultimately driving success in today's competitive market. ■



# Altracon

Automation Testing Service

40  
years

Custom made innovation  
made in germany

## Solution provider for:

- In/outdoor tire testing
- Tire stiffness analysis
- Friction measurement
- Grip-testing
- Tire burst technology
- Water-jet tire cutting
- Track characterisation
- Auto-loading systems

Services  
Retrofit  
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