

# MTA

## *journal*

Business & News from Automotive World

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### MTA WORLD

MTA Slovakia, a state-of-the-art site

### COVER STORY

A new instrument panel for an iconic motorcycle





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## Editorial 主编



While the world, thanks to vaccines, is finding hope to get out soon from the COVID-19 pandemic, we must continue to keep our defenses high to avoid compromising what we have done up to now. At work, where possible, we alternate between in-person and smart working days. In the office and on the production floor we protect ourselves with masks, we disinfect our desks and workstations. We have increased our lunch hour shifts so that the canteen is never overcrowded. People eat at tables for two, in some sites they are even divided by plexiglass protection.

And, in this new *modus operandi*, adopted and respected by all and which has now become commonplace, MTA continues its growth with the acquisition of new customers and the assignment of new projects by established customers.

In this issue of the Journal, there's an interesting glimpse of our target market: from cars to motorcycles, tractors to trucks. Our range of products is also prominently featured: electronic or electrical, off-the-shelf or made in co-design with the customer, they all ensure very high quality standards in line with the needs of a very demanding market.

MTA is also growing in its various locations as it renovates, invests in production, laboratory and research equipment. In combination with the above, MTA is constantly paying special attention to the working environment, the greenery of its gardens and break spaces, for the well-being of all.

感谢疫苗的问世，使我们可以期待新冠肺炎造成的大流行可以尽快结束，但我们也必须继续保持高度防护，来维持目前来之不易的防疫成果。

在工作方式上，我们会交替采用现场办公和远程办公方式。

在办公室和生产车间，我们戴上口罩进行防护，并对办公桌和工作场所进行消毒。我们在午餐时间增加了轮次，避免食堂出现人员大量聚集的情况。两人一桌，分散就餐，有些工厂甚至用有机玻璃隔板分隔开。

这种新的做法在 MTA 已全面推行，受到了所有人的支持和认可，现已成为常态，因此，MTA 不仅赢得了新客户，还获得了老客户的新项目，继续实现业务增长。

在本期杂志中，可以大致了解我们的目标市场：从汽车到摩托车、拖拉机再到卡车。此外，还重点介绍了我们的产品系列：无论是电子产品还是电气产品、现成产品还是与客户联合设计的产品，都能达到非常高的质量标准，能够满足非常苛刻的市场的需求。

同时，MTA 也在对各分公司的生产、实验室和研究设备进行投资改造，促进各分公司的不断发展。此外，MTA 还一直特别关注工作环境、花园绿化和休息空间的布置，提升所有员工的工作幸福感。

Maria Vittoria Falchetti  
mv.falchetti@mta.it

### MTA honoured by FCA as 2020 Supplier of the Year for the EMEA region.

FCA assessed the performance of suppliers in terms of quality, innovation, development management, proactiveness, commitment and punctuality in the continuity of service. The choice fell on MTA and the reasons behind were: "For the outstanding commitment to FCA and the great support to our manufacturing plants during the first critical wave of COVID-19 pandemic that strongly impacted MTA plant located in Codogno. MTA has shown a remarkable customer-oriented approach and great sense of urgency".

MTA Brasil also received the "Supplier of the Year Award" from FCA Latam in the Innovation Category for the design and the development of the HMPDC power distribution unit.

### MTA 荣膺 FCA 欧洲、中东和非洲地区“2020 年度供应商”称号。

FCA 从质量、创新性、开发管理、主动性、履行承诺以及持续性服务的准时性等方面对供应商的表现进行了评估。MTA 入选的原因是：“在最严重的第一波新冠疫情爆发期间，MTA 位于科多尼奥的工厂受到了严重冲击，但 MTA 仍坚守对 FCA 的承诺，为我们的生产工厂提供了大力支持。MTA 表现出了卓越的以客户为导向的服务理念以及强烈的紧迫感。”

另外，MTA 巴西也因设计和开发 HMPDC 配电单元而荣获 FCA 拉丁美洲“年度供应商大奖”中的创新类奖项。

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## MTA Slovakia, a state-of-the-art site

### MTA 斯洛伐克：一家达到世界先进水平的工厂

MTA Slovakia, founded in 2004 in Bánovce nad Bebravou, is the foreign site that, within the group, has seen the most significant expansion over the years. In 2008, it had already moved to the current area where a production department and an office building were built.

In 2011, and again in 2016, the site was further expanded allowing the start-up of a modern plastic molding department.

1 Today we have an assembly department with 28 automatic and semi-automatic lines where, in 2020, more than 7 million power distribution units were assembled and delivered directly to customers, and a molding department with 21 injection presses from 160 t to 450 t, where 1500 tons of granulate were processed for the production of 11.5 million semi-finished plastic products.

Of the 7 press-fit machines purchased by the Group for the assembly of terminals in electronic boards, a technology now widely used in most PDUs, one was allocated to Slovakia.

A small expansion will also be necessary this year, and will be completed by July, to enlarge the warehouse area and thus recover new space to be allocated to the production department.

MTA 斯洛伐克于 2004 年在 Bánovce nad Bebravou 成立，已成为集团内近年来扩张势头最强的国外工厂。2008 年，该工厂迁至现在的地址，并在这里建造了一栋办公楼并配备了生产部门。

2011 年和 2016 年，该工厂进一步扩建，成立了现代化塑料成型部门。

1 如今，我们已拥有装配部门，内设 28 条自动化和半自动化生产线。2020 年，共装配完成 700 多万件配电单元并直接交付给客户。此外，我们还拥有成型部门，配备 21 台吨位从 160 吨到 450 吨的注塑机，加工粒料 1500 吨，生产出 1150 万件塑料半成品。

集团已采购 7 台冲压机，用于将端子装配到电路板上（这项技术目前已广泛应用于大多数 PDU），其中一台分配给了斯洛伐克工厂。

今年，该工厂还需要进行一次小规模扩建，并将于 7 月完成。此次扩建是为了扩大仓库面积，将腾出的空间分配给生产部门。

2 Hardware evolution is followed by careful and timely software evolution. Over the past two years, MTA Slovakia has developed a system for analyzing company data involving quality (reject analysis), maintenance (downtime analysis), production (efficiency analysis) and accounting (use of expense budgets).

This software draws data directly from SAP and from our production management system, guaranteeing unambiguousness of reading, completeness of data and elimination of the risk of errors.

The production progress is constantly monitored through several screens connected directly to the lines that show, in real time, the number of pieces produced compared to the number of pieces programmed.

3 Human resources always remain the driving force behind everything. The strong industrial tradition of Slovakia, the skilled workforce in the area, but above all the willingness, the sense of belonging and the determination shown by everyone are the most important contribution to achieve a single and common goal.

Thanks to the above, MTA Slovakia has been able to implement the Cost Saving project, which they have been working on for two years, on the efficiencies and work organization of each employee.

Part of what was saved in 2019 through the Cost Saving project went towards making the canteen a more pleasant and functional environment. With the 2020 savings, however, we will invest in Italian or English language courses for those who wish to attend.

2 硬件升级之后，将适时、谨慎地进行软件升级。在过去两年中，MTA 斯洛伐克开发出了一个用于分析公司数据的系统，可对质量（废品率分析）、维护（停机分析）、生产（效率分析）和会计（预算费用的使用）数据进行分析。

该软件直接从 SAP 和我们的生产管理系统中提取数据，确保读取的准确性和数据的完整性，并消除了出错的风险。

生产进度通过与生产线直接相连的多个屏幕进行持续监控，屏幕上对照设定的件数实时显示已生产件数。

3 人力资源始终是推动工厂发展的动力。斯洛伐克悠久的工业传统，技术娴熟的劳动力，但最重要的是，每个人所表现出的意愿、归属感和决心，是促进实现共同目标的最重要的因素。

基于上述原因，MTA 斯洛伐克得以落实成本节约项目，该项目已开展两年，提高了每位员工的效率和工作组织能力。

2019 年通过成本节约项目节省的一部分资金已用于改善餐厅的用餐环境和配套功能。而 2020 年节省的资金将用于开办意大利语或英语课程，满足员工的语言学习需求。



## Excellence is built in the laboratory 实验室保证卓越品质



Mariarita, Laboratory Director.

Our Group has had its own Verification and Validation Center for many years, where teams of passionate and highly qualified professionals in testing and validation engineering, specialized in different areas of expertise, carry out their activities in sophisticated laboratories. Starting from the setting up of the DV/PV – Design Verification and Product Validation test plan, to diagnosis and problem solving, and then product certification.

Behind every detail we develop there is in fact extensive research work: new materials, new technological solutions, new production approaches. In all the applications we produce in which quality, reliability and sometimes safety impact play a primary role, verification and validation activities are as important and require as much effort as development.

Our laboratories are equipped to simulate, through consolidated methodologies that follow the guidelines of the reference standards, any operating condition; each product is subjected to a "qualification phase" during which numerous tests are carried out: electromagnetic compatibility tests; electrical tests; mechanical tests, both static and dynamic; environmental and material tests. These are time-consuming and thorough procedures that give excellent results.

The execution of qualification tests takes place in different locations of the Group in an autonomous way, a necessary condition to provide customers with the complete know-how from design to validation, as well as clearly improving the time to market.

我们集团自己的验证与确认中心已设立多年，众多测试和验证工程领域的高素质专业人员齐聚于此，他们满怀激情，利用各自的专长，在先进的实验室中开展各项研究活动。从制定 DV/PV 设计验证与产品确认测试计划，到诊断和解决问题，再到产品认证，面面俱到。

在我们设计的每一个细节背后，实际上都开展了大量的研究工作：新材料、新技术解决方案、新生产方法的研究。在我们生产的所有产品中，质量、可靠性、有时还包括安全性都起着主要作用，而验证和确认工作的重要性与开发工作相同，同样需要付出大量精力。

我们的实验室装备齐全，可通过符合参考标准指南的综合方法模拟各种工作条件；每件产品都要接受“合格性检验”，在此期间要执行多项测试，包括电磁兼容性测试、电气测试、静态和动态机械测试；环境和材料测试。这些测试虽然耗时但十分全面，而且效果显著。

合格性测试是在集团的不同工厂以自主方式进行，为确保向客户提供从设计到验证的整套专业技术，帮助客户大幅缩短产品上市时间，这一环节必不可少。

### HEADQUARTERS

In the laboratory in Italy we have a wide and complete range of environmental conditioning systems such as 4 shaker vibration systems with climatic chambers, 8 climatic chambers, 3 thermal shock chambers, 2 salt spray chambers, 6 thermostatic chambers, advanced instrumentation for the execution of electrical and electromagnetic compatibility tests (required by international directives and specific test specifications of automotive manufacturers) and a metrology room recently equipped with a new automatic CMM machine.

The EMC quality requirements provided for by the regulations in force and by the specifications of the OEM customers are achieved with tests carried out in an anechoic chamber and, with the aid of full compliant instrumentation, tests of radiated and conducted emission according to CISPR25, tests of immunity to radiated electromagnetic field according to ISO 11452-2 and conducted with Bulk Current Injection method according to ISO 11452-4 are carried out.

With the aid of a compact anechoic chamber and a radio communications tester, products developed by MTA and equipped with wireless capabilities (Bluetooth and Wi-Fi) are subjected to pre-certification emission tests and the necessary diagnostic measurements via radio (OTA – Over The Air).

Tests of immunity to electrical transients on power and signal lines, in accordance with ISO 7637 and customer specifications, are performed on test benches fully equipped for this purpose.

The impact of ESD electrostatic discharge on devices is evaluated with immunity tests performed in accordance with ISO 10605 and variants introduced by the specific requirements of automotive manufacturers.

A specific test environment and a precision spectroradiometer allow the analysis of the photometric characteristics of dashboards and displays.

### 总部

意大利的实验室配有种类齐全的环境调节系统，如 4 个带人工气候室的振动器振动系统、8 个人工气候室、3 个热冲击试验箱、2 个盐雾箱、6 个恒温箱、用于开展电气和电磁兼容性测试的先进仪器设备（按照国际指令和汽车制造商的特定测试规范要求配备）以及一个最近配备了新型自动化 CMM 测量仪的计量室。

现行法规和 OEM 客户规范所规定的 EMC 质量要求通过以下测试加以满足：在消声室中借助完全符合要求的仪器设备执行的测试、根据 CISPR25 执行的辐射和传导测试、根据 ISO 11452-2 执行的辐射电磁场抗扰度测试，以及根据 ISO 11452-4 采用大电流注入法执行的辐射电磁场抗扰度测试。

借助紧凑的消声室和无线电通信测试仪，由 MTA 开发并配有无线功能（蓝牙和 Wi-Fi）的产品都要通过无线方式（OTA）进行预认证排放测试和必要的诊断测量。

根据 ISO 7637 和客户规范，需要进行对电力和信号线上电气瞬变的抗扰度测试，该测试在完全针对此目的配备的测试台上进行。

静电放电对设备的影响通过抗扰度测试进行评估，而抗扰度测试是根据 ISO 10605 以及按汽车制造商的具体要求制定的各种规范执行的。

借助特定的测试环境和精密的分光辐射计，可以分析仪表盘和显示器的光学特性。





## CHINA

The laboratory in China was set up as soon as the entire business moved to its current site. Since 2017, in a dedicated area, the main tests are carried out, such as those on dimensional, electrical, mechanical, environmental aspects, mainly aimed at quality tests of connectors and PDUs.

The laboratory is also equipped to cope with an expected increase in the product range that will be supplied from China to some important OEMs and that needs the guarantee of all the tests required by the customer.

In fact there are 2 environmental simulation systems: a climatic chamber compatible with the implementation of a vibrating system and a controlled ventilation oven, a SmartScope for dimensional measurements, a dynamometer, a nanovoltmeter, a digital oscilloscope, a melt flow tester.



## 中国

中国的实验室是在整个公司搬迁至目前的地址后立即设立的。自 2017 年以来，实验室一直在执行专门领域的主要测试，如尺寸、电气、机械、环境测试等，主要进行连接器和 PDU 的质量测试。

未来，预计会逐渐扩大从中国向一些重要 OEM 供应的产品范围，并且供应的产品需要保证通过客户要求的所有测试。因此，该实验室预先配备了相应的设备，以应对未来的这种需求。

实际上，该实验室配备了 2 套环境模拟系统：一个与振动系统兼容的人工气候室和一台用于高温测试的高温试验箱；一台用于尺寸测量的 OGP 影像测量仪；一个测力计；一个纳伏计；一台数字示波器；一台熔体流动测试仪。

## MOROCCO

The new lab in MTA Morocco is equipped to do all electrical, mechanical and environmental testing for the power distribution units assembled on site and supplied directly to customers.

The instrumentation in Morocco is larger than that in Codogno to cope with the fact that the PDUs are increasingly important in size, more powerful, heavier and must be tested in greater numbers because of the higher levels of reliability required today.

Worth mentioning are the 2 climatic chambers 600 l and 1000 l, a salt spray test chamber 1200 l, a thermal shock chamber, a chamber for vibrating system 600 l, a vibrating system with 22 kN slip table.

We purchased the main environmental simulation systems from Angelantoni Test Technologies, representing complete Italian excellence, part of the Umbria Aerospace Cluster, an association representing the Umbrian regional industry operating in the aeronautics, space and defense sectors.

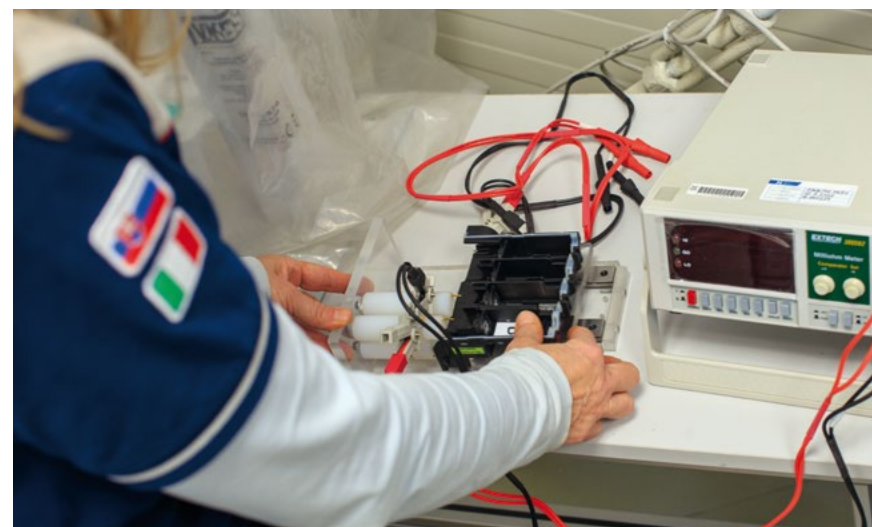
The advantage that Angelantoni Test Technologies further offers us is the guarantee of having an on-site service partner that reduces downtime in case of failure and a reduced stock of spare parts as they are shared on several test systems.

We have been working for several years now with Angelantoni Test Technologies from whom we have purchased many of our test equipment. For the laboratory in Morocco, we have chosen to continue with this choice, which has always guaranteed us highly reliable systems.

All instrumentation purchased is customized to conform to the standards of our customer.



To learn more about Angelantoni Test Technologies, visit the website [www.acstestchambers.com](http://www.acstestchambers.com)



## SLOVAKIA

The laboratory in Slovakia, developed over the years in parallel with the growth of the site, ensures the control and continuous testing of production processes in particular of plastic molding and the necessary support for the periodic requalification of the product as well as the activity of problem solving.

It is equipped with basic equipment for the main mechanical and leak tests and a metrology room with optical measurement systems and profile projectors for dimensional measurements.

## 斯洛伐克

斯洛伐克的实验室，多年来随着工厂的扩建而不断发展，确保对生产流程进行控制和持续检测，尤其是塑料成型生产流程；同时，为定期进行产品的再次合格性测试及解决出现的问题提供了必要的支持。

它配有执行主要机械和泄漏检测的基本设备，并设有一个计量室，其中配有用于测量尺寸的光学测量系统和轮廓投影仪。

## 摩洛哥

MTA 摩洛哥的新实验室装备齐全，可以对现场组装并直接向客户供应的控制单元进行全套的电气、机械和环境测试。

摩洛哥工厂的设备比科多巴工厂的设备更大，以应对控制单元的体积越来越大、功率越来越高、重量越来越重的需求，而且由于现在对可靠性的要求越来越高，必须执行的测试越来越多。

值得一提的是，该工厂设有两个人工气候室（一个 600 升，一个 1000 升）、一个 1200 升盐雾试验箱、一个热冲击试验箱、一个 600 升振动试验箱、一个带有 22 kN 滑台的振动系统。

我们主要的环境模拟系统购自 Angelantoni Test Technologies，该公司完全能够代表意大利式的卓越品质，其隶属于 Umbria



## BRASIL

In MTA Brasil, the laboratory, which has been set up for several years now, has been updated during the many interventions carried out in 2020, as described in MTA Journal No. 22.

It is equipped with two climatic chambers from -70 °C to +150 °C; a 600 l salt spray test chamber; a 350 l chamber for thermal shocks from -70 °C to +180 °C, as well as numerous electrical and electronic equipment.

## 巴西

在 MTA 巴西，实验室已经运转了多年，并在 2020 年开展的多项扩建中进行了改造，改造具体信息如 MTA 期刊第 22 期所述。

它配备了两个人工气候室，温度范围为 -70 °C 到 +150 °C；一个 600 升盐雾试验箱；一个 350 升热冲击试验箱，温度范围为 -70 °C 到 +180 °C，以及多种电气和电子设备。



Aerospace Cluster，后者是一个代表翁布里亚大区航空、航天和国防领域组织的协会。

Angelantoni Test Technologies 还为我们带来了另一项优势，即能够保证我们拥有现场服务合作伙伴，帮助我们在发生故障时缩短停机时间，而且由于有些备件能够由多个测试系统所共用，还有助于减少备件库存。

我们已经与 Angelantoni Test Technologies 合作了多年，我们的许多测试设备都购自该公司。对于摩洛哥的实验室，我们选择继续与该公司合作，因为他们能够保证提供给我们的高度可靠。

采购的所有仪器设备都是按照客户的标准量身定制的。

如需了解有关 Angelantoni Test Technologies 的详细信息，请访问网站 [www.acstestchambers.com](http://www.acstestchambers.com)



1 Electrical Laboratory team, Codogno, Italy.

2 Paolo, Electrical Laboratory, Codogno, Italy.

3 Manoel, Metrology, Arujá, Brazil.

4 Wayne, Electrical Laboratory, Shanghai, China.

5 Paolo, Electrical Laboratory, Codogno, Italy.

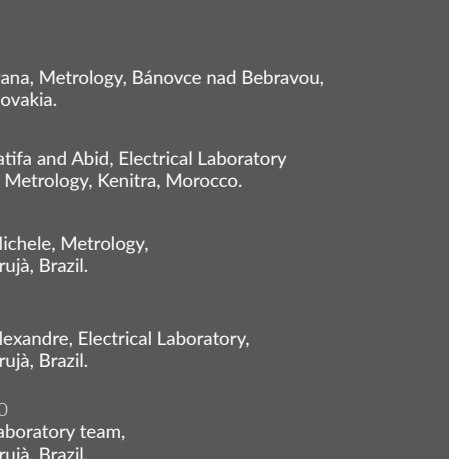
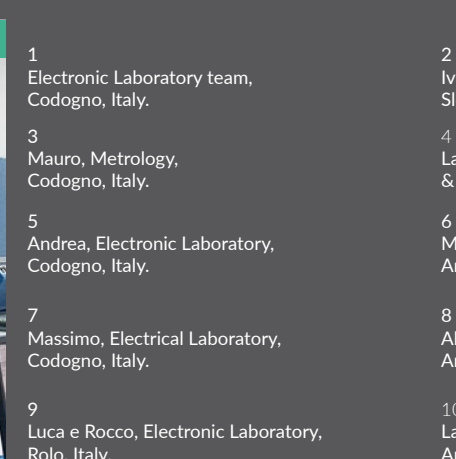
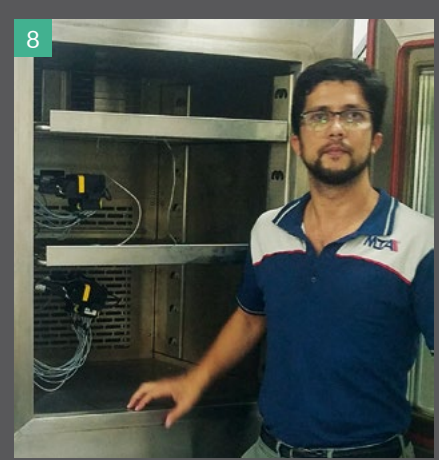
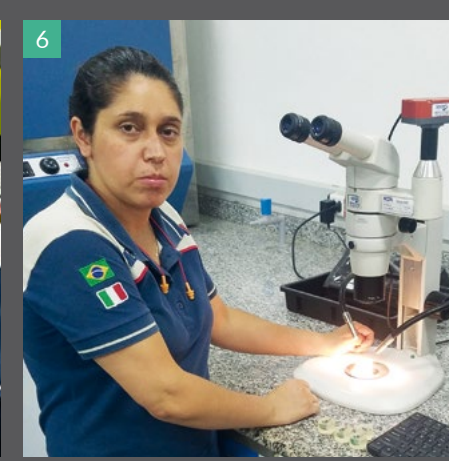
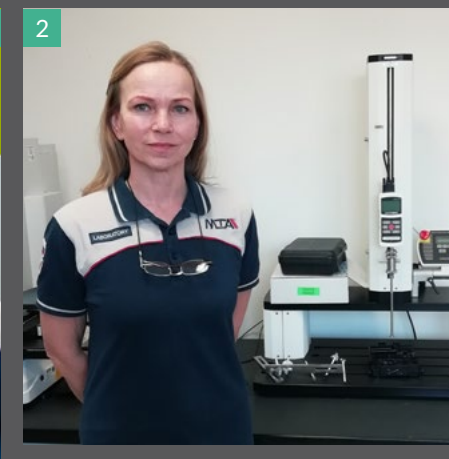
6 Laboratory team, Shanghai, China.

7 Stefania and Massimo, Electrical Laboratory, Codogno, Italy.

8 Mauro, Electrical Laboratory, Codogno, Italy.

9 Andrea, Metrology, Bánovce nad Bebravou, Slovakia.





## A new instrument panel for an iconic motorcycle 专为标志性摩托车打造全新仪表盘



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Presented in April last year, the BMW R 18 represents a perfect blend of modern design and sophisticated materials combined in a charming retro style. MTA has contributed to this project with a circular instrument panel in which there is a speedometer with pointers, 11 warning lights and an LCD display for viewing other parameters and configuration menus.

The instrument cluster has a classic design and small size, 95 mm in diameter. This required an important exercise in technique and style by MTA, considering that the instrument has to house, in addition to what has already been mentioned, also its support and the stepper motor for the movement of the pointer. Always to satisfy the rigorous stylistic dictates of the Bavarian company and to give the dashboard a particularly elegant design, we had to make sure that the warning lights and the LCD are "invisible" when the display is off.

The instrument panel is closed by a glass in plastic material subjected to anti-fog and anti-reflective treatments that ensure maximum visibility in all weather conditions.

The ring surrounding the dashboard is of great aesthetic impact, made of chromed metal alloy that well matches with the numerous chromed surfaces on the cruiser. BMW Motorrad has foreseen that the ring can be replaced if damaged or scratched: it can in fact be removed by dealers in the aftermarket. The ring is equipped with an O-ring and mechanical hooks that allow replacement without compromising the degree of protection IP6K9K.

The instrument panel of the R 18 is driven by an external control unit via LIN BUS which allows easier customization of some functions, without having to intervene on the dashboard.

**A VERSATILE AND FUNCTIONAL ASSEMBLY LINE**  
The line dedicated to this project is an automatic and structured line and can perform dashboard assemblies in different configurations allowing a great versatility. An important detail of this product is the stepper motor mounting technique. In fact, it is not soldered on the board but interference-fitted into the pin holders.

去年 4 月推出的 BMW R 18 设计时尚、用料考究，并融合了迷人的复古风格。MTA 专门为该系列摩托车打造了一款圆形仪表盘，其中包含一个带指针的车速表、11 个警示灯和一个用于查看其他参数和配置菜单的液晶显示屏。

仪表盘采用经典设计，占用空间小，直径为 95 mm。考虑到仪表盘除了要容纳前述各项外，还要容纳其支架和实现指针移动的步进电机，MTA 需要在技术和风格上进行反复实践。为了达到巴伐利亚公司严格的风格要求，并使仪表盘的设计优雅十足，我们必须确保警示灯和液晶显示屏在关闭时变为“隐形”。

仪表盘由一块嵌在塑料材料中的玻璃加以封闭，经过防雾和防反射处理，可确保在所有天气条件下都依然清晰可见。

仪表盘四周的环形组件极具美学冲击力，由镀铬金属合金制成，与这款巡航摩托车上众多的镀铬表面相得益彰。BMW Motorrad 已经预见，环形组件可能会受到损坏或划伤，受损或划伤后该组件可以更换：事实上它可以由售后市场的经销商进行更换。这个环形组件配备了一个 O 型环和机械挂钩，可以在不降低 IP6K9K 防护等级的情况下进行更换。

R 18 的仪表盘由外部控制单元通过 LIN 总线驱动，因此更便于定制一些功能，而不会对仪表盘产生影响。

### 通用多功能装配线

该项目专用装配线是一条自动化、结构化的装配线，可完成不同配置的仪表盘装配作业，具有卓越的多功能性。该产品的一大特色是步进电机安装技术。事实上，它不是焊接在电路板上，而是以过盈配合方式安装在销套中。

## Cluster Idea gets onto the smartest tractor in the world 全球顶级智能拖拉机选用 Idea 仪表盘



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Monarch, a young American company founded at the end of 2019, is going to launch into the agriculture market a futuristic tractor. A 100% electric vehicle and the first in its sector with totally autonomous driving functions. Monarch has found in MTA the ideal partner for such a sophisticated machine, and awarded us for the supply of the dashboard. The choice fell on Idea, an off-the-shelf-dashboard equipped with a basic software then implemented by Monarch through MTA Studio®, according to the specific operational needs of the vehicle.

Idea is a very robust display and has an IP66 degree of protection, making it perfect for agriculture. The information coming from the various systems of the machine are displayed on a 7" TFT glued to the front glass by optical bonding. Around the TFT we find 18 high-efficiency LED indicators, whose graphics have been customized for Monarch, through a special screen printing.

### THE TRACTOR

The Monarch tractor paved the way for the digital transformation of the agricultural world thanks to intelligent technology and unprecedented safety functions, the result of an activity that involved farmers, engineers and scientists to concretely respond to the current needs of the sector. The result is a zero-emission tractor, able to operate with or without the driver. Monarch uses state-of-the-art software and hardware for this purpose, capable of both assisting the driver and replacing him completely. The safety functions are also at the top, with for example anti-roll and anti-collision systems, as well as 360° cameras that allow to use the tractor even at night. The tractor is able to collect and analyze over 240 GB of crop data which, once processed, can provide real-time information to improve some activities and in the long run to understand the health of the soil. Finally, via smartphone or tablet, the user can receive alerts, climate updates, crop reports, and much more.

### 拖拉机

感谢农民、工程师和科学家的共同努力，这款 Monarch 拖拉机针对农业应用的痛点需求，以智能技术和前所未有的安全功能为农业领域的数字化转型铺平了道路。这款拖拉机不仅零排放，且无论有没有驾驶员，都能进行操作。为此，Monarch 使用了最先进的软件和硬件，既能协助驾驶员，又能完全取代驾驶员。此外，这款拖拉机还具备卓越的安全功能，例如防侧倾和防撞系统，以及 360 度全景摄像头以支持夜间使用。这款拖拉机能够收集和分析超过 240 GB 的农作物数据，经过处理后能够提供实时信息来优化农业活动，从长远来看，还有助于了解土壤的健康状况。最后，用户可以通过智能手机或平板电脑接收警报、气候更新、农作物报告等各种信息。



## A trusted friend in the field 田野间值得信赖的好帮手



New Holland's latest generation of tractors for the NAFTA market feature a 12" onboard data display made by MTA.

These sophisticated agriculture vehicles are distinguished by an advanced package called PLM – Precision Land Management intelligence, developed by New Holland for precision farming. It is characterized by features ranging from advanced connectivity between operators, vehicles and dealers, to customizable controls, improved visibility and comfort.

The MTA display, called IntelliView 12, integrates seamlessly with PLM precision farming solutions allowing the operator to stay connected at all times, customize screens according to the job at hand, and have machine parameters all under control and clearly visible.

IntelliView is a 12" touch display with a modern design, sleek lines reminiscent of car dashboards and an intuitive tablet-style user interface. Even in bright light, the readability of the screen is proven to be very high, thanks to treatments such as optical bonding and anti-fingerprint coating and the wide viewing angle. The display also features 4 inputs that can be connected to cameras, again with a view to ensuring maximum visibility for the operator.

New Holland 面向北美自由贸易区 (NAFTA) 市场推出的最新一代拖拉机配备了由 MTA 生产的 12 英寸车载数据显示器。

这类农用车非常先进，其一大特色是配有先进的软件包，即由 New Holland 专为精准农业作业而开发的“精细土地管理 (PLM) 智能”。它的特点包括可在操作员、车辆与经销商之间实现先进的连接功能，控制功能可以定制，可视性和舒适性更高等。

MTA 的这款显示器 IntelliView 12 可与 PLM 精准农业解决方案无缝集成，使操作员能够随时保持连接、根据手头的工作定制屏幕、并使机器参数全部处于受控状态且清晰可见。

IntelliView 是一款 12 英寸触摸显示器，设计新颖，线条流畅，让人联想到汽车仪表盘，用户界面采用了直观的平板电脑风格。即使在强光下，屏幕的可读性也非常高，这要归功于光学贴合技术、防指纹涂层以及宽广的视角。此外，该显示器还具有 4 个可以连接摄像头的输入端，同样是为了确保为操作员提供最大的可视性。



## TOTAL CUSTOMIZATION

The basic software we have developed for the display is on the Android platform, which allows the development of very advanced graphics including 3D maps, then implemented by New Holland with specific applications for individual machines. The display is also totally customizable according to the given job or operator.

## 完全定制化

我们基于 Android 平台（借助该平台，可以开发包括 3D 地图在内的非常先进的图形）为显示器开发了基本软件，然后由 New Holland 与特定应用程序一同应用于具体机器。显示器也可以根据给定的作业或操作员完全自定义。



© Copyright CNH

In the standard operating configuration, for example, the screen is divided into four main areas:

- The top bar allows the operator to access tractor and operation settings.
- The run screens are located on the bottom bar and are customizable and always accessible.
- The main part of the screen is composed of the user-selected run screens, which show key parameters related to the task at hand.
- The left-hand side is another user definable window, which contains primary operating parameters such as fuel rate and slip.

The IntelliView 12 display is also available on the T8 Genesis tractor in Europe, launched in 2019 to the public during Agritechnica, the International Trade Fair for the Agricultural Industry in Hannover.

以标准操作配置为例，屏幕被分为四个主要区域：

- 最上面一栏便于操作员访问拖拉机和操作设置。
- 运行屏幕位于最下面一栏，支持自定义并可随时访问。
- 屏幕的主要部分由用户选择的运行屏幕组成，显示与手头任务相关的关键参数。
- 左侧是另一个用户可定义的窗口，其中包含主要的操作参数，如燃油率和滑移量等。

此外，IntelliView 12 显示器已应用于面向欧洲市场的 T8 Genesis 拖拉机，该系列拖拉机已于 2019 年在汉诺威国际农机展期间推向市场。



## A reliable product for tough conditions 适用于恶劣环境的可靠产品

Atul Auto Limited is one of the leading manufacturers of three-wheelers, with over 1 million vehicles produced since the company was founded 30 years ago in India.

The range offered covers all possible types of fuel (petrol, diesel, LPG, GNG and electric) and stands out for its high solidity, reliability and quality-price ration. For its models GEM, GEMINI, SHAKTI and RIK, Atul has chosen to place both in the engine compartment and in the passenger compartment, our fuse boxes that house 18 MiniVal fuses and 4 Micro Relays and are waterproof, therefore suitable for these three-wheel vehicles utilised in dusty and muddy environments. The fuse holders are supplied to Atul directly from our site in India where they are manufactured.

The Pune plant is IATF 16949 and ISO 14001:2015 certified and boasts important collaborations with local and foreign car makers who have several production plants in this area.

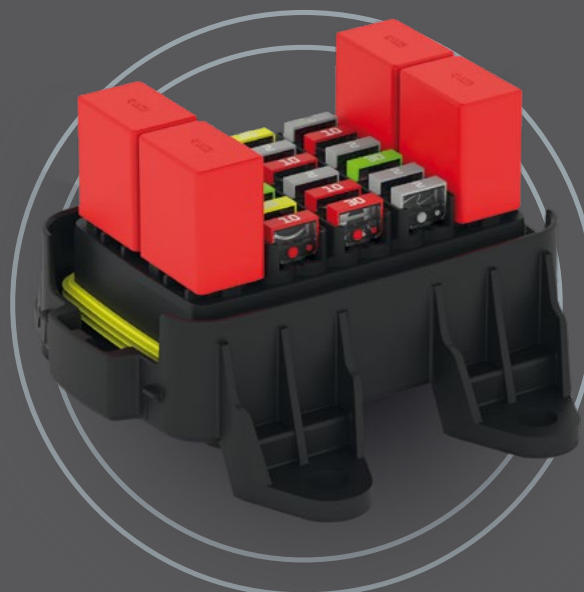
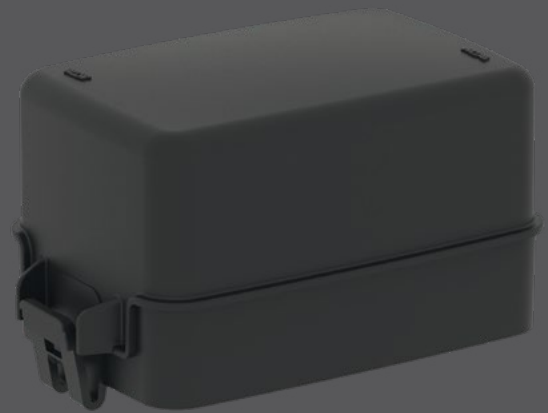
Atul Auto Limited 是一家领先的三轮车制造商，自该公司 30 年前在印度成立以来，已经生产了 100 多万辆三轮车。

产品范围涵盖所有可能的燃料类型（汽油、柴油、液化石油气、压缩天然气和电力），并因坚固耐用、可靠性和性价比高在竞争中脱颖而出。对于 GEM、GEMINI、SHAKTI、RIK 等系列车型，Atul 选择在发动机舱和车厢中应用我们的保险丝盒。盒内装有 18 个 MiniVal 型保险丝和 4 个 Micro 继电器，并具有防水功能，因此适用于此类在多尘和泥泞环境中使用的三轮车。保险丝座由我们位于印度浦那的工厂生产并直接向 Atul 供应。

浦那工厂已获得 IATF 16949 和 ISO 14001: 2015 认证，并与在该地区拥有多家工厂的国内外汽车制造商建立了重要的合作关系。



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## Everything under control 一切尽在掌控

A customized version of the ECU Dyna has been supplied to the Carraro Group which will adopt it within various transmission systems designated for important OEMs in both the agricultural and earthmoving sectors.

The ECU NEX, which is the name it will be given, is going to be used to control all the electronic devices supporting the sophisticated mechanics developed by Carraro. The product, which is very compact, is suitable to be mounted even in tight spaces and is treated externally with cataphoresis to ensure maximum protection from chemical agents. Compared to the Dyna, the ECU NEX is distinguished by its high level of customization.

Speaking of hardware, we in fact made a dedicated PCB, since Carraro required more inputs (21 in total) and fewer outputs (13 in total), compared to the off-the-shelf version. There are also two CAN lines and one LIN line to allow communication between all the electronic devices in the agricultural vehicles.

On the software side, the presence of two distinct levels of boot loader together with the application software that can also be modified at different levels, make the possibility of customization even more in-depth. In this way Carraro is able to manage in full autonomy both the software and the firmware and, through our tools MTA Studio® and MTA Gate®, can therefore develop the applications and program the NEX. But there's more: the end customer can in turn update the electronic control units using their own interfaces without any constraints, not necessarily having to use our tools. All this benefits the agricultural world with great application flexibility at its disposal.

目前，公司已向 Carraro Group 提供定制版 ECU Dyna，该客户计划将其用于专为农业和土方行业重要 OEM 打造的各种传动系统。

该产品将命名为 ECU NEX，用于控制为 Carraro 开发的复杂机械装置提供支持的所有电子设备。该产品小巧紧凑，即使在狭小的空间内也能顺利安装，并且外部经过电泳法处理，能够最大限度地保护其免受化学试剂的侵蚀。与 Dyna 相比，ECU NEX 具有高度定制化的特点。

在硬件方面，我们实际上设计了一个专用 PCB，因为与现成的版本相比，Carraro 需要的输入更多（共 21 个），输出更少（共 13 个）。此外，还设计了两条 CAN 线和一条 LIN 线，用于在农用车辆的所有电子设备之间进行通信。

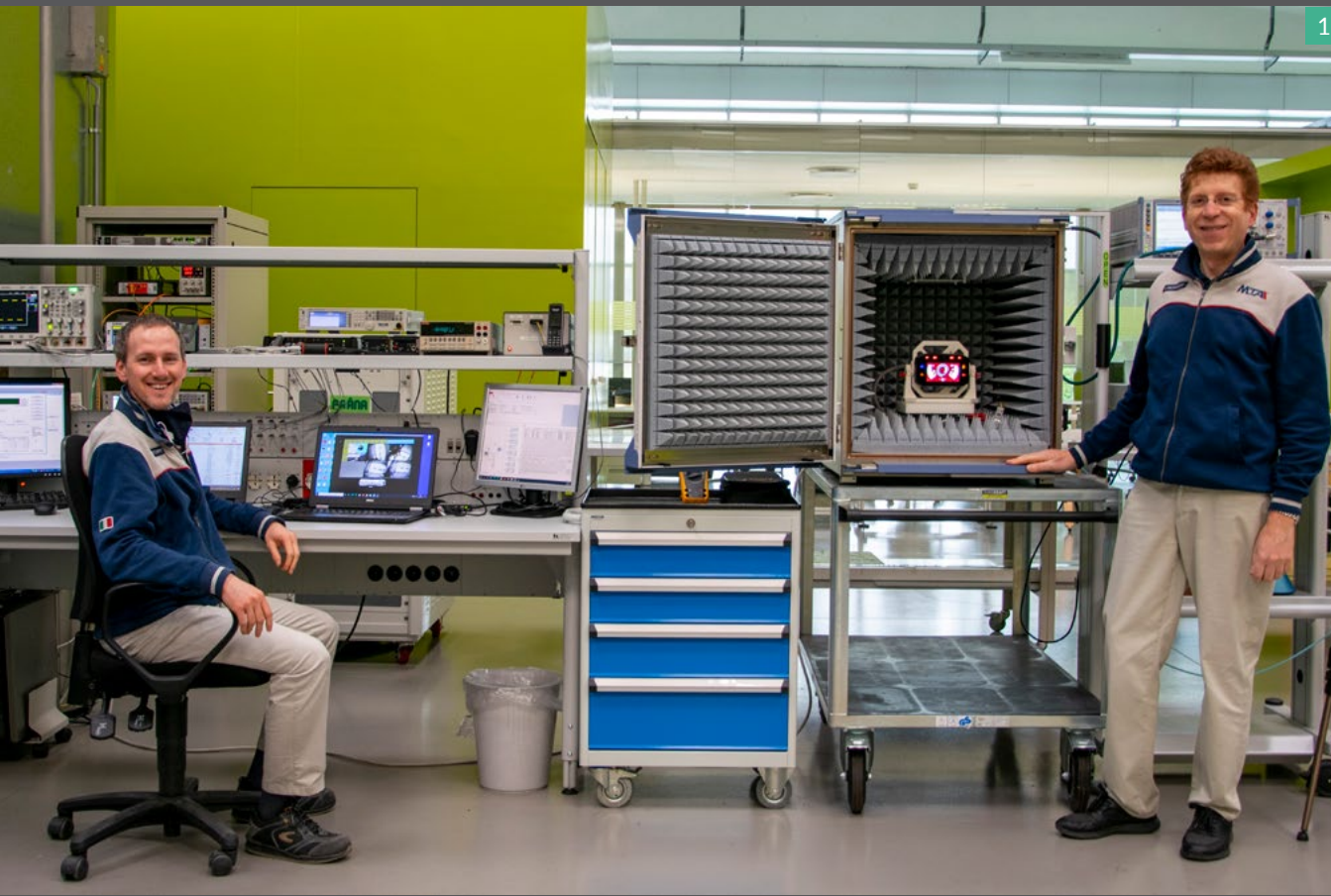
在软件方面，采用了两个不同级别的启动加载程序，加上同样可以在不同级别进行修改的应用程序软件，可实现更为深入的定制。这样一来，Carraro 就能完全自主地管理软件和固件，并借助我们的 MTA Studio® 和 MTA Gate® 工具开发应用程序及进行 NEX 编程。其他优势：最终客户可以在不受任何限制的情况下，使用自己的接口更新电子控制单元，而不必使用我们的工具。所有这些优势都为农业领域客户的应用带来极大的灵活性，使其受益匪浅。



- 21 inputs and 13 outputs
- 2 CAN lines and 1 LIN line
- Software development with MTA Studio
- 21 个输入和 13 个输出
- 2 条 CAN 线和 1 条 LIN 线
- 使用 MTA Studio 进行软件开发







1



2



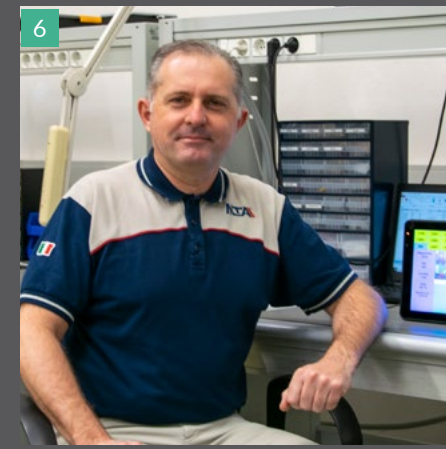
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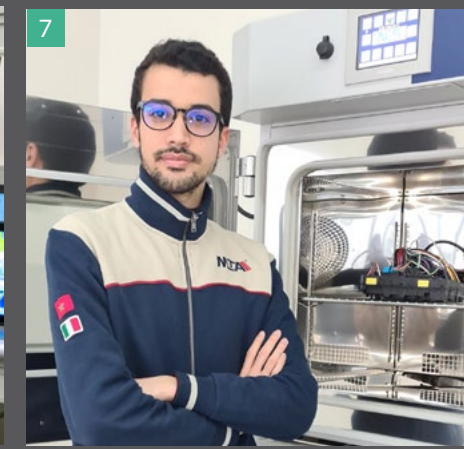
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5



6



7

# MTA LABORATORY TEAMS AROUND THE WORLD



8

1 Paolo and Valter, Electronic Laboratory, Codogno, Italy.

4 Alessandro, Electronic Laboratory, Codogno, Italy.

7 Mohammed, Electrical Laboratory, Kenitra, Morocco.

2 Matteo, Electrical Laboratory, Codogno, Italy.

5 Domenico, Electrical Laboratory, Codogno, Italy.

8 Laboratory team, Bánovce nad Bebravou, Slovakia.

3 Qin, Electrical Laboratory, Shanghai, China.

6 Ivan, Electronic Laboratory, Codogno, Italy.

