

# DRAB POL<sup>®</sup>

## AUTOMOTIVE NEWS

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Quarterly Newsletter no 1(82) January – February – March 2019

### Comprehensive and professional technical integration

Services offered by the Research & Development  
Department



„The fundamental principle of transportation is its safety”

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Mix Telematic systems  
are essential to  
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We print  
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Services offered by  
the Research  
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Department



Tires for construction  
and container handling  
18| machines under  
professional care.

## FROM THE EDITOR

### Ladies and Gentlemen! Dear Readers!

We give into your hands our first edition this year and in the new version. With growing amount of topics both in automotive and avionics department, we decided to split our quarterly newsletter into two separate parts.

The first one relates to Automotive market matters. The second, completely independent part will be devoted to our activity on the Aviation market. We hope that our Readers will like the new formula.

Thanks to the awards granted to us, we welcomed the New Year with a bang. Almost simultaneously, we received the title of "Gazela Biznesu" (*Business Gazelle*), awarded to small and medium enterprises and the Golden Certificate of "Solidna Firma" (*Reliable Company*). We hope that these awards will be a good sign for 2019.

At the beginning of the year, there were also some changes in our company. Aiming at improving our service processes, we have decided to distinguish two independent units from the former Development and Support Department. In this newsletter we present the scope of activities of these new departments.

Noteworthy is also our new offer regarding components produced on 3D printer. It was connected with our investment in a professional Stratasys 3D printer, 3D scanner and milling plotters. We encourage our Readers to get familiar with our new offer in this regard.

We wish you pleasant reading!

Alicja Drabczyńska



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AUTOMOTIVE NEWS

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## AMONG BUSINESS GAZELLES

Once again, our company appeared among the laureates of the national ranking of the most dynamically developing small and medium enterprises. Thus, we gained the title of „Gazela Biznesu” (Business Gazelle).

„Gazela Biznesu” (Business Gazelle) is the most popular and the oldest (organized since 2000) ranking of the most dynamically developing small and medium enterprises, aiming at the promo-

tion of small and medium entrepreneurship. In Poland the rating is performed by Puls Biznesu economic newspaper in cooperation with one of the largest business intelligence agency in Poland – Coface Polska.

In each edition of the rating the company's results are examined for the full three preceding years.

Companies that met the assumed criteria – during the last three years they recorded a constant increase in sales revenues and have not even once recorded a loss could compete for the title of Gazela Biznesu 2018.

Our company, receiving the title of „Gazela Biznesu”, recorded in 2018 over 160% increase in revenues as compared to 2017.



We are glad that we found ourselves in the group of the most dynamically developing small and medium enterprises. We also congratulate to all laureates on receiving the title of „Gazela Biznesu” (Business Gazelle) and thus a dynamic development.



## THE GOLDEN CERTIFICATE

### of „SOLIDNA FIRMA” (RELIABLE COMPANY)



For the fifth time, our company was one of the laureates of the „Solidna Firma” (Reliable Company) Economic and Consumer Program. A fivefold title of „Solidna Firma” resulted in granting us a Golden Certificate. Drabpol was awarded the title of „Solidna Firma 2018” for its timely payment of all obligations and its respect for ecology and consumer rights.

For the first time, we joined the „Solidna Firma” program in 2003. The program itself is a company evaluation and verification system by experts, consumers and business partners. Our company with full awareness undergoes such verification on average every three years, to periodically confirm its credibility and reliability in

everyday operation. We would like to take this opportunity and say thank you to the Program Jury for appreciating our operations and listing our company in the so-called White List. The trust in company and its market position is nowadays built on values such as reliability, honesty and timeliness in contacts with economic partners.

The official ceremony of granting the certificates to all laureates took place on 2nd March in Warsaw. Due to the last Saturday of the carnival, this year's Gala was combined with a banquet and a carnival ball. We would like to congratulate to all those honored with the title of „Solidna Firma 2018”.

# Warehouse facility for TM4 electric motors

At the end of March, in our headquarters in Mykanów, we created a warehouse facility for the implementation of prototype projects related to TM4 electric motors.

Creation of such a quick service point resulted from the market needs of our customers from all over Europe. We have been operating in the field of electromobility for almost two years now. Knowledge and expertise we have gathered during this time have made us realize that many companies are interested in equipping their usually prototype vehicles with electric motors. These are usually 2-3 pieces, mainly for homologation purposes - with no intention of serial production.

Unfortunately, the delivery time was reaching 12 weeks, which was too long for many customers.

Thanks to enlarging the warehouse levels with TM4 electric motors, this time will be shortened to one week.

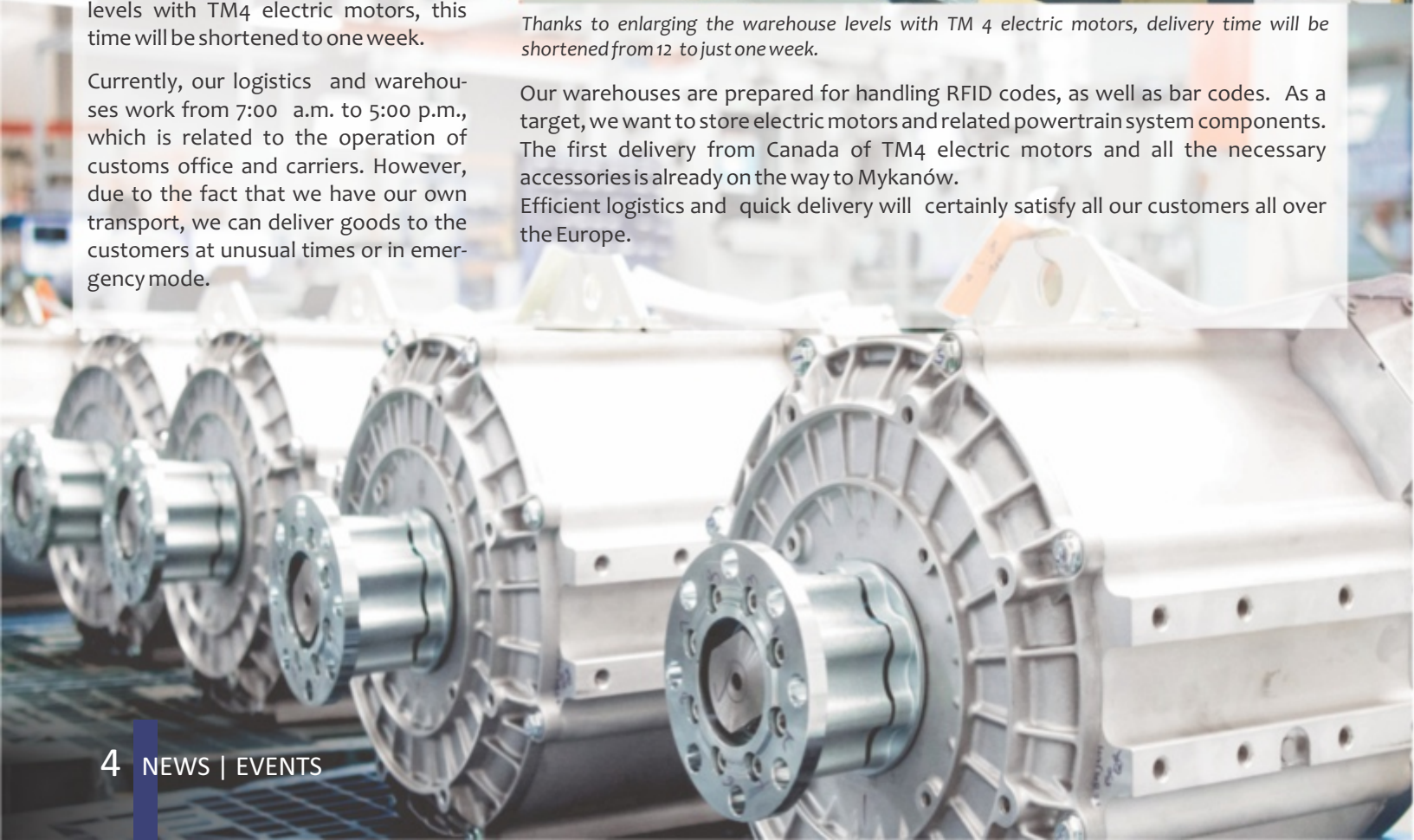
Currently, our logistics and warehouses work from 7:00 a.m. to 5:00 p.m., which is related to the operation of customs office and carriers. However, due to the fact that we have our own transport, we can deliver goods to the customers at unusual times or in emergency mode.



*Thanks to enlarging the warehouse levels with TM 4 electric motors, delivery time will be shortened from 12 to just one week.*

Our warehouses are prepared for handling RFID codes, as well as bar codes. As a target, we want to store electric motors and related powertrain system components. The first delivery from Canada of TM4 electric motors and all the necessary accessories is already on the way to Mykanów.

Efficient logistics and quick delivery will certainly satisfy all our customers all over the Europe.





The biggest fair of agricultural techniques in Central and Eastern Europe – Agrotech in Kielce

15-17 March

# With a visit to **AGROTECH**

Every year, in mid March we go to Kielce for the International Fair of Agricultural Techniques -AGROTECH – the biggest branch event in this part of Europe.

This year's edition gathered the leaders of this market – the exhibitor were, among others, such companies as Case IH, New Holland, John Deere, Farmtrac or UrsusDystrybcuja. The fair was an opportunity for us to meet with our clients that came to the fair as exhibitors.

We were pleased to be a guest at the stand of our largest customer in the agricultural industry - Farmtrac Tractors Europe - a manufacturer of agricultural tractors.

We would like to emphasize that Farmtrac company has presented ten tractors – all of them with the newest technology. Seven of them have been equipped with FlexCluster – our proven solution, successfully used in Farmtrac tractors for several years.

FlexCluster was programmed strictly according to Farmtrac's needs by our constructors from the Research & Development Department. Thanks to this, the graphics on the luster show the company's logo, personalized icons, barographs, and additionally the client can make adjustments that are important to him.

This solution has been applied not only in Farmtrac tractors.

It was also successfully implemented in Ursus tractors that were delivered to the end-customer last year. We want to emphasize that this year's edition was a jubilee event. Agrotech trade fair

was celebrating its 25th anniversary. We would like to congratulate on the round anniversary and we wish further development.

*FlexCluster in seven (out of ten) Farmtrack tractor units.*



# All you need to know about DTCO 4.0

An annual meeting of tachograph dealers, including our company, took place at the Continental headquarters in Villingen in March.

The meeting was entirely devoted to the new DTCO 4.0 tachograph, the so-called intelligent tachograph.

During the meeting there were discussed many important topics related to the introduction of a new tachograph, e.g. different workshop card for workshop technicians or a method of source files transmission.

After precise familiarization with the production line and production plans, we can safely say that both our company and the majority of authorized service stations are/or will be on time ready to service the latest type of digital tachographs – both in terms of theoretical knowledge, as well as hardware equipment.

By utilizing the only service device that is compatible with the new tachograph, which is VDO WorkshopTab, service stations equipped with it can support both VDO, Stone-Ridge and Efas (Intellic) tachographs.

For our part, we have already started a series of regular trainings for all service centers that are interested in intelligent tachograph issues.

We participated in the conference to extend our knowledge, that we will share with authorized tachograph service centers in Poland.



## Review of Trainings – 1st Quarter 2019

### 7th February

Training on Road Speed Limiters for Mercedes – Benz Polska Sp. z o.o. The training, that took place at our headquarters in Mykanów, is a continuation of trainings dedicated to Mercedes-Benz services from all over Poland.

### 1st March

Training on the operation of the digital tachograph for Dąbrowskie Wodociągi Sp. z o.o. (*Waterworks in Dąbrowa Górnicza*) conducted at our training center in Mykanów.

### 5th March

Training on a new DTCO 4.0 digital

tachograph for our authorized service centers. The training was carried out at our headquarters in Warszawa.

### 20th March

Another training for our service partners in the field of DTCO 4.0 digital tachograph – this time in Mykanów.

# Objective witness in AMZ ambulances

Last year, AMZ Kutno, a manufacturer of special car body for commercial vehicles, installed four UDS-AT accident data recorders in ambulances. Ten more installations of these devices are planned for this year.

AMZ Kutno specializes in designing and manufacturing of special car bodies for commercial vehicles: ambulances, bank armored vehicles, mini buses, special vehicles for uniformed services, as well as military vehicles.

One of the first products of the company were special car bodies for ambulances - military and civilian, both on the Polish and foreign markets.

Our recorders have been installed in ambulances intended for the German market.

It is worth to emphasise that this is another ambulance in which this solu-

tion has been used over the years. Our western neighbor equips emergency vehicles, such as police cars, firefighting engines and ambulances with recorders of this type. The benefits of such an objective witness of a road accident are measurable. UDS, commonly known as a black box, ensures that the data of the last 45 sec. are stored – 30 sec. before and 15 sec. after the accident, so it is safe to say that it is an objective witness of traffic incidents.

In many cases, after the traffic incident there are no objective witnesses – it is one person's word against another's also the sequence of the following events while collision is not obvious. Sometimes it is also the case whether the blinker was on or not.

Data from UDS-AT data recorder can prove the sequence of events in a neutral and detailed way.

Also, accident analysts can use data coming from UDS-AT for precise and detailed reconstruction of accidents. These data can support their reports in legal proceedings. In addition, UDS-AT improves passive safety since the driver's behavior is more prudent and he/she simply drives more carefully.

We held a training for AMZ Kutno employees in the field of recorders installation on the company's production line in Kutno. The data recorders are then configured using the source software held by our technical department.





50 vehicles with the Linde Gaz logo  
with the FM 3506 system

# Mix Telematic systems are essential to Linde Gaz

The circle of users of telematics systems (MiX Telematics) has been joined by the next global company. Linde Gaz, since this is a company we are talking about, represents the industry, in which the MiX Telematic system has been operating successfully for many years – that is ADR transport.

The contract with Linde Gaz covers the entire European network of this company. In Poland, the choice was on FM 3606 devices along with the RIBAS driving simulator and the system that monitors work of the driver - Mix Vision.

The task set before our system is primarily to define the driving style, and then to carry out tasks that help improve the driving technique. The use of the system is mainly aimed at increasing operational safety, as well as reducing the number and consequences of road accidents.

Certainly our systems will help achieve assumed goals. Ribas allows for a kind of education of the driver, informing him/her each time about exceeding the vehicle



speed thresholds set by the employer, engine speed, any sudden braking and acceleration, or too long idling.

In case of any above mentioned exceeds, the driver is informed by light and sound signal about approaching the threshold or exceeding the limit values, and the employer gets a full report concerning time and place of occurrence of these violations. Having such report, with a properly crated motivation system, we can significantly improve the driver's driving style making it more safe and cost-effective one.

Our experience related to the use by other clients allows us to conclude that the system contributes to the reduction of accidents by over 20%.

Mix Vision, on the other hand, provides a streaming video of the space in front of the vehicle and in the driver's cabin in critical situations, such as sudden braking, allowing them to be played back when the event occurs. In the event of its occurrence, the system initiates the automatic transmission of two films - one of them shows the driver and the other the road. The fleet manager can see these movies on-line and information about the journey and events on the map or timeline. There is also the







option to request video clips in high resolution recorded in the last 72 hours in which the vehicle was on its way. The events are configurable, you can choose from many possibilities and they can include everything starting from violent events like braking, through accidents to open doors.

We are glad that such a global corporation, that has strict requirements regarding both procedures and security, after a thorough analysis of the market offer, has trusted our company, which is a partner of MiX Telematics since 2007.

Currently, on Polish roads there are nearly 50 vehicles signed with Linde Gaz logo that are equipped with FM 3606 system.

From current reports and regular contact with our Customer, we can confirm that the systems work perfectly and meet the expectations of users.

## Our telematics solutions in Linde Gaz vehicles



## Our solutions on Sanok buses



# Cooperation with AUTOSAN company



We have been cooperating with AUTOSAN, the leading Polish bus manufacturer, nearly from the first years of our activity. This cooperation continues to be fruitful and now we are one of the leading providers of the solutions for buses manufactured in Sanok.

Over the years we have completed many projects. The last one – designed by Autosan constructors and our engineers from Research & Development Department – was widely described in our previous publication. Let us recall that it was a kit combining hardware and software, which allows to replace the standard FAP/ Moki clusters with MultiViu Professional display (MVP) on a Plug & Play basis. As a result in a new Autosan electric bus, the current MOKI dashboard has been replaced with the above-mentioned MVP.

For many years, we have also been a provider of solutions for intercity buses designed for intercity and suburban traffic as well as for specialized tasks. For these buses, as a standard equipment, we provide the proven KIBES 32 on-board electronics system along with the ZR 32A a computer and MUX2B multiplexer and driver's workplace with MOKI 3 dashboard.

The latest novelty in these buses are USB chargers for mobile devices, which were included in the standard equipment. All passengers traveling by public transport appreciate this solution.

We would like to emphasize that constructors from Autosan have designed wall outlets with an internal power supply line and a socket cover to supply USB chargers. Each seat has a guaranteed 5V charging.

The assembly of USB chargers on the wall is a very convenient solution in intercity buses, where each passenger has its own seat. In other buses, for example, urban ones, the USB chargers are mounted on a 30-35 mm handrails.

Intercity buses can be also ordered with our optional equipment. This can be ConTiPressureCheck tire pressure and temperature monitoring system, informing the driver about the status of these parameters on the vehicle's dashboard; digital

*The standard equipment of Intercity buses are wall charging points with an internal power supply line.*



## LATESTS NEWS – 1<sup>st</sup> Quarter of 2019



One of options includes installation of a tire pressure and temperature monitoring system, ContiPressu-reCheck, thanks to which information on the status of these parameters is displayed on the vehicle's dashboard.

tachograph rel.3.0., ProViu ASL 360 camera system or Alcolock V3 alcohol interlock. We would like to say thank you to Autosan company for many years of cooperation - we are waiting for new, joint projects and we wish you further successes!

- ▶ Eight Autosan buses equipped with our FAP+ driver's workplaces went to PGK w Brodnicy (*Brodnica transit company*).
- ▶ Seventy USB chargers have been installed in SOLARIS articulated trolley-buses for PKT Gdynia (*trolleybus communication company in Gdynia*).
- ▶ The fleet of Urząd Miasta w Kościerzynie (*City Hall in Kościerzyn*) has been reinforced with five low-entry buses (9,5 LE ISUZU Citibus) equipped CPC system and twenty USB chargers (4 items per bus). The buses were supplied by BUSIMPORT company, an authorized importer of Isuzu buses in Poland.
- ▶ Three Solaris buses for ZKM Lębork (*Lębork transit company*) have been equipped with three CPC sets and six USB chargers (2 items per bus).
- ▶ MZK Zielona Góra (*Zielona Góra transit company*) has reinforced its fleet with another seven URSUS buses – each of them is equipped with our FAP+ driver's workplace, CPC system and four USB chargers (in total 28 items of USB chargers).
- ▶ Three CPC systems and 12 USB chargers have been installed in three Solaris buses for MPK Oświecim (*Oświecim transit company*).
- ▶ MZK Stargard (*Stargard transit company*) bought eight Solaris buses with CPC systems.
- ▶ Twenty-four ISUZU buses for MPK Łódź (*Łódź transit company*) have been equipped with CPC systems and USB chargers (1 item per vehicle).
- ▶ Miejska Komunikacja Samochodowa w Krośnie (*Krosno transit company*) has equipped its fleet with eight Autosan buses with our driver's workplace (FAP+) and USB chargers (2 items per bus).
- ▶ Twenty-three MAN buses, that reinforced the fleet of MZK Opole (*Opole transit company*) have been equipped with CPC systems and USB chargers (138 items – 6 per bus).

## Services offered by the Research & Development Department

# Comprehensive and professional technical integration

As from 1 January 2019, we divided our Development & Support Department into two separate units. The main purpose of the change was separation of works connected with development from the support services offered to the OEM market customers.

Thus, we created an independent Research & Development Department, whose role we would like to present. The second unit – Support Department remains a part of the OEM Distribution Department.

### Research&Development Department

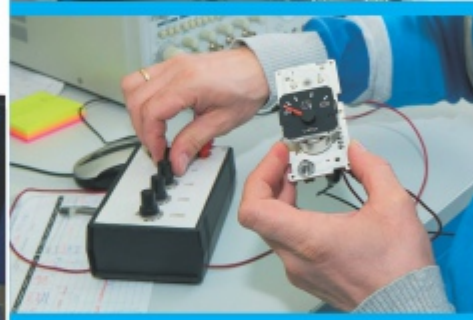
At present, the autonomous Research & Development Department is responsible for works in the field of low and high voltage solutions, as well as for partial solutions concerning vehicle autonomy.

The department consists of engineers specializing in electronics, IT, robotics and mechanics, who have completed specialist commercial and technical training courses. The team also involves graphic designers and technicians providing service background.

### Main tasks of the R&D Department:

- Development of information visualizations necessary for the drivers, operators and engine drivers, on the displays (measurement of: vehicle, engine, additional equipment).
- Creation of firmware.
- Solving problems related to programming of hardware or displays.
- Designing and implementation of electrical wire harness - based on CAN solutions.
- Adaptation of ready software.
- Production of interfaces and controllers.
- Supporting of design, technology and engineering offices, IT departments of external companies as well as our Support for OEM.

The scope of services performed by R&D Department is very wide. It covers production, repairs, creation of software, trainings, granting permissions, consultancy as well as design consultancy and services.



### PRODUCTION

R&D Department produces devices for its own projects, tailored to the specific clients needs (so called „tailor-made solutions”), as well as specific products



for research – from creation of electrical wire harness, electronic boards, interfaces, controllers, PDUs. Another innovation is manufacturing products on a 3D printer and milling of materials. (more on this subject can be found on page 15).

## **SOFTWARE**

One of the main activities of this department is creation of software in the field of low and high voltage solutions. We develop such software by ourselves, on behalf of or together with the construction departments of our clients.

## **DESIGN SERVICES**

One of the Department's main tasks is to develop a design of dedicated information that can be shown on the 4", 7", 10" and 12.3" displays. In order to meet specific requirements of the OEM contractor, including personalization, corresponding to the OEM brand or dedicated purpose of the display, we can make the whole programming in different languages.



### **From our side we offer:**

- development of an individual design of board pattern,
- finding, together with the vehicle designer, a solution that would be the best and most convergent for the vehicle manufacturer
- reliability and legibility of information,
- compliance with quality standards – we validate our software on the basis of international quality standards as well as our own strict standards that we have developed over the years.

Our developments have been used, among others, by companies such as: Autobox, Ursus Bus, Autosan, Farmtrak, Banke Electromotive, AMZ.

## **REPAIRS**

In cooperation with our service, we repair heads of supplied devices, air conditioning units for rail vehicles – in a comprehensive range of services, FAP drivers' workplaces, displays and components of vehicle electronics.

We guarantee high quality services due to the access to the manufacturers' documentation, specialized testing equipment (built by our own), possible simulation the device's operating environment, use of high quality tools and access to original spares.



## TRAININGS:

Engineers from our R&D Department are willing to share with our clients their knowledge supported by numerous trainings and extensive work experience.

They often lead trainings for the constructors, designers, IT specialists, service technicians and end users.

## HV INTEGRATION (e-mobility)

The scope of works offered by R&D Department covers also integration of powertrain systems.

We base on components of our partner – TM4 company (Dana), such as: electric motors, inverters, controllers and the management software. Both the devices and software have been created to optimally use the potential of each device separately, as well as the entire system. Thanks to the full range of products adapted to different sizes of commercial vehicle we can meet expectations of even the most demanding customers – by offering them dedicated solutions with the most efficient return on investment (ROI).

Since TM4 company (Dana) does not provide the full range of power electronics for vehicles, we choose the missing elements from the offer of known and proven suppliers. Such equipment reaches our offer only after receiving the R&D Department's quality mark.

The key issue here is a software based on Matlab and Simulink environment, used in developments of the largest global manufacturers in the automotive industry.

Another addition to these base elements is the Synapps system overlay, that is a TM4 proprietary project.

The whole is complemented by a set of program libraries suited to different vehicles and levels of programming knowledge of the manufacturer.

## CONSULTANCY

Thanks to our presence on the automotive market for over 36 years as well as specialization in the field of electro-electronic-mechatronic and programming elements, we offer tailor-made solutions,

based on an in-depth analysis of the contractor's parameters. We provide the customer with technical and technological assistance as well as evaluation of the project, including fitting the best solution within the given budget, or we advise against taking actions.

**The above services would not be possible without a proper technical background. We are able to conduct our own tests, among others, on a vibration simulator or in a climatic chamber, which gives the client a guarantee of a well-made service. Moreover, we have a showroom - starting from electric wire harness, through the interfaces, to print outs of various products from our 3D printer.**

## For vehicles working in all conditions

# We print on 3D printer

We are pleased to inform our customers that for our own needs, as well as responding to our customers' demands, we launched production of components on the Stratasys 3D printer (Fortus 450 type).

The printer has a workspace of 406 x 355 x 406 mm, which allows us to make large elements. If it is necessary to print elements larger than the workspace, we can print them “in parts” and then combine them using various techniques - from gluing or welding, to separable connections (screw, latch or lock).

We have a full material license for all types of printouts that we make of certified thermoplastic materials that met the applicable standards for aviation and electronic industry as well as for medical applications or intended for contact with food and food products.

Providing services to customers from avionics, automotive and railway market, for printouts we use the following materials:

- **standard ABS material** in different colors,
- **ABS-ESD7** characterized by low static electricity required for applications in electrical and electronic industry,
- **ASA for exterior applications** (increased resistance to UV radiation)
- **nylon 12 and nylon 12CF** reinforced with carbon fiber, intended for load-bearing components,

as well as where fatigue strength is required,

- **ULTEM 9085 and 9085CG** with high strength, and non-inflammability, for automotive, avionics and railway applications. This material is used by the leading aviation manufacturers - Boeing and Airbus companies.

We provide comprehensive printing services – from the implementation of a 3D model of a given device in a specialized design software, to final printing, combining of printed elements, and finishing surface treatment of the product (if required by the customer).

In order to provide our customers with faster service, within reverse engineering, we have invested in 3D optic scanner, thanks to which we are able to “map” even complex geometry (e.g. engine bay, a given compartment, or component of a vehicle or aircraft cabin).

We can print both individual components as well as entire series.

Moreover, we have CNC milling plotters with a workspace of 1000 x 700 and 700 x 500 mm. Thanks to them we can mill/cut in various materials, such as: aluminum alloy metal sheets (dural), epoxy-glass composite materials, plywood, foil, etc.



Mock-ups of the ATG articulations system, TM4 electric motor and L3 surveillance system, printed on a 3D printer for our internal use.

Our offer in this field is dedicated to vehicles operating in all conditions – on roads, on rails, underground, on water, as well as on aircraft. It is targeted mainly at our customers from the OEM market as well as research and development institutions and those developing projects.

This is not a large-series production, but a support for jointly developed prototypes or low-volume preproduction.



Scanning of the housing of helicopter instrument panel, thanks to this we get 3D geometry.

# SERVICE CENTERS NETWORK



We're getting close to 15th June 2019 when DTCO 4.0 smart digital tachograph will be officially required by law.

This tachograph entails many novelties that we have already written about.

This is also a real challenge for all tachograph service stations that will provide service to this device.

First vehicles equipped with a new DTCO 4.0 digital tachograph came up at vehicle dealers in March. Such situation, however, causes difficulties. Both, in case of vehicle sellers and service stations that, even if they want, cannot provide their clients with the proper service enabling vehicle release.

## There are several reasons:

**1. Workshop cards** – smart tachographs require a new type of workshop cards, that are still being issued by PWPW SA (the State Securities Printing House). The expected starting date for issuing cards is mid-April.

**2. Service equipment** – for the support of the newest Continental DTCO 4.0, and interestingly also Stoneridge smart tachographs so far, the only ready-made service tool is WorkshopTab 4.0 from Continental VDO. At present only 15% of tachograph service stations in Poland are equipped with the above mentioned tools. A positive aspect is that their number is still growing.

In Poland, we have already established a total of 244 authorized service stations, including 140 providing services in the field of tachographs, 68 - tire pressure and temperature monitoring systems, 30 - air conditioners and refrigeration units, and 6 - alcohol interlocks.





**A series of technical and legal trainings on intelligent DTCO 4.0 tachograph has been launched**



## The first tachograph service stations already with comprehensive knowledge about **DTCO 4.0**



Below we present a list of service stations that have taken part in the first edition of our trainings and have a working knowledge of DTCO 4.0 tachograph:

**3. Technical and legal knowledge** – many can compare the change of an existing digital tachograph to the smart tachograph with the change that took place during the transition from analogue to digital tachographs. Maybe it is a slight exaggeration, but one can say that this is the biggest technical and legal revolution in 13 years. That is why our company has started technical and legal trainings for all tachograph service stations in Poland that want to learn.

The first few trainings took place in mid-March at our headquarters in Warsaw and Mykanów. Trainings, having the character of training workshops, apart from theory, involved presentation of the entire smart tachograph system from Continental VDO, as well as a new WorkshopTab 4.0 service equipment.

No.	Company	City	Zip code	Address
1	Zakład Elektromechaniki Pojazdowej Tadeusz Kujawa	Barcin	88-190	ul. Lipowa 1
2	Mechanika Precyzyjna Czeszel Sp. z o.o.	Białystok	15-620	ul. Elewatorska 29
3	TACH-POL & INTER-CAR Janusz Lachowski	Jelcz-Laskowice	55-220	ul. Techników 33
4	AGRO-STAR Tadeusz Nogaj Sp. z o.o. Sp. k.	Kalisz	62-800	ul. Owsiana
5	MECHANIKA PRECYZYJNA TACHOGRAFY SERWIS	Legnica	59-220	ul. Złotoryjska 178-184
6	INTERMAN 2000 Sp. z o.o. Sławomir Bąk	Łódź	92-517	ul. Gorkiego 89/59
7	SERWIS 2B Krzysztof Jakubiec	Mikołów	43-190	ul. Wieczorka 10
8	Zakład Usług Wielobranżowych BOGAMET Mieczkowska Bogumiła ZPCh	Nak. Trzeciewnica	89-100	ul. Powstańców Wlkp. 13
9	Mikrotronik Piotr Czarnecki Małgorzata Czarnecka Sp. Jawna	Olsztyn	10-450	Al. Piłsudskiego 76
10	OMEGA TRUCK CENTER Sp. z o.o.	Pilzno	39-220	ul. Kraszewskiego 44
11	AUTOSAN Sp. z o.o.	Sanok	38-500	ul. K. Lipińskiego 109
12	Autoryzowany Serwis IVECO LIPIŃSKI Joltex Mariola Lipińska	Sierpc	09-200	ul. Kościuszki 4a
13	Stacja Diagnostyczna "SAM" s.c. Stanisław, Artur, Piotr Maciołek	Tarnów	33-101	Ul. Zbylitowska 76
14	Mercedes- Benz Warszawa Sp. z o.o.	Warszawa	02-460	ul. Gottlieba Daimlera 1
15	P.P.H.U. TACHOTRONIC Paweł Lubieniec	Zielona Góra	65-705	ul Naftowa 1

Tires for construction and container handling machines under professional care.

# CPC SYSTEM - HEAVY WEIGHT

Over five years have passed since we started installing ContiPressureCheck (tire pressure and temperature monitoring system) in various types of vehicles in Poland. Such solutions have been applied in a wide range of construction equipment - wheel loaders, articulated haulers, rigid frame trucks and container handling machines such as reach stackers, straddle carriers, empty container handlers and etc., that work in sea and land intermodal terminals.

Industrial tires used in these types of vehicles are already heavy. This applies not only to the large size of tires, but above all to their high price.

In comparison – a tire for a car costs 400 PLN, for a truck a tire costs 1500 PLN, whereas the prices of industrial tires range from 5,000 PLN to even over 40,000 PLN per one piece.

ContiPressureCheck is a system of a direct tire pressure and temperature measurement, that continuously monitors pressures and temperatures in each tire, and alerts if the estimated limit values have been exceeded.

A sensor installed inside the tire sends information to the electrical central unit (ECU). This module processes data, records warnings, and sends them on to a display in the cab. Thanks to this, the driver-operator can immediately take corrective actions and prevent tire damage. A sensor glued to the inner surface of the tire gives the accurate information on tire pressure and temperature values and protects it against damage during operation of the equipment, as well as during disassembly and assembly of the tire.

We should remember that construction equipment works in difficult conditions in a diverse terrain, most often sand-clay and stony. In particular in a quarry machine tires are exposed to mechanical damage. The right pressure protects tires from damage, as well as significantly extends the life of the tire. When it comes to the tire lifespan of construction equipment, these are working hours that count, not kilometers.



*A wheel loader with tire pressure and temperature monitoring system – ContiPressureCheck*





Reach stacker with tire pressure and temperature monitoring system - ContiPressureCheck

Our company pays particular attention to the best availability of our services in the field of system installation and maintenance. Over the past few years, we have built a network of authorized service stations, now there are 69 of them.

When it comes to construction equipment and material handling machines, the most important are service stations

providing maintenance services for industrial tires and those offering mobile services in the field of tire disassembly, assembly and maintenance.

Due to the relatively high cost of disassembly and assembly of large tires, which is necessary for sensor installation, the best moment for installation of the ContiPressureCheck system in construction equipment and material

handling machines is change of tires. At present, there are available 16 authorized service stations, located in various places in Poland. These are the most professional companies in industrial tires business, providing users of the construction equipment and material handling machines with tires, as well as vulcanizing services.



**Installation service stations and business partners in the field of installation and maintenance of ContiPressureCheck system in construction and port equipment:**

No.	Company	City	Zipcode	Address	
1	Moto Budrex Sp. z o.o.	Bydgoszcz	85-438	ul. Grunwaldzka 291	
2	Industra Sp. z o.o. O/ Gdynia	Gdynia	81-154	ul. Pucka 112	
3	PPUH POLMARK Kielce Sp.z o.o.	Kielce	41-103	ul. Kolberga 4	
4	TORUS Jeleń i Nowakowski Sp. Jawna O/ Kielce	Sitkówka-Nowiny (Kielce)	26-052	ul. Składowa 2	
5	Industra Sp. z o.o. O/ Wielkopolska	Gądki	62-023	ul. Poznańska 3	
6	TEKOM Technologia Sp. z o.o.	Jedlińsk	26-660	ul. Warszawska 31, Wsola	
7	TORUS Jeleń i Nowakowski Sp. Jawna o/Kraków	Kraków	31-670	ul. Powstańców 127	
8	BOGMAR Bogdan Mirecki	Łódź	93-610	ul. Kolumny 107	
9	P.T.S. BETRANS Sp. z o.o.	Bełchatów	97-400	Rogowiec, ul. Św. Barbary 6	
10	Magna Tyres Poland sp. z o.o.	Rudawa	32-064	ul. Krakowska 48	
11	PW Sob-Pol. Włodzimierz Sobieraj	Siemianowice Śląskie	41-103	ul. Michałkowicka 103	
12	TORUS Jeleń i Nowakowski Sp. Jawna O/Strzegom	Strzegom	58-150	ul. Armii Krajowej 39	
13	Industra Sp. z o.o. O/ Szczecin	Szczecin	70-001	Ustowo 40H	
14	Hurtownia Opon Misztal Sp. J.	Świętochłowice	41-605	ul. Chorzowska 114	
15	MADOX - Opony Przemysłowe Adam Opara	Tarnowskie Góry	42-680	ul. Zagórska 133	
16	OTRACOM Sp. z o.o.	Tarnowskie Góry	42-612	ul. Srebrna 24/1	
17	Ogumienie Przemysłowe Siemianowski Ursus	Warszawa	02-495	ul. Stanisława Bodycha 36	



Further companies have joined the network of authorized ContiPressureCheck service stations.

## New CPC authorised service stations



In recent months, the network of authorized ContiPressureCheck service stations has enlarged by another 4 facilities. Three of them belong to TORUS Jeleń i Nowakowski Sp. Jawna company, one of them to Moto Budrex Sp. z o.o.



TORUS company, operating on the Polish market since 1993, offers professional and comprehensive services in the field of tires. It provides industrial tires (both used and new ones) of the leading worldwide manufacturers. It offers tires for a wide range of vehicles, from cars and trucks, to large-size tires (OTR) for different working vehicles. Moreover it provides vulcanization services.

**The company has three divisions located in Poland. In each of them there is an authorized service station providing full range maintenance services in the field of CPC system.**

### Kraków division

ul. Powstańców 127, 31-670 Kraków  
tel. (12) 410 82 80, e-mail: [biuro@torus.com.pl](mailto:biuro@torus.com.pl)

### Kielce division

ul. Składowa 2, 26-052 Sitkówka-Nowiny  
tel. (41) 346 53 22, e-mail: [kielce@torus.com.pl](mailto:kielce@torus.com.pl)

### Strzegom division

ul. Armii Krajowej 39, 58-150 Strzegom  
tel. (74) 855 01 33, e-mail: [strzegom@torus.com.pl](mailto:strzegom@torus.com.pl)



Moto Budrex Sp. z o.o. company has been operating in the tire industry for 25 years, both in Poland and Europe. Thanks to large territory of its operations, professionally trained personnel and well equipped service stations, Moto Budrex has proven itself as a reliable partner. The headquarters of the company is located in Bydgoszcz, while the main warehouse is located in Szubin. In addition to tire sales, the company also deals with selling cars – among others, it is a dealer of Kia Motors and Hyundai Motor Polska.

An authorized service station for the CPC system was created in Bydgoszcz.

Moto Budrex also has its own service stations in Inowrocław and Włocławek. We hope that they will join our CPC network in the near future.

### Moto Budrex Sp. z o.o.

ul. Grunwaldzka 291, 85-438 Bydgoszcz  
tel. 600 026 412, 52 323 08 58.

**At this moment, the network of authorized ContiPressureCheck service stations in Poland has 69 facilities.**

# ! We install KL20 air conditioners, CPC systems and FM telematics systems in Mercedes buses

Thanks to the contract with Evobus – a manufacturer of Mercedes buses – many of our solutions have been used in the vehicles of this brand.

Our service technicians from Warsaw have equipped eleven Mercedes Conecto buses (18m) with air conditioners for driver's workplace – Konvekta KL 20. The recipient of these buses is MPK Bydgoszcz (Bydgoszcz transit company).

The installation of these devices took place in Stryków, at the Mercedes representative - EWT Auto-motive Poland. Also at EWT facility, we installed Conti-PressureCheck systems (information about pressure and temperature is displayed on the dashboard of the bus) and FM Mix Telematics systems with RIBAS driving simulator in 46 Mercedes-Benz Citaro buses (both 12 m and 18 m long).

The target recipient of these buses is Gdańskie Autobusy i Tramwaje (public transit company). The installation has been carried out by our service technicians from Mykanów and Warsaw.



Eleven Mercedes Conecto (18 m) buses have been equipped with Konvekta KL20 air conditioning units.



46 Mercedes Benz Citaro buses 12 m and 18 m have been equipped with CPC systems and FM telematics systems with RIBAS driving simulator.

### They wrote about us:

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